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DISMISS

Review

Selected Account: Organic Harvest Lab LLC
Your application has been filed with the Alabama Medical Cannabis Commission.
Your reference code is 1632.
File Date : 03/24/2023 12:38 PM
Your transaction ID is : 89081754
Transaction Token: aff268c0-61e3-49b2-b327-1aa3281c9ba6
If you do not receive email notifications, please check your spam folder.
You must print or save this page as a PDF as part of your redacted filing.

Request for Business Application Information

Request Number: 0240

General Applicant Information

Applicant Name: Organic Harvest Lab LLC
Applying as: Business Entity
Trade Name (DBAs):
Identification Number Type: FEIN
Federal Tax Identification Number: [Redacted]
Business Entity Name: Organic Harvest Lab LLC
Business Entity Type: Limited Liability Company
Secretary of State Entity ID Number: 000954790
Federal Business Code No: 325410
Date of Qualification, Organization or Incorporation: 11/30/2021

Applicant Street Address

Street: 631 20TH ST N
Unit No / Apt No:
City: BESSEMER
County: 37-Jefferson
State: Alabama
Zip Code: 35020
Address Verified?: Yes

Applicant Mailing Address

Street: 631 20TH ST N
Unit No / Apt No:
City: BESSEMER
State: Alabama
Zip Code: 35020
Address Verified?: Yes

Applicant Website:
Applicant Email Address

Ala Code § 36-12-40 (Security Exemption)

Do you have a management service agreement in place?: No

Redacted Copy

- ✓ Is the applicant: (1) at least 51% owned by (or, in the case of a corporation, 51% of the shares belong to) members of any minority group (as defined: No by 20-2A-51(b)), and (2) managed and controlled in its daily operations by members of any minority group?

Primary Contact Person

- ✓ First Name: Jason
- ✓ Last Name: Cobb
- ✓ Title: CEO
- ✓ Phone Number: [Redacted]
- ✓ [Redacted]
- ✓ Street: [Redacted]
- Unit No / Apt No:
- ✓ City: BIRMINGHAM
- ✓ State: Alabama
- ✓ Zip Code: 35201
- ✓ Address Verified?: Yes

License Information

- ✓ License Type: Processor

Facility Information

Facility Information

- ✓ Facility Type: Processing Facility

Physical Address

- ✓ Street: 631 20TH ST N
- Unit No / Apt No:
- ✓ City: BESSEMER
- ✓ County: 37-Jefferson
- ✓ State: Alabama
- ✓ Zip Code: 35020
- ✓ Address Verified?: Yes

Facility Information Questions

- ✓ Applicant's interest in property : Leases/Rents where proposed facility is located
- ✓ Is this facility under construction?: No
- ✓ The number of days, if awarded a license, within which the Applicant reasonably projects it will commence operations at this facility : [Redacted]
- ✓ The number of days, if awarded a license, within which the Applicant reasonably projects it will reach full capacity at this facility : [Redacted]
- ✓ Does the applicant verify that this proposed facility will be in a permissible location, if applicable, and will maintain compliance with all State and local laws, resolutions and ordinances? [Redacted]

Ownership of Applicant

Redacted Copy

✓ Does the individual have an ownership interest in the applicant? : Yes

Individual

✓ Legal First Name: JASON

✓ Legal Middle Name : COLLINS

✓ Legal Last Name: COBB

Suffix: Ala Code § 36-12-40 (Security Exemption)

✓ Phone Number: Ala Code § 36-12-40 (Security Exemption)

✓ Email Address: Ala Code § 36-12-40 (Security Exemption)

✓ Date of Birth:

✓ Social Security Number Ala Code § 41-13-6

✓ Race/Ethnicity:

✓ Ownership Percentage of Applicant

✓ Role: Member , Manager , Director , Officer , Shareholder

Residence Address

✓ Street: 121 E HAWTHORNE RD

Unit No / Apt No:

✓ City: HOMEWOOD

✓ State: Alabama

✓ Zip Code: 35209

✓ Address Verified?: Yes

✓ Select type of record: Individual

✓ Does the individual have an ownership interest in the applicant? : Yes

Individual

✓ Legal First Name: WILLIAM

✓ Legal Middle Name : RUSTY

✓ Legal Last Name: SUTTERLIN

Suffix: Ala Code § 36-12-40 (Security Exemption)

✓ Phone Number: Ala Code § 36-12-40 (Security Exemption)

✓ Email Address: Ala Code § 36-12-40 (Security Exemption)

✓ Date of Birth:

✓ Social Security Number Ala Code § 41-13-6

✓ Race/Ethnicity:

✓ Ownership Percentage of Applicant

✓ Role: Member , Director , Officer , Shareholder

Residence Address

✓ Street: Ala Code § 36-12-40 (Security Exemption)

Unit No / Apt No:

✓ City: HOOVER

✓ State: Alabama

✓ Zip Code: 35244

✓ Address Verified?: Yes

✓ Select type of record: Individual

✓ Does the individual have an ownership interest in the applicant? : Yes

Individual

✓ Legal First Name: DAVID

✓ Legal Middle Name : FRANK

✓ Legal Last Name: HEWITT

Redacted Copy

Ala Code § 36-12-40 (Security Exemption)

- ✓ Suffix:
- ✓ Phone Number: Ala Code § 36-12-40 (Security Exemption)
- ✓ Email Address:
- ✓ Date of Birth: Ala Code § 36-12-40 (Security Exemption)
- ✓ Social Security Number: Ala Code § 41-13-6
- ✓ Race/Ethnicity:
- ✓ Ownership Percentage of Applicant
- ✓ Role: Member, Director, Officer, Shareholder

Residence Address

- ✓ Street: Ala Code § 36-12-40 (Security Exemption) Unit No / Apt No: City: GRAHAM
- ✓ State: Alabama Zip Code: 36263
- ✓ Address Verified?: Yes

Cannabis Industry Entities

- ✓ Is any individual or entity below connected to any entity that is directly or indirectly involved in the cannabis industry, including, but not limited to, the cultivation, processing, packaging, labeling, testing, transporting, or sale of cannabis or medical cannabis, either in Alabama or any other jurisdiction?
(1) an individual with an ownership interest in the applicant;
(2) the spouse, parent, or child of an individual with an ownership interest in the applicant;
(3) an entity with an ownership interest in the applicant.

- ✓ Select Individual or Entity: Individual

Individual

- ✓ Legal First Name: WILLIAM
- ✓ Legal Last Name: SUTTERLIN
- ✓ Suffix:
- ✓ Cannabis Entity Name: Ala Code § 36-12-40 (Security Exemption)
- ✓ Entity Type: Incorporated or Unincorporated Business
- ✓ Connection to Cannabis Entity: Individual
- ✓ Role in Cannabis Entity
- ✓ Percentage of ownership in cannabis entity: Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-2-

Cannabis Entity's Physical Address

Ala Code § 36-12-40 (Security Exemption)

- ✓ City: RENTON

- ✓ State: Washington Zip Code: 98057
- ✓ Address Verified?: Yes

Cannabis Entity's Primary Contact/Responsible Person

- ✓ First Name: KENT
- ✓ Last Name: HAEHL
- ✓ Title: PRESIDENT / COO

Ala Code § 36-12-40 (Security Exemption)

- ✓ Unit No / Apt No: Ala Code § 36-12-40 (Security Exemption) City: RENTON State: Washington
- ✓ Zip Code: 98057 Address Verified?: Yes

Questions and Attestations

Redacted Copy

Has the applicant, any ownership entity, or any cannabis entity connected to any individual or entity with an ownership interest in the applicant ever applied for or been granted any commercial license or certificate (not related to cannabis industry) issued by a licensing board or commission, either in Alabama or any other jurisdiction? : NO

Was any commercial license or certificate disclosed above denied, restricted, suspended, revoked, or non-renewed?: NO

Has the applicant, any ownership entity, or any cannabis entity connected to any individual or entity with an ownership interest in the applicant, ever been authorized to participate in the cannabis or medical cannabis industry, licensed (i.e., a "licensee" as defined in Chapter 1 of the AMCC Rules), or provided similar status in any other jurisdiction? : YES

Select One: Related Cannabis Entity Name: [Redacted]

Licensing Board or Commission: ARIZONA DEPARTMENT OF HEALTH - AZDHS License Issued Date: 08/07/2022 License Expiration Date: 08/07/2024

Select One: Related Cannabis Entity Name: [Redacted]

Licensing Board or Commission: ARIZONA DEPARTMENT OF HEALTH SERVICES License Issued Date: 08/07/2022 License Expiration Date: 08/07/2024

During the last 5 years has there been any disciplinary measures taken regarding any cannabis or medical cannabis industry license of the applicant or any entity affiliated with the applicant? : NO

Has the applicant, any ownership entity, or any cannabis entity connected to any individual or entity with an ownership interest in the applicant, within the last ten (10) years, filed or been served with a complaint or other notice by any governmental body, regarding a delinquency in the payment of, or a dispute over the filings concerning the payment of, any tax required under federal, state, or local law? : NO

Has the applicant filed, or had filed against it, any proceeding for bankruptcy within the past 7 years?: NO

Is the applicant currently, or has it been in the past 10 years, a defendant in litigation involving any of its business practices?: NO

Is any public official of any unit of government: (1) an owner (directly or indirectly) of any financial or beneficial interest in the applicant; (2) a creditor of the applicant; (3) a holder of any debt instrument issued by the applicant; or (4) a holder of, or interested party in, any contractual or service relationship with the applicant? : NO

Is the spouse, parent or child of a public official of any unit of government: (1) an owner (directly or indirectly) of any financial or beneficial interest in the applicant; (2) a creditor of the applicant; (3) a holder of any debt instrument issued by the applicant; or (4) a holder of, or interested party in, any contractual or service relationship with the applicant? : NO

Has any owner, director, board member, or individual with a controlling interest in the applicant ever been indicted for, charged with, arrested for, convicted of, pled guilty or nolo contendere to, or forfeited bail concerning any felony or controlled substance-related misdemeanor, not including traffic violations, regardless of whether the offense has been reversed on appeal or otherwise? : NO

What is the applicant's anticipated or actual number of employees (including all facilities) at the prospective commencement of operations and during the first five calendar years thereafter?

[Redacted]

Redacted Copy

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

- ✓ Does the applicant verify that it has the ability to maintain adequate minimum levels (\$2,000,000) of liability and casualty insurance, as required by :Yes § 20-2A-53(a)(2), Code of Alabama 1975 (as amended)?
- ✓ Does the applicant consent as required by § 20-2A-55(d), Code of Alabama 1975 (as amended) to the inspections, examinations, searches, and :Yes seizures contemplated by § 20-2A-52(a)(3), Code of Alabama 1975 (as amended)?
- ✓ Does the applicant verify that neither it nor its leadership have any economic interest in any other license or applicant for license under the Act? : YES (See § 20-2A-55(e), Code of Alabama 1975 (as amended))
- ✓ I attest that this application is truthful and complete based on the best available information as of the date of filing.: YES
- ✓ Signature: Jason Cobb ✓ Signature Date: 12/26/2022

Documents

- ✓ Resume or Curriculum Vitae of Individuals with Ownership Interest: Organic Harvest Lab_Exhibit 1_Resume or Curriculum Vitae of Individuals with Ownership ...
- ✓ Residency of Owners: Organic Harvest Lab_Exhibit 2_Residency of Owners.pdf (/api/documents/f9ISI5eSt/dow...
- ✓ Criminal Background Check: Organic Harvest Lab_Exhibit 3_Criminal Background Check.pdf (/api/documents/1_07IS...
- ✓ Demonstration of Sufficient Capital: Organic Harvest Lab_Exhibit 4_Demonstration of Sufficient Capital.pdf (/api/documents/...
- ✓ Financial Statements: Organic Harvest Lab_Exhibit 5_Financial Statements.pdf (/api/documents/hsZ_ksvgP/do...
- ✓ Tax Plan: Organic Harvest Lab_Exhibit 6_Tax Plan.pdf (/api/documents/1ZLRID1e9/download)
- ✓ Business Formation Documents: Organic Harvest Lab_Exhibit 7_Business Formation Documents _1_.pdf (/api/documents...
- ✓ Business License and Authorization of Local Jurisdictions: Organic Harvest Lab_Exhibit 8_Business License and Authorization of Local Authorities _1...
- ✓ Business Plan: Organic Harvest Lab_Exhibit 9_Business Plan.pdf (/api/documents/a1W9PQLB/download...
- ✓ Evidence of Business Relationship with other Licensees and Prospective Licensees: Organic Harvest Lab_Exhibit 10_Evidence of Business Relationship with Other Licensees a...
- ✓ Standard Operating Plan and Procedures: Organic Harvest Lab_Exhibit 11_Standard Operating Plan and Procedures _1_.pdf (/api/d...
- ✓ Policies and Procedures Manual: Organic Harvest Lab_Exhibit 12_Policies and Procedures Manual.pdf (/api/documents/B...
- ✓ Production and Manufacturing Process: Organic Harvest Lab_Exhibit 13_Production and Manufacturing Process.pdf (/api/docum...
- ✓ Machinery and Equipment: Organic Harvest Lab_Exhibit 14_Machinery and Equipment - Portal.pdf (/api/documents/...
- ✓ Receiving and Shipping Plan: Organic Harvest Lab_Exhibit 15_Shipping and Receiving Plan _2_.pdf (/api/documents/v3...
- ✓ Facilities: Organic Harvest Lab_Exhibit 16_Facilities.pdf (/api/documents/GMlwoqzty/download)

Redacted Copy

✔ Security Plan:	Organic Harvest Lab_Exhibit 17_Security Plan _1_.pdf (/api/documents/D0188y4Fs/dow...
✔ Personnel:	Organic Harvest Lab_Exhibit 18_Personnel.pdf (/api/documents/l66fRqKde/download)
✔ Business Leadership Credentials:	Organic Harvest Lab_Exhibit 19_Business Leadership Credentials _2_.pdf (/api/document...
✔ Employee Handbook:	Organic Harvest Lab_Exhibit 20_Employee Handbook.pdf (/api/documents/zoxZB4qJz/d...
✔ Quality Control and Quality Assurance Plan:	Organic Harvest Lab_Exhibit 21_Quality Control and Quality Assurance Plan.pdf (/api/doc...
✔ Contamination and Recall Plan:	Organic Harvest Lab_Exhibit 22_Contamination and Recall _2_.pdf (/api/documents/3JK...
✔ Marketing and Advertising Plan:	Organic Harvest Lab_Exhibit 23_Marketing and Advertising Plan.pdf (/api/documents/ujr...
✔ Website and Social Media:	Organic Harvest Lab_Exhibit 24_Website and Social Media _1_.pdf (/api/documents/au6...
✔ Ownership Entity Individuals (if applicable):	Organic Harvest Lab_FORM-L_Ownership Entity Individual Chart - Portal.pdf (/api/docume...
✔ Proof of Minimum Liability and Casualty Insurance:	Organic Harvest Lab_Minimum Liability and Casualty Insurance Plan.pdf (/api/document...
✔ Affidavit - Entity Applicant:	Organic Harvest Lab_FORM-K-Affidavit_of_Entity-ResponsibleParty-ContactPerson_with R...

Payments

- ✔ **Payment Options:** Credit Card

Exhibit 1 - Resume or Curriculum Vitae of Individuals with Ownership Interest

Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

JASON COBB

CEO

Printed Name of Verifying Individual

Title of Verifying Individual

Ala Code § 36-12-40 (Security Exemption)

3/3/2023

Signature of Verifying Individual

Verification Date

Redacted Copy
FORM A: OWNERSHIP RESUME / CURRICULUM VITAE

License Type: Processor

ORGANIC HARVEST LAB, LLC

PROCESSOR

Business License Applicant Name

License Type

DAVID FRANK HEWITT

Ala Code § 8-1-191 (Protectable Interests)

Individual with Ownership Interest in Applicant

Residential History

Provide all residential addresses, in reverse chronological order, for 15 years prior to date of application; attach additional form(s) if necessary.

Ala Code § 36-12-40 (Security Exemption)

Residential Street Address

GRAHAM

AL

36263

City

State

Zip

03 / 1971

PRESENT 12 / 2022

Date Resided From (MM/YYYY)

Date Resided To (MM/YYYY)

Residential Street Address

City

State

Zip

Date Resided From (MM/YYYY)

Date Resided To (MM/YYYY).

Residential Street Address

City

State

Zip

Date Resided From (MM/YYYY)

Date Resided To (MM/YYYY)

Residential Street Address

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Date Resided To (MM/YYYY)

Residential Street Address

City

State

Zip

Date Resided From (MM/YYYY)

Date Resided To (MM/YYYY)

Residential Street Address

City

State

Zip

Date Resided From (MM/YYYY)

Date Resided To (MM/YYYY)

Education

Provide all institutions of higher education attended; attach additional form(s) if necessary.

SOUTHERN UNION STATE COMMUNITY COLLEGE	WADLEY	AL
Institution	City	State
08 / 1989	06 / 1991	
Date Attended From (MM/YYYY)	Date Attended To (MM/YYYY)	Degree Received
AUBURN UNIVERSITY	AUBURN	AL
Institution	City	State
08 / 1991	12 / 1992	
Date Attended From (MM/YYYY)	Date Attended To (MM/YYYY)	Degree Received
WEST GEORGIA	CARROLLTON	GA
Institution	City	State
01 / 1992	06 / 1995	BACHELORS SCIENCE - EDUCATION
Date Attended From (MM/YYYY)	Date Attended To (MM/YYYY)	Degree Received
Institution	City	State
Date Attended From (MM/YYYY)	Date Attended To (MM/YYYY)	Degree Received

Employment History

Provide all employers, in reverse chronological order, for 15 years prior to date of application; attach additional form(s) if necessary.

MILLCREEK TIMBER COMPANY	Ala Code § 36-12-40 (Security Exemption)	
Employer	Contact Person	Telephone
1672 DRAKE ROAD		
Business Address		
DAVISTON	AL	36256
City	State	Zip
06 / 1992	02 / 1998	
Date Employed From (MM/YYYY)	Date Employed To (MM/YYYY)	

SELF - SUNBELT TIMBER COMPANY

Ala Code § 36-12-40 (Security Exemption)

Employer	Contact Person	Telephone
4510 COUNTY ROAD		
Business Address		
GRAHAM	AL	36263
City	State	Zip
06 /1998	PRESENT - 12 / 2022	
Date Employed From (MM/YYYY)	Date Employed To (MM/YYYY)	

Employer	Contact Person	Telephone
Business Address		
City	State	Zip
Date Employed From (MM/YYYY)	Date Employed To (MM/YYYY)	

Employer	Contact Person	Telephone
Business Address		
City	State	Zip
Date Employed From (MM/YYYY)	Date Employed To (MM/YYYY)	

Employer	Contact Person	Telephone
Business Address		
City	State	Zip
Date Employed From (MM/YYYY)	Date Employed To (MM/YYYY)	

Employer	Contact Person	Telephone
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Business Address

City	State	Zip
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Date Employed From (MM/YYYY)	Date Employed To (MM/YYYY)
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Employer	Contact Person	Telephone
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Business Address

City	State	Zip
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Date Employed From (MM/YYYY)	Date Employed To (MM/YYYY)
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Employer	Contact Person	Telephone
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Business Address

City	State	Zip
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Date Employed From (MM/YYYY)	Date Employed To (MM/YYYY)
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Employer	Contact Person	Telephone
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Business Address

City	State	Zip
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Date Employed From (MM/YYYY)	Date Employed To (MM/YYYY)
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Redacted Copy
FORM A: OWNERSHIP RESUME / CURRICULUM VITAE

License Type: Processor

Organic Harvest Lab, LLC
Business License Applicant Name
William Rusty Sutterlin
Individual with Ownership Interest in Applicant

Processor
License Type
Ala Code § 8-1-191 (Protectable Interests)
Individual's Ownership Percentage in Applicant

Residential History

Provide all residential addresses, in reverse chronological order, for 15 years prior to date of application; attach additional form(s) if necessary.

Ala Code § 36-12-40 (Security Exemption)

Residential Street Address
Hoover AL 35244
City State Zip
03/2021 Present Day
Date Resided From (MM/YYYY) Date Resided To (MM/YYYY)

Ala Code § 36-12-40 (Security Exemption)

Residential Street Address
Hoover AL 35226
City State Zip
09/2015 03/2021
Date Resided From (MM/YYYY) Date Resided To (MM/YYYY).

Ala Code § 36-12-40 (Security Exemption)

Residential Street Address
Hoover AL 35226
City State Zip
12/2009 09/2015
Date Resided From (MM/YYYY) Date Resided To (MM/YYYY)

Ala Code § 36-12-40 (Security Exemption)

Residential Street Address
Hoover AL 35244
City State Zip
12/2007 12/2009
Date Resided From (MM/YYYY) Date Resided To (MM/YYYY)

Residential Street Address

City

State

Zip

Date Resided From (MM/YYYY)

Date Resided To (MM/YYYY)

Residential Street Address

City

State

Zip

Date Resided From (MM/YYYY)

Date Resided To (MM/YYYY)

Residential Street Address

City

State

Zip

Date Resided From (MM/YYYY)

Date Resided To (MM/YYYY)

Residential Street Address

City

State

Zip

Date Resided From (MM/YYYY)

Date Resided To (MM/YYYY)

Residential Street Address

City

State

Zip

Date Resided From (MM/YYYY)

Date Resided To (MM/YYYY)

Education

Provide all institutions of higher education attended; attach additional form(s) if necessary.

<u>University of Missouri-Columbia</u>	<u>Columbia</u>	<u>MO</u>
Institution	City	State
<u>06/2004</u>	<u>08/2006</u>	<u>Post Doctorial- Chemical Engineering</u>
Date Attended From (MM/YYYY)	Date Attended To (MM/YYYY)	Degree Received

<u>University of Missouri-Columbia</u>	<u>Columbia</u>	<u>MO</u>
Institution	City	State
<u>08/1998</u>	<u>05/2004</u>	<u>Ph.D. - Chemistry</u>
Date Attended From (MM/YYYY)	Date Attended To (MM/YYYY)	Degree Received

<u>Troy State University</u>	<u>Troy</u>	<u>AL</u>
Institution	City	State
<u>01/1994</u>	<u>08/1995</u>	<u>B.S. Chemistry & B.S. Criminal Justice</u>
Date Attended From (MM/YYYY)	Date Attended To (MM/YYYY)	Degree Received

<u>Jefferson State Community College</u>	<u>Birmingham</u>	<u>AL</u>
Institution	City	State
<u>09/1991</u>	<u>12/1993</u>	<u>Transfer to</u>
Date Attended From (MM/YYYY)	Date Attended To (MM/YYYY)	Degree Received

Employment History

Provide all employers, in reverse chronological order, for 15 years prior to date of application; attach additional form(s) if necessary.

<u>Sutterlin Research, LLC</u>	Ala Code § 36-12-40 (Security Exemption)	
Employer	Contact Person	Telephone
<u>515 19th St N</u>		
Business Address		
<u>Bessemer</u>	<u>AL</u>	<u>35020</u>
City	State	Zip
<u>08/2009</u>	<u>Present</u>	
Date Employed From (MM/YYYY)	Date Employed To (MM/YYYY)	

Cleen Tech Inc

Ala Code § 36-12-40 (Security Exemption)

Employer

Contact Person

Telephone

1201 Monster Road SW, Suite 250

Business Address

Renton

WA

98057

City

State

Zip

04/2020

Present

Date Employed From (MM/YYYY)

Date Employed To (MM/YYYY)

Socati Inc (Closed)

Ala Code § 36-12-40 (Security Exemption)

Employer

Contact Person

Telephone

5840 Expressway

Business Address

Missoula

MT

59808

City

State

Zip

08/2018

11/2021

Date Employed From (MM/YYYY)

Date Employed To (MM/YYYY)

Ala Code § 36-12-40 (Security Exemption)

Employer

Contact Person

Telephone

9609 Girard Ave S

Business Address

Bloomington

MN

55431

City

State

Zip

08/2008

12/2017

Date Employed From (MM/YYYY)

Date Employed To (MM/YYYY)

Inventure Renewables Inc

Ala Code § 36-12-40 (Security Exemption)

Employer

Contact Person

Telephone

631 20th St N

Business Address

Bessemer

AL

35020

City

State

Zip

05/2007

07/2018

Date Employed From (MM/YYYY)

Date Employed To (MM/YYYY)

Employer	Contact Person	Telephone
----------	----------------	-----------

Business Address

City	State	Zip
------	-------	-----

Date Employed From (MM/YYYY)	Date Employed To (MM/YYYY)
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Employer	Contact Person	Telephone
----------	----------------	-----------

Business Address

City	State	Zip
------	-------	-----

Date Employed From (MM/YYYY)	Date Employed To (MM/YYYY)
------------------------------	----------------------------

Employer	Contact Person	Telephone
----------	----------------	-----------

Business Address

City	State	Zip
------	-------	-----

Date Employed From (MM/YYYY)	Date Employed To (MM/YYYY)
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Employer	Contact Person	Telephone
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Business Address

City	State	Zip
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Date Employed From (MM/YYYY)	Date Employed To (MM/YYYY)
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Redacted Copy
FORM A: OWNERSHIP RESUME / CURRICULUM VITAE

License Type: Processor

ORGANIC HARVEST LAB LLC
Business License Applicant Name
JASON COLLINS COBB
Individual with Ownership Interest in Applicant

PROCESSOR
License Type
Ala Code § 8-1-191 (Protectable Interests)
Individual's Ownership Percentage in Applicant

Residential History

Provide all residential addresses, in reverse chronological order, for 15 years prior to date of application; attach additional form(s) if necessary.

Ala Code § 36-12-40 (Security Exemption)

Residential Street Address
HOMEWOOD
City
06/2014
Date Resided From (MM/YYYY)

AL
State
PRESENT
Date Resided To (MM/YYYY)

35209
Zip

Ala Code § 36-12-40 (Security Exemption)

Residential Street Address
BIRMINGHAM
City
11/2005
Date Resided From (MM/YYYY)

AL
State
06/2014
Date Resided To (MM/YYYY)

35206
Zip

Ala Code § 36-12-40 (Security Exemption)

Residential Street Address
BIRMINGHAM
City
06/2004
Date Resided From (MM/YYYY)

AL
State
11/2005
Date Resided To (MM/YYYY)

35212
Zip

Residential Street Address

City

Date Resided From (MM/YYYY)

State

Zip

Date Resided To (MM/YYYY)

Residential Street Address

City

State

Zip

Date Resided From (MM/YYYY)

Date Resided To (MM/YYYY)

Residential Street Address

City

State

Zip

Date Resided From (MM/YYYY)

Date Resided To (MM/YYYY)

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Date Resided To (MM/YYYY)

Residential Street Address

City

State

Zip

Date Resided From (MM/YYYY)

Date Resided To (MM/YYYY)

Residential Street Address

City

State

Zip

Date Resided From (MM/YYYY)

Date Resided To (MM/YYYY)

Education

Provide all institutions of higher education attended; attach additional form(s) if necessary.

UNIVERSITY OF ALABAMA AT BIRMINGHAM	BIRMINGHAM	AL
_____ Institution	_____ City	_____ State
08 / 1989	08 / 1995	BA IN POLITICAL SCIENCE
_____ Date Attended From (MM/YYYY)	_____ Date Attended To (MM/YYYY)	_____ Degree Received

AUBURN UNIVERSITY - GOVERNMENT & ECONOMIC DEVELOPMENT INSTITUTE (GEDI)	AUBURN	AL
_____ Institution	_____ City	_____ State
12 / 2019	12 / 2019	
_____ Date Attended From (MM/YYYY)	_____ Date Attended To (MM/YYYY)	_____ Degree Received

_____ Institution	_____ City	_____ State
_____ Date Attended From (MM/YYYY)	_____ Date Attended To (MM/YYYY)	_____ Degree Received

_____ Institution	_____ City	_____ State
_____ Date Attended From (MM/YYYY)	_____ Date Attended To (MM/YYYY)	_____ Degree Received

Employment History

Provide all employers, in reverse chronological order, for 15 years prior to date of application; attach additional form(s) if necessary.

Ala Code § 36-12-40 (Security Exemption)

AMERICA'S FIRST FEDERAL CREDIT UNION		
_____ Employer	_____ Contact Person	_____ Telephone
1200 4TH AVE NORTH		
_____ Business Address		
BIRMINGHAM	AL	35203
_____ City	_____ State	_____ Zip
09 / 2014	PRESENT	12/2022
_____ Date Employed From (MM/YYYY)	_____ Date Employed To (MM/YYYY)	

CADENCE BANK			Ala Code § 36-12-40 (Security Exemption)		
Employer		Contact Person		Telephone	
2100 3RD AVE NORTH					
Business Address					
BIRMINGHAM		AL		35203	
City		State		Zip	
07 / 2009		08 / 2014			
Date Employed From (MM/YYYY)			Date Employed To (MM/YYYY)		

Ala Code § 36-12-40 (Security Exemption)					
Employer		Contact Person		Telephone	
1927 1ST AVE NORTH					
Business Address					
BIRMINGHAM		AL		35203	
City		State		Zip	
05 / 2006		07 / 2009			
Date Employed From (MM/YYYY)			Date Employed To (MM/YYYY)		

Employer		Contact Person		Telephone	
Business Address					
City		State		Zip	
Date Employed From (MM/YYYY)			Date Employed To (MM/YYYY)		

Employer		Contact Person		Telephone	
Business Address					
City		State		Zip	
Date Employed From (MM/YYYY)			Date Employed To (MM/YYYY)		

Employer	Contact Person	Telephone
----------	----------------	-----------

Business Address

City	State	Zip
------	-------	-----

Date Employed From (MM/YYYY)	Date Employed To (MM/YYYY)
------------------------------	----------------------------

Employer	Contact Person	Telephone
----------	----------------	-----------

Business Address

City	State	Zip
------	-------	-----

Date Employed From (MM/YYYY)	Date Employed To (MM/YYYY)
------------------------------	----------------------------

Employer	Contact Person	Telephone
----------	----------------	-----------

Business Address

City	State	Zip
------	-------	-----

Date Employed From (MM/YYYY)	Date Employed To (MM/YYYY)
------------------------------	----------------------------

Employer	Contact Person	Telephone
----------	----------------	-----------

Business Address

City	State	Zip
------	-------	-----

Date Employed From (MM/YYYY)	Date Employed To (MM/YYYY)
------------------------------	----------------------------

Application Number 1632

Exhibit 2 - Residency of Owners

Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

Jason Cobb

Printed Name of Verifying Individual
Ala Code § 36-12-40 (Security Exemption)

Signature of Verifying Individual

CEO

Title of Verifying Individual

12/30/2022

Verification Date

Records indicating that a majority of ownership of the Applicant is attributable to an individual or individuals with proof of residence in Alabama for a continuous period of no less than 15 years preceding the date of application.

The following records demonstrate that 100% of the Applicant entity is owned by individuals able to prove that they have resided in the State of Alabama for a continuous period of no less than 15 years preceding the date of this application (12/29/2022). Applicant is proud to share that of the three individual owners, all three meet the residency requirements set forth by § 538-x-3-.05(3)(m)(4). Proof of the three individual owners residency is included below beneath a subheader for each individual:

Summary with Sufficient Type of Verification:

- Individual 1: Jason Cobb - Voters Registration
15+yrs-Residency 10/13/2004 to Present
- Individual 2: David Hewitt- Voters Registration
15+yrs-Residency 5/21/1990 to Present
- Individual 3: Tax Returns 2008-2021 Tax Returns and 2022 State License Renewal
15yrs-Residency 2007 to Present

Ala Code § 8-1-191 (Protectable Interests)

Individual 1: Jason Cobb



Registrant Information Card

Registrant # [Redacted]

Status ACTIVE
Status Reason ACTIVE REGISTRANT
Registration Date 10/13/2004
How Reg IN PERSON

COBB, JASON C
[Redacted]
BIRMINGHAM, AL 35209

MAILING ADDRESS

Precinct PRECPART 05050 027
Birth Date [Redacted]
Party [Redacted]
Gender [Redacted]
Race [Redacted]
Reg Source POLLING PLACE

Voter Needs Assistance

OPTIONAL FIELD 1
ID CARD REQUEST
NVRA UPDATE
MOVED TO
ORIGINAL NAME
FED. CERT NO.
DHR
MEDICAID
LEGACY ID 619158

[Redacted]
Ala Code § 36-12-40 (Security Exemption)

Registrant Receipt

Registrant # [Redacted]

Status ACTIVE
Status Reason ACTIVE REGISTRANT
Registration Date 10/13/2004
How Reg IN PERSON

COBB, JASON C
[Redacted]
BIRMINGHAM, AL 35209

MAILING ADDRESS

Precinct PRECPART 05050 027
Birth Date [Redacted]
Party [Redacted]
Gender [Redacted]
Race [Redacted]
Reg Source POLLING PLACE

Voter Needs Assistance

OPTIONAL FIELD 1
ID CARD REQUEST
NVRA UPDATE
MOVED TO
ORIGINAL NAME
FED. CERT NO.
DHR
MEDICAID
LEGACY ID 619158

[Redacted]
Ala Code § 36-12-40 (Security Exemption)

WHEN MOVING - CONTACT YOUR REGISTRAR
VOTE AT: **PREC 5050 - HOMEWOOD PUBLIC LIBRARY**
1721 OXMOOR RD

PRESORTED
FIRST-CLASS MAIL
U.S. POSTAGE PAID
BIRMINGHAM, AL
PERMIT NO. 1907



STATE HOUSE 045
SENATE 16
CONGRESSIONAL 87
STATE SCHOOL 02
COMMISSION 000
BIRMINGHAM, AL 35203
716 RICHARD ARRINGTON JR BLVD N STE A-410
BOARD OF REGISTRARS - 325 5550

010619158
COBB, JASON C
Ala Code § 36-12-40 (Security Exemption)
BIRMINGHAM, AL 35202

AUTO

Individual 2: David Hewitt [Redacted] Ala Code § 8-1-191 (Protectable Interests)

Registrant # [Redacted] Ala Code § 36-12-40 (Security Exemption)

HEWITT, DAVID FRANK
[Redacted] Ala Code § 36-12-40 (Security Exemption)
GRAHAM, AL 36263-4868

Registrant Information Card

Status ACTIVE
Status Reason ACTIVE REGISTRANT
Registration Date 05/21/1990
How Reg ELECTRONIC

MAILING ADDRESS

Precinct 44 01 BINE HILL 2 5
Birth Date [Redacted] Ala Code § 36-12-40 (Security Exemption)
Party [Redacted]
Gender [Redacted]
Race [Redacted]
Reg Source ALEA - ELECTRONIC - ONLINE PORTAL

Voter Needs Assistance

- 1
- 2
- NVRA UPDATE
- MOVED TO
- ORIGINAL NAME
- FED. CERT NO.
- DHR
- MEDICAID
- OPTIONAL FIELD 9

[Redacted] Ala Code § 36-12-40 (Security Exemption)

Signature of Voter

Registrant # [Redacted] Ala Code § 36-12-40 (Security Exemption)

HEWITT, DAVID FRANK
[Redacted] Ala Code § 36-12-40 (Security Exemption)
GRAHAM, AL 36263-4868

Registrant Receipt

Status ACTIVE
Status Reason ACTIVE REGISTRANT
Registration Date 5/21/1990
How Reg ELECTRONIC

MAILING ADDRESS

Precinct 44 01 BINE HILL 2 5
Birth Date [Redacted] Ala Code § 36-12-40 (Security Exemption)
Party [Redacted]
Gender [Redacted]
Race [Redacted]
Reg Source ALEA - ELECTRONIC - ONLINE PORTAL

Voter Needs Assistance

- 1
- 2
- NVRA UPDATE
- MOVED TO
- ORIGINAL NAME
- FED. CERT NO.
- DHR
- MEDICAID
- OPTIONAL FIELD 9

[Redacted] Ala Code § 36-12-40 (Security Exemption)

Signature of Voter

Randolph County Board of Registrars

P. O. Box 215

Wedowee, Alabama 36278

256.357.2138

To Whom it May Concern:

David Frank Hewitt has been registered to vote at the following address since May 21, 1990.

David Frank Hewitt

Ala Code § 36-12-40 (Security Exemption)

Graham, Alabama 36263-4868

Randolph County Board of Registrars

Individual 3: William R Sutterlin

Ala Code § 8-1-191 (Protectable Interests)

Form **1040** EXTENSION GRANTED TO 10/15/09 **2008**
 U.S. Individual Income Tax Return (99) IRS Use Only - Do not write or staple in this space. DMB No. 1545-6074

Label (See instructions on page 14.) Use the IRS label. Otherwise, please print or type.

YOUR INFORMATION
 For the year (Jan. 1-Dec. 31, 2008, or other tax year beginning) 2008, ending 2008.
 Your first name and initial: **WILLIAM R.**
 Last name: **SUTTERLIN**
 Last name: **SUTTERLIN**
 City, town or post office, state, and ZIP code: **HOOVER, AL 35244**

Dependents:
 (1) First name (2) Last name (3) Dependent's social security number (4) Relationship to you

Income
 7 Wages, salaries, tips, etc. Attach Form(s) W-2
 8a Taxable interest. Attach Schedule B if required
 8b Tax-exempt interest. Do not include on line 8a
 9a Ordinary dividends. Attach Schedule B if required
 9b Qualified dividends (see page 21)
 10 Taxable refunds, credits, or offsets of state and local income taxes
 11 Alimony received
 12 Business income or (loss). Attach Schedule C or C-EZ
 13 Capital gain or (loss). Attach Schedule D if required. If not required, check here
 14 Other gains or (losses). Attach Form 4797
 15a IRA distributions 15a Taxable amount 15b
 16a Pensions and annuities 16a Taxable amount 16b
 17 Rental real estate, royalties, partnerships, S corporations, trusts, etc. Attach Schedule E
 18 Farm income or (loss). Attach Schedule F
 19 Unemployment compensation
 20a Social security benefits 20a Taxable amount (see page 26) 20b
 21 Other income. List type and amount (see page 28)

Adjusted Gross Income
 22 Add the amounts in the far right column for lines 7 through 21. This is your total income
 23 Educator expenses (see page 28)
 24 Certain business expenses of reservists, performing artists, and fee-basis government officials. Attach Form 2106 or 2106-EZ
 25 Health savings account deduction. Attach Form 8889
 26 Moving expenses. Attach Form 3903
 27 One-half of self-employment tax. Attach Schedule SE
 28 Self-employed SEP, SIMPLE, and qualified plans
 29 Self-employed health insurance deduction (see page 29)
 30 Penalty on early withdrawal of savings
 31a Alimony paid b Recipient's SSN
 32 IRA deduction (see page 30)
 33 Student loan interest deduction (see page 33)
 34 Tuition and fees deduction. Attach Form 8817
 35 Domestic production activities deduction. Attach Form 8903
 36 Add lines 23 through 31a and 32 through 35
 37 Subtract line 36 from line 22. This is your adjusted gross income

Ala Code § 40-2A-10 (multiple instances)

Form 1040 (2008) **WILLIAM R. UTTERLIN** Ala Code § 40-2A-10 Ala Code § 40-2A-10 Ala Code § 40-2A-10

Tax and Credits

38 Amount from line 37 (adjusted gross income) 38

39a Check You were born before January 2, 1944, Blind. Total boxes checked 39a

if: Spouse was born before January 2, 1944, Blind. 39b

b If your spouse itemizes on a separate return or you were a dual-status alien, see page 34 and check here 39c

c Check if standard deduction includes real estate taxes or disaster loss (see page 34)

40 Itemized deductions (from Schedule A) or your standard deduction (see left margin) 40

41 Subtract line 40 from line 38 41

42 If line 38 is over \$119,975, or you provided housing to a Midwestern displaced individual, see page 36. Otherwise, multiply \$3,500 by the total number of exemptions claimed on line 6d 42

43 Taxable income. Subtract line 42 from line 41. If line 42 is more than line 41, enter -0- 43

44 Tax. Check if any tax is from: a Form(s) 8814 b Form 4972 44

45 Alternative minimum tax. Attach Form 6251 45

46 Add lines 44 and 45 46

47 Foreign tax credit. Attach Form 1116 if required 47

48 Credit for child and dependent care expenses. Attach Form 2441 48

49 Credit for the elderly or the disabled. Attach Schedule R 49

50 Education credits. Attach Form 8863 50

51 Retirement savings contributions credit. Attach Form 8880 51

52 Child tax credit (see page 42). Attach Form 8901 if required 52

53 Credits from Form: a 8396 b 8839 c 5695 53

54 Other credits from Form: a 3800 b 8801 c 54 54

55 Add lines 47 through 54. These are your total credits 55

56 Subtract line 55 from line 46. If line 55 is more than line 46, enter -0- 56

Other Taxes

57 Self-employment tax. Attach Schedule SE 57

58 Unreported social security and Medicare tax from Form: a 4137 b 8919 58

59 Additional tax on IRAs, other qualified retirement plans, etc. Attach Form 5329 if required 59

60 Additional taxes: a AEIC payments b Household employment taxes. Attach Schedule H 60

61 Add lines 56 through 60. This is your total tax 61

Payments

62 Federal income tax withheld from Forms W-2 and 1099 62

63 2008 estimated tax payments and amount applied from 2007 return 63

64 a Earned income credit (EIC) 64a

b Nontaxable combat pay election 64b

65 Excess social security and tier 1 RRTA tax withheld (see page 61) 65

66 Additional child tax credit. Attach Form 8812 66

67 Amount paid with request for extension to file (see page 61) 67

68 Credits from Form: a 2439 b 4136 c 8801 d 8885 68

69 First-time homebuyer credit. Attach Form 5405 69

70 Recovery rebate credit (see worksheet on pages 62 and 63) 70

71 Add lines 62 through 70. These are your total payments 71

Refund

72 If line 71 is more than line 61, subtract line 61 from line 71. This is the amount you overpaid 72

73 a Amount of line 72 you want refunded to you. If Form 8879 is attached, check here 73a

b Ala Code § 40-2A-10

74 Amount of line 72 you want applied to your current estimated tax 74

Amount You Owe

75 Amount you owe. Subtract line 71 from line 61. For details on how to pay, see page 65 75

76 Estimated tax penalty (see page 65) 76

Third Party Designee

Do you want to allow another person to discuss this return with the IRS (see page 65)? Yes. Complete the following. No

Designee's name: **PREPARER** Personal identification number (PIN)

Sign Here

Under penalties of perjury, I declare that I have examined this return and accompanying schedules and statements, and to the best of my knowledge and belief, they are true, correct, and complete. Declaration of preparer (other than taxpayer) is based on all information.

Your signature: _____ Date: _____ Daytime phone number: _____

Spouse's signature, if a joint return, both must sign: _____ Date: _____

Paid Preparer's Use Only

Preparer's signature: _____

Firm's name (or yours if self-employed), address, and ZIP code: _____

810902 11-10-08

Ala Code § 40-2A-10

FORM 40 2008 Alabama Individual Income Tax Return RESIDENTS & PART-YEAR RESIDENTS

For the year Jan. 1 - Dec. 31, 2008, or other tax year. Beginning: Ending:

Ala Code § 40-2A-10
 •WILLIAM R. SUTTERLIN
 Ala Code § 40-2A-10
 •HOOVER, AL 35244

Check if address Foreign Country: CHECK BOX IF AMENDED RETURN

Filing Status: Ala Code § 40-2A-10

Income and Adjustments	5	Wages, salaries, tips, etc. (list each employer and address separately):	A - Alabama tax withheld		
	a		5a	•	00 5a
	b		5b	•	00 5b
	c		5c	•	00 5c
d		5d	•	00 5d	
6	Interest and dividend income (also attach Schedule B if over \$1,500)				6
7	Other income (from page 2, Part I, line 9)				7
8	Total income. Add amounts in the income column for line 5a through line 7				8
9	Total adjustments to income (from page 2, Part II, line 9)				9
10	Adjusted gross income. Subtract line 9 from line 8				10
Deductions	11	Check box a, if you itemize deductions, and enter amount from Sch. A, line 26. Check box b, if you do not itemize deductions, and enter standard deduction amount.	Box a	Ala Code § 40-2A-10	
			11	•	
			12	•	
			13	•	
			14	•	
12	Federal tax deduction (see instructions)				
13	Personal exemption (from line 1, 2, 3, or 4)				
14	Dependent exemption (from page 2, Part III, line 2)				
15	Total deductions. Add lines 11, 12, 13, and 14				15
16	Taxable income. Subtract line 15 from line 10				16
Tax	17	Income Tax due. Enter amount from tax table or check if from Form NOL-55A			17
	18	Less credits from: Schedule CR and/or Schedule OC			18
	19a	Net tax due Alabama. Subtract line 18 from line 17			19a
	19b	Consumer Use Tax (use worksheet on page 10)			19b
Alabama Election Campaign Fund	20	Alabama Election Campaign Fund. You may make a voluntary contribution to the following:			
		a Alabama Democratic Party \$1 \$2 none b Alabama Republican Party \$1 \$2 none			20a 20b
21	Total tax liability and voluntary contribution. Add lines 19a, 19b, 20a, and 20b				21
Payments	22	Alabama income tax withheld (from Forms W-2, W-2G, and/or 1099)	22	•	Ala Code § 40-2A-10
	23	2008 estimated tax payments/Automatic Extension Payment	23	•	
	24	Amended Returns Only - Previous payments (see instructions)	24	•	
	25	Total payments. Add lines 22, 23 and 24			25
26	Amended Returns Only - Previous refund (see instructions)			26	
27	Adjusted Total Payments. Subtract line 26 from line 25			27	
AMOUNT YOU OWE	28	If line 21 is larger than line 27, subtract line 27 from line 21, and enter AMOUNT YOU OWE. Place payment, along with Form 40V, loose in the mailing envelope. (FORM 40V MUST ACCOMPANY PAYMENT.)	28	•	
	29	Estimated tax penalty. Also include on line 29 (see instr. page 11)	29	•	00
OVERPAID	30	If line 27 is larger than line 21, subtract line 21 from line 27, and enter amount OVERPAID	30	•	
	31	Amount of line 30 to be applied to your 2009 estimated tax	31	•	00
Donations	32	Total Donation Check-offs from Schedule DC, line 2	32	•	00
REFUND	33	REFUNDED TO YOU. (CAUTION: You must sign this return on page 2.)			
		Subtract lines 31 and 32 from line 30. For Direct Deposit, check here <input checked="" type="checkbox"/> and complete Part V, Page 2			33

836001 09-10-08 1010

EXTENSION GRANTED TO 10/15/2009

Form **1040** EXTENSION GRANTED TO 10/15/10 **2009** U.S. Individual Income Tax Return (99) IRS Use Only - Do not write or staple in this space.

For the year Jan. 1-Dec. 31, 2009, or other tax year beginning _____, 2009, ending _____

Label (See instructions on page 14.) Use the IRS label. Otherwise, please print or type. **Presidential Election Campaign** (See instructions on page 14.) **Filing Status** (See instructions on page 14.) **Exemptions** (See instructions on page 14.) **Income** (See instructions on page 14.) **Adjusted Gross Income** (See instructions on page 14.)

Your first name and initial: **RUSTY** Last name: **SUTTERLIN** Ala Code § 40-2A-10

Your first name and initial: **[REDACTED]** Last name: **SUTTERLIN** Ala Code § 40-2A-10

City, town or post office, state, and ZIP code: **HOOVER, AL 35226** Apt. no. _____ You must enter your SSN(s) above. Ala Code § 40-2A-10

Check here if you, or your spouse if filing jointly, want to be considered self-employed (see page 14) You Spouse

Check only one box. Married filing jointly (even if only one had income) Head of household (with qualifying person). If the qualifying person is a child but not your dependent, enter this child's name here. Single Qualifying widow(er) with dependent child Ala Code § 40-2A-10

Check one box. None Self. If someone can claim you as a dependent, do not check box 6a. Ala Code § 40-2A-10

Income

7 Wages, salaries, tips, etc. Attach Form(s) W-2 Ala Code § 40-2A-10 7

8a Taxable interest. Attach Schedule B if required 8a

8b Tax-exempt interest. Do not include on line 8a 8b

9a Ordinary dividends. Attach Schedule B if required 9a

9b Qualified dividends (see page 22) 9b

10 Taxable refunds, credits, or offsets of state and local income taxes STMT 1 STMT 2 10

11 Alimony received STMT 4 11

12 Business income or (loss). Attach Schedule C or C-EZ 12

13 Capital gain or (loss). Attach Schedule D if required. If not required, check here 13

14 Other gains or (losses). Attach Form 4797 14

15a IRA distributions 15a b Taxable amount 15b

16a Pensions and annuities 16a b Taxable amount 16b

17 Rental real estate, royalties, partnerships, S corporations, trusts, etc. Attach Schedule E 17

18 Farm income or (loss). Attach Schedule F 18

19 Unemployment compensation in excess of \$2,400 per recipient (see page 27) 19

20a Social security benefits 20a b Taxable amount (see page 27) 20b

21 Other income. List type and amount (see page 29) 21

22 Add the amounts in the far right column for lines 7 through 21. This is your total income 22

Adjusted Gross Income

23 Educator expenses (see page 29) Ala Code § 40-2A-10 23

24 Certain business expenses of reservists, performing artists, and fee-basis government officials. Attach Form 2106 or 2106-EZ 24

25 Health savings account deduction. Attach Form 8889 25

26 Moving expenses. Attach Form 3903 26

27 One-half of self-employment tax. Attach Schedule SE 27

28 Self-employed SEP, SIMPLE, and qualified plans 28

29 Self-employed health insurance deduction (see page 30) 29

30 Penalty on early withdrawal of savings 30

31a Alimony paid b Recipient's SSN 31

32 IRA deduction (see page 31) 32

33 Student loan interest deduction (see page 34) STMT 3 33

34 Tuition and fees deduction. Attach Form 8917 34

35 Domestic production activities deduction. Attach Form 8903 35

36 Add lines 23 through 31a and 32 through 35 36

37 Subtract line 36 from line 22. This is your adjusted gross income 37

118001 10-20-09 LHA For Disclosure, Privacy Act, and Paperwork Reduction Act Notice, see page 97. Form 1040 (2009)

Ala Code § 40-2A-10

Ala Code § 40-2A-10

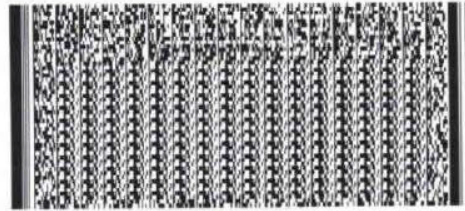
Ala Code § 40-2A-10

Form 1040 (2009) **RUSTY BUTTERLIN**

Tax and Credits	38 Amount from line 37 (adjusted gross income) 38	
39a Check <input type="checkbox"/> You were born before January 2, 1945, <input type="checkbox"/> Blind, <input type="checkbox"/> Total boxes checked 39a		
if: <input type="checkbox"/> Spouse was born before January 2, 1945, <input type="checkbox"/> Blind, <input type="checkbox"/> checked 39b		
b If your spouse itemizes on a separate return or you were a dual-status alien, see page 35 and check here 39b		
40a Itemized deductions (from Schedule A) or your standard deduction (see left margin) 40a		
b If you are increasing your standard deduction by certain real estate taxes, new motor vehicle taxes, or a net disaster loss, attach Schedule L and check here (see page 35) 40b		
41 Subtract line 40a from line 38 41		
42 Exemptions. If line 38 is \$125,100 or less and you did not provide housing to a Midwestern displaced individual, multiply \$3,650 by the number on line 6c. Otherwise, see page 37 42		
43 Taxable income. Subtract line 42 from line 41. If line 42 is more than line 41, enter -0- 43		
44 Tax. Check if any tax is from: a <input type="checkbox"/> Form(s) 8814 b <input type="checkbox"/> Form 4972 44		
45 Alternative minimum tax. Attach Form 6251 45		
46 Add lines 44 and 45 46		
47 Foreign tax credit. Attach Form 1116 if required 47		
48 Credit for child and dependent care expenses. Attach Form 2441 48		
49 Education credits from Form 8863, line 29 49		
50 Retirement savings contributions credit. Attach Form 8880 50		
51 Child tax credit (see page 42) 51		
52 Credits from Form: a <input type="checkbox"/> 8396 b <input type="checkbox"/> 8839 c <input type="checkbox"/> 5695 52		
53 Other credits from Form: a <input type="checkbox"/> 3800 b <input type="checkbox"/> 8801 c <input type="checkbox"/> 53		
54 Add lines 47 through 53. These are your total credits 54		
55 Subtract line 54 from line 46. If line 54 is more than line 46, enter -0- 55		
Other Taxes		
56 Self-employment tax. Attach Schedule SE 56		
57 Unreported social security and Medicare tax from Form: a <input type="checkbox"/> 4137 b <input type="checkbox"/> 8 57		
58 Additional tax on IRAs, other qualified retirement plans, etc. Attach Form 5329 if re 58		
59 Additional taxes: a <input type="checkbox"/> AEIC payments b <input type="checkbox"/> Household employment taxes. 59		
60 Add lines 55 through 59. This is your total tax 60		
Payments		
61 Federal income tax withheld from Forms W-2 and 1099 61		
62 2009 estimated tax payments and amount applied from 2008 return 62		
63 Making work pay and government retiree credits. Attach Schedule M 63		
64a Earned income credit (EIC) 64a		
b Nontaxable combat pay election 64b		
65 Additional child tax credit. Attach Form 8812 65		
66 Refundable education credit from Form 8863, line 16 66		
67 First-time homebuyer credit. Attach Form 5405 67		
68 Amount paid with request for extension to file (see page 72) 68		
69 Excess social security and tier 1 RRTA tax withheld (see page 72) 69		
70 Credits from Form: a <input type="checkbox"/> 2439 b <input type="checkbox"/> 4136 c <input type="checkbox"/> 8801 d <input type="checkbox"/> 8885 70		
71 Add lines 61, 62, 63, 64a, and 65 through 70. These are your total payments 71		
Refund		
72 If line 71 is more than line 60, subtract line 60 from line 71. This is the amount you overpaid 72		
73a Amount of line 72 you want refunded to you. If Form 8878 is attached, check here 73a		
74 Amount of line 72 you want refunded to your spouse or dependent child. If Form 8878 is attached, check here 74		
Amount You Owe		
75 Amount you owe. Subtract line 71 from line 60. For details on how to pay, see page 74 75		
76 Estimated tax penalty (see page 74) 76		
Third Party Designee		
Do you designate a third party designee to receive notices and correspondence from the IRS? Ala Code § 40-2A-10		
Sign Here		
Under penalty and under oath, Declaration of preparer (other than taxpayer) is based on all information provided to the preparer by the taxpayer. Ala Code § 40-2A-10		
Your signature Ala Code § 40-2A-10 Date Ala Code § 40-2A-10 Daytime phone number		
Spouse's signature. If a joint return, both must sign. Ala Code § 40-2A-10 Date Ala Code § 40-2A-10		
Paid Preparer's Use Only		
Preparer's signature Ala Code § 40-2A-10		
Firm's name (if you are self-employed), address, and ZIP code		
910002 10-20-09		

FORM 40 2009 Alabama Individual Income Tax Return RESIDENTS & PART-YEAR RESIDENTS

Ala Code § 40-2A-10



•HOOVER, AL 35226

Check if Alabama Resident Foreign Country Alabama Code § 40-2A-10

▶ CHECK BOX IF AMENDED RETURN •

Filing Status/ Exemptions 1 Single Married filing separate. Complete Spouse SSN Married filing joint Head of Family (with qualifying person).

Ala Code § 40-2A-10

		A - Alabama tax withheld	
5a	•	00	5a
5b	•	00	5b
5c	•	00	5c
5d	•	00	5d

Income and Adjustments

6 Interest and dividend income (also attach Schedule B if over \$1,500) 6

7 Other income (from page 2, Part I, line 9) 7

8 Total income. Add amounts in the income column for line 5a through line 7 8

9 Total adjustments to income (from page 2, Part II, line 10) 9

10 Adjusted gross income. Subtract line 9 from line 8 10

Ala Code § 40-2A-10

Deductions

11 Check box a, if you itemize deductions, and enter amount from Sch. A, line 27. Box **Ala Code § 40-2A-10**

Check box b, if you do not itemize deductions, and enter standard deduction

• a Itemized Deductions • b Standard Deduction 11

12 Federal tax deduction (see instructions) STATEMENT 1 12

DO NOT ENTER THE FEDERAL TAX WITHHELD FROM YOUR FORM W-2(S)

13 Personal exemption (from line 1, 2, 3, or 4) 13

14 Dependent exemption (from page 2, Part III, line 2) 14

15 Total deductions. Add lines 11, 12, 13, and 14 15

16 Taxable income. Subtract line 15 from line 10 16

Tax

17 Income Tax due. Enter amount from tax table or check if from Form NC Form NR 17

18 Less credits from: Schedule CR and/or Schedule OC 18

19a Net tax due Alabama. Subtract line 18 from line 17 19

b Consumer Use Tax (use worksheet on page 9) 19

20 Alabama Election Campaign Fund. You may make a voluntary contribution to

a Alabama Democratic Party \$1 \$2 none 20

b Alabama Republican Party \$1 \$2 none 20

21 Total tax liability and voluntary contribution. Add lines 19a, 19b, 20a, and 20b 21

Payments

22 Alabama income tax withheld (from Forms W-2, W-2G, and/or 1099) 22

23 2009 estimated tax payments/Automatic Extension Payment 23

24 Amended Returns Only - Previous payments (see instructions) 24

25 Total payments. Add lines 22, 23 and 24 25

26 Amended Returns Only - Previous refund (see instructions) 26

27 Adjusted Total Payments. Subtract line 26 from line 25 27

AMOUNT YOU OWE

28 If line 27 is larger than line 21, subtract line 27 from line 21, and enter AMOUNT 28

Place payment, along with Form 40V, loose in the mailing envelope. (FORM 40V MUST A

29 Estimated tax penalty. Also include on line 28 (see instr. page 11) 29

OVERPAID

30 If line 27 is larger than line 21, subtract line 21 from line 27, and enter amount OVERPAID 30

31 Amount of line 30 to be applied to your 2010 estimated tax 31

32 Total Donation Check-offs from Schedule DC, line 2 32

REFUND

33 REFUNDED TO YOU. (CAUTION: You must sign this return on page 2.) 33

Subtract lines 31 and 32 from line 30. For Direct Deposit, check here and complete Part V, Page 2

83501 08-13-09

EXTENSION GRANTED TO 10/15/10

1019

Form **1040** EXTENSION GRANTED TO 10/17/11 **2010**
 U.S. Individual Income Tax Return (99) IRS Use Only - Do not write or staple in this space.

Name, Address, and SSN
 For the year Jan. 1-Dec. 31, 2010, or other tax year beginning _____, 2010, ending _____
 Your first name and initial: **RUSTY** Last name: **SUTTERLIN**
 Last name: **SUTTERLIN**
 See separate instructions. Apt. no. _____
 Make sure the SSN(s) above and on line 6c are correct.

Presidential Election Campaign
 Check here if you, or your spouse if filing jointly, want \$3 to _____
 You Spouse

Filing Status
 Check only one box.
 Filing jointly (even if only one had income)
 Filing separately. Enter spouse's SSN above _____
 Head of household (with qualifying person), if the qualifying person is a child but not your dependent, enter this child's name here. _____
 Married widow(er) with dependent child _____

Exemptions
 If someone can claim you as a dependent, do not check this box.
 (1) Dependents.
 (2) Dependent's social security number _____
 (3) Dependent's relationship to _____
 (4) If (3) is "other," explain _____

Income
 Attach Form(s) W-2 here. Also attach Forms W-2G and 1099-R if tax was withheld.
 If you did not get a W-2, see page 20.
 Enclose, but do not attach, any payment. Also, please use Form 1040-V.

7	Wages, salaries, tips, etc. Attach Form(s) W-2		
8a	Taxable interest. Attach Schedule B if required		
8b	Tax-exempt interest. Do not include on line 8a		
9a	Ordinary dividends. Attach Schedule B if required		
9b	Qualified dividends		
10	Taxable refunds, credits, or offsets of state and local income taxes	STMT 1	
11	Alimony received		
12	Business income or (loss). Attach Schedule C or C-EZ		
13	Capital gain or (loss). Attach Schedule D if required. If not required, check here		
14	Other gains or (losses). Attach Form 4797		
15a	IRA distributions	15a	b Taxable amount
16a	Pensions and annuities	16a	b Taxable amount
17	Rental real estate, royalties, partnerships, S corporations, trusts, etc. Attach Schedule E		
18	Farm income or (loss). Attach Schedule F		
19	Unemployment compensation		
20a	Social security benefits	20a	b Taxable amount
21	Other income. List type and amount OTHER INCOME		
22	Combine the amounts in the far right column for lines 7 through 21. This is your total income		

Adjusted Gross Income

23	Educator expenses		23
24	Certain business expenses of reservists, performing artists, and fee-based government officers. Attach Form 2106 or 2106-EZ		24
25	Health savings account deduction. Attach Form 8889		25
26	Moving expenses. Attach Form 3903		26
27	One-half of self-employment tax. Attach Schedule SE		27
28	Self-employed SEP, SIMPLE, and qualified plans		28
29	Self-employed health insurance deduction		29
30	Penalty on early withdrawal of savings		30
31a	Alimony paid b Recipient's SSN		31a
32	IRA deduction		32
33	Student loan interest deduction	STMT 4	33
34	Tuition and fees. Attach Form 8917		34
35	Domestic production activities deduction. Attach Form 8903		35
36	Add lines 23 through 31a and 32 through 35		
37	Subtract line 36 from line 22. This is your adjusted gross income		37

910001 91-27-11
 LHA For Disclosure, Privacy Act, and Paperwork Reduction Act Notice, see separate instructions.

Form 1040 (2010) **RUST** **SUTTERLIN**

Ala Code § 40-2A-10 Ala Code § 40-2A-10 Ala Code § 40-2A-10

Tax and Credits

38 Amount from line 37 (adjusted gross income) 38

39a Check You were born before January 2, 1946, Blind. Total boxes checked 39a

if: Spouse was born before January 2, 1946, Blind. checked 39b

b If your spouse itemizes on a separate return or you were a dual-status alien, check here 39b

40 Itemized deductions (from Schedule A) or your standard deduction (see instructions) 40

41 Subtract line 40 from line 38 41

42 Exemptions. Multiply \$3,650 by the number on line 6d 42

43 Taxable income. Subtract line 42 from line 41. If line 42 is more than line 41, enter -0- 43

44 Tax. Check if any tax is from: a Form(s) 8814 b Form 4972 44

45 Alternative minimum tax. Attach Form 6251 45

46 Add lines 44 and 45 46

47 Foreign tax credit. Attach Form 1116 if required 47

48 Credit for child and dependent care expenses. Attach Form 2441 48

49 Education credits from Form 8863, line 23 49

50 Retirement savings contributions credit. Attach Form 8880 50

51 Child tax credit (see instructions) 51

52 Residential energy credits. Attach Form 5695 52

53 Other credits from Form: a 3800 b 8801 c 53

54 Add lines 47 through 53. These are your total credits 54

55 Subtract line 54 from line 46. If line 54 is more than line 46, enter -0- 55

Other Taxes

56 Self-employment tax. Attach Schedule SE 56

57 Unreported social security and Medicare tax from Form: a 4137 b 8919 57

58 Additional tax on IRAs, other qualified retirement plans, etc. Attach Form 5329 if required 58

59 a Form(s) W-2, box 9 b Schedule H c Form 5405, line 16 Ala Code § 40-2A-10 59

60 Add lines 55 through 59. This is your total tax 60

Payments

61 Federal income tax withheld from Forms W-2 and 1099 61

62 2010 estimated tax payments and amount applied from 2009 return 62

63 Making work pay credit. Attach Schedule M 63

64a Earned income credit (EIC) 64a

b Nontaxable combat pay election 64b

65 Additional child tax credit. Attach Form 8812 65

66 American opportunity credit from Form 8863, line 14 66

67 First-time homebuyer credit from Form 5405, line 10 67

68 Amount paid with request for extension to file 68

69 Excess social security and tier 1 RRTA tax withheld STMT 7 69

70 Credit for federal tax on fuels. Attach Form 4136 70

71 Credits from Form: a 2439 b 8839 c 8801 d 8885 71

72 Add lines 61, 62, 63, 64a, and 65 through 71. These are your total payments 72

Refund

73 If line 72 is more than line 60, subtract line 60 from line 72. This is the amount you overpaid 73

74a Ala Code § 40-2A-10 74a

Direct deposit? See instructions. b 74b

75 75

Amount You Owe

76 Amount you owe. Subtract line 72 from line 60. For details on how to pay, see instructions 76

77 Estimated tax penalty (see instructions) 77

Third Party Designee

Do you designate a third party designee? Yes No

Sign Here

Your signature Date Ala Code § 40-2A-10 Daytime phone number

Spouse's signature, if a joint return, both must sign. Date

Pa Pr Us

Ala Code § 40-2A-10

01000 12-22

FORM 40 Alabama 2010 Individual Income Tax Return RESIDENTS & PART-YEAR RESIDENTS

For this year Jan. 1 - Dec. 31, 2010, or other tax year:

Beginning Your social security number: Ala Code § 40-2A-10

Spouse's SSN if joint return: Ala Code § 40-2A-10

035601 10-06-10

Ala Code § 40-2A-10

Check if address outside U.S. Foreign

Filing Status/Exemptions: Ala Code § 40-2A-10

1,500 Married filing separate. Complete Spouse SSN

3,000 Head of Family (with qualifying person).

Income and Adjustments:

5a A - Alabama Ala Code § 40-2A-10

5b

5c

5d 00

6 Interest and dividend income (also attach Schedule B if over \$1,500)

7 Other income (from page 2, Part I, line 9)

8 Total income. Add amounts in the income column for line 5a through line 7

9 Total adjustments to income (from page 2, Part II, line 10)

10 Adjusted gross income. Subtract line 9 from line 8

Deductions:

11 Box a or b MUST be checked.

Check box a, if you itemize deductions, and enter amount from Sch. A, line 2

Check box b, if you do not itemize deductions, and enter standard deduction

a Itemized Deductions b Standard Deduction 11 *

12 Federal tax deduction (see instructions) STATEMENT 1 12 *

DO NOT ENTER THE FEDERAL TAX WITHHELD FROM YOUR FORM W-2(G)

13 Personal exemption (from line 1, 2, 3, or 4) 13 *

14 Dependent exemption (from page 2, Part III, line 2) 14 *

15 Total deductions. Add lines 11, 12, 13, and 14

16 Taxable income. Subtract line 15 from line 10

Tax:

17 Income Tax due. Enter amount from tax table or check if from Form N

18 Less credits from: Schedule CR and/or Schedule OC

19a Net tax due Alabama. Subtract line 18 from line 17

b Consumer Use Tax (use worksheet on page 9)

20 Alabama Election Campaign Fund. You may make a voluntary contribution to

a Alabama Democratic Party \$1 \$2 none

b Alabama Republican Party \$1 \$2 none

21 Total tax liability and voluntary contribution. Add lines 19a, 19b, 20a, and 20b

22 Alabama income tax withheld (from Forms W-2, W-2G, and/or 1099) 22 *

23 2010 estimated tax payments/Automatic Extension Payment 23 *

24 Amended Returns Only - Previous payments (see instructions) 24 *

Payments:

25 Total payments. Add lines 22, 23 and 24

26 Amended Returns Only - Previous refund (see instructions)

27 Adjusted Total Payments. Subtract line 26 from line 25

28 If line 21 is larger than line 27, subtract line 27 from line 21, and enter AMOUNT YOU OWE.

Place payment, along with Form 40V, loose in the mailing envelope. (FORM 40V MUST ACCOMPANY PAYMENT.)

29 Estimated tax penalty. Also include on line 28 (see instr. page 11) 29 * 00

30 If line 27 is larger than line 21, subtract line 21 from line 27, and enter amount OVERPAID

31 Amount of line 30 to be applied to your 2011 estimated tax 31 * 00

Donations:

32 Total Donation Check-offs from Schedule DG, line 2 32 * 00

REFUND:

33 REFUNDED TO YOU. (CAUTION: You must sign this return on page 2.)

Subtract lines 31 and 32 from line 30. For Direct Deposit, check here and complete Part V, Pg 2

Ala Code § 40-2A-10

Ala Code § 40-2A-10

Ala Code § 40-2A-10

Ala Code § 40-2A-10

EXTENSION GRANTED TO 10/17/11

Form **1040** EXTENSION GRANTED TO 10/15/2011
U.S. Individual Income Tax Return 2011

OMB No. 1545-0074 IRS Use Only - Do not write or staple in this space.

For the year Jan. 1-Dec. 31, 2011, or other tax year beginning _____, 2011, ending _____ See separate instructions.

Your first name and initial: **RUSTY** Last name: **SUTTERLIN** Ala Code § 40-2A-10

City, town or post office, state, and ZIP code: **HOOVER, AL 35226** Foreign country name: _____ Foreign province/county: _____ Foreign postal code: _____

Filing Status: **Ala Code § 40-2A-10**

Exemptions: **Ala Code § 40-2A-10**

Income

7	Wages, salaries, tips, etc. Attach Form(s) W-2		
8a	Taxable interest. Attach Schedule B if required		8b
9a	Ordinary dividends. Attach Schedule B if required		9b
10	Taxable refunds, credits, or offsets of state and local income taxes	STMT	
11	Alimony received		
12	Business income or (loss). Attach Schedule C or C-EZ		
13	Capital gain or (loss). Attach Schedule D if required. If not required, check here		
14	Other gains or (losses). Attach Form 4797		
15a	IRA distributions	15a	b Taxable
16a	Pensions and annuities	16a	b Taxable
17	Rental real estate, royalties, partnerships, S corporations, trusts, etc. Attach Schedule E		
18	Farm income or (loss). Attach Schedule F		
19	Unemployment compensation		
20a	Social security benefits	20a	b Taxable
21	Other income. List type and amount		
22	Combine the amounts in the far right column for lines 7 through 21. This is your total income		

Adjusted Gross Income

23	Educator expenses		23
24	Certain business expenses of reservists, performing artists, and fee-based government officials. Attach Form 2106 or 2106-EZ		24
25	Health savings account deduction. Attach Form 8889		25
26	Moving expenses. Attach Form 3903		26
27	Deductible part of self-employment tax. Attach Schedule SE		27
28	Self-employed SEP, SIMPLE, and qualified plans		28
29	Self-employed health insurance deduction		29
30	Penalty on early withdrawal of savings		30
31a	Alimony paid b Recipient's SSN		31a
32	IRA deduction		32
33	Student loan interest deduction	STMT 3	33
34	Tuition and fees. Attach Form 8917		34
35	Domestic production activities deduction. Attach Form 8903		35
36	Add lines 23 through 35		36
37	Subtract line 36 from line 22. This is your adjusted gross income		37

119001 11-07-11 LHA For Disclosure, Privacy Act, and Paperwork Reduction Act Notice, see separate instructions. Form 1040 (2011)

Form 1040 (2011) **RUSTY [REDACTED] [REDACTED] UTTERLIN [REDACTED]** Ala Code § 40-2A-10 Ala Code § 40-2A-10 Ala Code § 40-2A-10

Tax and Credits

38 Amount of gross income **[REDACTED]** 38

39a Check Spouse was born before January 2, 1947, Blind. checked **[REDACTED]** 39a

39b If your spouse itemizes on a separate return or you were a dual-status alien, check here 39b

40 Itemized deductions (from Schedule A) or your standard deduction (see left margin) **[REDACTED]** 40

41 Subtract line 40 from line 38 41

42 Exemptions. Multiply \$3,700 by the number on line 6d 42

43 Taxable income. Subtract line 42 from line 41. If line 42 is more than line 41, enter -0- 43

44 Tax. Check if any from: a Form(s) 8814 b Form 4972 c 962 election 44

45 Alternative minimum tax. Attach Form 6251 45

46 Add lines 44 and 45 46

47 Foreign tax credit. Attach Form 1116 if required 47

48 Credit for child and dependent care expenses. Attach Form 2441 48

49 Education credits from Form 8863, line 23 49

50 Retirement savings contributions credit. Attach Form 8880 50

51 Child tax credit (see instructions) 51

52 Residential energy credits. Attach Form 5695 52

53 Other credits from Form: a 3800 b 8801 c 53

54 Add lines 47 through 53. These are your total credits 54

55 Subtract line 54 from line 46. If line 54 is more than line 46, enter -0- 55

Other Taxes

56 Self-employment tax. Attach Schedule SE 56

57 Unreported social security and Medicare tax from Form: a 4137 b 8919 57

58 Additional tax on IRAs, other qualified retirement plans, etc. Attach Form 5329 if required 58

59a Household employment taxes from Schedule H 59a

59b First-time homebuyer credit repayment. Attach Form 5405 if required 59b

60 Other taxes. Enter code(s) from instructions 60

61 Add lines 55 through 60. This is your total tax **[REDACTED]** 61

Payments

62 Federal income tax withheld from Forms W-2 and 1099 62

63 2011 estimated tax payments and amount applied from 2010 return 63

64a Earned income credit (EIC) **[REDACTED]** 64a

64b Nontaxable combat pay election 64b

65 Additional child tax credit. Attach Form 8812 65

66 American opportunity credit from Form 8863, line 14 66

67 First-time homebuyer credit from Form 5405, line 10 67

68 Amount paid with request for extension to file 68

69 Excess social security and tier 1 RRTA tax withheld **STMT 7** 69

70 Credit for federal tax on fuels. Attach Form 4136 70

71 Credits from Form: a 2439 b 8839 c 8801 d 8885 71

72 Add lines 62, 63, 64a, and 65 through 71. These are your total payments **[REDACTED]** 72

Refund

73 If line 72 is more than line 61, subtract line 61 from line 72. This is the amount you overpaid 73

74a **[REDACTED]** Ala Code § 40-2A-10 74a

74b Amount of line 73 you want applied to your 2012 estimated tax 74b

Amount You Owe

76 Amount you owe. Subtract line 72 from line 61. For details on how to pay, see instructions 76

77 Estimated tax penalty (see instructions) 77

Third Party Designee **[REDACTED]** Ala Code § 40-2A-10

Sign Here

Your signature **[REDACTED]** Date **[REDACTED]** Ala Code § 40-2A-10

Spouse's signature. If a joint return, both must sign. **[REDACTED]** Date **[REDACTED]**

Daytime phone number **[REDACTED]**

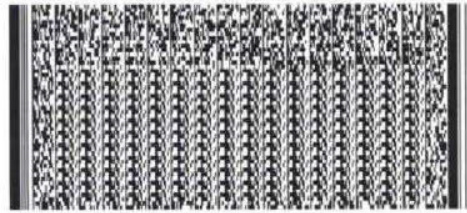
If the IRS sent you an Identity Protection PIN, enter it here **[REDACTED]**

Ala Code § 40-2A-10

FORM 40 Alabama Individual Income Tax Return RESIDENTS & PART-YEAR RESIDENTS

Ala Code § 40-2A-10

Ala Code § 40-2A-10



Filing Status/Exemptions Ala Code § 40-2A-10

Income and Adjustments Ala Code § 40-2A-10

Deductions Ala Code § 40-2A-10

Tax Ala Code § 40-2A-10

Payments Ala Code § 40-2A-10

AMOUNT YOU OWE Ala Code § 40-2A-10

Form 1040 EXTENSION GRANTED TO 10/15/2012 U.S. Individual Income Tax Return 2012

Your first name and initial Last name RUSTY SUTTERLIN

Ala Code § 40-2A-10

Ala Code § 40-2A-10

First name Last name SUTTERLIN

Foreign country name Foreign province/state/county Foreign postal code

HOOVER, AL 35226

Filing Status

Ala Code § 40-2A-10

Check only one box.

Exemption

Dependents

Ala Code § 40-2A-10

Total number of exemptions claimed

Income 7 Wages, salaries, tips, etc. Attach Form(s) W-2

8a Taxable interest. Attach Schedule B if required

b Tax-exempt interest. Do not include on line 8a

9a Ordinary dividends. Attach Schedule B if required

b Qualified dividends

10 Taxable refunds, credits, or offsets of state and local income taxes

11 Alimony received

12 Business income or (loss). Attach Schedule C or C-EZ

13 Capital gain or (loss). Attach Schedule D if required. If not required, check here

14 Other gains or (losses). Attach Form 4797

15a IRA distributions

16a Pensions and annuities

17 Rental real estate, royalties, partnerships, S corporations, trusts, etc. Attach Schedule E

18 Farm income or (loss). Attach Schedule F

19 Unemployment compensation

20a Social security benefits

21 Other income. List type and amount

22 Combine the amounts in the far right column for lines 7 through 21. This is your total income

Adjusted Gross Income 23 Educator expenses

24 Certain business expenses of reservists, performing artists, and fee-based government officials. Attach Form 2106 or 2106-EZ

25 Health savings account deduction. Attach Form 8889

26 Moving expenses. Attach Form 3903

27 Deductible part of self-employment tax. Attach Schedule SE

28 Self-employed SEP, SIMPLE, and qualified plans

29 Self-employed health insurance deduction

30 Penalty on early withdrawal of savings

31a Alimony paid b Recipient's SSN

32 IRA deduction

33 Student loan interest deduction

34 Tuition and fees. Attach Form 8917

35 Domestic production activities deduction. Attach Form 8903

36 Add lines 23 through 35

37 Subtract line 36 from line 22. This is your adjusted gross income

Form 1040 (2012) **RUSTY [REDACTED] [REDACTED] UTTERLIN**

Ala Code § 40-2A-10

Ala Code § 40-2A-10

Tax and Credits

38 Amount (income) **[REDACTED]**

39a Check You were born before January 2, 1948, Blind. Spouse was born before January 2, 1948, Blind. checked 39a

b If your spouse itemizes on a separate return or you were a dual-status alien, check here 39b

40 Itemized deductions (from Schedule A) or your standard deduction (see left margin) **40**

41 Subtract line 40 from line 38 **41**

42 Exemptions. Multiply \$3,800 by the number on line 6d **42**

43 Taxable income. Subtract line 42 from line 41. If line 42 is more than line 41, enter -0- **43**

44 Tax. Check if any from: a Form(s) 8814 b Form 4972 c 962 election **44**

45 Alternative minimum tax. Attach Form 6251 **45**

46 Add lines 44 and 45 **46**

47 Foreign tax credit. Attach Form 1116 if required **47**

48 Credit for child and dependent care expenses. Attach Form 2441 **48**

49 Education credits from Form 8863, line 19 **49**

50 Retirement savings contributions credit. Attach Form 8880 **50**

51 Child tax credit. Attach Schedule 8812, if required **51**

52 Residential energy credits. Attach Form 5695 **52**

53 Other credits from Form: a 3800 b 8801 c **53**

54 Add lines 47 through 53. These are your total credits **54**

55 Subtract line 54 from line 46. If line 54 is more than line 46, enter -0- **55**

Other Taxes

56 Self-employment tax. Attach Schedule SE **56**

57 Unreported social security and Medicare tax from Form: a 4137 b 8919 **57**

58 Additional tax on IRAs, other qualified retirement plans, etc. Attach Form 5329 if required **58**

59a Household employment taxes from Schedule H **59a**

b First-time homebuyer credit repayment. Attach Form 5405 if required **59b**

60 Other taxes. Enter code(s) from instructions **60**

61 Add lines 55 through 60. This is your total tax **61**

Payments

62 Federal income tax withheld from Forms W-2 and 1099 **62**

63 2012 estimated tax payments and amount applied from 2011 return **63**

64a Earned income credit (EIC) **64a**

b Non-taxable combat pay election **64b**

65 Additional child tax credit. Attach Schedule 8812 **65**

66 American opportunity credit from Form 8863, line 8 **66**

67 Reserved **67**

68 Amount paid with request for extension to file **68**

69 Excess social security and tier 1 RRTA tax withheld **STMT 6** **69**

70 Credit for federal tax on fuels. Attach Form 4136 **70**

71 Credits from Form: a 2439 b Reserve c 8801 d 8885 **71**

72 Add lines 62, 63, 64a, and 65 through 71. These are your total payments **72**

Refund

73 If line 72 is more than line 61, subtract line 61 from line 72. This is the amount you overpaid **73**

74a **Ala Code § 40-2A-10** **74a**

75 **Ala Code § 40-2A-10** **75**

Amount You Owe

76 Amount you owe. Subtract line 72 from line 61. For details on how to pay, see instructions **76**

77 Estimated tax penalty (see instructions) **77**

Third Party Designee

Ala Code § 40-2A-10

Sign Here

Don't return? See instructions. Keep a copy for your records.

Your signature **Ala Code § 40-2A-10** Date **Ala Code § 40-2A-10** Day time phone number

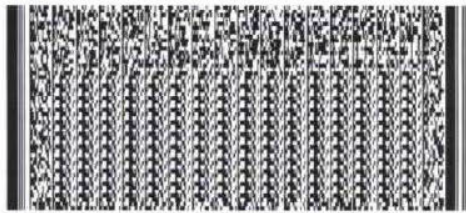
Spouse's signature. If a joint return, both must sign. Date **Ala Code § 40-2A-10** If the IRS sent you an Identity Protection PIN, enter it here.

Ala Code § 40-2A-10

FORM 40 Alabama 2012
 Individual Income Tax Return
 RESIDENTS & PART-YEAR RESIDENTS
 For the year Jan. 1 - Dec. 31, 2012, or other tax year

Ala Code § 40-2A-10

Ala Code § 40-2A-10



Check if address outside U.S. Foreign Country **CHECK BOX IF AMENDED RETURN** 1019
 Filing Status/ Exemptions 1 \$1,500 Single 3 \$1,500 Married filing separate. Complete Spouse SSN
 2 \$3,000 Married filing joint 4 \$3,000 Head of Family (with qualifying person)

Ala Code § 40-2A-10

7	Other income (from page 2, Part I, line 9)	7
8	Total income. Add amounts in the income column for line 5a through line 7	8
9	Total adjustments to income (from page 2, Part II, line 12)	9
10	Adjusted gross income. Subtract line 9 from line 8	10
11	Box a or b MUST be checked. Check box a, if you itemize deductions , and enter amount from Schedule A. Check box b, if you do not itemize deductions, and enter standard deduction . • a <input checked="" type="checkbox"/> Itemized Deductions • b <input type="checkbox"/> Standard Deduction	11
12	Federal tax deduction (see instructions) STATEMENT 1 DO NOT ENTER THE FEDERAL TAX WITHHELD FROM YOUR FORM W-2(S)	12
13	Personal exemption (from line 1, 2, 3, or 4)	13
14	Dependent exemption (from page 2, Part III, line 2)	14
15	Total deductions. Add lines 11, 12, 13, and 14	15
16	Taxable income. Subtract line 15 from line 10	16
17	Income Tax due. Enter amount from tax table or check if from <input type="checkbox"/> Form N	17
18	Less credits from: <input type="checkbox"/> Schedule CR and/or <input type="checkbox"/> Schedule OC	18
19a	Net tax due Alabama. Subtract line 18 from line 17	19a
19b	b Consumer Use Tax (use worksheet on page 9)	19b
20	Alabama Election Campaign Fund. You may make a voluntary contribution to: a Alabama Democratic Party <input type="checkbox"/> \$1 <input type="checkbox"/> \$2 <input checked="" type="checkbox"/> none b Alabama Republican Party <input type="checkbox"/> \$1 <input type="checkbox"/> \$2 <input checked="" type="checkbox"/> none	20a 20b
21	Total tax liability and voluntary contribution. Add lines 19a, 19b, 20a, and 20b	21
22	Alabama income tax withheld (from Forms W-2, W-2G, and/or 1099)	22
23	2012 estimated tax payments/Automatic Extension Payment	23
24	Amended Returns Only - Previous payments (see instructions)	24
25	Total payments. Add lines 22, 23 and 24	25
26	Amended Returns Only - Previous refund (see instructions)	26
27	Adjusted Total Payments. Subtract line 26 from line 25	27
28	If line 21 is larger than line 27, subtract line 27 from line 21, and enter AMOUNT YOU OWE . Place payment, along with Form 40V, loose in the mailing envelope. (FORM 40V MUST ACCOMPANY PAYMENT.)	28
29	Estimated tax penalty. Also include on line 28 (see instr. page 11)	29
30	If line 27 is larger than line 21, subtract line 21 from line 27, and enter amount OVERPAID	30
31	Amount of line 30 to be applied to your 2013 estimated tax	31
32	Total Donation Check-offs from Schedule DC, line 2	32
33	REFUNDED TO YOU. (CAUTION: You must sign this return on page 2.) Subtract lines 31 and 32 from line 30. For Direct Deposit, check here <input checked="" type="checkbox"/> and complete Part V, Pg 2. <input type="checkbox"/> Check this box to have your refund issued on a debit card.	33

Form **1040** EXTENSION GRANTED TO 10/15/2013
U.S. Individual Income Tax Return 2013
OMB No. 1545-0074 IRS Use Only - Do not write or staple in this space.

For the year Jan. 1-Dec. 31, 2013, or other tax year beginning _____, 2013, ending _____

Your first name and initial: **RUSTY** Last name: **SUTTERLIN** Ala Code § 40-2A-10

Your last name and initial: **SUTTERLIN** Ala Code § 40-2A-10

City, town or post office, state, and ZIP code: **HOOVER, AL 35226**

Foreign country name: _____ Foreign province/state/country: _____ Foreign postal code: _____

Filing Status: **Ala Code § 40-2A-10**

Check only one box. You Spouse

Exemptions: _____

Income:

7	Wages, salaries, tips, etc. Attach Form(s) W-2		7
8a	Taxable interest. Attach Schedule B if required		8a
8b	Tax-exempt interest. Do not include on line 8a		8b
9a	Ordinary dividends. Attach Schedule B if required		9a
9b	Qualified dividends		9b
10	Taxable refunds, credits, or offsets of state and local income taxes	STMT 1 STMT 2	10
11	Alimony received		11
12	Business income or (loss). Attach Schedule C or C-EZ		12
13	Capital gain or (loss). Attach Schedule D if required. If not required, check here	<input type="checkbox"/>	13
14	Other gains or (losses). Attach Form 4797		14
15a	IRA distributions	15a	15b
16a	Pensions and annuities	16a	16b
17	Rental real estate, royalties, partnerships, S corporations, trusts, etc. Attach Schedule E		17
18	Farm income or (loss). Attach Schedule F		18
19	Unemployment compensation		19
20a	Social security benefits	20a	20b
21	Other income. List type and amount		21
22	Combine the amounts in the far right column for lines 7 through 21. This is your total income.		22
23	Educator expenses	23	
24	Certain business expenses of reservists, performing artists, and fee-basis government officials. Attach Form 2106 or 2106-EZ	24	
25	Health savings account deduction. Attach Form 8889	25	
26	Moving expenses. Attach Form 3903	26	
27	Deductible part of self-employment tax. Attach Schedule SE	27	
28	Self-employed SEP, SIMPLE, and qualified plans	28	
29	Self-employed health insurance deduction	29	
30	Penalty on early withdrawal of savings	30	
31a	Alimony paid	31a	
32	IRA deduction	32	
33	Student loan interest deduction	STMT 3	
34	Tuition and fees. Attach Form 8917	34	
35	Domestic production activities deduction. Attach Form 8903	35	
36	Add lines 23 through 35		36
37	Subtract line 36 from line 22. This is your adjusted gross income		37

210801 12-23-13 LHA For Disclosure, Privacy Act, and Paperwork Reduction Act Notice, see separate instructions. Form 1040 (2013)

Ala Code § 40-2A-10 Ala Code § 40-2A-10 Ala Code § 40-2A-10

Form 1040 (2013) **RUSTY BUTTERLIN**

Tax and Credits

38 Amount from line 37 (adjusted gross income) 40

39a Check You were born before January 2, 1949, Blind. Total boxes checked 39a

if: Spouse was born before January 2, 1949, Blind. 39b

b If your spouse itemizes on a separate return or you were a dual-status alien, check here 39b

40 Itemized deductions (from Schedule A) or your standard deduction (see left margin) 40

41 Subtract line 40 from line 38 41

42 Exemptions. If line 38 is \$150,000 or less, multiply \$3,900 by the number on line 6d. Otherwise, see inst. 42

43 Taxable income. Subtract line 42 from line 41. If line 42 is more than line 41, enter -0- 43

44 Tax. Check if any from: a Form(s) 8814 b Form 4972 c 44

45 Alternative minimum tax. Attach Form 6251 45

46 Add lines 44 and 45 46

47 Foreign tax credit. Attach Form 1116 if required 47

48 Credit for child and dependent care expenses. Attach Form 2441 48

49 Education credits from Form 8863, line 19 49

50 Retirement savings contributions credit. Attach Form 8880 50

51 Child tax credit. Attach Schedule 8812, if required 51

52 Residential energy credits. Attach Form 5695 52

53 Other credits from Form: a 3800 b 8801 c 53

54 Add lines 47 through 53. These are your total credits 54

55 Subtract line 54 from line 46. If line 54 is more than line 46, enter -0- 55

Other Taxes

56 Self-employment tax. Attach Schedule SE 56

57 Unreported social security and Medicare tax from Form: a 4137 b 8919 57

58 Additional tax on IRAs, other qualified retirement plans, etc. Attach Form 5329 if required 58

59a Household employment taxes from Schedule H 59a

b First-time homebuyer credit repayment. Attach Form 5405 if required 59b

60 Taxes from: a Form 8959 b Form 8960 c Inst.; enter code(s) 60

61 Add lines 55 through 60. This is your total tax 61

Payments

62 Federal income tax withheld from Forms W-2 and 1099 62

63 2013 estimated tax payments and amount applied from 2012 return 63

64a Earned income credit (EIC) 64a

b Nontaxable combat pay election 64b

65 Additional child tax credit. Attach Schedule 8812 65

66 American opportunity credit from Form 8863, line 8 66

67 Reserved 67

68 Amount paid with request for extension to file 68

69 Excess social security and tier 1 RRTA tax withheld STMT 5 69

70 Credit for federal tax on fuels. Attach Form 4136 70

71 Credits from Form: a 2439 b Reserved c 8885 d 71

72 Add lines 62, 63, 64a, and 65 through 71. These are your total payments 72

Refund

73 If line 72 is more than line 61, subtract line 61 from line 72. This is the amount you overpaid 73

74a Amount of line 73 you want refunded from: if Form 8878 is attached, check here 74a

74b **Ala Code § 40-2A-10** 74b

75 Amount of line 73 you want applied to your 2014 estimated tax 75

76 Amount you owe. Subtract line 72 from line 61. For details on how to pay, see instructions 76

77 Estimated tax penalty (see instructions) 77

Third Party Designee

Ala Code § 40-2A-10

Sign Here

Joint return? See instructions. Keep a copy for your records.

Your signature: _____ Date: _____ Ala Code § 40-2A-10 Daytime phone number: _____

Spouse's signature. If a joint return, both must sign. _____ Date: _____

If the IRS sent you an Identity Protection PIN, enter it here: _____

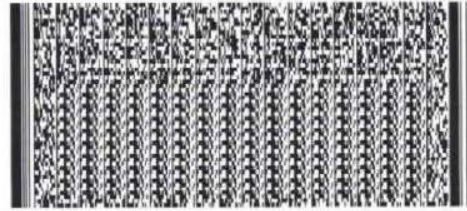
Ala Code § 40-2A-10

31007 04-02

FORM 40 Alabama Individual Income Tax Return RESIDENTS & PART-YEAR RESIDENTS

For the year Beginning: Your social security number Ala Code § 40-2A-10

Ala Code § 40-2A-10



Check if address outside U.S. Filing Status/Exemptions Ala Code § 40-2A-10

Ala Code § 40-2A-10

Income and Adjustments	
6	Interest and dividend income (also attach Schedule B if over \$1,500)
7	Other income (from page 2, Part I, line 9)
8	Total income. Add amounts in the income column for line 5a through line 7
9	Total adjustments to income (from page 2, Part II, line 12)
10	Adjusted gross income. Subtract line 9 from line 8
Deductions	
11	Box a or b MUST be checked. Check box a, if you itemize deductions , and enter amount from Schedule A. Ala Code § 40-2A-10 Check box b, if you do not itemize deductions, and enter standard deduction amount. • a <input checked="" type="checkbox"/> Itemized Deductions • b <input type="checkbox"/> Standard Deduction
12	Federal tax deduction (see instructions) STATEMENT 1
13	Personal exemption (from line 1, 2, 3, or 4)
14	Dependent exemption (from page 2, Part III, line 2)
15	Total deductions. Add lines 11, 12, 13, and 14
16	Taxable income. Subtract line 15 from line 10
Tax	
17	Income Tax due. Enter amount from tax table or check if from Form NOL-85A
18	Net tax due Alabama. Enter amount from Schedule NTC, line 7
19	Consumer Use Tax (see instructions). If you certify that no use tax is due, check box <input checked="" type="checkbox"/>
Alabama Election Campaign Fund. You may make a voluntary contribution to the following:	
20a	a Alabama Democratic Party <input type="checkbox"/> \$1 <input type="checkbox"/> \$2 <input checked="" type="checkbox"/> none
20b	b Alabama Republican Party <input type="checkbox"/> \$1 <input type="checkbox"/> \$2 <input checked="" type="checkbox"/> none
21	Total tax liability and voluntary contribution. Add lines 18, 19, 20a, and 20b. Ala Code § 40-2A-10
22	Alabama income tax withheld (from Forms W-2, W-2G, and/or 1099)
23	2013 estimated tax payments/Automatic Extension Payment
24	Amended Returns Only - Previous payments (see instructions)
Payments	
25	Refundable portion of Alabama Accountability Act of 2013 Credit
26	Total payments. Add lines 22, 23, 24 and 25
27	Amended Returns Only - Previous refund (see instructions)
28	Adjusted Total Payments. Subtract line 27 from line 26
AMOUNT YOU OWE	
29	If line 21 is larger than line 28, subtract line 28 from line 21, and enter AMOUNT YOU OWE. Place payment, along with Form 40V, loose in the mailing envelope. (FORM 40V MUST ACCOMPANY PAYMENT.)
30	Estimated tax penalty. Also include on line 29 (see instr. page 11)
OVERPAID	
31	If line 28 is larger than line 21, subtract line 21 from line 28, and enter amount OVERPAID
32	Amount of line 31 to be applied to your 2014 estimated tax
Donations	
33	Total Donation Check-offs from Schedule DC, line 2
REFUND	
34	REFUNDED TO YOU. (CAUTION: You must sign this return on page 2.) Subtract lines 32 and 33 from line 31. For Direct Deposit, check here <input checked="" type="checkbox"/> and complete Part V, Pg. 2. <input type="checkbox"/> Check this box to have your refund issued on a debit card.

Form 1040 U.S. Individual Income Tax Return (99) 2014OMB No. 1545-0047 PS-Use Only - Do not write or staple in this space.

For the year Jan. 1-Dec. 31, 2014, or other tax year beginning _____, 2014, ending _____

Your first name and initial: **RUSTY** Last name: **SUTTERLIN** Ala Code § 40-2A-10

Last name: **SUTTERLIN** Ala Code § 40-2A-10

City, town or post office, state, and ZIP code. If you have a foreign address, also complete spaces below.
HOOVER, AL 35226

Foreign country name Foreign province/state/county Foreign postal code

Filing Status Ala Code § 40-2A-10

Check only one box.

Exemptions Ala Code § 40-2A-10

c Dependents: (1) Dependent's social (2) Dependent's relationship to (3) If child under age 17

If more than four dependents, see instructions and check here ▶

Income

7	Wages, salaries, tips, etc. Attach Form(s) W-2	7
8a	Taxable interest. Attach Schedule B if required	8a
b	Tax-exempt interest. Do not include on line 8a	8b
9a	Ordinary dividends. Attach Schedule B if required	9a
b	Qualified dividends	9b
10	Taxable refunds, credits, or offsets of state and local income taxes STMT 1	10
11	Alimony received	11
12	Business income or (loss). Attach Schedule C or C-EZ	12
13	Capital gain or (loss). Attach Schedule D if required. If not required, check here	13
14	Other gains or (losses). Attach Form 4797	14
15a	IRA distributions	15a
b	Taxable amount	15b
16a	Pensions and annuities	16a
b	Taxable amount	16b
17	Rental real estate, royalties, partnerships, S corporations, trusts, etc. Attach Schedule E	17
18	Farm income or (loss). Attach Schedule F	18
19	Unemployment compensation	19
20a	Social security benefits	20a
b	Taxable amount	20b
21	Other income. List type and amount	21
22	Combine the amounts in the far right column for lines 7 through 21. This is your total income	22
23	Educator expenses	23
24	Certain business expenses of reservists, performing artists, and fee-basis government officials. Attach Form 2106 or 2106-EZ	24
25	Health savings account deduction. Attach Form 8889	25
26	Moving expenses. Attach Form 3903	26
27	Deductible part of self-employment tax. Attach Schedule SE	27
28	Self-employed SEP, SIMPLE, and qualified plans	28
29	Self-employed health insurance deduction	29
30	Penalty on early withdrawal of savings	30
31a	Alimony paid b Recipient's SSN ▶	31a
32	IRA deduction	32
33	Student loan interest deduction STMT 3	33
34	Tuition and fees. Attach Form 8917	34
35	Domestic production activities deduction. Attach Form 8903	35
36	Add lines 23 through 35	36
37	Subtract line 36 from line 22. This is your adjusted gross income	37

410001 12-31-14 LHA. For Disclosure, Privacy Act, and Paperwork Reduction Act Notice, see separate instructions. Form 1040 (2014)

Form 1040 (2014) **RUSTY [REDACTED] SUTTERLIN [REDACTED]**

Ala Code § 40-2A-10 Ala Code § 40-2A-10 Ala Code § 40-2A-10

Tax and Credits

38 Amount from line 37 (adjusted gross income) 38

39a Check You were born before January 2, 1950, Blind. Total boxes checked 39a

39b If your spouse itemizes on a separate return or you were a dual-status alien, check here 39b

40 Itemized deductions (from Schedule A) or your standard deduction (see left margin) 40

41 Subtract line 40 from line 38 41

42 Exemptions. If line 38 is \$152,525 or less, multiply \$3,950 by the number on line 6d. Otherwise, see inst. 42

43 Taxable income. Subtract line 42 from line 41. If line 42 is more than line 41, enter -0- 43

44 Tax. Check if any from: a Form(s) 8814 b Form 4872 c 44

45 Alternative minimum tax. Attach Form 6251 45

46 Excess advance premium tax credit repayment. Attach Form 8962 46

47 Add lines 44, 45, and 46 47

48 Foreign tax credit. Attach Form 1116 if required 48

49 Credit for child and dependent care expenses. Attach Form 2441 49

50 Education credits from Form 8863, line 19 50

51 Retirement savings contributions credit. Attach Form 8880 51

52 Child tax credit. Attach Schedule 8812, if required 52

53 Residential energy credits. Attach Form 5695 53

54 Other credits from Form: a 3800 b 8801 c 54

55 Add lines 48 through 54. These are your total credits 55

56 Subtract line 55 from line 47. If line 55 is more than line 47, enter -0- 56

Other Taxes

57 Self-employment tax. Attach Schedule SE 57

58 Unreported social security and Medicare tax from Form: a 4137 b 8919 58

59 Additional tax on IRAs, other qualified retirement plans, etc. Attach Form 5329 if required 59

60 Household employment taxes from Schedule H 60

61 First-time homebuyer credit repayment. Attach Form 5405 if required 61

62 Health care: Individual responsibility (see instructions) Full-year coverage 62

63 Taxes from: a Form 8959 b Form 8960 c Inst.; enter code(s) 63

64 Add lines 56 through 62. This is your total tax 63

Payments

64 Federal income tax withheld from Forms W-2 and 1099 64

65 2014 estimated tax payments and amount applied from 2013 return 65

66a Earned income credit (EIC) 66a

66b Nontaxable combat pay election 66b

67 Additional child tax credit. Attach Schedule 8812 67

68 American opportunity credit from Form 8863, line 8 68

69 Net premium tax credit. Attach Form 8962 69

70 Amount paid with request for extension to file 70

71 Excess social security and tier 1 RRTA tax withheld STMT 6 71

72 Credit for federal tax on fuels. Attach Form 4136 72

73 Credits from Form: a 2439 b Reserved c Reserved d 73

74 Add lines 64, 65, 66a, and 67 through 73. These are your total payments 74

Refund

75 If line 74 is more than line 63, subtract line 63 from line 74. This is the amount you overpaid 75

76 Direct deposit? See instructions. 76a

77 77

Amount You Owe

78 78

Third Party Designee

79 79

Yes. Complete below. No

Sign Here

Under penalties of perjury, I declare that I have examined this return and accompanying schedules and statements, and to the best of my knowledge and belief, they are true, correct, and complete. Declaration of preparer (other than taxpayer) is based on all information of which preparer has any knowledge.

Your signature: [REDACTED] Date: [REDACTED] Daytime phone number: [REDACTED]

Spouse's signature, if a joint return: both must sign. Date: [REDACTED]

If the IRS sent you an Identity Protection PIN, enter it here: [REDACTED]

Ala Code § 40-2A-10

Ala Code § 40-2A-10

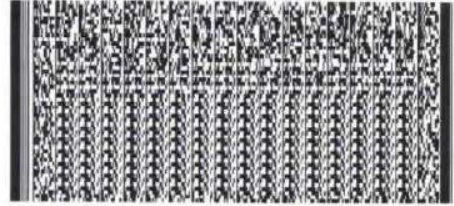
Ala Code § 40-2A-10

410002 12-31-14

FORM **40** Alabama **2014**
 Individual Income Tax Return
 RESIDENTS & PART-YEAR RESIDENTS

For the year Jan. 1 - Dec. 31, 2014, or other tax year:
 Beginning
 Your social security #

Ala Code § 40-2A-10
• RUSTY SUTTERLIN
Ala Code § 40-2A-10



Check if address outside U.S. Foreign
 Filing Status/Exemptions **Ala Code § 40-2A-10**
 CHECK BOX IF AMENDED RETURN 10/9
 Separate. Complete Spouse SSN _____
 with qualifying person).

Ala Code § 40-2A-10

Income and adjustments	6 Interest and dividend income (also attach Schedule B if over \$1,500)	6 *
	7 Other income (from page 2, Part I, line 9)	7 *
	8 Total income. Add amounts in the income column for line 5a through line 7	8 *
	9 Total adjustments to income (from page 2, Part II, line 12)	9 *
	10 Adjusted gross income. Subtract line 9 from line 8	10 *
Deductions	11 Box a or b MUST be checked. Check box a, if you itemize deductions, and enter amount from Schedule A, line 27. Check box b, if you do not itemize deductions, and enter standard deduction: • a <input checked="" type="checkbox"/> Itemized Deductions • b <input type="checkbox"/> Standard Deduction	11 *
	12 Federal tax deduction (see instructions) STATEMENT 1 DO NOT ENTER THE FEDERAL TAX WITHHELD FROM YOUR FORM W-2(S)	12 *
	13 Personal exemption (from line 1, 2, 3, or 4)	13 *
	14 Dependent exemption (from page 2, Part III, line 2)	14 *
	15 Total deductions. Add lines 11, 12, 13, and 14	15 *
	16 Taxable income. Subtract line 15 from line 10	16 *
Tax	17 Income Tax due. Enter amount from tax table or check if from <input type="checkbox"/> Form N	17 *
	18 Net tax due Alabama. Check box if computing tax using Sch NTC <input type="checkbox"/> , otherwise	18 *
	19 Consumer Use Tax (see instructions). If you certify that no use tax is due, check	19 *
State Form(s)	20 Alabama Election Campaign Fund. You may make a voluntary contribution to a Alabama Democratic Party <input type="checkbox"/> \$1 <input type="checkbox"/> \$2 <input checked="" type="checkbox"/> none b Alabama Republican Party <input type="checkbox"/> \$1 <input type="checkbox"/> \$2 <input checked="" type="checkbox"/> none	20a * 20b *
	21 Total tax liability and voluntary contribution. Add lines 18, 19, 20a, and 20b	21 *
	22 Alabama income tax withheld (from Forms W-2, W-2G, and/or 1099)	22 *
	23 2014 estimated tax payments/Automatic Extension Payment	23 *
	24 Amended Returns Only - Previous payments (see instructions)	24 *
Payments	25 Refundable portion of Alabama Accountability Act of 2013 Credit	25 *
	26 Refundable portion of Adoption Credit	26 *
	27 Total payments. Add lines 22, 23, 24, 25, and 26	27 *
	28 Amended Returns Only - Previous refund (see instructions)	28 *
	29 Adjusted Total Payments. Subtract line 28 from line 27	29 *
AMOUNT YOU OWE	30 If line 21 is larger than line 29, subtract line 29 from line 21, and enter AMOUNT YOU OWE. Place payment, along with Form 40V, loose in the mailing envelope. (FORM 40V MUST ACCOMPANY PAYMENT.)	30 *
	31 Estimated tax penalty. Also include on line 30 (see instr. page 11)	31 * 00
OVERPAID	32 If line 29 is larger than line 21, subtract line 21 from line 29, and enter amount OVERPAID	32 * 00
	33 Amount of line 32 to be applied to your 2015 estimated tax	33 * 00
Donations	34 Total Donation Check-offs from Schedule DC, line 2	34 * 00
REFUND	35 REFUNDED TO YOU. (CAUTION: You must sign this return on page 2.) Subtract lines 33 and 34 from line 32. For Direct Deposit, check here <input checked="" type="checkbox"/> and complete Part V, Page 2.	35 *

Form **1040** U.S. Individual Income Tax Return (99) **2015** OMB No. 1545-0047 IRS Use Only - Do not write or staple in this space.

For the year Jan. 1-Dec. 31, 2015, or other tax year beginning _____, 2015, ending _____ See separate instructions.

Your first name and initial
RUSTY

Last name
SUTTERLIN

Last name
SUTTERLIN

Apt. no. _____

City, town or post office, state, and ZIP code. If you have a foreign address, also complete spaces below.
HOOVER, AL 35226

Foreign country name _____ Foreign province/state/country _____ Foreign postal code _____

Filing Status _____

Check only one box:
 You **Spouse**

Exemption _____

If more than four dependents, see instructions and check here

Income	7	8a	8b	9a	9b	10	11	12	13	14	15a	15b	16a	16b	17	18	19	20a	20b	21	22	
7	Wages, salaries, tips, etc. Attach Form(s) W-2																					
8a	Taxable interest. Attach Schedule B if required																					
8b	Tax-exempt interest. Do not include on line 8a																					
9a	Ordinary dividends. Attach Schedule B if required																					
9b	Qualified dividends																					
10	Taxable refunds, credits, or offsets of state and local income taxes																					
11	Alimony received																					
12	Business income or (loss). Attach Schedule C or C-EZ																					
13	Capital gain or (loss). Attach Schedule D if required. If not required, check here																					
14	Other gains or (losses). Attach Form 4797																					
15a	IRA distributions																					
15b	Taxable amount																					
16a	Pensions and annuities																					
16b	Taxable amount																					
17	Rental real estate, royalties, partnerships, S corporations, trusts, etc. Attach Schedule E																					
18	Farm income or (loss). Attach Schedule F																					
19	Unemployment compensation																					
20a	Social security benefits																					
20b	Taxable amount																					
21	Other income. List type and amount																					
22	Combine the amounts in the far right column for lines 7 through 21. This is your total income																					
Adjusted Gross Income	23	24	25	26	27	28	29	30	31a	32	33	34	35	36	37							
	Educator expenses																					
	Certain business expenses of reservists, performing artists, and fee-based government officials. Attach Form 2106 or 2106-EZ																					
	Health savings account deduction. Attach Form 8889																					
	Moving expenses. Attach Form 3903																					
	Deductible part of self-employment tax. Attach Schedule SE																					
	Self-employed SEP, SIMPLE, and qualified plans																					
	Self-employed health insurance deduction																					
	Penalty on early withdrawal of savings																					
	Alimony paid b Recipient's SSN																					
	IRA deduction																					
	Student loan interest deduction																					
	Tuition and fees. Attach Form 8917																					
	Domestic production activities deduction. Attach Form 8903																					
	Add lines 23 through 35																					
	Subtract line 36 from line 22. This is your adjusted gross income																					

510001 12-30-15 LHA For Disclosure, Privacy Act, and Paperwork Reduction Act Notice, see separate instructions. Form 1040 (2015)

Ala Code § 40-2A-10

Ala Code § 40-2A-10

Ala Code § 40-2A-10

Form 1040 (2015) **RUSTY** [REDACTED] **BUTTERLIN** [REDACTED]

Tax and Credits

38 Amount from line 67 (adjusted gross income) 38

39a Check You were born before January 2, 1951, Blind. Total boxes checked 39a

if: Spouse was born before January 2, 1951, Blind.

b If your spouse itemizes on a separate return or you were a dual-status alien, check here 39b

40 Itemized deductions (from Schedule A) or your standard deduction (see left margin) 40

41 Subtract line 40 from line 38 41

42 Exemptions. If line 38 is \$154,950 or less, multiply \$4,000 by the number on line 6d. Otherwise, see inst. 42

43 Taxable income. Subtract line 42 from line 41. If line 42 is more than line 41, enter -0- 43

44 Tax. Check if any from: a Form(s) 8814 b Form 4972 c 44

45 Alternative minimum tax. Attach Form 6251 45

46 Excess advance premium tax credit repayment. Attach Form 8962 46

47 Add lines 44, 45, and 46 47

48 Foreign tax credit. Attach Form 1116 if required 48

49 Credit for child and dependent care expenses. Attach Form 2441 49

50 Education credits from Form 8863, line 19 50

51 Retirement savings contributions credit. Attach Form 8880 51

52 Child tax credit. Attach Schedule 8812, if required 52

53 Residential energy credits. Attach Form 5695 53

54 Other credits from Form: a 3800 b 8801 c 54

55 Add lines 48 through 54. These are your total credits 55

56 Subtract line 55 from line 47. If line 55 is more than line 47, enter -0- 56

Other Taxes

57 Self-employment tax. Attach Schedule SE 57

58 Unreported social security and Medicare tax from Form: a 4137 b 8919 58

59 Additional tax on IRAs, other qualified retirement plans, etc. Attach Form 5329 if required 59

60a Household employment taxes from Schedule H 60a

b First-time homebuyer credit repayment. Attach Form 5405 if required 60b

61 Health care: Individual responsibility (see instructions) Full-year coverage 61

62 Taxes from: a Form 8959 b Form 8960 c Inst.; enter code(s) STATEMENT 62

63 Add lines 56 through 62. This is your total tax 63

Payments

64 Federal income tax withheld from Forms W-2 and 1099 64

65 2015 estimated tax payments and amount applied from 2014 return 65

66a Earned income credit (EIC) 66a

b Nontaxable combat pay election 66b

67 Additional child tax credit. Attach Schedule 8812 67

68 American opportunity credit from Form 8863, line 8 68

69 Net premium tax credit. Attach Form 8962 69

70 Amount paid with request for extension to file 70

71 Excess social security and tier 1 RRTA tax withheld STMT 8 71

72 Credit for federal tax on fuels. Attach Form 4136 72

73 Credits from Form: a 2439 b 8885 c 8885 d 73

74 Add lines 64, 65, 66a, and 67 through 73. These are your total payments 74

Refund

75 If line 74 is more than line 63, subtract line 63 from line 74. This is the amount you overpaid 75

76 Direct deposit? Ala Code § 40-2A-10 76a

See instructions.

77

Amount You Owe

78 Amount you owe. Subtract line 74 from line 63. For details on how to pay, see instructions 78

79 Estimated tax penalty (see instructions) 79

Third Party Designee Ala Code § 40-2A-10

Sign Here

correct, and complete. Declaration of preparer (other than taxpayer) is based on all information of which preparer has any knowledge.

Your signature _____ Date _____ Ala Code § 40-2A-10

Spouse's signature. If a joint return, both must sign. _____ Date _____

Print/Type preparer's name _____ Preparer's signature _____ Date _____ Check if PTIN

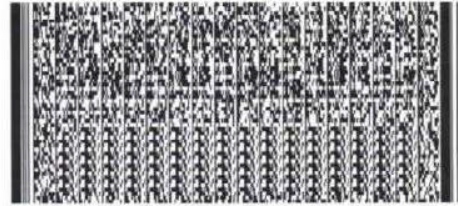
Paid Preparer Use Ala Code § 40-2A-10

510002 12-30-15

FORM 40 Alabama 2015 Individual Income Tax Return RESIDENTS & PART-YEAR RESIDENTS

For the year Jan. 1 - Dec. 31, 2015, or other tax year:

Beginning: Ending:
 Your social security number: *****-0314 Spouse's SSN if joint return: *****-1337



Ala Code § 40-2A-10

• HOOVER, AL 35226

Check if address outside U.S. CHECK BOX IF AMENDED RETURN 1019

Filing Status/Exemptions: Ala Code § 40-2A-10

Are you filing separate. Complete Spouse SSN: _____

Are you filing as head of family (with qualifying person): _____

Ala Code § 40-2A-10

Income and Adjustments

6 Interest and dividend income (also attach Schedule B if over \$1,500) 6

7 Other income (from page 2, Part I, line 9) 7

8 Total income. Add amounts in the Income column for line 5a through line 7 8

9 Total adjustments to income (from page 2, Part II, line 12) 9

10 Adjusted gross income. Subtract line 9 from line 8 10

Deductions

11 Box a or b MUST be checked. Check box a, if you itemize deductions, and enter amount from Schedule A. Check box b, if you do not itemize deductions, and enter standard deduction amount. **Ala Code § 40-2A-10**

• a Itemized Deductions • b Standard Deduction

12 Federal tax deduction (see instructions) STATEMENT 1 11

DO NOT ENTER THE FEDERAL TAX WITHHELD FROM YOUR FORM W-2(S) 12

13 Personal exemption (from line 1, 2, 3, or 4) 13

14 Dependent exemption (from page 2, Part III, line 2) 14

15 Total deductions. Add lines 11, 12, 13, and 14 15

16 Taxable income. Subtract line 15 from line 10 16

Tax

17 Income Tax due. Enter amount from tax table or check if from Form NOL-85A 17

18 Net tax due Alabama. Check box if computing tax using Sch NTC, otherwise enter amount from line 17 18

19 Consumer Use Tax (see instructions). If you certify that no use tax is due, check box 19

20 Alabama Election Campaign Fund. You may make a voluntary contribution to the following:

a Alabama Democratic Party \$1 \$2 none 20a

b Alabama Republican Party \$1 \$2 none 20b

21 Total tax liability and voluntary contribution. Add lines 18, 19, 20a, and 20b **Ala Code § 40-2A-10**

22 Alabama income tax withheld (from Forms W-2, W-2G, and/or 1099) 22

23 2015 estimated tax payments/Automatic Extension Payment 23

24 Amended Returns Only - Previous payments (see instructions) 24

25 Refundable portion of Alabama Accountability Act of 2013 Credit 25

26 Refundable portion of Adoption Credit 26

27 Total payments. Add lines 22, 23, 24, 25, and 26

28 Amended Returns Only - Previous refund (see instructions)

29 Adjusted Total Payments. Subtract line 28 from line 27

AMOUNT YOU OWE

30 If line 21 is larger than line 29, subtract line 29 from line 21, and enter AMOUNT YOU OWE. Place payment, along with Form 40V, loose in the mailing envelope. (FORM 40V MUST BE ATTACHED TO THIS RETURN.)

31 Estimated tax penalty. Also include on line 30 (see instr. page 12) 31

OVERPAID

32 If line 29 is larger than line 21, subtract line 21 from line 29, and enter amount overpaid.

33 Amount of line 32 to be applied to your 2016 estimated tax 33

Donations

34 Total Donation Check-offs from Schedule DC, line 2 34

REFUND

35 REFUNDED TO YOU. (CAUTION: You must sign this return on page 2.) Subtract lines 33 and 34 from line 32. 35

For Direct Deposit, check here and complete Part V, Page 2.

Form **1040** U.S. Individual Income Tax Return ⁽⁹⁹⁾ **2016** OMB No. 1545-0047 IRS Use Only - Do not write or staple in this space.

For the year Jan. 1-Dec. 31, 2016, or other tax year beginning , 2016, ending 20

Your first name and initial: **RUSTY** Last name: **SUTTERLIN** Ala Code § 40-2A-10

Foreign country name: **HOOVER, AL 35226** Foreign province/state/country: Foreign postal code: Ala Code § 40-2A-10

Ala Code § 40-2A-10

Ala. § 4 - 2A-10

Income	7	Wages, salaries, tips, etc. Attach Form(s) W-2	STMT 6	7	
	8a	Taxable interest. Attach Schedule B if required		8a	
	b	Tax-exempt interest. Do not include on line 8a	8b		
	9a	Ordinary dividends. Attach Schedule B if required		9a	
	b	Qualified dividends	9b		
	10	Taxable refunds, credits, or offsets of state and local income taxes	STMT 1	STMT 2	10
	11	Alimony received			11
	12	Business income or (loss). Attach Schedule C or C-EZ			12
	13	Capital gain or (loss). Attach Schedule D if required. If not required, check here			13
	14	Other gains or (losses). Attach Form 4797			14
	15a	IRA distributions	15a	b Taxable amount	15b
	16a	Pensions and annuities	16a	b Taxable amount	16b
	17	Rental real estate, royalties, partnerships, S corporations, trusts, etc. Attach Schedule E			17
	18	Farm income or (loss). Attach Schedule F			18
	19	Unemployment compensation			19
	20a	Social security benefits	20a	b Taxable amount	20b
	21	Other income. List type and amount			21
	22	Combine the amounts in the far right column for lines 7 through 21. This is your total income			22
Adjusted Gross Income	23	Educator expenses			23
	24	Certain business expenses of reservists, performing artists, and fee-basis government officials. Attach Form 2106 or 2106-EZ			24
	25	Health savings account deduction. Attach Form 8889			25
	26	Moving expenses. Attach Form 3903			26
	27	Deductible part of self-employment tax. Attach Schedule SE			27
	28	Self-employed SEP, SIMPLE, and qualified plans			28
	29	Self-employed health insurance deduction			29
	30	Penalty on early withdrawal of savings			30
	31a	Alimony paid b Recipient's SSN			31a
	32	IRA deduction			32
	33	Student loan interest deduction	STMT 4		33
	34	Tuition and fees. Attach Form 8917			34
	35	Domestic production activities deduction. Attach Form 8903			35
	36	Add lines 23 through 35			36
	37	Subtract line 36 from line 22. This is your adjusted gross income			37

Form 1040 (2016)

Form 1040 (2018) **RUSTY** Ala. § 4-2A-10 **SUTTERLIN** Ala Code § 40-2A-10

Tax and Credits

38 Amount from line 37 (adjusted gross income) 38

39a Check You were born before January 2, 1952, Blind, Spouse was born before January 2, 1952, Blind. 39a

b If your spouse itemizes on a separate return or you were a dual-status alien, do not check this box. 39b

40 Itemized deductions (from Schedule A) or your standard deduction (see left margin) 40

41 Subtract line 40 from line 38 41

42 Exemptions. If line 38 is \$155,650 or less, multiply \$4,050 by the number on line 6d. Otherwise, see inst. 42

43 Taxable income. Subtract line 42 from line 41. If line 42 is more than line 41, enter -0- 43

44 Tax. Check if any from: a Form(s) 9814 b Form 4972 c 44

45 Alternative minimum tax. Attach Form 6251 45

46 Excess advance premium tax credit repayment. Attach Form 8962 46

47 Add lines 44, 45, and 46 Ala Code § 40-2A-10 47

48 Foreign tax credit. Attach Form 1116 if required 48

49 Credit for child and dependent care expenses. Attach Form 2441 49

50 Education credits from Form 8863, line 19 50

51 Retirement savings contributions credit. Attach Form 8880 51

52 Child tax credit. Attach Schedule 8812, if required 52

53 Residential energy credit 53

54 Other credits from Form 8878, line 10 54

55 Add lines 48 through 54. These are your total credits Ala Code § 40-2A-10 55

56 Subtract line 55 from line 47. If line 55 is more than line 47, enter -0- 56

Other Taxes

57 Self-employment tax. Attach Schedule SE 57

58 Unreported social security and Medicare tax from Form: a 4137 b 8919 58

59 Additional tax on IRAs, other qualified retirement plans, etc. Attach Form 5329 if required 59

60a Household employment taxes from Schedule H 60a

b First-time homebuyer credit repayment. Attach Form 5405 if required 60b

61 Health care coverage credit. Attach Form 8885 61

62 Tax on qualified plan distributions. Attach Form 8888 62

63 Add lines 57 through 62. This is your other taxes 63

Payments

64 Federal income tax withheld from Forms W-2 and 1099 64

65 2016 estimated tax payments and amount applied from 2015 return 65

66a Earned income credit (EIC) 66a

b Nontaxable combat pay election 66b

67 Additional child tax credit. Attach Schedule 8812 67

68 American opportunity credit from Form 8863, line 8 68

69 Net premium tax credit. Attach Form 8962 69

70 Amount paid with request for extension to file 70

71 Excess social security and tier 1 RRTA tax withheld 71

72 Credit for federal tax on fuels. Attach Form 4136 72

73 Credits from Form: a 2439 b Reserved 8888 d 73

74 Add lines 64, 65, 66a, and 67 through 73. These are your total payments 74

75 If line 74 is more than line 63, subtract line 63 from line 74. This is the amount you overpaid 75

76a Amount of line 75 you want refunded to you. If Form 8888 is attached, check here 76a

b Routing number c Type Checking Savings Account number 76b

77 Amount of line 75 you want applied to your 2017 estimated tax 77

Amount You Owe

78 Total amount you owe. Subtract line 76a from line 77. If line 76a is more than line 77, enter -0- 78

Third Party Designee

79 If you have a third party designee, enter the name and address of the designee on the back of this form. 79

Sign Here

Your signature _____ Date _____ Ala Code § 40-2A-10

Spouse's signature. If a joint return, both must sign. _____ Date _____ Ala Code § 40-2A-10

Paid Preparer Use Only

80 If you are a paid preparer, enter your name, firm, or other business name, and your address and telephone number. 80

81 If you are a paid preparer, enter your PTIN. 81

82 If you are a paid preparer, enter your signature. 82

83 If you are a paid preparer, enter your date. 83

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SEE SIMILAR FOR INT AND PEN NOT INCLUDED. TOTAL DUE \$15393

FORM 40 Alabama 2016 Individual Income Tax Return RESIDENTS & PART-YEAR RESIDENTS

For the year Jan. 1 - Dec. 31, 2016, or other tax year:
Beginning: Ending:

Ala Code § 40-2A-10

Ala Code § 40-2A-10

Primary's deceased date (mm/dd/yy) Spouse's deceased date (mm/dd/yy)

Your first name Initial Last name
RUSTY SUTTERLIN

Ala Code § 40-2A-10

ERLIN

number)

CHECK BOX IF AMENDED RETURN

City, town or post office State ZIP code Foreign Country

HOOVER Ala Code § 40-2A-10

Filing Status/Exemptions

1,500 Married filing separate. Complete Spouse SSN
3,000 Head of Family (with qualifying person)

Income and Adjustments

5a Wages, salaries, tips, etc. (from Schedule W-2, line 18, col. I plus J);
5b Interest and dividend income (also attach Schedule B if over \$1,500)
6 Other income (from page 2, Part I, line 9)
7 Total income. Add amounts in the income column for line 5 through line 7
8 Total adjustments to income (from page 2, Part II, line 12)
9 Adjusted gross income. Subtract line 9 from line 8

A - Alabama tax withheld
Ala. § 4-2A-10

Deductions

11 Box a or b MUST be checked.
Check box a, if you itemize deductions, and enter amount from Schedule A, line 27.
Check box b, if you do not itemize deductions, and enter standard deduction amount.
a Itemized Deductions b Standard Deduction
12 Federal tax deduction (see instructions) STATEMENT 1
DO NOT ENTER THE FEDERAL TAX WITHHELD FROM YOUR FORM W-2(S)
13 Personal exemption (from line 1, 2, 3, or 4)
14 Dependent exemption (from page 2, Part III, line 2)
15 Total deductions. Add lines 11, 12, 13, and 14
16 Taxable income. Subtract line 15 from line 10

Tax

17 Income Tax due. Enter amount from tax table or check if from
18 Net tax due Alabama. Check box if computing tax using Sch NTC
19 Consumer Use Tax (see instructions). If you certify that no use tax is due

Alabama Election Campaign Fund. You may make a voluntary contribution
a Alabama Democratic Party \$1 \$2 none
b Alabama Republican Party \$1 \$2 none

21 Total tax liability and voluntary contribution. Add lines 18, 19, 20a, and 20b

22 Alabama income tax withheld (from column A, line 5)
23 2016 estimated tax payments/Automatic Extension Payment
24 Amended Returns Only - Previous payments (see instructions)
25 Refundable portion of Alabama Accountability Act of 2013 Credit
26 Refundable portion of Adoption Credit
27 Total payments. Add lines 22, 23, 24, 25, and 26
28 Amended Returns Only - Previous refund (see instructions)
29 Adjusted Total Payments. Subtract line 28 from line 27

AMOUNT YOU OWE

30 If line 21 is larger than line 29, subtract line 29 from line 21, and enter AMOUNT YOU OWE.
Place payment, along with Form 40V, loose in the mailing envelope. (FORM 40V MUST ACCOMPANY THIS RETURN)
31 Estimated tax penalty. Also include on line 30 (see instr. page 12)

OVERPAID

32 If line 29 is larger than line 21, subtract line 21 from line 29, and enter amount OVERPAID.
33 Amount of line 32 to be applied to your 2017 estimated tax

Donations

34 Total Donation Check-offs from Schedule DC, line 2

REFUND

35 REFUNDED TO YOU. (CAUTION: You must sign this return on page 2.)
Subtract lines 33 and 34 from line 32.
For Direct Deposit, check here and complete Part V, Page 2.

Form **1040** U.S. Individual Income Tax Return (99) **2017**OMB No. 1545-0047 IRS Line Only - Do not write or staple in this space

For the year Jan. 1-Dec. 31, 2017, or other tax year beginning 2017, ending 2017

Your first name and initial: **RUSTY** Last name: **SUTTERLIN** Ala Code § 40-2A-10

Last name: **SUTTERLIN** Ala Code § 40-2A-10

Address: **HOOVER, AL 35226**

Filing Status: **Ala Code § 40-2A-10**

Exemption: **Ala Code § 40-2A-10**

Income Section:

7	Wages, salaries, tips, etc. Attach Form(s) W-2		
8a	Taxable interest. Attach Schedule B if required		
8b	Tax-exempt interest. Do not include on line 8a		
9a	Ordinary dividends. Attach Schedule B if required		
9b	Qualified dividends		
10	Taxable refunds, credits, or offsets of state and local income taxes	STMT 1	STMT 2
11	Alimony received		
12	Business income or (loss). Attach Schedule C or C-EZ		
13	Capital gain or (loss). Attach Schedule D if required. If not required, check here		
14	Other gains or (losses). Attach Form 4797		
15a	IRA distributions	15a	b Taxable amount
16a	Pensions and annuities	16a	b Taxable amount
17	Rental real estate, royalties, partnerships, S corporations, trusts, etc. Attach Schedule E		17
18	Farm income or (loss). Attach Schedule F		18
19	Unemployment compensation		19
20a	Social security benefits	20a	b Taxable amount
21	Other income. List type and amount		21
22	Combine the amounts in the far right column for lines 7 through 21. This is your total income		22
23	Educator expenses		23
24	Certain business expenses of reservists, performing artists, and fee-based government officials. Attach Form 2106 or 2106-EZ		24
25	Health savings account deduction. Attach Form 8889		25
26	Moving expenses. Attach Form 3903		26
27	Deductible part of self-employment tax. Attach Schedule SE		27
28	Self-employed SEP, SIMPLE, and qualified plans		28
29	Self-employed health insurance deduction		29
30	Penalty on early withdrawal of savings		30
31a	Alimony paid b Recipient's SSN	31a	Ala Code § 40-2A-10
32	IRA deduction		32
33	Student loan interest deduction		33
34	Tuition and fees. Attach Form 8917		34
35	Domestic production activities deduction. Attach Form 8903		35
36	Add lines 23 through 35		36
37	Subtract line 36 from line 22. This is your adjusted gross income		37

710001 02-22-18 LHA For Disclosure, Privacy Act, and Paperwork Reduction Act Notice, see separate instructions. Form 1040 (2017)

Form 1040 (2017) **RUSTY** **SUTTERLIN** Ala Code § 40-2A-10 Ala Code § 40-2A-10 Ala Code § 40-2A-10

Tax and Credits

38 Amount from line 37 (adjusted gross income) 38

39a Check You were born before January 2, 1953, Blind. Total boxes checked 39a

it: Spouse was born before January 2, 1953, Blind. checked 39b

b If your spouse itemizes on a separate return or you were a dual-status alien, check here 39b

40 Itemized deductions (from Schedule A) or your standard deduction (see left margin) 40

41 Subtract line 40 from line 38 41

42 Exemptions. If line 38 is \$156,900 or less, multiply \$4,050 by the number on line 6d. Otherwise, see inst. 42

43 Taxable income. Subtract line 42 from line 41. If line 42 is more than line 41, enter -0- 43

44 Tax. Check if any from: a Form(s) 8814 b Form 4972 c 44

45 Alternative minimum tax. Attach Form 6251 45

46 Excess advance premium tax credit repayment. Attach Form 8962 46

47 Add lines 44, 45, and 46 47

48 Foreign tax credit. Attach Form 1116 if required 48

49 Credit for child and dependent care expenses. Attach Form 2441 49

50 Education credits from Form 8863, line 19 50

51 Retirement savings contributions credit. Attach Form 8880 51

52 Child tax credit. Attach Schedule 8812, if required 52

53 Residential energy credits. Attach Form 5695 53

54 Other credits from Form: a 3800 b 8801 c 54

55 Add lines 48 through 54. These are your total credits 55

56 Subtract line 55 from line 47. If line 55 is more than line 47, enter -0- 56

Other Taxes

57 Self-employment tax. Attach Schedule SE 57

58 Unreported social security and Medicare tax from Form: a 4137 b 8919 58

59 Additional tax on IRAs, other qualified retirement plans, etc. Attach Form 5329 if required 59

60a Household employment taxes from Schedule H 60a

b First-time homebuyer credit repayment. Attach Form 5405 if required Ala Code § 40-2A-10 60b

61 Health care (Ala Code § 40-2A-10) Full-year coverage 61

62 Taxes from Ala Code § 40-2A-10 9900 c inst.; enter code 62

63 Add lines 56 through 62. This is your total tax 63

Payments

64 Federal income tax withheld from Forms W-2 and 1099 64

65 2017 estimated tax payments and amount applied from 2016 return 65

66a Earned income credit (EIC) 66a

b Nontaxable combat pay election 66b

67 Additional child tax credit. Attach Schedule 8812 67

68 American opportunity credit from Form 8863, line 8 68

69 Net premium tax credit. Attach Form 8862 69

70 Amount paid with request for extension to file 70

71 Excess social security and tier 1 RRTA tax withheld 71

72 Credit for federal tax on fuels. Attach Form 4136 72

73 Credits from Form: a 2439 b 8885 c 8885 d 73

74 Add lines 64, 65, 66a, and 67 through 73. These are your total payments 74

Refund

75 If line 74 is more than line 63, subtract line 63 from line 74. This is the amount you overpaid 75

76a Amount of line 75 you want refunded to you. If Form 8888 is attached, check here 76a

b Routing number c Type: Checking Savings Account number 76b

77 Amount of line 75 you want applied to your 2018 estimated tax 77

Amount You Owe

78 Amount you owe. Subtract line 74 from line 63. For details on how to pay, see instructions Ala Code § 40-2A-10 78

79 Estimated tax penalty (see instructions) Ala Code § 40-2A-10 79

Third Party Designee

Do you want to allow another person to discuss this return with the IRS (see instructions)? Yes No

Ala Code § 40-2A-10

Sign Here

Under penalty of perjury, I declare that I have examined this return and accompanying schedules and attachments, and to the best of my knowledge and belief, they are true, correct, and accurately reflect all amounts and sources of income I received during the tax year. Declaration of preparer (other than taxpayer) is based on all information of which preparer has any knowledge.

Your signature: _____ Date: _____ Ala Code § 40-2A-10

Spouse's signature, if a joint return, both must sign. _____ Date: _____

Paid Preparer Use Only

Ala Code § 40-2A-10

710409 05-20

FORM 40 Alabama 2017 Individual Income Tax Return RESIDENTS & PART-YEAR RESIDENTS

For the year Jan. 1 - Dec. 31, 2017, or other tax year:

Beginning: **Ala Code § 40-2A-10** Ending: **Ala Code § 40-2A-10**

Check if primary is deceased Primary's deceased date (mm/dd/yy) Check if spouse is deceased Spouse's deceased date (mm/dd/yy)

Your first name: **RUSTY** Initial: **S** Last name: **SUTERLIN**

Ala Code § 40-2A-10

CHECK BOX IF AMENDED RETURN

Foreign Country: Check if address is outside U.S.

.500 Married filing separate. Complete Spouse SSN 3,000 Head of Family (with qualifying person)

Ala Code § 40-2A-10

Income and Adjustments

5a Alabama income tax withheld (from Schedule W-2, line 18, col. G) **Ala Code § 40-2A-10**

5b Wages, salaries, tips, etc. (from Schedule W-2, line 18, col. 1 plus J): **Ala Code § 40-2A-10**

6 Interest and dividend income (also attach Schedule B if over \$1,500) **Ala Code § 40-2A-10**

7 Other income (from page 2, Part I, line 9) **Ala Code § 40-2A-10**

8 Total income. Add amounts in the income column for line 5b through line 7 **Ala Code § 40-2A-10**

9 Total adjustments to income (from page 2, Part II, line 12) **Ala Code § 40-2A-10**

10 Adjusted gross income. Subtract line 9 from line 8 **Ala Code § 40-2A-10**

Deductions

11 Box a or b MUST be checked. Check box a, if you itemize deductions, and enter amount from Schedule A, line 27. Check box b, if you do not itemize deductions, and enter standard deduction (see instructions). **Ala Code § 40-2A-10**

a Itemized Deductions b Standard Deduction **Ala Code § 40-2A-10**

12 Federal tax deduction (see instructions) STATEMENT 1 **Ala Code § 40-2A-10**

DO NOT ENTER THE FEDERAL TAX WITHHELD FROM YOUR FORM W-2(S)

13 Personal exemption (from line 1, 2, 3, or 4) **Ala Code § 40-2A-10**

14 Dependent exemption (from page 2, Part III, line 2) **Ala Code § 40-2A-10**

15 Total deductions. Add lines 11, 12, 13, and 14 **Ala Code § 40-2A-10**

16 Taxable income. Subtract line 15 from line 10 **Ala Code § 40-2A-10**

Tax

17 Income Tax due. Enter amount from tax table or check if from Form NOL-B5A **Ala Code § 40-2A-10**

18 Net tax due Alabama. Check box if computing tax using Sch NTC , otherwise enter amount from ln 17 **Ala Code § 40-2A-10**

19 Consumer Use Tax (see instructions). If you certify that no use tax is due, check box **Ala Code § 40-2A-10**

20 Alabama Election Campaign Fund. You may make a voluntary contribution to the following:

a Alabama Democratic Party \$1 \$2 none **Ala Code § 40-2A-10**

b Alabama Republican Party \$1 \$2 none **Ala Code § 40-2A-10**

21 Total tax liability and voluntary contribution. Add lines 18, 19, 20a, and 20b **Ala Code § 40-2A-10**

22 Alabama income tax withheld (from column A, line 5a) **Ala Code § 40-2A-10**

23 2017 estimated tax payments/Automatic Extension Payment **Ala Code § 40-2A-10**

24 Amended Returns Only - Previous payments (see instructions) **Ala Code § 40-2A-10**

25 Refundable portion of Alabama Accountability Act of 2013 Credit **Ala Code § 40-2A-10**

26 Refundable portion of Adoption Credit **Ala Code § 40-2A-10**

27 Total payments. Add lines 22, 23, 24, 25, and 26 **Ala Code § 40-2A-10**

28 Amended Returns Only - Previous refund (see instructions) **Ala Code § 40-2A-10**

29 Adjusted Total Payments. Subtract line 28 from line 27 **Ala Code § 40-2A-10**

AMOUNT YOU OWE

30 If line 21 is larger than line 29, subtract line 29 from line 21, and enter AMOUNT YOU OWE **Ala Code § 40-2A-10**

Place payment, along with Form 40V, loose in the mailing envelope. (FORM 40V MUST ACCOMPANY THIS RETURN)

31 Estimated tax penalty. Also include on line 30 (see instr. page 12) **Ala Code § 40-2A-10**

OVERPAID

32 If line 29 is larger than line 21, subtract line 29 from line 21, and enter amount OVERPAID **Ala Code § 40-2A-10**

33 Amount of line 32 to be applied to your 2018 estimated tax **Ala Code § 40-2A-10**

Donations

34 Total Donation Check-offs from Schedule DC, line 2 **Ala Code § 40-2A-10**

REFUND

35 REFUNDED TO YOU. (CAUTION: You must sign this return on page 2.) Subtract lines 33 and 34 from line 32. **Ala Code § 40-2A-10**

For Direct Deposit, check here and complete Part V, Page 2.

Department of the Treasury - Internal Revenue Service

E 1040 (9918)

Ala Code § 40-2A-10

RUSTY **SUTTERLIN** **Ala Code § 40-2A-10**

Your standard deduction: Someone can claim you as a dependent You were born before January 2, 1954 You are

Ala Code § 40-2A-10 Last name **SUTTERLIN**

I can claim your spouse as a dependent Spouse was born before January 2, 1954 Full-year health care coverage or exempt (see inst.)

Spouse has a P.O. box, see instructions. Apt. no. **Presidential Election Campaign.** (see inst.) You Spouse

City, town or post office, state, and ZIP code. If you have a foreign address, attach Schedule 6. **HOOVER, AL 35226** If more than four dependents, see inst. and here

Dependents (see instructions): (2) Social security number (3) Relationship to you (4) If qualifies for inst. 1

Ala Code § 40-2A-10

Sign Here Under penalties of perjury, I declare that I have examined this return and accompanying schedules and statements, and to the best of my knowledge and belief, they are true, correct, and complete. Declaration of preparer (other than taxpayer) is based on all information of which preparer has knowledge.

Your signature: **Ala Code § 40-2A-10** Date:

Spouse's signature: If a joint return, both must sign. Date:

If the IRS sent you an Identity Protection PIN, enter it here:

If the IRS sent you an Identity Protection PIN, enter it here:

Paid Preparer Use Only **Ala Code § 40-2A-10**

Firm's name:

Firm's address:

LHA:

819921 12-19-18

Ala Code § 40-2A-10

Form 1040 (2018) **RUSTY** [REDACTED] **SUTTERLIN**

1 **Wages, salaries, tips, etc.** Enter the total amount. If you are a spouse, see instructions.
Form(s) W-2 Ala Code § 40-2A-10

2a Tax-exempt interest 2a [REDACTED] Taxable

3a Qualified dividends 3a [REDACTED] Ordinary

4a IRAs, pensions, and annuities 4a [REDACTED] Taxable

5a Social security benefits 5a [REDACTED] Taxable

6 Total income. Add lines 1 through 5. Add any amount from Schedule 1, line 5.
 7 Adjusted gross income. If you have no adjustments, subtract Schedule 1, line 3c, from line 6.

8 **Standard deduction or itemized deductions** (from Schedule A)

9 Qualified business income (see instructions)

10 Taxable income, Subtract line 9 from line 7. If zero or less, enter -0-.

11 a Tax (see instructions) [REDACTED] b Add any amount from Form 8888 (see instructions) [REDACTED]

12 Child tax credit (see instructions) b Add any amount from Schedule E (see instructions) [REDACTED]

13 Subtract line 12 from line 11. If zero or less, enter -0-.

14 Other taxes. Attach Schedule 4.

15 Total tax. Add lines 13 and 14.

16 Federal income tax withheld from Forms W-2 and 1099.

17 Refundable credits: a EIC (see instructions) [REDACTED] b Add any amount from Schedule 5 [REDACTED]

18 Add lines 16 and 17. These are your total tax payments.

Refund

19 If line 18 is more than line 15, subtract line 15 from line 18. This is the amount you want refunded to you. If Form 8888 is attached, check here.

20 a Amount of line 19 you want refunded to you. If Form 8888 is attached, check here.

Direct deposit? ▶ b Routing number [REDACTED] ▶ c Type: Check Direct deposit

See instructions ▶ d Account number [REDACTED]

21 Amount of line 19 you want applied to your 2019 estimated tax ▶ 21

Amount You Owe

22 Amount you owe. Subtract line 18 from line 15. For details on how to pay, see instructions.

23 Estimated tax penalty (see instructions) ▶ 23

Go to www.irs.gov/Form1040 for instructions and the latest information.

SEE STMT FOR INT AND PEN NOT INCLUDED. TOTAL

Ala Code § 40-2A-10

FORM 40 Alabama 2018 Individual Income Tax Return RESIDENTS & PART-YEAR RESIDENTS

For the year Jan. 1 - Dec. 31, 2018, or other tax year:

Beginning: Ending:

Ala Code § 40-2A-10

Check if primary is deceased (Primary's deceased date (mm/dd/yyyy))

Check if spouse is deceased (Spouse's deceased date (mm/dd/yyyy))

Your first name: **RUSTY** Initial: **S** Last name: **SUTTERLIN**

Spouse's first name: Initial: Last name: **SUTTERLIN**

Ala Code § 40-2A-10

City, town or post office: **HOOVER** State: ZIP code: Foreign Country: Check if address is outside U.S.

Filing Status/Exemptions: **500 Married filing separate. Complete Spouse SSN**

Ala Code § 40-2A-10

5a	Alabama Income Tax Withheld (from Schedule W-2, line 18, col. G)	5a
5b	Wages, salaries, tips, etc. (from Schedule W-2, line 18, col. I plus J)	5b
6	Interest and dividend income (also attach Schedule B if over \$1,500)	6
7	Other income (from page 2, Part I, line 9)	7
8	Total income. Add amounts in the income column for line 5b through line 7	8
9	Total adjustments to income (from page 2, Part II, line 13)	9
10	Adjusted gross income. Subtract line 9 from line 8	10
11	Box a or b MUST be checked.	
	Check box a, if you itemize deductions, and enter amount from Schedule A	
	Check box b, if you do not itemize deductions, and enter standard deduction amount	
11	<input checked="" type="checkbox"/> Itemized Deductions <input type="checkbox"/> Standard Deduction	11
12	Federal tax deduction (see instructions) STATEMENT 1	12
13	Personal exemption (from line 1, 2, 3, or 4)	13
14	Dependent exemption (from page 2, Part III, line 2)	14
15	Total deductions. Add lines 11, 12, 13, and 14	15
16	Taxable income. Subtract line 15 from line 10	16
17	Income Tax due. Enter amount from tax table or check if from Form 1041	17
18	Net tax due Alabama. Check box if computing tax using Sch NTC	18
19	Consumer Use Tax (see instructions). If you certify that no use tax is due, enter amount	19
20	Alabama Election Campaign Fund. You may make a voluntary contribution	
20a	Alabama Democratic Party <input type="checkbox"/> \$1 <input type="checkbox"/> \$2 <input checked="" type="checkbox"/> none	20a
20b	Alabama Republican Party <input type="checkbox"/> \$1 <input type="checkbox"/> \$2 <input checked="" type="checkbox"/> none	20b
21	Total tax liability and voluntary contribution. Add lines 18, 19, 20a, and 20b	21
22	Alabama income tax withheld (from column A, line 5a)	22
23	2018 estimated tax payments/Automatic Extension Payment	23
24	Amended Returns Only - Previous payments (see instructions)	24
25	Refundable Credits. Enter the amount from Schedule RC, line 4	25
26	Total payments. Add lines 22, 23, 24, and 25	26
27	Amended Returns Only - Previous refund (see instructions)	27
28	Adjusted Total Payments. Subtract line 27 from line 26	28
29	If line 21 is larger than line 28, subtract line 28 from line 21, and enter amount	29
30	Estimated tax penalty. Also include on line 29 (see instr. page 12)	30
31	If line 28 is larger than line 21, subtract line 21 from line 28, and enter amount	31
32	Amount of line 31 to be applied to your 2019 estimated tax	32
33	Total Donation Check-offs from Schedule DC, line 2	33
34	REFUNDED TO YOU. (CAUTION: You must sign this return on page 2.)	34
	Subtract lines 32 and 33 from line 31	
	For Direct Deposit, check here <input type="checkbox"/> and complete Part V, Page 2.	

835901 10-30-18

Form **1040** Department of the Treasury - Internal Revenue Service (99) **2019**

Filing Status Ala Code § 40-2A-10
 Check only one box. a child but not your dependent. a qualifying person is

Your first name and middle initial: **RUSTY** Last name: **SUTTERLIN** Ala Code § 40-2A-10
 Middle initial: Last name: **SUTTERLIN** Ala Code § 40-2A-10

City, town or post office, state, and ZIP code. If you have a foreign address, also complete spaces below (see instructions).
HOOVER, AL 35226

Foreign country name: Foreign province/state/county: Foreign postal code: Presidential Election Campaign

Standard Deduction Someone can claim: You as a dependent Your spouse as a dependent Spouse itemizes on a separate return or you were a dual-status alien

Age/Blindness You: Were born before January 2, 1955 Are blind Spouse: Was born before January 2, 1955 Is blind

Dependents (see instructions): (2) Social security number (3) Relationship to you (4) if qualifies for (see instructions)

Ala Code § 40-2A-10 Ala Code § 40-2A-10 Ala Code § 40-2A-10

1	Wages, salaries, tips, etc. Attach Form(s) W-2				
2a	Tax-exempt interest	2a			Taxable interest
3a	Qualified dividends	3a			B if required
4a	IRA distributions	4a			Ordinary dividends
c	Pensions and annuities	4c			B if required
5a	Social security benefits	5a			b Taxable amount
6	Capital gain or (loss). Attach Schedule D if required. If not required, check here				d Taxable amount
7a	Other income from Schedule 1, line 9				b Taxable amount
b	Add lines 1, 2b, 3b, 4b, 4d, 5b, 6, and 7a. This is your total income				
8a	Adjustments to income from Schedule 1, line 22				
b	Subtract line 8a from line 7b. This is your adjusted gross income				
9	Standard deduction or itemized deductions (from Schedule A)	9			
10	Qualified business income deduction. Attach Form 8995 or Form 8995-A	10			
11a	Add lines 9 and 10				
b	Taxable income. Subtract line 11a from line 8b. If zero or less, enter -0-				

LHA For Disclosure, Privacy Act, and Paperwork Reduction Act Notice, see separate instructions

Ala Code § 40-2A-10

Form 1040 (2019) **RUSTY** **SUTTERLIN**

Ala Code § 40-2A-10

Ala Code § 40-2A-10

12a Tax **2** **4973** **3** 12a

b Add Schedule 2, line 3, and line 12a and enter the total

13a Child tax credit or credit for other dependents 13a

b Add Schedule 3, line 7, and line 13a and enter the total

14 Subtract line 13b from line 12b. If zero or less, enter -0-

15 Other taxes, including self-employment tax, from Schedule 2, line 10

16 Add lines 14 and 15. This is your **total tax**

17 Federal income tax withheld from Forms W-2 and 1099 **SEE S**

18 Other payments and refundable credits:

a Earned income credit (EIC) 18a

b Additional child tax credit. Attach Schedule 8812 18b

c American opportunity credit from Form 8863, line 6 18c

d Schedule 3, line 14 18d

e Add lines 18a through 18d. These are your **total other payments and**

19 Add lines 17 and 18e. These are your **total payments**

Refund 20 If line 19 is more than line 16, subtract line 16 from line 19. This is the

21a Amount of line 20 you want **refunded to you**. If Form 8888 is attached

b Routing number ▶ c Type:

d Account number ▶

22 Amount of line 20 you want **applied to your 2020 estimated tax** ▶ 22

Amount You Owe 23 Amount you owe. Subtract line 19 from line 16. For details on how to

24 Estimated tax penalty (see instructions) ▶ 24

Third Party Designee Do you want to allow another person (other than your paid preparer) to discuss this

Designee's name ▶ Phone no. ▶

Signature ▶ Date ▶

Spouse's signature, if a joint return, **both** must sign. ▶ Date ▶

Ala Code § 40-2A-10

Ala Code § 40-2A-10

Ala Code § 40-2A-10

Paid Preparer Use (

Firm's name

Firm's address

Go to ▶

Ala Code § 40-2A-10

FORM 40 Alabama 2019 Individual Income Tax Return RESIDENTS & PART-YEAR RESIDENTS

For the year Jan. 1 - Dec. 31, 2019, or other tax year:
Beginning: Ending:

Ala Code § 40-2A-10

If primary filer deceased (Primary's deceased date (mm/dd/yyyy))
 If spouse deceased (Spouse's deceased date (mm/dd/yyyy))

Your first name: **RUSTY** Initial: Last name: **SUTTERLIN**

Ala Code § 40-2A-10 Last name: **SUTTERLIN**
Social Security number: [REDACTED]

State: ZIP code: Foreign Country:

Ala Code § 40-2A-10 Hoover

Filing Status/Exemptions: **1** (Married filing jointly) Married filing separate, Complete Spouse SSN
 Head of Family (with qualifying person), Complete Schedule HCP

Ala Code § 40-2A-10 **Ala Code § 40-2A-10**

Line	Description	Amount	Ala Code § 40-2A-10
5a	Alabama Income Tax Withheld (from Schedule W-2, line 18, col. G)		
5b	Wages, salaries, tips, etc. (from Schedule W-2, line 18, col. 1 plus J)		
6	Interest and dividend income (also attach Schedule B if over \$1,500)		
7	Other income (from page 2, Part I, line 9)		
8	Total income. Add amounts in the income column for line 5b through line 7		
9	Total adjustments to income (from page 2, Part II, line 14)		
10	Adjusted gross income. Subtract line 9 from line 8		
11	Box a or b MUST be checked.		
11a	Itemized Deductions		
11b	Standard Deduction		
12	Federal tax deduction (see instructions) STATEMENT 1		
13	Personal exemption (from line 1, 2, 3, or 4)		
14	Dependent exemption (from page 2, Part III, line 2)		
15	Total deductions. Add lines 11, 12, 13, and 14		
16	Taxable income. Subtract line 15 from line 10		
17	Income Tax due. Enter amount from tax table or check if from Form NOL-85A		
18	Net tax due Alabama. Check box if computing tax using Sch NTC, otherwise enter amount		
19	Consumer Use Tax (see instructions). If you certify that no use tax is due, check box		
20a	Alabama Democratic Party \$1 \$2 none		
20b	Alabama Republican Party \$1 \$2 none		
21	Total tax liability and voluntary contribution. Add lines 18, 19, 20a, and 20b		
22	Alabama income tax withheld (from column A, line 5a)		
23	2019 estimated tax payments/Automatic Extension Payment		
24	Amended Returns Only - Previous payments (see instructions)		
25	Refundable Credits. Enter the amount from Schedule FC, line 4		
26	Total payments. Add lines 22, 23, 24, and 25		
27	Amended Returns Only - Previous refund (see instructions)		
28	Adjusted Total Payments. Subtract line 27 from line 26		
29	AMOUNT YOU OWE. If line 21 is larger than line 28, subtract line 28 from line 21, and enter AMOUNT YOU OWE. Place payment, along with Form 40V, loose in the mailing envelope. (FORM 40V MUST ACCOMPANY THIS RETURN)		
30	Estimated tax penalty. Also include on line 29 (see instr. page 12)		
31	OVERPAID. If line 28 is larger than line 21, subtract line 21 from line 28, and enter amount OVERPAID		
32	Amount of line 31 to be applied to your 2020 estimated tax		
33	Total Donation Check-offs from Schedule DC, line 2		
34	REFUNDED TO YOU. (CAUTION: You must sign this return on page 2.) Subtract lines 32 and 33 from line 31. For Direct Deposit, check here and complete Part V, Page 2.		

935001 09-06-19

Form **1040** Department of the Treasury - Internal Revenue Service (99) **2020** OMB No. 1545-0074

Filing Status **Ala Code § 40-2A-10**

Check only one box. If you checked the MFS box, enter the name of your spouse. If you checked the HOH or QW box, enter the child's name if the qualifying person is a child but not your dependent. ▶

Your first name and middle initial: **RUSTY** Last name: **SUTTERLIN** **Ala Code § 40-2A-10**

Last name: **SUTTERLIN** **Ala Code § 40-2A-10**

P.O. box, see instructions. Apt. no. Presidential Election Campaign Check here if you, or your spouse if filing jointly, want \$3 to go to this fund. Checking a box below will not change your tax or refund. You Spouse

City, town, or post office. If you have a foreign address, also complete spaces below. State: **AL** ZIP code: **35244**

HOOVER Foreign country name Foreign province/state/county Foreign postal code

At any time during 2020, did you receive, sell, send, exchange, or otherwise acquire any financial interest in any virtual currency? Yes No

Standard Deduction Spouse itemizes on a separate return or you were a dual-status alien

Age/Blindness You: Were born before January 2, 1956 Are blind Spouse: Was born before January 2, 1956 Is blind

Dependents (see instructions): (1) First name Last name (2) Social security number (3) Relationship to you (4) if qualifies for (see instructions): credit tax credit credit for other dependents

Ala Code § 40-2A-10

2a Tax-exempt interest	2a	Ala. § 4-2A-	b Taxable interest	2b
3a Qualified dividends	3a		b Ordinary dividends	2b
4a IRA distributions	4a		b Taxable amount	4b
5a Pensions and annuities	5a		b Taxable amount	5b
6a Social security benefits	6a		b Taxable amount	6b
7 Capital gain or (loss). Attach Schedule D if required. If not required, check here				7
8 Other income from Schedule 1, line 9				8
9 Add lines 1, 2b, 3b, 4b, 5b, 6b, 7, and 8. This is your total income				9
10 Adjustments to income:				
a From Schedule 1, line 22	10a			
b Charitable contributions if you take the standard deduction. See instr.	10b			
c Add lines 10a and 10b. These are your total adjustments to income				10c
11 Subtract line 10c from line 9. This is your adjusted gross income				11
12 Standard deduction or itemized deductions (from Schedule A)				12
13 Qualified business income deduction. Attach Form 8995 or Form 8995-A				13
14 Add lines 12 and 13				14
15 Taxable income. Subtract line 14 from line 11. If zero or less, enter -0-				15

LHA For Disclosure, Privacy Act, and Paperwork Reduction Act Notice, see separate instructions. Form 1040 (2020)

Ala Code § 40-2A-10

Form 1040 (2020) **RUSTY [REDACTED] SUTTERLIN** Ala Code § 40-2A-10

STMT 3 16 Tax [REDACTED] any from Form(s): 1 8814 2 497

17 Amount from Schedule 2, line 3

18 Add lines 16 and 17

19 Child tax credit or credit for other dependents

20 Amount from Schedule 3, line 7

21 Add lines 19 and 20

22 Subtract line 21 from line 18. If zero or less, enter 0-

23 Other taxes, including self-employment tax, from Schedule 2, line 10

24 Add lines 22 and 23. This is your total tax

25 Federal income tax withheld from:

a Form(s) W-2 SEE STATEMENT 4 25a

b Form(s) 1099 25b

c Other forms (see instructions) 25c

d Add lines 25a through 25c

26 2020 estimated tax payments and amount applied from 2019 return

27 Earned Income credit (EIC) 27

28 Additional child tax credit. Attach Schedule 8812 28

29 American opportunity credit from Form 8863, line B 29

30 Recovery rebate credit. See instructions 30

31 Amount from Schedule 3, line 13 31

32 Add lines 27 through 31. These are your total other payments and

33 Add lines 25d, 26, and 32. These are your total payments

Refund

34 If line 33 is more than line 24, subtract line 24 from line 33. This is the

35a Amount of line 34 you want refunded to you. If Form 8888 is attached

b Routing number c Type:

d Account number

36 Amount of line 34 you want applied to your 2021 estimated tax 36

Amount You Owe

37 Subtract line 33 from line 24. This is the amount you owe now

Note: Schedule H and Schedule SE filers, line 37 may not represent a 2020. See Schedule 3, line 12e, and its instructions for details.

38 Estimated tax penalty (see instructions) 38

Third Party Designee

Do you want to allow another person to discuss this return with the IRS? Yes, Complete below. No

Designee name: [REDACTED] Ala Code § 40-2A-10

Under the name of [REDACTED] Ala Code § 40-2A-10

Sign Here

Joint return? See instructions. Keep a copy for your records.

If the IRS sent you an Identity Protection PIN, enter it here (see inst.): [REDACTED]

If the IRS sent your spouse an Identity Protection PIN, enter it here (see inst.): [REDACTED]

Ala Code § 40-2A-10

Ala Code § 40-2A-10

FORM 40 Alabama 2020 Individual Income Tax Return RESIDENTS & PART-YEAR RESIDENTS

For the year Jan. 1 - Dec. 31, 2020, or other tax year:

Ala Code § 40-2A-10

Check if primary is deceased (mm/dd/yy)
 Check if spouse is deceased (mm/dd/yy)

Your first name: **RUSTY** Initial: **S** Last name: **SUTTERLIN**

Ala Code § 40-2A-10 SUTTERLIN

CHECK BOX IF AMENDED RETURN

City, town or post office: **HOOVER** State: ZIP code: Foreign Country:

Check if address is outside U.S.

Filing Status/Exemptions: **2**

Married filing separate. Complete Spouse's GN
 Head of Household (with qualifying person). Complete Schedule HD

Ala Code § 40-2A-10 A - Alabama **Ala Code § 40-2A-10**

5 a	Income	5 b	Wages, salaries, tips, etc. (from Schedule W-2, line 18, col. G) plus J)	5 a	Alabama
6	Interest and dividend income (also attach Schedule B if over \$1,500)	7	Other income (from page 2, Part I, line 9)	8	Total income. Add amounts in the income column for line 5b through line 7
9	Total adjustments to income (from page 2, Part II, line 15)	10	Adjusted gross income. Subtract line 9 from line 8	11	Box a or b MUST be checked.
12	Federal tax deduction (see instructions)	13	Personal exemption (from line 1, 2, 3, or 4)	14	Dependent exemption (from page 2, Part III, line 2)
15	Total deductions. Add lines 11, 12, 13, and 14	16	Taxable income. Subtract line 15 from line 10	17	Income Tax due. Enter amount from tax table or check if from Form NOL-85A
18	Net tax due Alabama. Check box if computing tax using Sch OC	19	Consumer Use Tax (see instructions). If you certify that no use tax is due, check box	20	Alabama Election Campaign Fund. You may make a voluntary contribution to the fo
21	Total tax liability and voluntary contribution. Add lines 18, 19, 20a, and 20b	22	Alabama income tax withheld (from column A, line 5a)	23	2020 estimated tax payments/Automatic Extension Payment
24	Amended Returns Only - Previous payments (see instructions)	25	Refundable Credits. Enter the amount from Schedule OC, Section F, line F4	26	Total payments. Add lines 22, 23, 24, and 25
27	Amended Returns Only - Previous refund (see instructions)	28	Adjusted Total Payments. Subtract line 27 from line 26	29	AMOUNT YOU OWE
30	Estimated tax penalty. Also include on line 29 (see instr. page 11)	31	OVERPAID	32	Amount of line 31 to be applied to your 2021 estimated tax
33	Total Donation Check-offs from Schedule DC, line 2	34	REFUNDED TO YOU. (CAUTION: You must sign this return on page 2.)		

035001 11-24-20 1019

Form **1040** Department of the Treasury - Internal Revenue Service (99) | **2021** EXTENSION GRANTED TO 10/17/22

Filing Status Ala Code § 40-2A-10

Check only one box.
 If you checked the first box, enter the name of your spouse. If you checked the first or last box, enter the child's name if the qualifying person is a child but not your dependent.

Your first name and middle initial: **HERMY** Last name: **SUTTERLIN** Ala Code § 40-2A-10

Last name: **SUTTERLIN** Ala Code § 40-2A-10

State: **AL** ZIP code: **35224**

Foreign country name: **HOOVER** Foreign province/state/county: Foreign postal code:

At any time during 2021, did you receive, sell, exchange, or otherwise dispose of any financial interest in any virtual currency? Yes No

Standard Deduction: Spouse itemizes on a separate return or you were a dual-status alien

Age/Blindness: You: Were born before January 2, 1957 Are blind Spouse: Was born before January 2, 1957 Is blind

Dependents (see instructions): (2) social security number (3) Relationship to you (4) It qualifies for (see instructions):

Ala Code § 40-2A-10

5a	Pensions and annuities	5a		b	Taxable amount	5b	
6a	Social security benefits	6a		b	Taxable amount	6b	
7	Capital gain or (loss). Attach Schedule D if required. If not required, check here			7			
8	Other income from Schedule 1, line 10			8			
9	Add lines 1, 2b, 3b, 4b, 5b, 6b, 7, and 8. This is your total income			9			
10	Adjustments to income from Schedule 1, line 26						
11	Subtract line 10 from line 9. This is your adjusted gross income						
12a	Standard deduction or itemized deductions (from Schedule A)						
12b	Charitable contributions if you take the standard deduction (see instr.)						
12c	Add lines 12a and 12b			12c			
13	Qualified business income deduction from Form 8995 or Form 8995-A			13			
14	Add lines 12c and 13			14			
15	Taxable income. Subtract line 14 from line 11. If zero or less, enter -0-			15			

LHA For Disclosure, Privacy Act, and Paperwork Reduction Act Notice, see separate instructions. Form 1040 (2021)

Ala Code § 40-2A-10

Form 1040 (2021) **RUSTY [REDACTED] [REDACTED] UTTERLIN**

STMT 3

16 Tax (see instructions). Check if any from Form(s): 1 8814 2 4972

17 Amount from Schedule 2, line 3

18 Add lines 16 and 17

19 Nonrefundable child tax credit or credit for other dependents from Sch

20 Amount from Schedule 3, line 8

21 Add lines 19 and 20

22 Subtract line 21 from line 18. If zero or less, enter -0-

23 Other taxes, including self-employment tax, from Schedule 2, line 21

24 Add lines 22 and 23. This is your **total tax**

25 Federal income tax withheld from:

a Form(s) W-2 **SEE STATEMENT 4** 25a

b Form(s) 1099 25b

c Other forms (see instructions) 25c

d Add lines 25a through 25c

26 2021 estimated tax payments and amount applied from 2020 return

27a Earned income credit (EIC) 27a

Check here if you were born after January 1, 1998, and before January 2, 2004, and you satisfy all the other requirements for taxpayers who are at least age 18, to claim the EIC. See instr.

b Nontaxable combat pay election 27b

c Prior year (2019) earned income 27c

28 Refundable child tax credit or additional child tax credit from Schedule 8812 28

29 American opportunity credit from Form 8863, line 8 29

30 Recovery rebate credit. See instructions 30

31 Amount from Schedule 3, line 15 31

32 Add lines 27a and 28 through 31. These are your **total other payments and**

33 Add lines 25d, 26, and 32. These are your **total payments**

Refund

34 If line 33 is more than line 24, subtract line 24 from line 33. This is the

35a Amount of line 34 you want refunded to you. If Form 8888 is attached

Direct deposit? See instructions. **b** Routing number **c** Type:

d Account number

36 Amount of line 34 you want applied to your 2022 estimated tax 36

Amount You Owe

37 **Amount you owe.** Subtract line 33 from line 24. For details on how to

38 Estimated tax penalty (see instructions) 38

Third Party Designee

Do you want to allow another person to discuss this return with the IRS? See instructions **Yes. Complete below.** **No**

Des name **Ala Code § 40-2A-10**

Und com **Ala Code § 40-2A-10**

Your signature Date **Ala Code § 40-2A-10**

Sign Here

Spouse's signature, if a joint return, **both** must sign. Date

Joint return? See instructions. Keep a copy for your records.

Ala Code § 40-2A-10

Ala Code § 40-2A-10

Ala Code § 40-2A-10

Ala Code § 40-2A-10

check if: Self-employed

Ala Code § 40-2A-10

FORM 40 Alabama 2021 Individual Income Tax Return RESIDENTS & PART-YEAR RESIDENTS

For the year Jan. 1 - Dec. 31, 2021, or other tax year:

Ala Code § 40-2A-10

Check if primary is deceased (date mm/dd/yyyy) Check if spouse is deceased (date mm/dd/yyyy)
 Your first name: **RUSTY** Initial: Last name: **SUTTERLIN**

Ala Code § 40-2A-10 ERLIN

City, town or post office: **HOOVER** State: **AL** ZIP code: **35224** Foreign Country: Check if address is outside U.S.

Filing Status/Exemptions: **Ala Code § 40-2A-10** 500 Married filing separately. Complete Spouse SSN. 000 Head of Family (with qualifying person). Complete Schedule HGF.

	A - Alabama tax withheld	B - Income
5a	Ala Code § 40-2A-10	
5b		
6		
7		
8		
9		
10		
11		
12		
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14		
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135001 08-28-21



ALABAMA LAW ENFORCEMENT AGENCY
DRIVER LICENSE DIVISION
301 SOUTH RIPLEY STREET | P.O. BOX 1471 | MONTGOMERY, AL 36102-1471
PHONE 334.676.6002 | WWW.ALA.GOV



WILLIAM RUSTY SUTTERLIN
Ala Code § 36-12-40 (Security Exemption)
DOVER AL 35244-5244

08-Dec-2022
Letter ID: L0001975438



This temporary license is valid until 01-07-2023.
Your license will be mailed to the address below.

Transaction ID	3HP-VRKV-RL27	Transaction Date	12-08-2022
Name	WILLIAM RUSTY SUTTERLIN		
Class	D - Regular Operator, M - Motorcycle, V - Vessel		
Mailing Address	Ala Code § 36-12-40 (Security Exemption) DOVER AL 35244-5244		

Ala Code § 36-12-40 (Security Exemption)

REDACTION INDEX

Ala Code § 36-12-40 (Security Exemption) – The verifying signatures and initials have been redacted pursuant to the “security or safety of persons” exemption contained in the Alabama Public Records statute. Signatures and initials, if left unredacted, may be forged and used for innumerable illicit purposes.

Furthermore, this exhibit contains multiple references to private information including, but not limited to, home addresses, marital status, sex, race, and telephone numbers. The release of such information could prove detrimental to the security and safety of the applicants and others referenced within the exhibit and should be exempt from disclosure.

Ala Code § 40-2A-10 – Prevents the disclosure of tax information.

Ala Code § 41-13-6 – Prevents disclosure of Social Security Numbers.

Application Number 1632

Exhibit 3 - Criminal Background Check

Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

JASON COBB

CEO

Printed Name of Verifying Individual

Title of Verifying Individual

Ala Code § 36-12-40 (Security Exemption)

3/3/2023

Signature of Verifying Individual

Verification Date

FORM B: BACKGROUND CHECK APPLICANT VERIFICATION

ORGANIC HARVEST LAB, LLC

PROCESSOR

Business License Applicant Name

License Type

Provide the name and title of each individual identified by § 20-2A-55(b), Code of Alabama 1975 (as amended) (i.e., each owner, shareholder, director, board member, and individual with an economic interest in the Applicant). Attach additional forms if necessary.

NAME	ROLE (select all that apply)
JASON COLLINS COBB	<input checked="" type="checkbox"/> Owner <input checked="" type="checkbox"/> Shareholder <input checked="" type="checkbox"/> Director <input checked="" type="checkbox"/> Board Member <input checked="" type="checkbox"/> Individual with Economic Interest in Applicant
WILLIAM RUSTY SUTTERLIN	<input checked="" type="checkbox"/> Owner <input checked="" type="checkbox"/> Shareholder <input checked="" type="checkbox"/> Director <input checked="" type="checkbox"/> Board Member <input checked="" type="checkbox"/> Individual with Economic Interest in Applicant
DAVID FRANK HEWITT	<input checked="" type="checkbox"/> Owner <input checked="" type="checkbox"/> Shareholder <input checked="" type="checkbox"/> Director <input checked="" type="checkbox"/> Board Member <input checked="" type="checkbox"/> Individual with Economic Interest in Applicant
	<input type="checkbox"/> Owner <input type="checkbox"/> Shareholder <input type="checkbox"/> Director <input type="checkbox"/> Board Member <input type="checkbox"/> Individual with Economic Interest in Applicant
	<input type="checkbox"/> Owner <input type="checkbox"/> Shareholder <input type="checkbox"/> Director <input type="checkbox"/> Board Member <input type="checkbox"/> Individual with Economic Interest in Applicant
	<input type="checkbox"/> Owner <input type="checkbox"/> Shareholder <input type="checkbox"/> Director <input type="checkbox"/> Board Member <input type="checkbox"/> Individual with Economic Interest in Applicant
	<input type="checkbox"/> Owner <input type="checkbox"/> Shareholder <input type="checkbox"/> Director <input type="checkbox"/> Board Member <input type="checkbox"/> Individual with Economic Interest in Applicant
	<input type="checkbox"/> Owner <input type="checkbox"/> Shareholder <input type="checkbox"/> Director <input type="checkbox"/> Board Member <input type="checkbox"/> Individual with Economic Interest in Applicant
	<input type="checkbox"/> Owner <input type="checkbox"/> Shareholder <input type="checkbox"/> Director <input type="checkbox"/> Board Member <input type="checkbox"/> Individual with Economic Interest in Applicant
	<input type="checkbox"/> Owner <input type="checkbox"/> Shareholder <input type="checkbox"/> Director <input type="checkbox"/> Board Member <input type="checkbox"/> Individual with Economic Interest in Applicant

Applicant Verification: The undersigned hereby verifies that the individuals listed hereinabove (and attached, as necessary) are all of the individuals identified by § 20-2A-55(b), Code of Alabama 1975 (as amended) with respect to the Applicant. The undersigned further verifies that each individual listed hereinabove (and attached, as necessary) has requested a state criminal background check from the Alabama Law Enforcement Agency (ALEA) and a national criminal background check from the FBI.

JASON COLLINS COBB

MANAGING MEMBER / CEO

Ala Code § 36-12-40 (Security Exemption)

Title of Verifying Individual

12 / 30 / 2022

Verification Date

FORM C: State Background Check (ALEA)

The application for the State Background Check, conducted by ALEA, may be submitted in person or by mail.

In-Person Requests:

- Complete the enclosed Application to Review Alabama Criminal History Record Information form (SBI Form 46) – see instructions below (**) and Appendix B of the application form for detailed instructions
- Return the completed form to ALEA Criminal Records and Identification Unit at 301 S. Ripley Street, Montgomery, AL 36104 (Adams Avenue side entrance)
- Additional information is available at:

<https://www.alea.gov/sbi/criminal-justice-services/criminal-records/alabama-background-check>.

Requests by Mail:

- Complete the enclosed Application to Review Alabama Criminal History Record Information form (SBI Form 46) – see instructions below (**) and Appendix B of the application form for additional instructions
- Return the completed form and fingerprint card to:

Alabama Law Enforcement Agency
 Criminal Records and Identification Unit
 ATTN: Background Checks
 P.O. Box 1511
 Montgomery, Alabama 36102-1511

- Additional information is available at:

<https://www.alea.gov/sbi/criminal-justice-services/criminal-records/alabama-background-check>.

**** When completing the background check application form, include the following information:**

- Work Information
 - **Employer Name:** Provide name of cannabis business license applicant
 - **Employer Phone:** Provide phone number of cannabis business license applicant
 - **Job Role/Classification:** Provide role of individual for whom background check is being conducted (i.e., owner, shareholder, director, board member, individual with economic interest in cannabis business license applicant)
- Affidavit for Release Information
 - **Authorize Release To:** Alabama Medical Cannabis Commission

EXW 4-13-16
ALABAMA LAW ENFORCEMENT AGENCY

APPLICATION TO REVIEW ALABAMA CRIMINAL HISTORY RECORD INFORMATION



PERSONAL INFORMATION

Full Name (First, Middle, Last, Suffix): David Frank Hewitt Sex/Gend [Redacted]
Ala Code § 36-12-40 (Security Exemption)

Aliases/Nickname: _____

Applicant Current Address: [Redacted]
Ala Code § 36-12-40 (Security Exemption)

City: Graham State: AL Zip Code: 36263 SSN [Redacted] Ala Code § 41-13-6

Ala Code § 36-12-40 (Security Exemption) Issuing State: AL

Race: White Black Asian Indian Other (please specify) _____

Home Phone: () Mobile Phone: () Work Phone: ()

WORK INFORMATION

Employer Name: Sunbelt Properties (self) Employer Phone: ()

Contractor Name: _____ Contractor Phone: ()

State Agency: _____ Agency Phone: ()

Work Email Address: _____

Job Role/Classification: _____ Supervisor Name: _____

- Included with my Release are the following items:
- Completed Application signed by applicant and two witnesses OR notarized.
 - The required copy of my valid photo identification.
 - A classifiable copy of my own fingerprints taken by an authorized law enforcement agency as required.
 - If applying for state employment/licensure/certification, reference that agency's fee requirements for a background check.
 - PERSONAL REQUESTS ONLY:** The required \$25.00 administrative fee (must be in the form of a money order or Cashier's check made payable to the ALEA, Criminal Records and Identification Unit).
- * Already Submitted to ALEA*

AFFIDAVIT FOR RELEASE INFORMATION

I hereby authorize the Alabama Law Enforcement Agency to release any and all criminal history information to: Alabama Medical Cannabis Commission (AMCC)

Name & Address of Requesting Agency or Authorized Agent*
I, the above referenced individual, hereby request to release any and all criminal history record information (CHRI) maintained by both the Alabama Law Enforcement Agency, the Federal Bureau of Investigation, and any information relating to my past record and character whether it be financial, academic, military, employment, judicial, or personal reference. I hereby release all parties contributing such information from any charges or liability whatsoever because of furnishing said information. By signing below and submitting this application, I hereby verify that the information listed in my application and in the attached documentation is correct. I also acknowledge that I understand that, in accordance with Section 41-9-601 of the Code of Alabama 1975, that any person who willfully requests, obtains or seeks to obtain criminal offender record information under false pretenses, or who willfully communicates or seeks to communicate criminal offender record information to any agency or person without authorization, may be guilty of a felony, and shall be fined not less than \$5,000 nor more than \$10,000 or imprisoned in the state penitentiary for not more than five years or both. § 41-9-601, Code of Ala. (1975). Furthermore, as set forth at Title 28, Code of Federal Regulations (CFR), Section 16.34 I have the right to challenge or appeal Ala Code § 36-12-40 (Security Exemption) federal CHRI that I believe to be inaccurate (see "Appendix A" for contact information).

Applicant Signature [Redacted] Date 11-3-22

Name of Witness _____ Name of Witness _____

Address of Witness _____ Address of Witness _____

City, State and Zip _____ City, State and Zip _____

Sworn to and subscribed before me this 3rd day of November, 2022.

Notary Signature Judy Easterwood My Commission Expires July 25, 2026.



FOR ALEA OFFICIAL USE ONLY: TCN: _____ SID: AL _____		Billed: _____ Paid: _____ No Charge: _____
Received By (Initials): _____ /Date: ____/____/____	Processed By (Initials): _____ /Date: ____/____/____	Check#: _____
Walk-in/Hand Delivered <input type="checkbox"/> Mailed <input type="checkbox"/>	Status: _____ Initials: _____ Date: ____/____/____	Background Check Qty: Total: \$ _____
		Certified Letter Qty: Total: \$ _____

SBI Form 46 Rev. 10-01-17

Exhibit 3.2

* Already Submitted to ALEA

ALABAMA LAW ENFORCEMENT AGENCY
APPLICATION TO REVIEW ALABAMA CRIMINAL HISTORY RECORD INFORMATION



PERSONAL INFORMATION

Full Name (First, Middle, Last, Suffix): Jason Collins Cobb Sex/Gender: Male Female

Aliases/Nickname: Ala Code § 36-12-40 (Security Exemption)

Applicant Current Address: Ala Code § 36-12-40 (Security Exemption)

City: Homewood State: AL Zip Code: 35209 SSN: Ala Code § 41-13-6

Ala Code § 36-12-40 (Security Exemption) Issuing State: AL

Race: White Black Asian Hispanic Other (please specify)

Ala Code § 36-12-40 (Security Exemption) Work Phone: ()

WORK INFORMATION

Employer Name: Organic Harvest Lab Employer Phone: (205) 617 8000

Contractor Name: _____ Contractor Phone: ()

State Agency: _____ Agency Phone: ()

Work Email Address: _____

Job Role/Classification: _____ Supervisor Name: _____

Included with my Release are the following items:

- Completed Application signed by applicant and two witnesses OR notarized.
- The required copy of my valid photo identification.
- A classifiable copy of my own fingerprints taken by an authorized law enforcement agency as required.
- If applying for state employment/licensure/certification, reference that agency's fee requirements for a background check.
- PERSONAL REQUESTS ONLY:** The required \$25.00 administrative fee (must be in the form of a money order or Cashier's check made payable to the ALEA, Criminal Records and Identification Unit).

AFFIDAVIT FOR RELEASE INFORMATION

I hereby authorize the Alabama Law Enforcement Agency to release any and all criminal history information to:
ALABAMA MEDICAL CANNABIS COMMISSION (AMCC)

Name & Address of Requesting Agency or Authorized Agent*

I, the above referenced individual, hereby request to release any and all criminal history record information (CHRI) maintained by both the Alabama Law Enforcement Agency, the Federal Bureau of Investigation, and any information relating to my past record and character whether it be financial, academic, military, employment, judicial, or personal reference. I hereby release all parties contributing such information from any charges or liability whatsoever because of furnishing said information. By signing below and submitting this application, I hereby verify that the information listed in my application and in the attached documentation is correct. I also acknowledge that I understand that, in accordance with Section 41-9-601 of the Code of Alabama 1975, that any person who willfully requests, obtains or seeks to obtain criminal offender record information under false pretenses, or who willfully communicates or seeks to communicate criminal offender record information to any agency or person without authorization, may be guilty of a felony, and shall be fined not less than \$5,000 nor more than \$10,000 or imprisoned in the state penitentiary for not more than five years or both. § 41-9-601 Ala Code § 36-12-40 (Security Exemption) 18, Code of Federal Regulations (CFR), Section 16.34 I have the right to challenge or appeal any portion of my _____ the "Appendix A" for contact information.

Applicant Signature _____ Date 12/7/2022

Name of Witness Beth Cobb Name of Witness Jane Boyer

Address of Witness: Ala Code § 36-12-40 (Security Exemption)

City, State and Zip Homewood, AL 35209 City, State and Zip Homewood, Alabama 35209

Sworn to and subscribed before me this _____ day of _____, 20__.

Notary Signature _____ My Commission Expires _____, 20__.

FOR ALEA OFFICIAL USE ONLY: TCN: _____ SID: AL _____		Billed: _____ Paid: _____ No Charge: _____
Received By (Initials): _____ /Date: ____/____/____	Processed By (Initials): _____ /Date: ____/____/____	Check#: _____
Walk-in/Hand Delivered <input type="checkbox"/> Mailed <input type="checkbox"/>	Status: _____ Initials: _____ Date: ____/____/____	Background Check Qty: Total: \$ _____
		Certified Letter Qty: Total: \$ _____

ALABAMA LAW ENFORCEMENT AGENCY
APPLICATION TO REVIEW ALABAMA CRIMINAL HISTORY RECORD INFORMATION



PERSONAL INFORMATION

Full Name (First, Middle, Last, Suffix): William Rusty Sutterlin Sex/Gender: [Redacted]

Aliases/Nickname: Rusty Sutterlin, William Sutterlin

Applicant Current Address: [Redacted]

City: Hoover State: AL Zip Code: 35244 Ala Code § 41-13-6

Ala Code § 36-12-40 (Security Exemption) Issuing State: AL

WORK INFORMATION

Employer Name: Sutterlin Technologies, LLC Employer Phone: [Redacted]

Contractor Name: Contractor Phone: ()

State Agency: Ala Code § 36-12-40 (Security Exemption) Agency Phone: ()

Work Email Address: [Redacted]

Job Role/Classification: Owner Supervisor Name:

Included with my Release are the following items:

- Completed Application signed by applicant and two witnesses OR notarized.
- The required copy of my valid photo identification.
- A classifiable copy of my own fingerprints taken by an authorized law enforcement agency as required.
- If applying for state employment/licensure/certification, reference that agency's fee requirements for a background check.
- PERSONAL REQUESTS ONLY:** The required \$25.00 administrative fee (must be in the form of a money order or Cashier's check made payable to the ALEA, Criminal Records and Identification Unit).

AFFIDAVIT FOR RELEASE INFORMATION

I hereby authorize the Alabama Law Enforcement Agency to release any and all criminal history information to:
ALABAMA MEDICAL CANNABIS COMMISSION (AMCC)

Name & Address of Requesting Agency or Authorized Agent*

I, the above referenced individual, hereby request to release any and all criminal history record information (CHRI) maintained by both the Alabama Law Enforcement Agency, the Federal Bureau of Investigation, and any information relating to my past record and character whether it be financial, academic, military, employment, judicial, or personal reference. I hereby release all parties contributing such information from any charges or liability whatsoever because of furnishing said information. By signing below and submitting this application, I hereby verify that the information listed in my application and in the attached documentation is correct. I also acknowledge that I understand that, in accordance with Section 41-9-501 of the Code of Alabama 1975, that any person who willfully requests, obtains or seeks to obtain criminal offender record information under false pretenses, or who willfully communicates or seeks to communicate criminal offender record information to any agency or person without authorization, may be guilty of a felony, and shall be fined not less than \$5,000 nor more than \$10,000 or imprisoned in the state penitentiary for not more than five years or both. § 41-9-501, Code of Ala. (1975). Furthermore, as set forth at Title 28, Code of Federal Regulations (CFR), Section 16.34 I have the right to challenge or [Redacted] be inaccurate (see "Appendix A" for contact information).

Applicant Signature: [Redacted] Date: 11-1-22

Name of Witness: Jeff Moore Name of Witness: Chris Brewis

Address of Witness: [Redacted]

City, State and Zip: Alabaster, AL 35007 City, State and Zip: Cullman, AL 35055

Sworn to and subscribed before me this ___ day of ___, 20__.

Notary Signature: My Commission Expires ___, 20__.

FOR ALEA OFFICIAL USE ONLY: TCN: _____ SID: AL		Billed: _____ Ppd: _____ No Charge: _____
Received By (Initials): _____ /Date: ___/___/	Processed By (Initials): _____ /Date: ___/___/	Check#: _____
Walk-In/Hand Delivered <input type="checkbox"/> Mailed <input type="checkbox"/>	Status: _____ Initials: _____ Date: ___/___/	Background Check Qty: Total \$ _____
		Certified Letter Qty: Total \$ _____

SBI Form 46 Rev. 10 01 17

ALABAMA LAW ENFORCEMENT AGENCY
APPLICATION TO CHALLENGE
Alabama Criminal History Record Information



Appendix A

An individual may Challenge or Appeal any portion of his or her own Criminal History Record Information (CHRI) maintained by the ALEA Criminal Records and Identification Unit that he or she believes to be inaccurate. To submit a challenge regarding criminal history record information (CHRI) provided by the Alabama Law Enforcement Agency, Criminal Records and Identification Unit. Please complete the steps described below and mail this form and all supporting documentation to:

ALEA Criminal Records and Identification Unit – P.O. Box 1511 – Montgomery, AL 36102-1511 – ATTN: Record Challenge.

Failure to properly complete the form or provide the appropriate documentation, may cause a delay in processing your request.

I, _____, wish to challenge my Alabama CHRI provided to me by the Alabama Law Enforcement Agency Criminal Records and Identification Unit on ___/___/___.

- I understand that I must return this challenge form, along with the documentation required below, to the ALEA Criminal Records and Identification Unit no later than one year in order to challenge this information under this request. I further agree and understand that I must submit a new Request to Review or Challenge my criminal history record information in accordance with the procedure established by the Alabama Justice Information (AJI) Commission should I wish to challenge my Alabama criminal history after that date.
- I understand that I must provide below or ATTACH IN WRITING TO THIS FORM the following information regarding EACH arrest and/or disposition I am challenging before my challenge can be reviewed or processed by the ALEA Criminal Records and Identification Unit. I also understand that I should attach copies of the official documentation from the arresting agency or court (if applicable) to support each arrest or disposition being challenged.
- I understand that my challenge will be reviewed by an ALEA Criminal Records and Identification Unit official, along with the documentation provided. I also understand that my challenge may also be sent to the originating criminal justice agency with custody over the challenged information for their review, and that this process may take several weeks or longer to complete.

Please list the SPECIFIC charge, date, and Arresting Agency/Court for each arrest or disposition being challenged:

DATE	AGENCY	ARREST CHARGE/DISPOSITION CHALLENGED
1.		
2.		
3.		
4.		
5.		

Please also provide the following details:

A. The details related to why each specific arrest or disposition listed above is inaccurate:

B. The information believed to be correct information for each arrest or disposition being challenged:

C. The agency and/or court where I obtained what I believe to be the correct supporting information (if applicable) from:

Signature: _____ Date: _____

CHRI Form #9-Appendix A Rev. 10-12-17

Applicant Instructions

For completing the ALEA Application to Review Alabama Criminal History Record Information or to Challenge Alabama Criminal History Record Information



Appendix B

In order for your request to review, challenge or appeal your Alabama Criminal History Record Information to be processed by the Alabama Law Enforcement Agency (ALEA), you must complete the *ALEA Application to Review (SBI Form 46)* or to *Challenge Alabama Criminal History Record Information (SBI Form 46 Appendix A)* in accordance with the following instructions:

1. **Your application must include ONE COPY of at least one of the following forms of your own valid photo identification:**
 - a. A valid unexpired United States state-issued photo driver license or photo ID (non-driver) card;
 - b. A valid unexpired United States Citizenship and Immigration Service Document, which may include either:
 - i. Certificate of Naturalization N-550
 - ii. Replacement Certificate of Naturalization N-570
 - iii. Special Certificate of Naturalization N-578
 - iv. Certificate of Citizenship N-560
 - v. Replacement Certificate of Citizenship N-561
 - vi. Certificate of Citizenship (Posthumous) N-645, N-645A
 - c. A valid unexpired United States Passport; or
 - d. A valid unexpired Foreign Passport which meets the following requirements:
 - i. A foreign passport must contain a Valid United States Visa or I-94 to be used as a primary proof of identification; or
 - ii. A foreign passport, not issued in English, must be translated and accompanied by a Certificate of Accurate Translation. Passports are not acceptable if un-translated into English and/or expired.
2. **Your application must include the required \$25.00 administrative fee in the form of only a cashier's check or a money order made payable to the "Criminal Records & Identification Unit" (sorry – personal and/or business checks are not accepted); and**
3. **Your application must include a classifiable set of your own fingerprints, taken by an authorized law enforcement agency with an FBI-issued Originating Agency Number (ORI).**
 - a. The fingerprints accompanying your application should be provided to ALEA on an official FBI-approved "Applicant" fingerprint card or a FBI-approved AFIS printout of an official "Applicant" fingerprint card (i.e., FBI blue card). This ensures positive identification and insures that the proper criminal record is reviewed.
 - b. Details for the fingerprinting agency may be found in APPENDIX C.
4. **Your completed request and all of the required documentation should be mailed to:**
 Alabama Law Enforcement Agency
 Criminal Records and Identification Unit
 ATTN: Background Checks
 P.O. Box 1511
 Montgomery, Alabama 36102-1511
5. **If your application is to CHALLENGE any part of your CHRI maintained by ALEA, the application must include, at a minimum:**
 - a. A copy of the Alabama Criminal History Record being challenged;
 - b. The charge and DATE of each specific arrest or disposition being challenged;
 - c. The Name of the ARRESTING AGENCY OR COURT for each arrest or disposition being challenged;
 - d. A listing of each specific arrest or disposition being challenged;
 - e. The details related to why each specific arrest is inaccurate;
 - f. What the applicant believes to be the correct information for each arrest or disposition being challenged;
 - g. Where the applicant obtained what he/she believes to be the correct supporting information (if applicable); and
 - h. Official documentation from the arresting agency or court (if applicable) to support each arrest or disposition being challenged.
6. **Your completed request and all of the required documentation should be mailed to:**
 Alabama Law Enforcement Agency
 Criminal Records and Identification Unit
 ATTN: Record Challenge
 P.O. Box 1511
 Montgomery, Alabama 36102-1511

Please allow a minimum of 4-5 weeks from the date the application is received by ALEA for ALEA to process your request for review. Requests to Challenge CHRI information do NOT fall under this timeframe, as they require additional research, contact and verification with the arresting agencies, etc. If you have any questions concerning this procedure, you may contact ALEA by calling 334-353-4340 or 1-866-740-4762.

SBI Form 46 Appendix B Rev. 10/01/17

Instructions for Law Enforcement Official

Taking the applicant's fingerprints on FBI "Applicant" Fingerprint Card

FD-258 (Rev 12-10-07)



Appendix C

In accordance with Alabama law and the procedures established in Section 265-X-2 of the *Alabama Administrative Code*, individual citizens may request and may be provided with classifiable sets of their own fingerprints to accompany a request for his/her own Alabama Criminal History Record Information (CHRI) from the Alabama Law Enforcement Agency (ALEA).

One of the requirements for an individual to request their own criminal history record information is that the individual to provide ALEA with a classifiable set of his or her own fingerprints (taken by an authorized law enforcement agency with an FBI-issued ORI) with his or her application to Review or Challenge his or her own Alabama criminal history. This ensures positive identification and insures that the proper criminal record is reviewed and/or challenged.

1. The individual you are fingerprinting should provide proper identification to your agency upon request.
2. The individual's fingerprints should be taken by law enforcement on an FBI "Applicant" Fingerprint Card (i.e. blue card). Please ensure that your agency's name and ORI, AND your name and telephone number, are included on the completed fingerprint card. A sample of the FBI "Applicant" Fingerprint Card FD-258 (Rev 12-10-07) for your reference purposes is provided below.

3. Please return the completed fingerprint card to the applicant, as it is the APPLICANT's responsibility to mail the completed CHRI Release Form (SBI Form 46), along with his/her own fingerprint card and the other required documents. See SBI Form 46 Appendix B for mailing instructions.
4. If you have any questions, please call ALEA at 334-353-4340 or 1-866-740-4762. To request blank FBI APPLICANT cards, your law enforcement agency may contact the FBI Customer Service Group, CJIS Division Biometric Section at (304) 625-5590 or by e-mail at identity@ic.fbi.gov.



ALABAMA LAW ENFORCEMENT AGENCY
RECORDS AND IDENTIFICATION DIVISION
301 S. RIPLEY STREET / P.O. BOX 1511 / MONTGOMERY, AL 36102
PHONE 334.353.4340 / ALEA.GOV

KAY IVEY
GOVERNOR
HAL TAYLOR
SECRETARY

November 15th, 2022

Dear Mr. Sutterlin,

The ALEA Criminal Justice Information Services Division has received and processed your Alabama Criminal History Record Information (CHRI) request.

Our review found no state criminal records based on the information you provided in your application, based on a fingerprint check of Alabama criminal records only. As additions or deletions to an individual's criminal history may be made at any time, a new request for your state CHRI should be made via the same procedure if it is needed later.

Please do not hesitate to contact the Criminal Justice Information Services Division at 334-676-6000 if we may be of further assistance in this matter.

Respectfully,

A handwritten signature in black ink, appearing to read "W. Avery Morris".

W. Avery Morris, CLEE
Operations Commander
Criminal Justice Information Services Division
Alabama State Bureau of Investigation

XXXXXXXXXXXX STATE ABI SEARCH RESULT AND RAP SHEET XXXXXXXXXXXXX

TCN: [Redacted] Ala Code § 36-12-40 (Security Exemption)

NAME: SUTTERLIN, WILLIAM RUSTY

Ala Code § 41-13-6

ABI RESULT: IDENT

SID [Redacted] Ala Code § 36-12-40 (Security Exemption)

CERTIFIED COPY OF ALEA DOCUMENT

11-15-2022 08:41 ALEA0049

[Redacted] Ala Code § 36-12-40 (Security Exemption)

*OPR/AFIS

*FOLLOWING RESPONSE IS TO YOUR INQUIRY ON SID [Redacted] Ala Code § 36-12-40 (Security Exemption)

*-CIVIL APPLICANT RESPONSE- REPORT DATE: 11-15-2022

*NAME STATE ID NO. FBI ID NO.

*SUTTERLIN, WILLIAM RUSTY [Redacted] Ala Code § 36-12-40 (Security Exemption)

*SEX RACE BIRTH DATE HEIGHT WEIGHT EYE HAIR POB

Ala Code § 36-12-40 (Security Exemption)

*SOCIAL SECURITY SCARS-MARKS-TATTOOS

Ala Code § 41-13-6

*FILE NUMBER BIRTH DATE SOCIAL SECURITY OCCUPATION

*

Ala Code § 36-12-40 (Security Exemption)



ALABAMA LAW ENFORCEMENT AGENCY
RECORDS AND IDENTIFICATION DIVISION
301 S. RIPLEY STREET / P.O. BOX 1511 / MONTGOMERY, AL 36102
PHONE 334.353.4340 / ALEA.GOV

KAY IVEY
GOVERNOR
HAL TAYLOR
SECRETARY

November 9th, 2022

Dear Mr. Cobb,

Attached is a copy of your Alabama Criminal History Record Information (CHRI), as per your written request to the ALEA Criminal Justice Information Services Division. This CHRI includes identifying information on any arrests and/or dispositions related to your Alabama criminal history.

- Requests for any records associated with these charges, or an explanation of a charge or disposition, should be directed to the arresting agency or the court which contributed the information to your criminal record.
- Because additions or deletions to an individual's criminal history record may be made at any time, a new copy of your CHRI should be requested via the same procedure if it is needed at a later date.

Please do not hesitate to contact the Criminal Justice Information Services Division at 334-676-6000 if we may be of further assistance in this matter.

Respectfully,

A handwritten signature in black ink, appearing to read "W. Avery Morris".

W. Avery Morris, CLEE
Operations Commander
Criminal Justice Information Services Division
Alabama State Bureau of Investigation

XXXXXXXXXXXX STATE ABI SEARCH RESULT AND RAP SHEET XXXXXXXXXXXXXXX

Ala Code § 36-12-40 (Security Exemption)

NAME: COBB, JASON COLLINS

Ala Code § 41-13-6

ABI RESULT: IDENT

Ala Code § 36-12-40 (Security Exemption)

CERTIFIED COPY OF ALEA DOCUMENT

11-09-2022 16:46 ALLEA0049

Ala Code § 36-12-40 (Security Exemption)

```

*OPR/AFIS
*FOLLOWING RESPONSE IS TO YOUR INQUIRY ON SID
***** THERE ARE NO MORE INQUIRIES NECESSARY ON THIS
***** RECORD - ALL ARRESTS ARE IN ALABAMA'S DATA BASE.
***** NOTICE AND WARNING *****
* THIS RECORD IS CONFIDENTIAL AND RESTRICTED
* FOR USE BY CRIMINAL JUSTICE AGENCIES ONLY.
* THIS IS NOT THE PUBLIC RECORD OF THE EVENTS
* DEPICTED AND DISSEMINATION IN VIOLATION OF
* THIS RESTRICTION WILL SUBJECT THE OFFENDER
* TO ALL APPLICABLE FEDERAL AND STATE CRIMINAL
* PENALTIES. THIS DOCUMENT MUST BE SECURED AND
* DESTROYED BY BURNING OR SHREDDING WHEN NO
* LONGER NEEDED.

```

*-ALABAMA CRIMINAL HISTORY- REPORT DATE: 11-09-2022 *

*NAME STATE ID NO. FBI ID NO. *

*COBB, JASON C Ala Code § 36-12-40 (Security Exemption) *

*SEX RACE BIRTH DATE HEIGHT WEIGHT EYE HAIR DOB
Ala Code § 36-12-40 (Security Exemption) *

*SOCIAL SECURITY SCARS-MARKS-TATTOOS *

Ala Code § 41-13-6 *

*ALIAS NAMES *

* COBB, JASON COLLINS *

*FILE NUMBER BIRTH DATE SOCIAL SECURITY OCCUPATION *

Ala Code § 36-12-40 (Security Exemption) 412257734 * *

*ARREST-01 *

* DATE OF ARREST - 09-07-1990 *

* AGENCY - VESTAVIA HILLS POLICE DEPT ORI - AL0010900 *

* NAME - COBB, JASON C *

* CHARGE 01 - 5015 FAILURE TO APPEAR- *

* DATE OF OFFENSE - 09-07-1990 *

* AGENCY CASE NO. - 90090435 *

*TOTAL NUMBER OF ARRESTS- 1 *

*RECORD LAST UPDATED 11/09/2022 *

*ALL ALABAMA ARRESTS RECEIVED BY ACJIC ARE INCLUDED *

*IN THIS REPORT. WHEN EXPLANATION OF A CHARGE OR *

*DISPOSITION IS NEEDED, COMMUNICATE DIRECTLY WITH *

*THE ARRESTING AGENCY THAT FURNISHED THE DATA. *

*RECORD IS CONFIDENTIAL AND INTENDED FOR USE *

*BY CRIMINAL JUSTICE AGENCIES ONLY.
Ala Code § 36-12-40 (Security Exemption)

*
*



VESTAVIA HILLS
A LIFE ABOVE

ASHLEY C. CURRY
Mayor

HONORABLE JAMES R. STURDIVANT
Municipal Judge

UMANG G. PATEL
Municipal Court Director

November 18, 2021

Jason C. Cobb
Ala Code § 36-12-40 (Security Exemption)
Homewood, AL 35209

To Whom It May Concern:

Alabama State Law requires that traffic ticket records be retained for five (5) years. The citation mentioned by Jason C. Cobb Ala Code § 41-13-6 was written almost thirty (30) years ago; this is the extent of the record of the Vestavia Hills Municipal Court.

Sincerely,

Umang Patel
Umang Patel
Court Director

UP/jt

VESTAVIA HILLS CITY HALL
1032 Montgomery Highway | Vestavia Hills, AL 35216
P. O. Box 660854 | Vestavia Hills, AL 35266-0854
205.978.0121 | **VHAL.ORG**

FORM D: National Background Check (FBI)

The application for the National Background Check, conducted by the FBI, may be submitted online or by mail. According to the FBI website, current processing time is about 3-5 days for online requests (after fingerprint card is received by mail) and about 2-4 weeks for requests by mail.

Online Requests: The online request form and instructions are available at:

<https://www.edo.cjis.gov/#/>

Requests by Mail: Use enclosed Identity History Summary Request Form. Detailed instructions for completing and submitting the request form and fingerprint cards by mail are available at:

<https://www.fbi.gov/how-we-can-help-you/need-an-fbi-service-or-more-information/identity-history-summary-checks#Mail>

**** When completing the background check request form (online requests and requests by mail), include the following information:**

- Mailing Address
 - **In Care Of (C/O):** AMCC
 - **ATTN:** Background Check
 - **Address:** P.O. Box 309585
 - **City:** Montgomery
 - **State:** Alabama
 - **Postal (Zip) Code:** 36130
- Preferences (online request form)
 - **Would you like your date of birth included on the response?** YES
 - **Would you like to have a hard-copy response mailed to you?** YES

Exhibit 3.3

1-783 (Rev. 06-01-2020)

OMB-1110-0052

** Already submitted to FBI*

IDENTITY HISTORY SUMMARY REQUEST FORM

Information * Denotes Required Fields

*Last Name	Hewitt	*First Name	David
Middle Name 1	Frank	Middle Name 2	

*Date of Birth: Ala Code § 36-12-40 (Security Exemption)	*Place of Birth: Alabama	*U.S. Citizen or Legal Permanent Resident: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
*Country of Citizenship: USA	Country of Residence: U	Prisoner Number (if applicable):
*Last Four Digits of Social Security Number: Ala Code § 41-13-6		

Ala Code § 36-12-40 (Security Exemption)

Address

C/O AMCC	ATTN	Background Check
*Address		
P.O. Box 309585		
*City	Montgomery	*State
		Alabama
*Postal (Zip) Code	36130	*Country
		USA
Phone Number	E-Mail	

Payment Enclosed: (please check appropriate box)

- CERTIFIED CHECK MONEY ORDER CREDIT CARD FORM

You may request a copy of your own Identity History Summary to review it or obtain a change, correction, or an update to the summary. This is not a national background check and may not include information from state repositories which would be included on an employment background check. If you are requesting a background check for employment or licensing within the U.S., you may be required by state statute or federal law to submit your request through your state identification bureau, the requesting federal agency, or another authorized channeling agency.

* REQUESTOR SIGNATURE

Ala Code § 36-12-40 (Security Exemption)

DATE 11-3-22

Mail the signed requestor information form, fingerprint card, and payment of \$18 U.S. dollars to the following address:

FBI CJIS Division – Summary Request
 1000 Custer Hollow Road
 Clarksburg, West Virginia 26306

PRIVACY ACT STATEMENT

The FBI's acquisition, retention, and sharing of information submitted on this form is generally authorized under 28 USC 534 and 28 CFR 16.30-16.34. The purpose for requesting this information from you is to provide the FBI with a minimum of identifying data to permit an accurate and timely search of FBI identification records. Providing this information (including your Social Security Account Number) is voluntary; however, failure to provide the information may affect the completion of your request. The information reported on this form may be disclosed pursuant to your consent and may also be disclosed by the FBI without your consent pursuant to the Privacy Act of 1974 and all applicable routine uses.

PAPERWORK REDUCTION ACT STATEMENT:

Under the Paperwork Reduction Act, you are not required to complete this form unless it contains a valid OMB control number. The form takes approximately 3 minutes to complete.

4-785 (Rev. 06-01-2020)

OMH 1116-0052

IDENTITY HISTORY SUMMARY REQUEST FORM

Information * Denotes Required Fields

*Last Name	Sutterlin	*First Name	William
Middle Name 1	Rusty	Middle Name 2	
Ala Code § 36-12-40 (Security Exemption)	*Place of Birth:	*U.S. Citizen or Legal Permanent Resident:	
	Birmingham, Alabama	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
*Country of Citizenship:	Country of Residence:	Prisoner Number (if applicable):	
USA	USA		
*Last Four Digits of Social Security Number	Ala Code § 41-13-6		

Ala Code § 36-12-40 (Security Exemption)

Address

C/O	AMCC	ATTN	Background Check
*Address			
P.O. Box 309585			
*City	Montgomery	*State	Alabama
*Postal (Zip) Code	36130	*Country	USA
Phone Number	E-Mail		

Payment Enclosed: (please check appropriate box)

- CERTIFIED CHECK MONEY ORDER CREDIT CARD FORM

You may request a copy of your own Identity History Summary to review it or obtain a change, correction, or an update to the summary. This is not a national background check and may not include information from state repositories which would be included on an employment background check. If you are requesting a background check for employment or licensing within the U.S., you may be required by state statute or federal law to submit your request through your state identification bureau, the requesting federal agency, or another authorized government agency.

*REQUESTOR SIGNATURE Ala Code § 36-12-40 (Security Exemption) DATE: 12-1-22

Mail the signed requestor information form, fingerprint card, and payment of \$18 U.S. dollars to the following address:

FBI CJIS Division - Summary Request
 1000 Custer Hollow Road
 Clarksburg, West Virginia 26306

PRIVACY ACT STATEMENT

The FBI's acquisition, retention, and sharing of information submitted on this form is generally authorized under 28 USC 534 and 28 USC 16 301b 51. The purpose for requesting this information from you is to provide the FBI with the information and identifying data to permit an accurate and timely search of FBI identification records. Providing this information including your Social Security Account Number is voluntary. However, failure to provide the information may affect the completion of your request. The information reported on this form may be disclosed pursuant to your consent and may also be disclosed by the FBI without your consent pursuant to the Privacy Act of 1974 and all applicable routine uses.

PAPERWORK REDUCTION ACT STATEMENT:

Under the Paperwork Reduction Act, you are not required to complete this form unless it contains a valid OMB control number. The form takes approximately 3 minutes to complete.

Exhibit 3-3

* Already Submitted to FBI

1-783 (Rev. 06-01-2020)

OMB-1110-0052

IDENTITY HISTORY SUMMARY REQUEST FORM

Information * Denotes Required Fields

*Last Name	Cobb	*First Name	Jasen
Middle Name 1	Collins	Middle Name 2	

Ala Code § 36-12-40 (Security Exemption)	*Place of Birth:	*U.S. Citizen or Legal Permanent Resident:
	Georgia	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	*Country of Citizenship:	Country of Residence:
	USA	
	*Last Four Digits of Social Security Number	Prisoner Number (if applicable):
	Ala Code § 41-13-6	

Ala Code § 36-12-40 (Security Exemption)

Address

C/O AMCC	ATTN	Background Check
*Address		
P.O. Box 309585		
*City	Montgomery	*State
		Alabama
*Postal (Zip) Code	36130	*Country
		USA
Phone Number	E-Mail	

Payment Enclosed: (please check appropriate box)

- CERTIFIED CHECK
- MONEY ORDER
- CREDIT CARD FORM

You may request a copy of your own Identity History Summary to review it or obtain a change, correction, or an update to the summary. This is not a national background check and may not include information from state repositories which would be included on an employment background check. If you are requesting a background check for employment or licensing within the U.S., you may be required by state statute or federal law to submit identification bureau, the requesting federal agency, or another authorized channeling agency.

* REQUESTOR SIGNATURE [Redacted] DATE 12/7/2022

Mail the signed requestor information form, financial statement, and \$8 U.S. dollars to the following address:

FBI CJIS Division - Summary Request
 1000 Custer Hollow Road
 Clarksburg, West Virginia 26306

PRIVACY ACT STATEMENT

The FBI's acquisition, retention, and sharing of information submitted on this form is generally authorized under 28 USC 534 and 28 CFR 16.30-16.34. The purpose for requesting this information from you is to provide the FBI with a minimum of identifying data to permit an accurate and timely search of FBI identification records. Providing this information (including your Social Security Account Number) is voluntary; however, failure to provide the information may affect the completion of your request. The information reported on this form may be disclosed pursuant to your consent and may also be disclosed by the FBI without your consent pursuant to the Privacy Act of 1974 and all applicable routine uses.

PAPERWORK REDUCTION ACT STATEMENT:

Under the Paperwork Reduction Act, you are not required to complete this form unless it contains a valid OMB control number. The form takes approximately 3 minutes to complete.

DAVID FRANK HEWITT
ATTN: BACKGROUND CHECK
C/O: AMCC
P.O. BOX 309585
MONTGOMERY, AL 36130



1-787 (Rev. 08-10-2016)



U.S. Department of Justice
Federal Bureau of Investigation
Criminal Justice Information Services Division
Clarksburg, WV 26306

DAVID FRANK HEWITT
ATTN: BACKGROUND CHECK
C/O: AMCC
P.O. BOX 309585
MONTGOMERY, AL 36130

Date: 12-05-2022

The Criminal Justice Information Services (CJIS) Division of the Federal Bureau of Investigation (FBI) has completed the following fingerprint submission:

Subject Name

DAVID FRANK HEWITT

Search Completed Result

12-05-2022 E2022339000000122644

A SEARCH OF THE FINGERPRINTS PROVIDED BY THIS INDIVIDUAL HAS REVEALED NO PRIOR ARREST DATA AT THE FBI. THIS DOES NOT PRECLUDE FURTHER CRIMINAL HISTORY AT THE STATE OR LOCAL LEVEL.

Ala Code § 36-12-40 (Security Exemption)

Date of Birth:

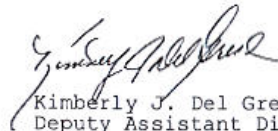
Social Security number: **Ala Code § 41-13-6**

The result of the above response is only effective for the date the submission was originally completed. For more updated information, please submit new fingerprints of the Subject.

In order to protect Personally Identifiable Information, as of August 17, 2009, FBI policy has changed to no longer return the fingerprint cards. This form will serve as the FBI's official response.

This Identity History Summary (IdHS) is provided pursuant to 28 CFR 16.30-16.34 solely for you to conduct a personal review and/or obtain a change, correction, or updating of your record. **This IdHS is not provided for the purpose of licensing or employment or any other purpose enumerated in 28 CFR 20.33.**

Any questions may be addressed to the Customer Service Group at 304-625-5590. You may also visit the website at www.fbi.gov/checks for further instructions.


Kimberly J. Del Greco
Deputy Assistant Director
Information Services Branch
Criminal Justice Information
Services Division

JASON COLLINS COBB
ATTN: BACKGROUND CHECK
C/O: AMCC
P.O. BOX 309585
MONTGOMERY, AL 36130



1-787 (Rev. 08-10-2016)



U.S. Department of Justice
Federal Bureau of Investigation
Criminal Justice Information Services Division
Clarksburg, WV 26306

JASON COLLINS COBB
ATTN: BACKGROUND CHECK
C/O: AMCC
P.O. BOX 309585
MONTGOMERY, AL 36130

Date: 12-05-2022

The Criminal Justice Information Services (CJIS) Division of the Federal Bureau of Investigation (FBI) has completed the following fingerprint submission:

Subject Name

JASON COLLINS COBB

Search Completed Result

12-05-2022 E2022339000000122200

A SEARCH OF THE FINGERPRINTS PROVIDED BY THIS INDIVIDUAL HAS REVEALED NO PRIOR ARREST DATA AT THE FBI. THIS DOES NOT PRECLUDE FURTHER CRIMINAL HISTORY AT THE STATE OR LOCAL LEVEL.

Ala Code § 36-12-40 (Security Exemption)

Date of Birth:

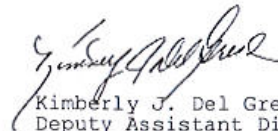
Social Security number: **Ala Code § 41-13-6**

The result of the above response is only effective for the date the submission was originally completed. For more updated information, please submit new fingerprints of the Subject.

In order to protect Personally Identifiable Information, as of August 17, 2009, FBI policy has changed to no longer return the fingerprint cards. This form will serve as the FBI's official response.

This Identity History Summary (IdHS) is provided pursuant to 28 CFR 16.30-16.34 solely for you to conduct a personal review and/or obtain a change, correction, or updating of your record. **This IdHS is not provided for the purpose of licensing or employment or any other purpose enumerated in 28 CFR 20.33.**

Any questions may be addressed to the Customer Service Group at 304-625-5590. You may also visit the website at www.fbi.gov/checks for further instructions.


Kimberly J. Del Greco
Deputy Assistant Director
Information Services Branch
Criminal Justice Information
Services Division

WILLIAM RUSTY SUTTERLIN
ATTN: BACKGROUND CHECK
C/O: AMCC
P.O. BOX 309585
MONTGOMERY, AL 36130





U.S. Department of Justice
Federal Bureau of Investigation
Criminal Justice Information Services Division
Clarksburg, WV 26306

WILLIAM RUSTY SUTTERLIN
ATTN: BACKGROUND CHECK
C/O: AMCC
P.O. BOX 309585
MONTGOMERY, AL 36130

Date: 12-05-2022

The Criminal Justice Information Services (CJIS) Division of the Federal Bureau of Investigation (FBI) has completed the following fingerprint submission:

Subject Name

WILLIAM RUSTY SUTTERLIN

Search Completed Result

12-05-2022 E202233900000123074

A SEARCH OF THE FINGERPRINTS PROVIDED BY THIS INDIVIDUAL HAS REVEALED NO PRIOR ARREST DATA AT THE FBI. THIS DOES NOT PRECLUDE FURTHER CRIMINAL HISTORY AT THE STATE OR LOCAL LEVEL.

Date of Birth:

Ala Code § 36-12-40 (Security Exemption)

Social Security number:

Ala Code § 41-13-6

The result of the above response is only effective for the date the submission was originally completed. For more updated information, please submit new fingerprints of the Subject.

In order to protect Personally Identifiable Information, as of August 17, 2009, FBI policy has changed to no longer return the fingerprint cards. This form will serve as the FBI's official response.

This Identity History Summary (IdHS) is provided pursuant to 28 CFR 16.30-16.34 solely for you to conduct a personal review and/or obtain a change, correction, or updating of your record. **This IdHS is not provided for the purpose of licensing or employment or any other purpose enumerated in 28 CFR 20.33.**

Any questions may be addressed to the Customer Service Group at 304-625-5590. You may also visit the website at www.fbi.gov/checks for further instructions.

Kimberly J. Del Greco
Deputy Assistant Director
Information Services Branch
Criminal Justice Information
Services Division

FORM E: BACKGROUND CHECK INDIVIDUAL VERIFICATION

Each individual identified by § 20-2A-55(b), Code of Alabama 1975 (as amended) (i.e., each owner, shareholder, director, board member, and individual with an economic interest in the Applicant) must complete a separate form.

ORGANIC HARVEST LAB, LLC
Business License Applicant Name
JASON COLLINS COBB

PROCESSOR
License Type

Individual's Name

Individual's Role (select all that apply): [X] Owner [X] Shareholder [X] Director [X] Board Member
[X] Individual with Economic Interest in Applicant

Verification

The undersigned, as identified above, hereby verifies all of the following:

- That the individual's role(s) in the Applicant's business is one or more of the roles identified by § 20-2A-55(b), Code of Alabama 1975 (as amended).
• That the individual shall, as required by § 20-2A-55(b), Code of Alabama 1975 (as amended), submit to a state and national criminal background check, to be conducted and/or coordinated by the Alabama Law Enforcement Agency.
• That the individual has submitted its completed state criminal background check application form (ALEA SBI Form 46), and all other items required therewith, to ALEA
• That the individual has submitted its national criminal background check form (FBI Identity History Summary Request Form), and all other items required therewith, to the FBI.
• That the individual, on his/her state and national background check forms, has authorized ALEA and the FBI, as applicable, to release any and all criminal history information of the individual to the Alabama Medical Cannabis Commission.
• That the individual will promptly respond to any request from ALEA, the FBI, and/or the Alabama Medical Cannabis Commission regarding the processing of the individual's state and national criminal background checks.
• That the individual has confirmed that his/her name and role(s) have been included, by the Applicant, on the Background Check Applicant Verification Form.

Ala Code § 36-12-40 (Security Exemption)
[Redacted Signature]

12 / 30 / 2022
Verification Date

FORM E: BACKGROUND CHECK INDIVIDUAL VERIFICATION

Each individual identified by § 20-2A-55(b), Code of Alabama 1975 (as amended) (i.e., each owner, shareholder, director, board member, and individual with an economic interest in the Applicant) must complete a separate form.

ORGANIC HARVEST LAB, LLC	PROCESSOR
Business License Applicant Name	License Type
DAVID FRANK HEWITT	

Individual's Name

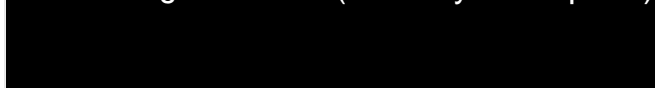
Individual's Role (select all that apply): Owner Shareholder Director Board Member

Individual with Economic Interest in Applicant

Verification

The undersigned, as identified above, hereby verifies all of the following:

- That the individual's role(s) in the Applicant's business is one or more of the roles identified by § 20-2A-55(b), Code of Alabama 1975 (as amended).
- That the individual shall, as required by § 20-2A-55(b), Code of Alabama 1975 (as amended), submit to a state and national criminal background check, to be conducted and/or coordinated by the Alabama Law Enforcement Agency.
- That the individual has submitted its completed state criminal background check application form (ALEA SBI Form 46), and all other items required therewith, to ALEA
- That the individual has submitted its national criminal background check form (FBI Identity History Summary Request Form), and all other items required therewith, to the FBI.
- That the individual, on his/her state and national background check forms, has authorized ALEA and the FBI, as applicable, to release any and all criminal history information of the individual to the Alabama Medical Cannabis Commission.
- That the individual will promptly respond to any request from ALEA, the FBI, and/or the Alabama Medical Cannabis Commission regarding the processing of the individual's state and national criminal background checks.
- That the individual has confirmed that his/her name and role(s) have been included, by the Applicant, on the Background Check Applicant Verification Form.

Ala Code § 36-12-40 (Security Exemption)


12 / 30 / 2022

 Verification Date

FORM E: BACKGROUND CHECK INDIVIDUAL VERIFICATION

Each individual identified by § 20-2A-55(b), Code of Alabama 1975 (as amended) (i.e., each owner, shareholder, director, board member, and individual with an economic interest in the Applicant) must complete a separate form.

Organic Harvest Lab LLC	Processor
Business License Applicant Name	License Type
William Rusty Sutterlin	
Individual's Name	

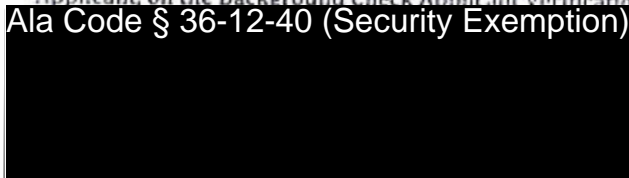
Individual's Role (select all that apply): Owner Shareholder Director Board Member
 Individual with Economic Interest in Applicant

Verification

The undersigned, as identified above, hereby verifies all of the following:

- That the individual's role(s) in the Applicant's business is one or more of the roles identified by § 20-2A-55(b), Code of Alabama 1975 (as amended).
- That the individual shall, as required by § 20-2A-55(b), Code of Alabama 1975 (as amended), submit to a state and national criminal background check, to be conducted and/or coordinated by the Alabama Law Enforcement Agency.
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- That the individual has submitted its national criminal background check form (FBI Identity History Summary Request Form), and all other items required therewith, to the FBI.
- That the individual, on his/her state and national background check forms, has authorized ALEA and the FBI, as applicable, to release any and all criminal history information of the individual to the Alabama Medical Cannabis Commission.
- That the individual will promptly respond to any request from ALEA, the FBI, and/or the Alabama Medical Cannabis Commission regarding the processing of the individual's state and national criminal background checks.
- That the individual has confirmed that his/her name and role(s) have been included, by the Applicant, on the Background Check Applicant Verification Form.

Ala Code § 36-12-40 (Security Exemption)



12/8/2022

Verification Date

Application Number 1632

Exhibit 4 - Demonstration of Sufficient Capital Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

Jason Cobb

Printed Name of Contact Person

Zachary Klarberg

Printed Name of Independent CPA

Hal Coons III CPA

Printed Name of Independent CPA

William Rusty Sutterlin, Phd

Printed Name of Verifying Individual

Ala Code § 36-12-40 (Security Exemption)

Signature of Verifying Individual

Ala Code § 36-12-40 (Security Exemption)

Signature of Contact Person

Ala Code § 36-12-40 (Security Exemption)

Ala Code § 36-12-40 (Security Exemption)

Signature of Independent CPA

Chief Science Officer

Title of Verifying Individual

3-3-2023

Verification Date

A demonstration of sufficient capital available to the Applicant, as well as the source thereof, and verification of the same by a responsible person designated by the Applicant, the Applicant's contact person, and an independent Certified Public Accountant. (Note: Unless otherwise ordered by the Commission, "sufficient capital" is defined as the total of the Applicant's annual budgets or projected annual budgets during the first three full years after a license is issued to the Applicant.)

Calculating Sufficient Capital Need for Proposed Processor Facility Business

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Financial Projections

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

Demonstrating Sufficient Capital Sources

As shown in Table 4.1: Source of Funds, Applicant is confident that these committed funds will sufficiently cover all necessary operation, maintenance, employee compensation, equipment, utility, and other startup and operational costs.

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

TABLE 4.1: SOURCE OF FUNDS

Sources of Funds

Source #1 - Cash on Hand

Ala Code § 8-27-1 (Trade Secrets)

Source #2 - Line of Credit

Ala Code § 8-27-1 (Trade Secrets)

TOTAL SOURCES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

Description of Real Estate

Ala Code § 8-27-1 (Trade Secrets)

CPA Verification Letter #1 – Attachment to Exhibit 4



December 23, 2022

To Whom This May Concern,

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

Best,

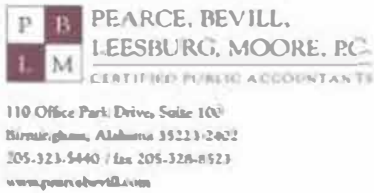
Zachary Klarberg, CPA License #200004251100

Zachary Klarberg

(973) 381 - 2233

Zachary@kwtaxes.com

CPA Verification Letter #2 – Attachment to Exhibit 4



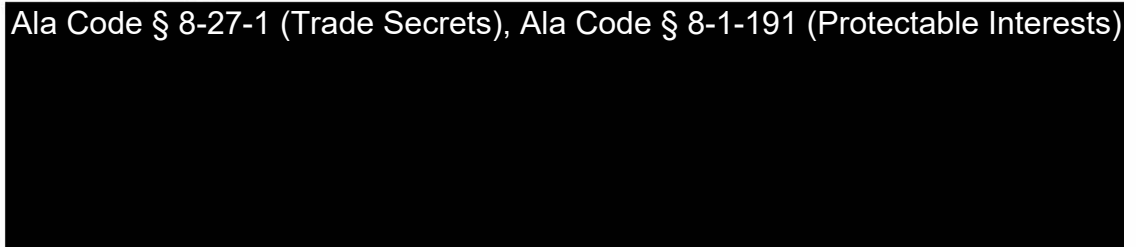
December 22, 2022

Alabama Medical Cannabis Commission
RSA Dexter Avenue Building
445 Dexter Avenue, Suite 8040
Montgomery, AL 36104

RE: **Organic Harvest Lab, LLC**
Processor Applicant
Demonstration of Sufficient Capital

Dear Commission:

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



If you have any questions concerning the above, or need any additional information, please do not hesitate to contact us.

Very truly yours,

PEARCE, BEVILL, LEESBURG, MOORE, P.C.

Hal Coons III
Hal "Buzz" Coons, III, CPA
Certificate Number # 2780

- Members:
- The American Institute of Certified Public Accountants
 - The Alabama Society of Certified Public Accountants
 - PCPS - The AICPA Alliance for CPA Firms
 - National CPA Health Care Advisors Association

Application Number 1632

Exhibit 5 - Financial Statements

Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

Jason Cobb

Printed Name of Verifying Individual

Ala Code § 36-12-40 (Security Exemption)

Signature of Verifying Individual

CEO

Title of Verifying Individual

12/30/2022

Verification Date

A current financial statement or pro forma containing the following, with year-end projections as to each over the first three (3) calendar years (the year of commencement plus three more) following the commencement of operations:

Overview

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Key Operational Timeline Dates

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Relationship Between Applicant Entity and Real Estate Holding Company

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Plan to Comply with 26. U.S.C. s.280E

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



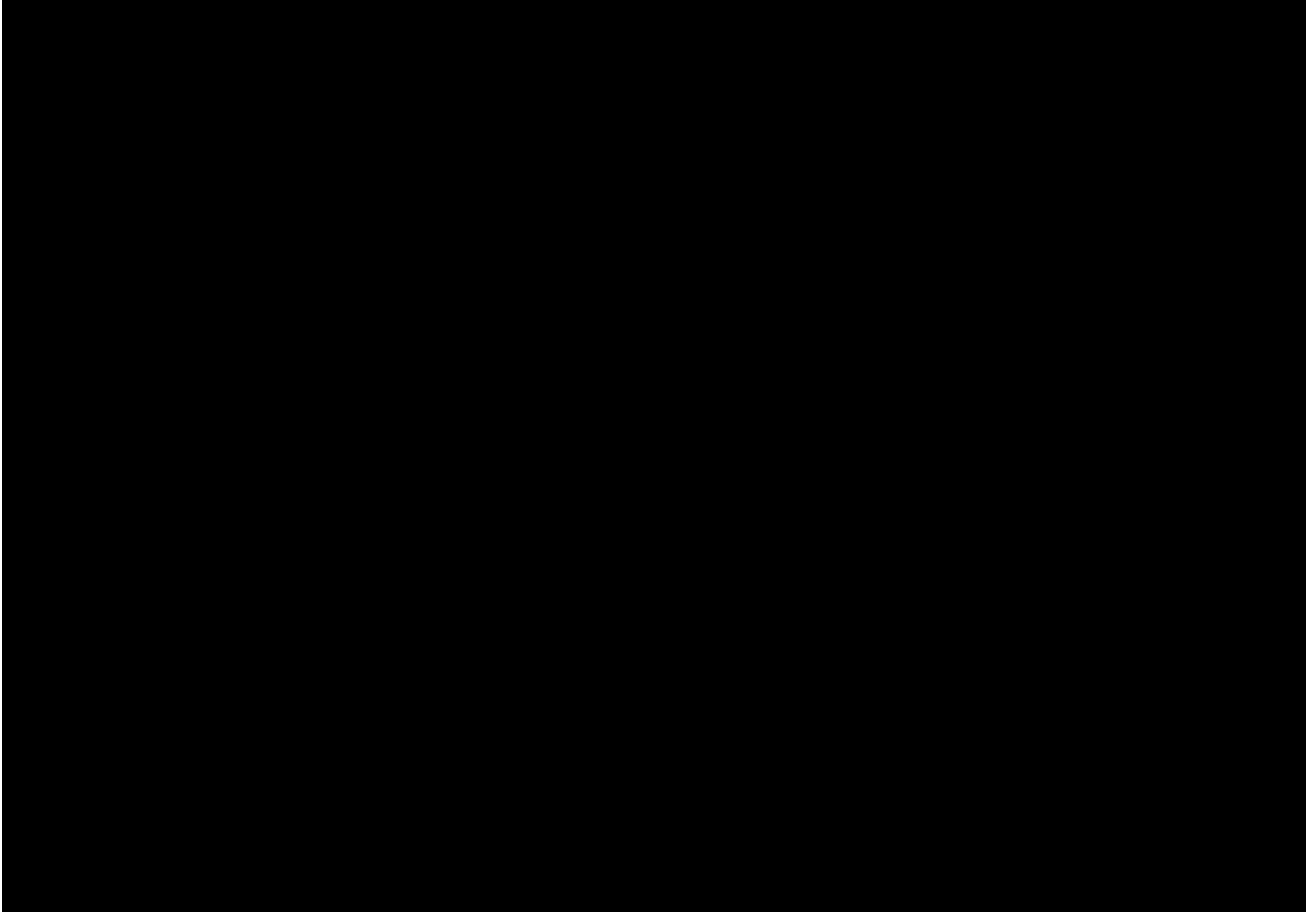
5.1 Balance sheet report, providing a snapshot of the value of assets, liabilities and equity at commencement, or for projections, as of December 31 of each year.

The following balance sheet report, see below Table 5.1.1 — Balance Sheet Report, includes a snapshot of the value of assets, liabilities and equity at commencement and December 31st of each year, for a period of three (3) years, in line with Rule § 538-x-3-.05(3)(m)(8)(a).

TABLE 5.1.1 — BALANCE SHEET REPORT

FOR THE YEARS ENDED DECEMBER 31, 2024 TO 2026

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



5.2 Profit and loss report, summarizing any income, expenses and net profit from the applicant's inception to date of commencement and as projected over each calendar year thereafter, including the year of commencement.

The following profit and loss report, see below Table 5.2.1 — Profit and Loss Report, includes the anticipated income, expenses and net profit from inception and through each projected calendar year following the commencement of operations for a period of three (3) years, in line with Rule § 538-x-3-.05(3)(m)(8)(b).

TABLE 5.2.1 — PROFIT AND LOSS REPORT



FOR THE YEARS ENDED DECEMBER 31, 2024 TO 2026

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



TABLE 5.2.2 — First Year Unit Price and Cost Assumptions

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)

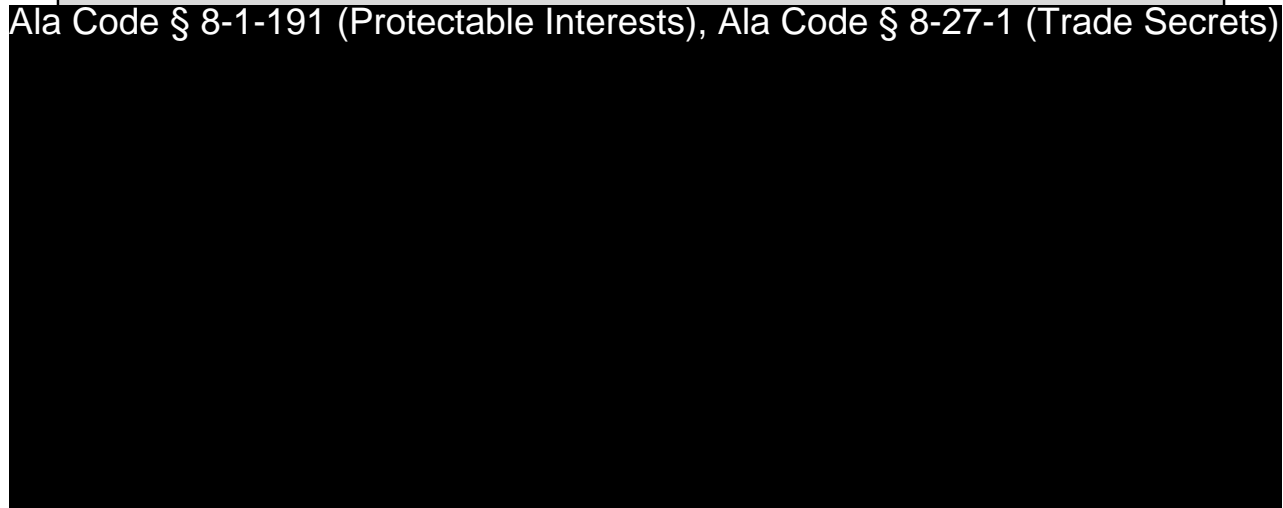


Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



TABLE 5.2.3 — Market Growth Assumptions

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



5.3 Statement of cash flow, examining the cash flowing into and out of the Applicant's business from inception to commencement and during each calendar year thereafter, including the year of commencement.

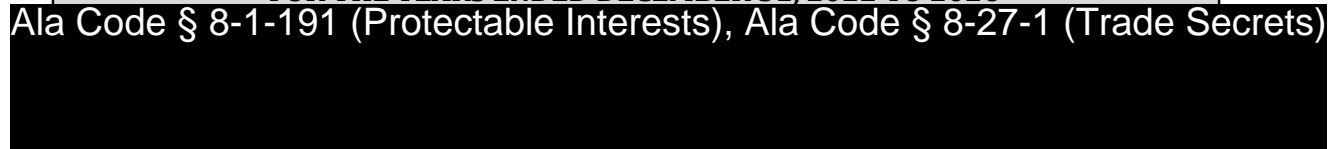
■

Applicant provided a statement of cash flow, summarizing the anticipated cash flowing into and out of Applicant's business from inception of the Company to the operational date of commencement, and through each projected calendar year thereafter for a period of three (3) years, in line with Rule § 538-x-3-.05(3)(m)(8)(c).

TABLE 5.3.1 — STATEMENT OF CASH FLOWS

FOR THE YEARS ENDED DECEMBER 31, 2022 TO 2026

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



REDACTION INDEX

Ala Code § 36-12-40 (Security Exemption) – The verifying signature has been redacted pursuant to the “security or safety of persons” exemption contained in the Alabama Public Records statute. Signatures, if left unredacted, may be forged and used for innumerable illicit purposes.

Ala Code § 8-27-1 (Trade Secrets)/Ala. Code § 8-1-191 (Protectable Interests) – This exhibit contains confidential information including, but not limited to, management and marketing plans, business strategy and methodology, business models and data, and company provided files and software. As such, certain portions of this exhibit have been designated as “Protectable Interests” exempt from disclosure. Further, this exhibit contains information that is used or intended for use in a trade or business, included or embodied in a formula, pattern, compilation, computer software, drawing, device, method, technique, or process, and is not publicly known or generally known in the trade or business. The information contained in this exhibit cannot be readily ascertained or derived from publicly available information and has significant economic value to the applicant. As such, certain portions of this exhibit have been designated as “Trade Secrets” exempt from disclosure.

Protectable Interests and Trade Secrets are redacted as the disclosure to any third party would give an unfair advantage to competitors and would result in the loss of rights and cause harm to the owner of this information. In the normal course of business, the owner of this information requires all individuals who view such information to be bound by confidentiality agreements and access to any of this material is extremely limited and on a need-to-know basis only. The owner of this information will take all steps to enforce such confidentiality agreements and will ensure that employees surrender such information upon termination of employment. If such information is disclosed, competitors of the owner of this information in Alabama and in other states will take such information to better compete against the owner of this information in the regulated commercial market.

Furthermore, the applicant believes the identified information to be confidential and if disclosed would give advantage to competitors because the material is related to the applicant’s planning, site location, expansion, operations, product development and marketing. Because this information can be used to recruit appropriate personnel, locate a site, finance and undertake the operation and go to market, the disclosure of this information would allow new competitors to enter the market to compete against the Company. In addition, the disclosure of this information would also allow existing competitors to potentially optimize the manufacture of their products and/or create similar products to the applicant causing grave economic harm to the owners of this information.

Finally, the applicant claims the marked material marked is exempt from disclosure as the mere formulation of the words and descriptions of processes could prove successful in competitive, multi-million-dollar merit-based medical marijuana application processes similar to Alabama. Permitting any of this marked application language to be publicly released would substantially reduce the intrinsic value of the applicant’s business – allowing anyone in the public to appropriate the processes, methods, and standard operating procedures that the applicant employs or will employ.

License Type: Processor

Application Number 1632

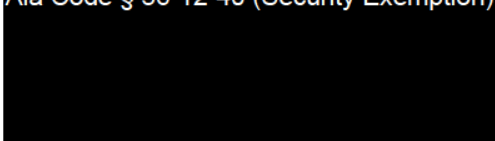
Exhibit 6 - Tax Plan

Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

Jason Cobb

Printed Name of Verifying Individual
Ala Code § 36-12-40 (Security Exemption)



CEO

Title of Verifying Individual

12/30/2022

Verification Date

The Applicant's verified tax plan demonstrating understanding of, and plans for compliance with, all applicable tax laws, including but not limited to providing all information required for purposes of the taxes levied by Chapter 2A of Title 20, Code of Alabama 1975 (as amended), and payment of the same.

Plan Overview

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets) Applicant will be open, responsible, and fully transparent with the Alabama Medical Cannabis Commission ("AMCC") at all times regarding the financial health of the Company, and any material changes to this Plan. Applicant has outlined the Finance and Tax Team ("FTT")'s

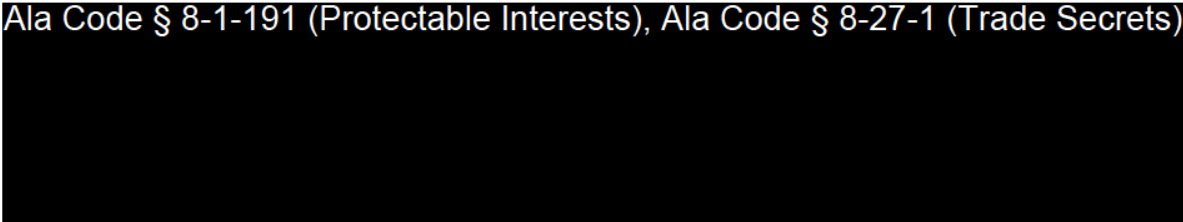
Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)

Establishing a Finance and Tax Team

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)

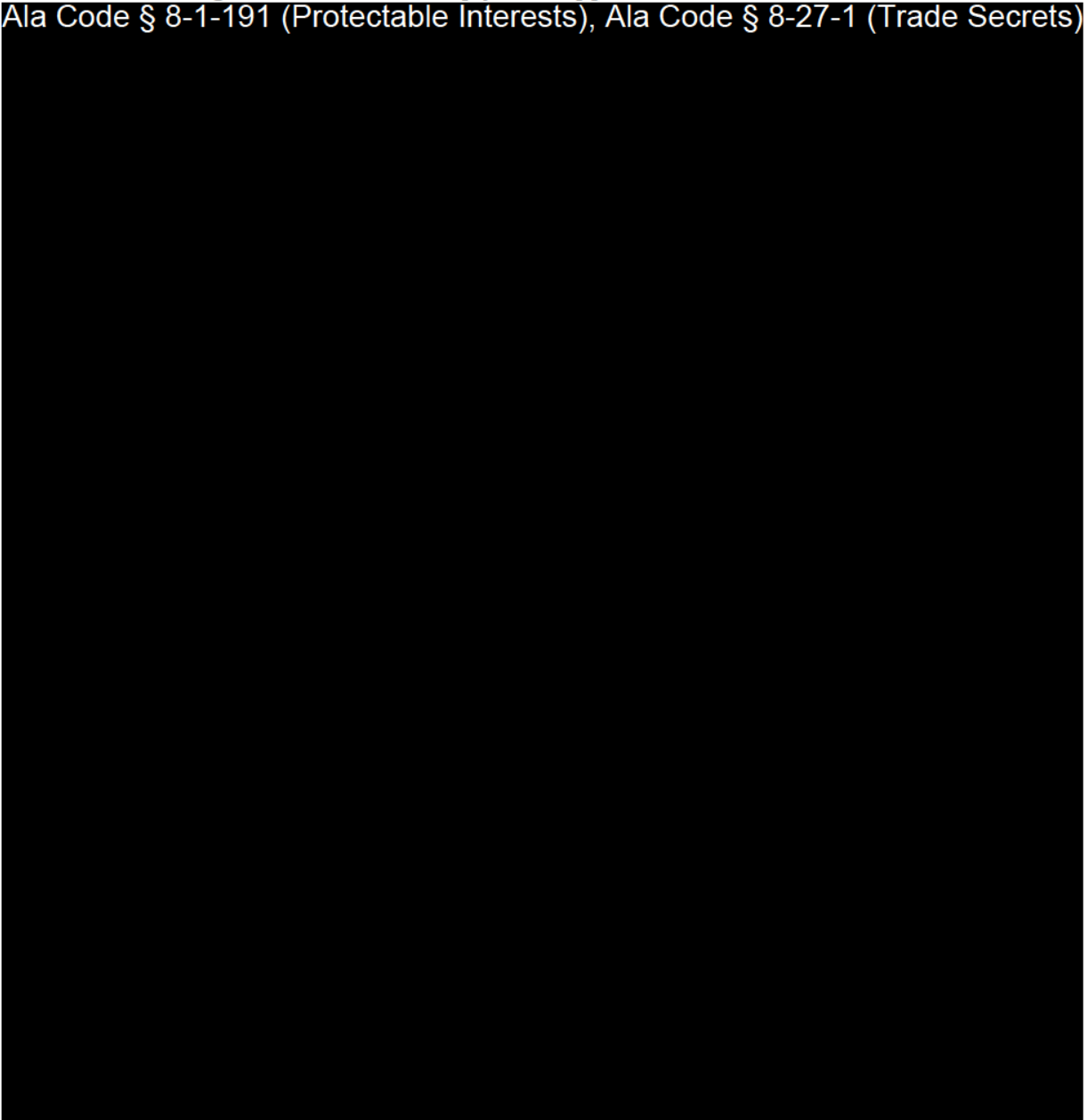
License Type: Processor

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)

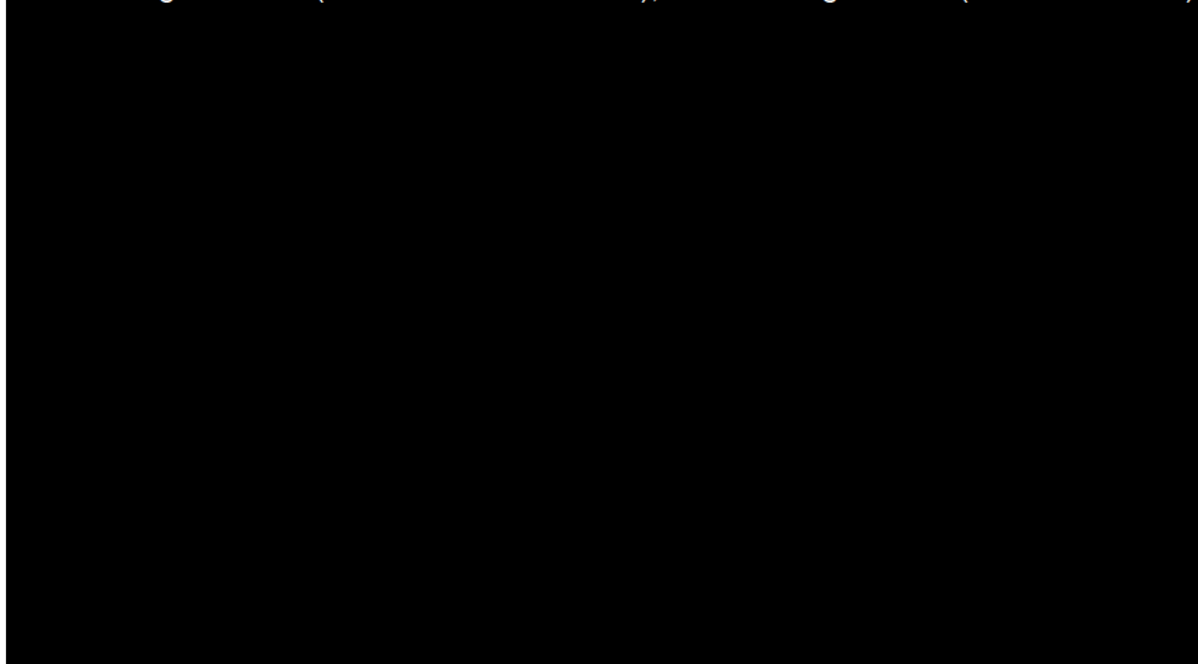
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▪ **Understanding of, and Plans to Comply with Applicable Tax Laws**

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)

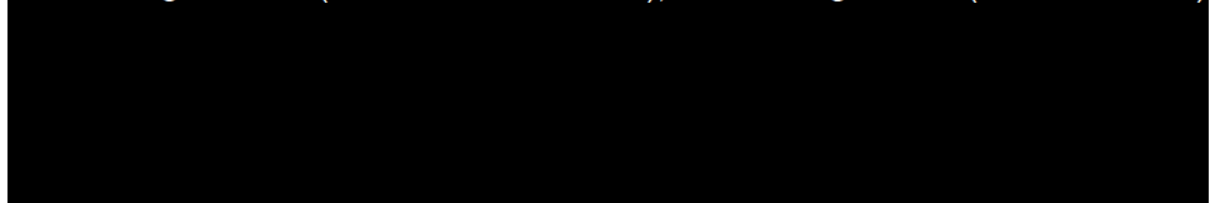
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Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Historical Property Tax Calculation		
Year	Tax Assessment	Property Tax

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Payment of State Annual Privilege Tax

Applicant understands the AMCC will levy an annual privilege tax on every person doing business under Title 40, Chapter 23 in Alabama, calculated based upon the taxpayer's net worth in Alabama for the taxable year. A taxpayer's net worth in Alabama is determined by apportioning the taxpayer's net worth computed under Section 40-14A-23, including compensation, distributions or similar amounts paid or accrued to each direct or indirect partner or member to the extent the amounts exceed \$500,000 with respect to each partner or member in the determination period.

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



If taxable income of the taxpayer is:

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Complying with Audit Request

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Applicant's Certificate of Compliance from ALDOR



***State of Alabama
Department of Revenue***

Certificate of Compliance

ORGANIC HARVEST LAB, LLC is found to be in compliance for purposes of the issuance of a Certificate of Compliance from the Alabama Department of Revenue. An examination of the Alabama Department of Revenue's records for the following accounts: Corporate Income, Excise, Pass Through Entity, Business Privilege, Business & License Tax, Withholding, International Fuel Tax Agreement, International Registration Plan, and Sales and Use Tax, reveals that the aforementioned taxpayer/entity has filed all applicable tax returns and paid the tax or taxes, interest amounts, and any penalties that were reported due for all tax returns, assessments, and/or audit liabilities that were owed, as of December 08, 2022. No representation is made as to the accuracy of the amounts reported. Like all taxpayers, this taxpayer is subject to audit and billing for additional amounts for periods within the statute of limitations.

*IN WITNESS WHEREOF, I hereunto set my hand this
date of December 08, 2022.*

Disclosure Officer

**Phone: 334-242-1189
Fax: 334-242-1030**

Request Date: December 07, 2022
Request Code: 22120722110901

REDACTION INDEX

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Furthermore, the applicant believes the identified information to be confidential and if disclosed would give advantage to competitors because the material is related to the applicant’s planning, site location, expansion, operations, product development and marketing. Because this information can be used to recruit appropriate personnel, locate a site, finance and undertake the operation and go to market, the disclosure of this information would allow new competitors to enter the market to compete against the Company. In addition, the disclosure of this information would also allow existing competitors to potentially optimize the manufacture of their products and/or create similar products to the applicant causing grave economic harm to the owners of this information.

Finally, the applicant claims the marked material marked is exempt from disclosure as the mere formulation of the words and descriptions of processes could prove successful in competitive, multi-million-dollar merit-based medical marijuana application processes similar to Alabama. Permitting any of this marked application language to be publicly released would substantially reduce the intrinsic value of the applicant’s business – allowing anyone in the public to appropriate the processes, methods, and standard operating procedures that the applicant employs or will employ.

License Type: Processor

Application Number 1632

Exhibit 7 - Business Formation Documents

Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

Jason Cobb

Printed Name of Verifying Individual

Ala Code § 36-12-40 (Security Exemption)

[Redacted Signature]

Signature of verifying individual

CEO

Title of Verifying Individual

12/30/2022

Verification Date

Summary

Applicant prepared the following summary to describe the Business Formation Documents contained within this Exhibit.

Ownership Structure: Applicant is owned by one entity, with three individual ownership stakes thereunder. The Ownership Team is composed of three longtime Alabama residents William R. Sutterlin, Ph.D., Jason Cobb, and David Hewitt who grew up in Alabama and have extensive experience in chemical engineering and manufacturing, including cannabinoid biotechnology and the development of patented platform technologies; commercial financing; real estate investment; construction and development; and merchantable timberland. Individual ownership interests are as follows:

- William R. Sutterlin Ala Code § 8-27-1 (Trade Secrets)
- Jason Cobb Ala Code § 8-27-1 (Trade Secrets)
- David Hewitt Ala Code § 8-27-1 (Trade Secrets)

Summary of Document 1: Registration of Business as an Alabama LLC Page 3

Applicant formed a legal entity with a clearly defined business structure and a plan for adherence to applicable corporate conventions. Applicant is an Alabama Limited Liability Company (“LLC”) that received its official Certificate of Formation (“Document 1”) from John H. Merrill, Secretary of State of Alabama, on November 30, 2021. Mr. Merrill certified on December 08, 2022 that true, accurate, and literal copy of the Articles of Formation filed on behalf of Applicant, as received and filed in the Office of the Secretary of State, appears on file and on record in his Office (20221208000012178).

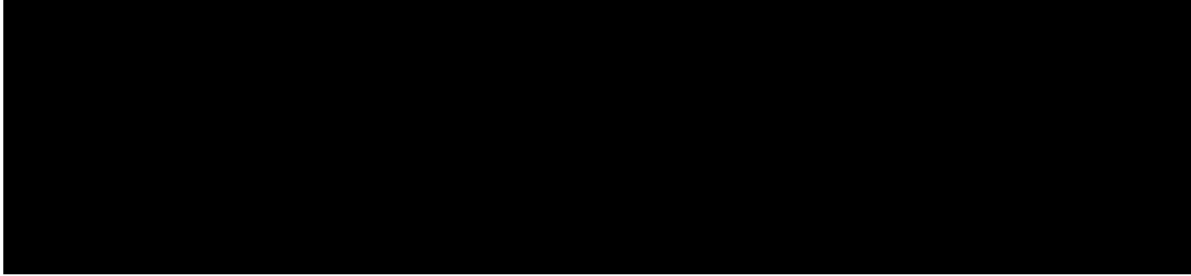
Summary of Document 2: Assignment of a Federal Tax ID Number (FEIN) Page 5

Applicant received notice from the Department of the Treasury, Internal Revenue Service (“IRS”) that it has been assigned the Federal Employer Identification Number Ala Code § 36-12-40 (Security Exemption for Tax ID) on July 17, 2022 (CP 575 B). Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)

Ala Code § 36-12-40 (Security Exemption for Tax ID)
Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)

License Type: Processor

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Summary of Document 3: Certificate of Compliance

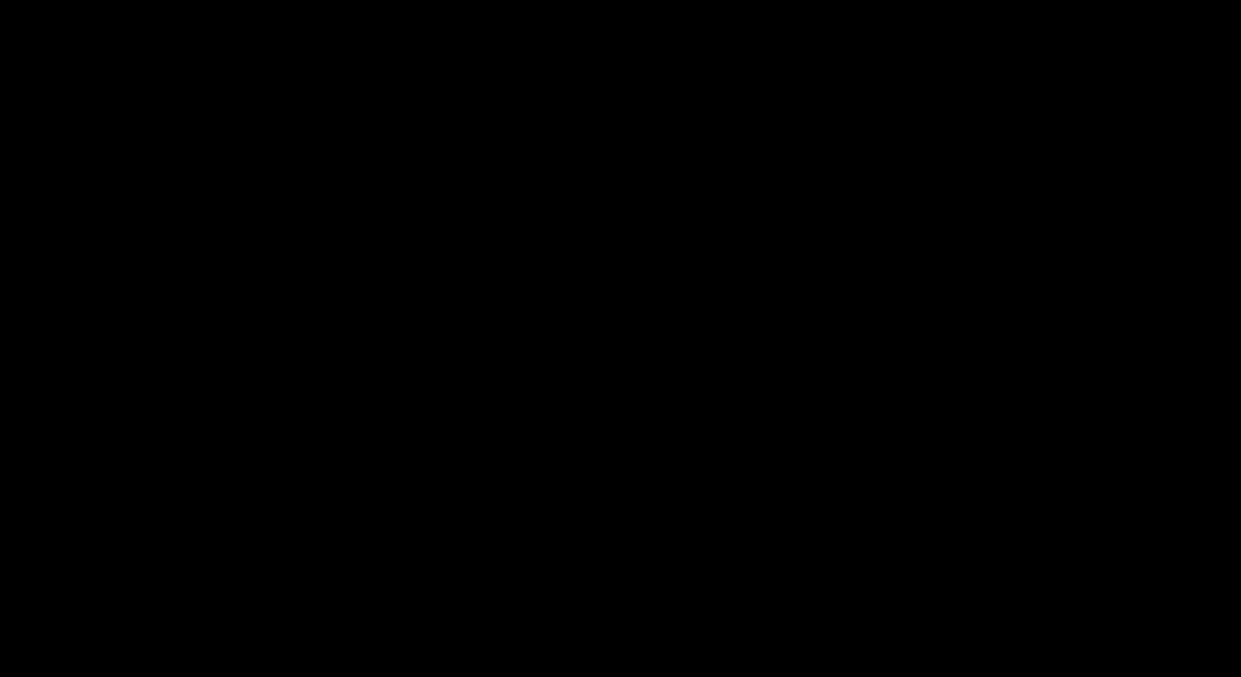
Page 7

Applicant obtained a Certificate of Compliance from the State of Alabama Department of Revenue on December 8, 2022.

Summary of Document 4: Operating Agreement

Page 8

Ala Code § 8-27-1 (Trade Secrets)



License Type: Processor

Certified copies of the Applicant's business formation documents

Document 1: Certificate of Formation from the State of Alabama

John H. Merrill
Secretary of State

P.O. Box 5616
Montgomery, AL 36103-5616

STATE OF ALABAMA

I, John H. Merrill, Secretary of State of Alabama, having custody of the Great and Principal Seal of said State, do hereby certify that

the entity records on file in this office disclose that Organic Harvest Lab LLC was formed in Alabama, Alabama on November 30, 2021. The Alabama Entity Identification number for this entity is 000-954790. I further certify that the records do not disclose that said entity has been dissolved, cancelled or terminated.



20221208000012178

In Testimony Whereof, I have hereunto set my hand and affixed the Great Seal of the State, at the Capitol, in the city of Montgomery, on this day.

12/08/2022

Date

John H. Merrill

Secretary of State

Document 2: Proof of Federal Employer Tax ID Number

IRS DEPARTMENT OF THE TREASURY
INTERNAL REVENUE SERVICE
CINCINNATI OH 45999-0023

Date of this notice: Ala Code § 36-12-40

Ala Code § 36-12-40 (Security Exemption for Tax ID)

Form: SS-4

Number of this notice: CP 575 B

For assistance you may call us at:
1-800-829-4933

IF YOU WRITE, ATTACH THE
STUB AT THE END OF THIS NOTICE.

ORGANIC HARVEST LAB
TASON, CORP. MBE
Ala Code § 36-12-40 (Security Exemption)

WE ASSIGNED YOU AN EMPLOYER IDENTIFICATION NUMBER

Ala Code § 36-12-40 (Security Exemption for Tax ID) applying for an Employer Identification Number (EIN). We assigned you this EIN will identify you, your business accounts, tax returns, and documents, even if you have no employees. Please keep this notice in your permanent records.

Taxpayers request an EIN for their business. Some taxpayers receive CP575 notices when another person has stolen their identity and are opening a business using their information. If you did not apply for this EIN, please contact us at the phone number or address listed on the top of this notice.

When filing tax documents, making payments, or replying to any related correspondence, it is very important that you use your EIN and complete name and address exactly as shown above. Any variation may cause a delay in processing, result in incorrect information in your account, or even cause you to be assigned more than one EIN. If the information is not correct as shown above, please make the correction using the attached tear-off stub and return it to us.

Based on the information received from you or your representative, you must file the following forms by the dates shown.

Ala Code § 36-12-40

After our review of your information, we have determined that you have not filed tax returns for the above-mentioned tax period(s) dating as far back as 2022. Please file your return(s) by 08/12/2022. If there is a balance due on the return(s), penalties and interest will continue to accumulate from the due date of the return(s) until it is filed and paid. If you were not in business or did not hire any employees for the tax period(s) in question, please file the return(s) showing you have no liabilities.

If you have questions about the forms or the due dates shown, you can call us at the phone number or write to us at the address shown at the top of this notice. If you need help in determining your annual accounting period (tax year), see Publication 538, *Accounting Periods and Methods*.

We assigned you a tax classification (corporation, partnership, estate, trust, EPMF, etc.) based on information obtained from you or your representative. It is not a legal determination of your tax classification, and is not binding on the IRS. If you want a legal determination of your tax classification, you may request a private letter ruling from the IRS under the guidelines in Revenue Procedure 2020-1, 2020-1 I.R.B. 1 (or superseding Revenue Procedure for the year at issue). Note: Certain tax classification elections can be requested by filing Form 8832, *Entity Classification Election*. See Form 8832 and its instructions for additional information.

≡

(IRS USE ONLY) 575B 07-28-2022 ORGA B 999999999 SS-4

A limited liability company (LLC) may file Form 8832, *Entity Classification Election*, and elect to be classified as an association taxable as a corporation. If the LLC is eligible to be treated as a corporation that meets certain tests and it will be electing S corporation status, it must timely file Form 2553, *Election by a Small Business Corporation*. The LLC will be treated as a corporation as of the effective date of the S corporation election and does not need to file Form 8832.

IMPORTANT REMINDERS:

- * Keep a copy of this notice in your permanent records. This notice is issued only one time and the IRS will not be able to generate a duplicate copy for you. You may give a copy of this document to anyone asking for proof of your EIN.
- * Use this EIN and your name exactly as they appear at the top of this notice on all your federal tax forms.
- * Refer to this EIN on your tax-related correspondence and documents.
- * Provide future officers of your organization with a copy of this notice.

Your name control associated with this EIN is ORGA. You will need to provide this information along with your EIN, if you file your returns electronically.

Safeguard your EIN by referring to Publication 4557, *Safeguarding Taxpayer Data: A Guide for Your Business*.

You can get any of the forms or publications mentioned in this letter by visiting our website at www.irs.gov/forms-pubs or by calling 800-TAX-FORM (800-829-3676).

If you have questions about your EIN, you can contact us at the phone number or address listed at the top of this notice. If you write, please tear off the stub at the bottom of this notice and include it with your letter.

Thank you for your cooperation.

Keep this part for your records. CP 575 B (Rev. 7-2007)

Return this part with any correspondence so we may identify your account. Please correct any errors in your name or address.

CP 575 B

999999999

Your Telephone Number	Best Time to Call	DATE OF THIS NOTICE:	07-28-2022	Ala Code § 36-12-40 (Security Exemption for Tax ID)
() -		EMPLOYER IDENTIFICATION NUMBER:		
		FORM:	SS-4	NOBOD

INTERNAL REVENUE SERVICE
CINCINNATI OH 45999-0023
|-----|

ORGANIC HARVEST LAB
JASON CORR MBR
Ala Code § 36-12-40
BIRMINGHAM, AL 35201

Document 3: Certificate of Compliance from the Alabama Department of Revenue***State of Alabama
Department of Revenue*****Certificate of Compliance**

ORGANIC HARVEST LAB, LLC is found to be in compliance for purposes of the issuance of a Certificate of Compliance from the Alabama Department of Revenue. An examination of the Alabama Department of Revenue's records for the following accounts: Corporate Income, Excise, Pass Through Entity, Business Privilege, Business & License Tax, Withholding, International Fuel Tax Agreement, International Registration Plan, and Sales and Use Tax, reveals that the aforementioned taxpayer/entity has filed all applicable tax returns and paid the tax or taxes, interest amounts, and any penalties that were reported due for all tax returns, assessments, and/or audit liabilities that were owed, as of December 08, 2022. No representation is made as to the accuracy of the amounts reported. Like all taxpayers, this taxpayer is subject to audit and billing for additional amounts for periods within the statute of limitations.

*IN WITNESS WHEREOF, I hereunto set my hand this
date of December 08, 2022.*

Disclosure Officer

**Phone: 334-242-1189
Fax: 334-242-1030**

Request Date: December 07, 2022
Request Code: 22120722110901

Document 4: Operating Agreement

AMENDED AND RESTATED
LIMITED LIABILITY COMPANY AGREEMENT

OF

ORGANIC HARVEST LAB LLC,
AN ALABAMA LIMITED LIABILITY COMPANY

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)


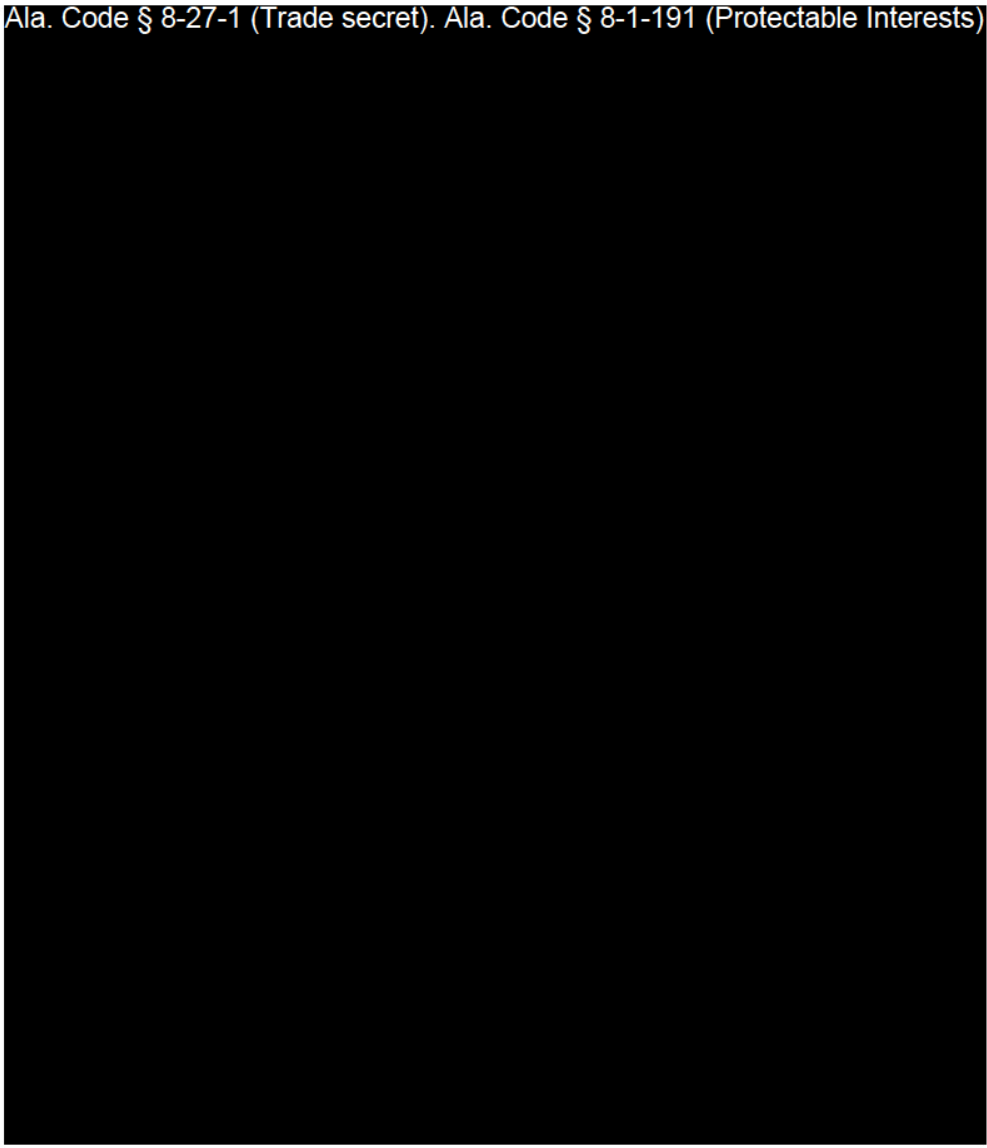
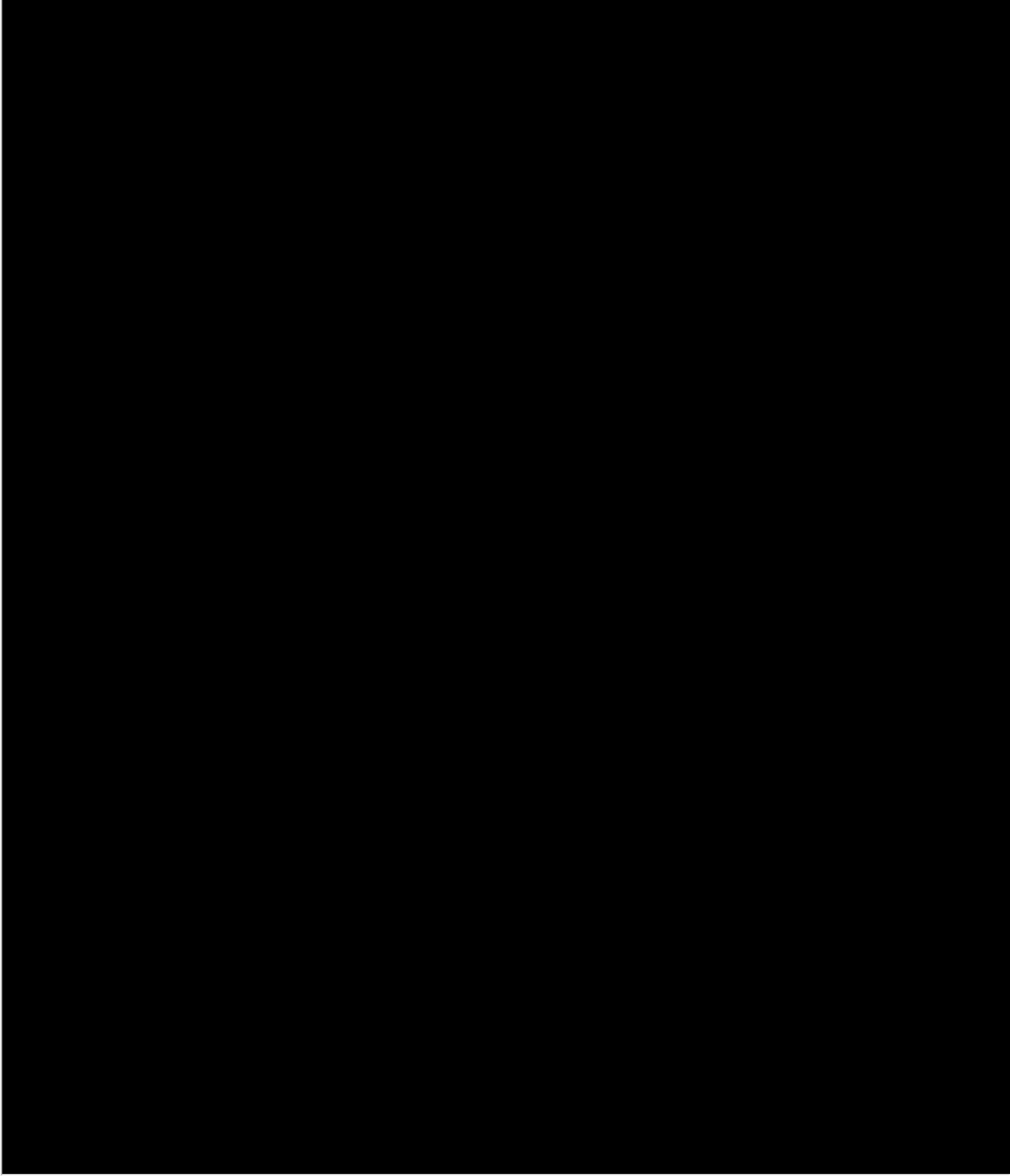


TABLE OF CONTENTS

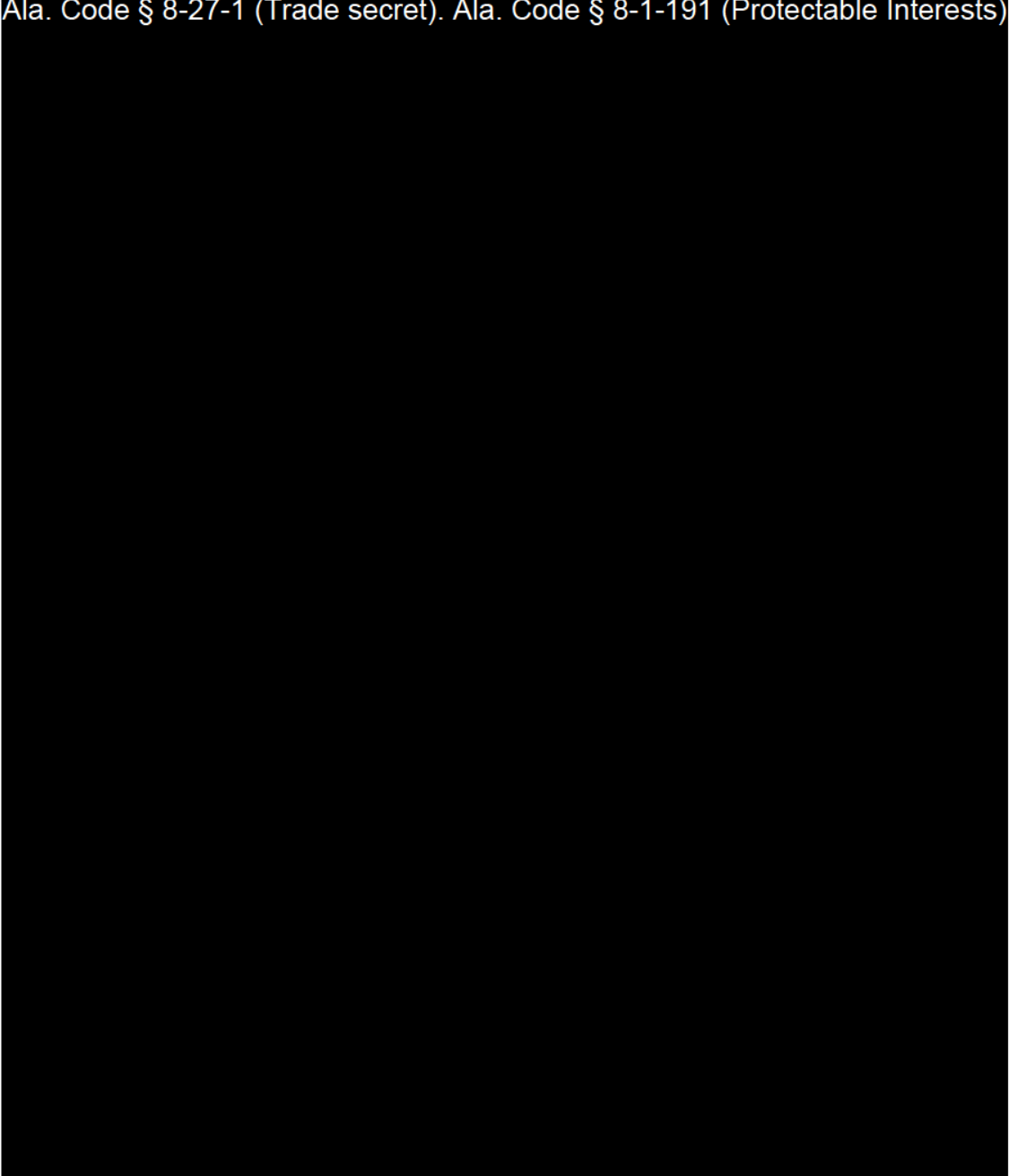
Ala. Code § 8-27-1 (Trade secret). Ala. Code § 8-1-191 (Protectable Interests)



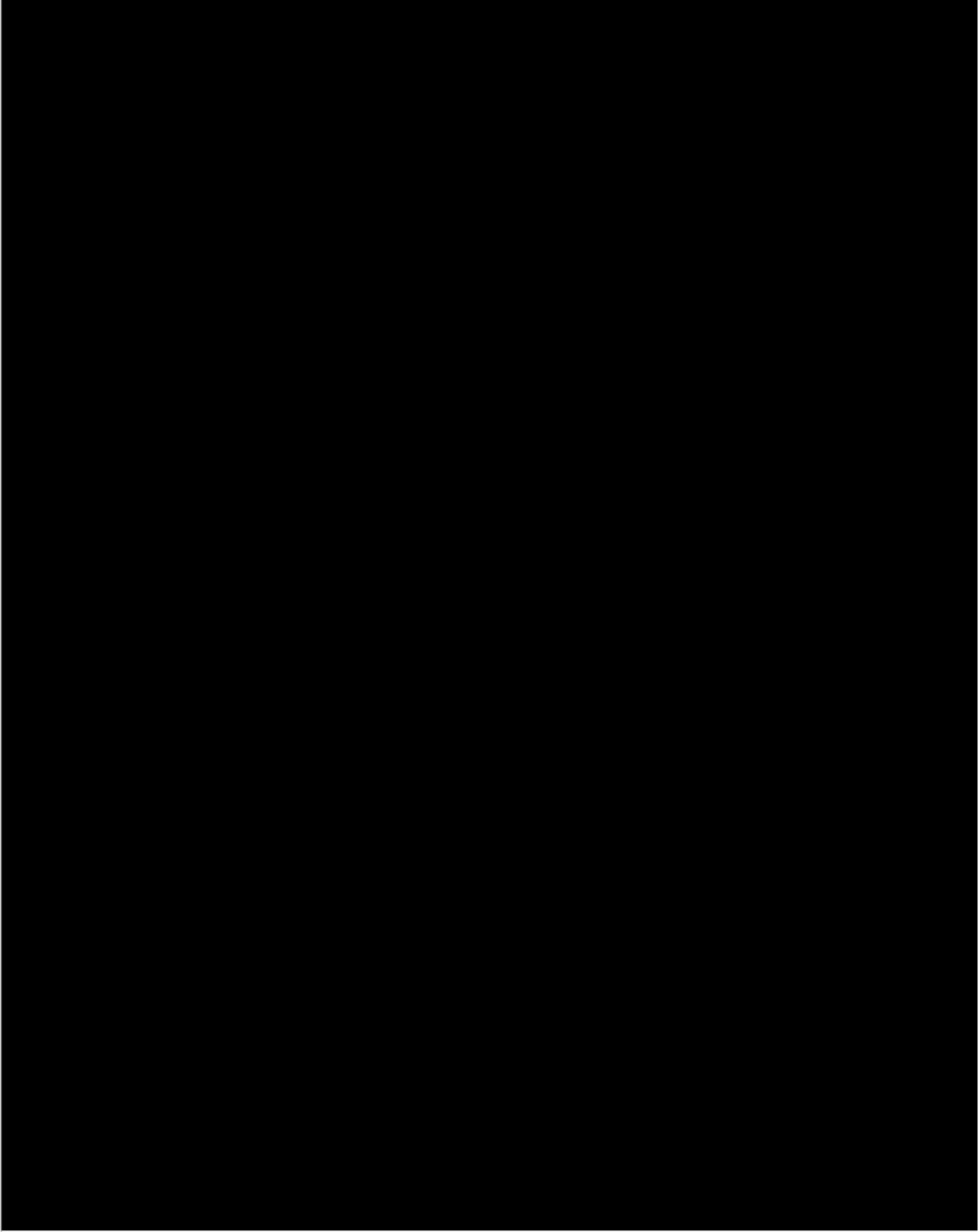
Ala. Code § 8-27-1 (Trade secret). Ala. Code § 8-1-191 (Protectable Interests)



Ala. Code § 8-27-1 (Trade secret). Ala. Code § 8-1-191 (Protectable Interests)

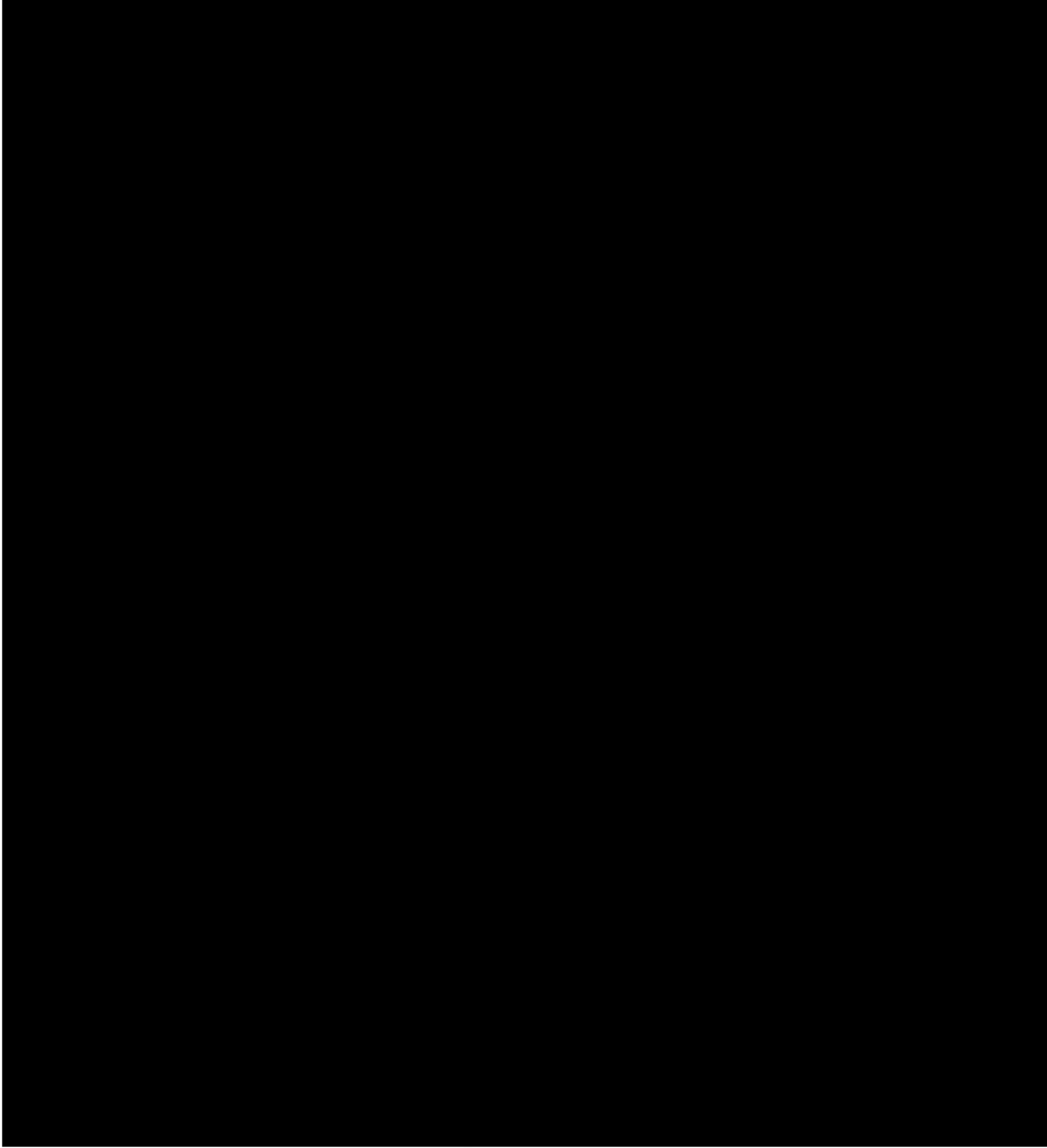


Ala. Code § 8-27-1 (Trade secret). Ala. Code § 8-1-191 (Protectable Interests)

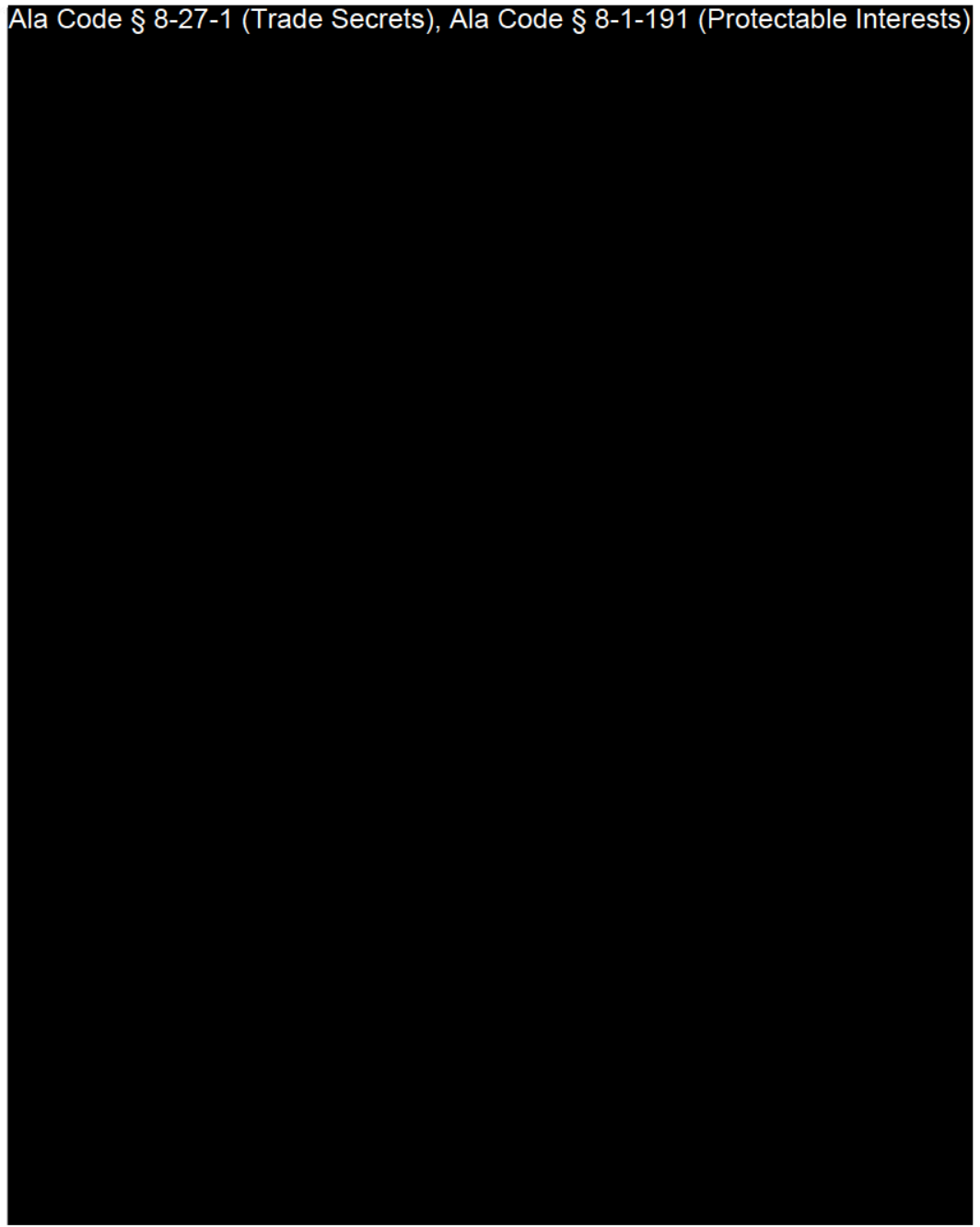


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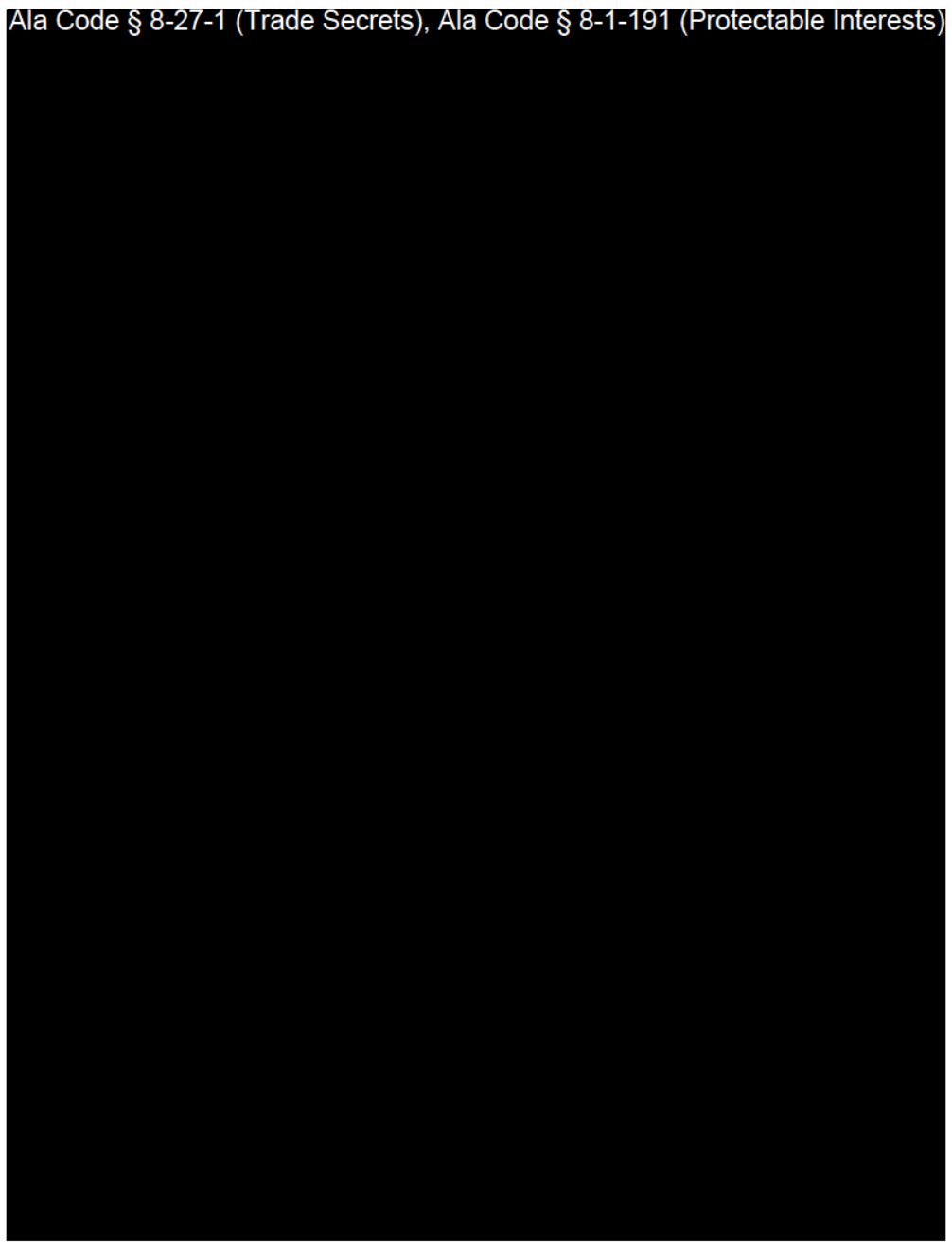
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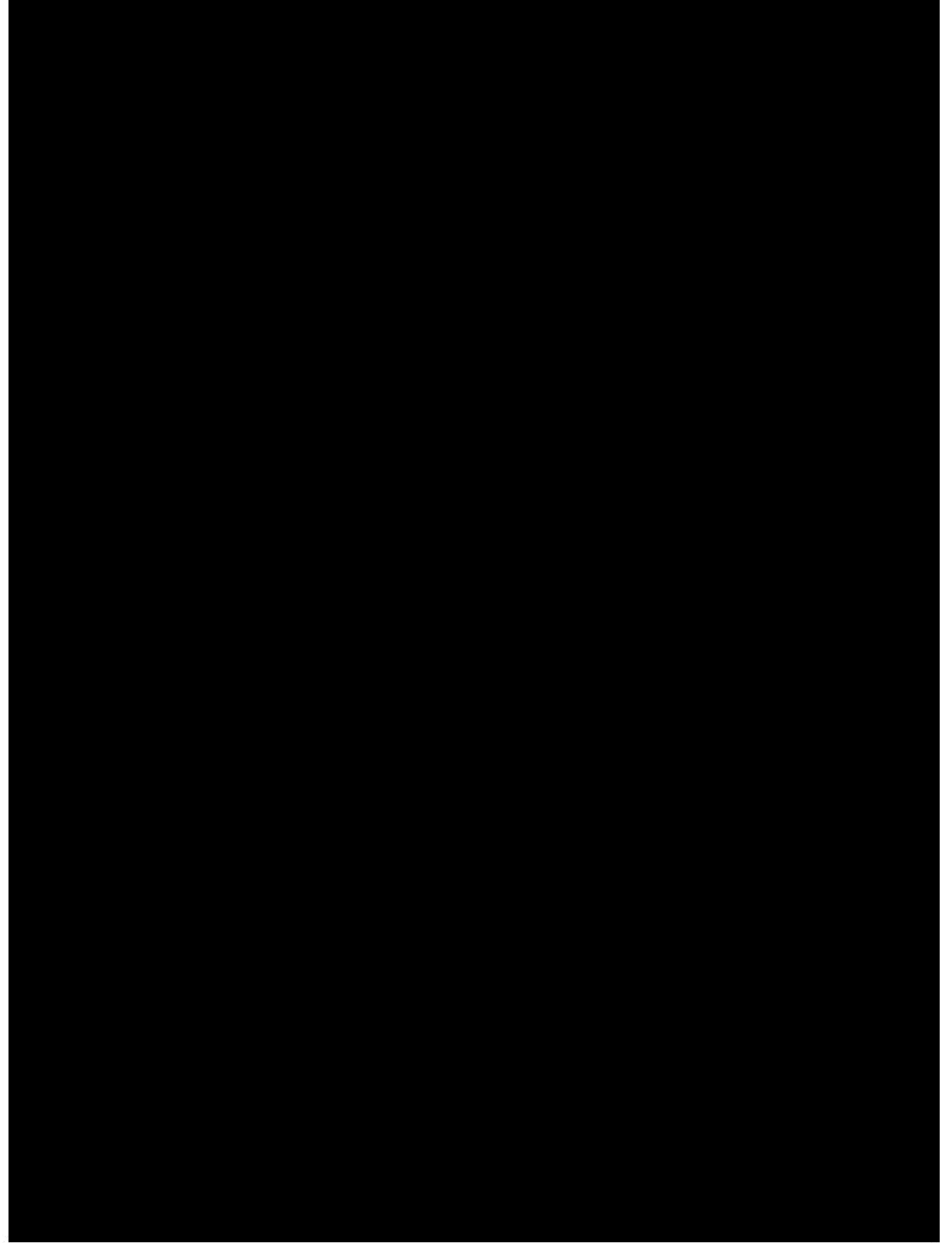
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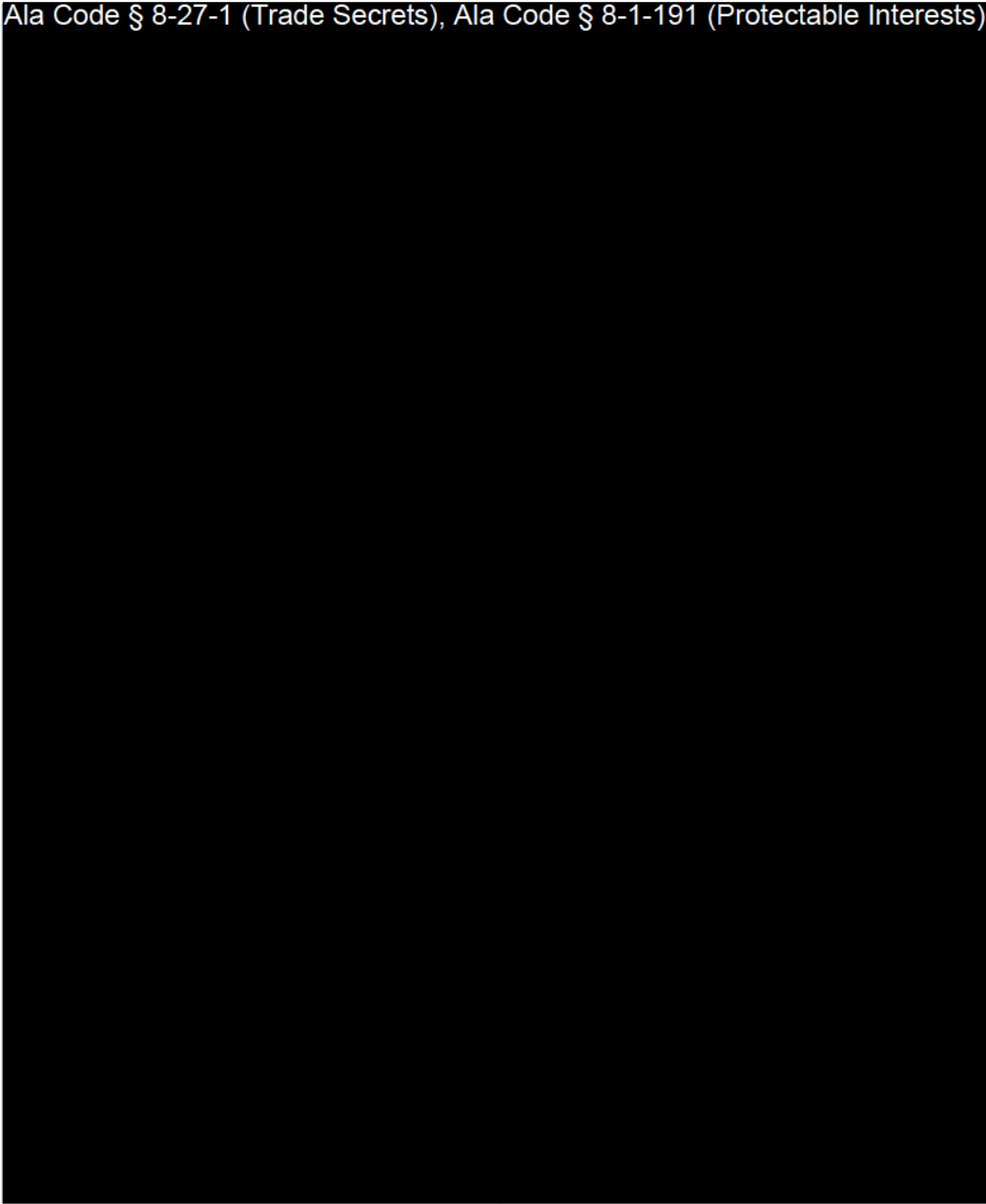
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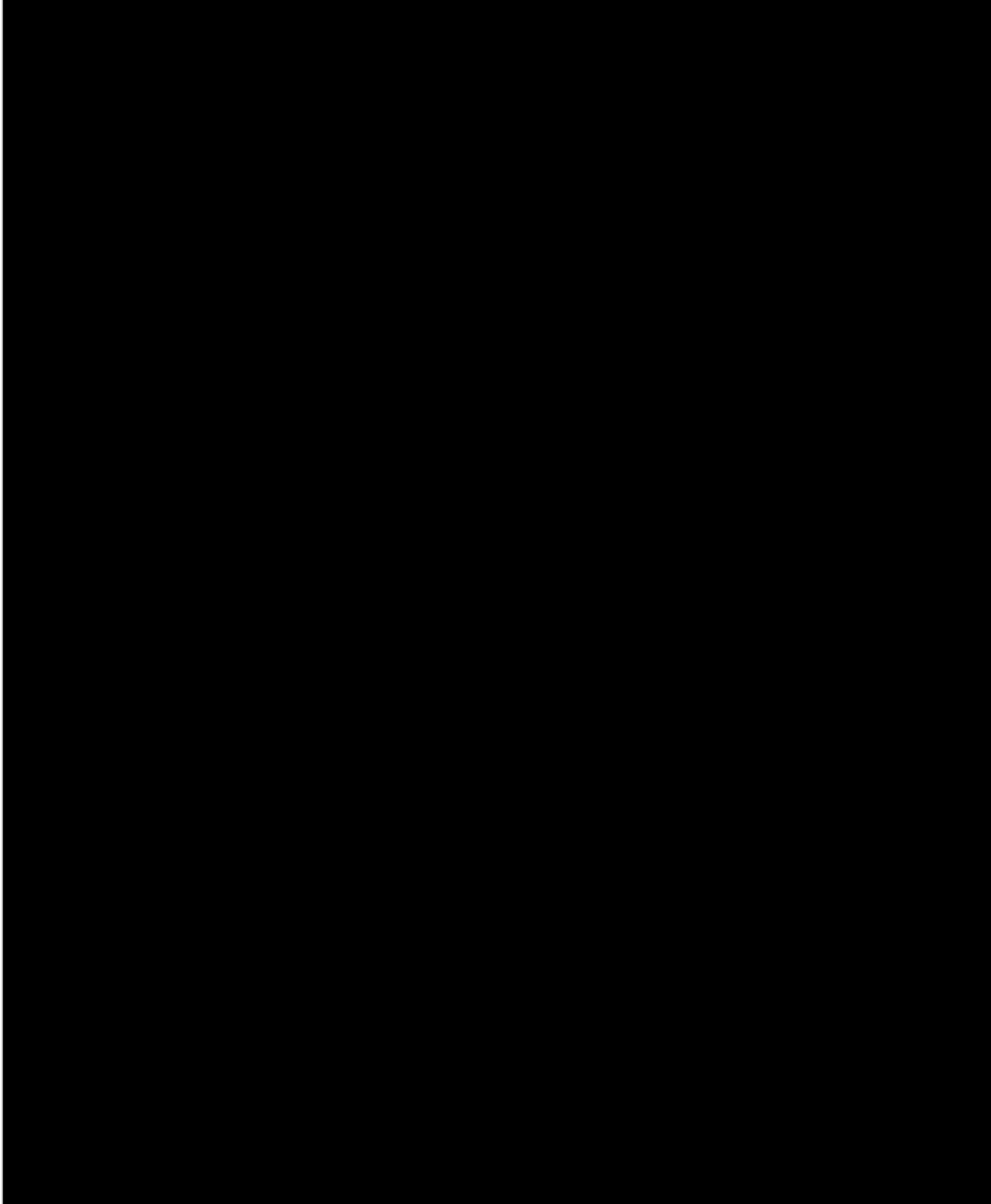


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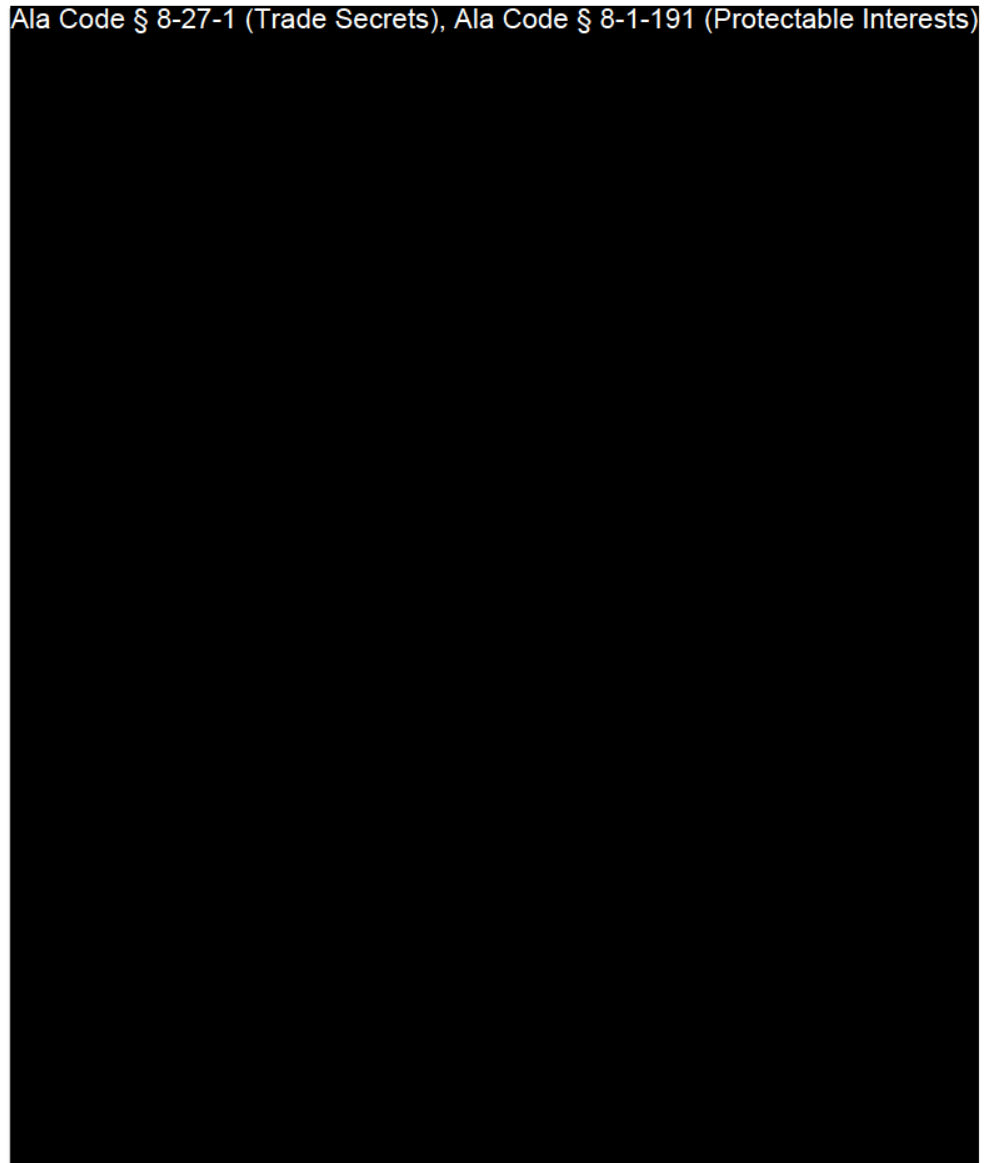


49388905 v2

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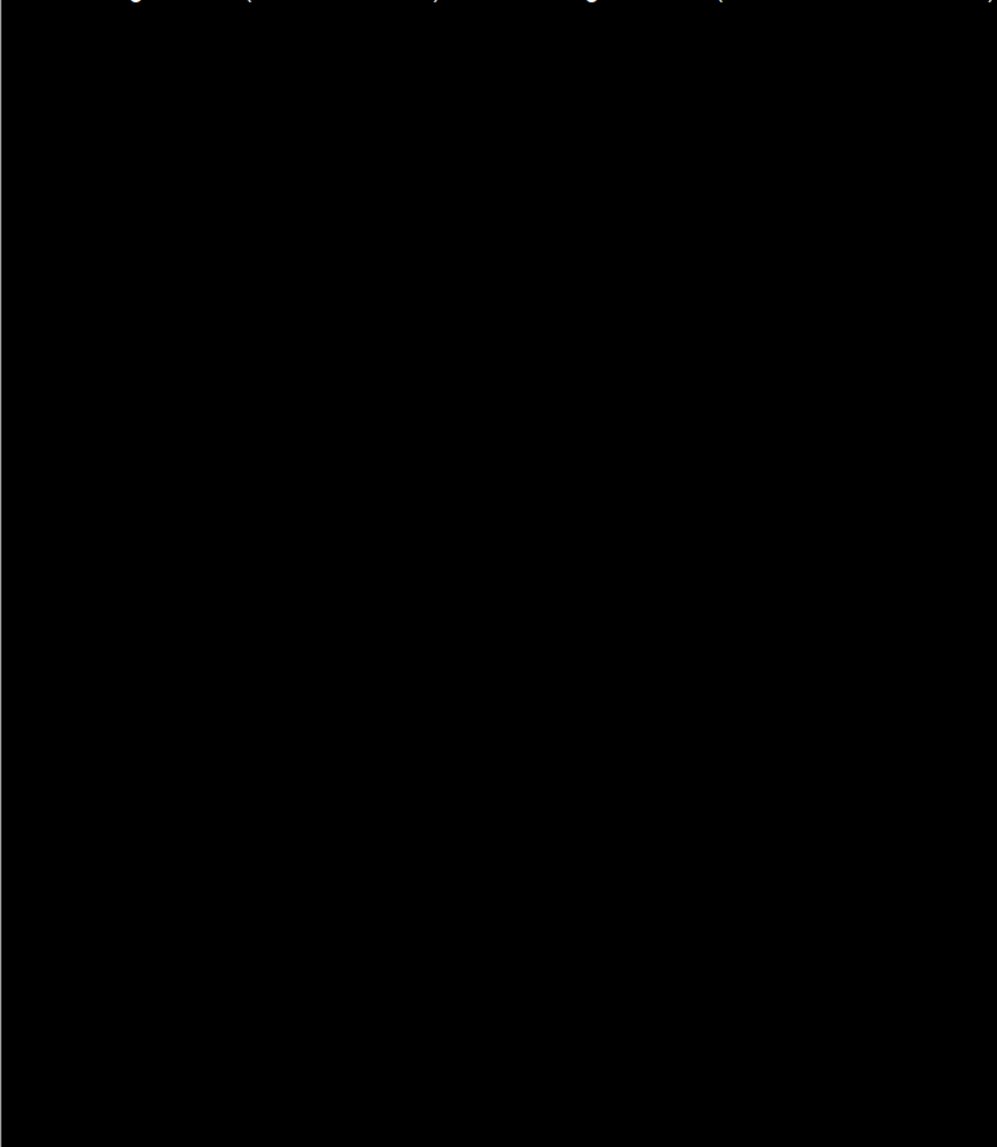


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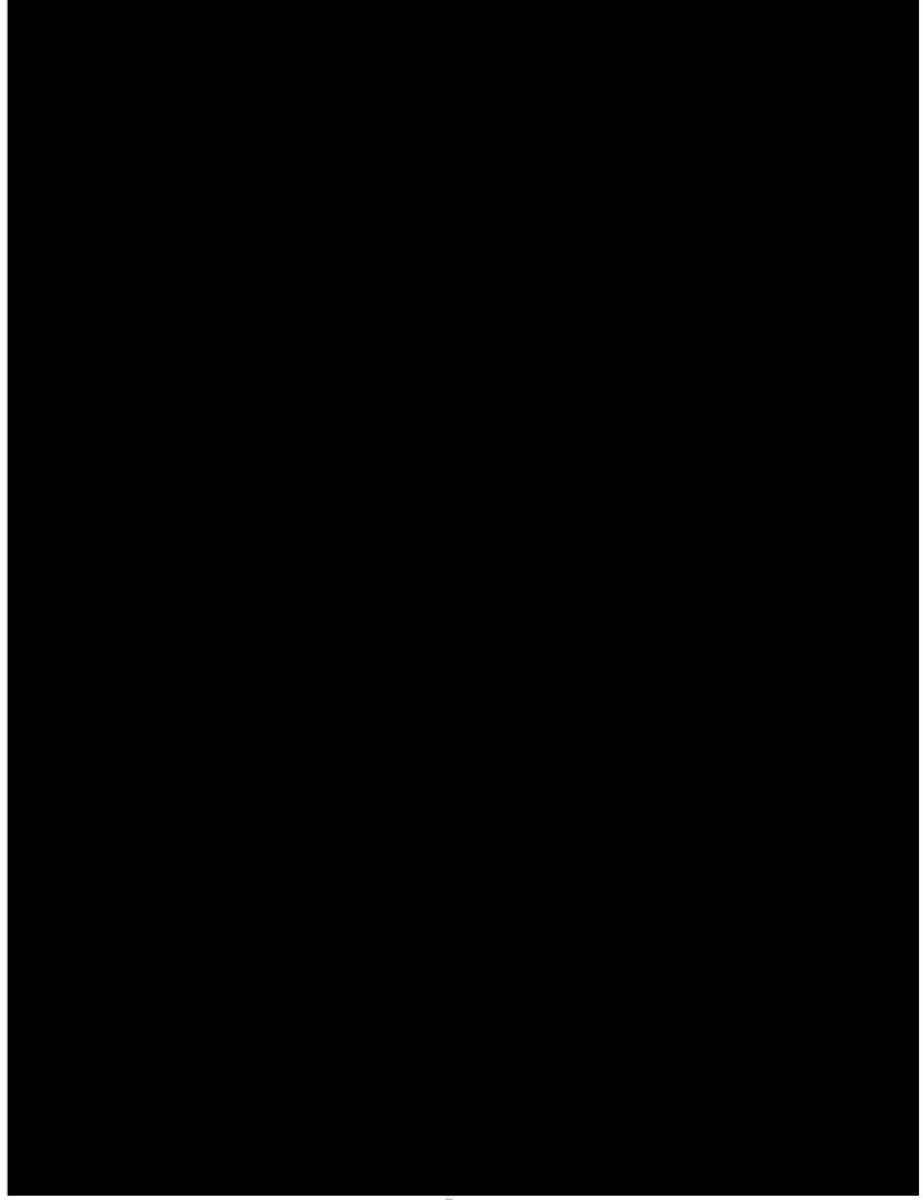
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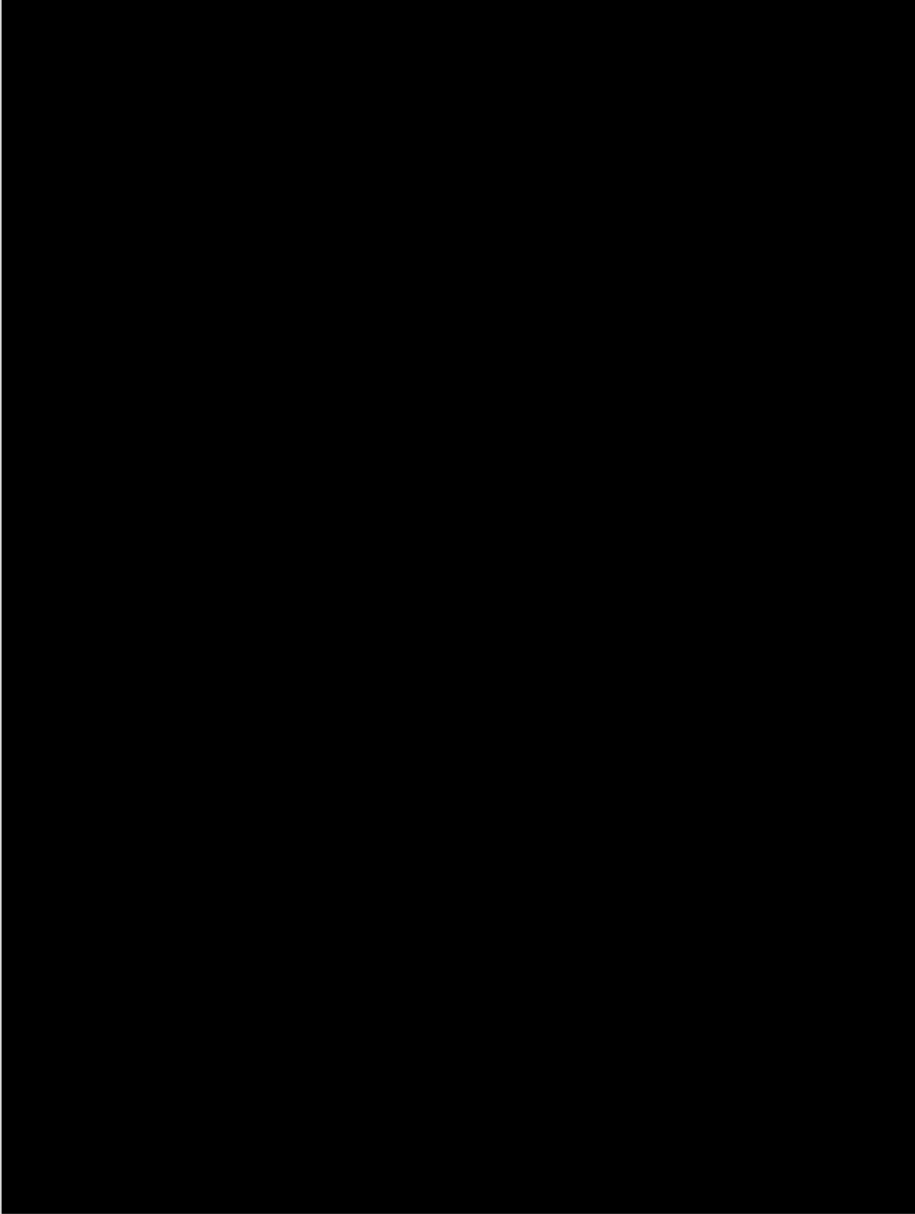
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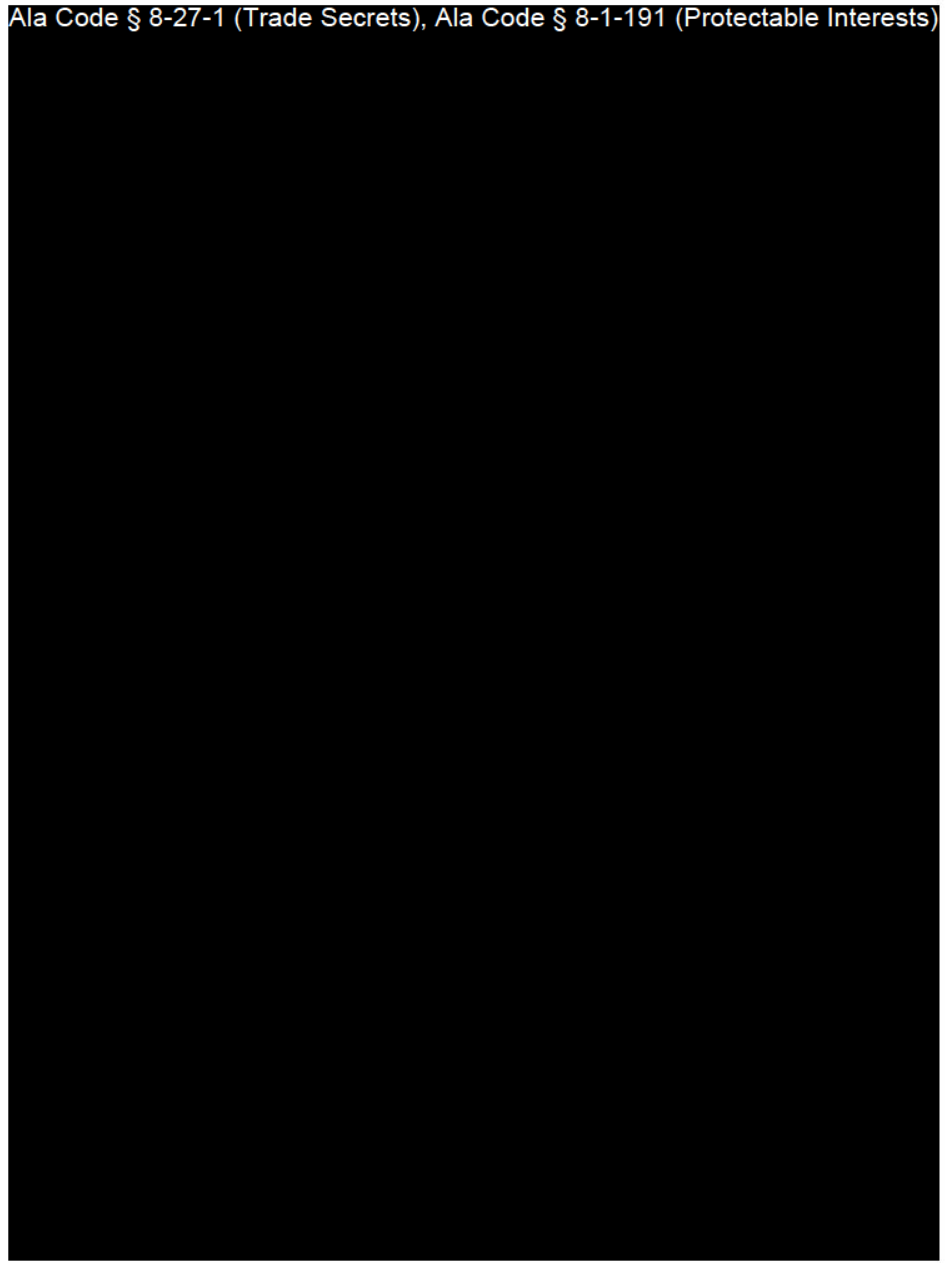
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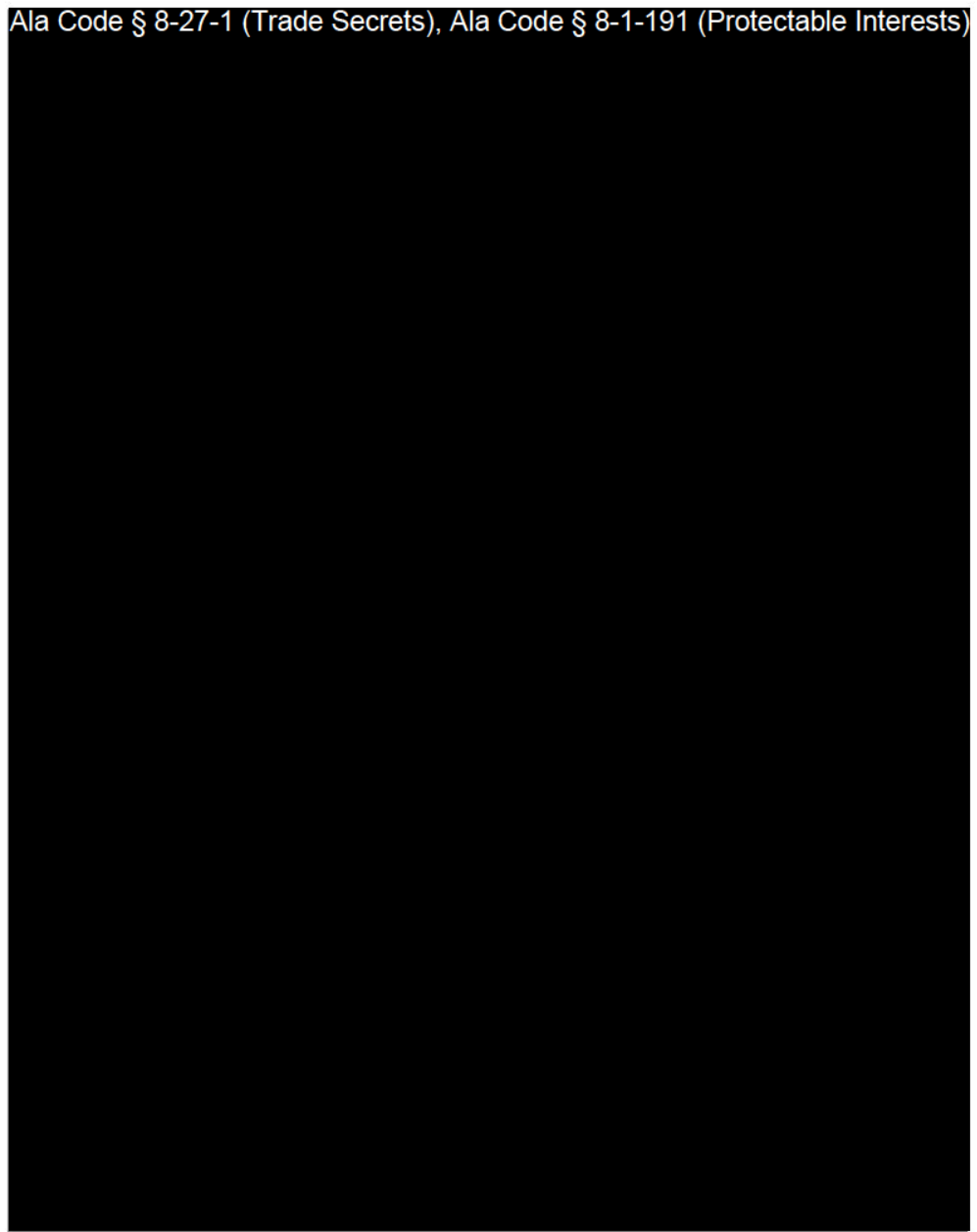


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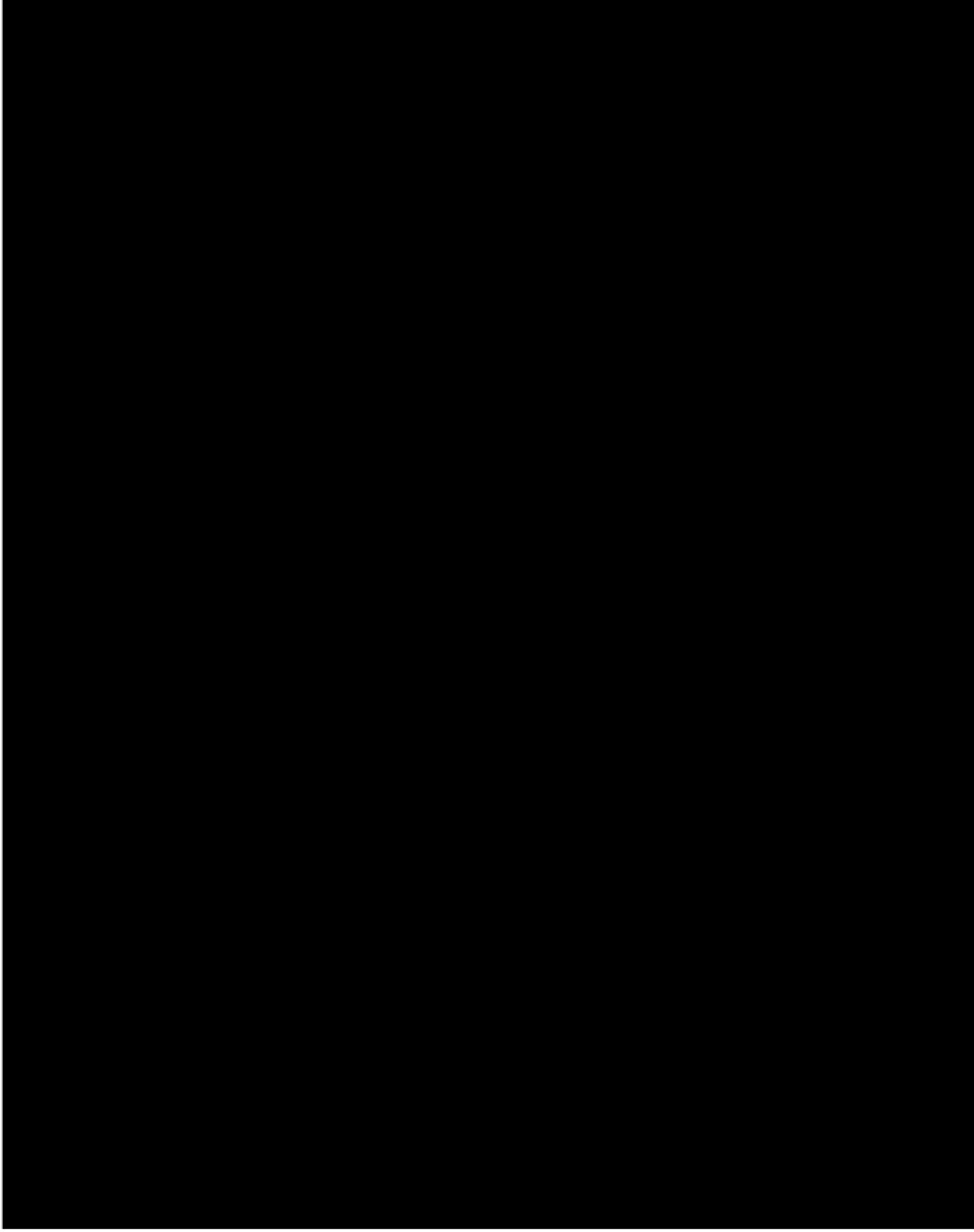
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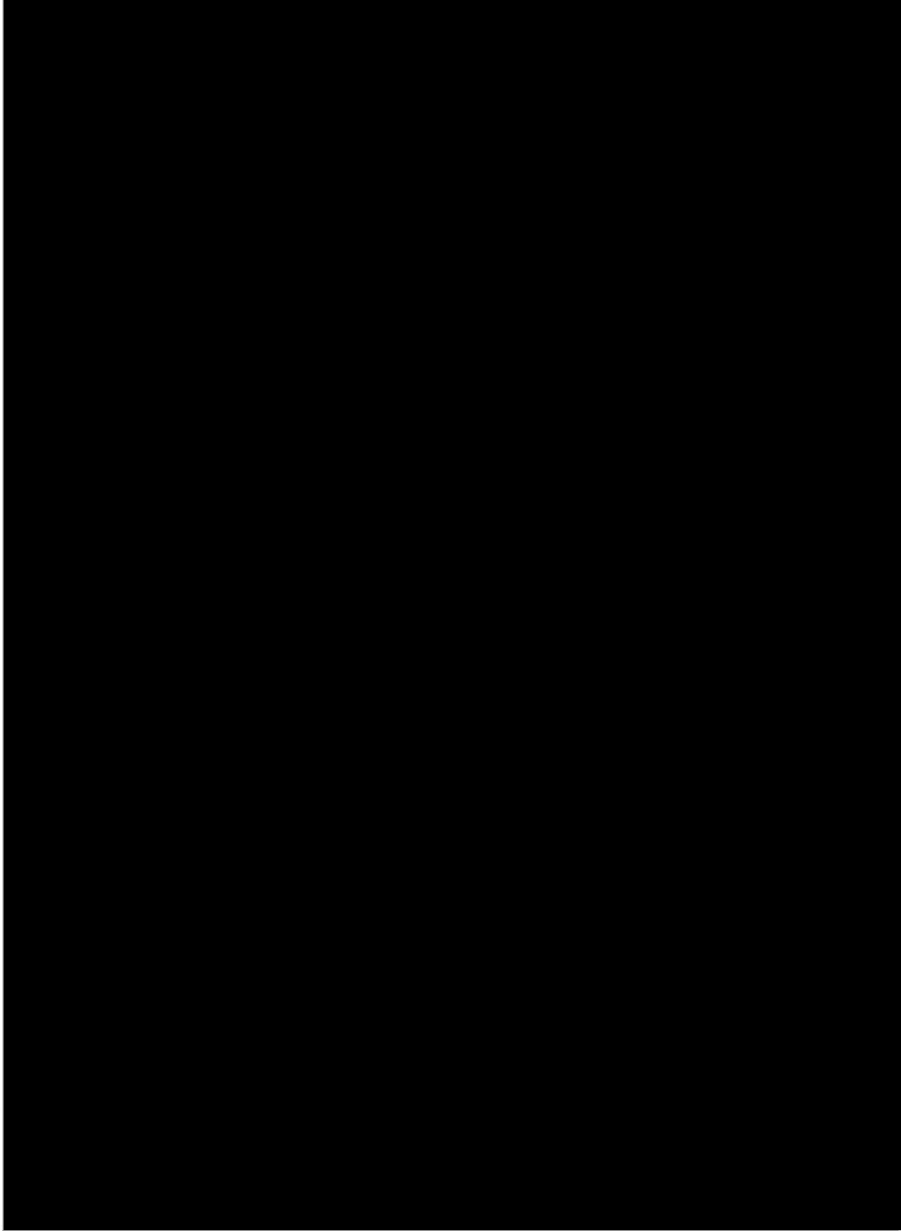
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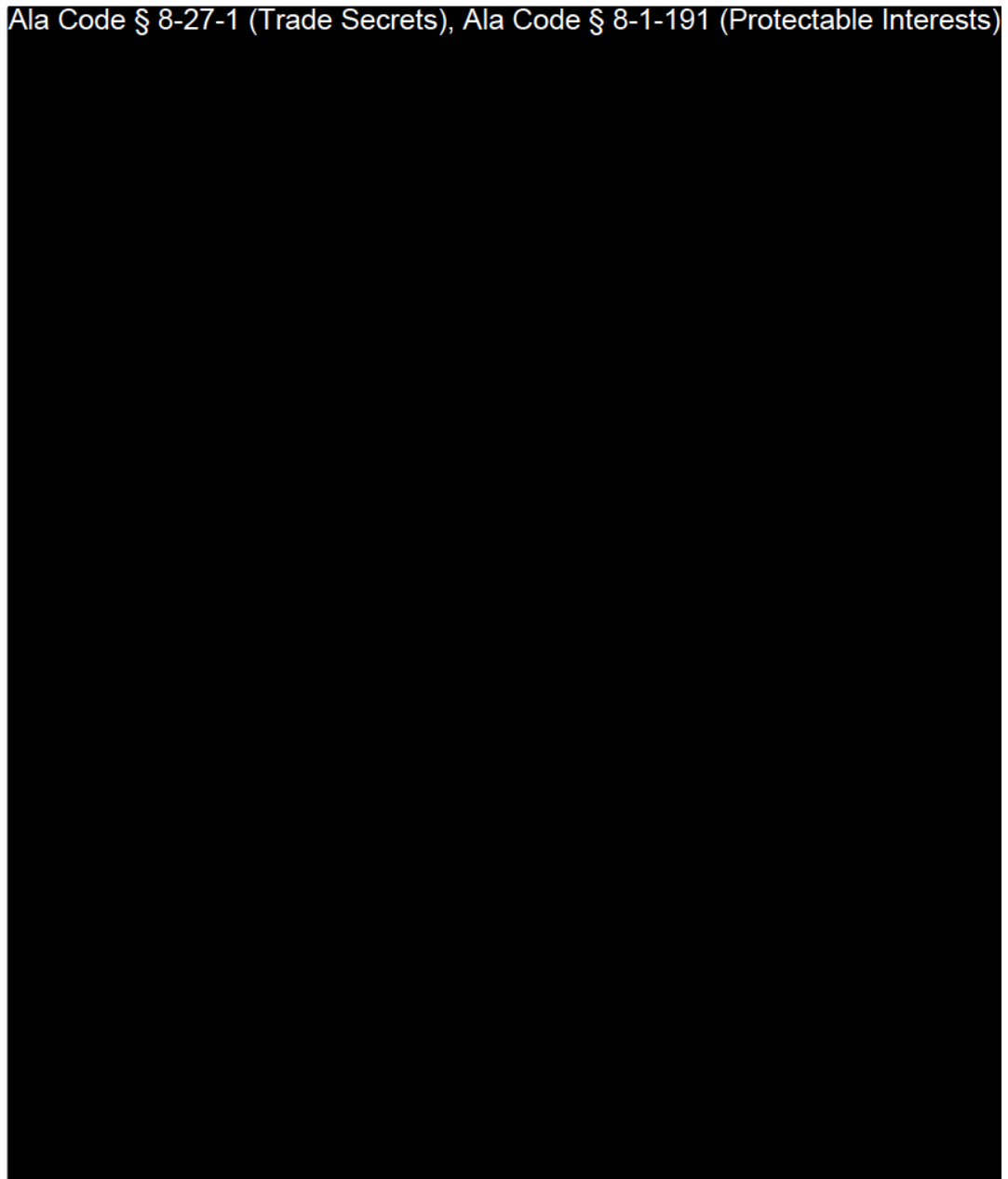
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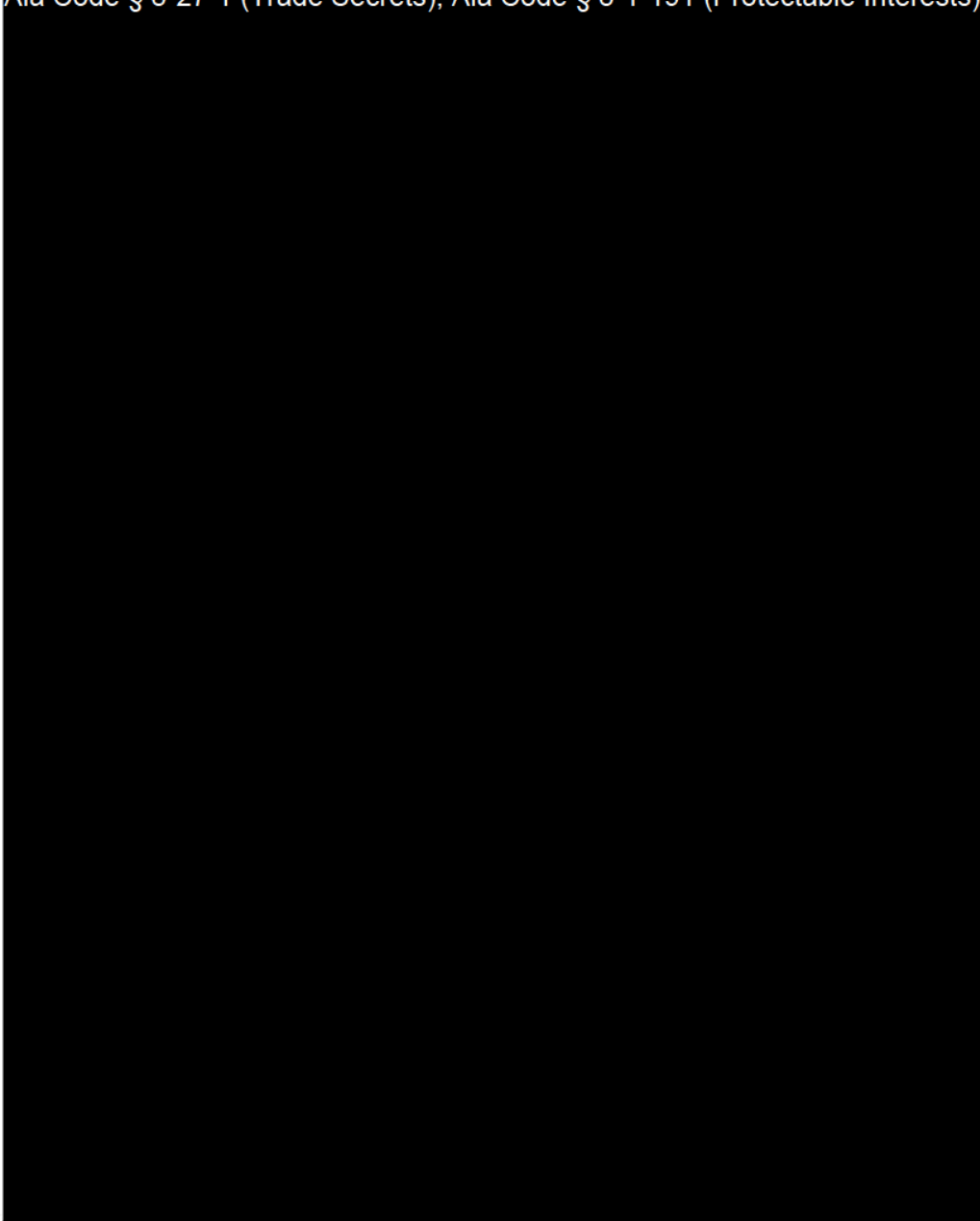
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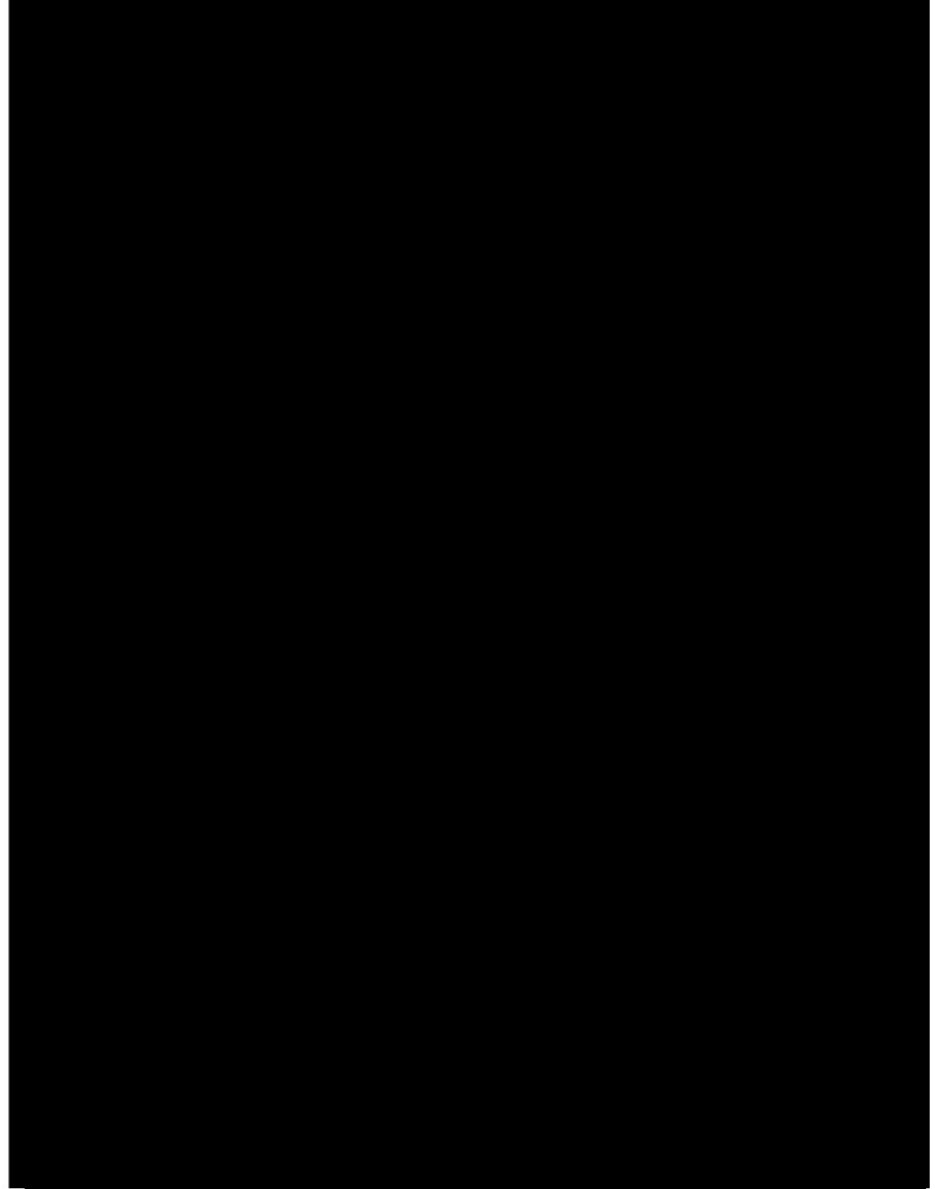
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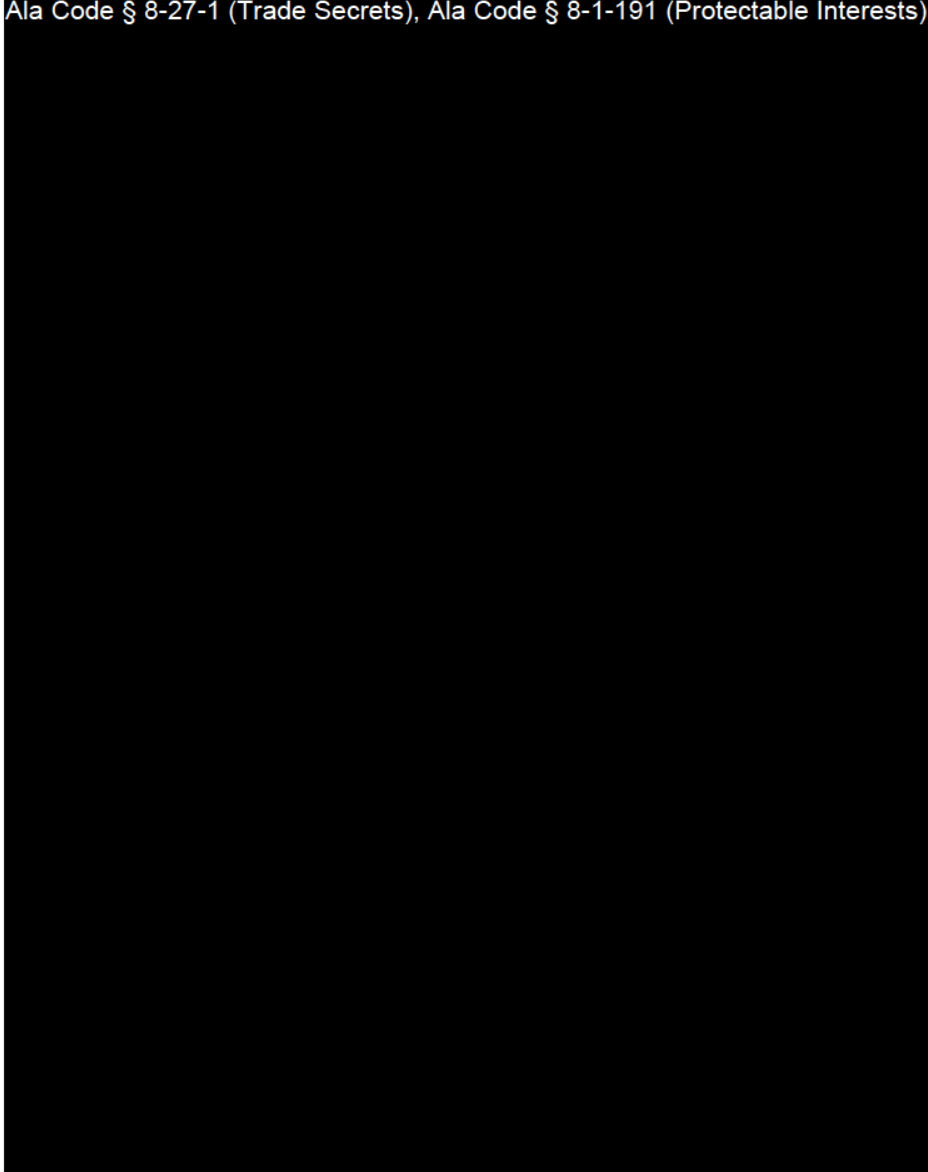


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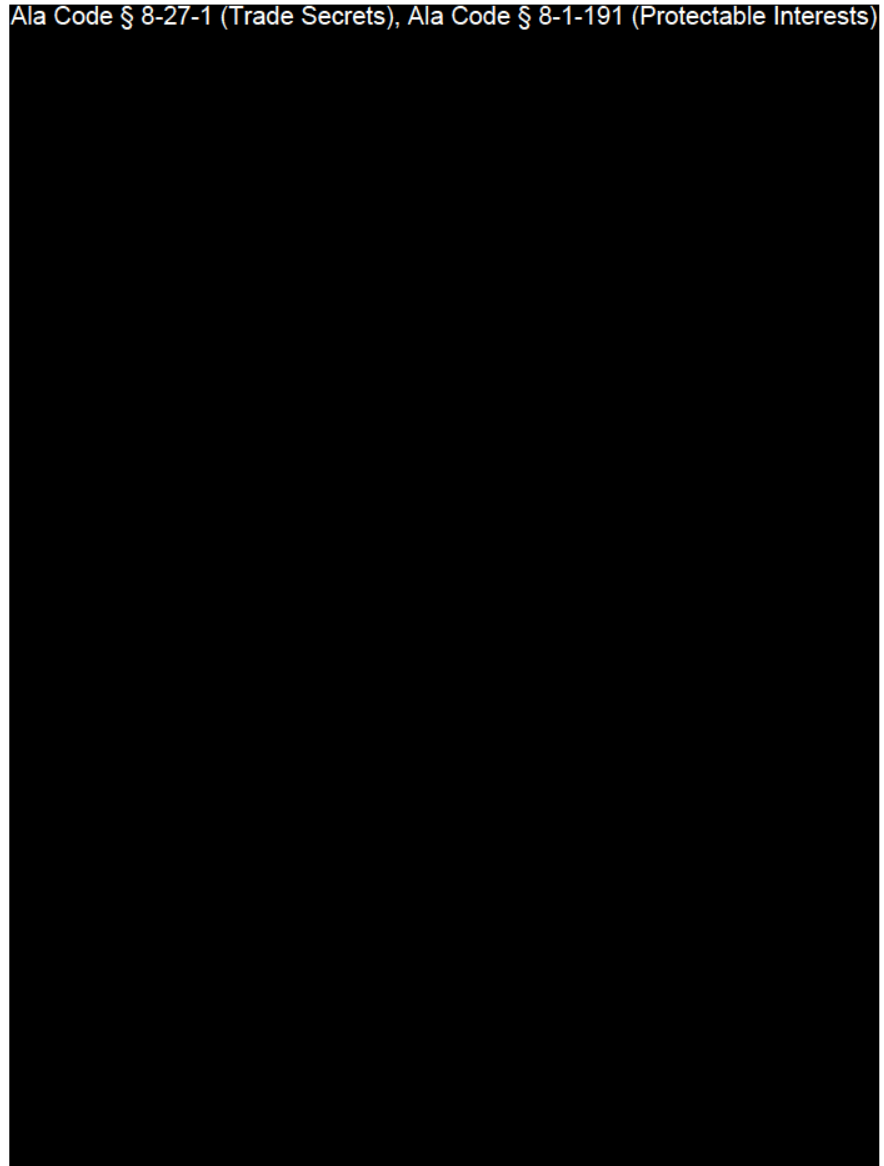
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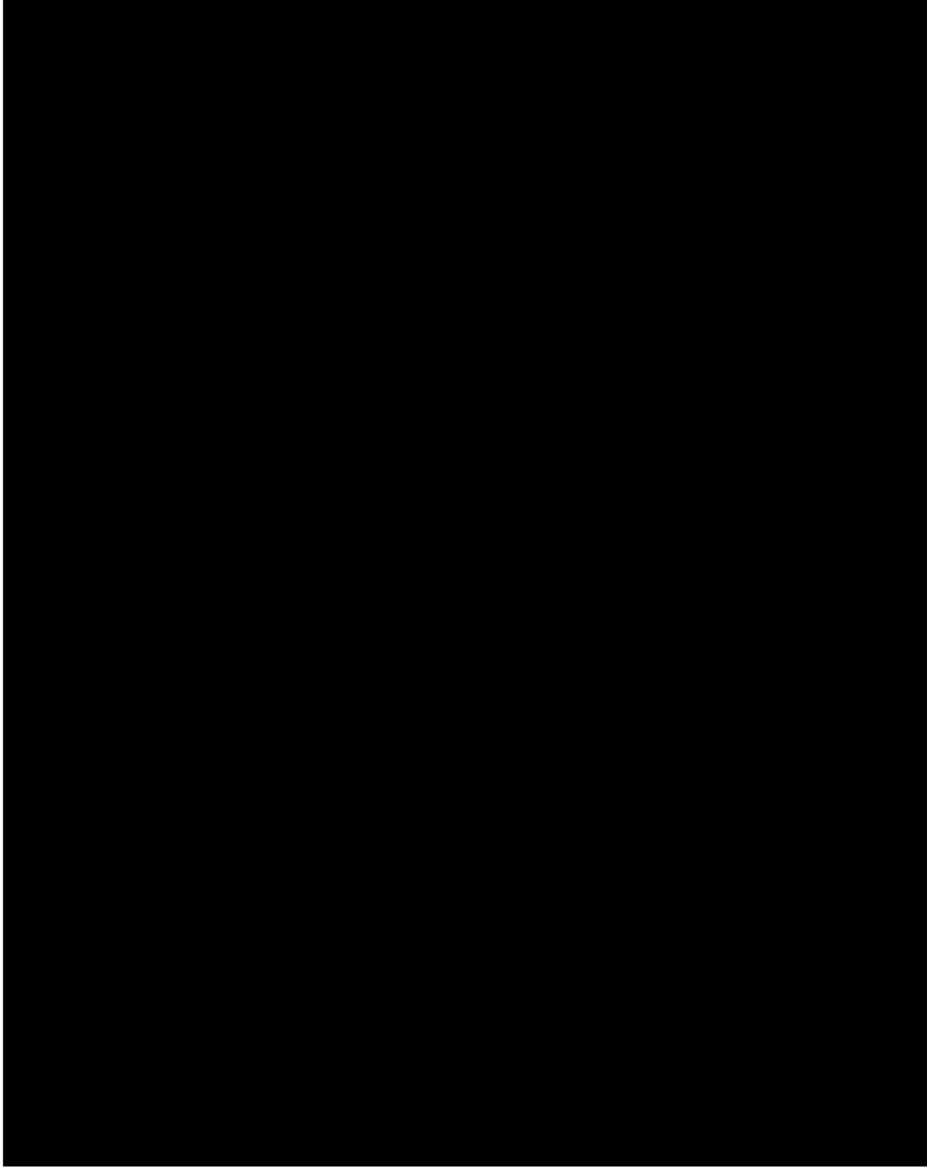


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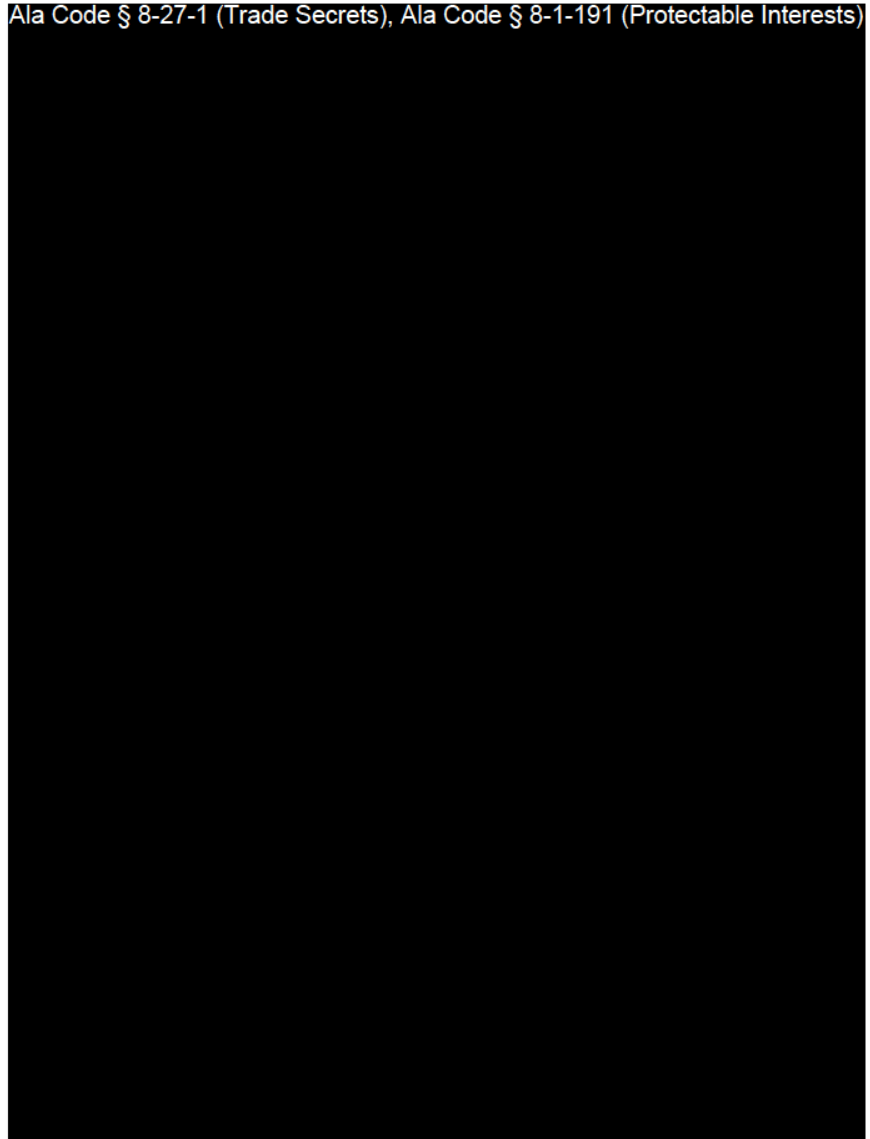
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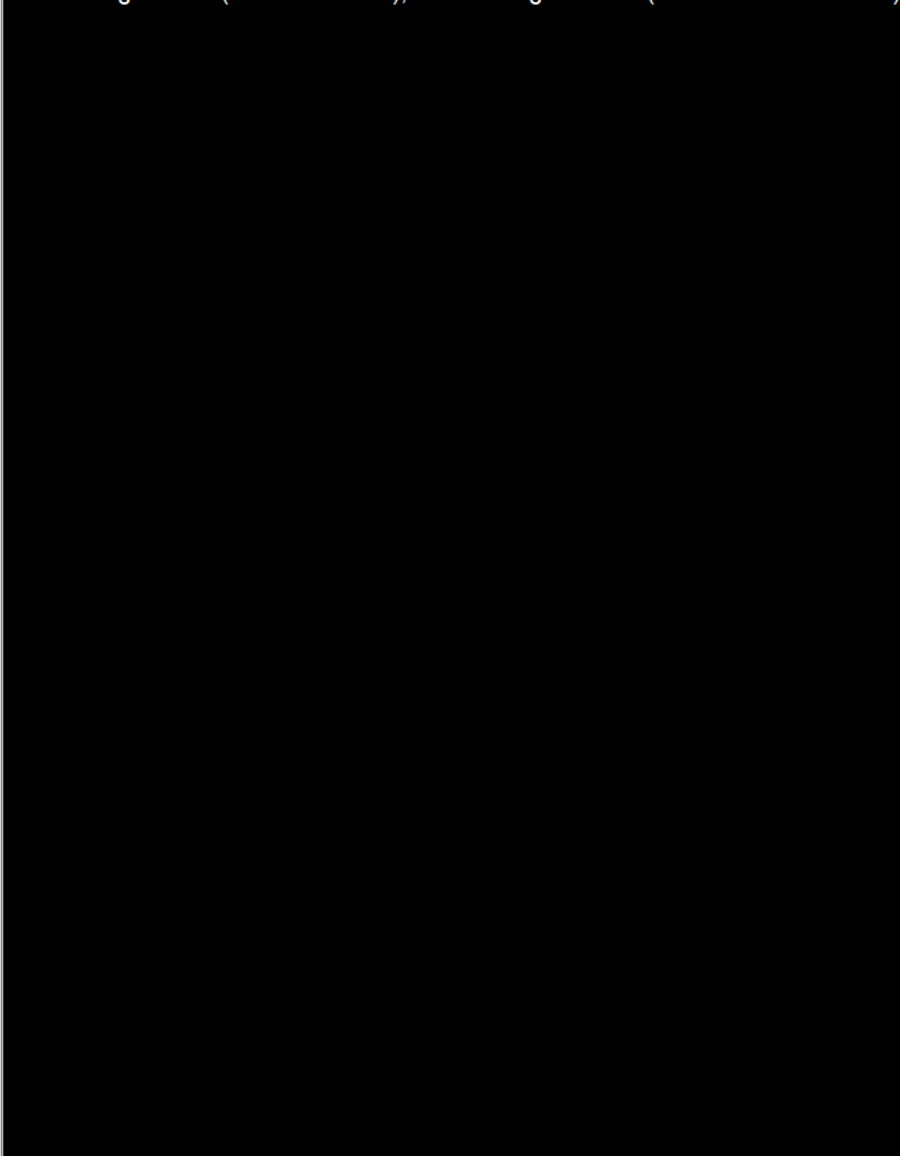
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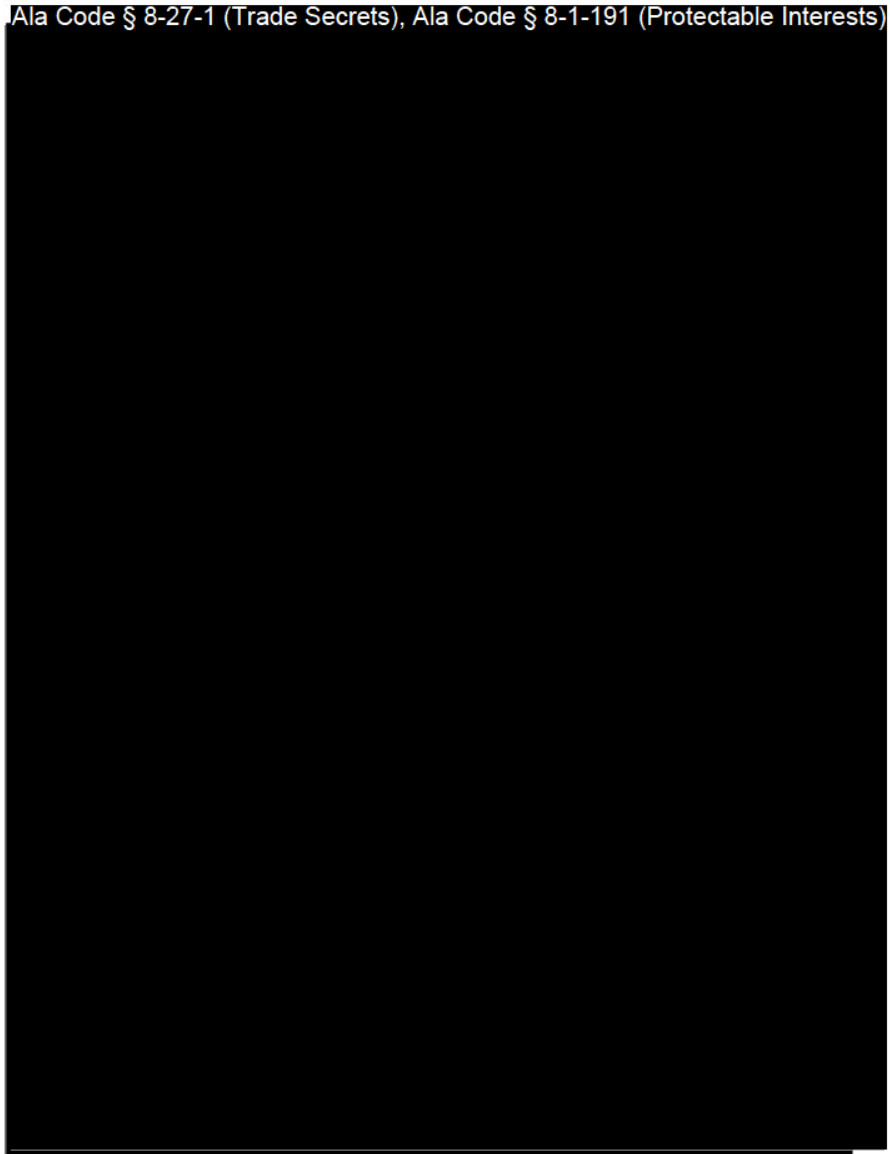
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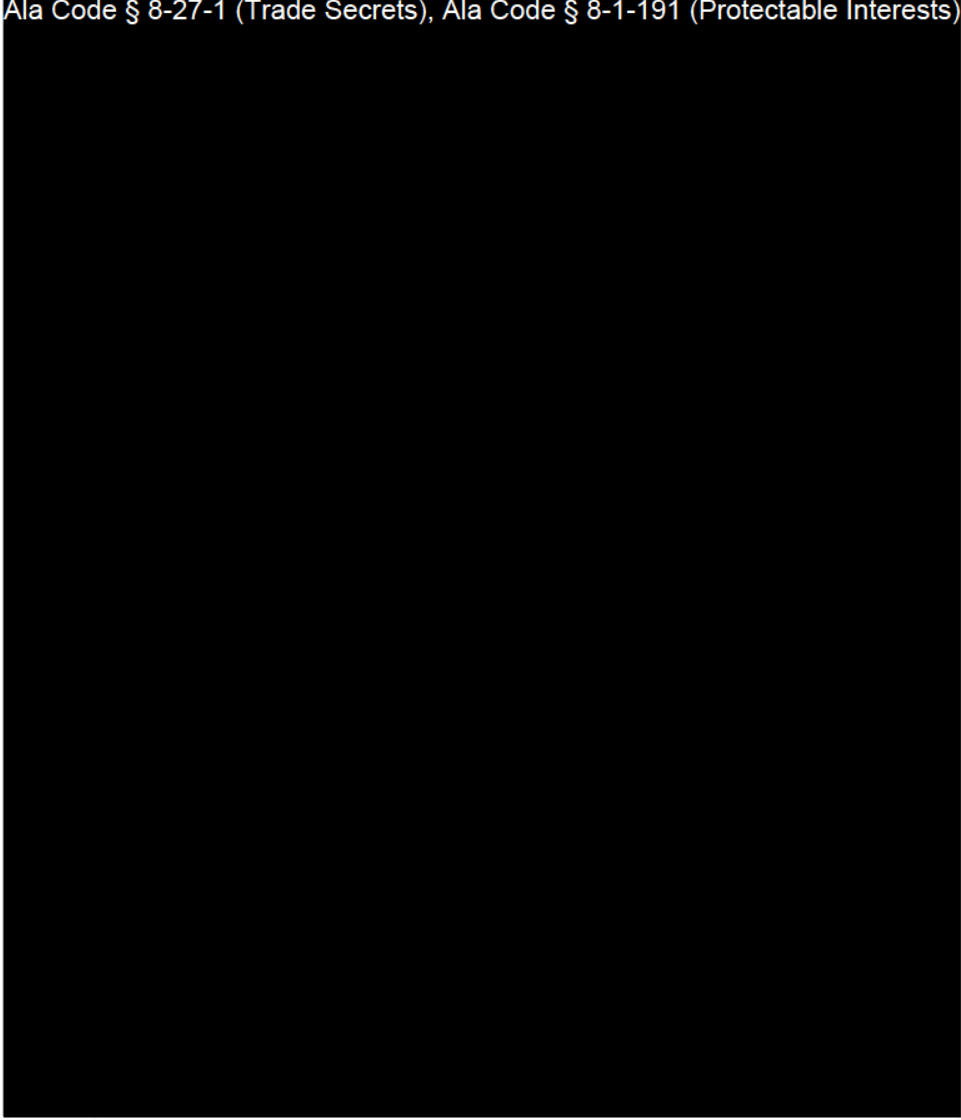
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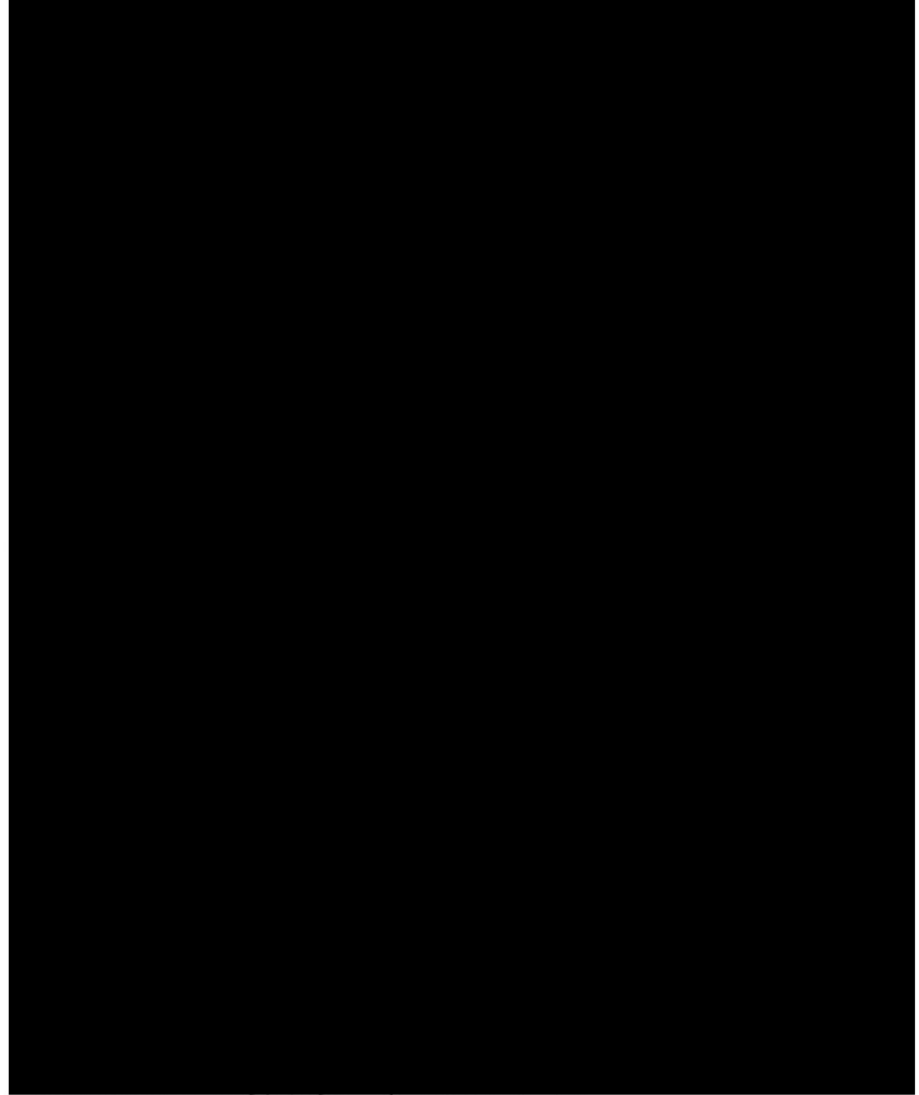


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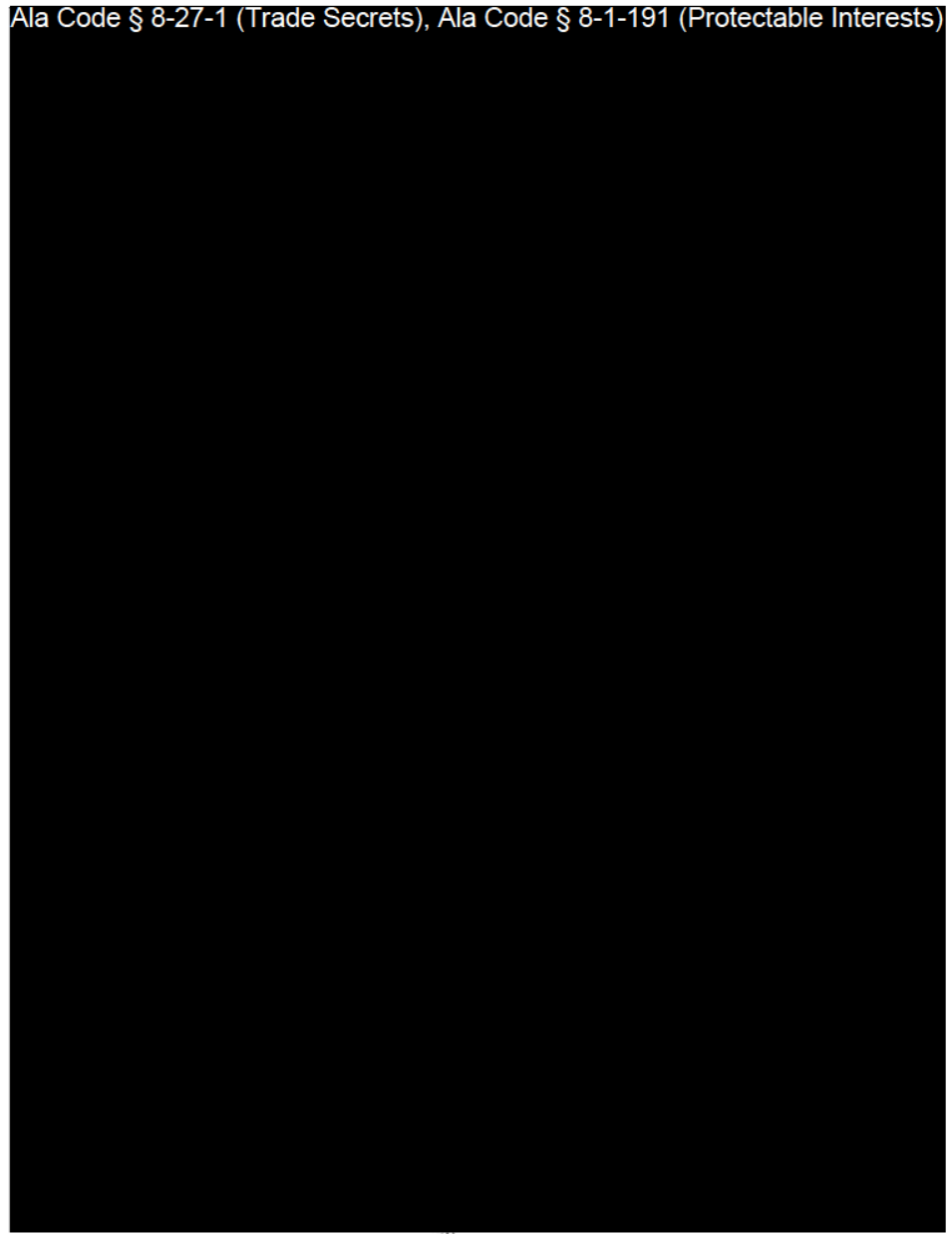


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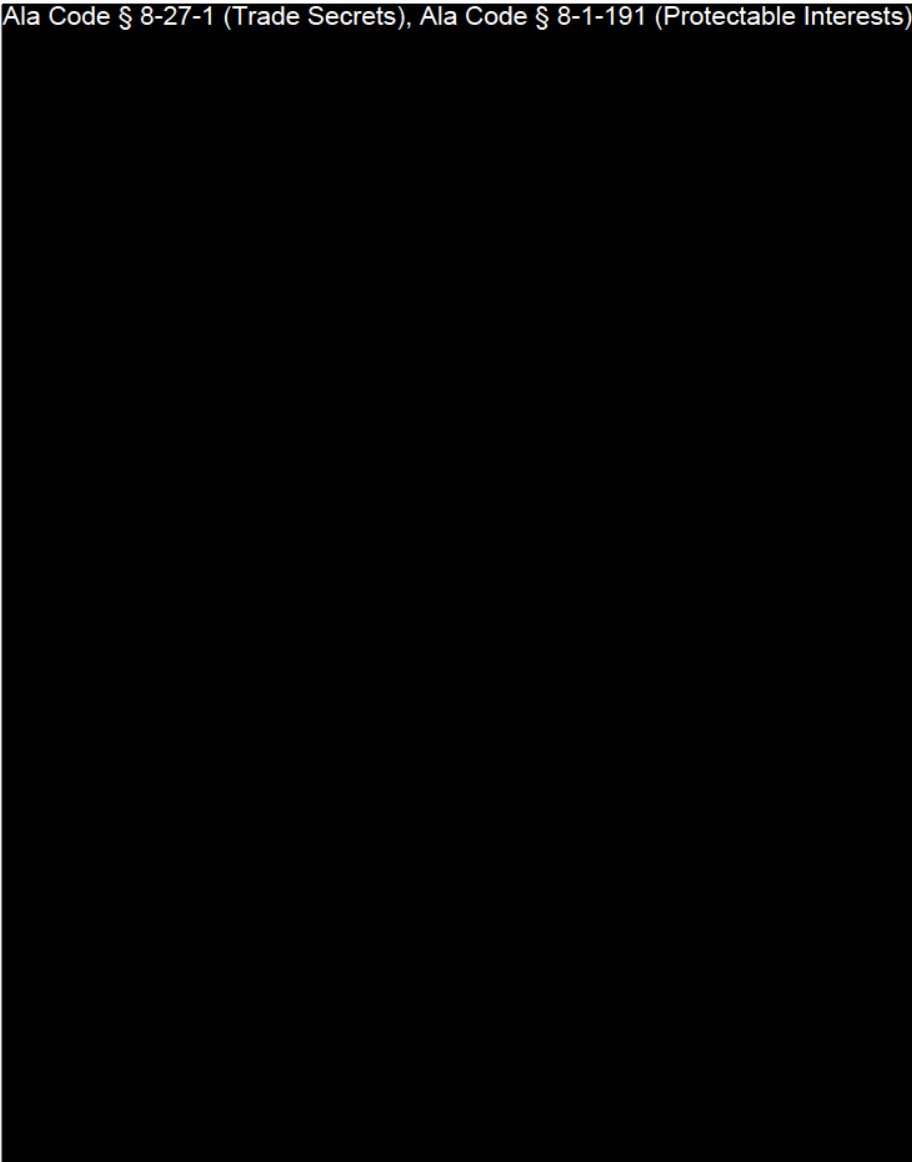
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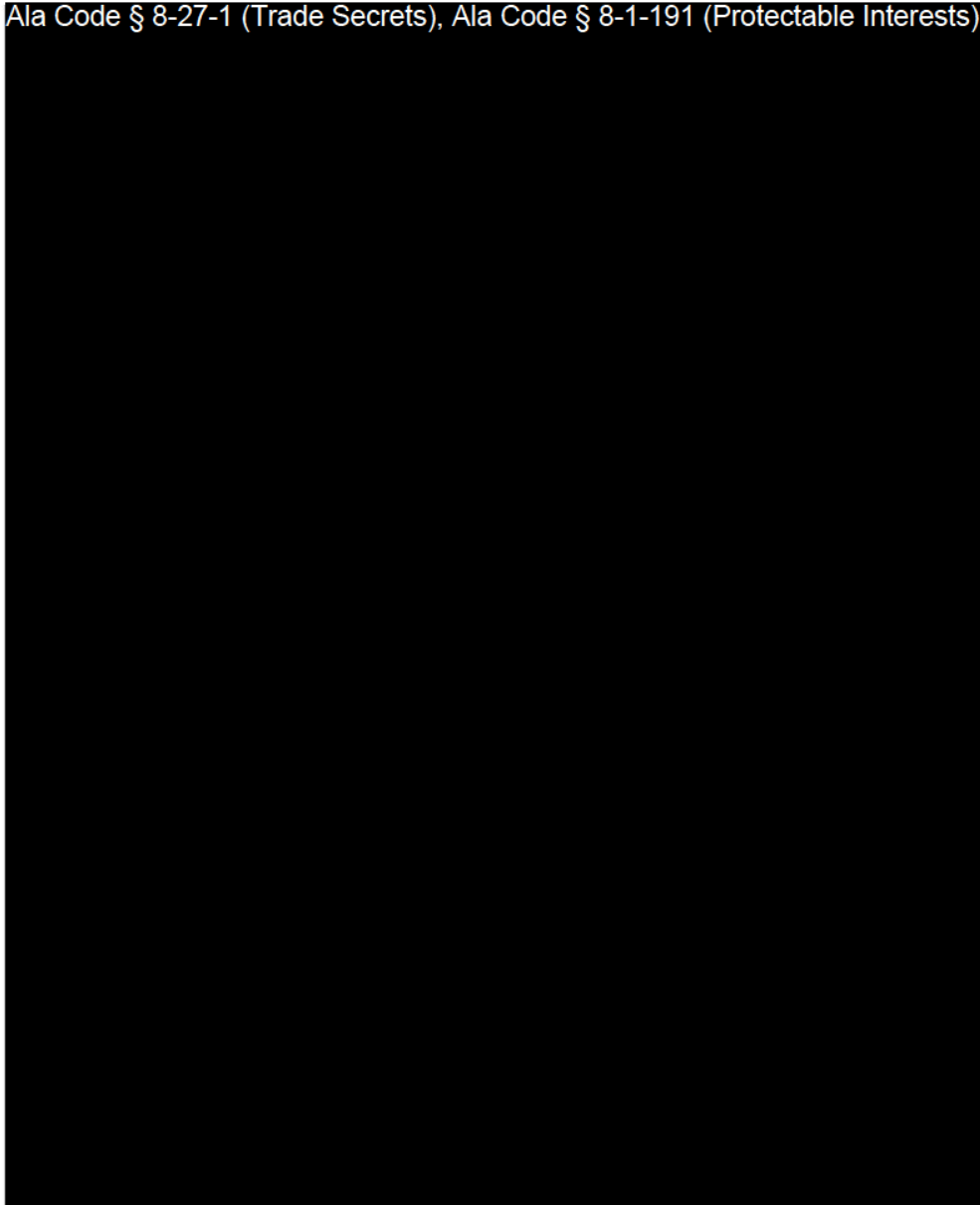
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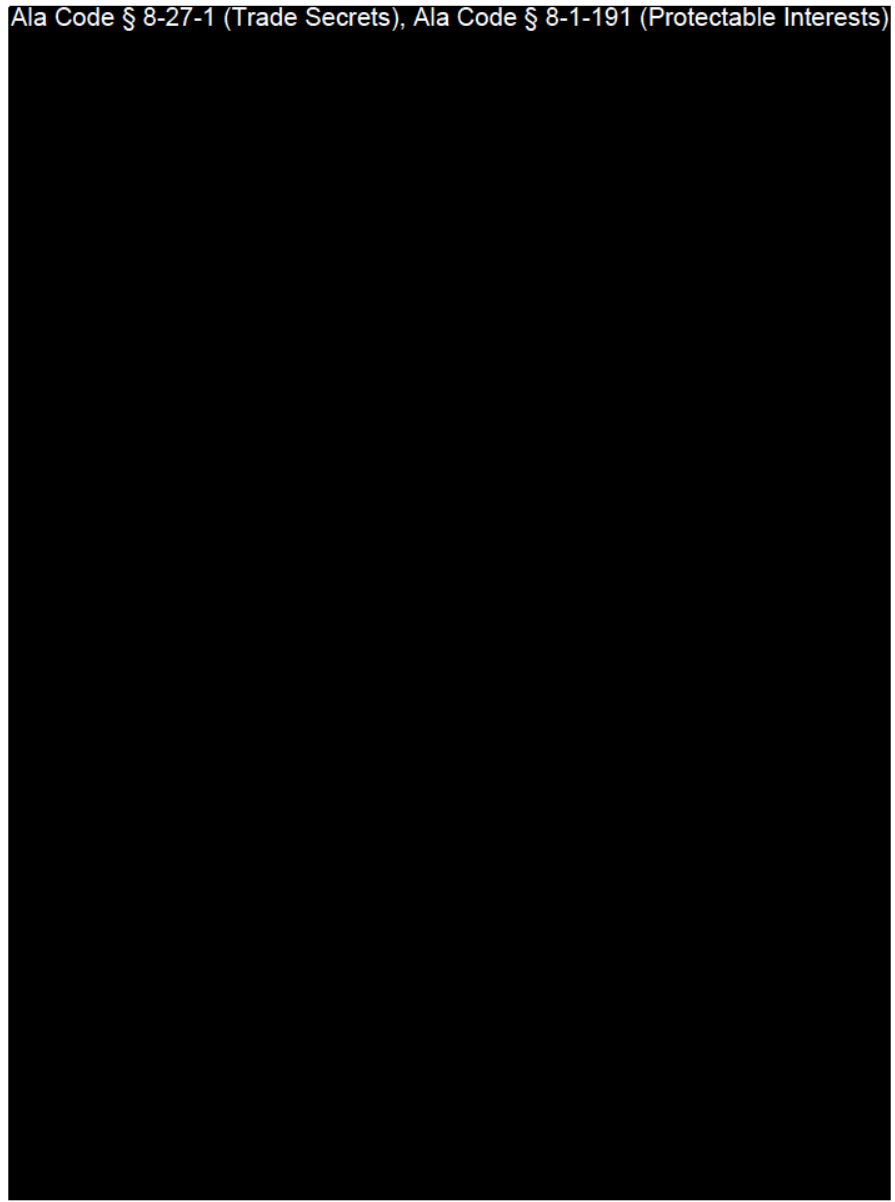
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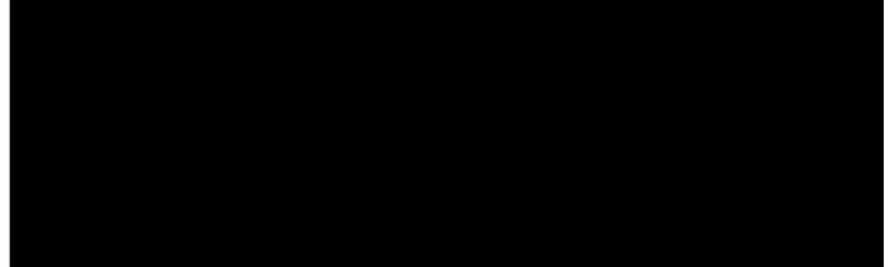
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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



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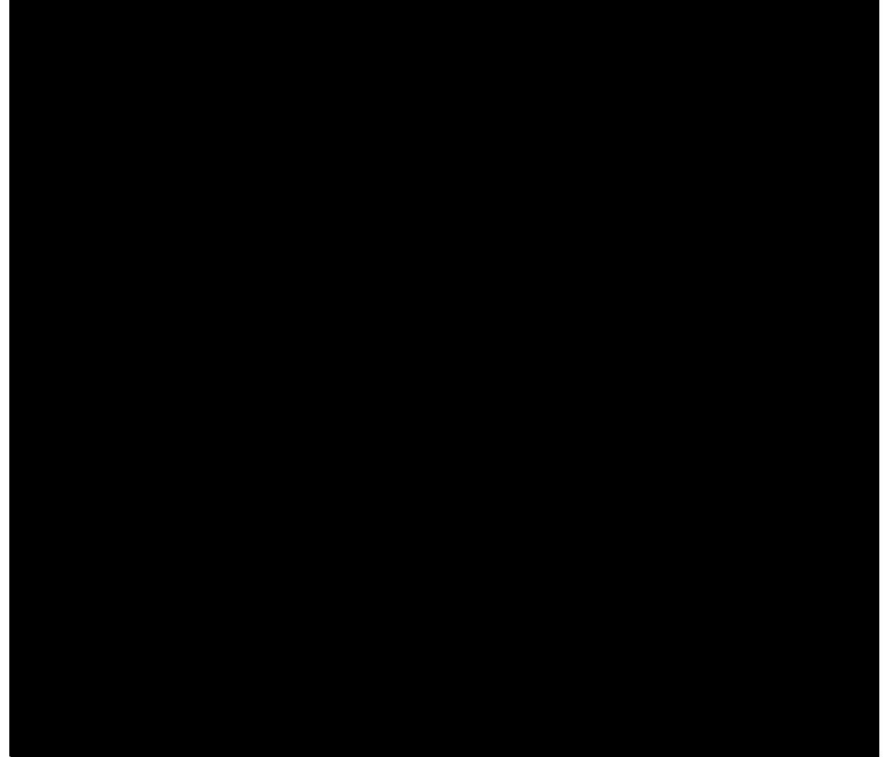
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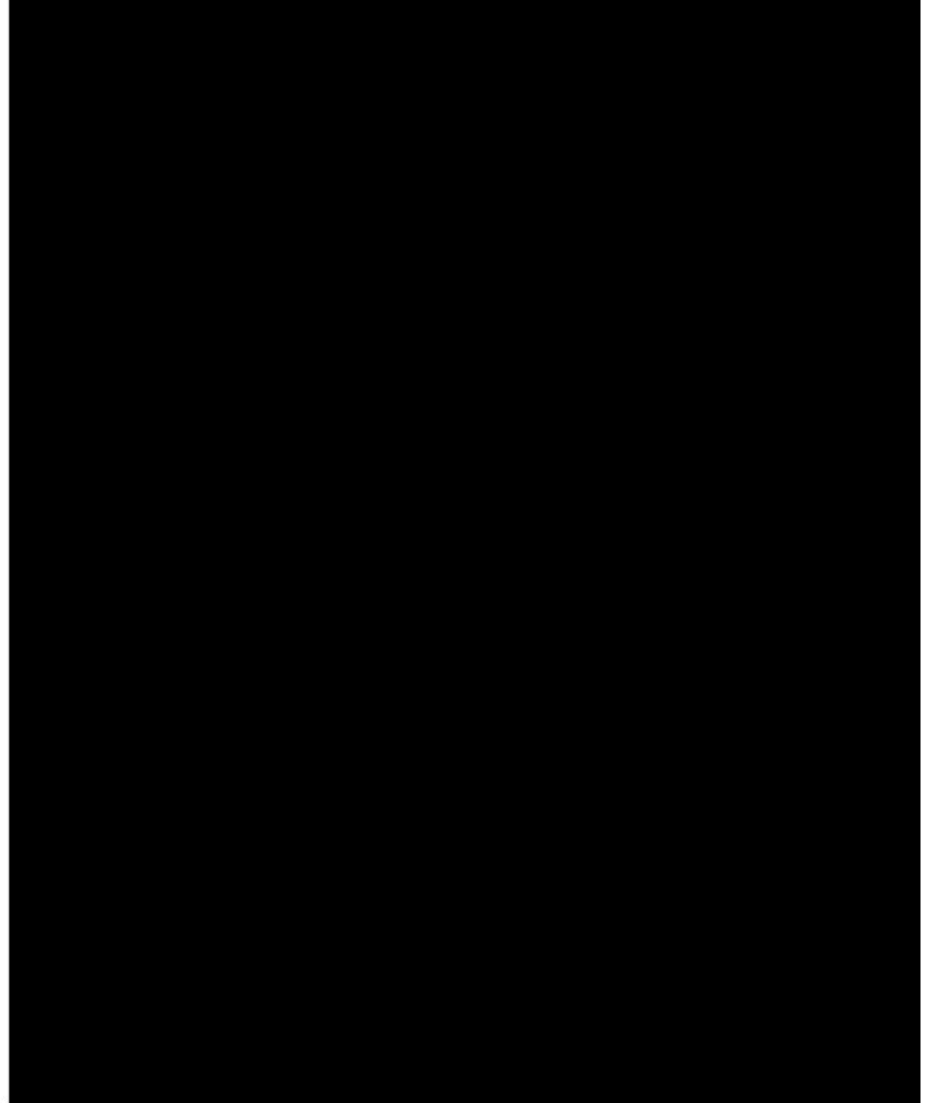
ARTICLE XV

MISCELLANEOUS PROVISIONS

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

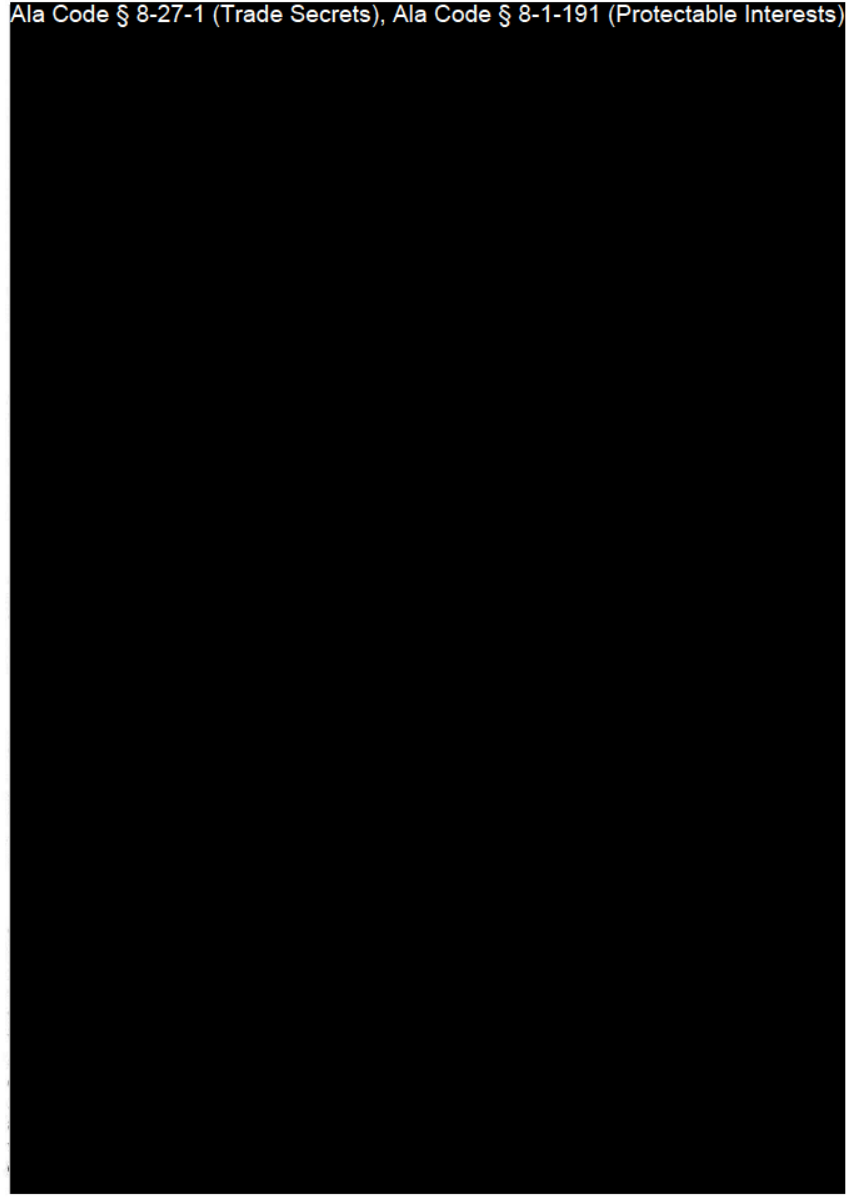


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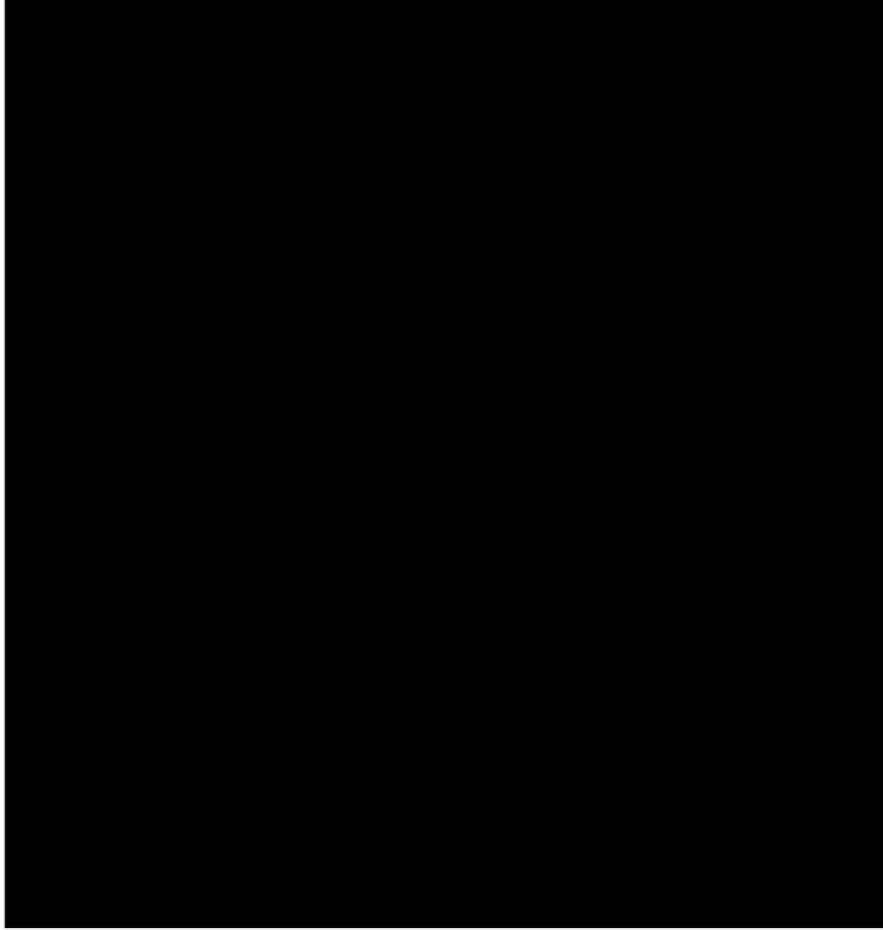
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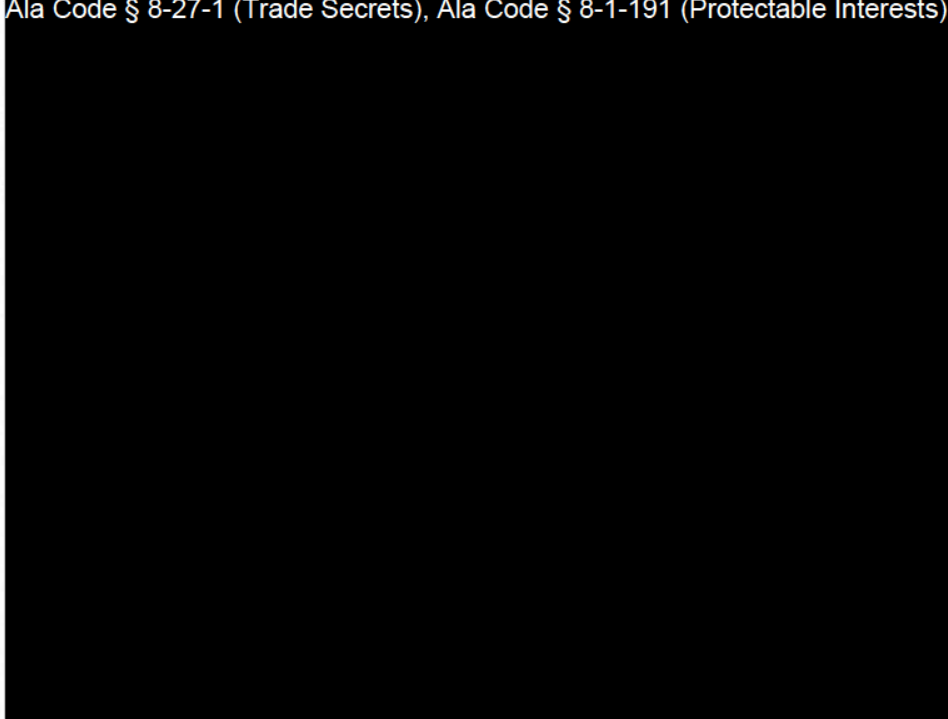
49388905 v2

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



[Signature Pages Follow]

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



49188905 v2

Exhibit A

Name, Address, Initial Capital Contributions,
Initial Membership Units and Initial Membership Interests

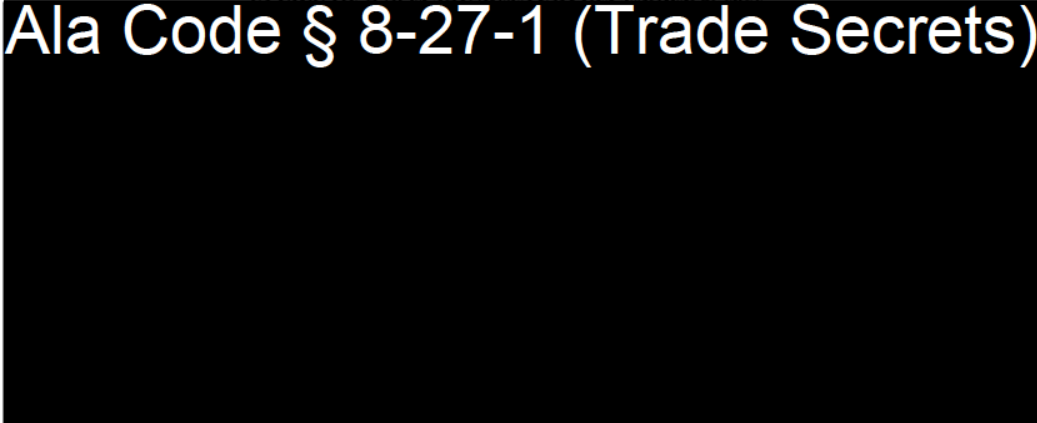
<u>Members</u>	<u>Initial Capital Contribution</u>	<u>Initial Membership Units</u>	<u>Initial Membership Interest</u>
Jason Cobb Op. Atty Gen. Ala. No. 2006-134 Homewood, AL 35209	Op. Atty Gen. Ala. No. 2006-134 [REDACTED]	—	Ala Code § 8-27-1 (Trade Secrets) [REDACTED]
William Satterlin Op. Atty Gen. Ala. No. 2006-134 Hoover, AL 35226	Op. Atty Gen. Ala. No. 2006-134 [REDACTED]		
David Hewitt Op. Atty Gen. Ala. No. 2006-134 [REDACTED]	Op. Atty Gen. Ala. No. 2006-134 [REDACTED]		

Exhibit A - 1

49368905 v2

WRITTEN CONSENT
OF THE MEMBERS
OF ORGANIC HARVEST LAB, LLC
IN LIEU OF A SPECIAL MEETING DECEMBER 6, 2022

Ala Code § 8-27-1 (Trade Secrets)



[Remainder of the page intentionally left blank; signature page follows]

01462367

License Type: Processor

IN WITNESS WHEREOF, the undersigned, being all of the Members of **ORGANIC HARVEST LAB, LLC**, an Alabama limited liability company, do hereby consent to the execution of the foregoing resolutions, and all actions taken in accordance therewith, and have hereunto set their hands.

MEMBERS:

Ala Code § 36-12-40 (Security Exemption)

Jason Cobb

Ala Code § 36-12-40 (Security Exemption)

William Sutterlin

01462367

[Signature page to Written Consent of Sole Member of Organic Harvest Lab, LLC]

EXHIBIT "A"

Joinder Agreement

01460853 - 3

JOINDER AGREEMENT

Ala Code § 8-27-1 (Trade Secrets)

D1462354 - 2

REDACTION INDEX

Ala Code § 36-12-40 (Security Exemption) – The verifying signatures and initials have been redacted pursuant to the “security or safety of persons” exemption contained in the Alabama Public Records statute. Signatures and initials, if left unredacted, may be forged and used for innumerable illicit purposes.

Furthermore, this exhibit contains information such as Tax I.D. numbers and home addresses that could potentially cause undue harm or duress to the applicant facility or the applicants themselves should the information become public record.

Ala Code § 8-27-1 (Trade Secrets)/Ala. Code § 8-1-191 (Protectable Interests) – This exhibit contains confidential information including, but not limited to, management and marketing plans, business strategy and methodology, business models and data, and company provided files and software. As such, certain portions of this exhibit have been designated as “Protectable Interests” exempt from disclosure. Further, this exhibit contains information that is used or intended for use in a trade or business, included or embodied in a formula, pattern, compilation, computer software, drawing, device, method, technique, or process, and is not publicly known or generally known in the trade or business. The information contained in this exhibit cannot be readily ascertained or derived from publicly available information and has significant economic value to the applicant. As such, certain portions of this exhibit have been designated as “Trade Secrets” exempt from disclosure.

Protectable Interests and Trade Secrets are redacted as the disclosure to any third party would give an unfair advantage to competitors and would result in the loss of rights and cause harm to the owner of this information. In the normal course of business, the owner of this information requires all individuals who view such information to be bound by confidentiality agreements and access to any of this material is extremely limited and on a need-to-know basis only. The owner of this information will take all steps to enforce such confidentiality agreements and will ensure that employees surrender such information upon termination of employment. If such information is disclosed, competitors of the owner of this information in Alabama and in other states will take such information to better compete against the owner of this information in the regulated commercial market.

Furthermore, the applicant believes the identified information to be confidential and if disclosed would give advantage to competitors because the material is related to the applicant’s planning, site location, expansion, operations, product development and marketing. Because this information can be used to recruit appropriate personnel, locate a site, finance and undertake the operation and go to market, the disclosure of this information would allow new competitors to enter the market to compete against the Company. In addition, the disclosure of this information would also allow existing competitors to potentially optimize the manufacture of their products and/or create similar products to the applicant causing grave economic harm to the owners of this information.

Finally, the applicant claims the marked material marked is exempt from disclosure as the mere formulation of the words and descriptions of processes could prove successful in competitive, multi-million-dollar merit-based medical marijuana application processes similar to Alabama. Permitting any of this marked application language to be publicly released would substantially

REDACTION INDEX

reduce the intrinsic value of the applicant's business – allowing anyone in the public to appropriate the processes, methods, and standard operating procedures that the applicant employs or will employ.

Application Number 1632

Exhibit 8 - Business License and Authorization of Local Authorities

Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

Jason Cobb

Printed Name of Verifying Individual
Ala Code § 36-12-40 (Security Exemption)



CEO

Title of Verifying Individual

12/30/2022

Verification Date

License Type: Processor

8.1 – As applicable, certified copies of the Applicant’s business license.

Applicant has included a copy of Applicant’s 2022 City of Bessemer Business License to establish that the Company is authorized to conduct business in Alabama. Applicant will continue to remain in good standing with all applicable AMCC regulations and Alabama Secretary of State Business requirements throughout the Company’s lifetime.

2022  THE CITY OF BESSEMER 2022
BUSINESS LICENSE

Mailing Name and Address:
 JASON COBB
 ORGANIC HARVEST LAB LLC
 631 20th ST N

BESSEMER AL 35020

THIS LICENSE EXPIRES :

12/2022

Taxpayer ID Number :

Op. Alty Gen. Ala. No. 2006-154 (TAX ID)

Location Number :

1

Date License Issued :

10/27/2022

License Number :

2022-3957

ORGANIC HARVEST LAB LLC
 631 20th ST N

BESSEMER AL 35020

CITY OF BESSEMER
 1700 - 3RD AVE. NORTH

**Non-transferable
 Non-refundable**

<small>Code</small>	<small>Description</small>
332710	MANUFACTURER



INSPECTIONS REQUIRED
 BEFORE LICENSE IS VALID
 WANDA TAYLOR, CITY CLERK
 EXPIRATION DATE 12/31/2022

Issued By :  Revenue Department



Detach below prior to posting this business license

Business License Receipt
 ORGANIC HARVEST LAB LLC

CITY OF BESSEMER ALABAMA
Code 332710 Description MANUFACTURER

SID: 10272202
Amount \$75.00

Total Discount	\$0.00	Total License(s)	\$75.00
Total Fee 1-5	\$0.00	Total Penalty	\$0.00
Total Issue Fee	\$12.00	Total Interest	\$0.00
		Total Amount Remitted	\$87.00

8.2 – As applicable, resolution(s) or ordinance(s) by local jurisdiction(s) (County or Municipality, as appropriate) approving the Applicant’s business presence in each applicable local jurisdiction.

Pursuant to 538-x-3-.05(3)(k), Applicant’s proposed facility is located in a permissible location and will maintain compliance with all applicable State and local laws, regulations, resolutions, and ordinances. Applicant’s desired processor facility location is situated in Bessemer, Alabama. Bessemer has not yet adopted a local ordinance or resolution; however, Applicant has provided the following proof of approval from local authorities:

- The City of Bessemer’s Building and Inspection Services has provided Zoning Approval documentation (Labeled “Zoning Approval”).
- The City of Bessemer’s Ordinance
- The Mayor of Bessemer has provided a letter of support for the proposed facility operations (Labeled “Letter of Support”).
- Senator Tim Melson has provided a letter of support for the proposed facility Operations (Labeled “Letter of Support 2”)
- Senator J.T. “Jabo” Waggoner has provided a letter of support for the proposed facility Operations (Labeled “Letter of Support 3”)

These documents exemplify approval of the Processor Facility’s presence and operations for the local jurisdiction and throughout the state of Alabama.

Zoning Approval



City of Bessemer

BUILDING & INSPECTION SERVICES

1700 THIRD AVENUE NORTH
BESSEMER, ALABAMA 35020-4060
TELEPHONE 205-424-4060

KENNETH E. GULLEY
MAYOR

THOMAS E. HARMON, JR.
DIRECTOR

Organic Harvest Lab, LLC
631 20th Street North
Bessemer, AL 35020

November 8, 2022

Re: Records Request
631 20th Street North
Bessemer, AL 35020

To All Concerned Parties,

This letter is to inform you that the above referenced property lies within the city limits of Bessemer, AL and carries the zoning designation of I-1, Light Industrial District. This district provides for light industrial facilities, distribution, warehousing, and etc.

Currently, there are no open permits or any known Building Code or Zoning Ordinance violations associated with this address.

Should you have any questions, please contact the office of Building and Inspection Services @ 205-424-4060.

Regards,

Vonda Jones
Administrative Assistant
Building & Inspection Services Dept.
1700 3rd Avenue North
Bessemer, AL 35020
vjones@bessemeral.org

City of Bessemer Ordinance

ORDINANCE NO. 3653

**AN ORDINANCE TO AUTHORIZE THE OPERATION OF DISPENSING SITES
WITHIN THE CORPORATE LIMITS OF THE CITY OF BESSEMER**

WHEREAS, on May 17, 2021, the Governor for the State of Alabama signed the Darren Wesley 'Ato' Hall Compassion Act (the "Act") into law; and

WHEREAS, the Act provides for the medical use of marijuana for patients with a qualifying medical condition and a valid medical cannabis card and regulates the cultivation, processing, transporting, testing, and dispensing of medical cannabis products; and

WHEREAS, a dispensary may only be operated in a municipality if the municipality has passed an ordinance authorizing the operation of dispensaries within the municipality's corporate limits; and

WHEREAS, the Act authorizes and requires the Alabama Medical Cannabis Commission to regulate all aspects of medical cannabis under the Act, excluding cultivation, which is authorized and required to be regulated by the Department of Agriculture and Industries, thus addressing any health, safety or welfare concerns for the City of Bessemer; and

WHEREAS, the location of a dispensary within the corporate limits of the City of Bessemer will bring the potential of new employment opportunities for the citizens of the City of Bessemer; and

WHEREAS, a dispensary would be required to purchase a business license and pay sales tax to the City of Bessemer, thus increasing revenue.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF BESSEMER, ALABAMA, that the operation of dispensing sites within the corporate limits of the City of Bessemer, subject to any applicable zoning restrictions the City of Bessemer may adopt pursuant to §20-2A-51(c)(3) of the Act, be, and it hereby is, authorized.

ADOPTED this the 22nd day of November 2022.



RON MARSHALL
President, City Council

ATTEST


WANDA D. TAYLOR
City Clerk

APPROVED this the 22nd day of November 2022.



KENNETH E. GULLEY
Mayor, City of Bessemer

Letter of Support



The Office of
Kenneth E. Gulley
Mayor

City of Bessemer

1700 Third Avenue, Bessemer, AL 35020
(205) 424-4060 FAX: (205) 424-4372
Email: mayorsoffice@bessemeral.org

October 12, 2022

Alabama Medical Cannabis Commission
Attn: John McMillan
P.O. Box 309585
Montgomery, Alabama 36130

Re: Approval and Support of Organic Harvest Lab, LLC for Medical Cannabis Processing within the City of Bessemer at 631 20th Street North.

Dear John McMillan:

The Mayor supports Organic Harvest Lab, LLC operations within the City of Bessemer for the Processing and Manufacturing of Medical Cannabis, pursuant to the Code of Alabama, Section 20-2A-63, 1975, as amended. The business location is zoned I-1, or Light Industrial District, which would allow the processing of Medical Cannabis if licensed by the Commission.

The location of the facility is located within the Bessemer Opportunity Zone that was nominated by Gov. Kay Ivey and certified in 2018 by the Alabama Department of Economic and Community Affairs. The City of Bessemer welcomes Organic Harvest Lab for the important benefits to the area with potential job creation, STEM-related industry, local business activity, diversified economy, and increased community development.

This approval and support are conditional to the extent the State of Alabama Legislature may modify or alter the Intent of this Act by some future amendment(s). Should you have any questions, please do not hesitate to contact me. Thank you for your attention to this matter.

Sincerely,

Kenneth E. Gulley,
Mayor of Bessemer

Cc: Jason Cobb
Organic Harvest Lab, LLC
631 20th Street North,
Bessemer, AL 35020

Letter of Support 2



ALABAMA STATE SENATE
ALABAMA STATE HOUSE
11 SOUTH UNION STREET, SUITE 732
MONTGOMERY, ALABAMA 36130-4600

TIM MELSON
SENATOR
DISTRICT 1
MONTGOMERY
(334) 261-0773
TIM.MELSON@ALSENATE.GOV

COMMITTEES:
EDUCATION POLICY, CHAIR
FINANCE & TAXATION EDUCATION, VICE CHAIR
AGRICULTURE, CONSERVATION, & FORESTRY
HEALTHCARE
RULES
TOURISM

December 23, 2022

Organic Harvest Lab, LLC
c/o Jason Cobb
631 20th Street North
Bessemer, AL 35020

Alabama Medical Cannabis Commission
Attn: John McMillan
P.O. Box 309585
Montgomery, Alabama 36130

Re: Support of Organic Harvest Lab, LLC for Alabama Medical Cannabis Processing

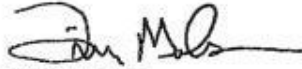
Dear John McMillan,

I am writing this letter regarding the Darren Wesley "Ato" Hall Compassion Act signed into law on May 17, 2021 by Governor Kay Ivey, which permits the use of medical cannabis to treat certain medical conditions including Crohn's disease, depression, epilepsy, HIV/AIDs, panic disorder, Parkinson's disease, persistent nausea, post-traumatic stress disorder, chronic or intractable pain, among others in the State of Alabama.

I strongly support and recommend Organic Harvest Lab, LLC for the Processing and Manufacturing of Medical Cannabis in the State of Alabama. The company is owned and operated by known leaders within the State of Alabama and local communities as innovators with a successful track record of research and development with state-of-the-art technology, equipment, and facilities. Their contributions to our state with numerous awards and accolades show an outstanding commitment and excellence within the great State of Alabama and will serve our communities well. In addition, their professionalism, character, and integrity in the community are outstanding and an example of servant leadership.

The location of the processing facility of the company is located within the Bessemer Opportunity Zone that was nominated by Gov. Kay Ivey and certified in 2018 by the Alabama Department of Economic and Community Affairs. Organic Harvest Lab as a Processor of Medical Cannabis will provide important benefits to this Opportunity Zone Area with potential job creation, stem related industry, improving the local economy, and strengthening their local community.

Sincerely,

A handwritten signature in black ink, appearing to read "Tim Melson", written in a cursive style.

Senator Tim Melson

Letter of Support 3



ALABAMA STATE SENATE

ALABAMA STATE HOUSE
11 SOUTH UNION STREET, 7TH FLOOR
MONTGOMERY, ALABAMA 36130-4600

J.T. "JABO" WAGGONER
STATE SENATOR 16TH DISTRICT
P.O. BOX 660609
VESTAVIA HILLS, ALABAMA 35266-0609
PHONE: 334-261-0892

December 16, 2022

COMMITTEES:
CHAIRMAN, RULES
VICE CHAIR, CONFIRMATIONS
FINANCE & TAXATION EDUCATION
FINANCE & TAXATION GENERAL FUND
BANKING & INSURANCE

Alabama Medical Cannabis Commission
Attn: Mr. John McMillan
P.O. Box 309585
Montgomery, Alabama 36130

Re: Support of Organic Harvest Lab, LLC for Alabama Medical Cannabis Processing

Dear John,

I am writing this letter regarding the Darren Wesley "Ato" Hall Compassion Act signed into law on May 17, 2021, by Governor Kay Ivey, which permits the use of medical cannabis to treat certain medical conditions including Crohn's disease, depression, epilepsy, HIV/AIDS, panic disorder, Parkinson's disease, persistent nausea, post-traumatic stress disorder, chronic or intractable pain, among others in the State of Alabama.

I strongly support and recommend Organic Harvest Lab, LLC for the Processing and Manufacturing of Medical Cannabis in the State of Alabama. The company is owned and operated by known leaders within the State of Alabama and local communities as innovators with a successful track record of research and development with state-of-the-art technology, equipment, and facilities. Their contributions to our state with numerous awards and accolades show an outstanding commitment and excellence within the great State of Alabama and will serve our communities well. Their professionalism, character, and integrity in the community are outstanding and an example of servant leaders.

The location of the processing facility of the company is located within the Bessemer Opportunity Zone that was nominated by Gov. Kay Ivey and certified in 2018 by the Alabama Department of Economic and Community Affairs. Organic Harvest Lab as a Processor of Medical Cannabis will provide important benefits to this Opportunity Zone Area with potential job creation, stem related industry, improving the local economy, and strengthening their local community.

Sincerely,

Senator J. T. "Jabo" Waggoner

JTW/dg

REDACTION INDEX

Ala Code § 36-12-40 (Security Exemption) – The verifying signature has been redacted pursuant to the “security or safety of persons” exemption contained in the Alabama Public Records statute. Signatures, if left unredacted, may be forged and used for innumerable illicit purposes.

Ala Code § 8-27-1 (Trade Secrets)/Ala. Code § 8-1-191 (Protectable Interests) – This exhibit contains confidential information including, but not limited to, management and marketing plans, business strategy and methodology, business models and data, and company provided files and software. As such, certain portions of this exhibit have been designated as “Protectable Interests” exempt from disclosure. Further, this exhibit contains information that is used or intended for use in a trade or business, included or embodied in a formula, pattern, compilation, computer software, drawing, device, method, technique, or process, and is not publicly known or generally known in the trade or business. The information contained in this exhibit cannot be readily ascertained or derived from publicly available information and has significant economic value to the applicant. As such, certain portions of this exhibit have been designated as “Trade Secrets” exempt from disclosure.

Protectable Interests and Trade Secrets are redacted as the disclosure to any third party would give an unfair advantage to competitors and would result in the loss of rights and cause harm to the owner of this information. In the normal course of business, the owner of this information requires all individuals who view such information to be bound by confidentiality agreements and access to any of this material is extremely limited and on a need-to-know basis only. The owner of this information will take all steps to enforce such confidentiality agreements and will ensure that employees surrender such information upon termination of employment. If such information is disclosed, competitors of the owner of this information in Alabama and in other states will take such information to better compete against the owner of this information in the regulated commercial market.

Furthermore, the applicant believes the identified information to be confidential and if disclosed would give advantage to competitors because the material is related to the applicant’s planning, site location, expansion, operations, product development and marketing. Because this information can be used to recruit appropriate personnel, locate a site, finance and undertake the operation and go to market, the disclosure of this information would allow new competitors to enter the market to compete against the Company. In addition, the disclosure of this information would also allow existing competitors to potentially optimize the manufacture of their products and/or create similar products to the applicant causing grave economic harm to the owners of this information.

Finally, the applicant claims the marked material marked is exempt from disclosure as the mere formulation of the words and descriptions of processes could prove successful in competitive, multi-million-dollar merit-based medical marijuana application processes similar to Alabama. Permitting any of this marked application language to be publicly released would substantially reduce the intrinsic value of the applicant’s business – allowing anyone in the public to appropriate the processes, methods, and standard operating procedures that the applicant employs or will employ.

Application Number 1632
Exhibit 9 - Business Plan

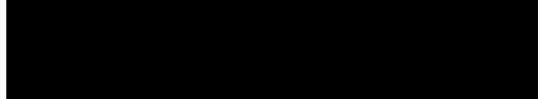
Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

Jason Cobb

Printed Name of Verifying Individual

Ala Code § 36-12-40 (Security Exemption)



Signature of verifying individual

CEO

Title of Verifying Individual


12/30/2022

Verification Date

9.1 Business Structure and Plan for Adherence to Applicable Corporate Conventions

Ownership Summary

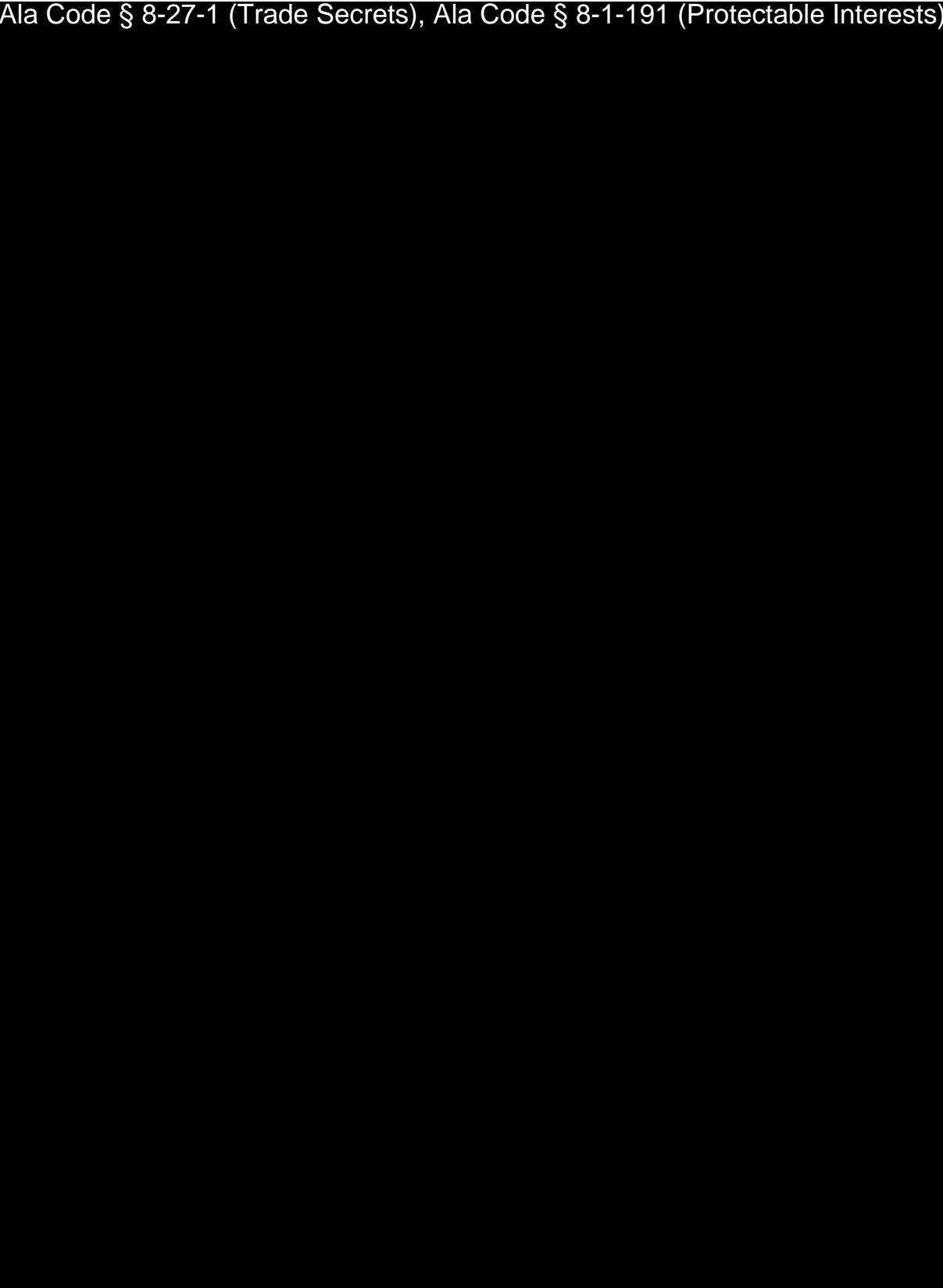
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)




Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



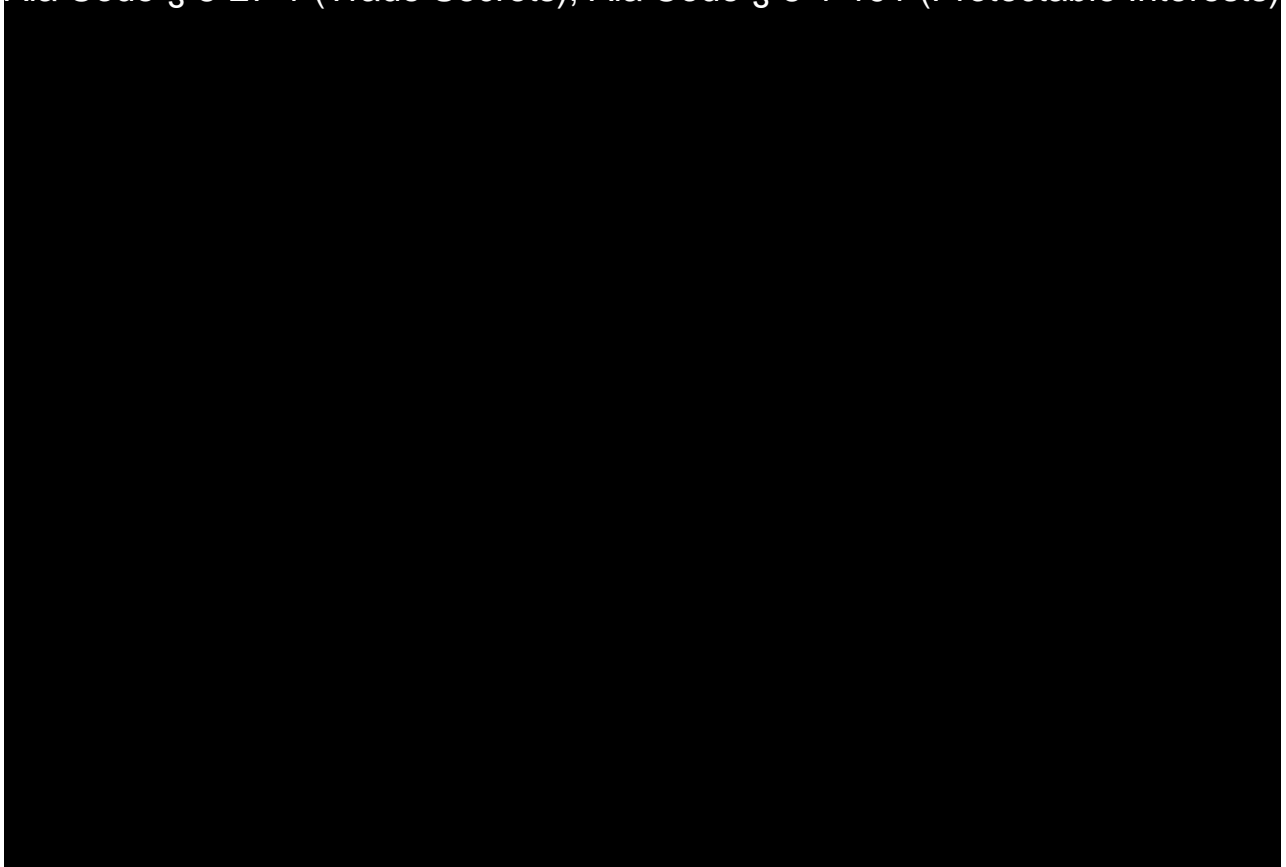
License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)




Registration of Business

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Operating Agreement

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



9.2 - Clearly defined business goals, including a 3-year and a 5-year plan.

Business Goals

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Three-Year Plan

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)




Five-Year Plan

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



9.3 Organization Chart

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

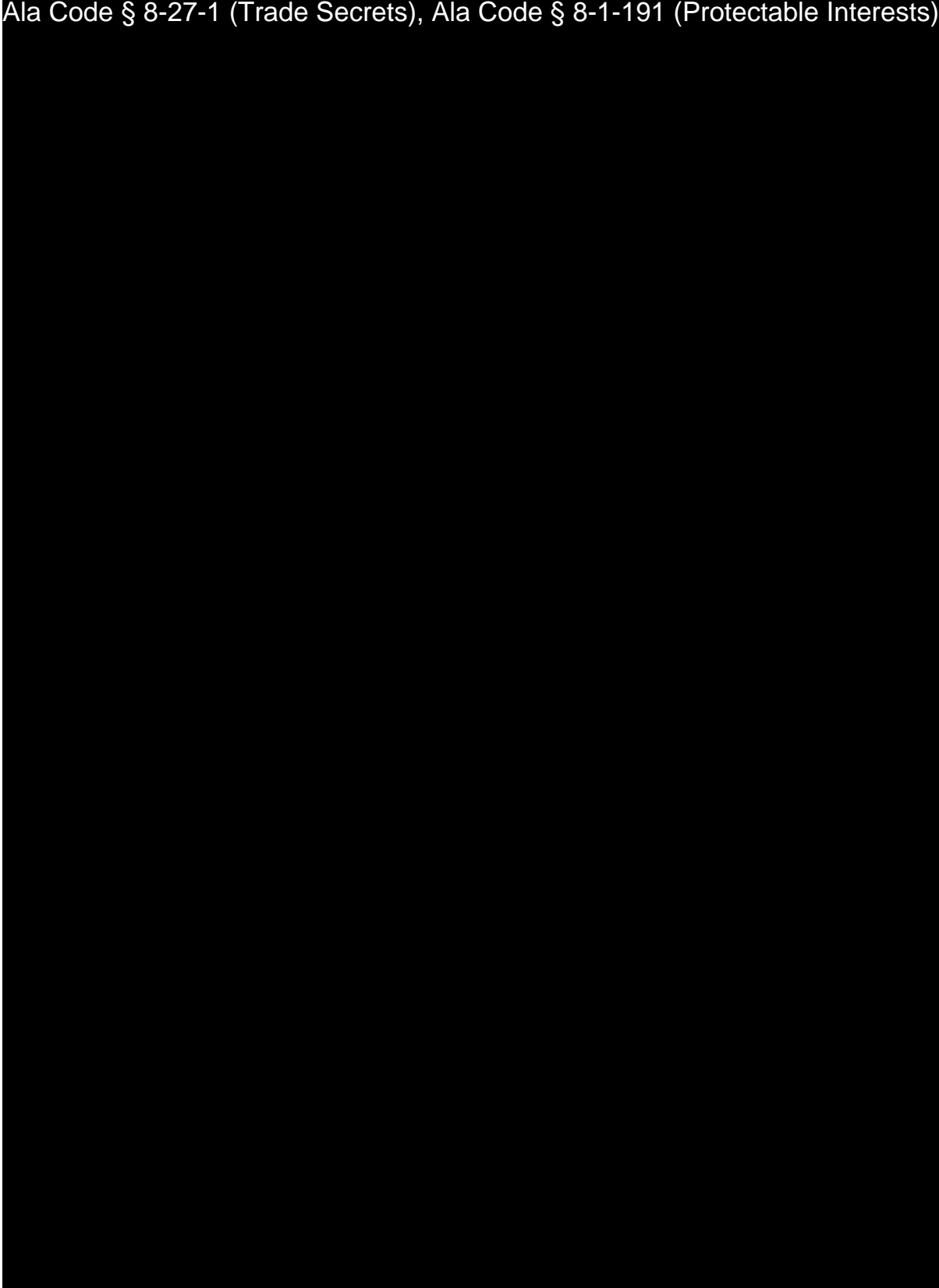


9.4 Managerial Job Descriptions

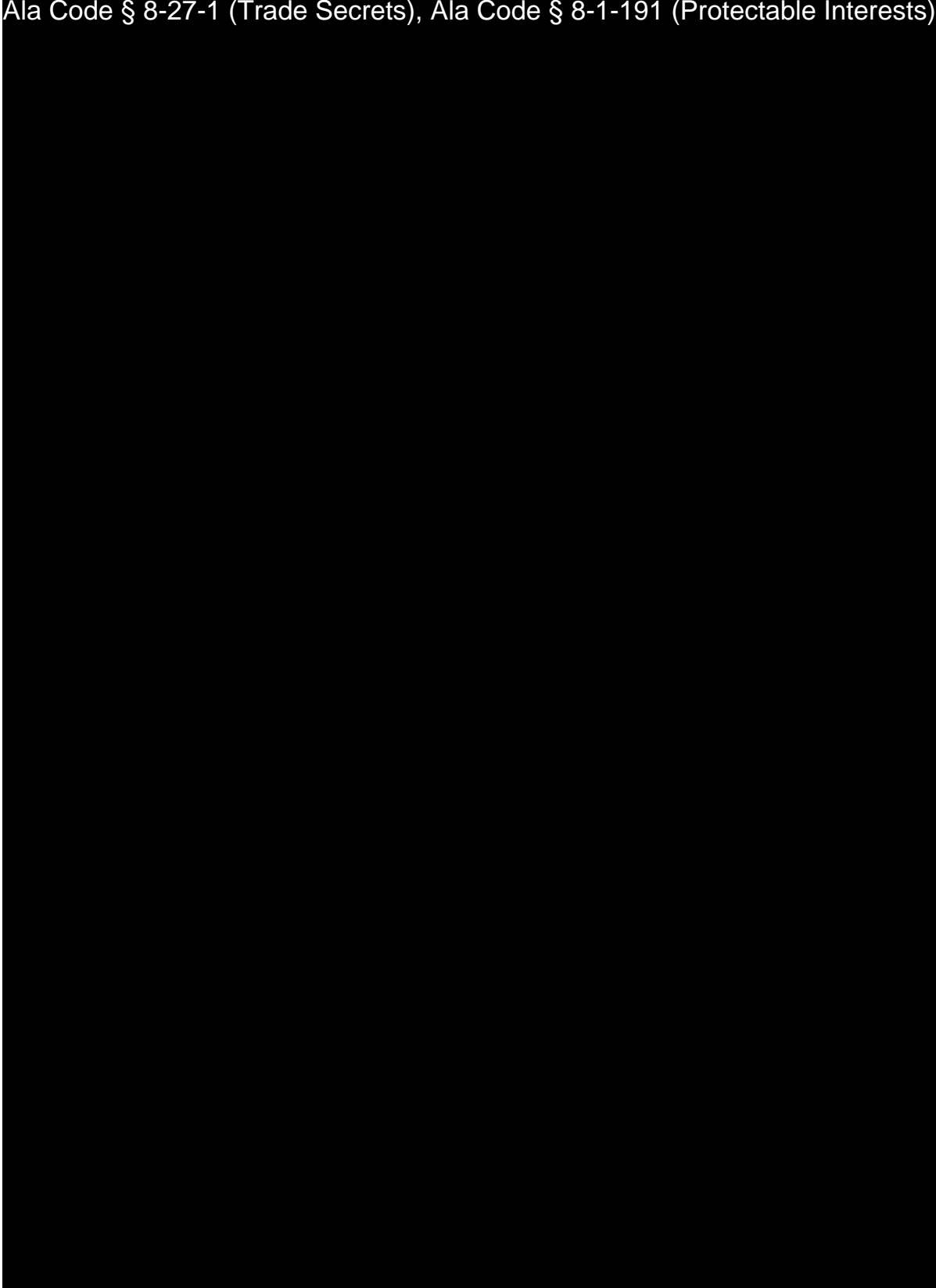
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



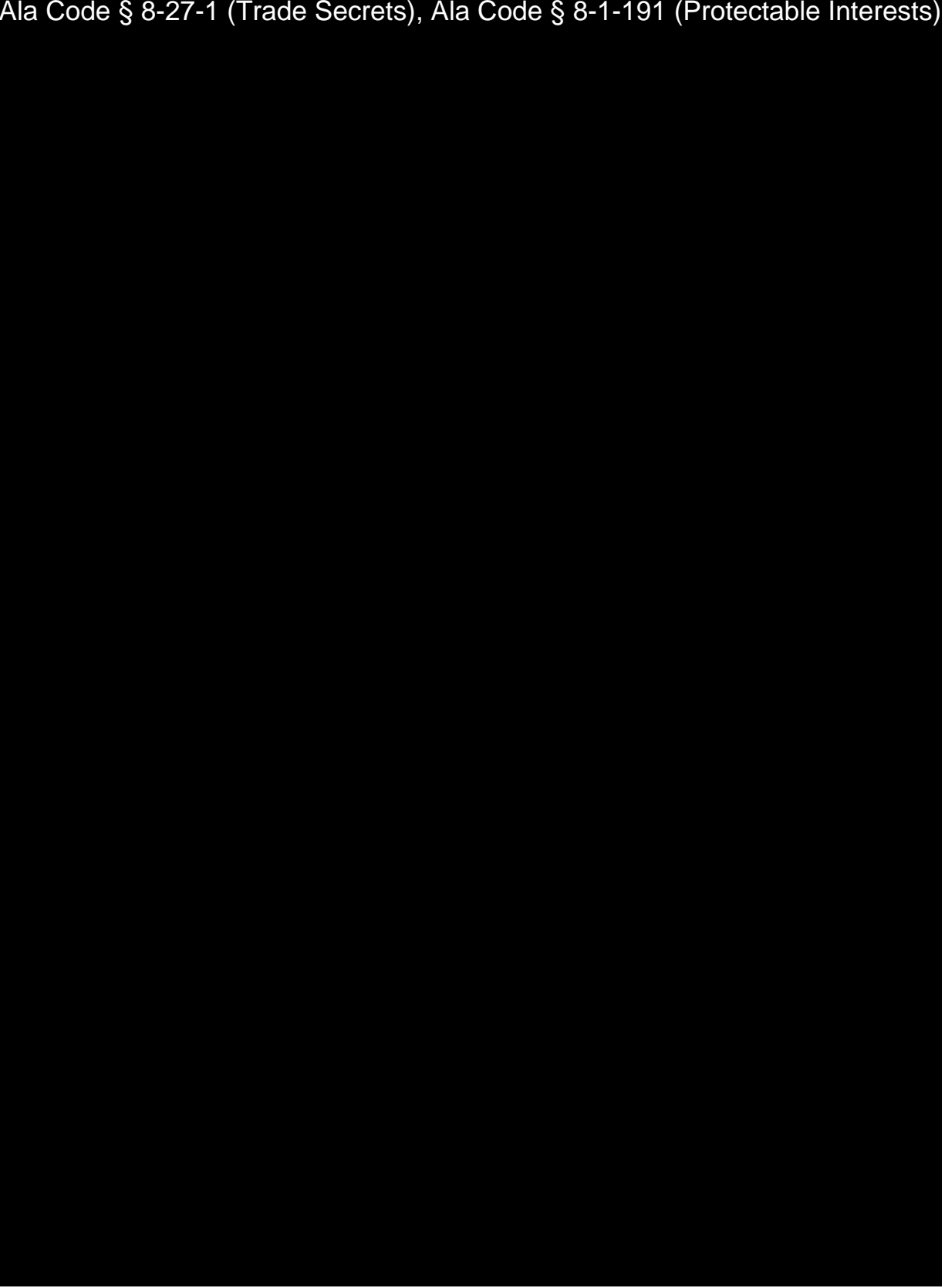
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



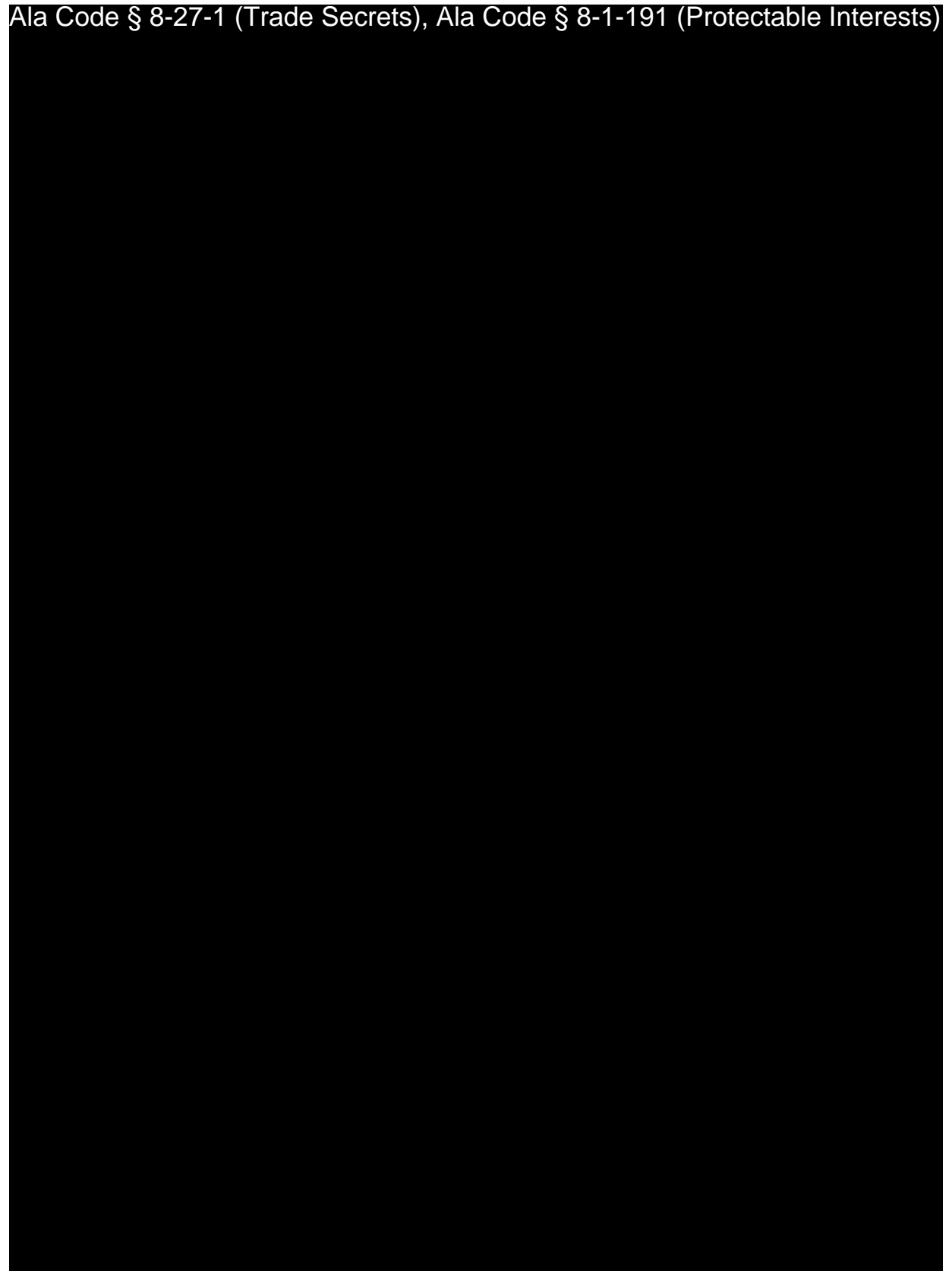
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

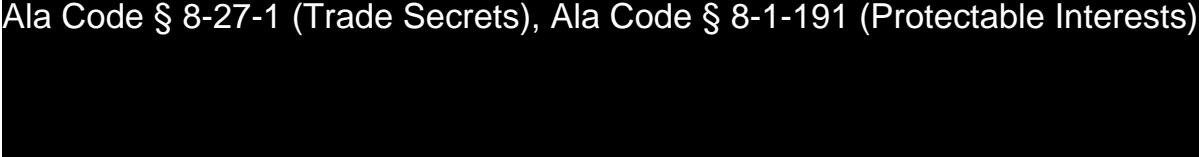


9.5 Non-Managerial Job Descriptions

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

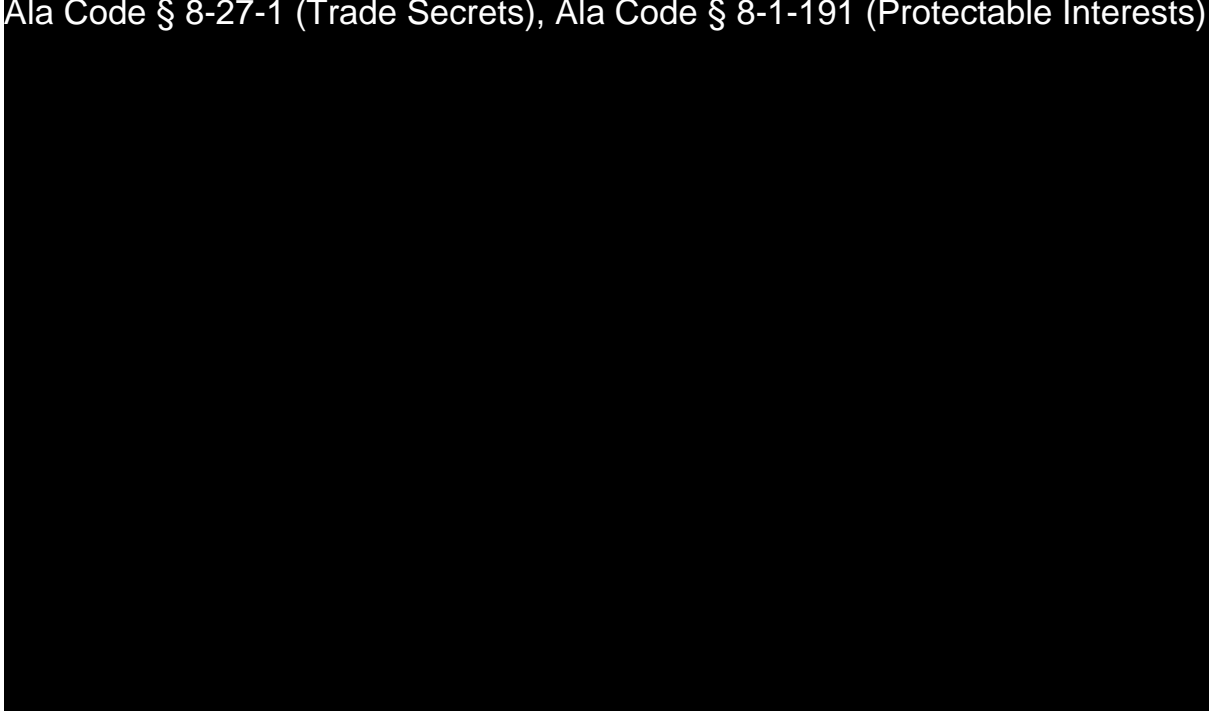


9.6 Executive Summary

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



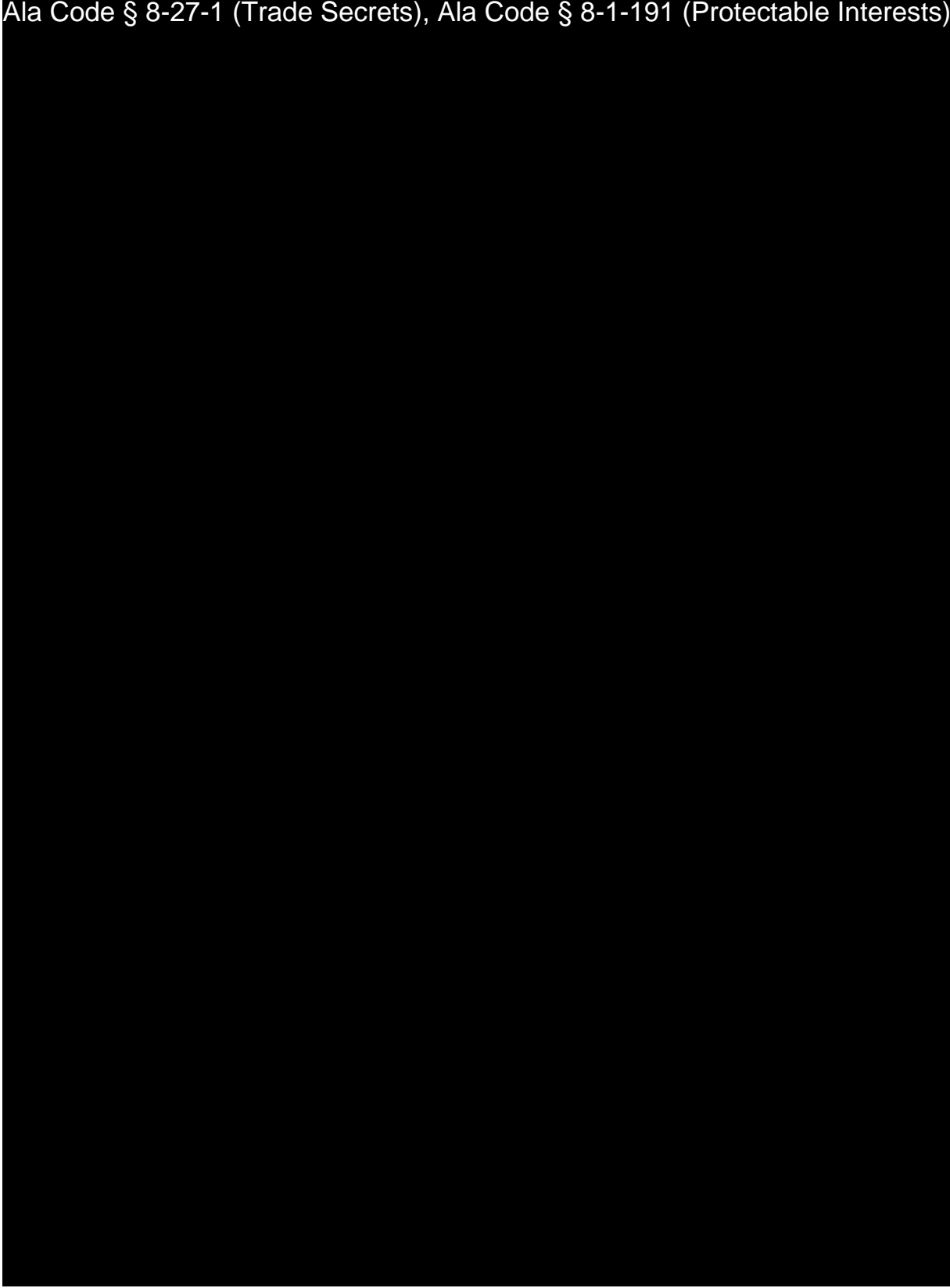
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



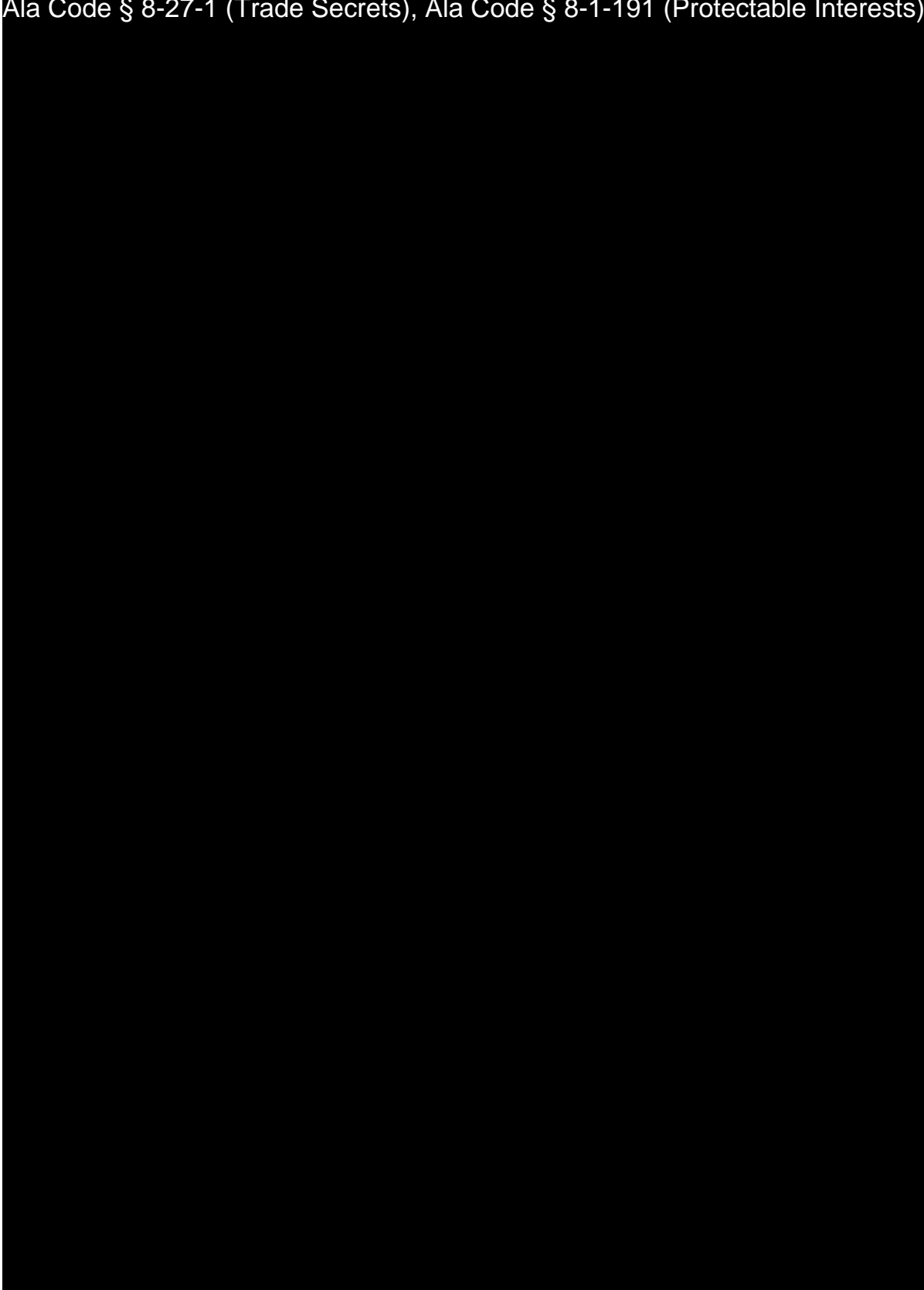
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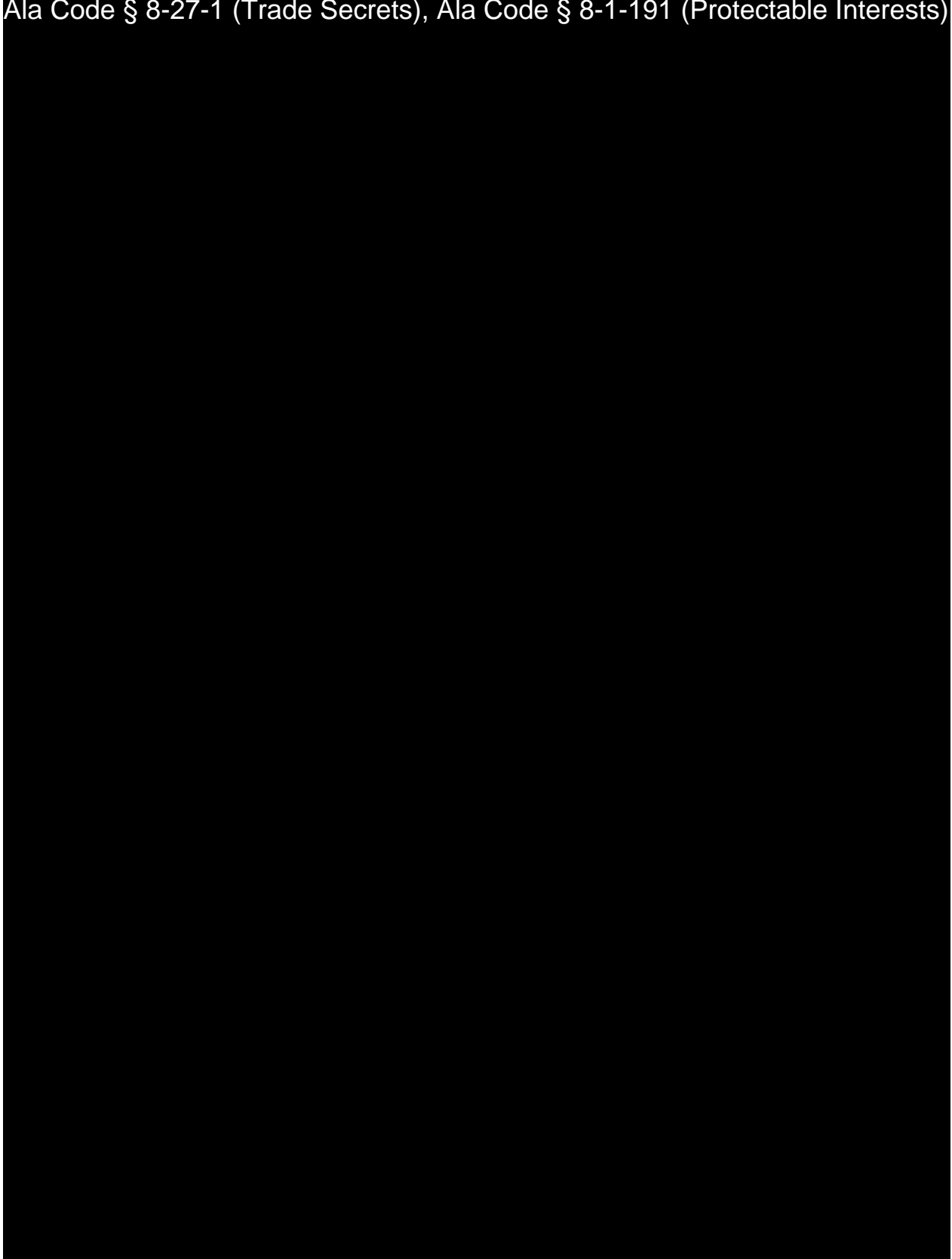
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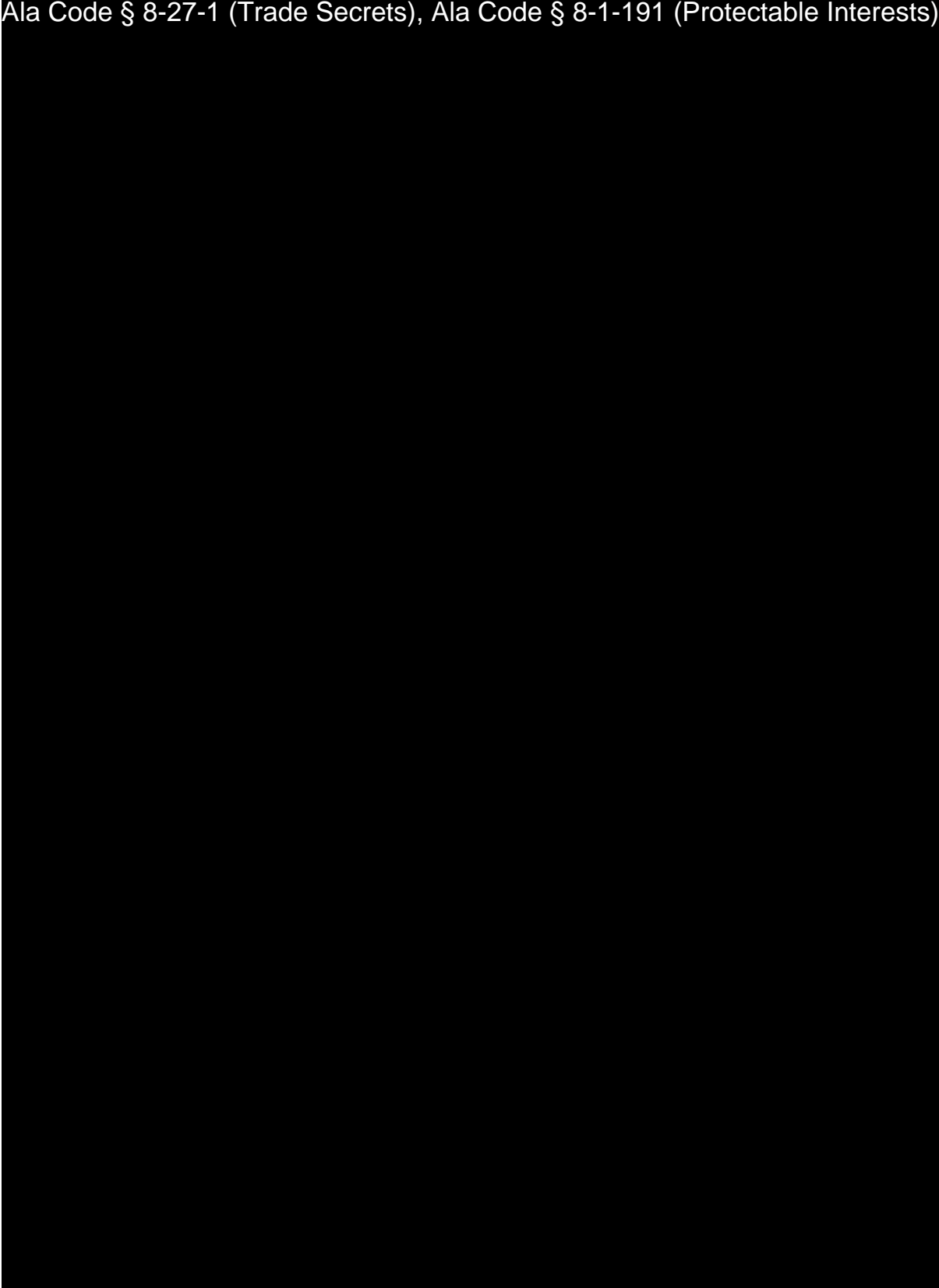
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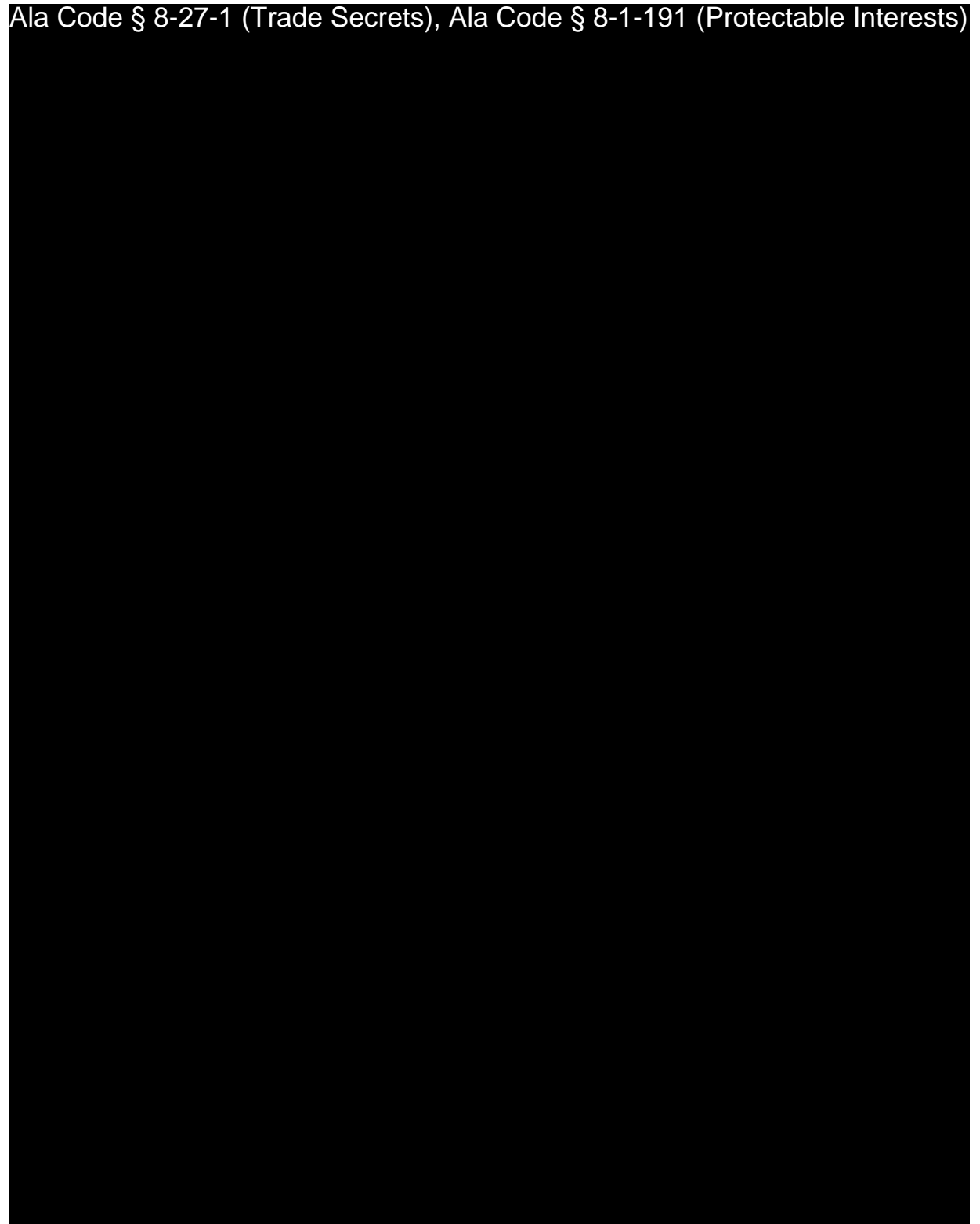
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



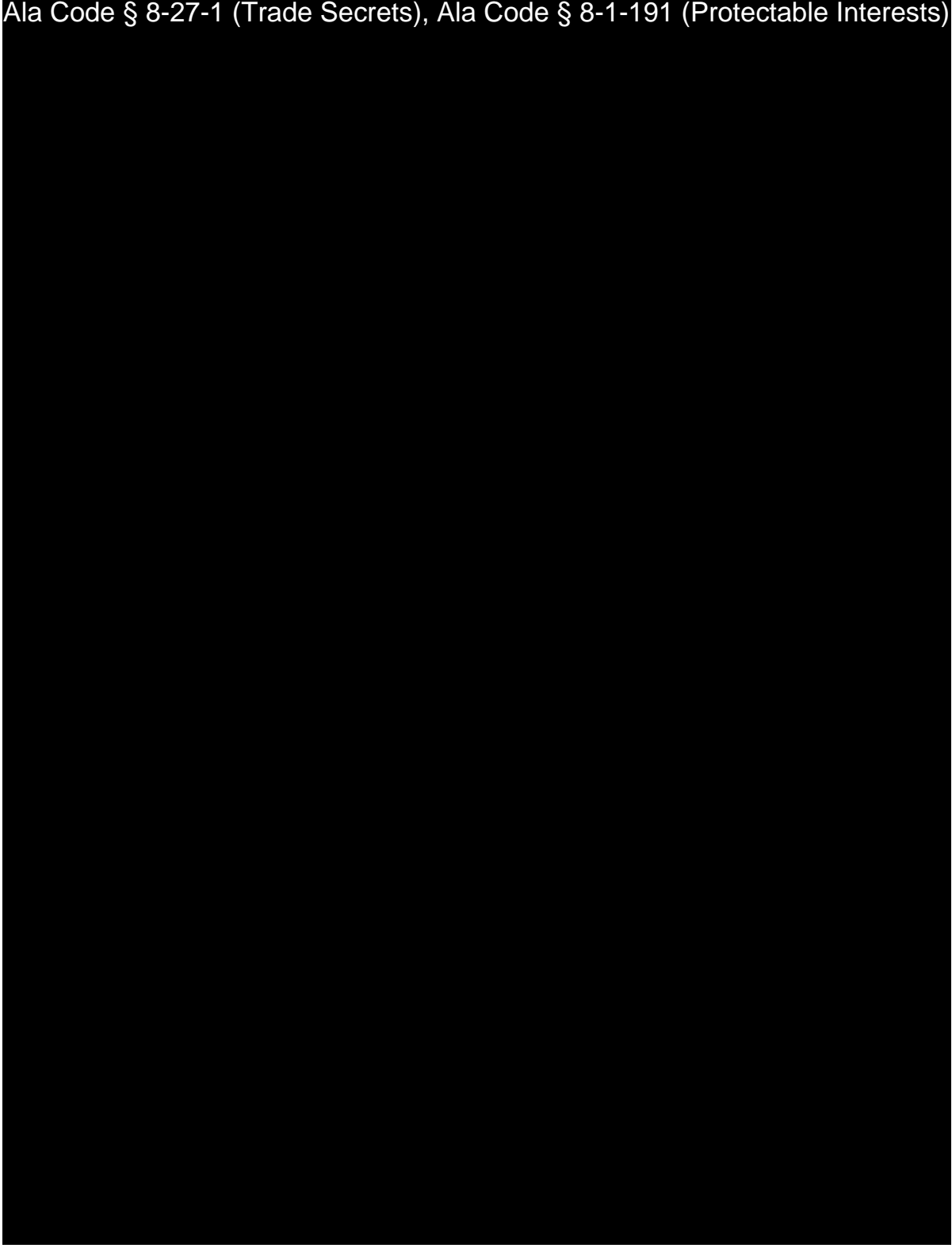
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

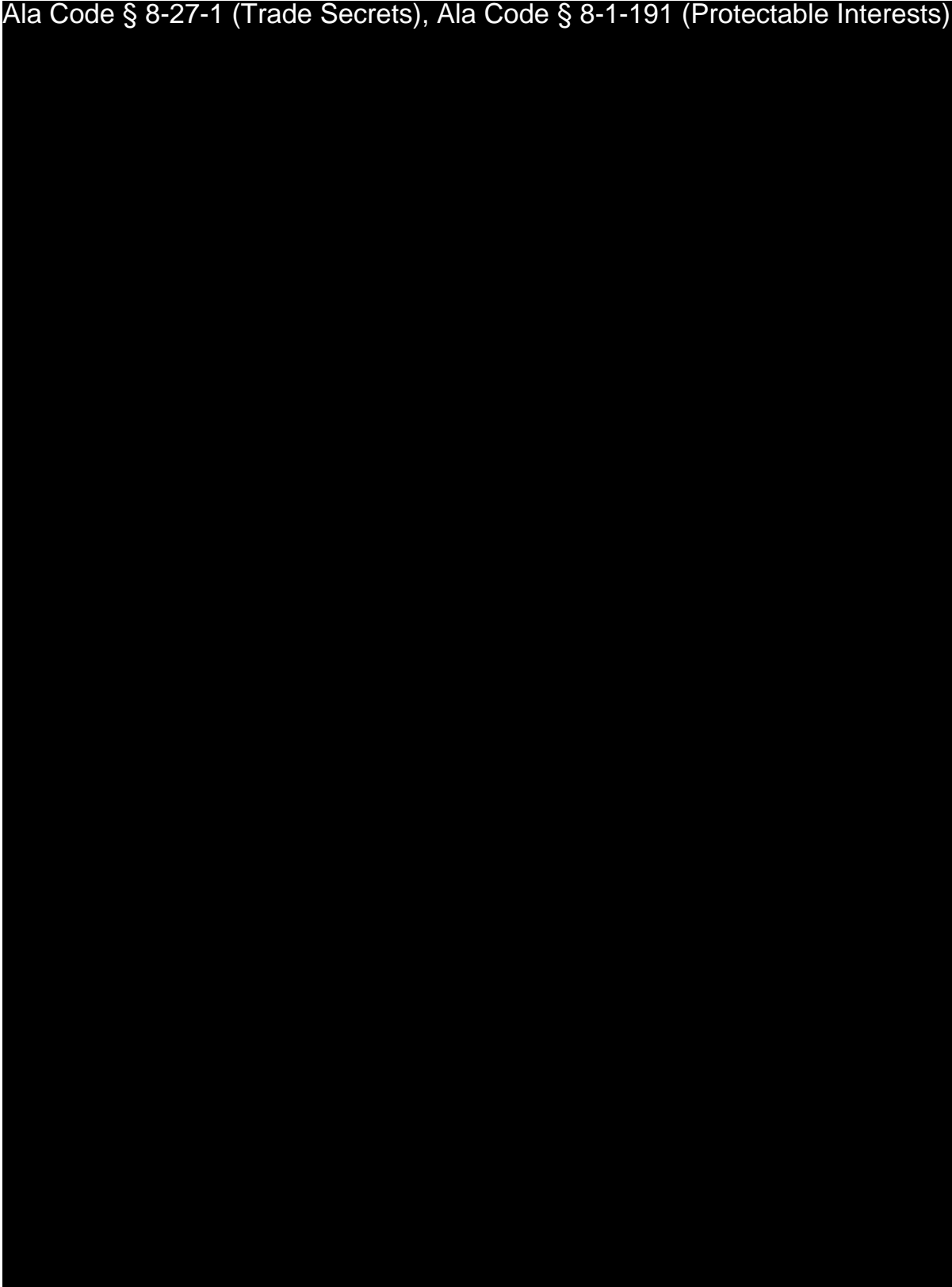


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

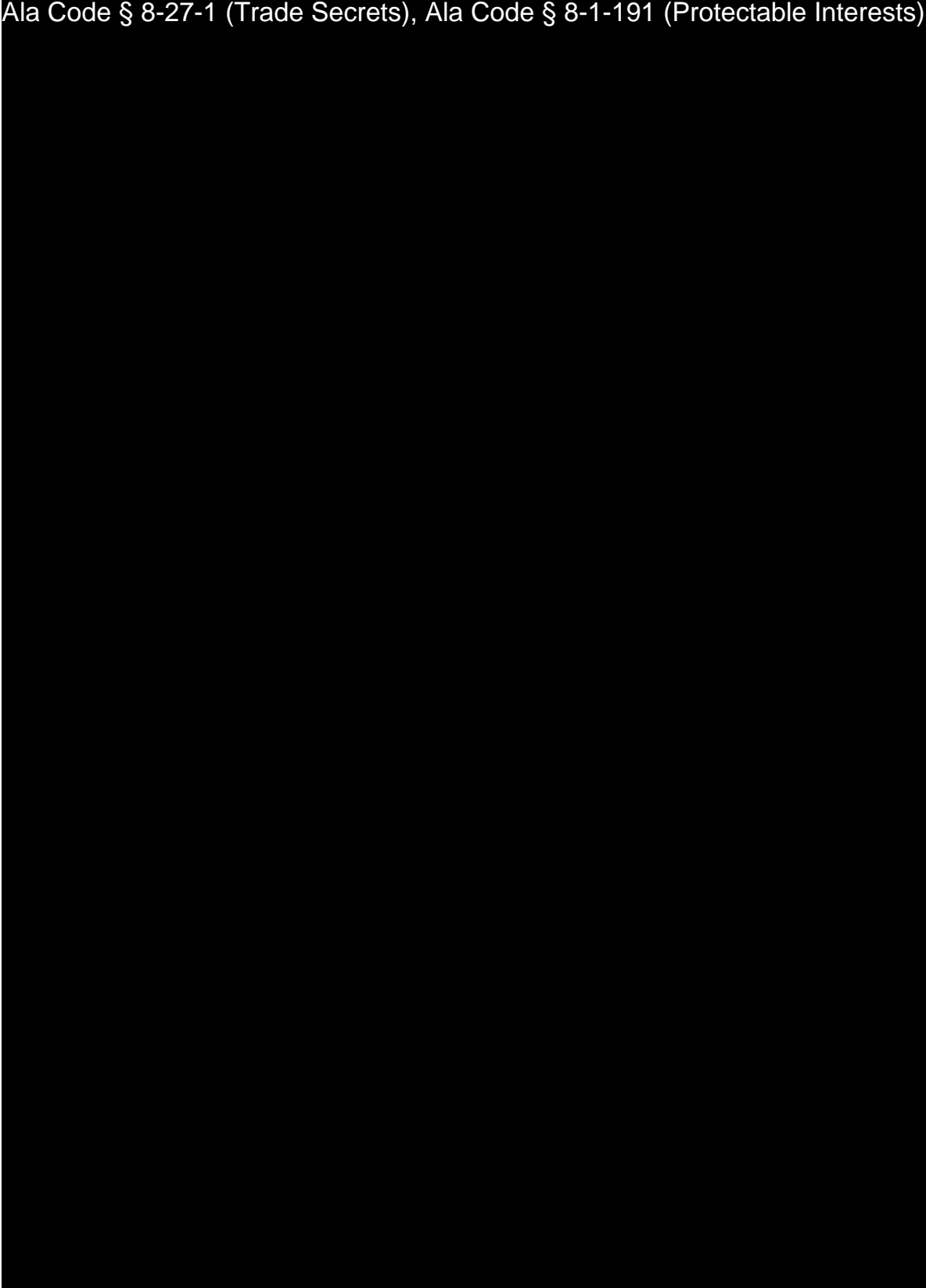


9.8 – An Advertising/Marketing Analysis and Strategy

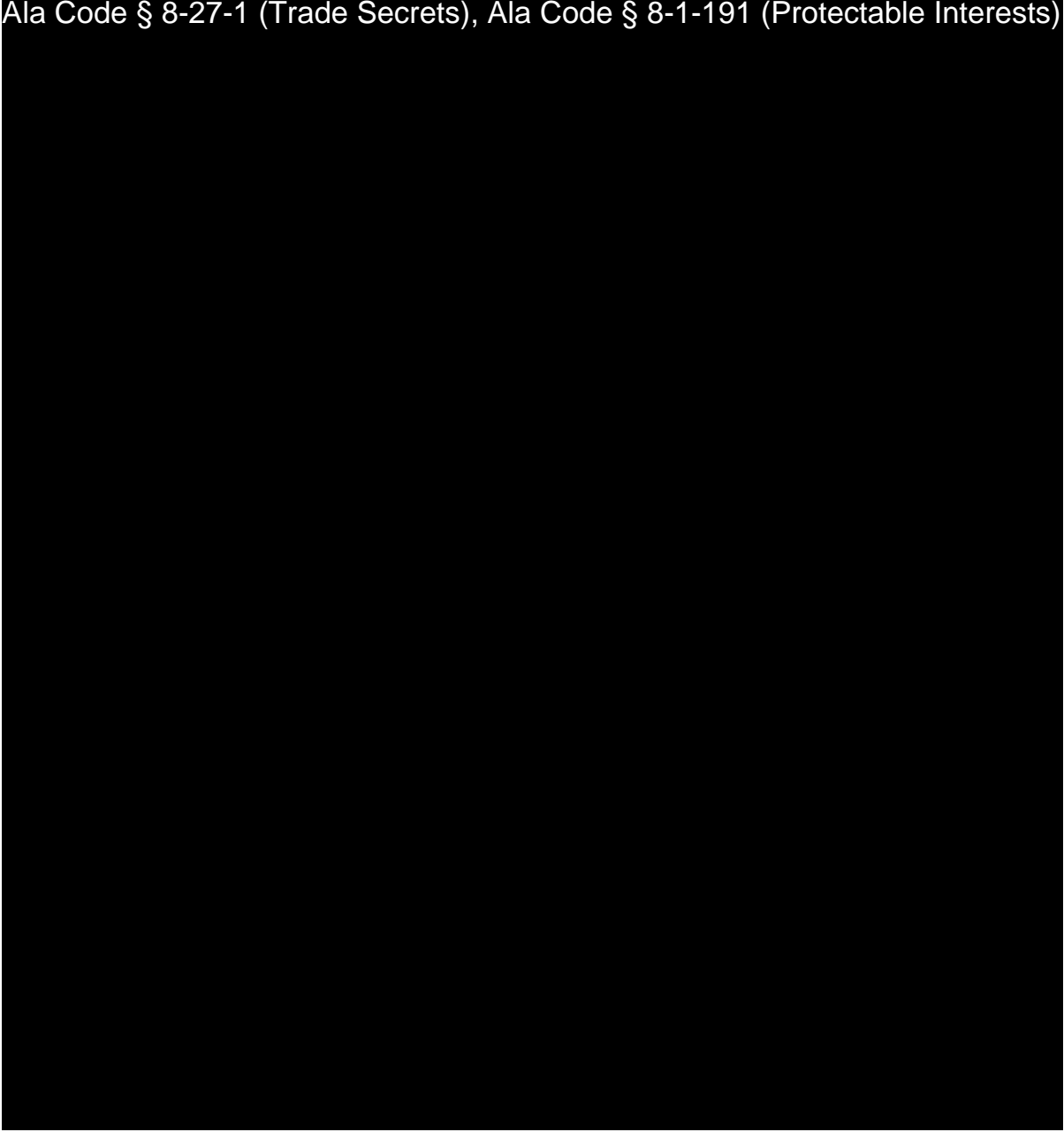
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

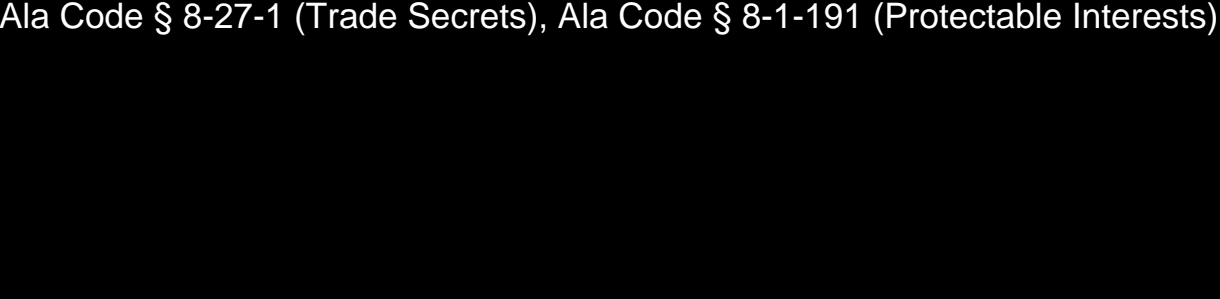


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

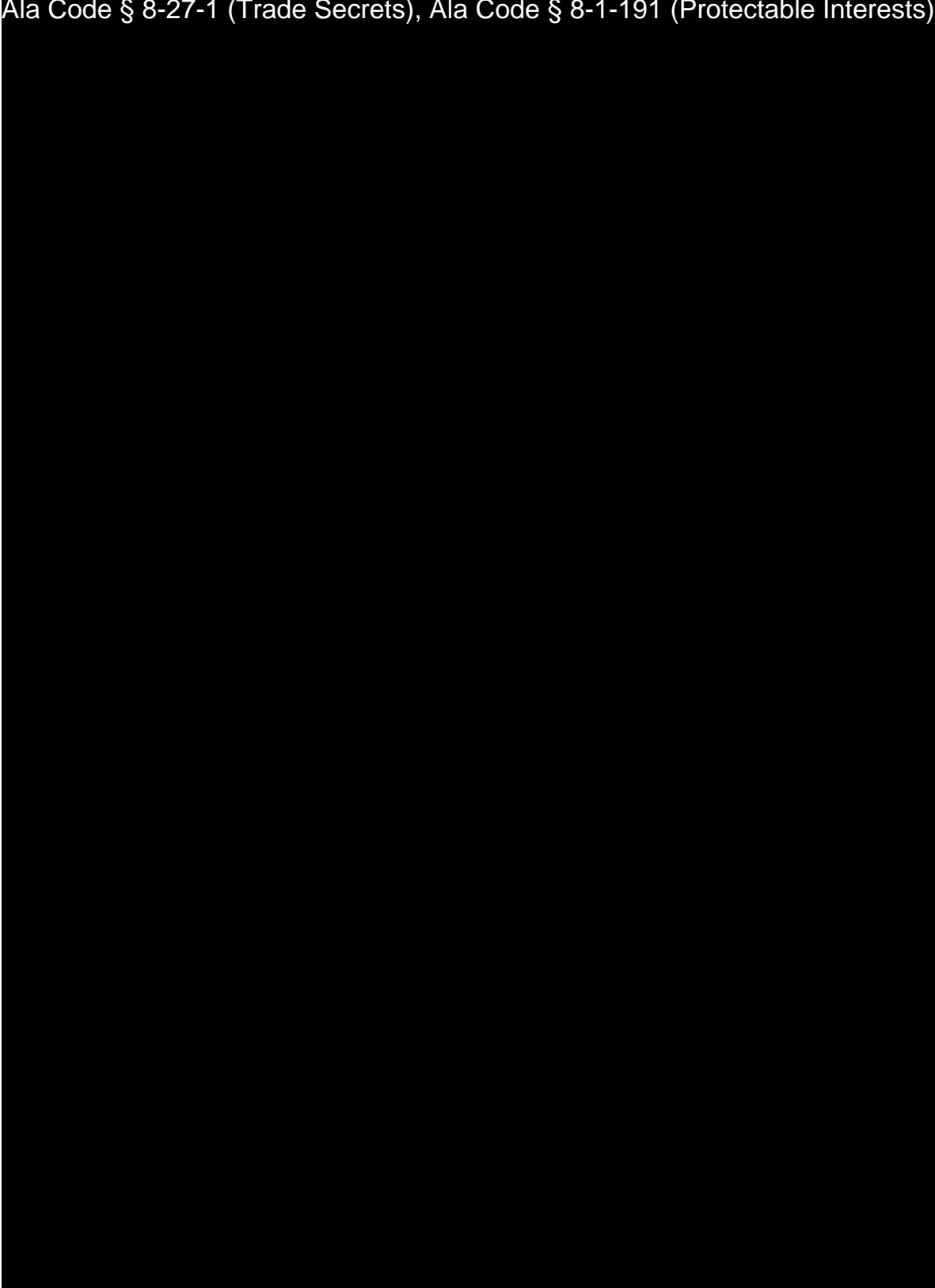


9.9 Community Engagement Plan

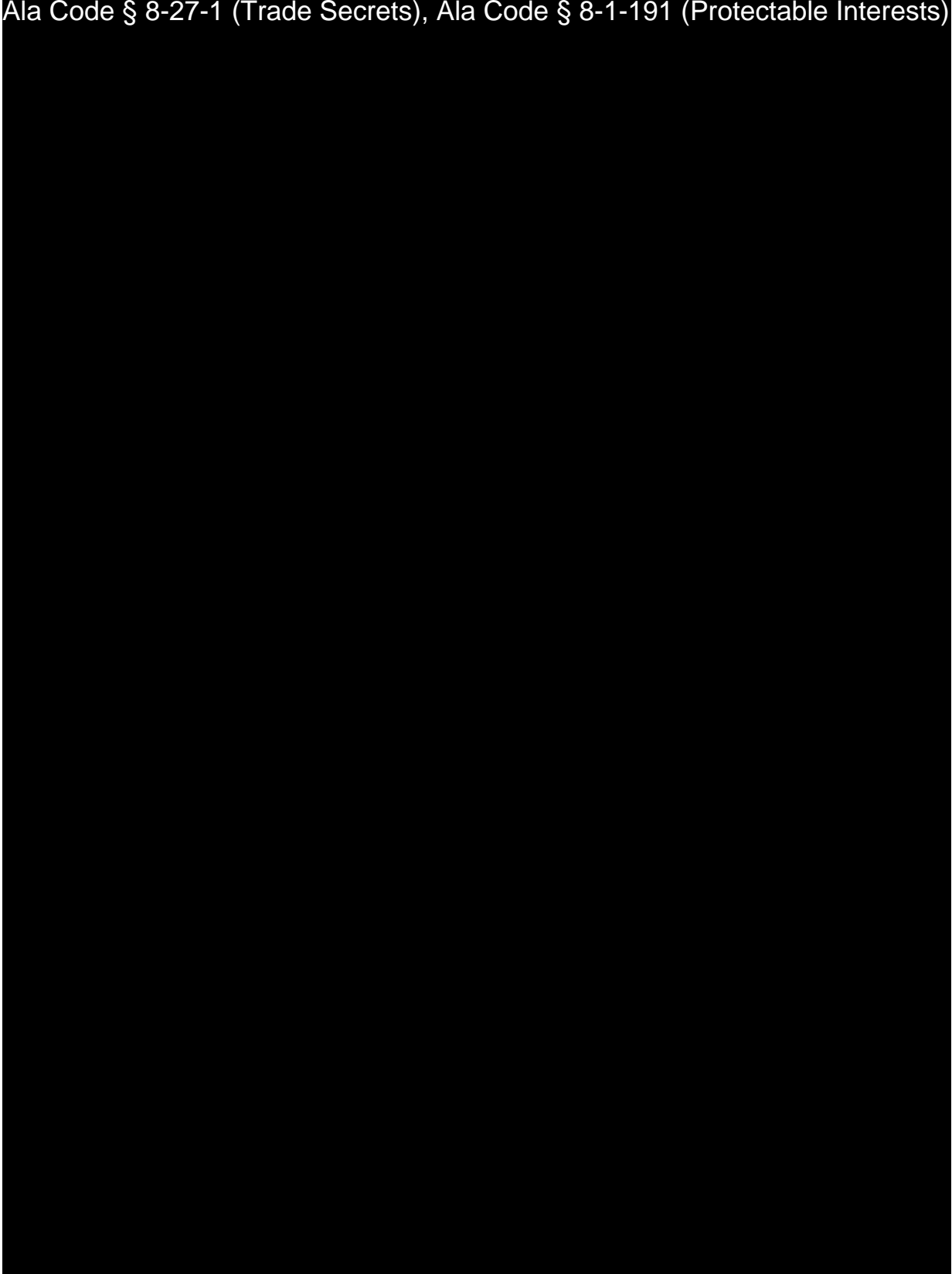
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



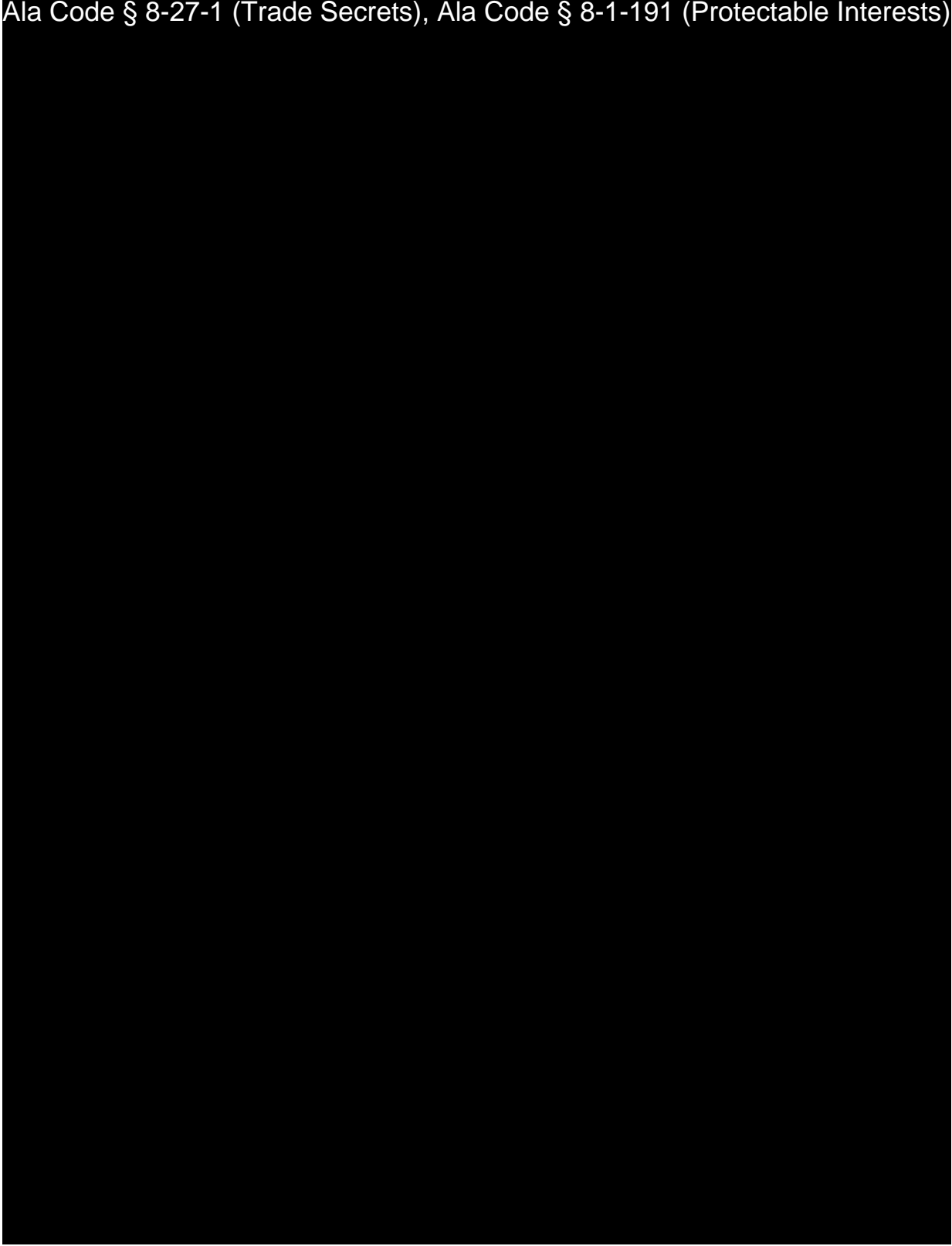
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



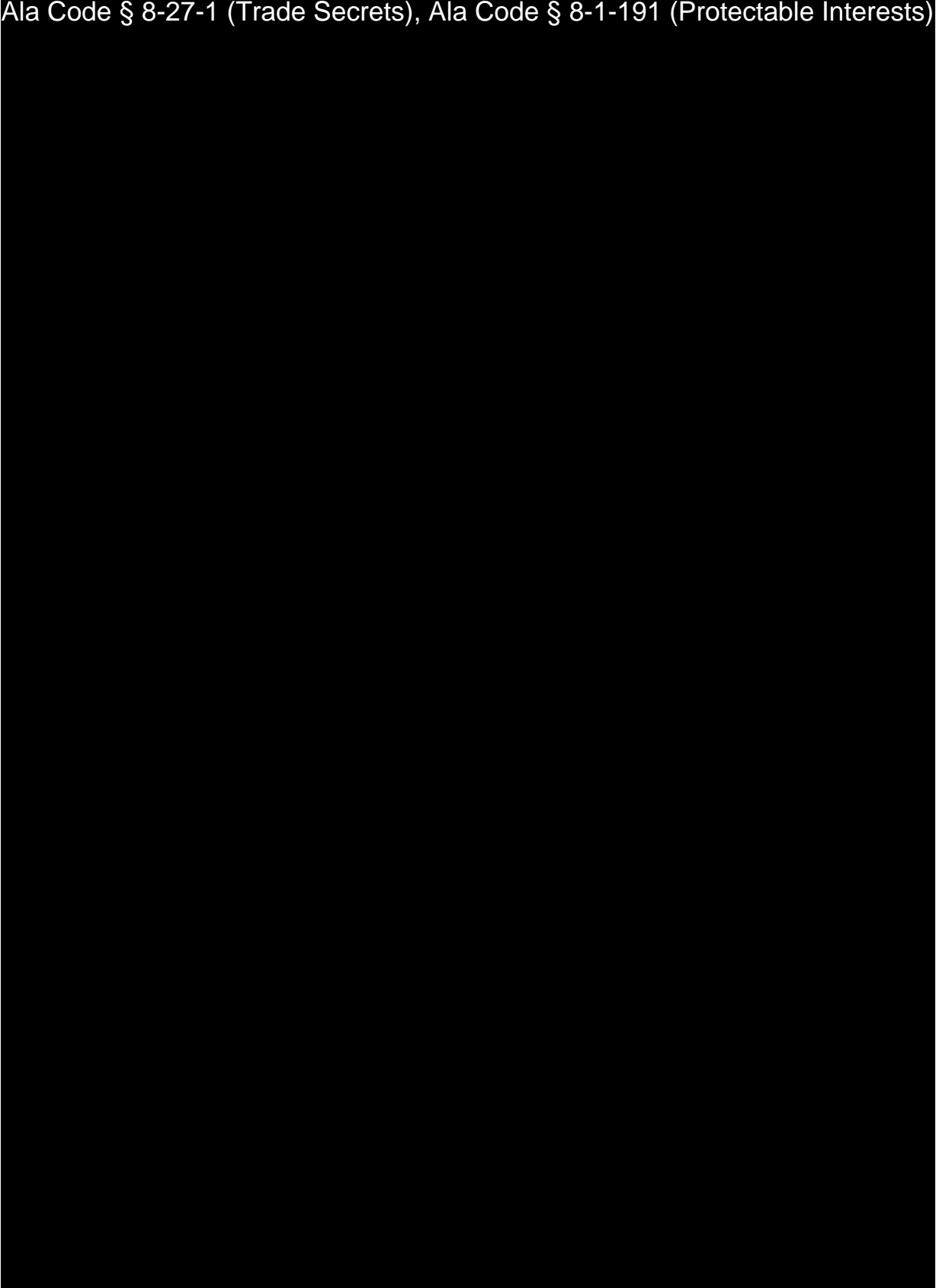
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



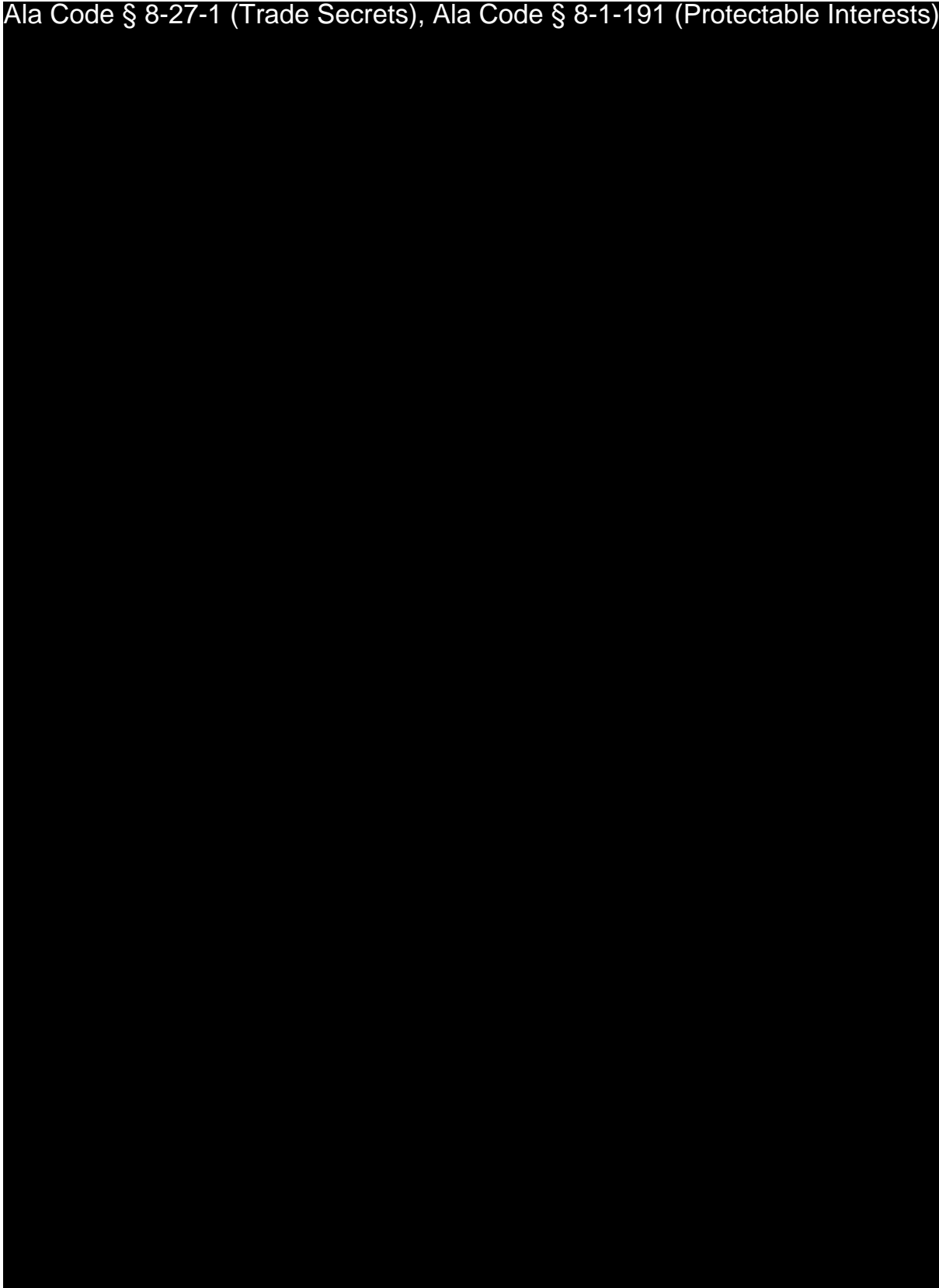
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)




Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

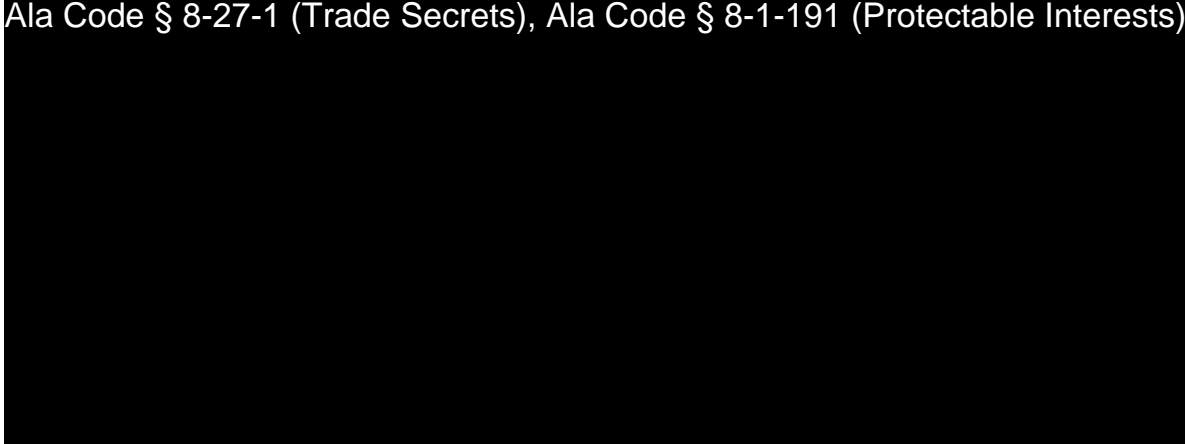


9.11 Insurance Plan

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Quote from Pritchett-Moore Insurance, Inc.



Pritchett-Moore Insurance, Inc.

To: Alabama Medical Cannabis Commission

Re: Organic Harvest Lab, LLC – Proposal for Insurance Coverage

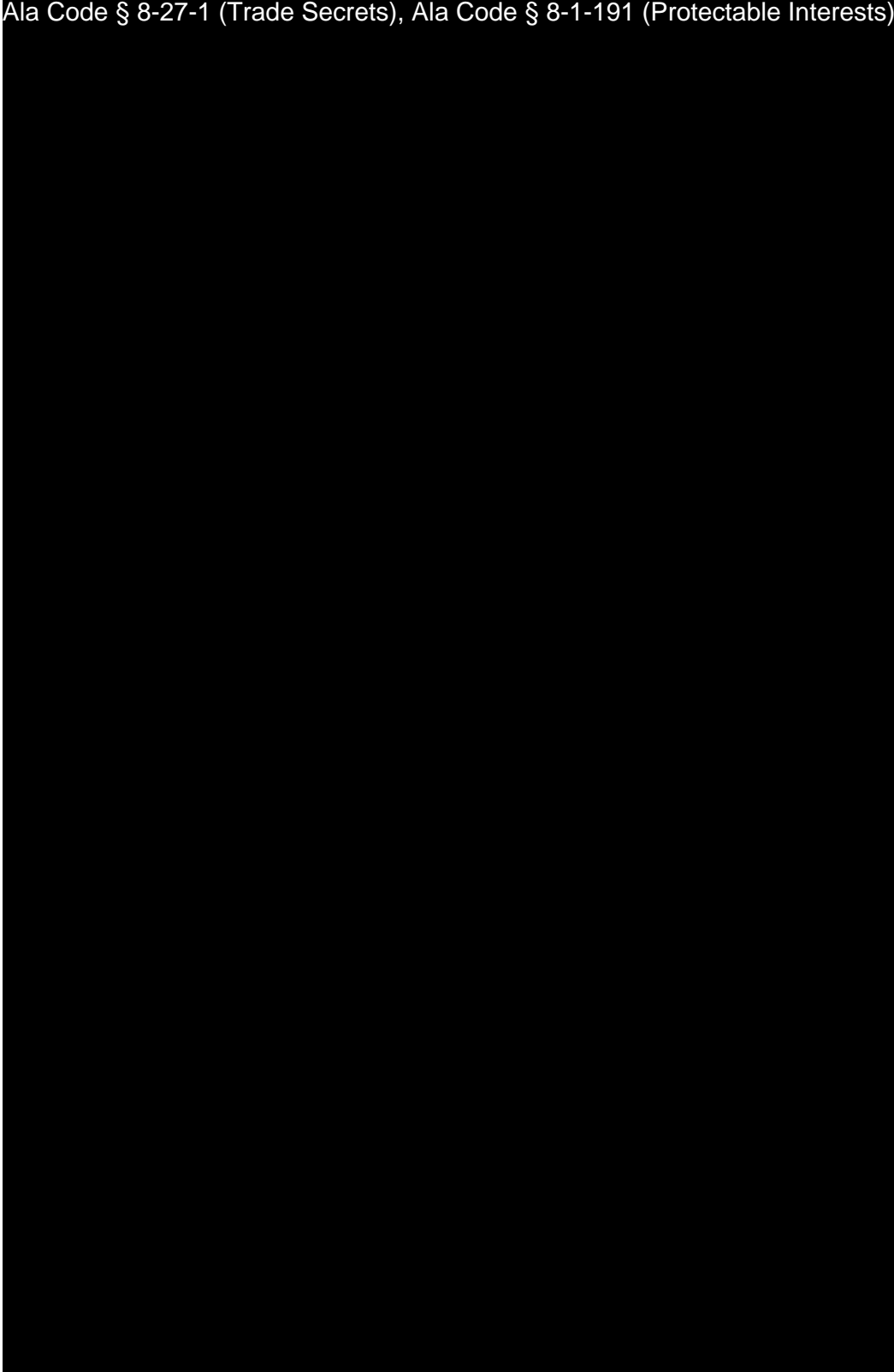
Please find enclosed a comprehensive insurance program designed for Organic Harvest Lab LLC. The proposed lines of coverage will allow Organic Harvest Lab LLC to transfer the majority of their risk to various A-rated Insurance Companies, most of them specifically created to serve the commercial insurance Cannabis market. The carriers have concluded the underwriting on each quote. The quotes are all bindable with an effective date to be determined, should Organic Harvest Lab LLC be awarded a license by the Alabama Medical Cannabis Commission.

Additional limits of liability are available if the Commission produces more specific insurance requirements.

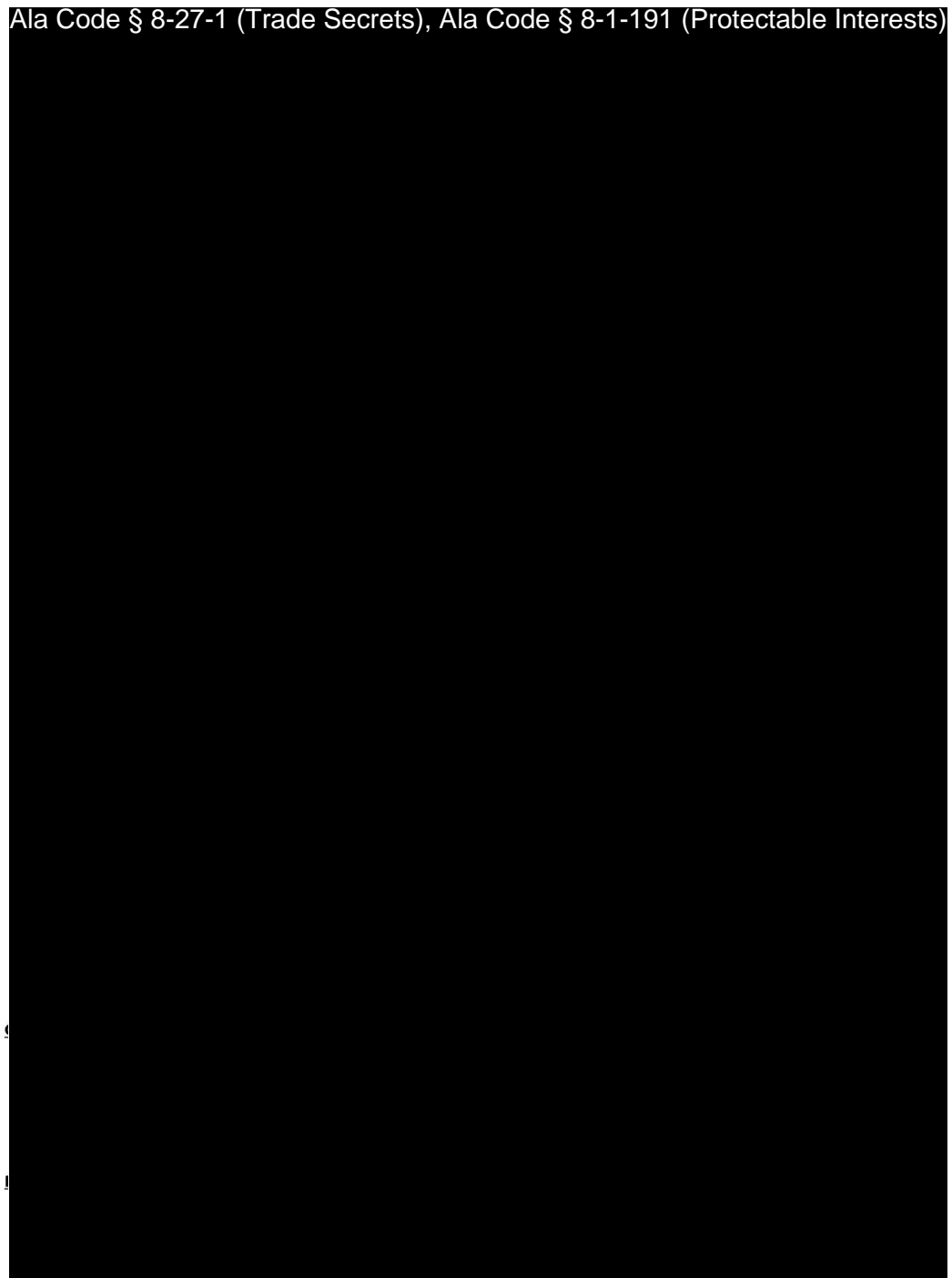
Regards,

Brandon LaBresh, CIC CPIA
Vice President – Agent
Pritchett-Moore Insurance Inc.

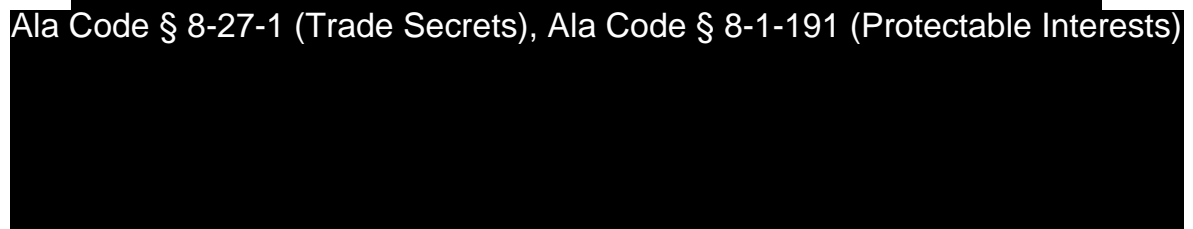
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



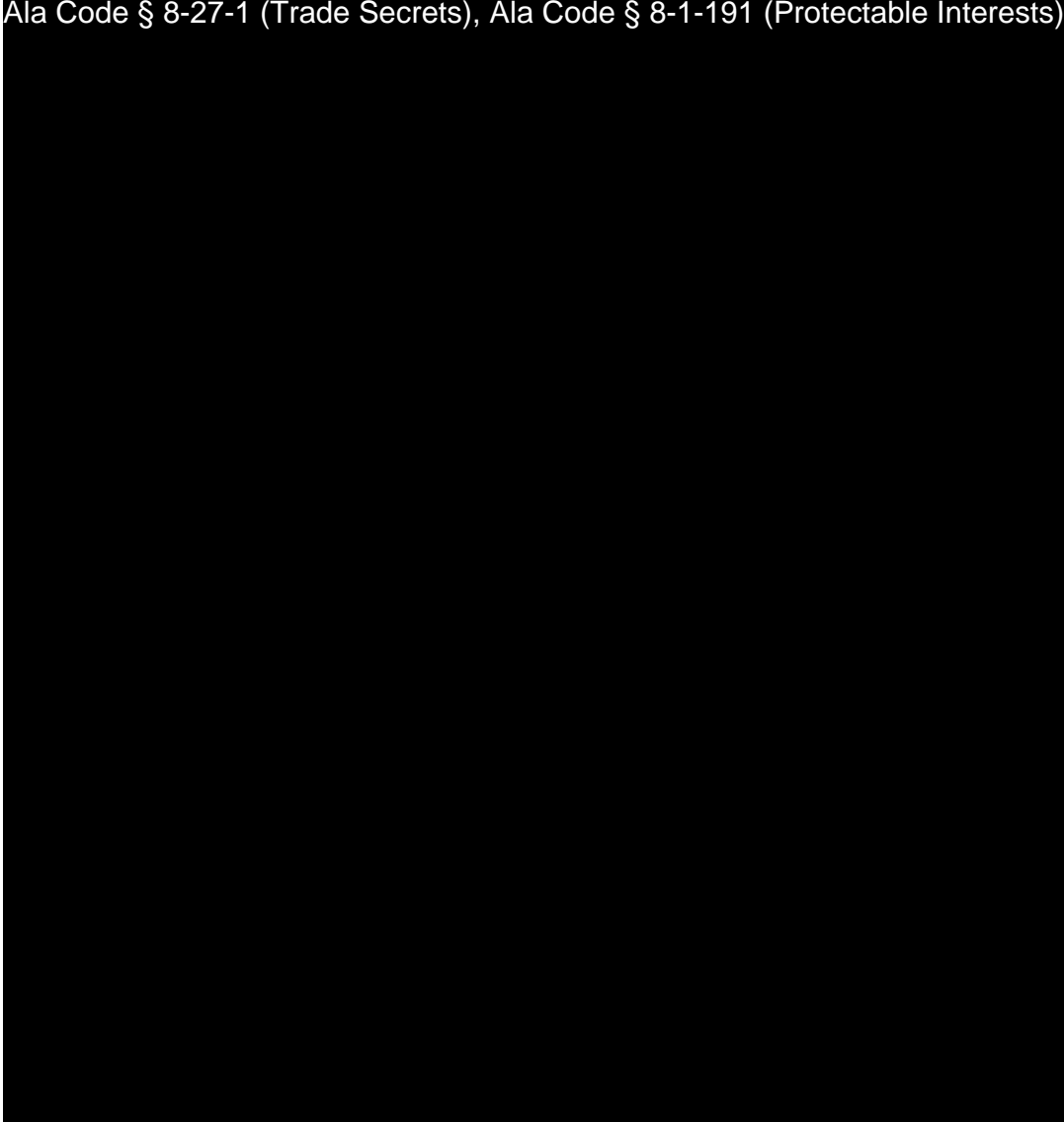
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

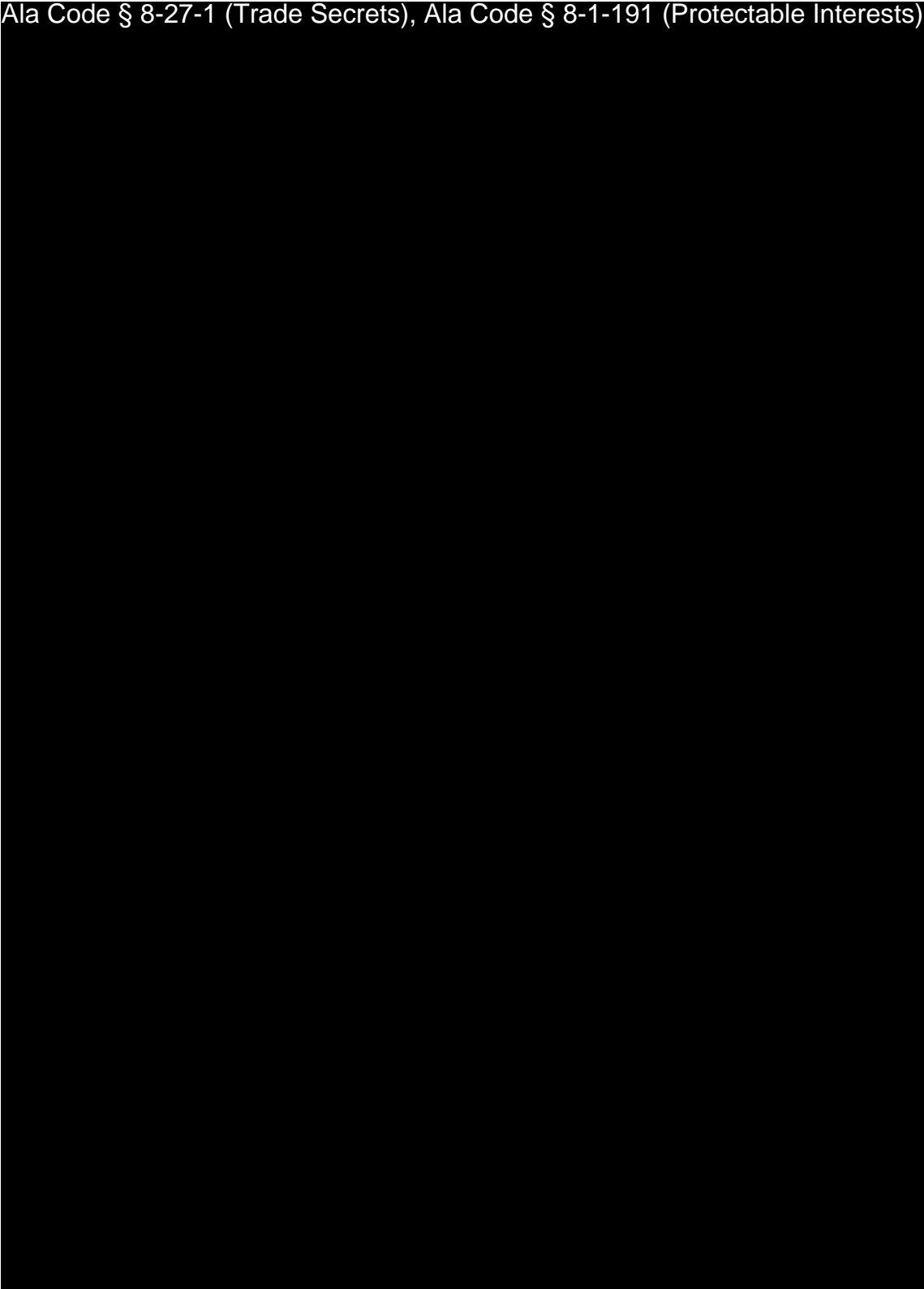


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Organizational Chart — Attachment to Exhibit 9, Section 9.3

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



REDACTION INDEX

Ala Code § 36-12-40 (Security Exemption) – The verifying signature has been redacted pursuant to the “security or safety of persons” exemption contained in the Alabama Public Records statute. Signatures, if left unredacted, may be forged and used for innumerable illicit purposes.

Ala Code § 8-27-1 (Trade Secrets)/Ala. Code § 8-1-191 (Protectable Interests) – This exhibit contains confidential information including, but not limited to, management and marketing plans, business strategy and methodology, business models and data, and company provided files and software. As such, certain portions of this exhibit have been designated as “Protectable Interests” exempt from disclosure. Further, this exhibit contains information that is used or intended for use in a trade or business, included or embodied in a formula, pattern, compilation, computer software, drawing, device, method, technique, or process, and is not publicly known or generally known in the trade or business. The information contained in this exhibit cannot be readily ascertained or derived from publicly available information and has significant economic value to the applicant. As such, certain portions of this exhibit have been designated as “Trade Secrets” exempt from disclosure.

Protectable Interests and Trade Secrets are redacted as the disclosure to any third party would give an unfair advantage to competitors and would result in the loss of rights and cause harm to the owner of this information. In the normal course of business, the owner of this information requires all individuals who view such information to be bound by confidentiality agreements and access to any of this material is extremely limited and on a need-to-know basis only. The owner of this information will take all steps to enforce such confidentiality agreements and will ensure that employees surrender such information upon termination of employment. If such information is disclosed, competitors of the owner of this information in Alabama and in other states will take such information to better compete against the owner of this information in the regulated commercial market.

Furthermore, the applicant believes the identified information to be confidential and if disclosed would give advantage to competitors because the material is related to the applicant’s planning, site location, expansion, operations, product development and marketing. Because this information can be used to recruit appropriate personnel, locate a site, finance and undertake the operation and go to market, the disclosure of this information would allow new competitors to enter the market to compete against the Company. In addition, the disclosure of this information would also allow existing competitors to potentially optimize the manufacture of their products and/or create similar products to the applicant causing grave economic harm to the owners of this information.

Finally, the applicant claims the marked material marked is exempt from disclosure as the mere formulation of the words and descriptions of processes could prove successful in competitive, multi-million-dollar merit-based medical marijuana application processes similar to Alabama. Permitting any of this marked application language to be publicly released would substantially reduce the intrinsic value of the applicant’s business – allowing anyone in the public to appropriate the processes, methods, and standard operating procedures that the applicant employs or will employ.

License Type: Processor

Application Number 1632

Exhibit 10 – Evidence of Business Relationship with other Licensees and Prospective Licensees

Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

Jason Cobb

Printed Name of Verifying Individual

Ala Code § 36-12-40 (Security Exemption)


Signature of Verifying Individual

CEO

Title of Verifying Individual

12/30/2022

Verification Date

Exhibit 10 – Evidence of Business Relationship with other Licensees and Prospective Licensees

Table of Contents and Summary

Summary of Relationships	2
Demonstration of Cultivator Relationships	2
Demonstration of prospective Secure Transporter Relationships	16
Demonstration of Dispensary Relationships	23
Demonstration of prospect Integrated Facility Relationships	26
Demonstration of prospective State Testing Laboratory Relationships	41

License Type: Processor

Applicant must provide copies of all contracts, contingent contracts, memoranda of understanding (or, if none of the foregoing are available, exemplars) between themselves and:

Applicant has provided a Memorandum of Understanding describing the relationship between Applicant and other prospective licensees with whom Applicant intends to engage after the award of the intended license, in line with Rule § 538-x-6-.06(3)(e) and Alabama Medical Cannabis Commission (“AMCC”) guidance. Attached following section 10.5 is an exemplar Memoranda of Understanding (“MOU”), for use in any prospective business relationship.

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



10.1 – Any Cultivator or Prospective Cultivator.

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



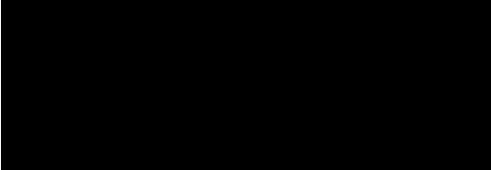
Exhibit 10 – Evidence of Business Relationship with other Licensees and Prospective Licensees

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)

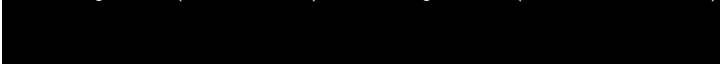


Applicant identified and established a relationship with the following Companies pursuing a Cultivation license in Alabama:

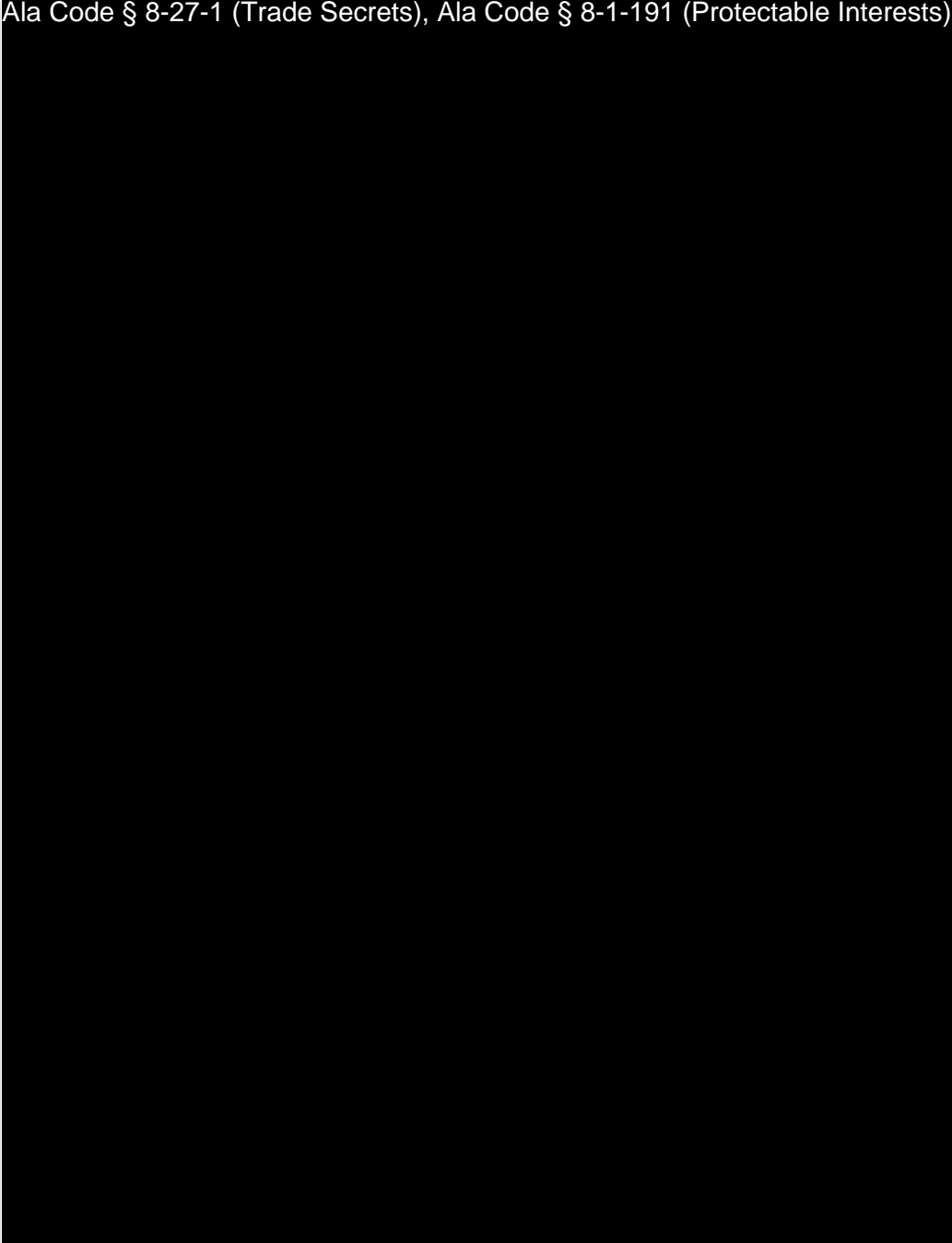
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



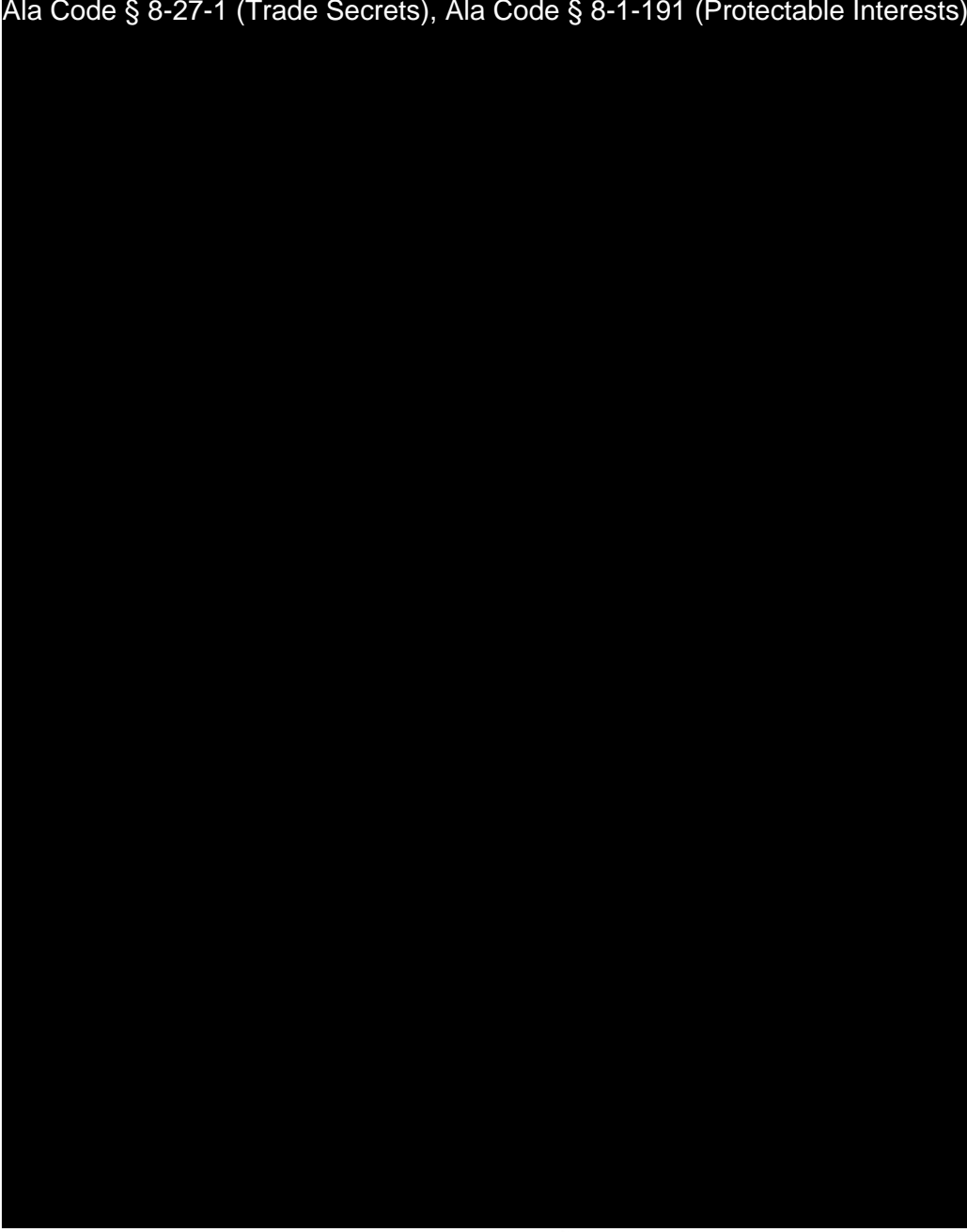
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



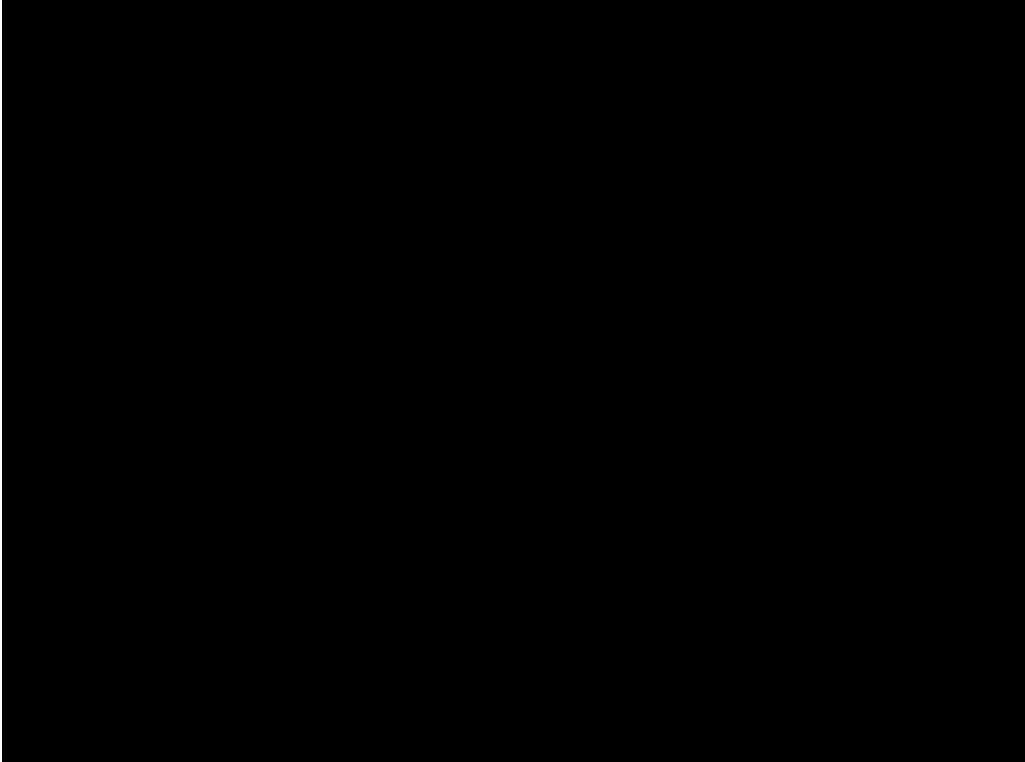
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

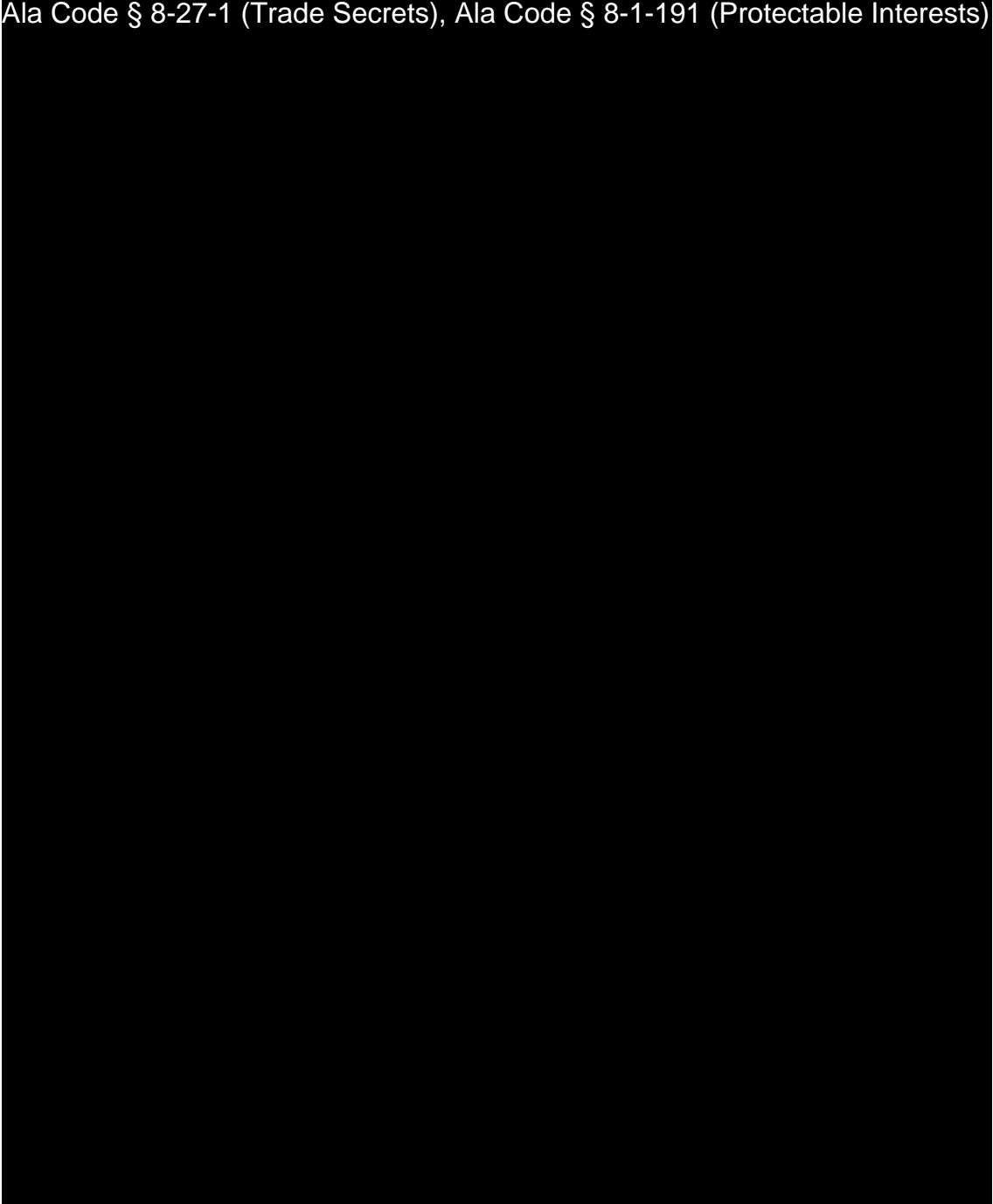


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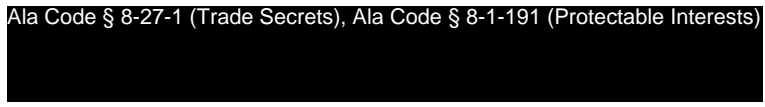


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

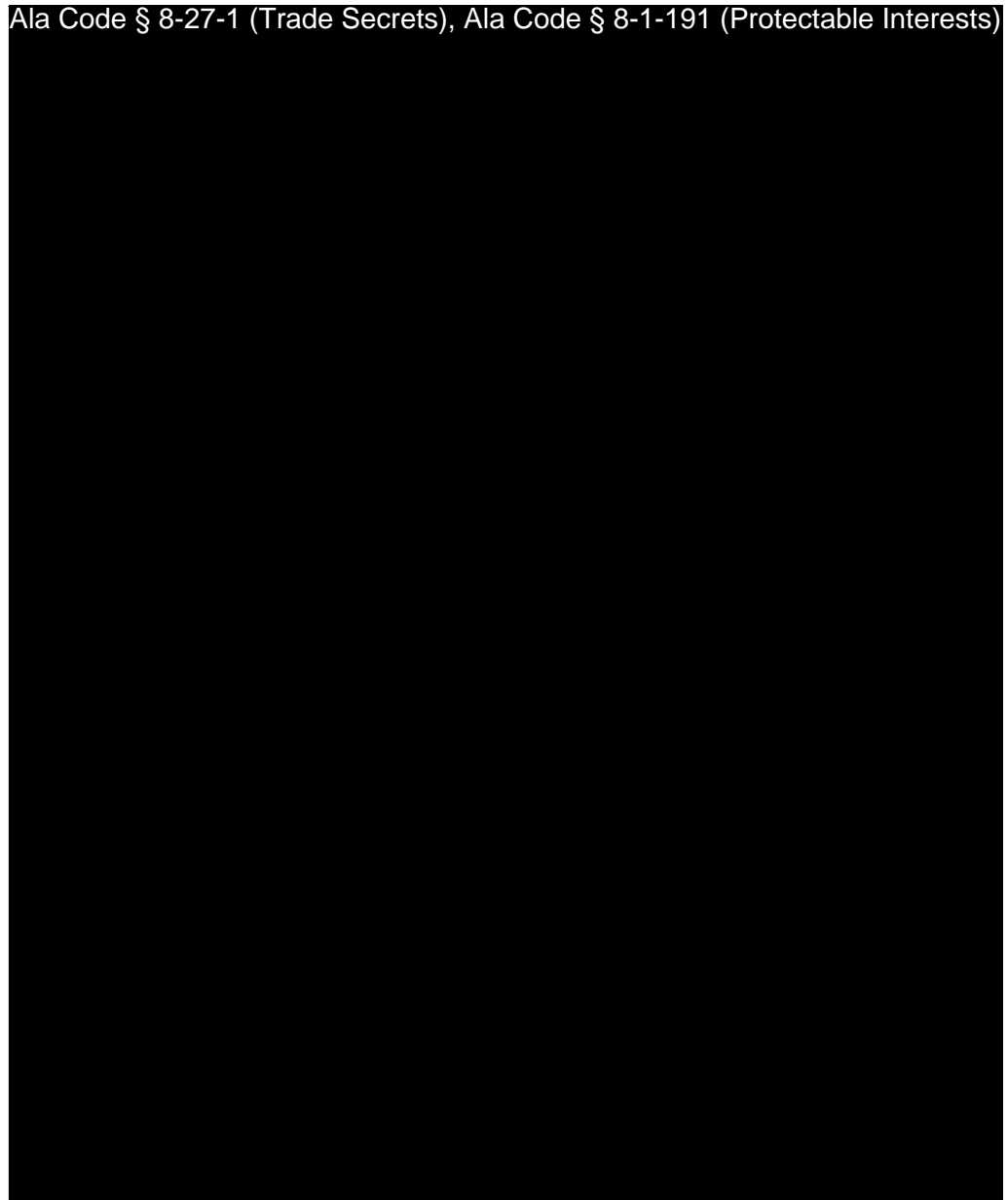
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

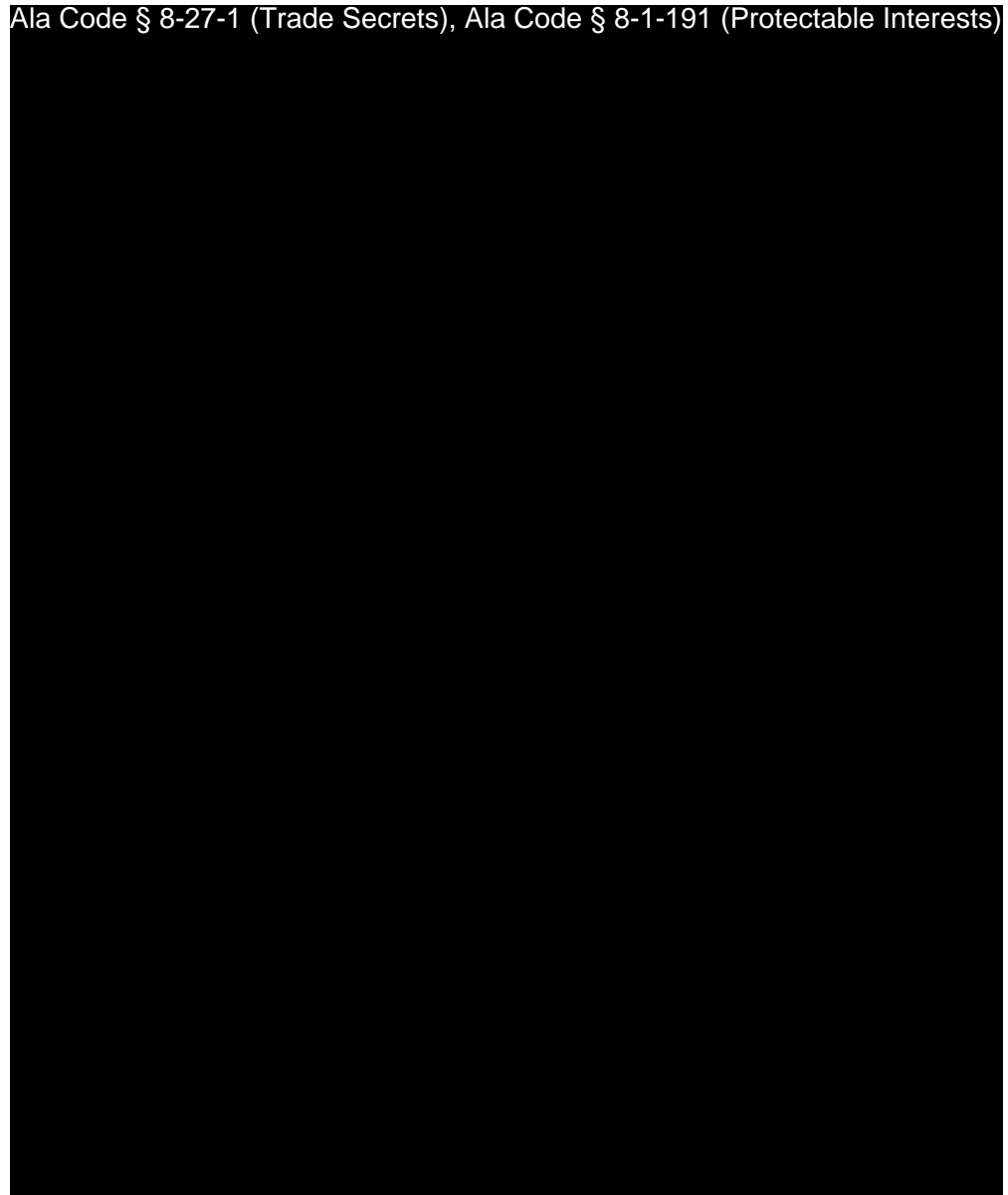
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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

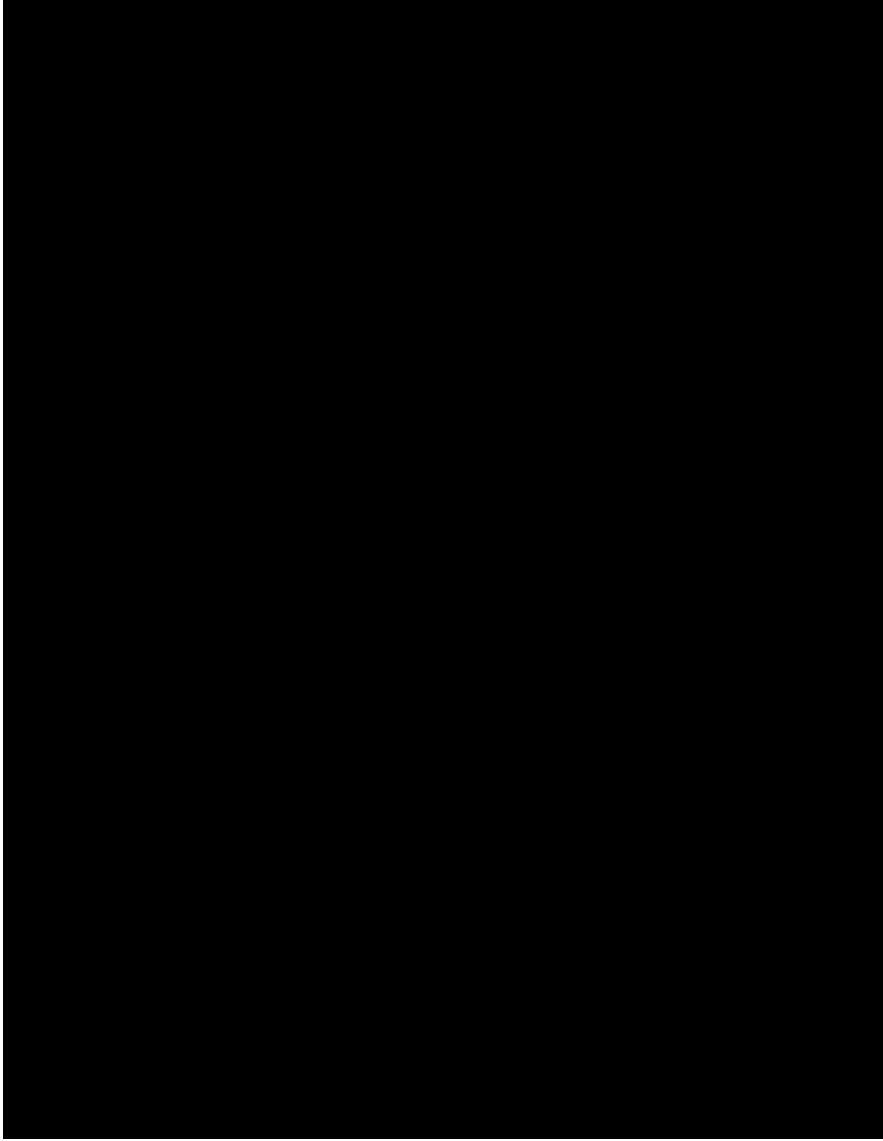
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License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



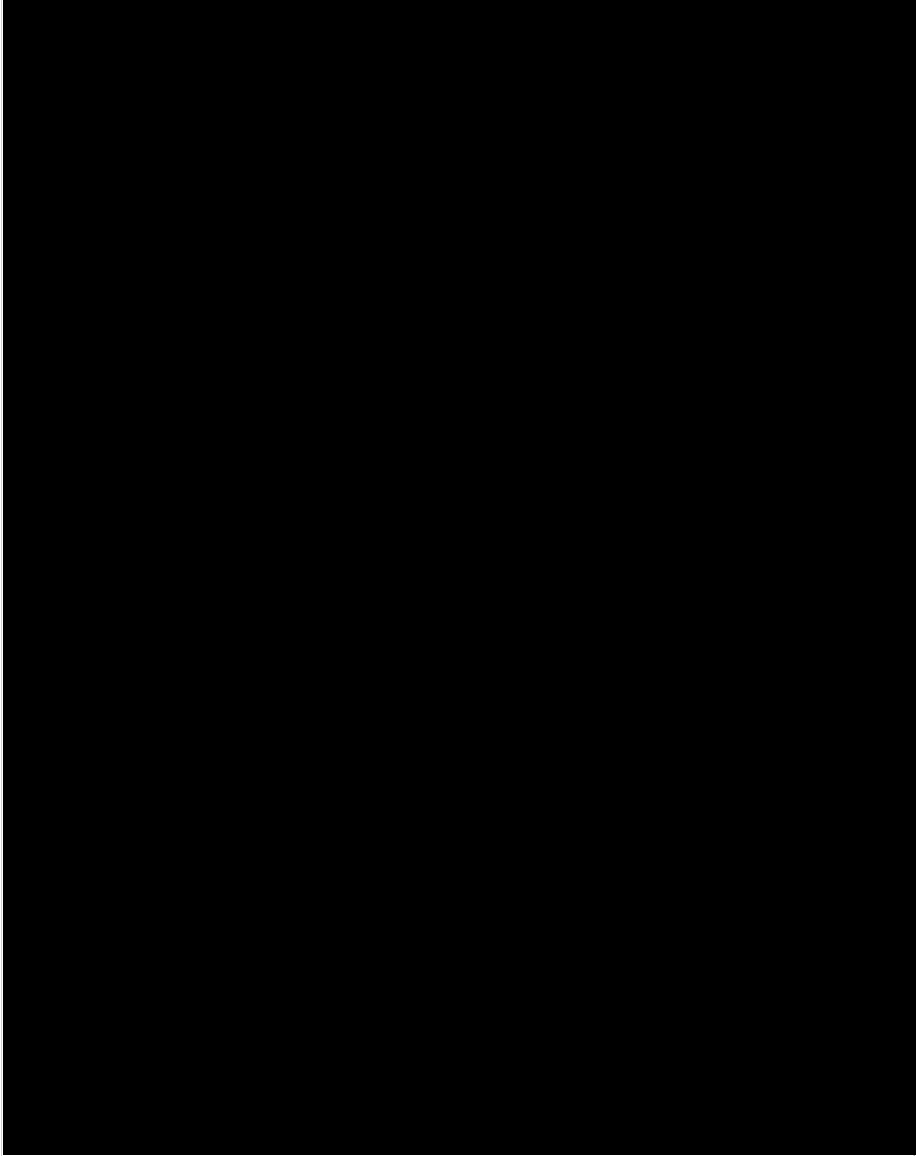
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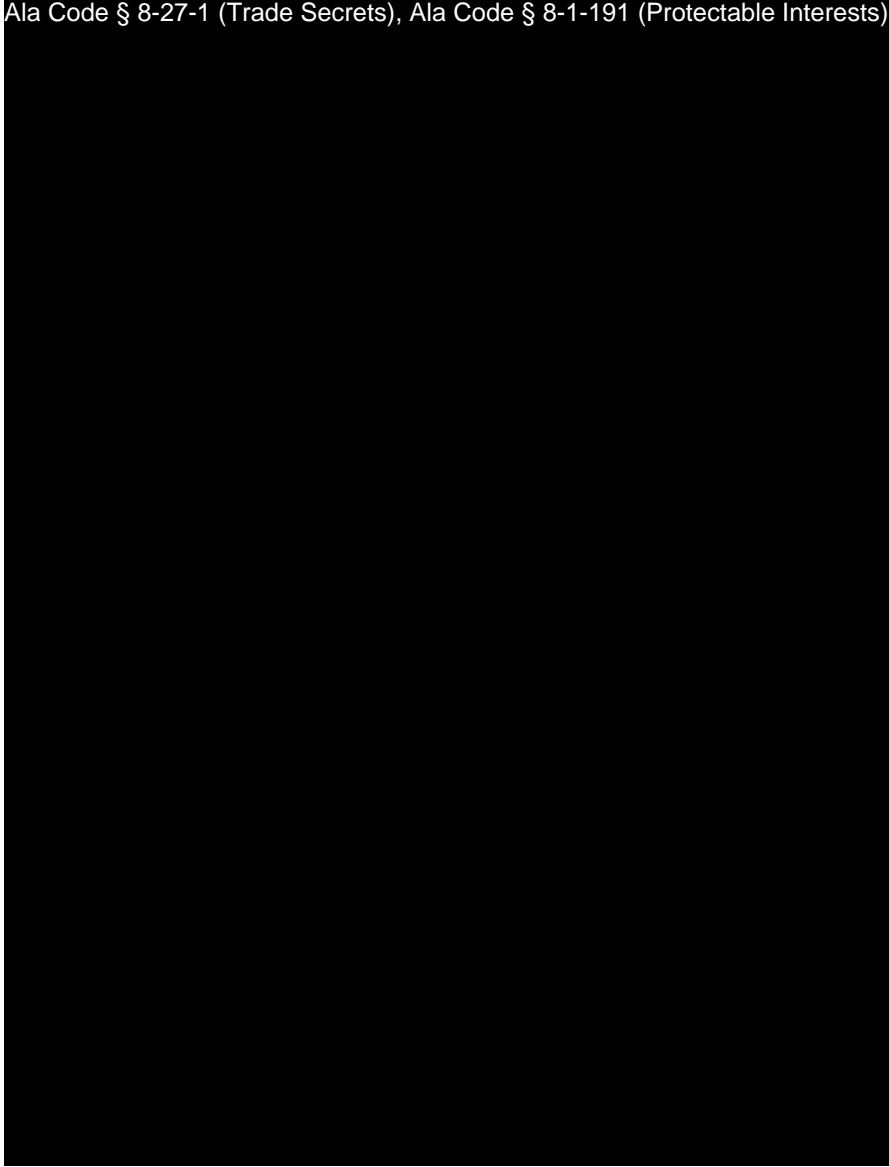
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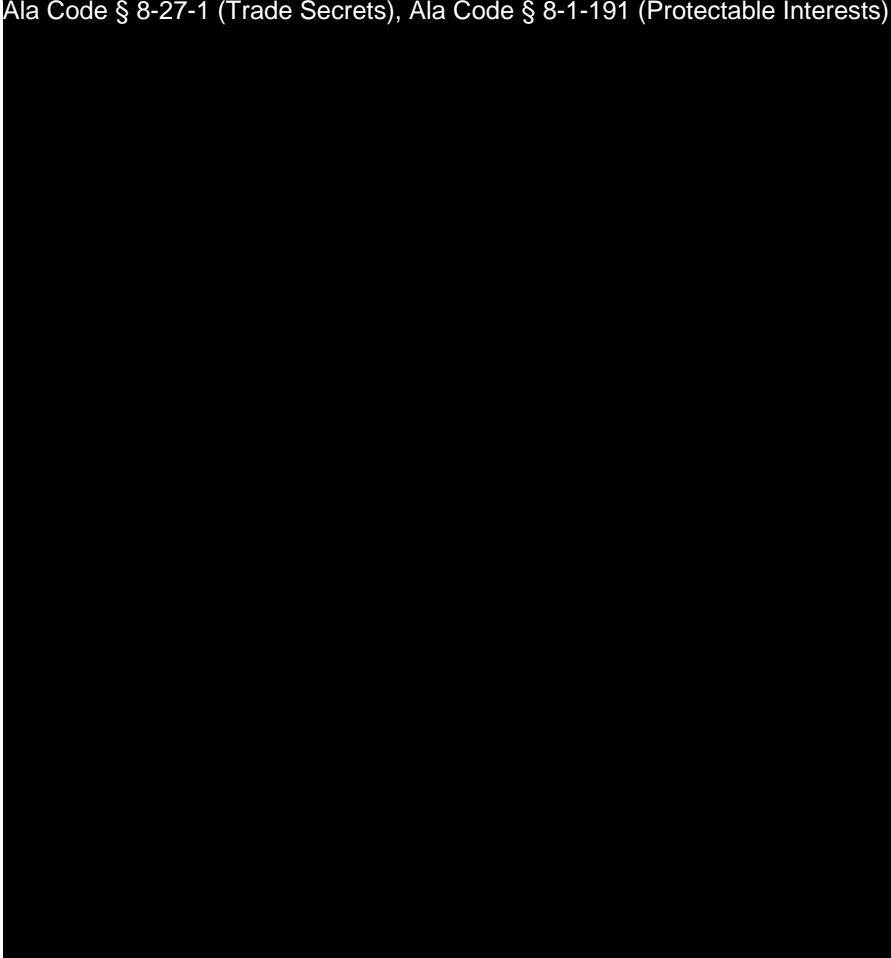
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)




[SIGNATURES ON FOLLOWING PAGE]

License Type: Processor

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the Effective Date.

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



[Signature Page to Mutual Services Agreement (Cultivator/Processor)]

10.2 - Any Secure Transporter or Prospective Secure Transporter.

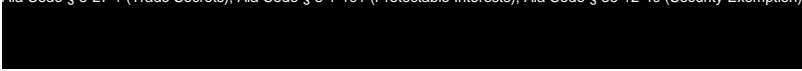
Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



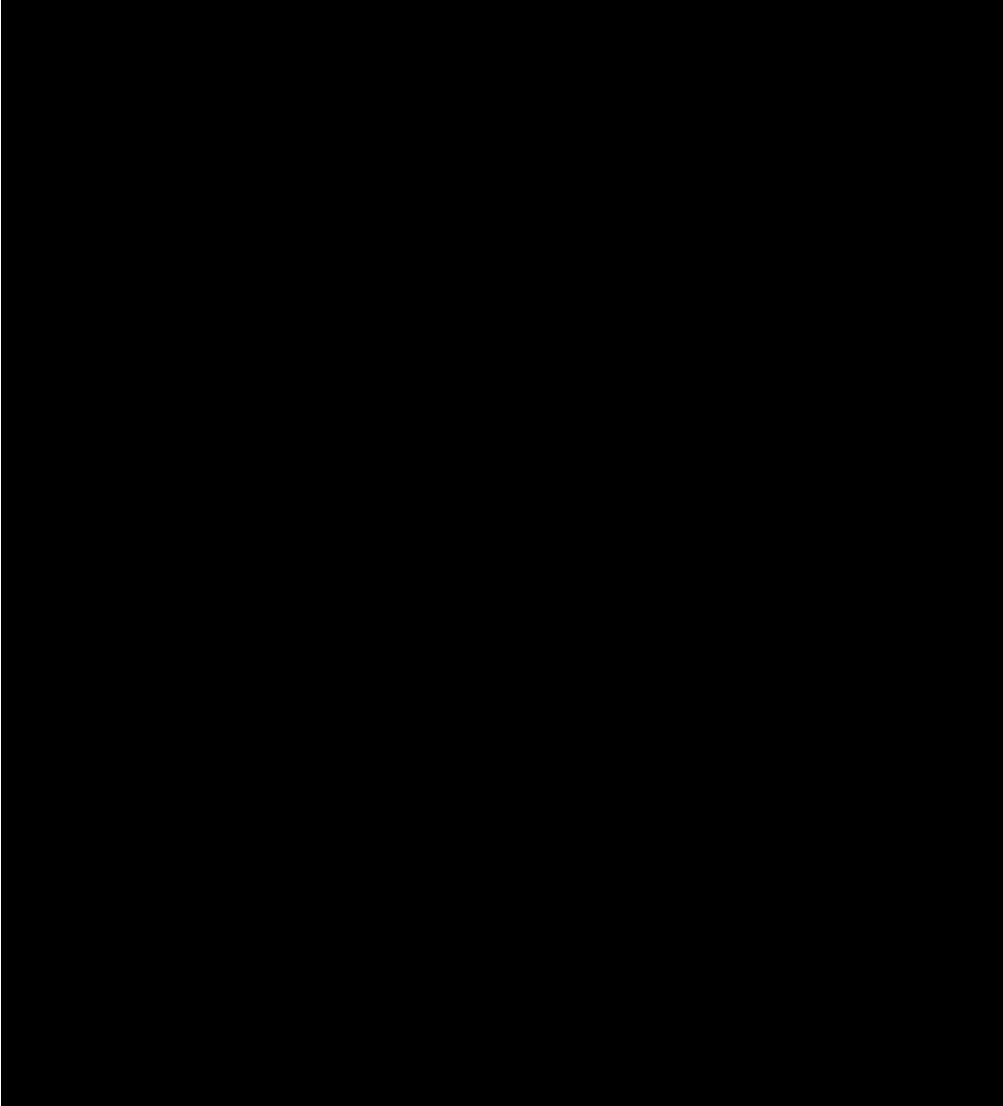
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



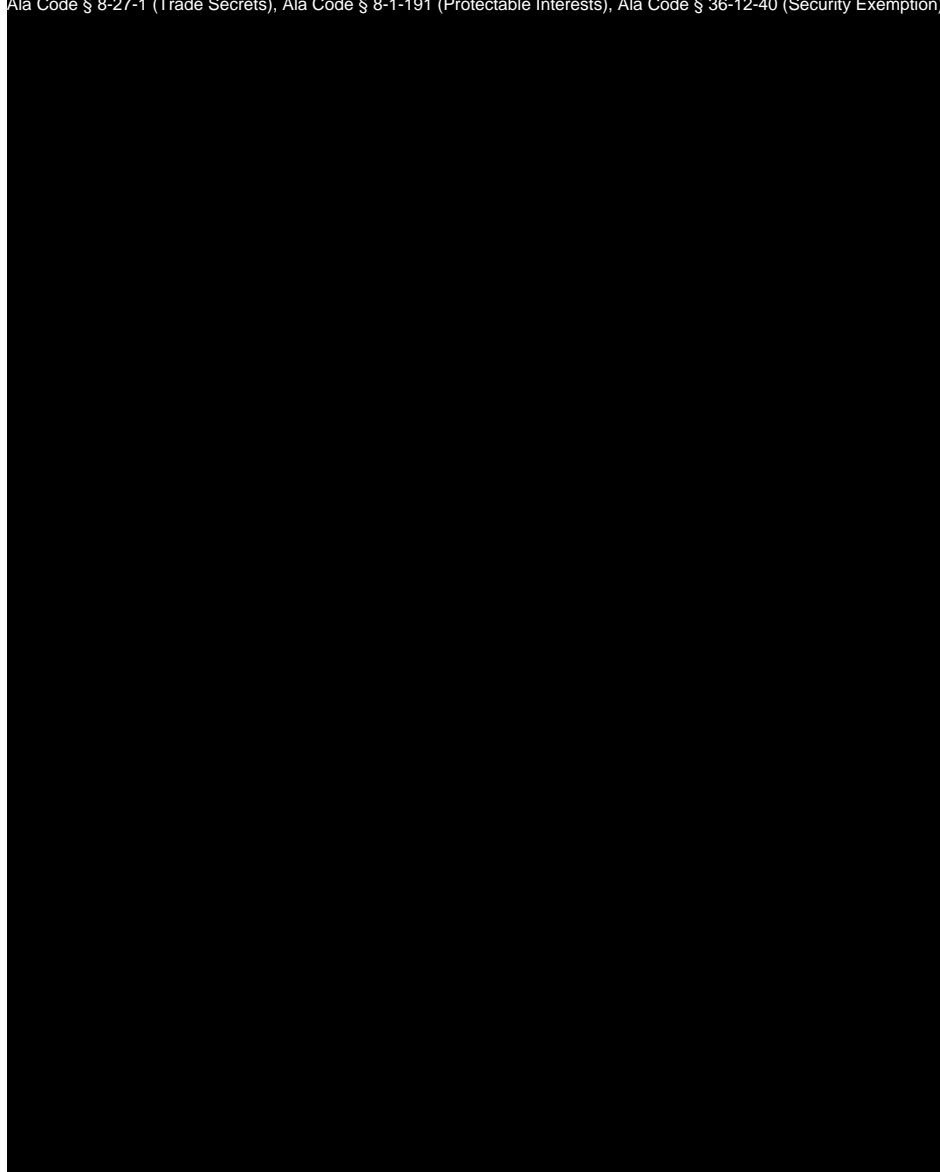
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

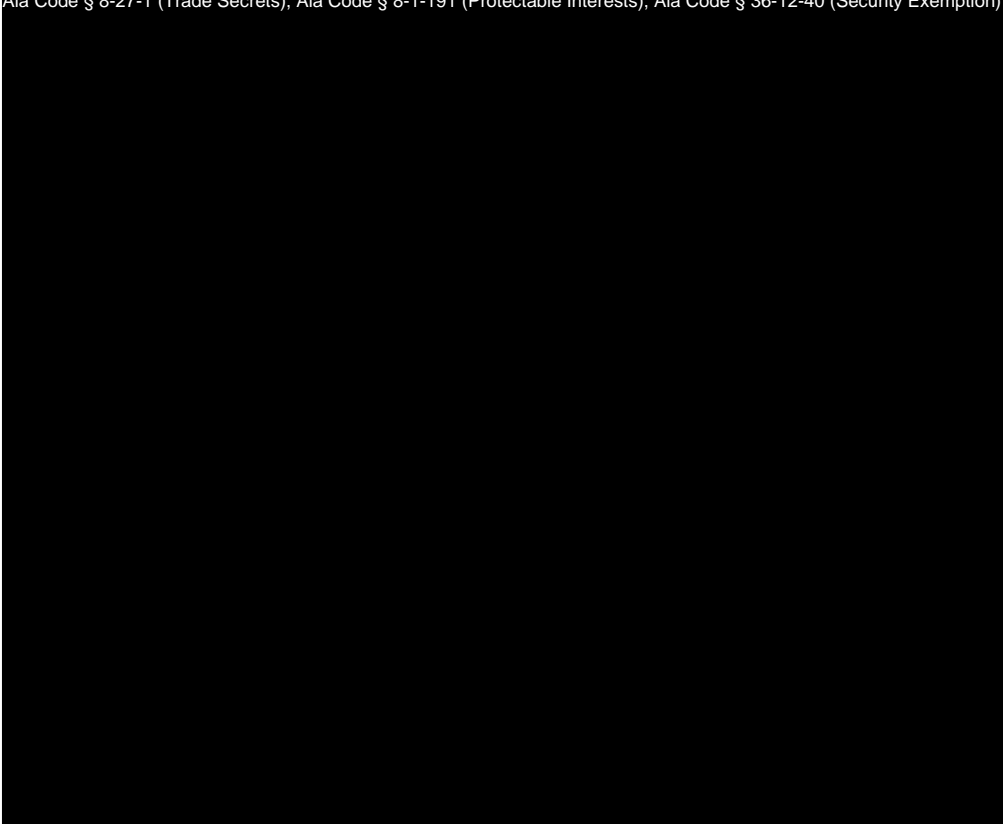


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



[Signature Page Follows]

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



*Signature Page to
Letter of Intent*

10.3 – Any Dispensary or Prospective Dispensary.

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Applicant identified the following Company pursuing a Dispensary license in Alabama:

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

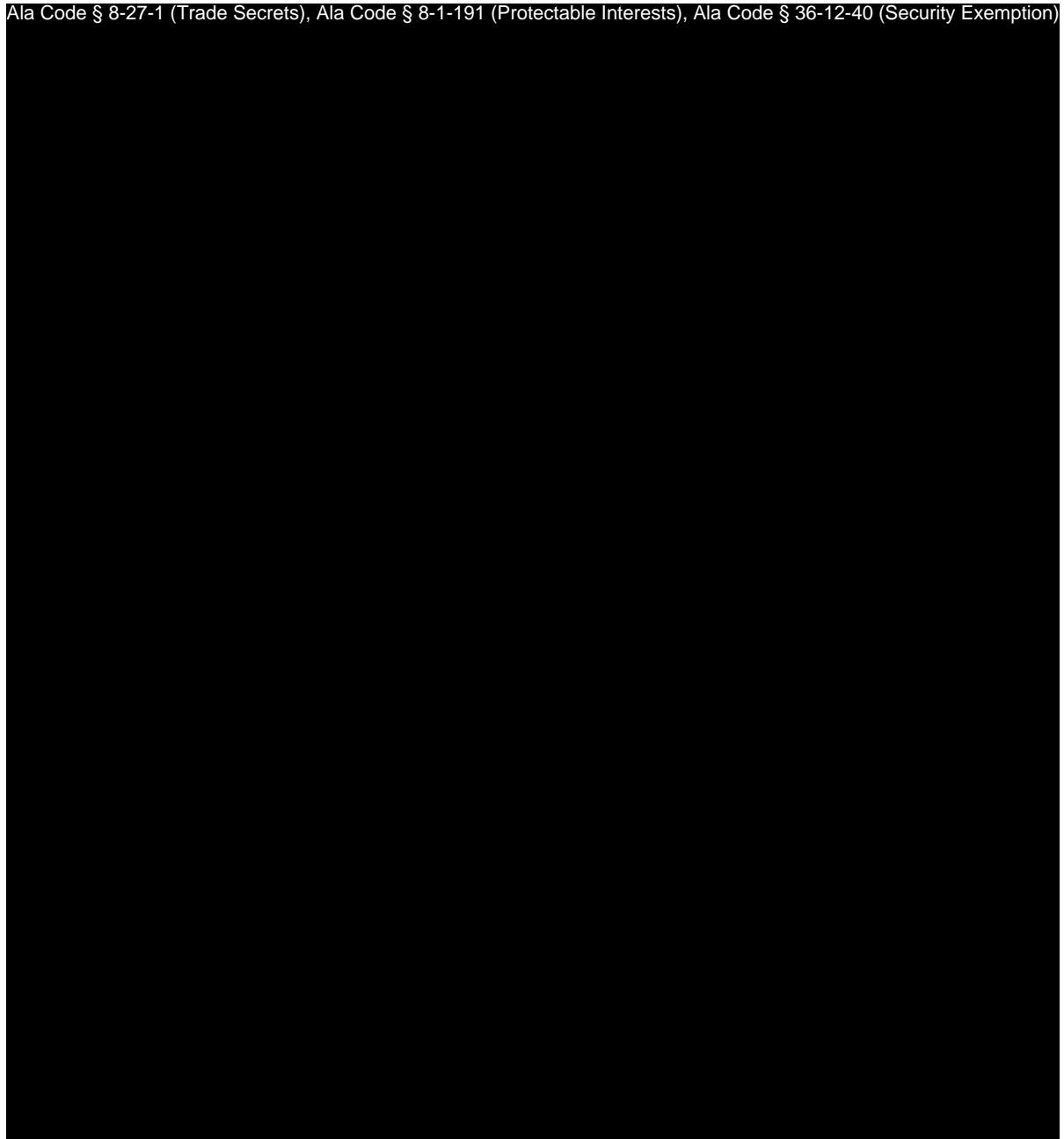


Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Exhibit 10 – Evidence of Business Relationship with other Licensees and Prospective Licensees

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

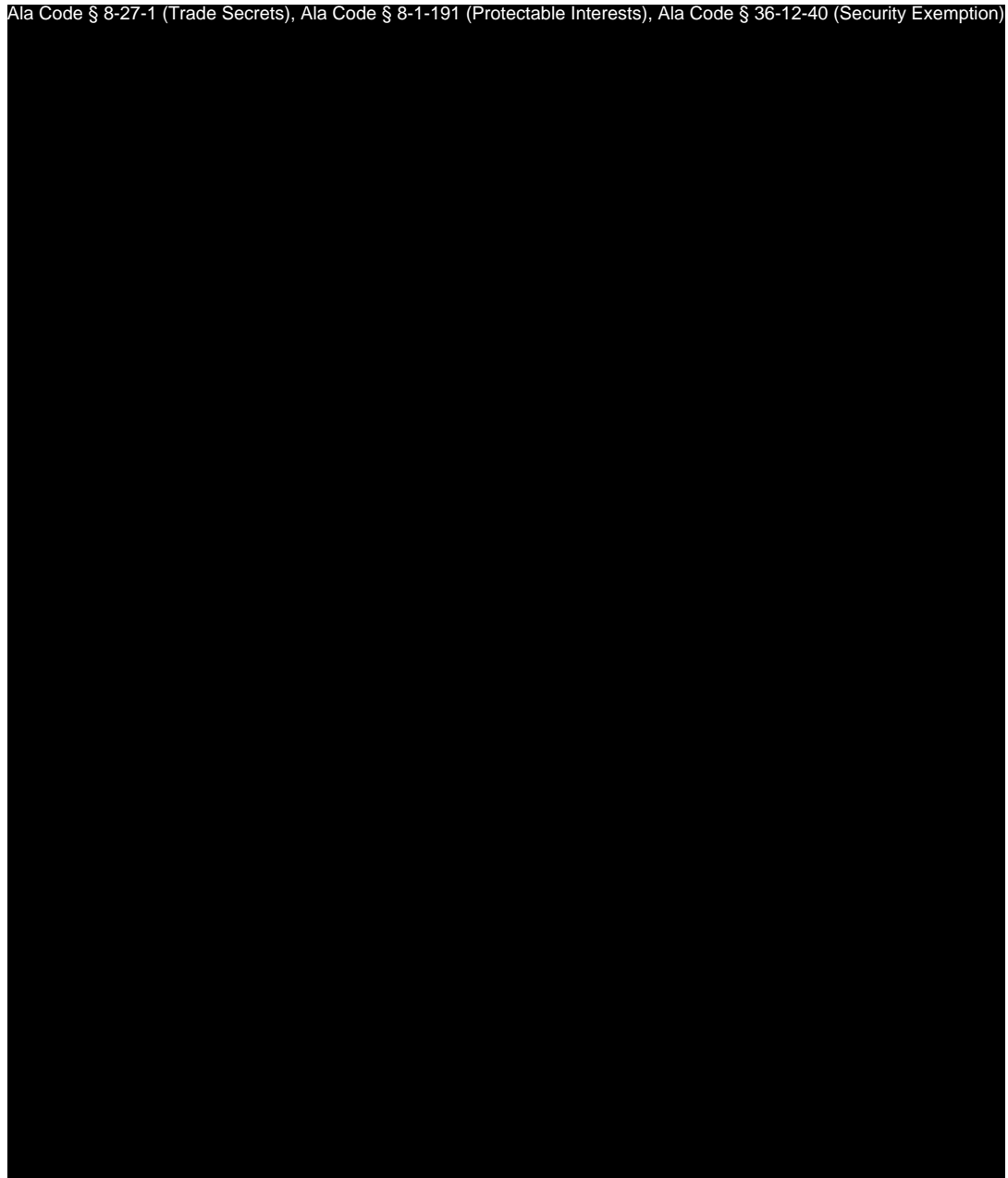


Exhibit 10 – Evidence of Business Relationship with other Licensees and Prospective Licensees


License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

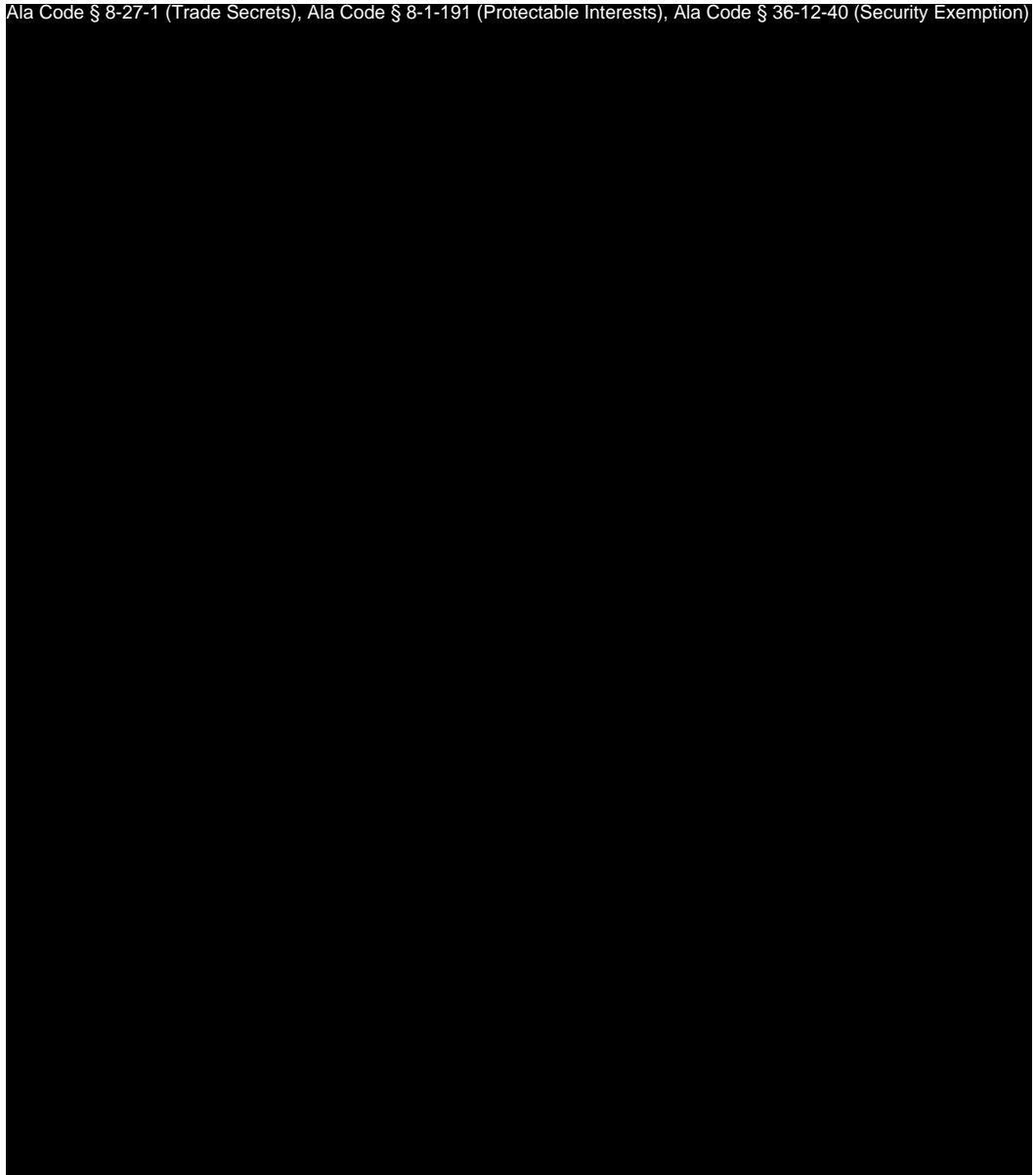


Exhibit 10 – Evidence of Business Relationship with other Licensees and Prospective Licensees

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

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10.4 – Any Integrated Facility or prospective Integrated Facility.

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Applicant identified and established relationships with the following companies pursuing an integrated facility license in Alabama:

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)




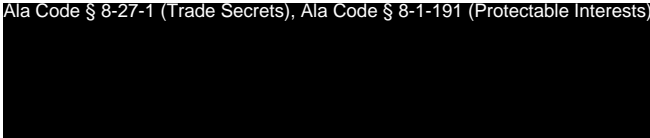
Exhibit 10 – Evidence of Business Relationship with other Licensees and Prospective Licensees

License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

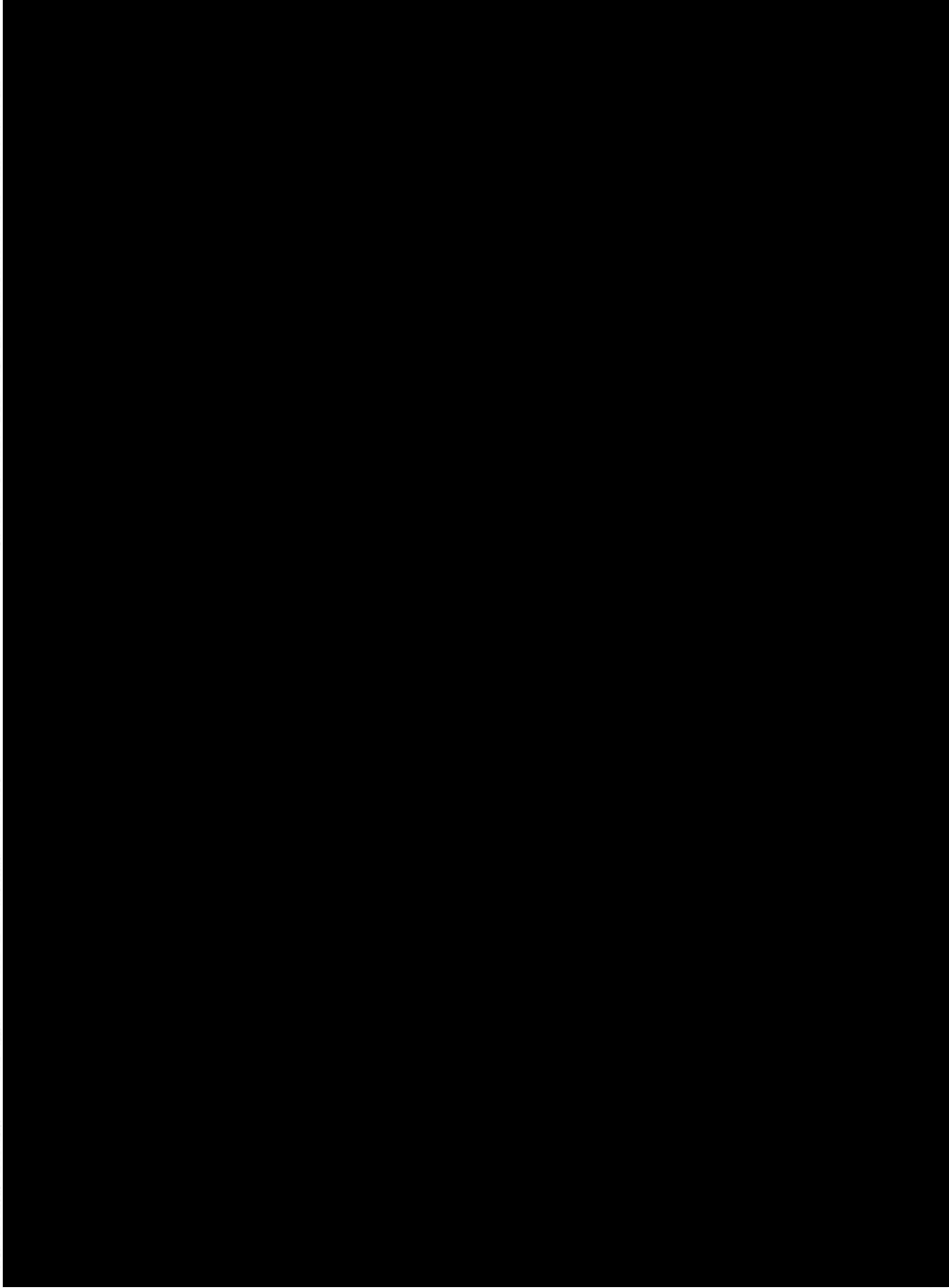
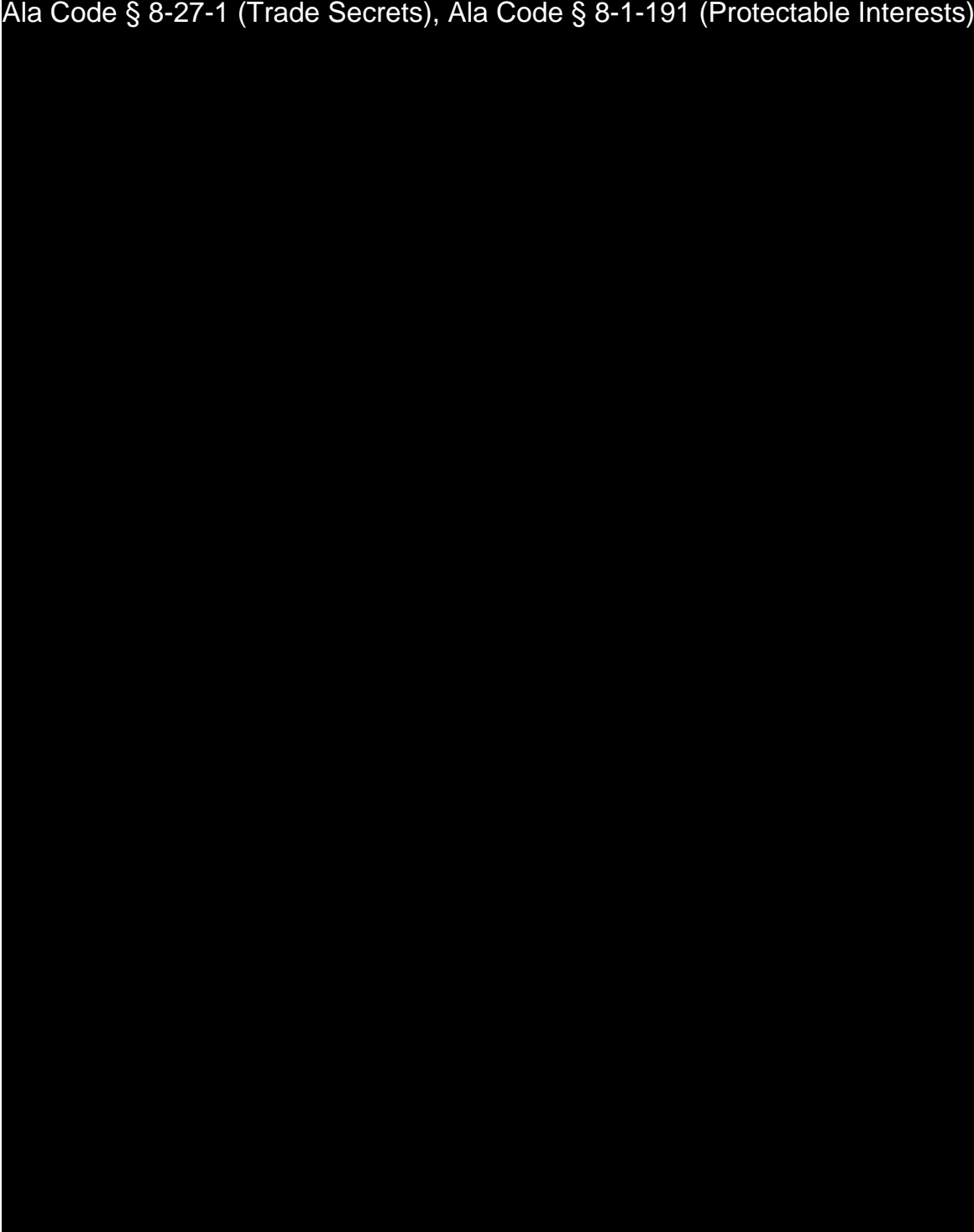


Exhibit 10 – Evidence of Business Relationship with other Licensees and Prospective Licensees

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

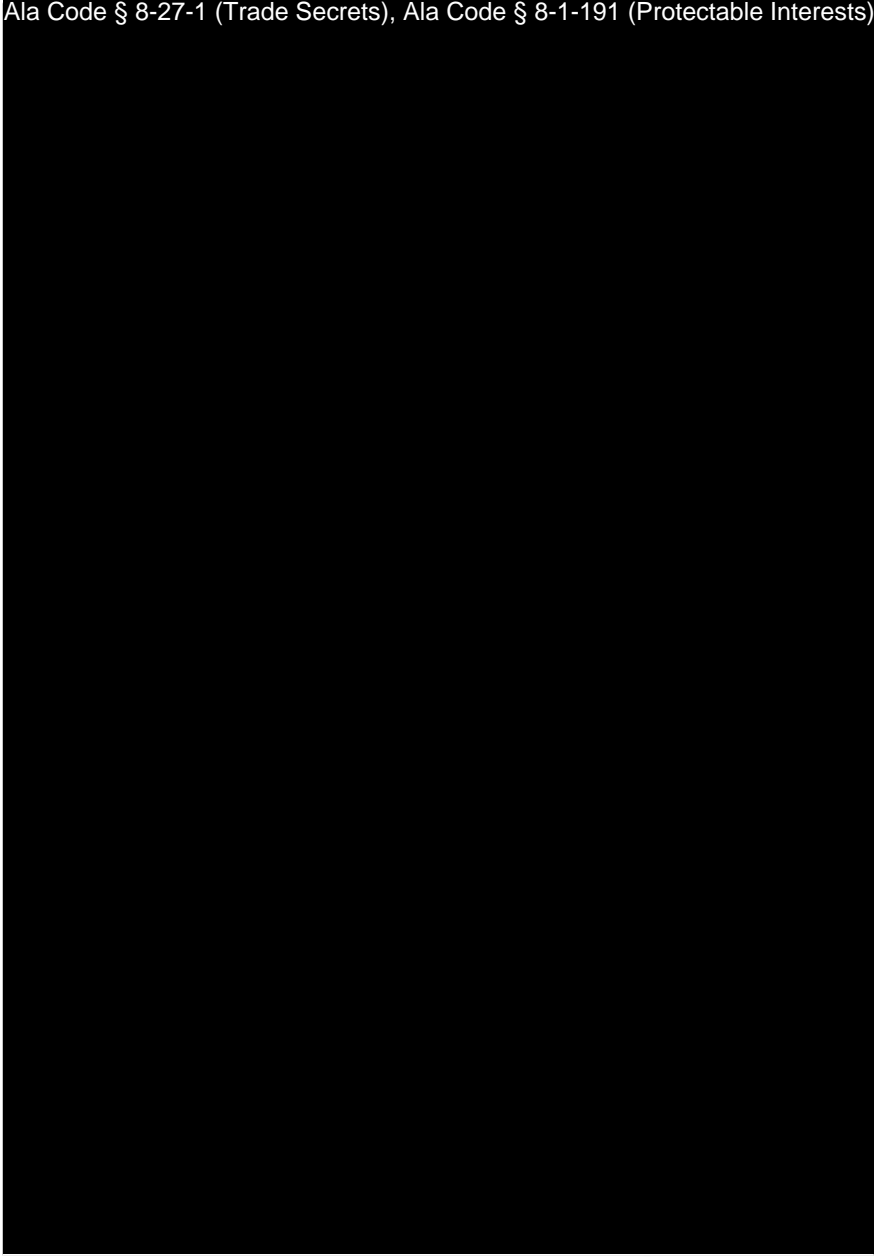


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

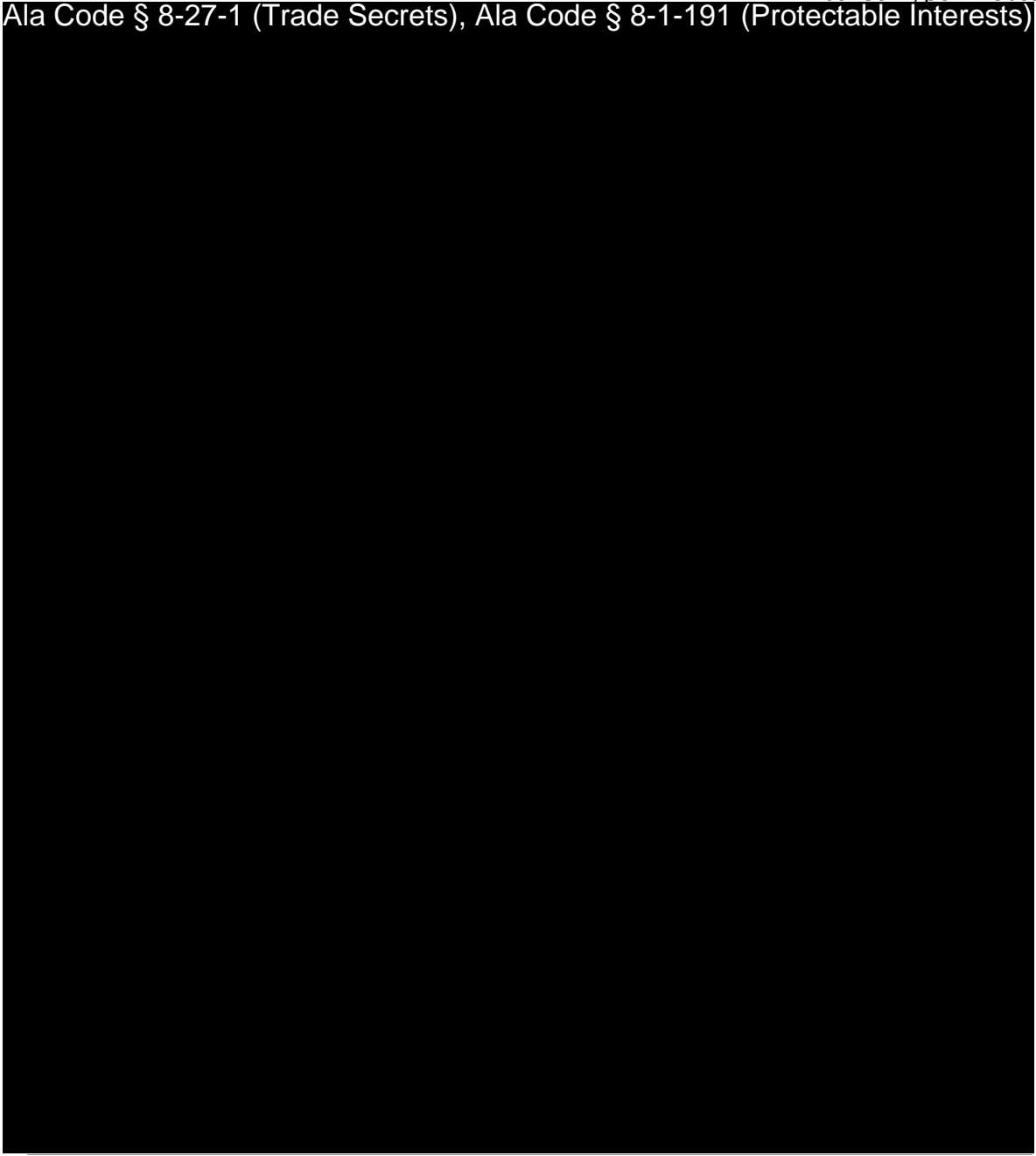
Exhibit 10 – Evidence of Business Relationship with other Licensees and Prospective Licensees

License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)




Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



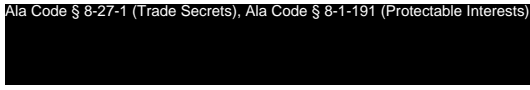
License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

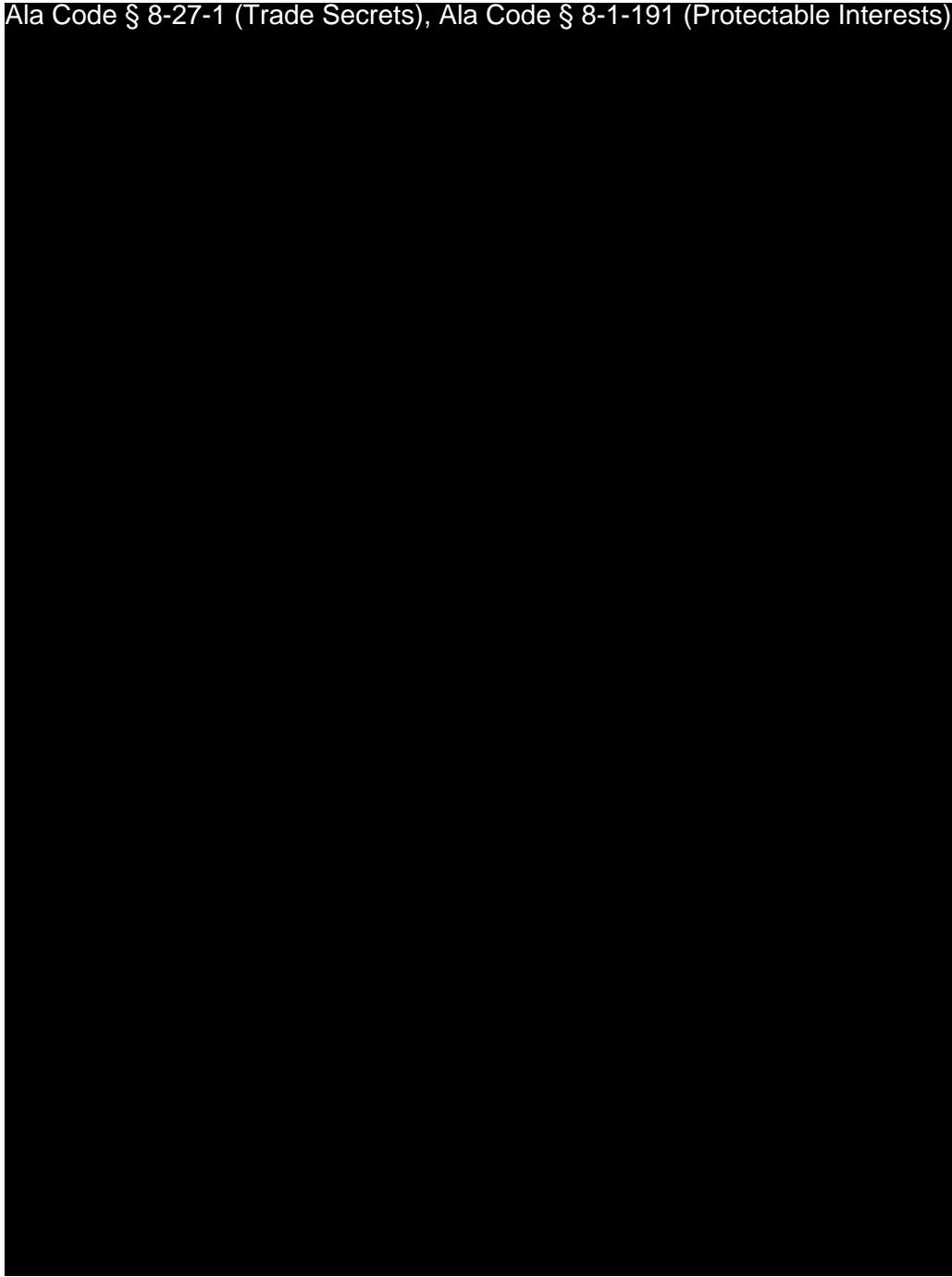
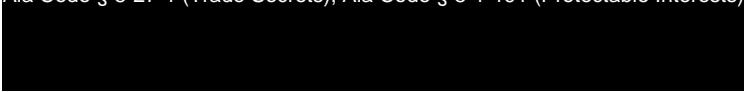
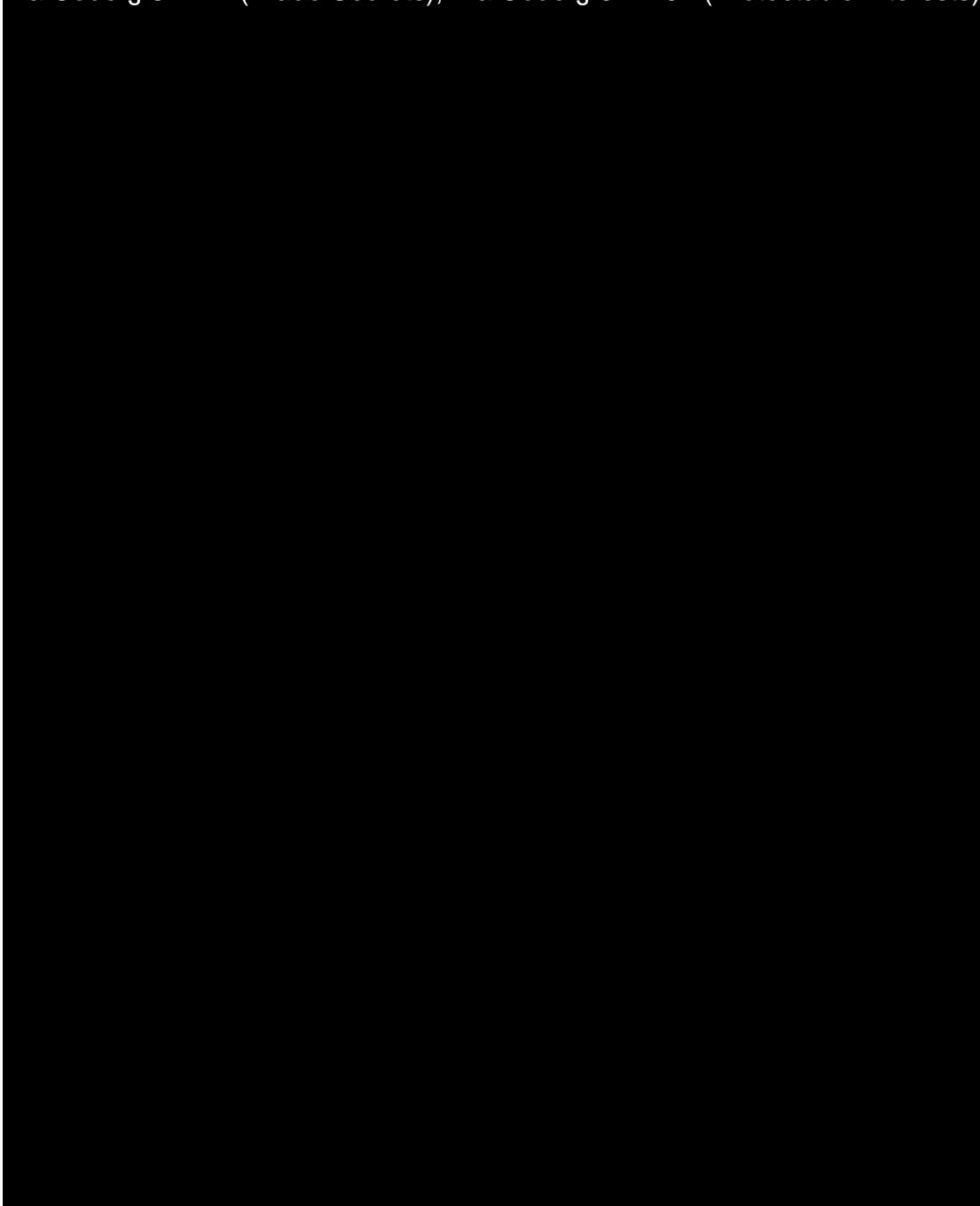
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Exhibit 10 – Evidence of Business Relationship with other Licensees and Prospective Licensees

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

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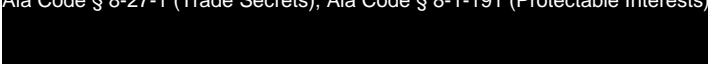
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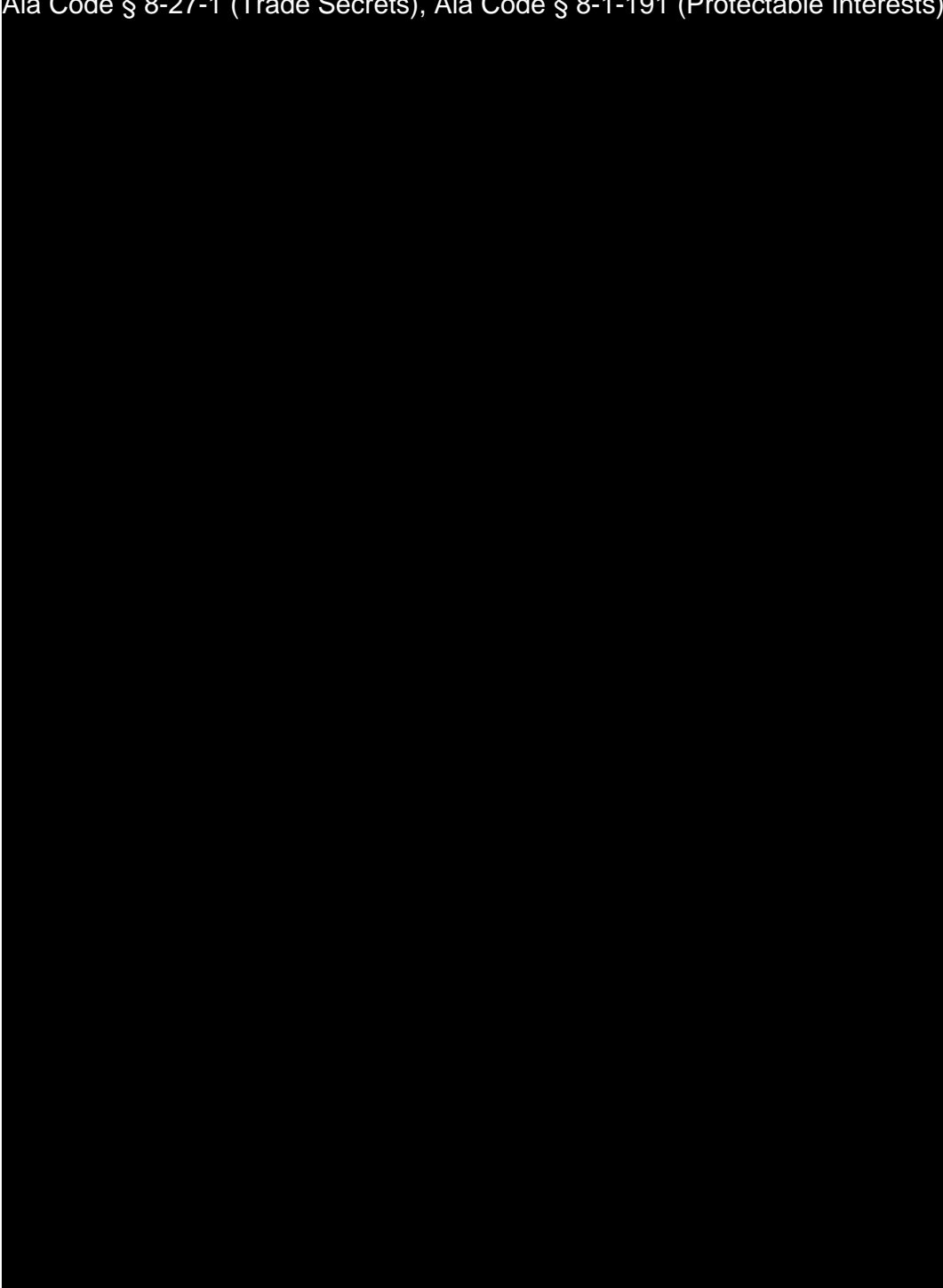
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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



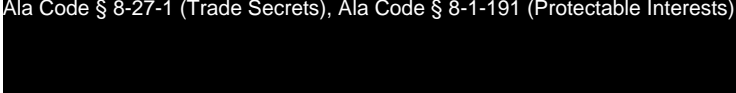
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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

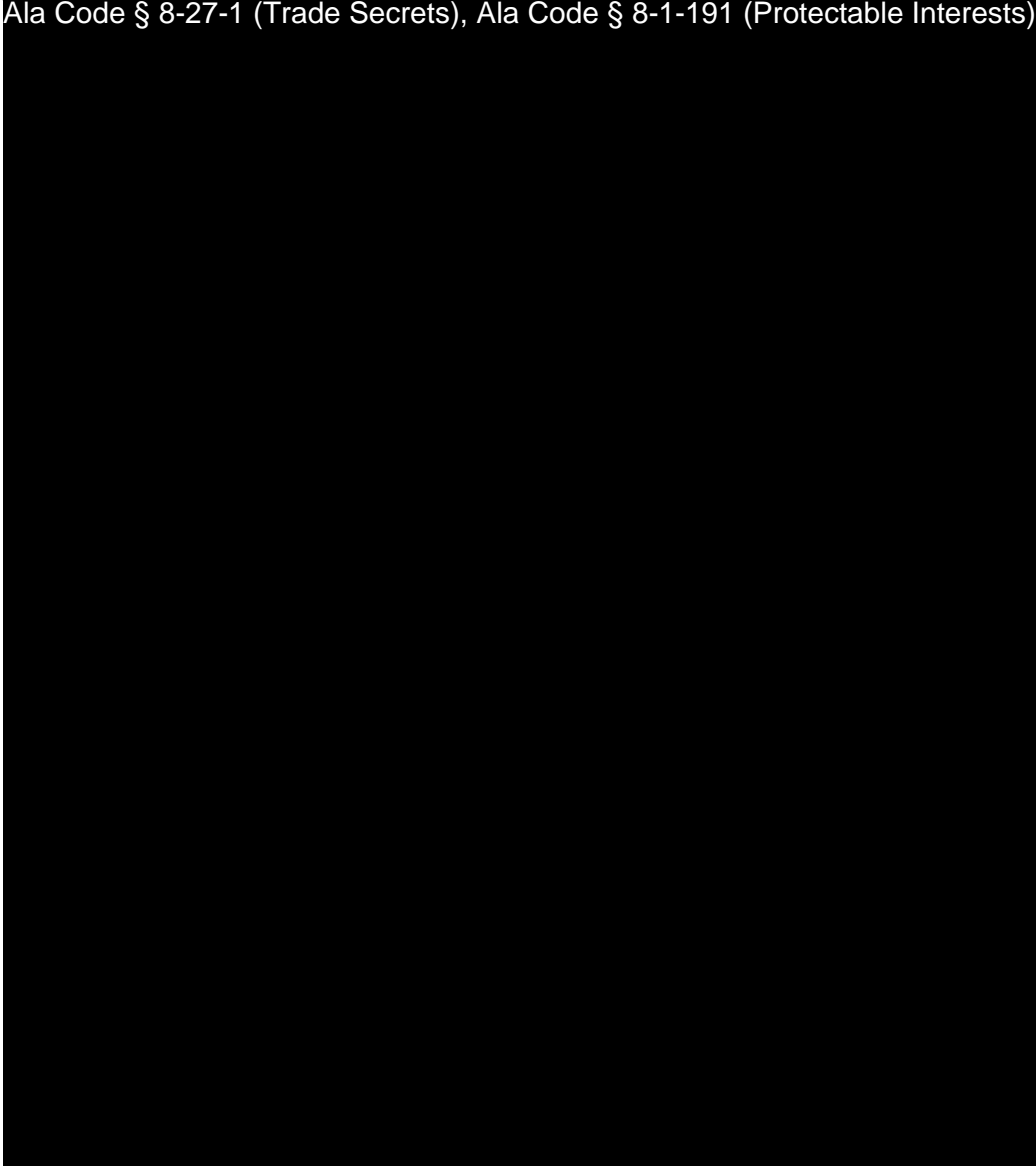
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Exhibit 10 – Evidence of Business Relationship with other Licensees and Prospective Licensees

License Type: Processor

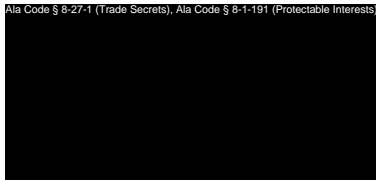
10.5 – Any State Testing Laboratory or prospective State Testing Laboratory.

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



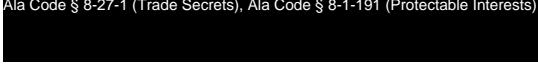
Applicant identified the following Companies pursuing a State Testing Laboratory license in Alabama:

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

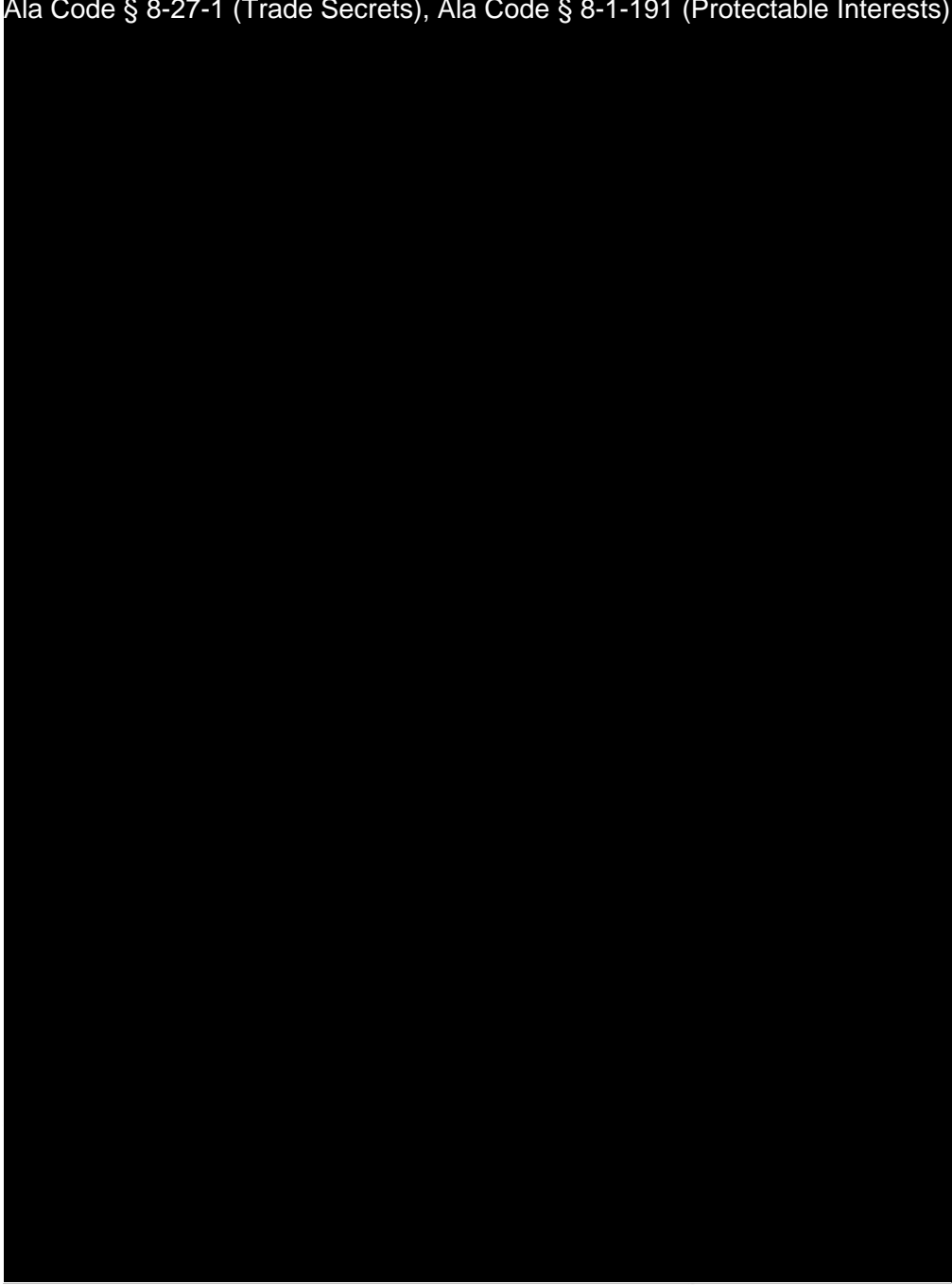


License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



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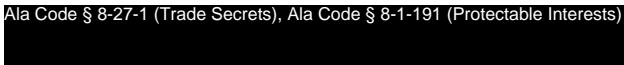


Exhibit 10 – Evidence of Business Relationship with other Licensees and Prospective Licensees

License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

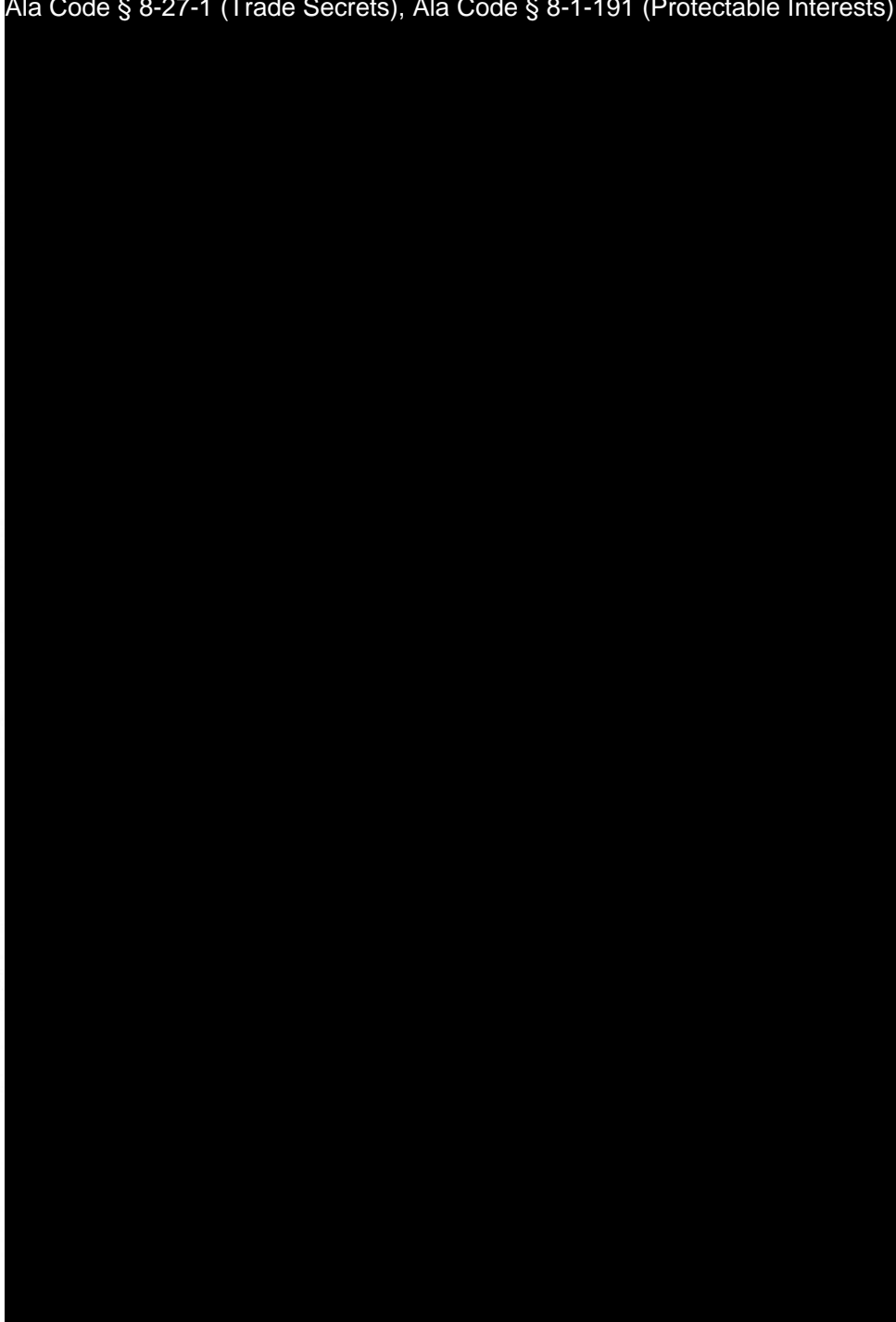


Exhibit 10 – Evidence of Business Relationship with other Licensees and Prospective Licensees

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

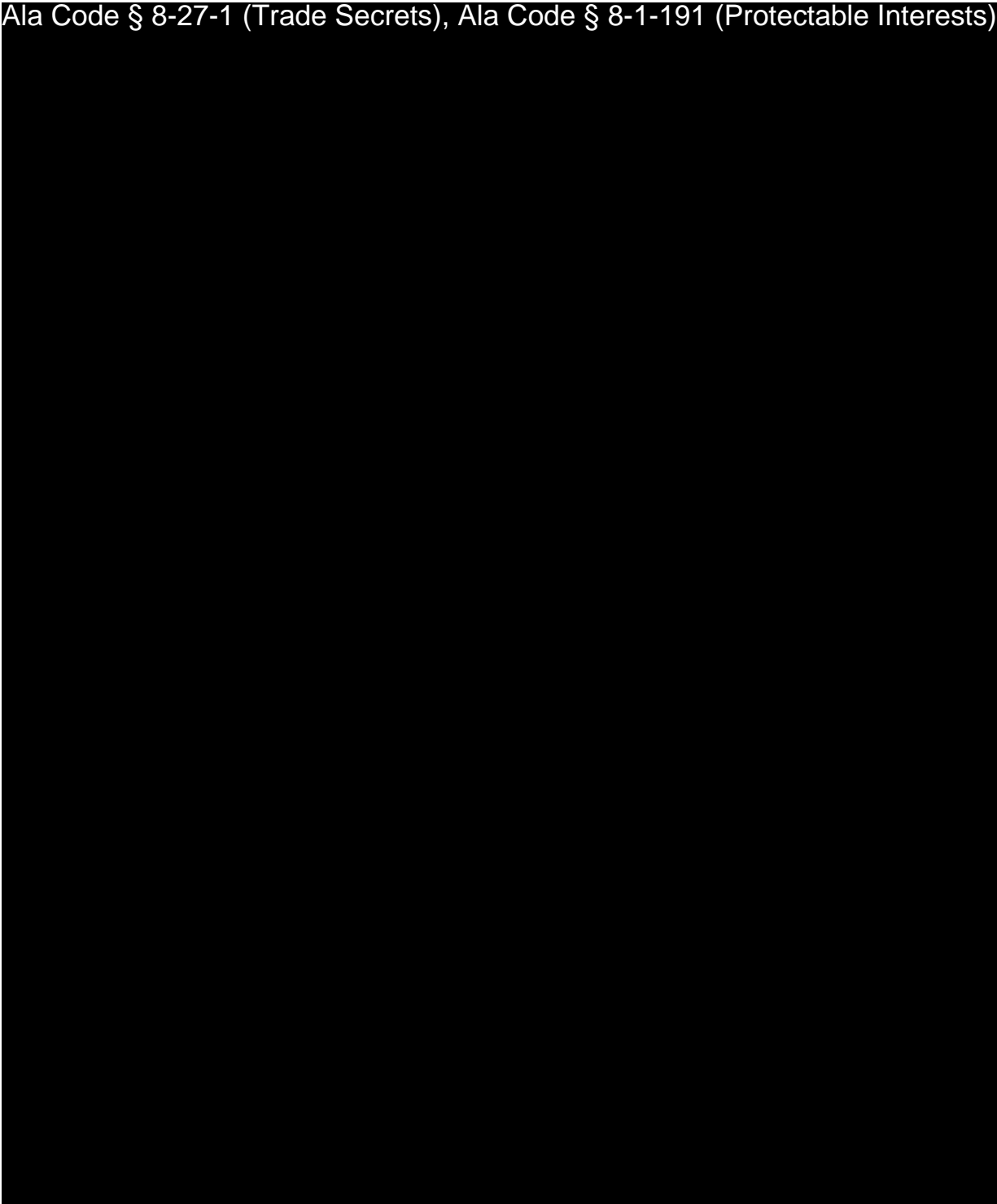
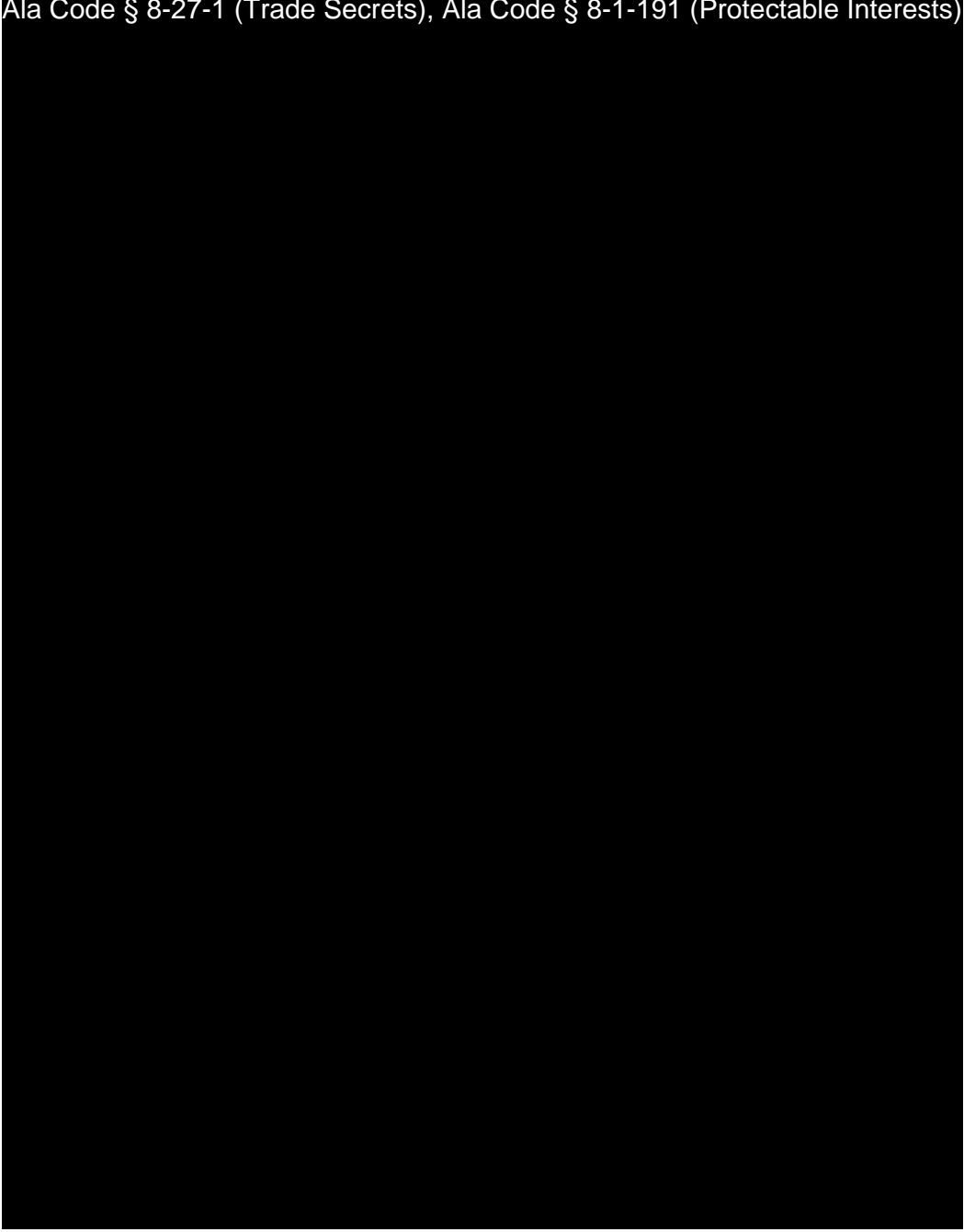


Exhibit 10 – Evidence of Business Relationship with other Licensees and Prospective Licensees

License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

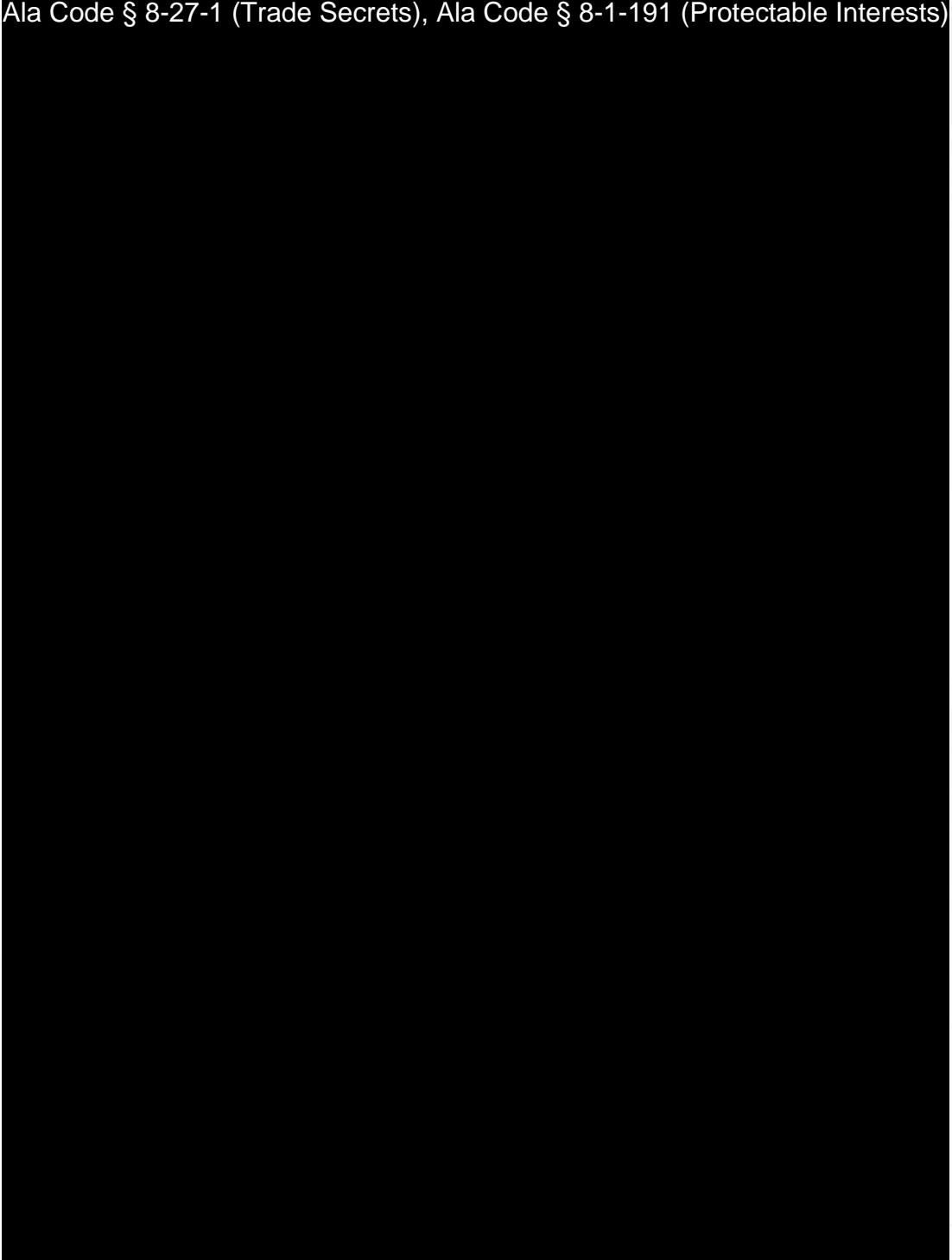


Exhibit 10 – Evidence of Business Relationship with other Licensees and Prospective Licensees

REDACTION INDEX

Ala Code § 36-12-40 (Security Exemption) – The verifying signatures and initials have been redacted pursuant to the “security or safety of persons” exemption contained in the Alabama Public Records statute. Signatures and initials, if left unredacted, may be forged and used for innumerable illicit purposes.

Furthermore, this exhibit contains detailed information regarding security plans and procedures, as well as confidential information related to the transport of medical cannabis and cannabis products. Disclosure of such information would be against public policy and place the applicant’s facility at a significant risk. As such, the information contained in this exhibit should be exempt from disclosure.

Ala Code § 8-27-1 (Trade Secrets)/Ala. Code § 8-1-191 (Protectable Interests) – This exhibit contains confidential information including, but not limited to, management and marketing plans, business strategy and methodology, business models and data, and company provided files and software. As such, certain portions of this exhibit have been designated as “Protectable Interests” exempt from disclosure. Further, this exhibit contains information that is used or intended for use in a trade or business, included or embodied in a formula, pattern, compilation, computer software, drawing, device, method, technique, or process, and is not publicly known or generally known in the trade or business. The information contained in this exhibit cannot be readily ascertained or derived from publicly available information and has significant economic value to the applicant. As such, certain portions of this exhibit have been designated as “Trade Secrets” exempt from disclosure.

Protectable Interests and Trade Secrets are redacted as the disclosure to any third party would give an unfair advantage to competitors and would result in the loss of rights and cause harm to the owner of this information. In the normal course of business, the owner of this information requires all individuals who view such information to be bound by confidentiality agreements and access to any of this material is extremely limited and on a need-to-know basis only. The owner of this information will take all steps to enforce such confidentiality agreements and will ensure that employees surrender such information upon termination of employment. If such information is disclosed, competitors of the owner of this information in Alabama and in other states will take such information to better compete against the owner of this information in the regulated commercial market.

Furthermore, the applicant believes the identified information to be confidential and if disclosed would give advantage to competitors because the material is related to the applicant’s planning, site location, expansion, operations, product development and marketing. Because this information can be used to recruit appropriate personnel, locate a site, finance and undertake the operation and go to market, the disclosure of this information would allow new competitors to enter the market to compete against the Company. In addition, the disclosure of this information would also allow existing competitors to potentially optimize the manufacture of their products and/or create similar products to the applicant causing grave economic harm to the owners of this information.

Finally, the applicant claims the marked material marked is exempt from disclosure as the mere formulation of the words and descriptions of processes could prove successful in competitive,

REDACTION INDEX

multi-million-dollar merit-based medical marijuana application processes similar to Alabama. Permitting any of this marked application language to be publicly released would substantially reduce the intrinsic value of the applicant's business – allowing anyone in the public to appropriate the processes, methods, and standard operating procedures that the applicant employs or will employ.

Application Number 1632

Exhibit 11 – Standard Operating Plan and Procedures

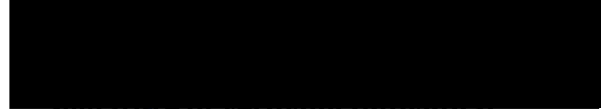
Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

Jason Cobb

Printed Name of Verifying Individual

Ala Code § 36-12-40 (Security Exemption)



Signature of Verifying Individual

CEO

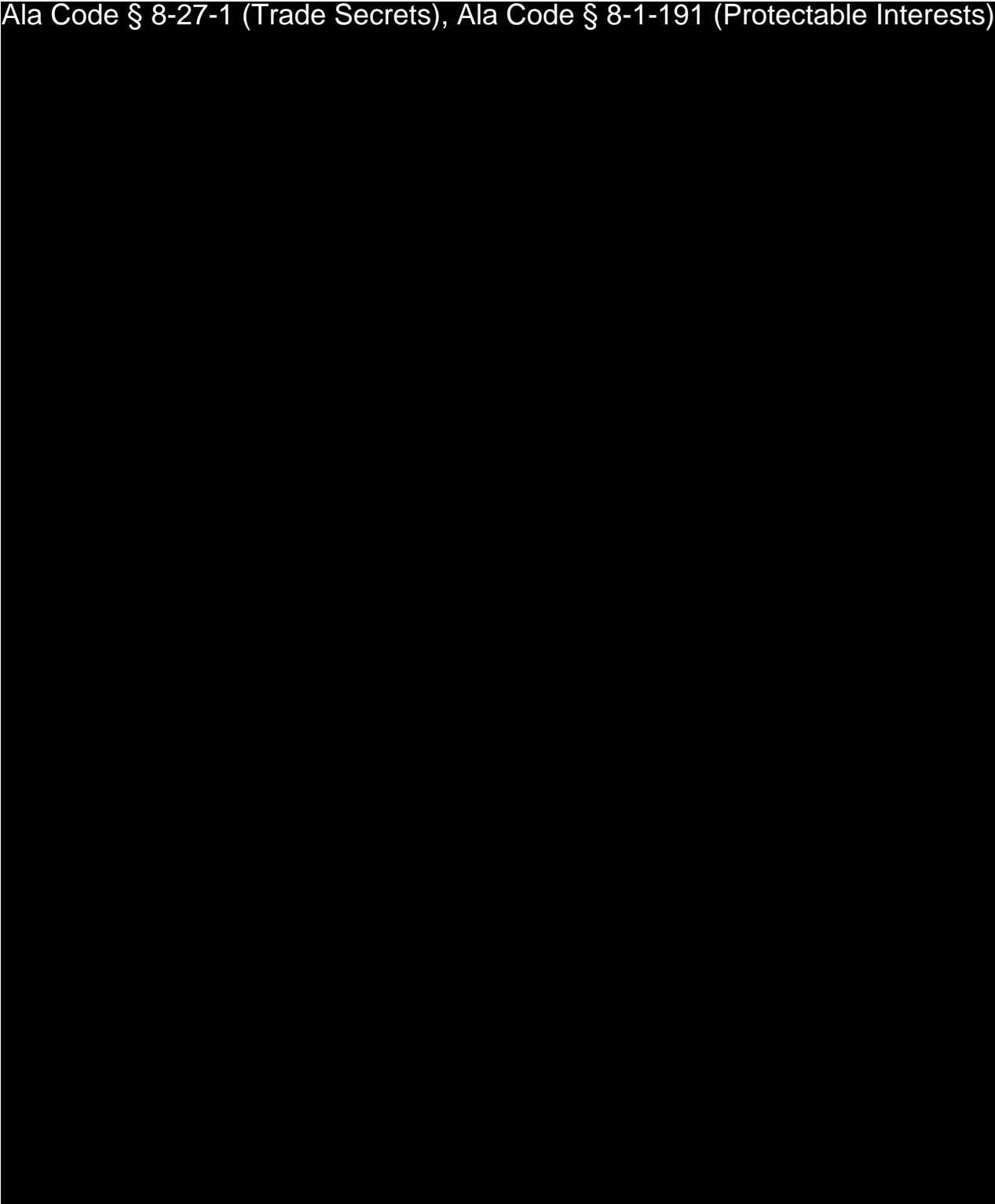
Title of Verifying Individual

12/30/2022

Verification Date

Overview of Standard Operating Procedures

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

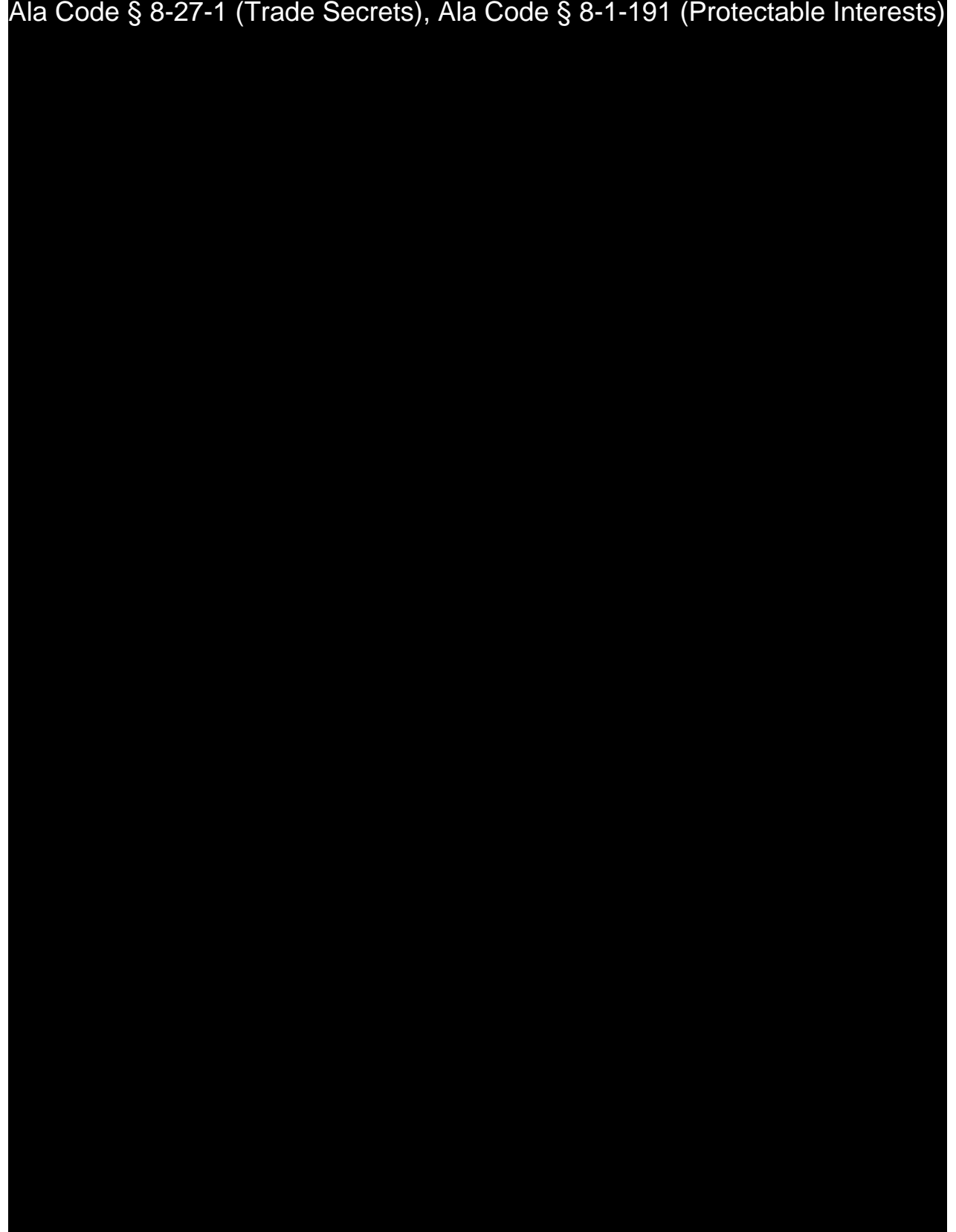


Commission Inspection: Applicant will make all Company operations, standards, policies, and procedures available for inspection by the AMCC, and other regulatory agencies upon request.

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



License Type: Processor

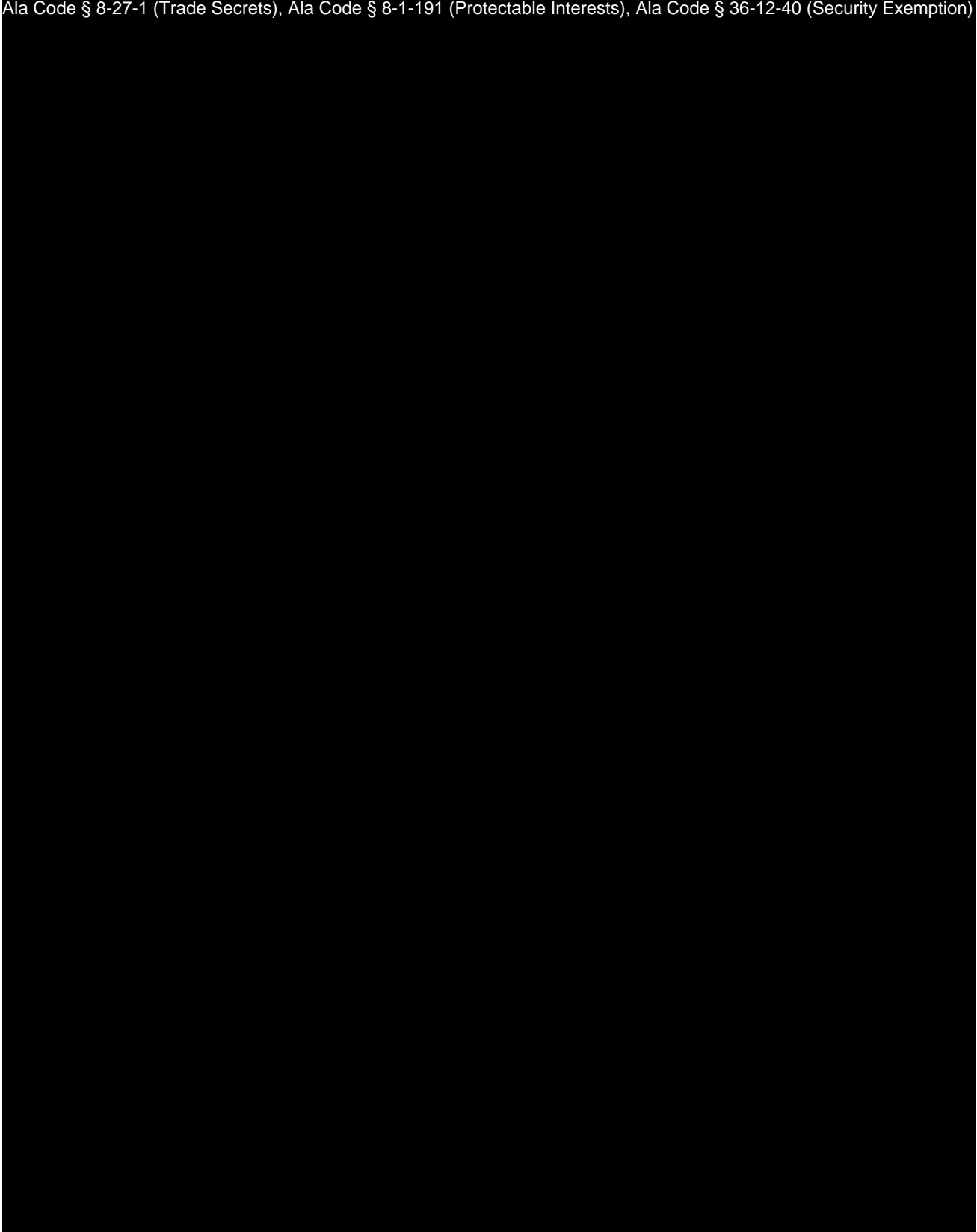
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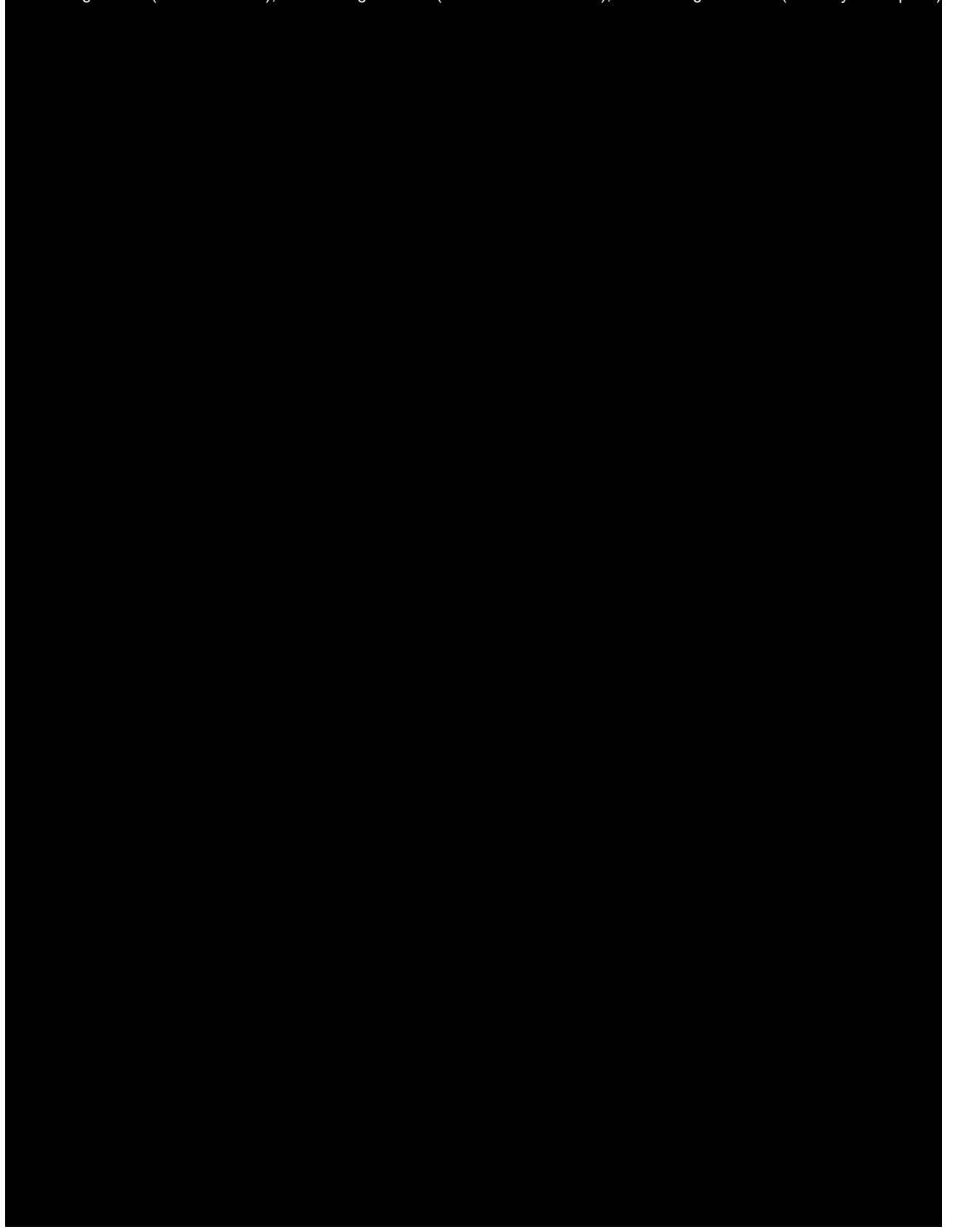
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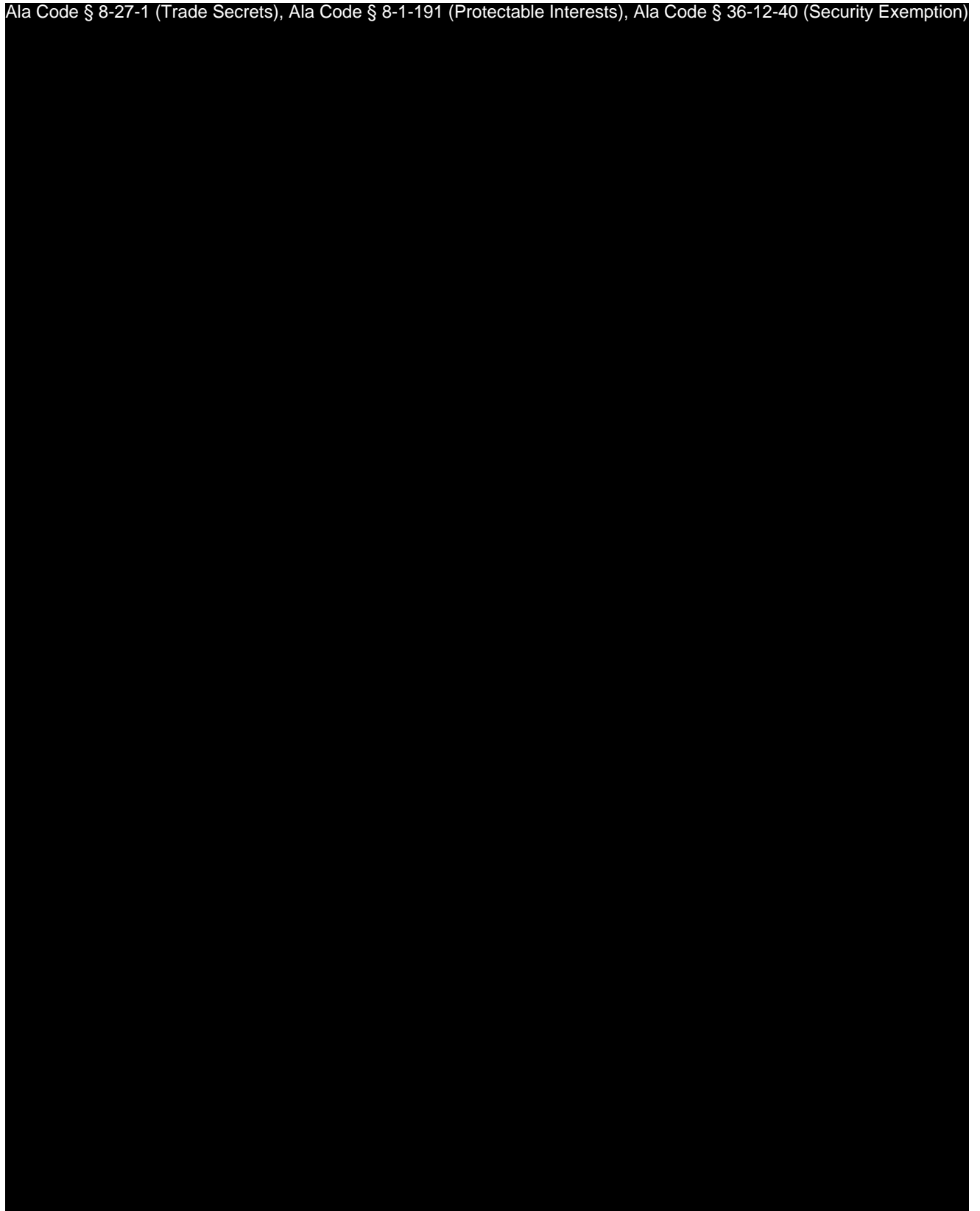
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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



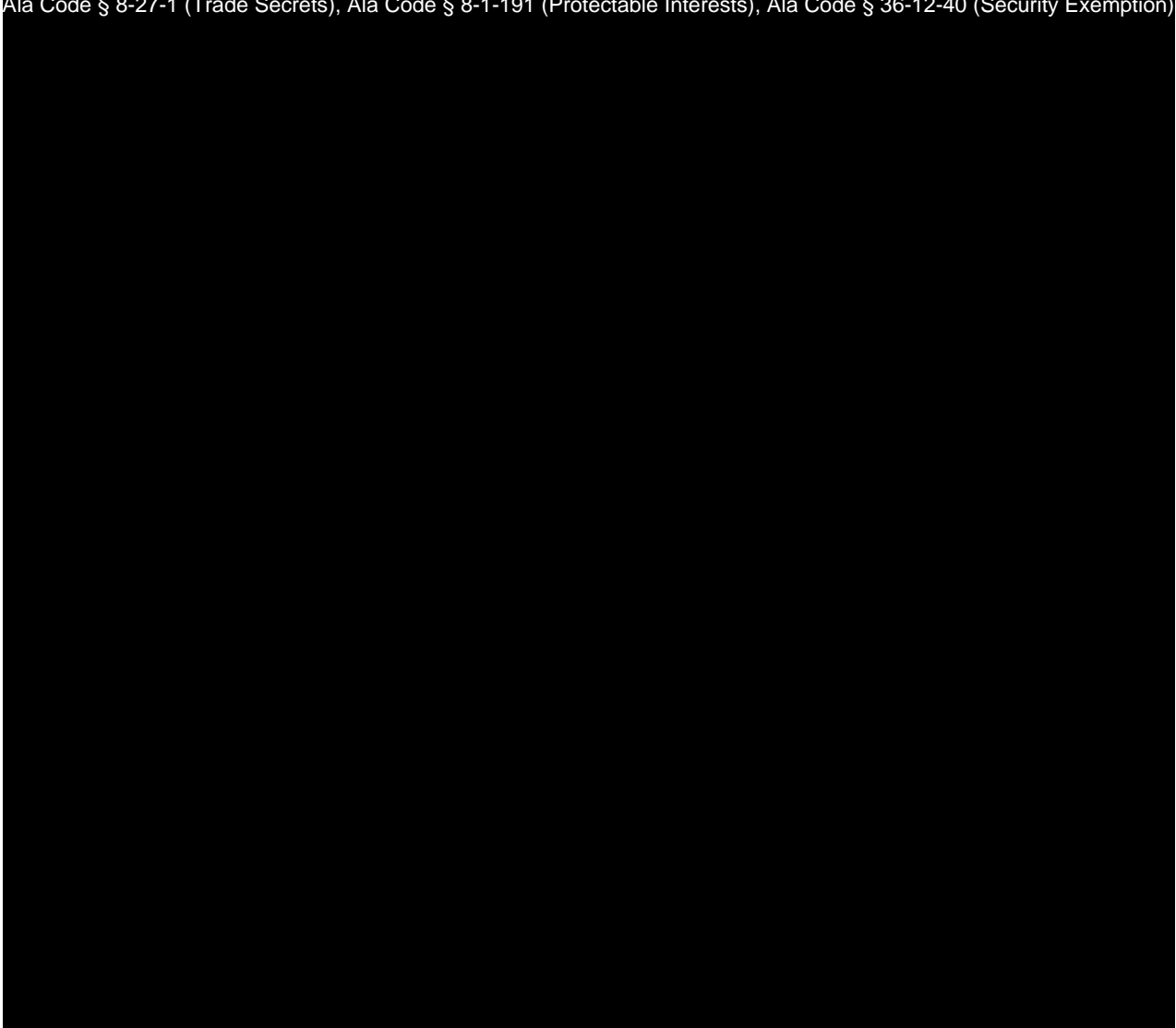
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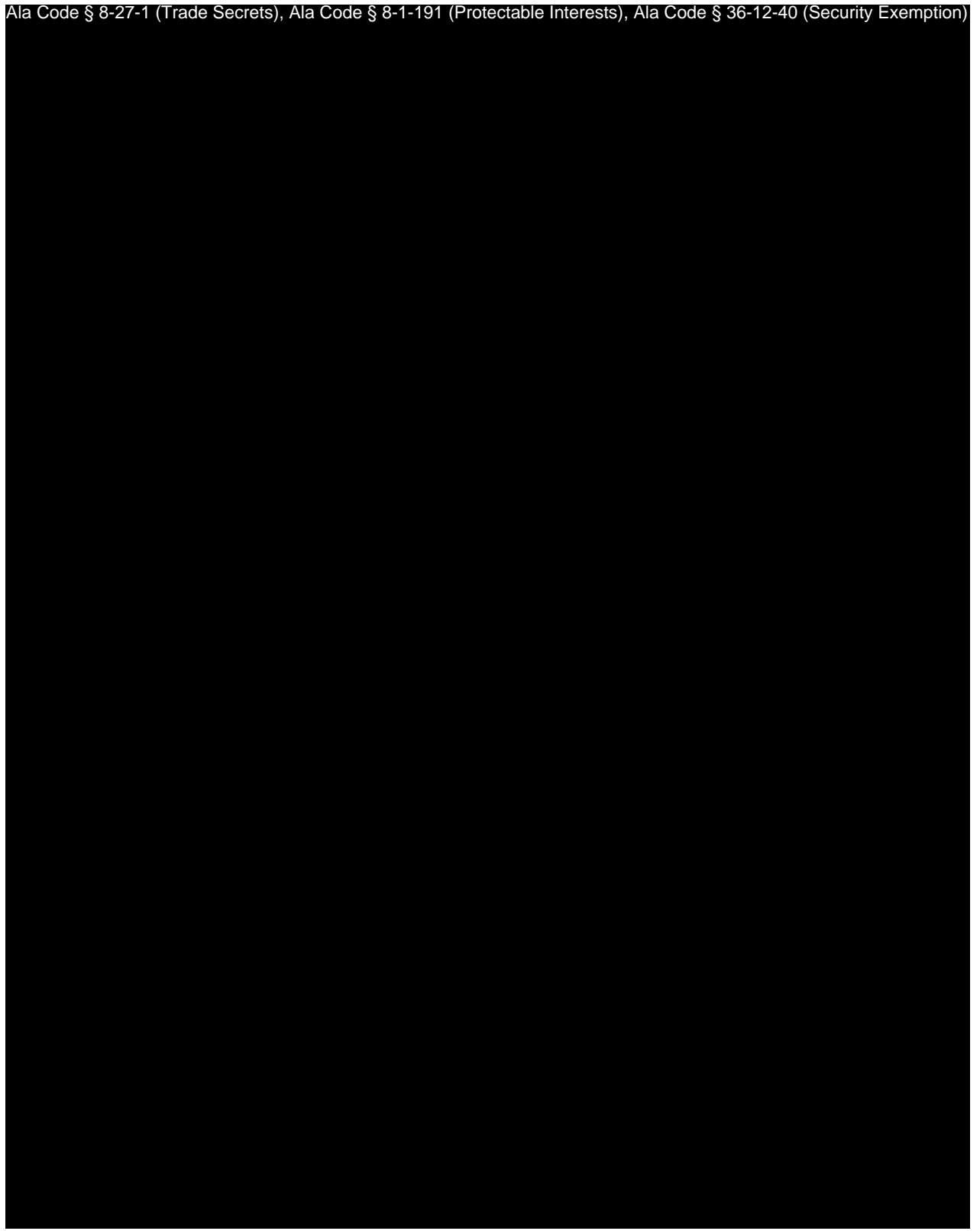
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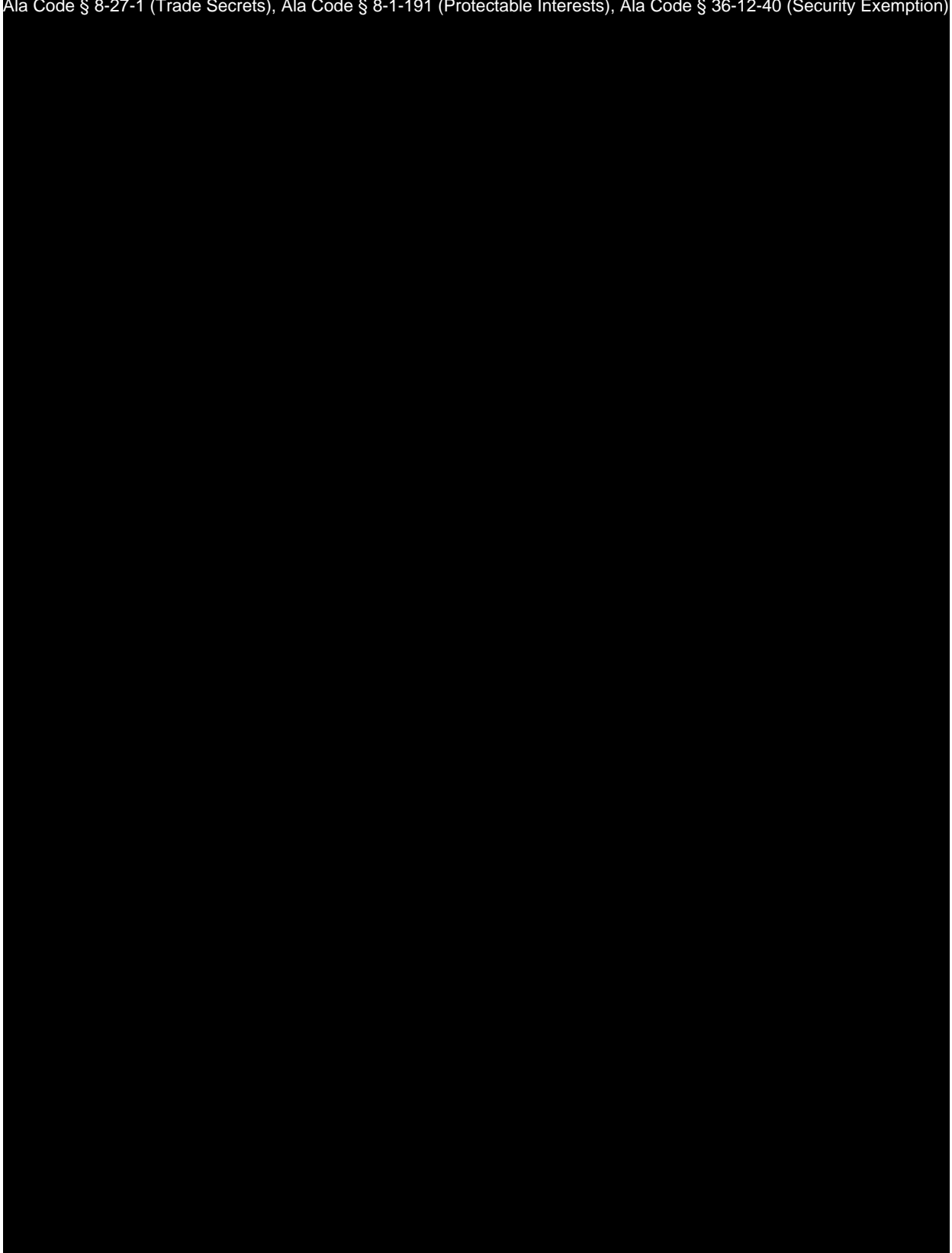
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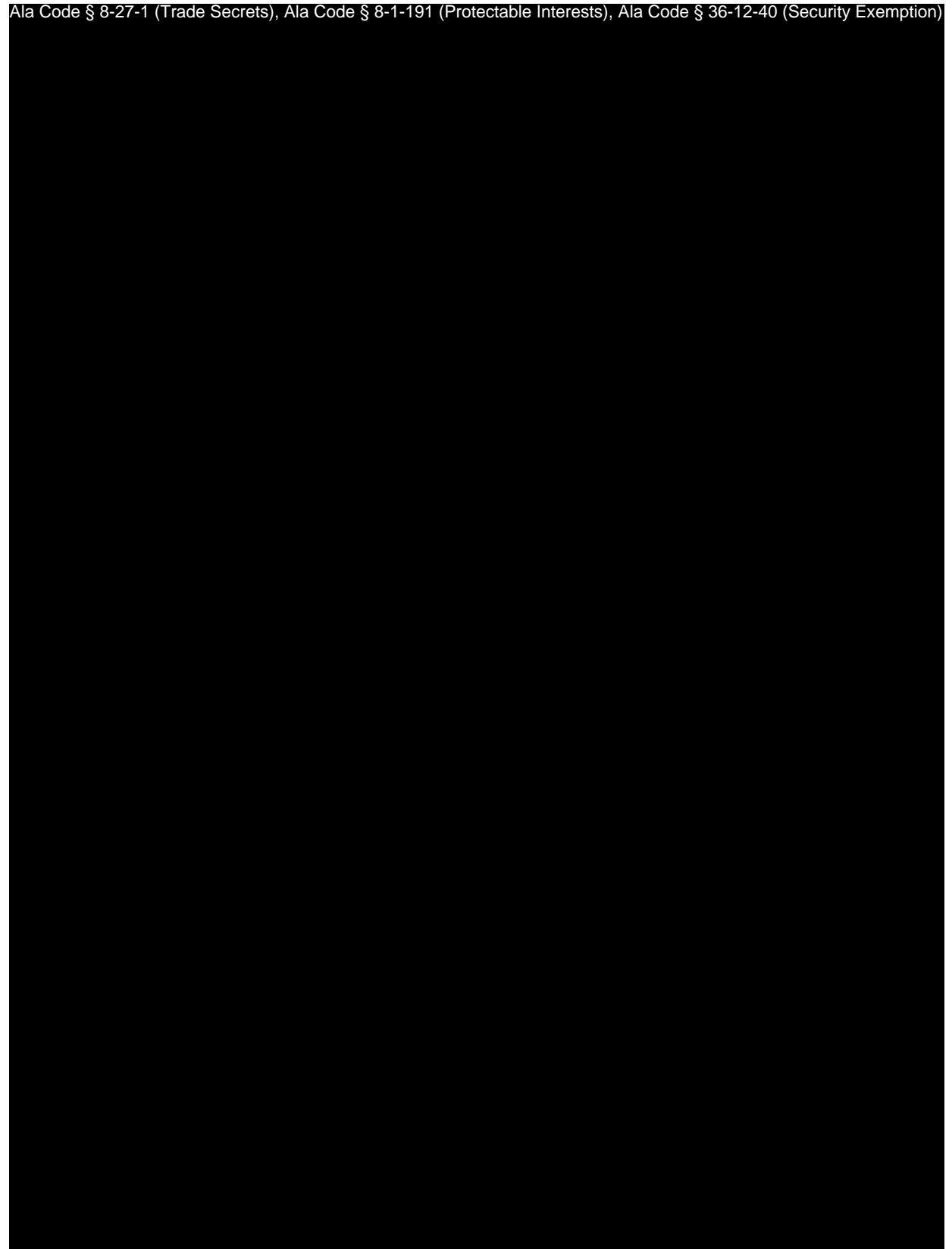
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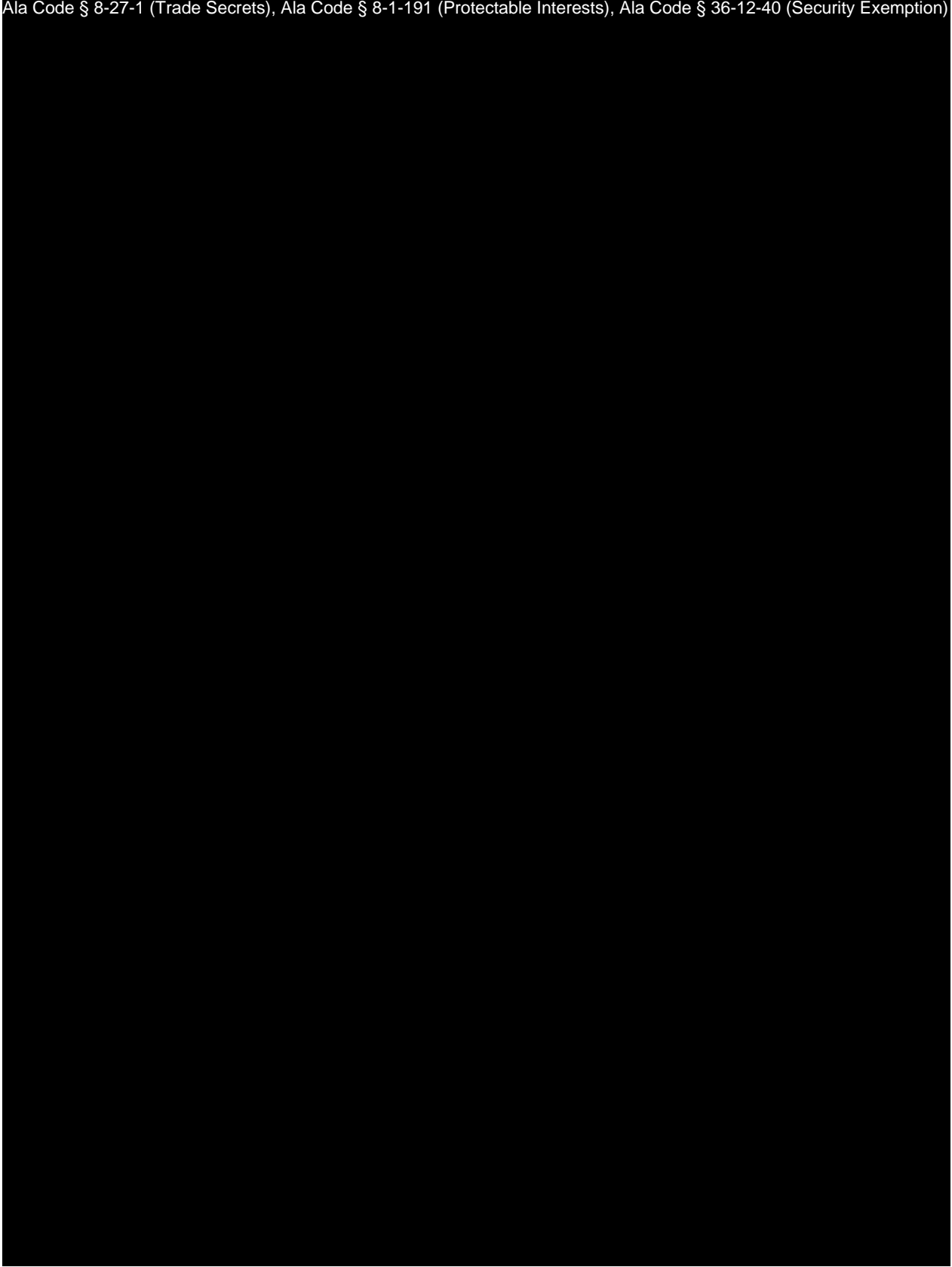
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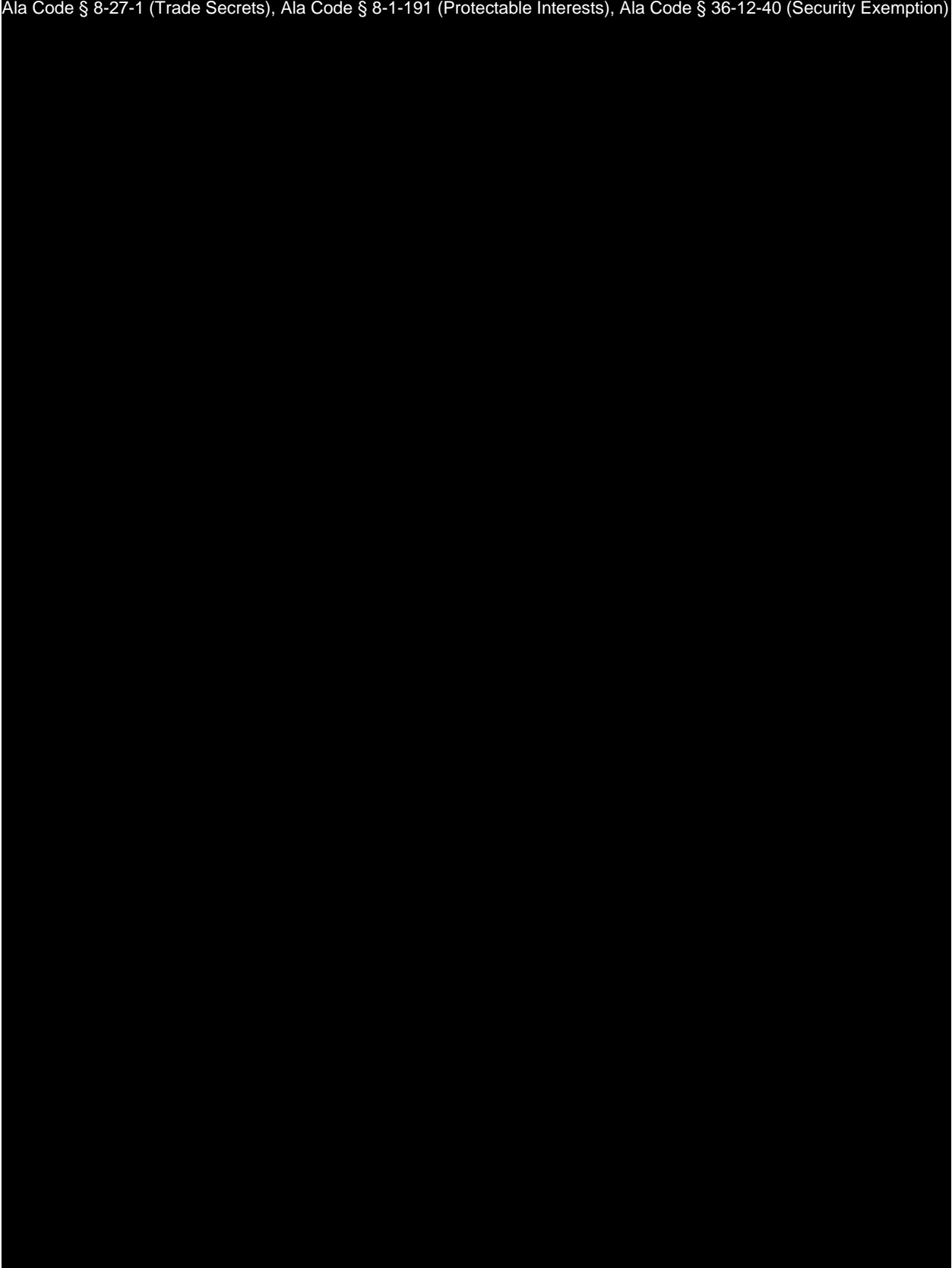
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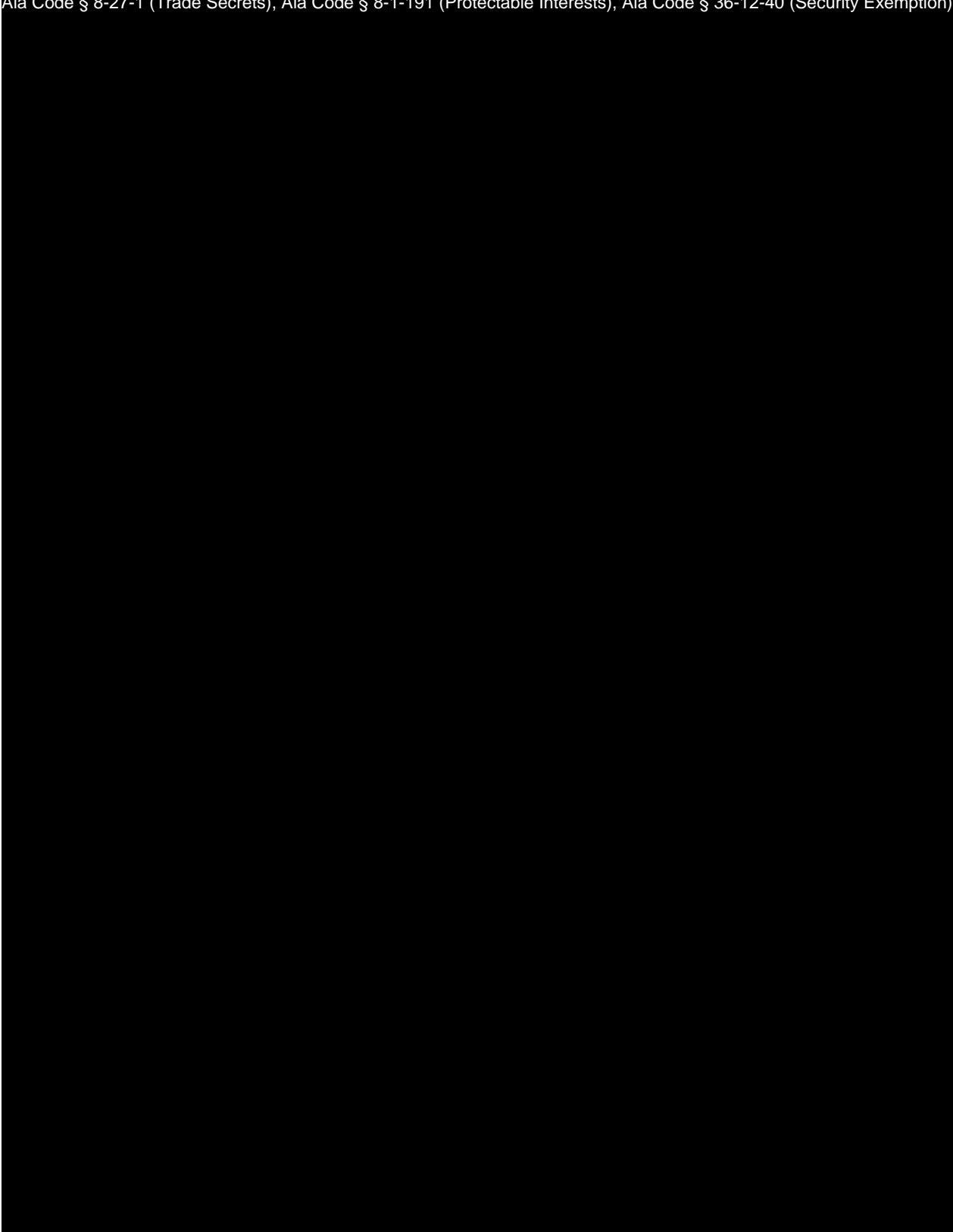
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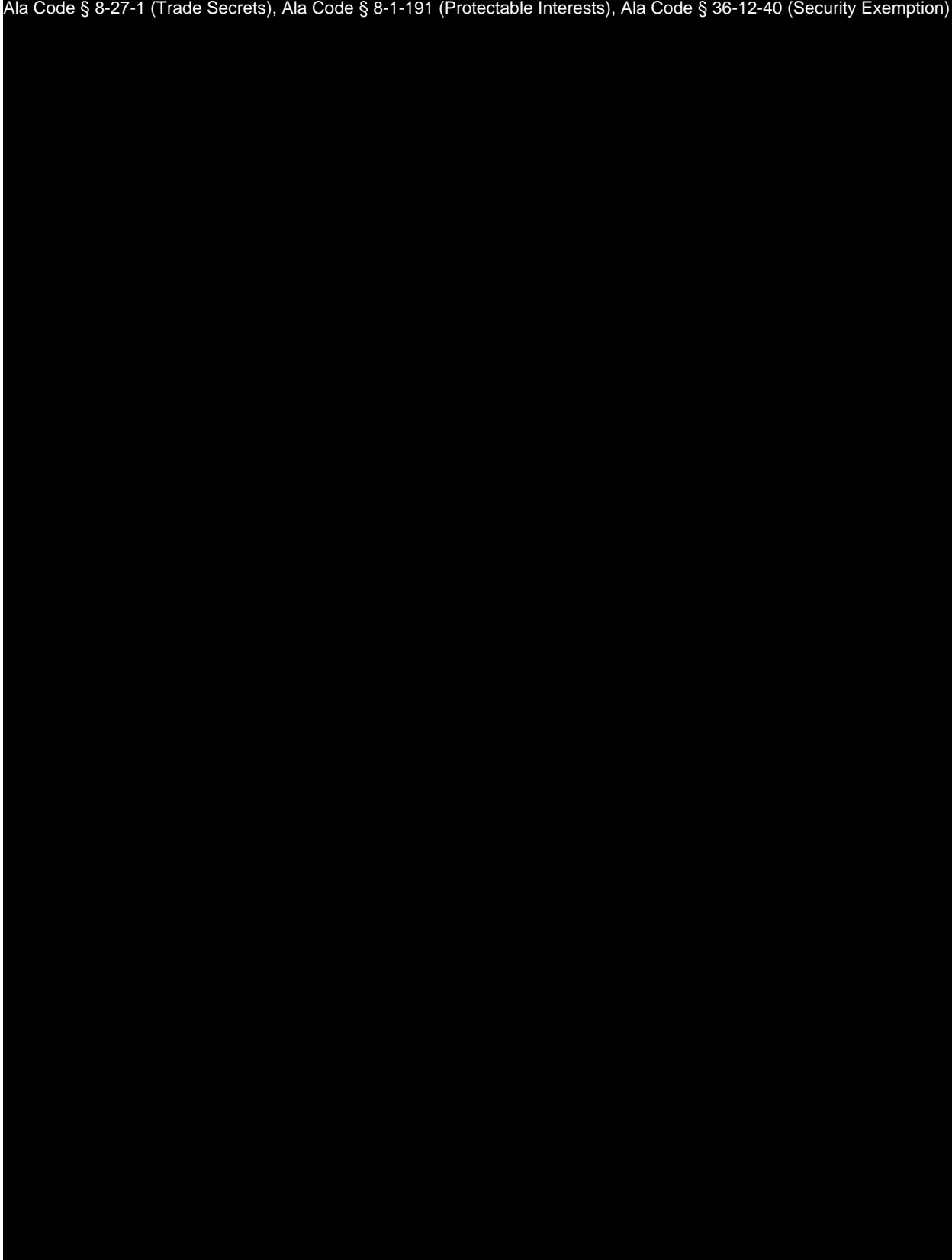
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REDACTION INDEX

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License Type: Processor

Application Number 1632

Exhibit 12 – Policies and Procedures

No Limit. Summary Required if Exceeds 25

Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

Jason Cobb

Printed Name of Verifying Individual

Ala Code § 36-12-40 (Security Exemption)

Signature of Verifying Individual

CEO

Title of Verifying Individual

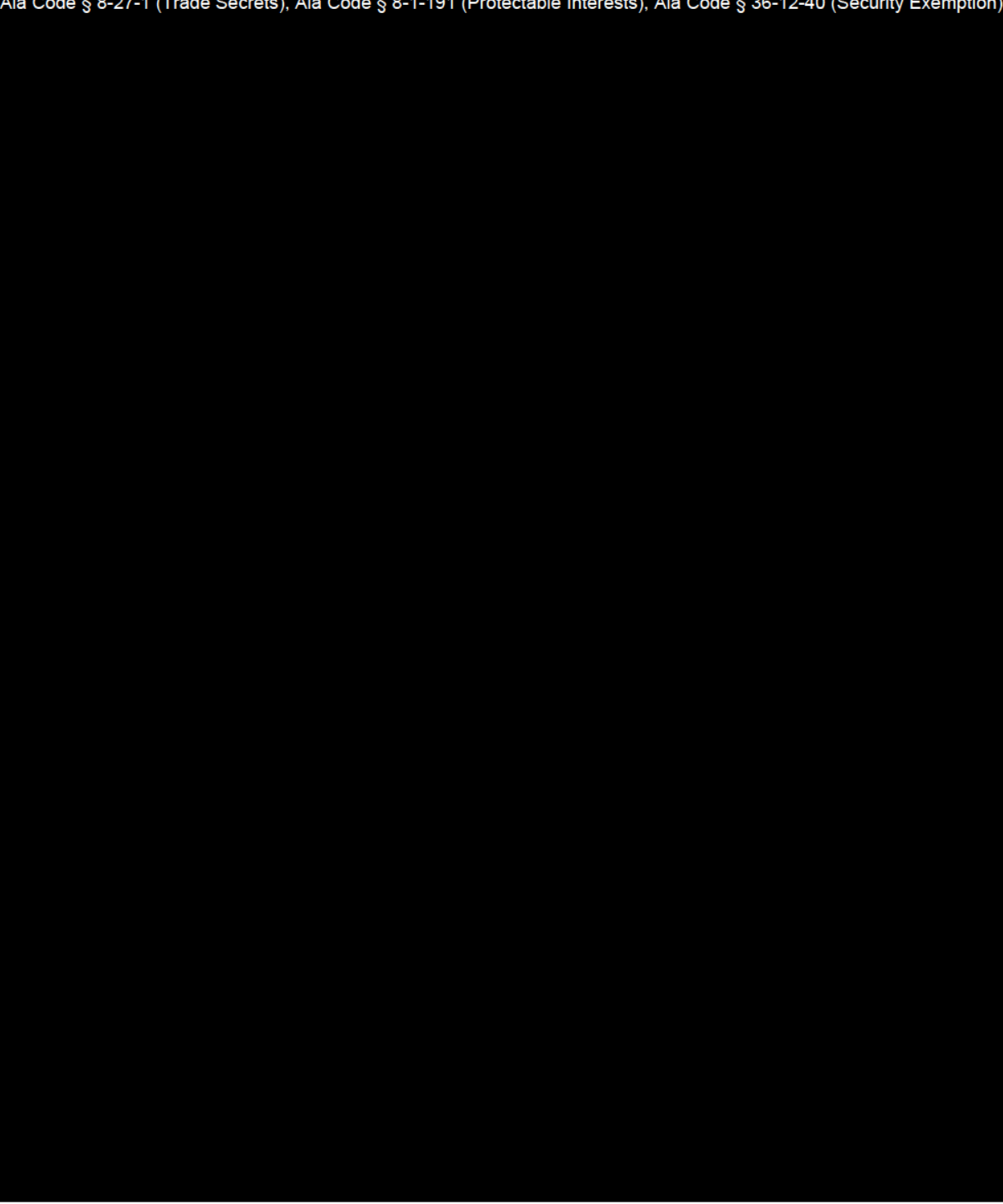
12/30/2022

Verification Date

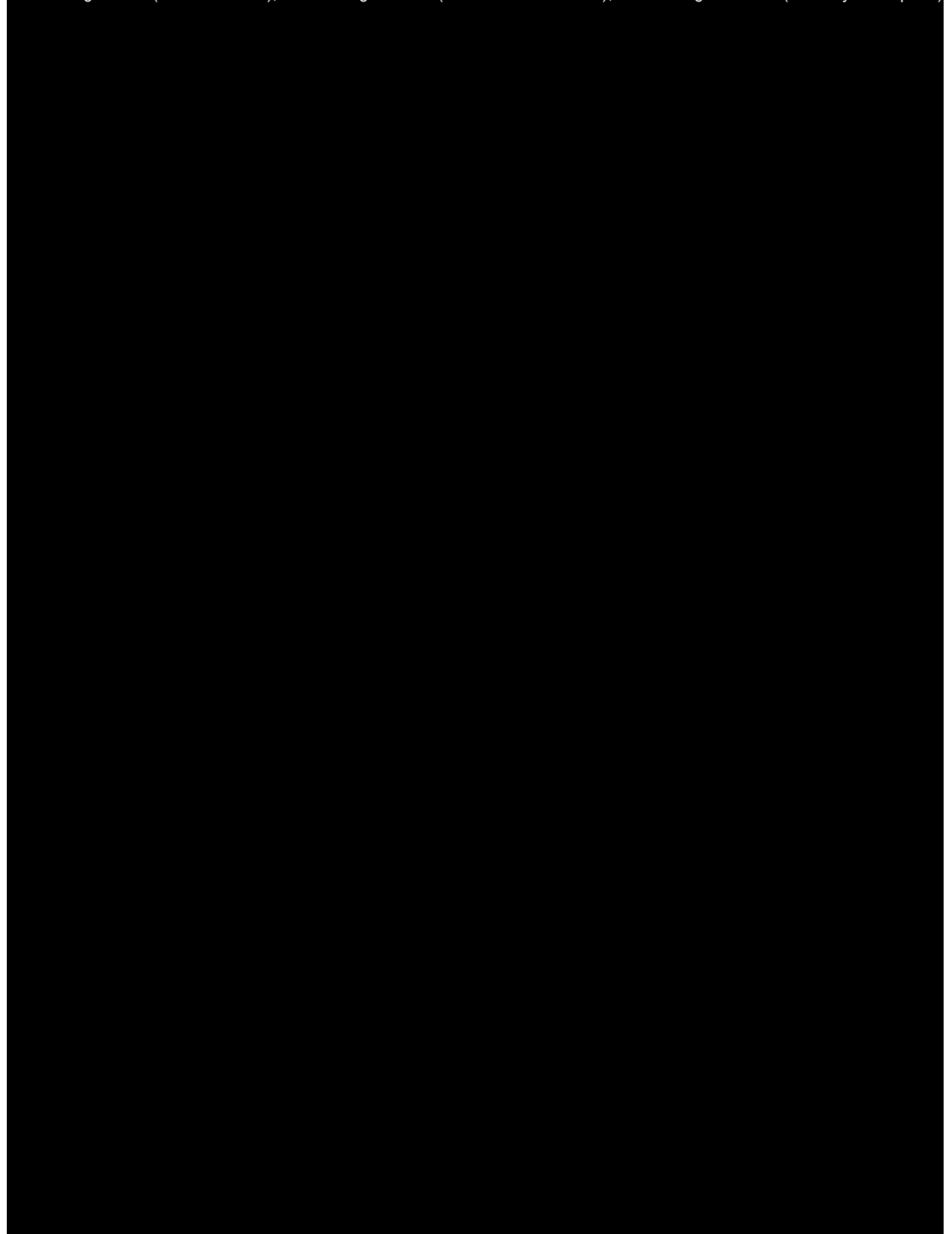
License Type: Processor

SUMMARY FOR EXHIBIT 12 — POLICIES AND PROCEDURES MANUAL

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

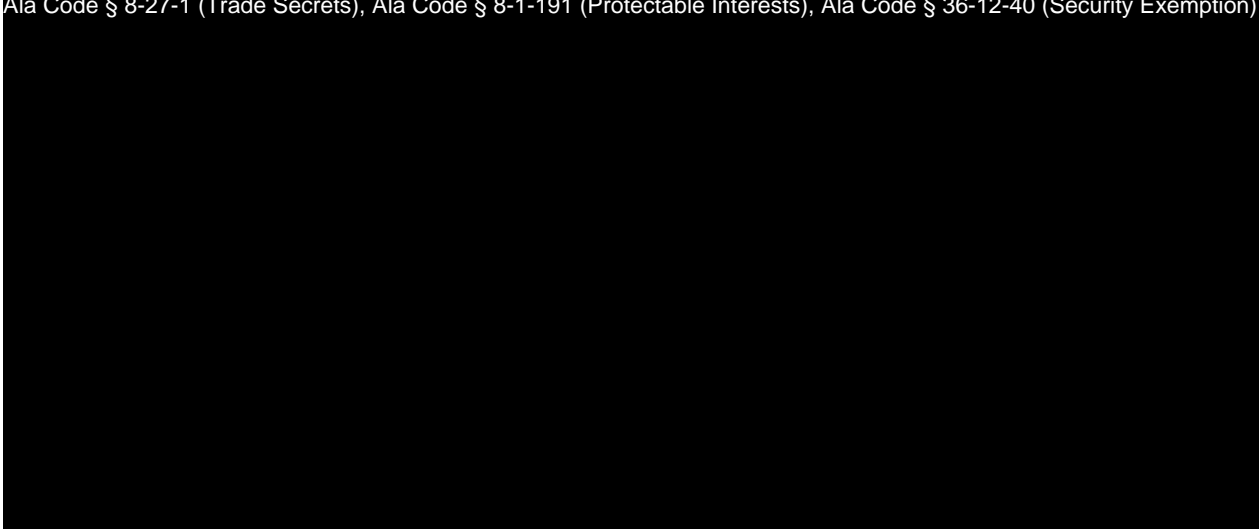


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A verified copy of the Applicant’s proposed Policies and Procedures Manual, if available. If the Applicant’s proposed Policies and Procedures Manual is unavailable, then the Applicant must provide an explanation as to why it is unavailable and when the Applicant expects it to be available.

APPLICANT PROCESSOR PROCEDURES MANUAL

**WRITTEN IN ACCORDANCE WITH THE ALABAMA MEDICAL CANNABIS COMMISSION
REGULATIONS AND ALABAMA DEPARTMENT OF AGRICULTURE AND INDUSTRIES**

REGULATIONS:

- 538-X-1 GENERAL PROVISIONS, SCOPE AND CONSTRUCTION OF RULES
- 538-X-2 REGULATION OF PATIENTS AND CAREGIVERS
- 538-X-3 APPLICATIONS AND LICENSING REQUIREMENTS - GENERALLY
- 538-X-4 LICENSEE REQUIREMENTS - GENERALLY
- 538-X-5 REGULATION OF CULTIVATORS
- 538-X-6 REGULATION OF PROCESSORS
- 538-X-7 REGULATION OF SECURE TRANSPORTERS
- 538-X-8 REGULATION OF DISPENSARIES
- 538-X-9 REGULATION OF INTEGRATED FACILITIES
- 538-X-10 REGULATION OF STATE TESTING LABORATORIES
- CHAPTER 80-14-1 MEDICAL CANNABIS CULTIVATION

RECEIVING VISITORS			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: SECURITY TEAM			

PURPOSE

To ensure full compliance and accountability when receiving visitors into the manufacturing facility. This procedure details proper visitor intake procedures, including filling out the Visitors Log, and all other requirements for compliant visitations by non-employees.

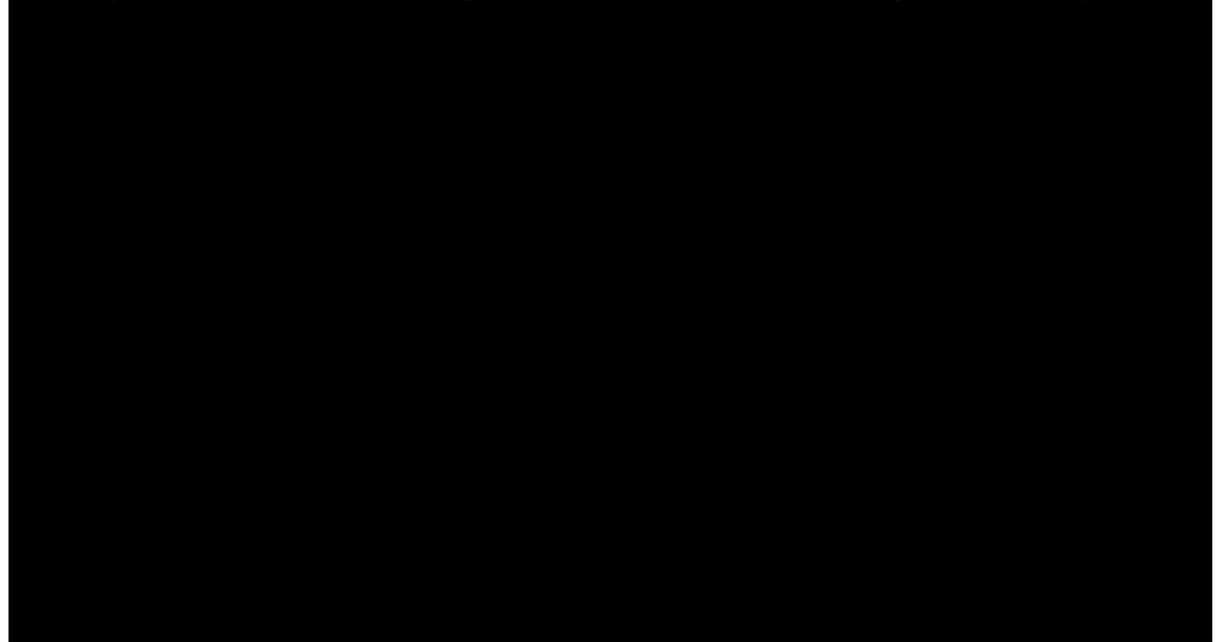
RELEVANT REGULATIONS

A.M.C.C. 538-X-6-.06 Applications and Applications Processing as to Integrated Facilities.

- (3)(i)(13) Visitors, including vendors, other licensees, Commission members, inspection personnel, or other representatives must wear a “visitor pass” or “AMCC Official” pass, as applicable, at all times while on the premises.

PROCEDURES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



ODOR CONTROL			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

PURPOSE

To mitigate nuisance odors originating at the facility promoting the safety and health of the surrounding area. Combining administrative and engineering controls will ensure that the facility does not disperse negative odors outside the premises.

PROCEDURES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



ETHANOL TRANSFER			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY:			

PURPOSE

To ensure the safe transfer of Ethanol from the large bulk tank to the smaller transfer tank or the extraction machine tank. This procedure outlines safe transport of the bulk tank to the designated transfer location, and the safe use of the hoses, valves and scale required to complete a safe ethanol.

EQUIPMENT AND SUPPLIES

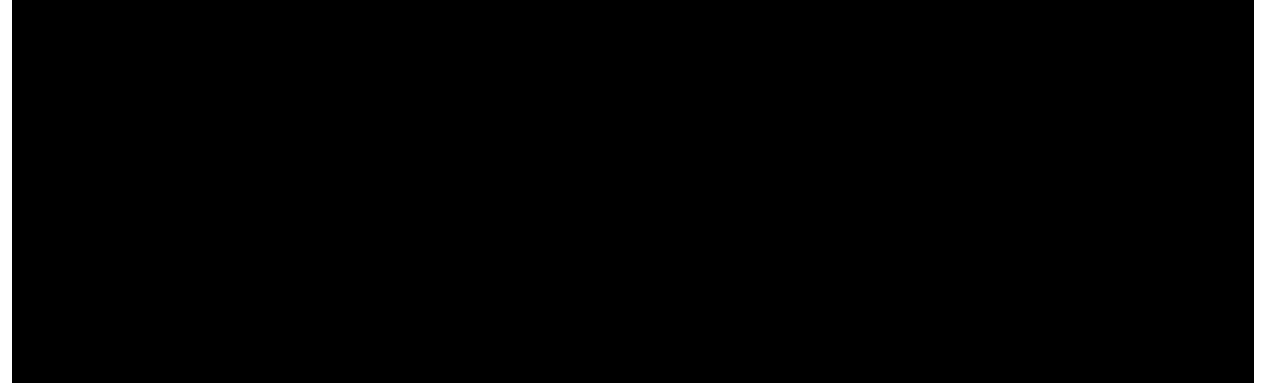
Ethanol drum or Tank	Lab Coat	Tank or Cylinder Hand Cart with Securing Straps or Chain
Class 1 Division 2 Scale	Empty Tank	Transfer Hose
Safety Glasses	Traffic Cones	Pipe Fitter Gloves
Powder Free Nitrile Gloves	Paper Towels	99% Isopropyl Alcohol

PROCEDURES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



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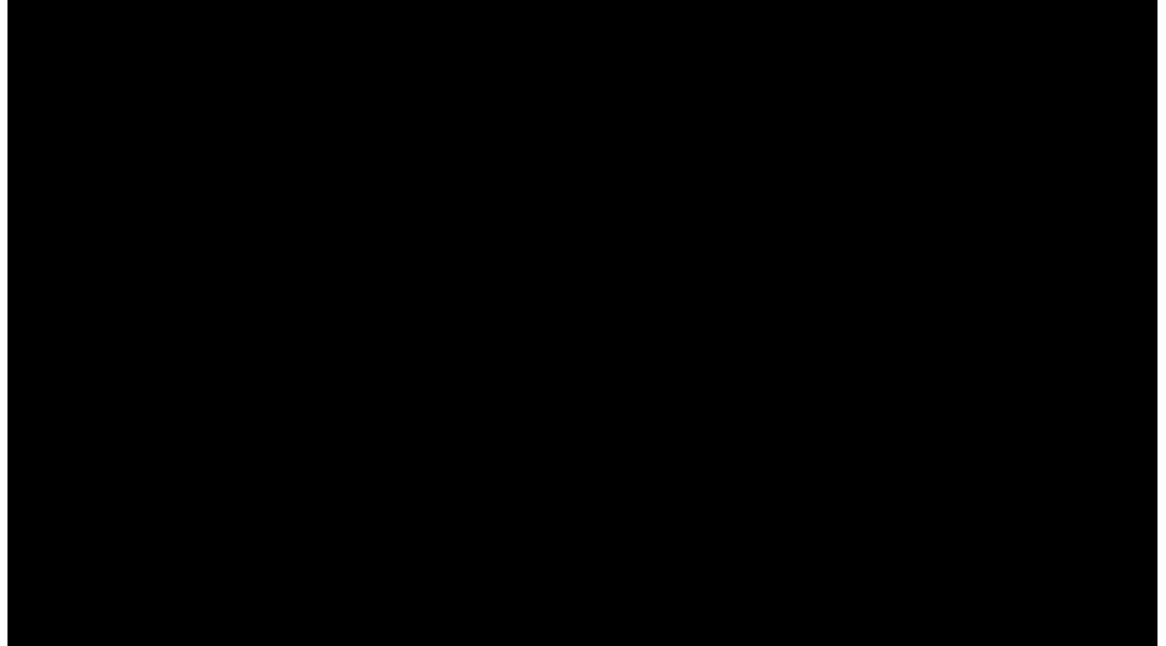


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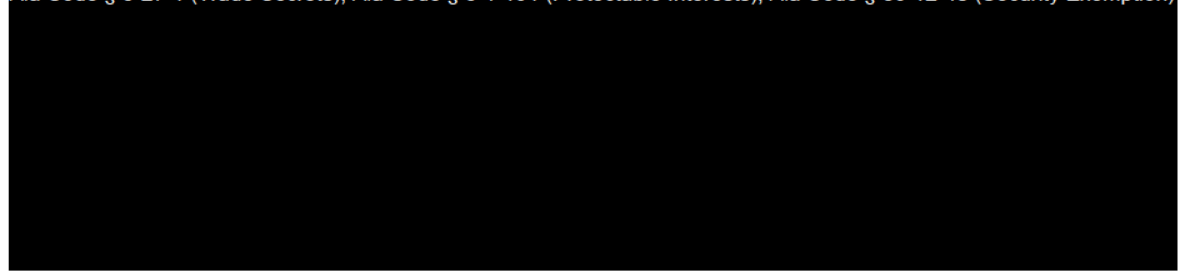


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



SANITATION

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



PURGING RESIDUAL SOLVENTS			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

PURPOSE

Purging residual solvents from extract derivatives is crucial to the safety of the end patient and the integrity of the medical cannabis.

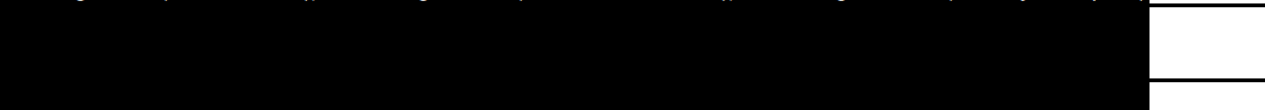
RELEVANT REGULATIONS

A.M.C.C. 538-X-6-.04 Duties of Processors

- (2) A Processor’s medical cannabis products must: (a) Be shown to meet intended levels of purity. (b) Be shown to be reliably free of toxins and contaminants (see Appendix A to Chapter 10 of these Rules). (c) Contain no additives other than pharmaceutical grade excipients. (d) Not be processed into a form that is attractive to or targets children. (e) As to all gelatinous cube, cuboid, and lozenge medical cannabis products, conform to the universal flavor established by the Commission under § 20-2A-63(f), Code of Alabama 1975 (as amended), which is peach.

EQUIPMENT AND SUPPLIES

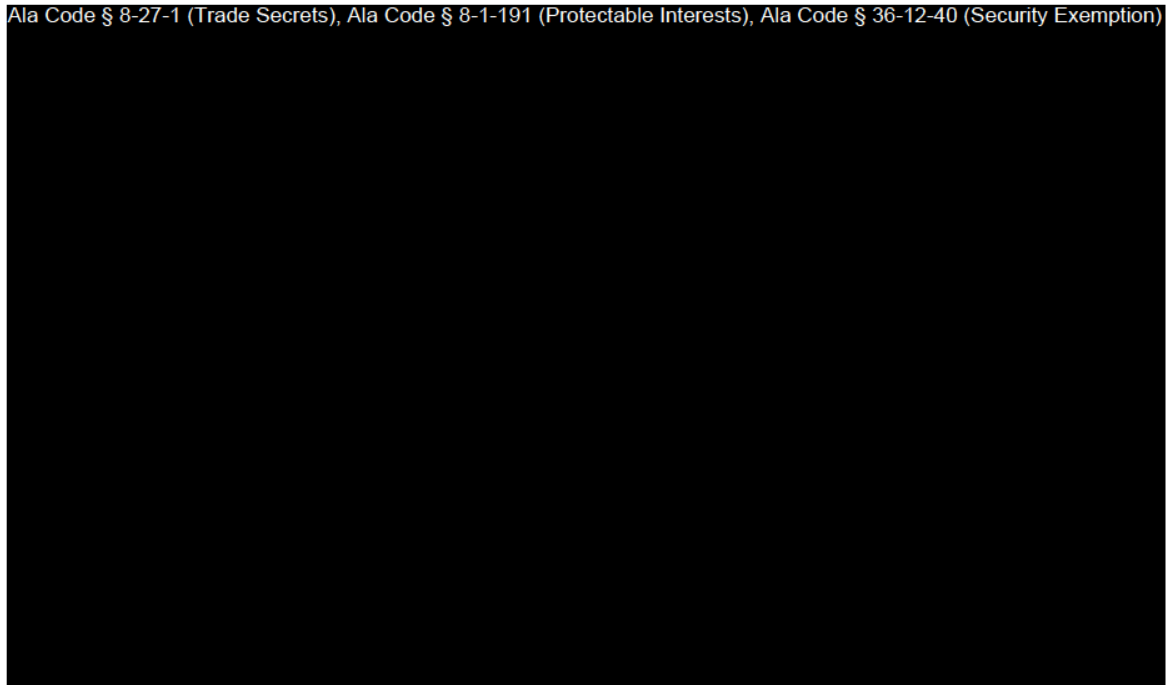
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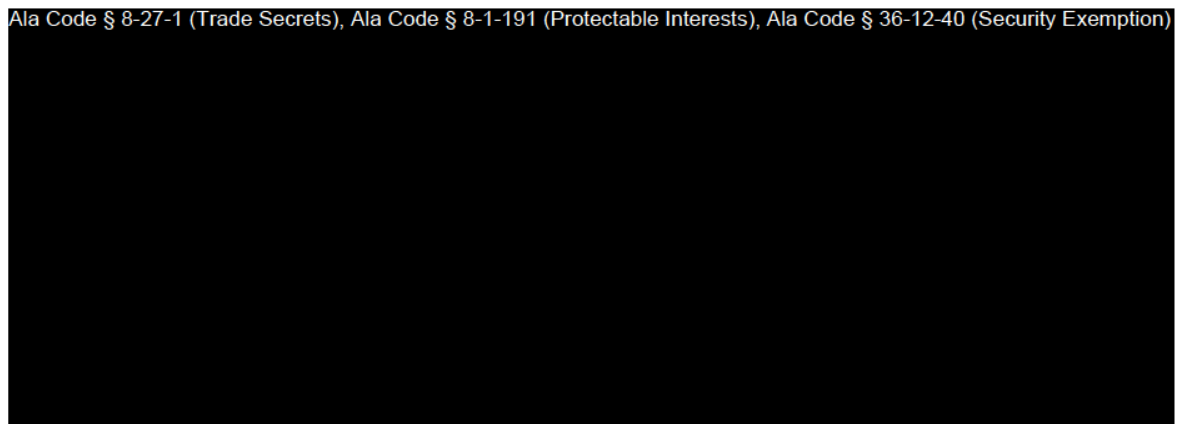
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SANITATION

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



PACKAGING AND LABELING			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

PURPOSE

To ensure all medical cannabis is compliantly and properly weighed, and packaged for each individual unit. It is imperative medical cannabis is weighed correctly to ensure accurate inventory at all times as required by the Alabama Medical Cannabis Commission (AMCC).

RELEVANT REGULATIONS

A.M.C.C. §538-x-6-.05 Labeling and Packaging by Processors.

- (1) A Processor must properly package its approved medical cannabis products as follows:
 - (a) Packaging and containers must be child-resistant.
 - (b) Packaging and containers must be tamper-evident.
 - (c) Packaging and containers (or labels, see below) must identify the Processor and type of product.
 - (d) Packaging and containers must not be attractive to minors.
 - (e) Packaging and containers must be designed to minimize appeal to children.
 - (f) Packaging and containers must not contain any false statement or statement that advertises health benefits or therapeutic benefits of medical cannabis.

- (2) A Processor must properly label its packages of medical cannabis as follows:
 - (a) Labels must be securely attached to or imprinted on the accompanying packaging.
 - (b) Labels must be clear and contain print of a size and quality so as to be legible to the average patient or caregiver with a sixth-grade education.
 - (c) Labels must identify the type of product (pills, tinctures, transdermal patches, etc.).
 - (d) Labels must contain lot and batch numbers.
 - (e) Labels must contain the name of and a license identification number for the Cultivator.
 - (f) Labels must contain the name of and a license identification number for the Processor.
 - (g) Labels must identify the cannabinoid content and potency of the product.
 - (h) Labels must identify the amount, number or count of the product in the package on which they are attached.
 - (i) Labels must contain the universal state symbol approved by the Commission, printed in color at least one-half inch by one-half inch in size.
 - (j) Labels must contain the words “Keep out of reach of children.”
 - (k) Labels must contain a digital image or QR Code for purposes of tracking medical cannabis products and must interface with the Statewide Seed-to-Sale Tracking System.
 - (l) Labels, or if space is not available, a package insert, must contain the following: “WARNING: This product may make you drowsy or dizzy. Do not drink alcohol with this product. Use care when operating a vehicle or other machinery. Taking this product with medication may lead to harmful side effects or complications. Consult your physician before taking this product with any medication. Women who are breastfeeding, pregnant, or plan to become pregnant should discuss medical cannabis use with their physicians.”
 - (m) Labels must not be attractive to minors.

License Type: Processor

- (n) Labels must not contain any false statement or statement that advertises health benefits or therapeutic benefits of medical cannabis.
- (o) At the time of labeling, Processors must provide QR Coding or other approved digital coding to identify, at a minimum, the following:
 - (1) The Cultivator or Integrated Facility, by facility, from which the medical cannabis was sourced,
 - (2) The name of the Processor and the Processor's facility of origin, (3) The type of product,
 - (4) The date of processing and packaging,
 - (5) The date of the Processor's State Testing Laboratory approval,
 - (6) The expiration date (or, if no expiration date, a notation that the expiration date does not apply), and
 - (7) The Alabama Poison Control contact information as provided on the AMCC website.

EQUIPMENT AND SUPPLIES

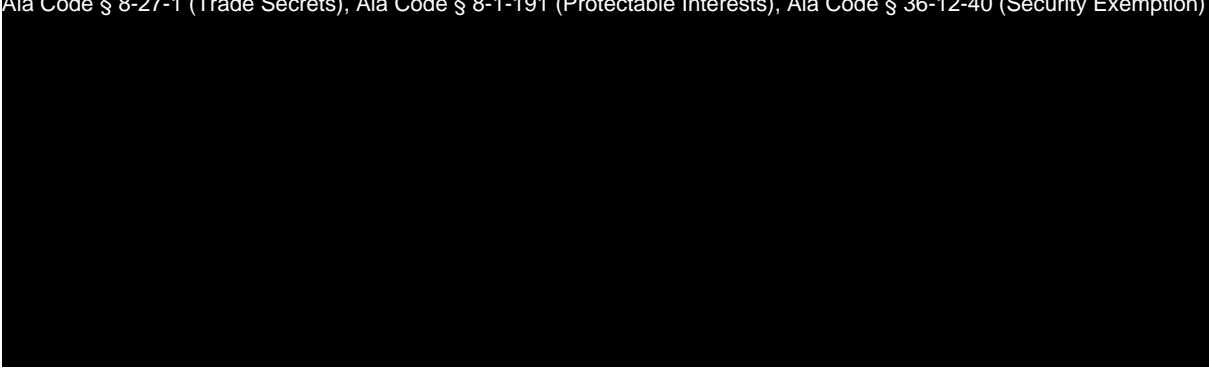
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

PROCEDURES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

License Type: Processor

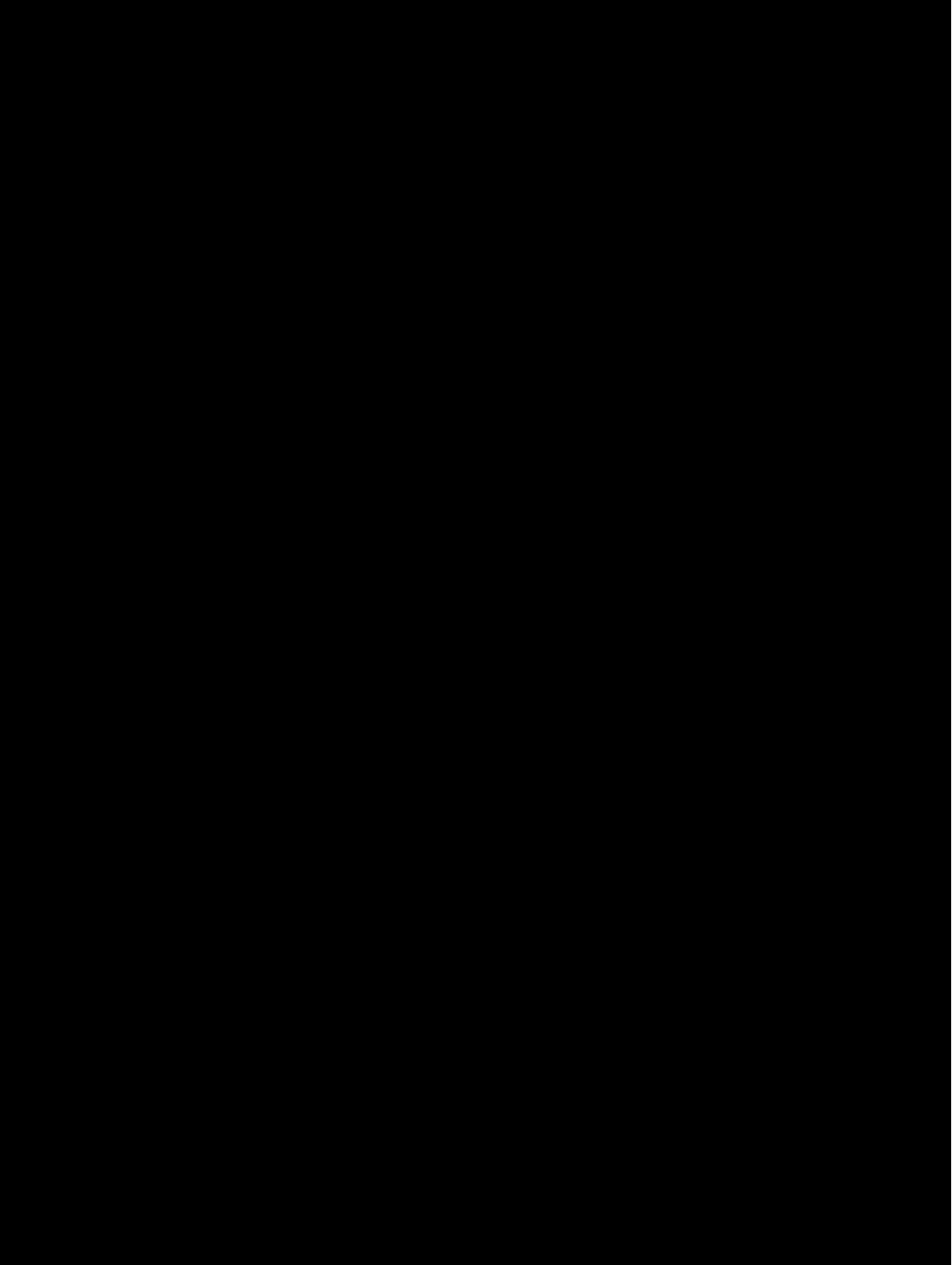
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

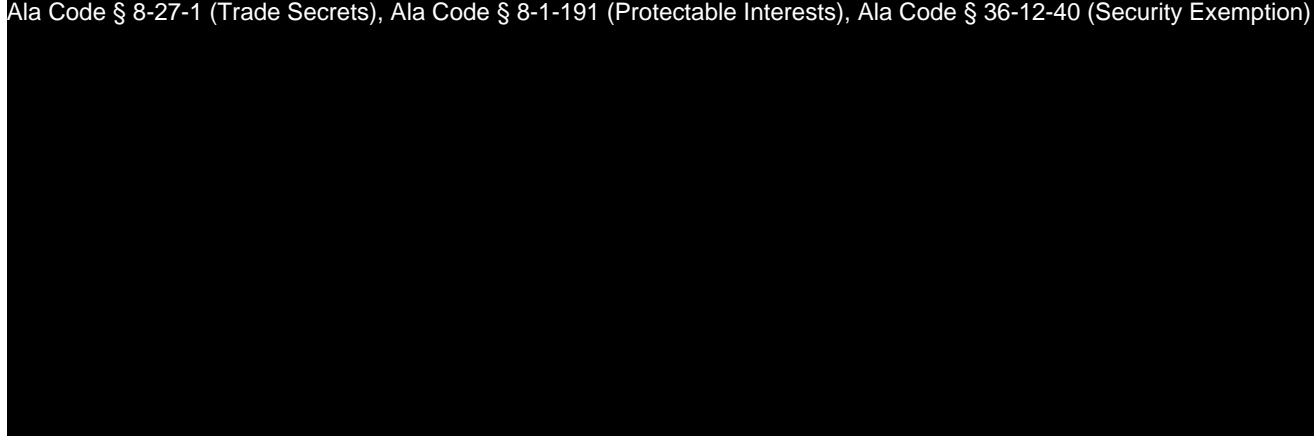
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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)





WINTERIZATION			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

PURPOSE

To ensure cannabis extracts are properly winterized.

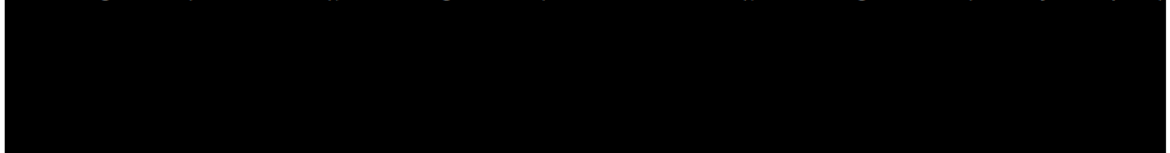
RELEVANT REGULATIONS

A.M.C.C. 538-X-6-.04 Duties of Processors

- (2) A Processor's medical cannabis products must:
 - (a) Be shown to meet intended levels of purity.
 - (b) Be shown to be reliably free of toxins and contaminants (see Appendix A to Chapter 10 of these Rules).
 - (c) Contain no additives other than pharmaceutical grade excipients.
 - (d) Not be processed into a form that is attractive to or targets children.
 - (e) As to all gelatinous cube, cuboid, and lozenge medical cannabis products, conform to the universal flavor established by the Commission under § 20-2A-63(f), Code of Alabama 1975 (as amended), which is peach.

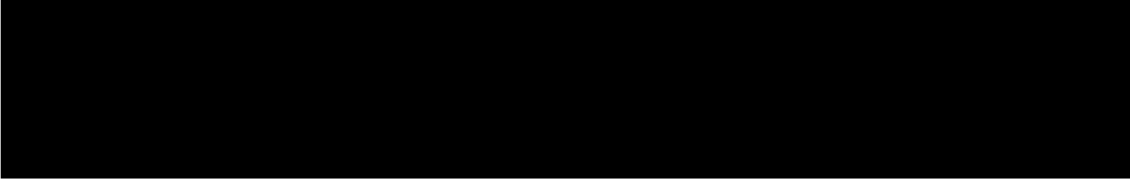
EQUIPMENT AND SUPPLIES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



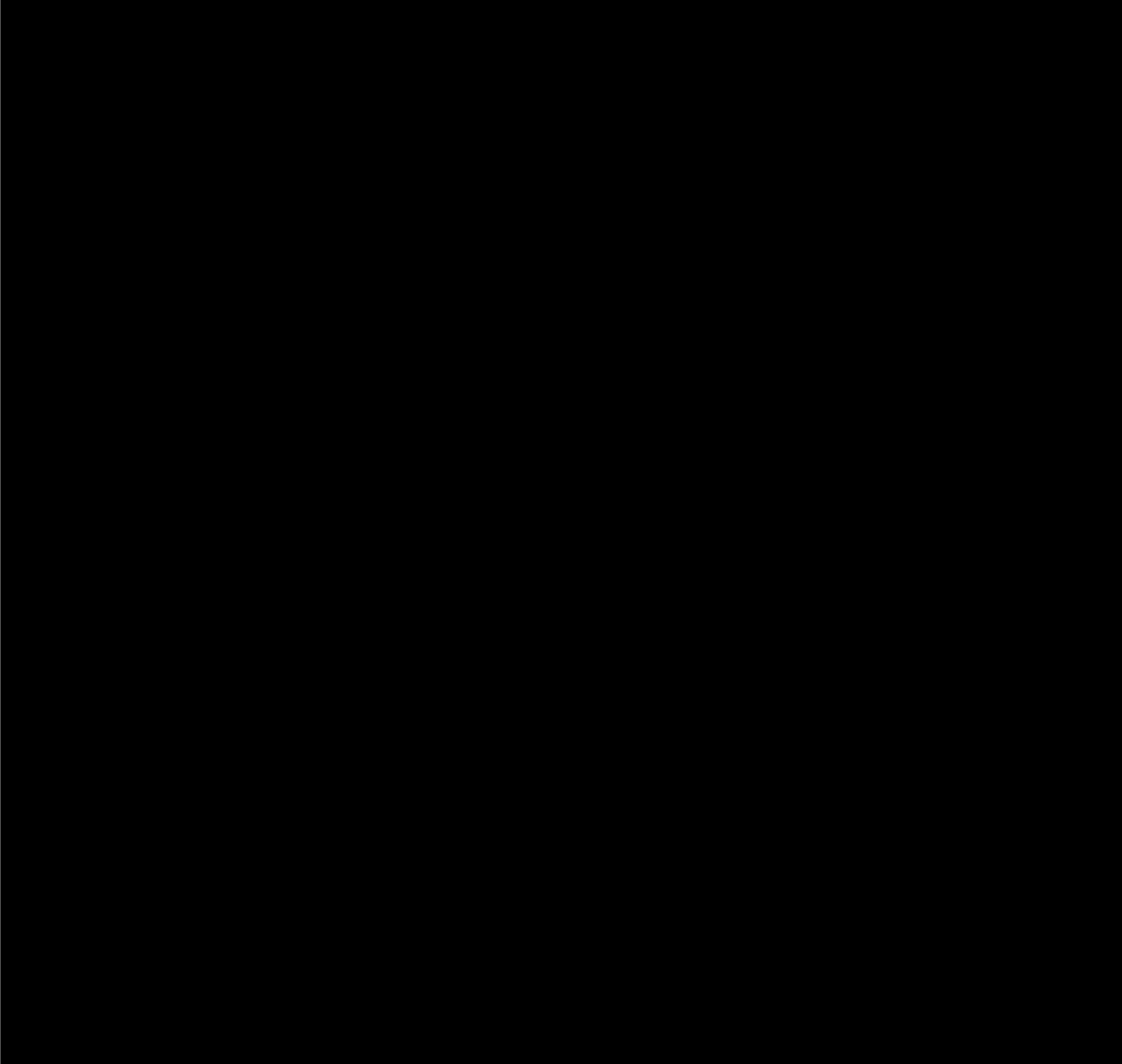
License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



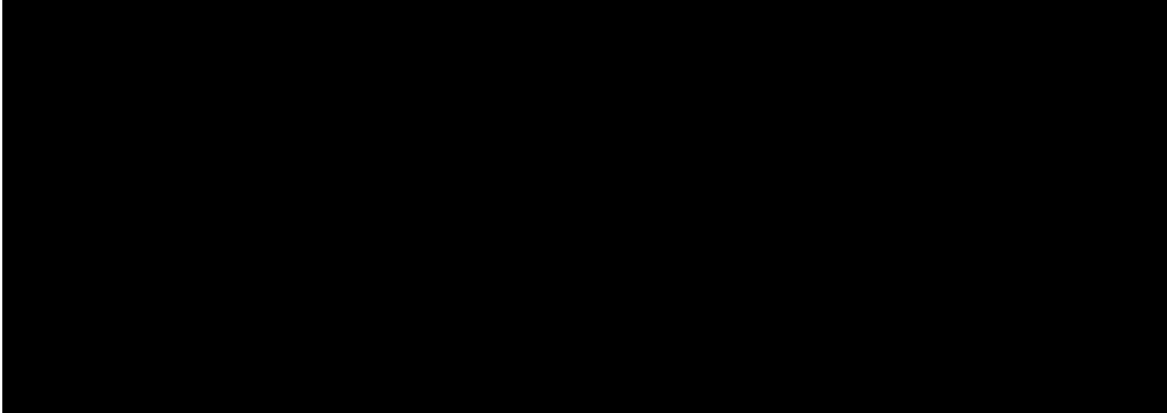
PROCEDURES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



SANITATION

Ensure all containers and utensils used in the process are cleaned with isopropyl alcohol and placed in their designated area.

DECARBOXYLATION			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

PURPOSE

To outline the steps required to decarboxylate and activate THC compounds within extracted cannabis oil after solvents are purged, including raw cannabis material, prior to extraction. This is a heat process used to prepare cannabis oil for infusion into other medical cannabis products and raw cannabis material for extraction.

RELEVANT REGULATIONS

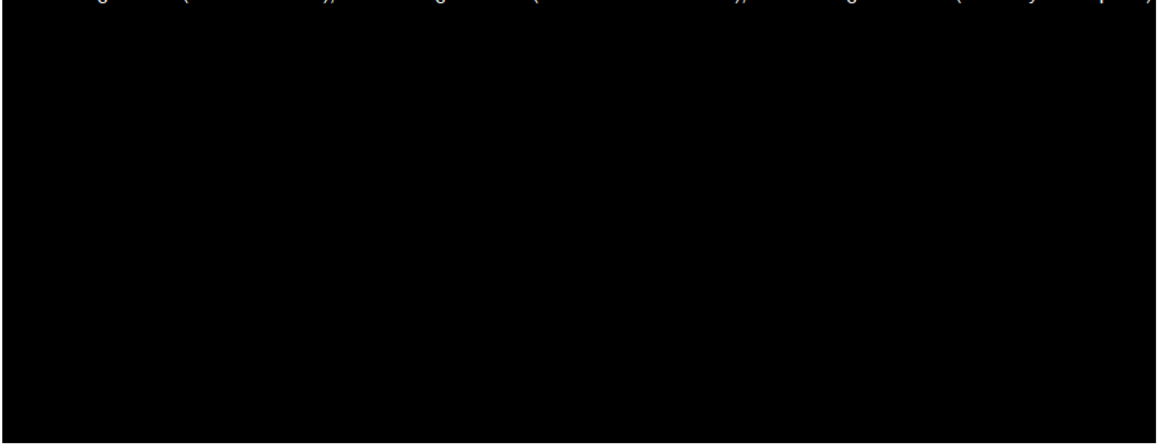
A.M.C.C. 538-X-6-.04 Duties of Processors

- (2) A Processor's medical cannabis products must:
 - (a) Be shown to meet intended levels of purity.
 - (b) Be shown to be reliably free of toxins and contaminants (see Appendix A to Chapter 10 of these Rules).
 - (c) Contain no additives other than pharmaceutical grade excipients.
 - (d) Not be processed into a form that is attractive to or targets children.
 - (e) As to all gelatinous cube, cuboid, and lozenge medical cannabis products, conform to the universal flavor established by the Commission under § 20-2A-63(f), Code of Alabama 1975 (as amended), which is peach.

License Type: Processor


EQUIPMENT AND SUPPLIES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

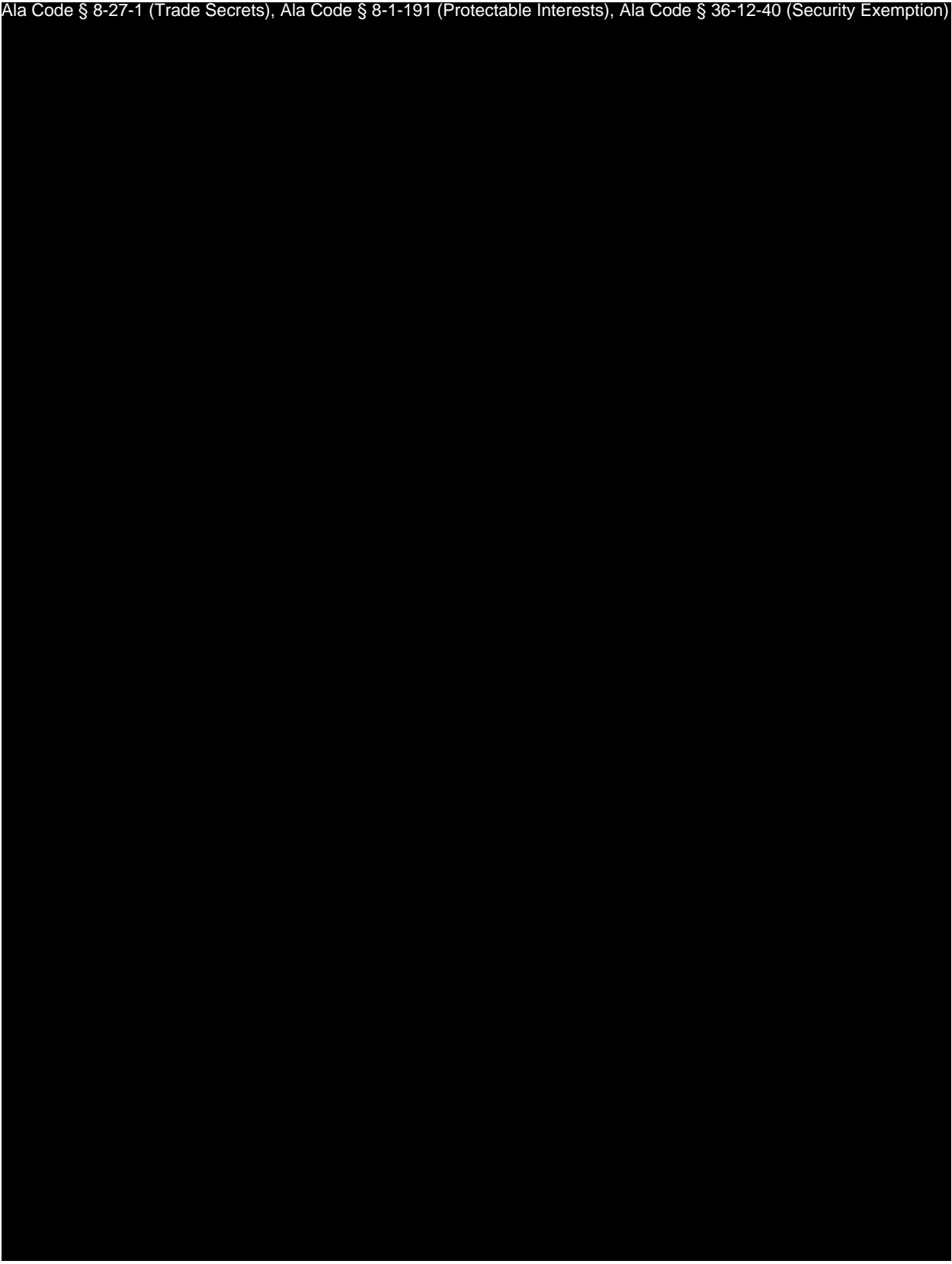


PROCEDURES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

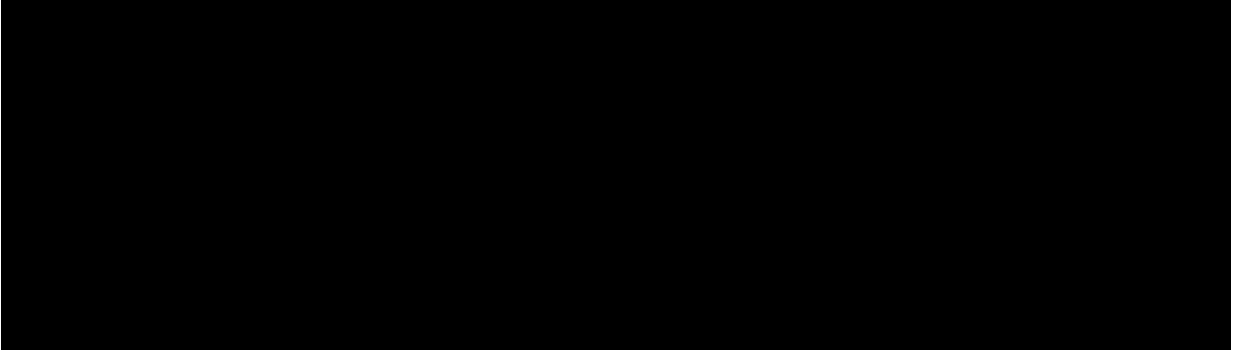


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



License Type: Processor

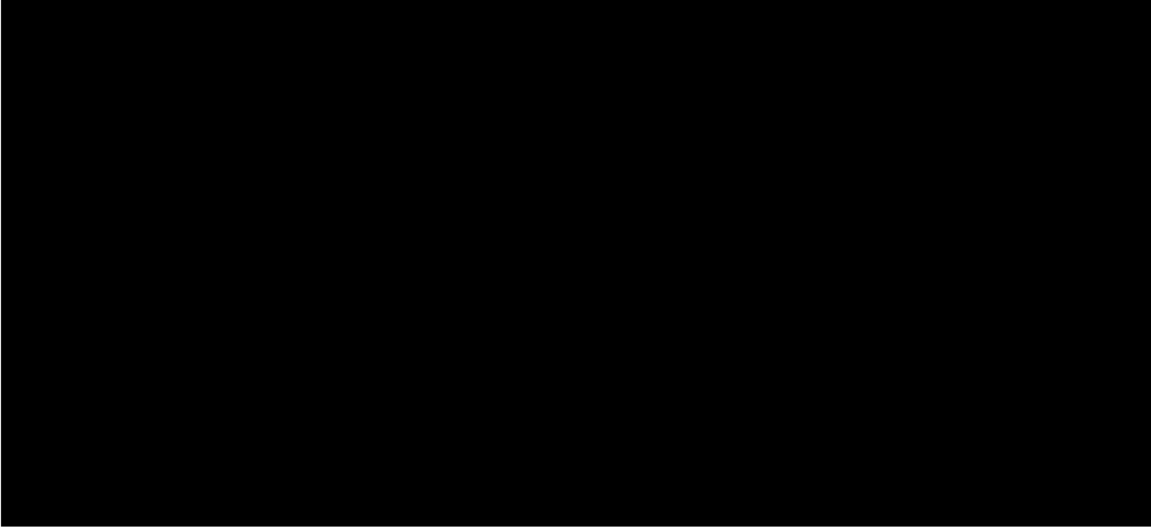
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



SANITATION

1. Ensure all containers and utensils used in the process are cleaned with isopropyl alcohol and placed in their designated area
2. Ensure the vacuum oven or commercial oven is free of any debris, or spilled oil from the decarboxylation process.

CHEMICAL STORAGE			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

PURPOSE

This procedure outlines facility chemical storage areas, procedures, and safety considerations. The Company actively operates in accordance with all applicable federal, state, and local rules and regulations.

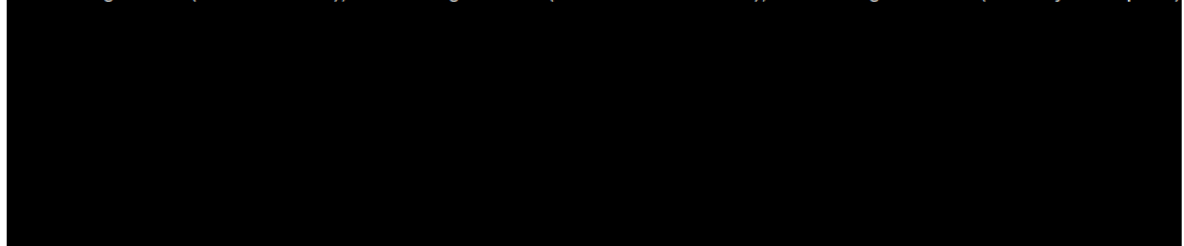
RELEVANT REGULATIONS

A.M.C.C. 80-14-1.15 Hazardous Waste and Chemical Waste

- (1) Cultivators and Integrated Facilities shall establish and maintain standards, procedures, and requirements for hazardous and chemical waste product storage and disposal, and chemical storage that comply with Chapters 27 and 30 of Title 22, Code of Alabama, 1975.

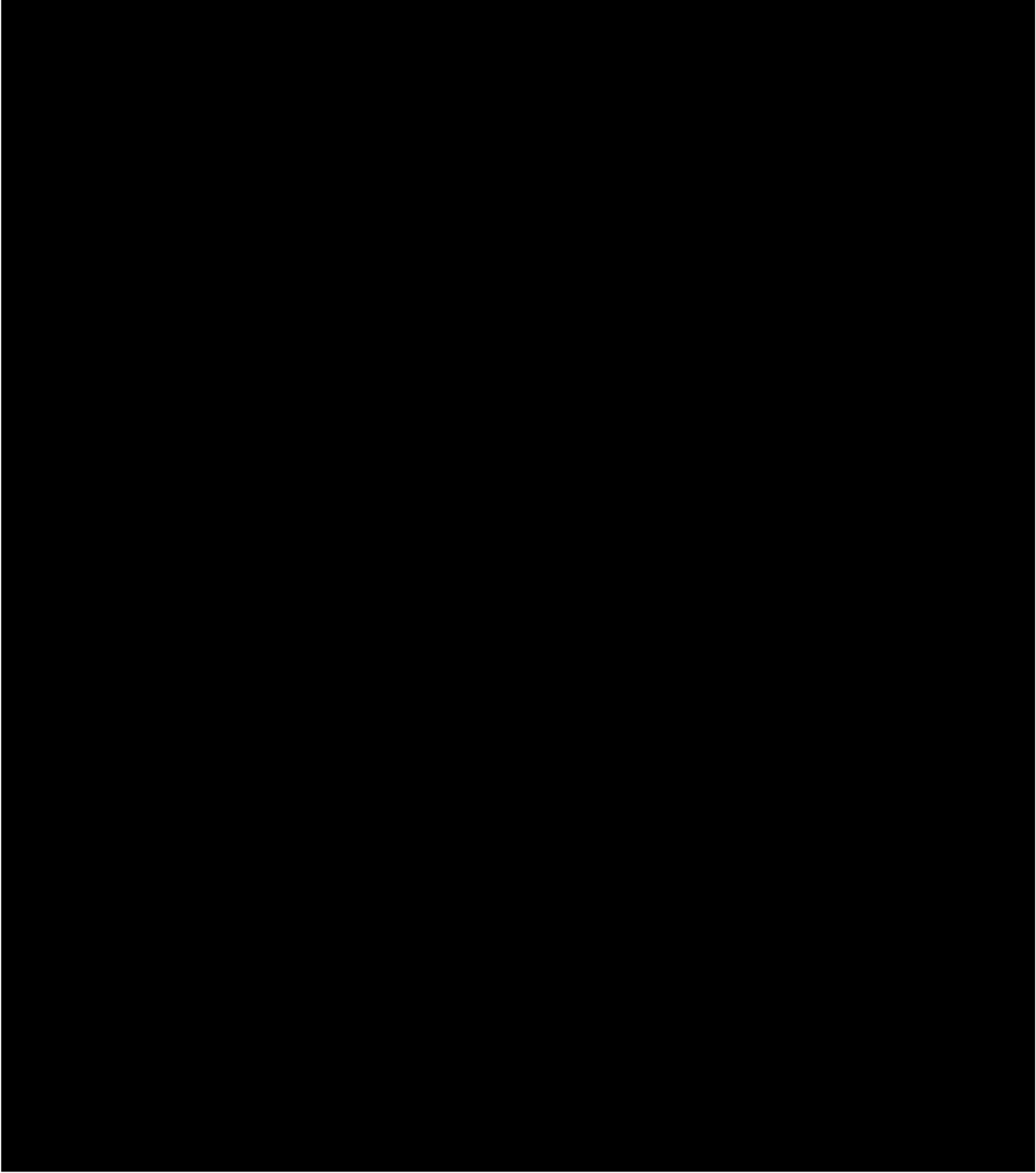
EQUIPMENT AND SUPPLIES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

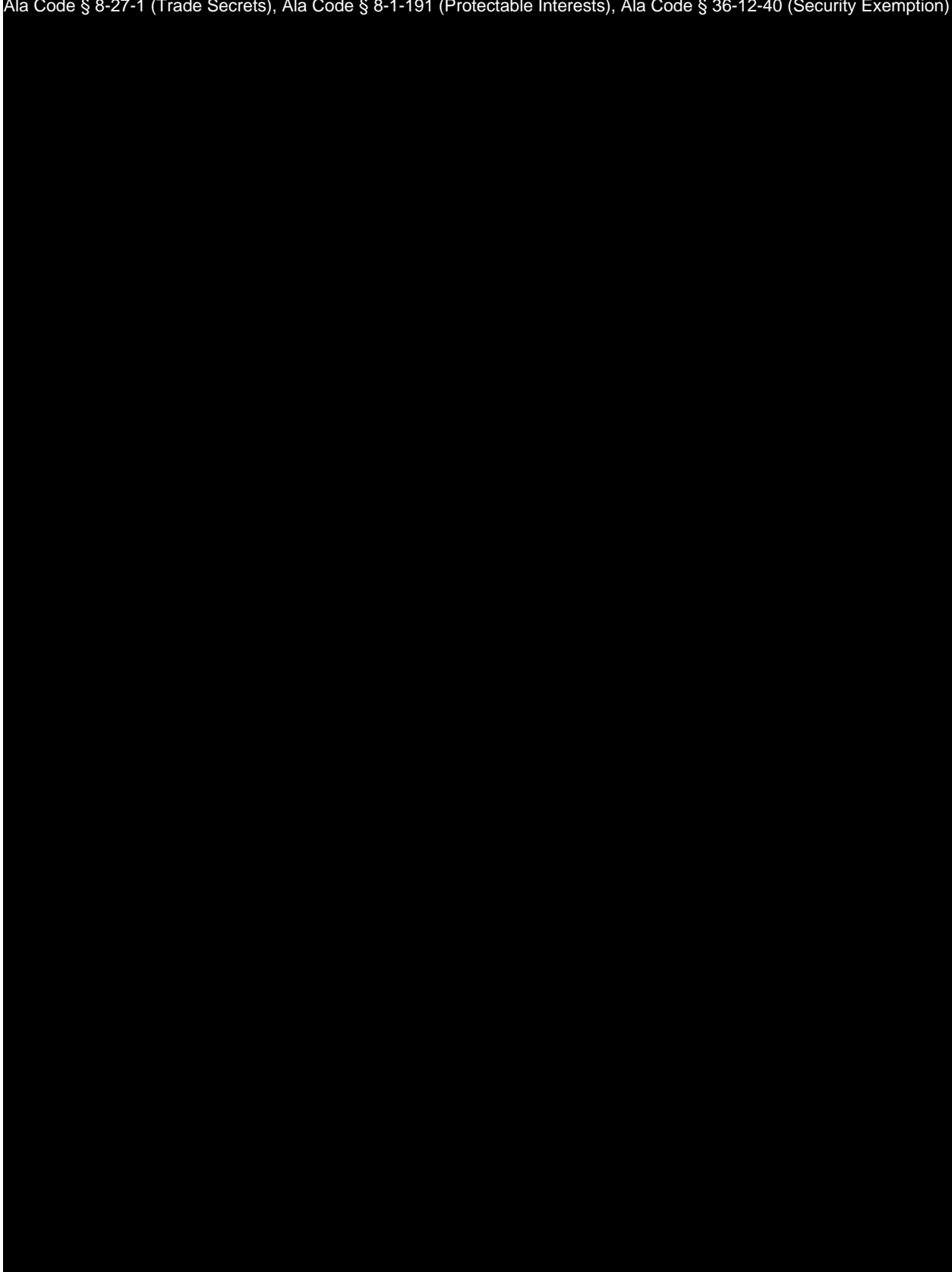


PROCEDURES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

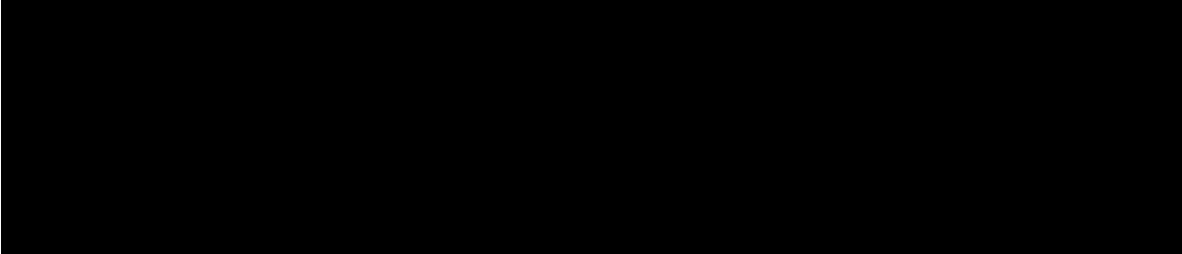


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



THERMOMETER OPERATION			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT: Processing	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

PURPOSE

To outline the procedure for using thermometers during production activities. All thermometers used in the facility for measuring various temperatures throughout the production process must be used correctly to ensure accurate temperature monitoring. The
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

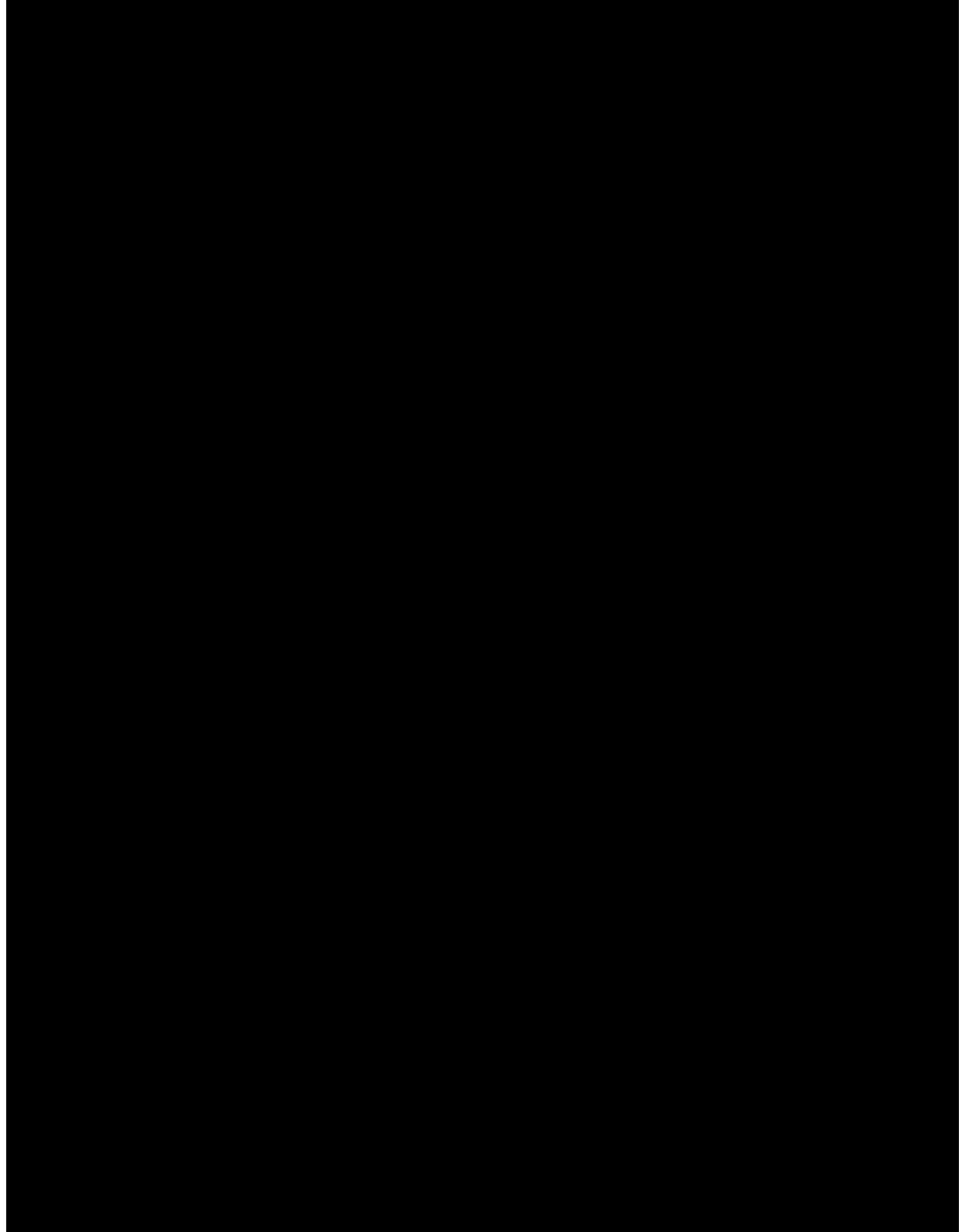
EQUIPMENT AND SUPPLIES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

PROCEDURES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)




License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

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POST EXTRACTION VISUAL QUALITY CONTROL CHECK			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

PURPOSE

Due to the large amount of extracted material that passes through the post extraction operations on a weekly basis, it is imperative that all personnel at every step in the manufacturing process perform constant visual quality control (QC) checks, and immediately report any suspicious instances to the Extraction Specialist.

RELEVANT REGULATIONS

A.M.C.C. 538-X-6-.04 Duties of Processors

- (2) A Processor's medical cannabis products must:
 - (a) Be shown to meet intended levels of purity.
 - (b) Be shown to be reliably free of toxins and contaminants (see Appendix A to Chapter 10 of these Rules).
 - (c) Contain no additives other than pharmaceutical grade excipients.
 - (d) Not be processed into a form that is attractive to or targets children.
 - (e) As to all gelatinous cube, cuboid, and lozenge medical cannabis products, conform to the universal flavor established by the Commission under § 20-2A-63(f), Code of Alabama 1975 (as amended), which is peach.

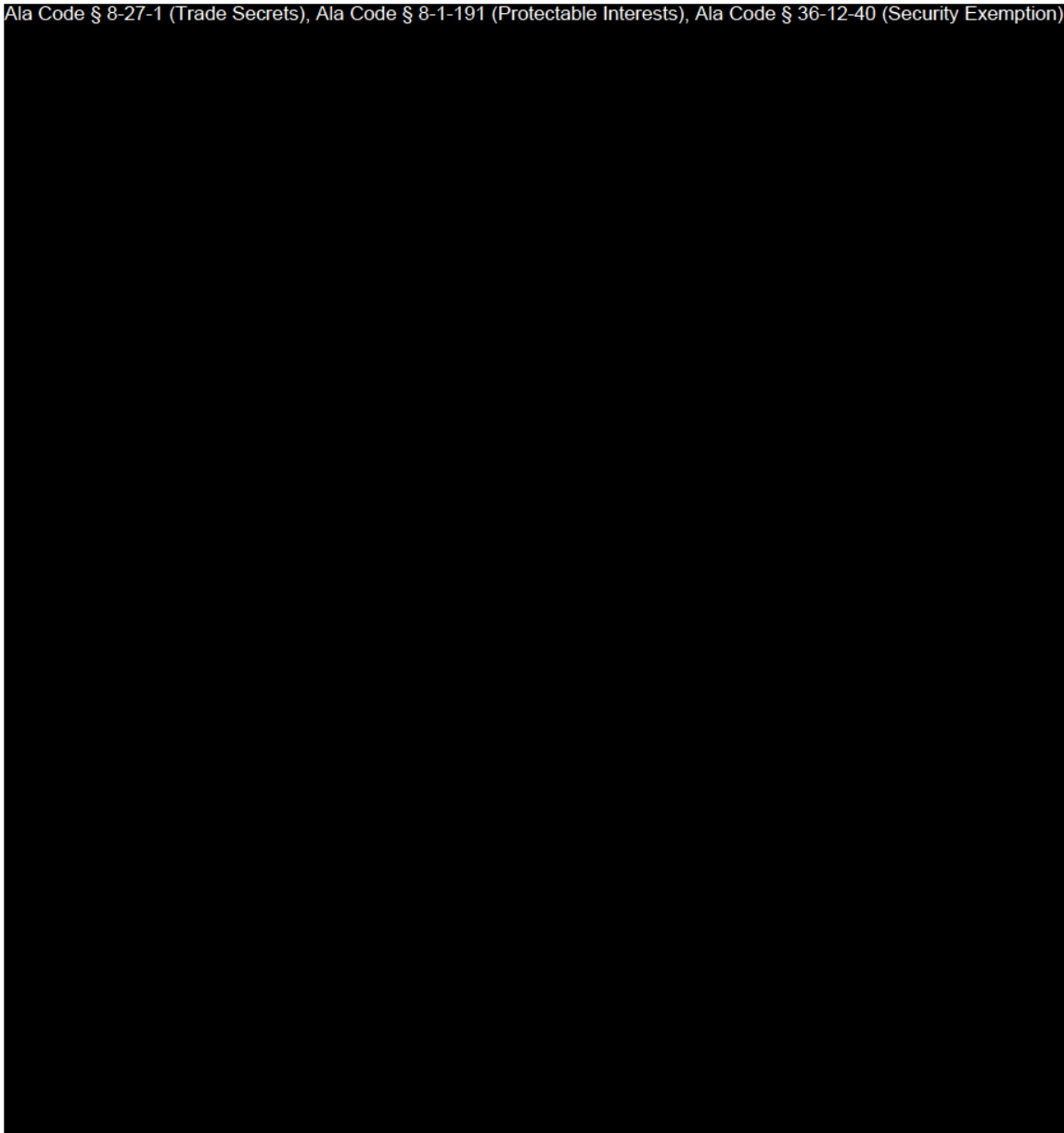
License Type: Processor

EQUIPMENT AND SUPPLIES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

PROCEDURES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



SANITATION

1. **CLEAN UP MATERIALS & WORK AREA**
 - 1.1. Return all unused supplies to their appropriate storage area.

License Type: Processor

- 1.2. Handle all cannabis waste generated during the process according to Product Disposal and General Sanitation, and record actions on the Daily Sanitation Checklist.
- 1.3. Clean work areas according to General Sanitation, and record actions on the Daily Sanitation Checklist.

License Type: Processor

GENERAL SANITATION			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

PURPOSE

Ala. Code § 8-27-1 (Trade secret). Ala. Code § 8-1-191 (Protectable Interests)

Toxic cleaning compounds, sanitizing agents, and solvents used in processing cannabis will be labeled and stored. Storage of these products must be in a manner that prevents contamination of cannabis and medical cannabis products and ingredients, which otherwise complies with applicable local and state laws and regulations. All cleaning chemicals will be listed in the Safety Data Sheet (SDS) binder. This binder will be updated when new chemicals are introduced. All waste area cleaning will be logged on a General Sanitation Checklist.

RELEVANT REGULATIONS

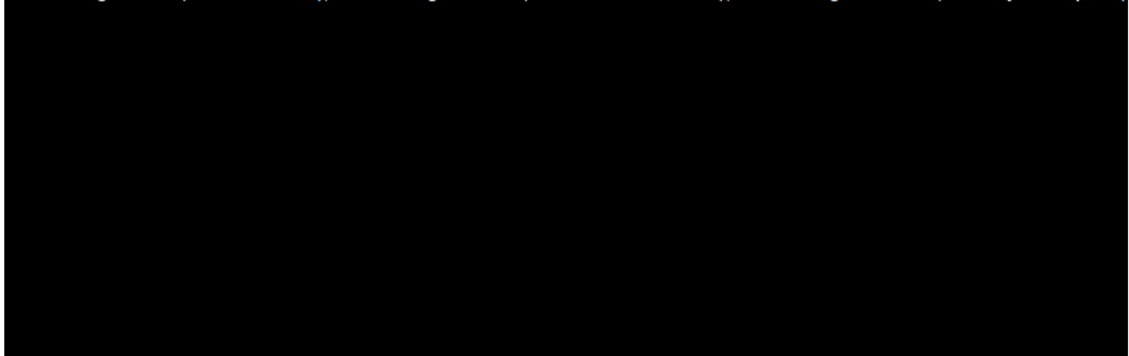
License Type: Processor

A.M.C.C. 538-X-6-.012 Processors' Duty to Meet and Maintain Standards, Policies, Procedures and Operations Per Application.

- A Processor licensee has an ongoing duty to meet and maintain the standards, policies, procedures, and operations, both at the pre-commencement inspection and at all times thereafter, as it affirmed to the Commission at the time of licensing, as such standards, policies, procedures, and operations may have been amended and updated by the licensee from time to time in accordance with Rules 538-x-4-.08 and 538-x-4-.19., as provided in Rule 538-x-4-.07 of Chapter 4 of these Rules and as modified by Rule 538-x-6-.06 of this Chapter.

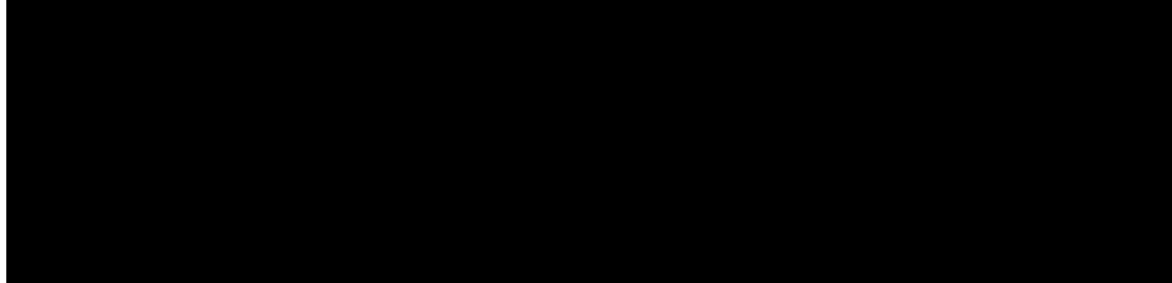
EQUIPMENT AND SUPPLIES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



PROCEDURES

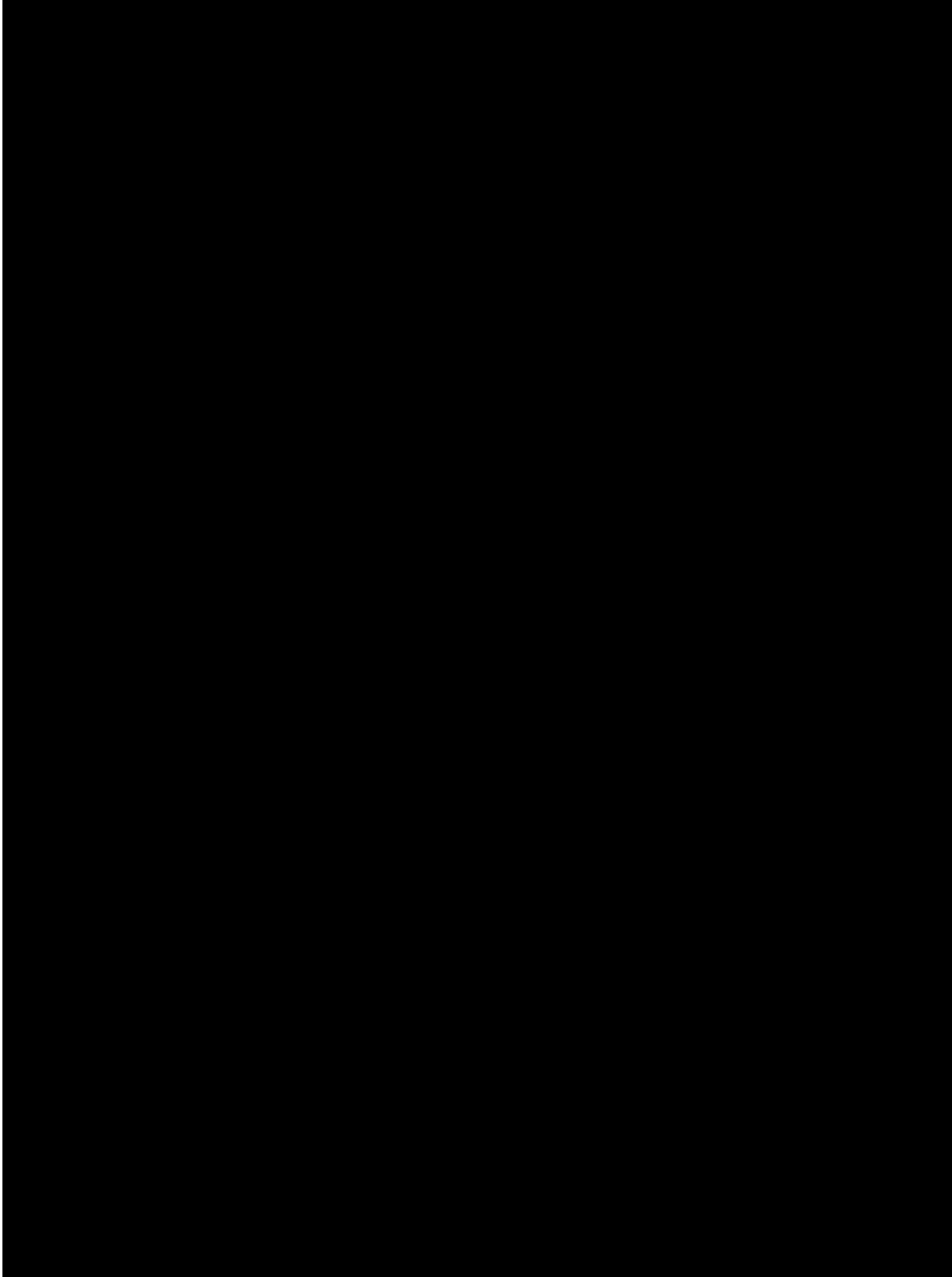
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



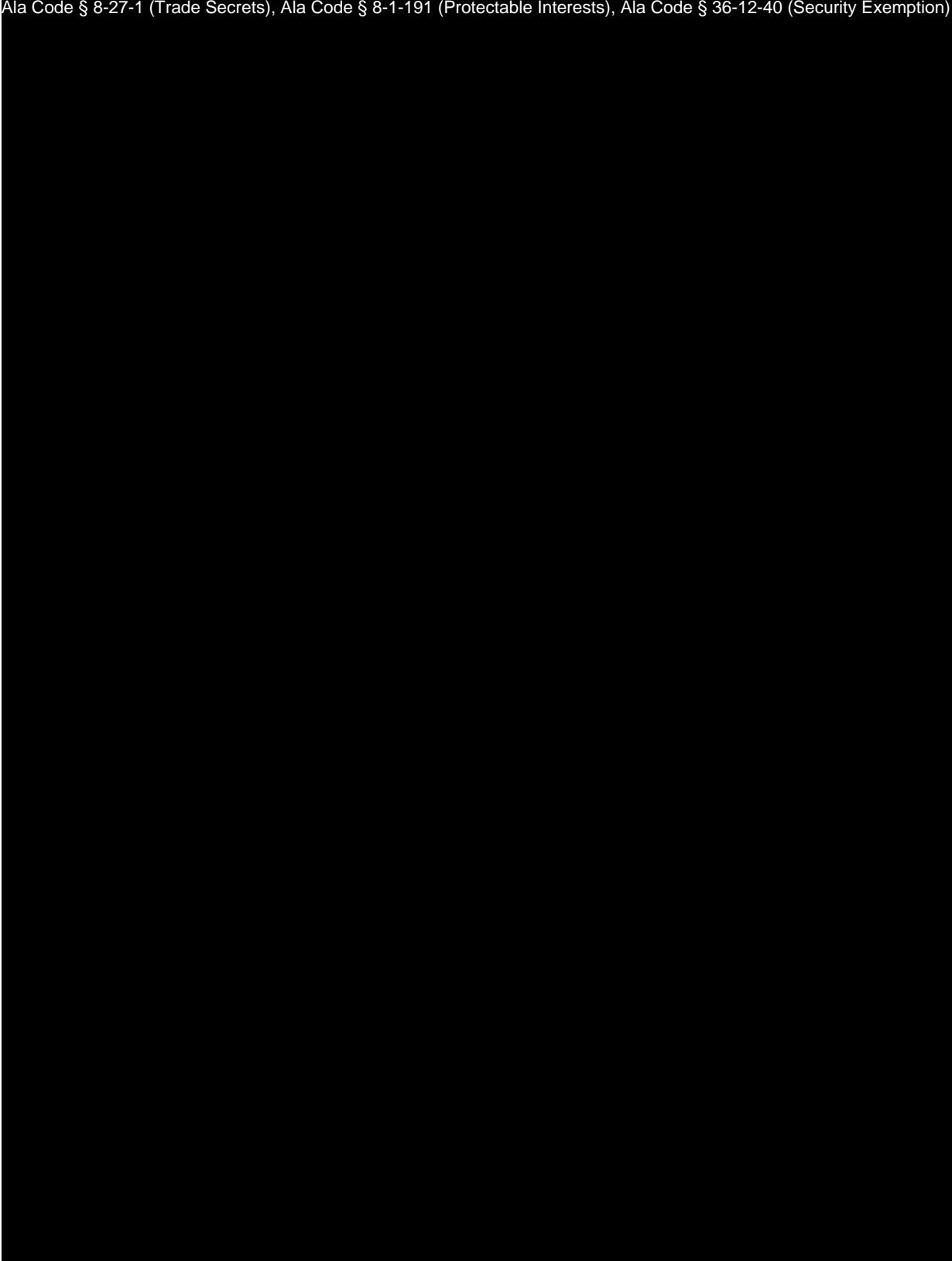
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



NON-CANNABIS INGREDIENT STORAGE & HANDLING			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

PURPOSE

To outline best practices for ingredient storage to promote integrity of ingredients and work efficiency. The Company will implement a first in, first out (FIFO) storage policy to ensure appropriate rotation of ingredients and packaging materials, and to minimize ingredient contamination, damage, and spoilage.

RELEVANT REGULATIONS

A.M.C.C. 538-X-6-.04 Duties of Processors

- (2) A Processor’s medical cannabis products must:
 - (a) Be shown to meet intended levels of purity.
 - (b) Be shown to be reliably free of toxins and contaminants (see Appendix A to Chapter 10 of these Rules).
 - (c) Contain no additives other than pharmaceutical grade excipients.
 - (d) Not be processed into a form that is attractive to or targets children.
 - (e) As to all gelatinous cube, cuboid, and lozenge medical cannabis products, conform to the universal flavor established by the Commission under § 20-2A-63(f), Code of Alabama 1975 (as amended), which is peach.

A.M.C.C. 538-x-6-.06 Applications and Licensing Procedures as to Processors Generally.

License Type: Processor

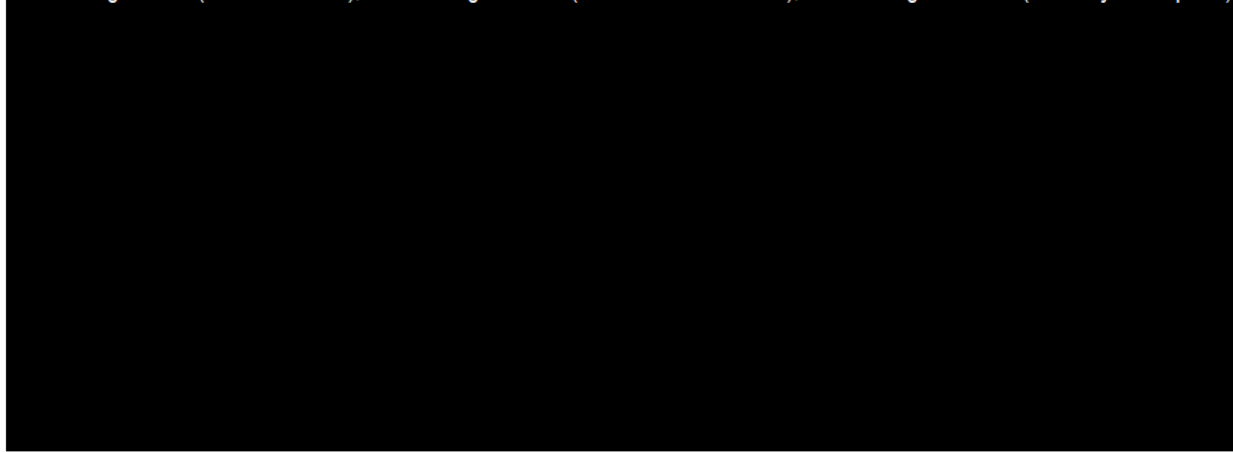
- (3)(b)(4) Processor applicants must: provide a detailed list of formulae and ingredients for each medical cannabis product, including a list of all excipients to be utilized in the manufacture of each product, and the purpose served by each.

A.M.C.C. 538-x-4-.07 Duty to Meet and Maintain Standards, Policies, Procedures and Operations Per Application.

- (12)(o) The licensee's verified Standard Operating Plan and Procedures. The licensees must demonstrate and maintain standard operating procedures regarding the following subjects in such a way that they can be readily accessed from the physical site of operations upon the request of inspectors, the Commission, or Commission staff, including, at a minimum, the following: (2) A Cannabis/Medical Cannabis Storage and Maintenance Plan. Licensees must maintain at all times and review at least annually a plan for maintenance and storage of cannabis and medical cannabis in the possession and control of licensee. Such plan shall include, at a minimum, maintaining cannabis and medical cannabis in a moisture- and temperature-controlled environment free of pests; keeping stored items secure, properly separated and labeled; and limiting access to cannabis and medical cannabis to essential personnel by position.

SCOPE & APPLICABILITY

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



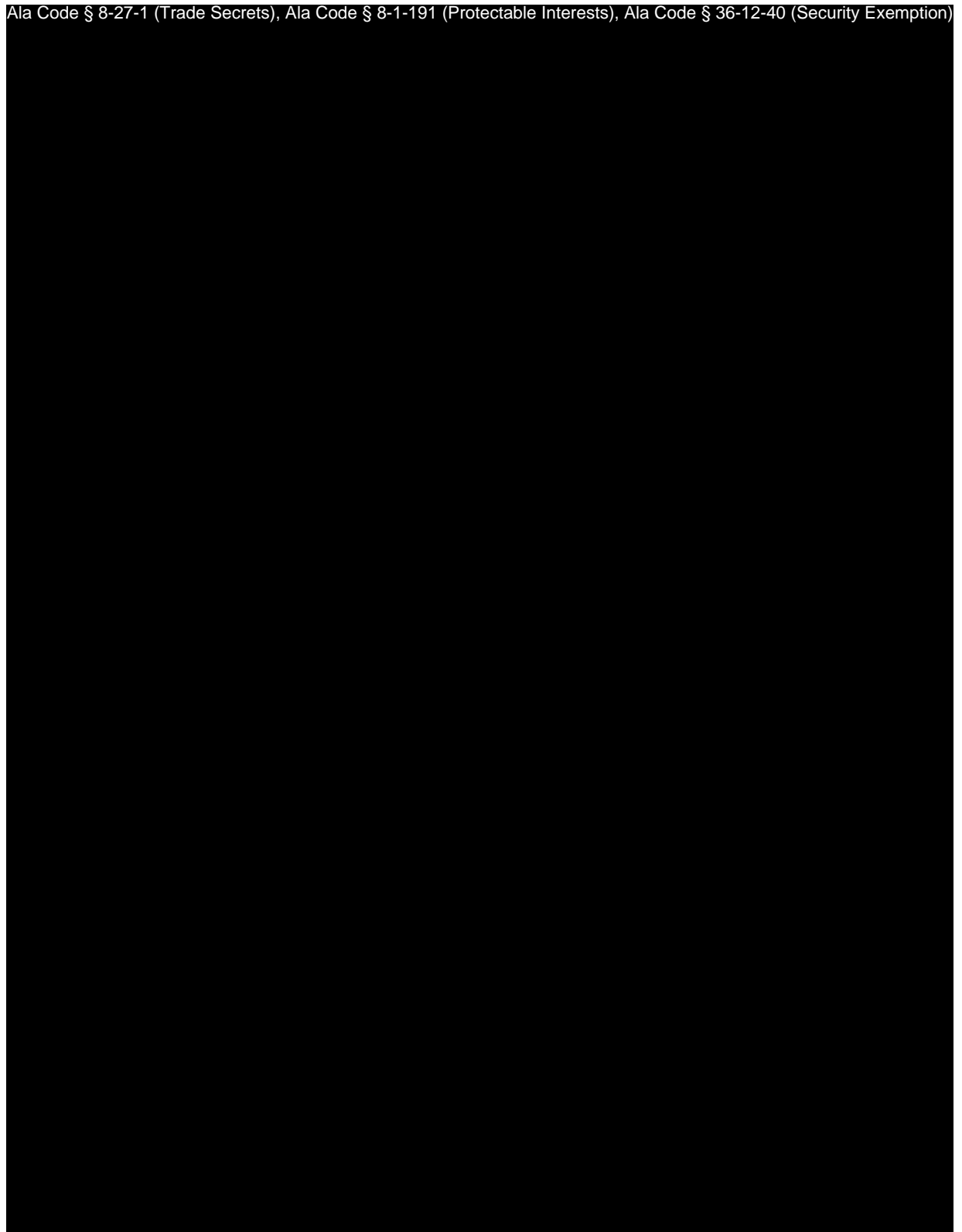
EQUIPMENT AND SUPPLIES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

PROCEDURES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

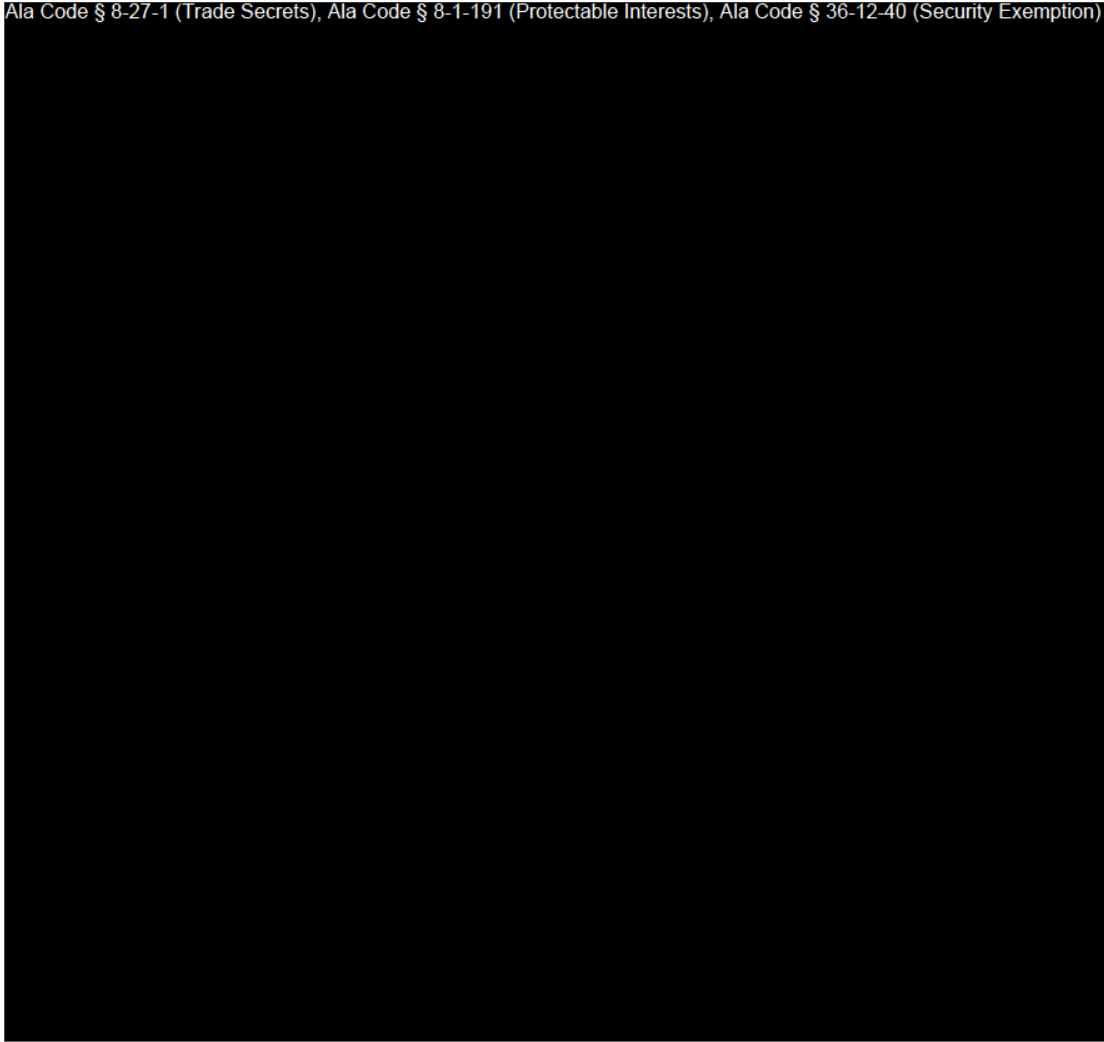


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



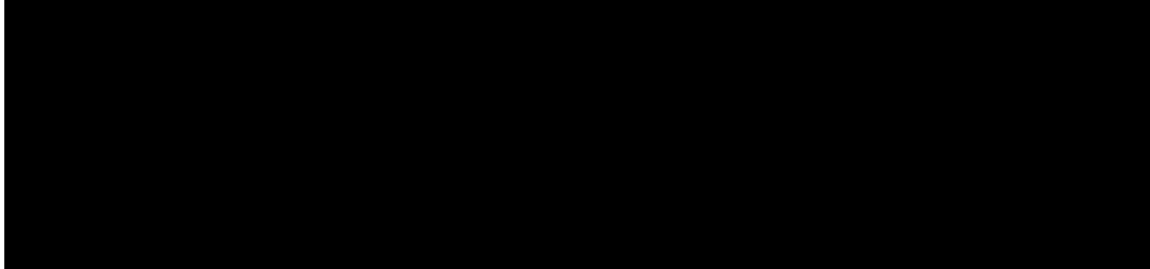
License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



SANITATION

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



INVENTORY AUDIT			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

PURPOSE

The Alabama Medical Cannabis Commission (AMCC) mandates all licensed operators must be able to account for all cannabis inventory at any given time, by verifying the physical inventory is consistent with all inventory records. Inventory reconciliation and auditing procedures are followed daily by all inventory personnel to ensure the following:


- Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interests), Ala. Code § 36-12-40 (Security Exemption)
- [Redacted]
- [Redacted]
- [Redacted]

RELEVANT REGULATIONS

A.M.C.C. 538-x-4-.02 Post-Licensing Inspection of Facilities.

- Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interests), Ala. Code § 36-12-40 (Security Exemption)
- [Redacted]

Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interests), Ala. Code § 36-12-40 (Security Exemption)



A.M.C.C. 538-x-4-.05 Maintenance of Proper Technology.

Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interests), Ala. Code § 36-12-40 (Security Exemption)

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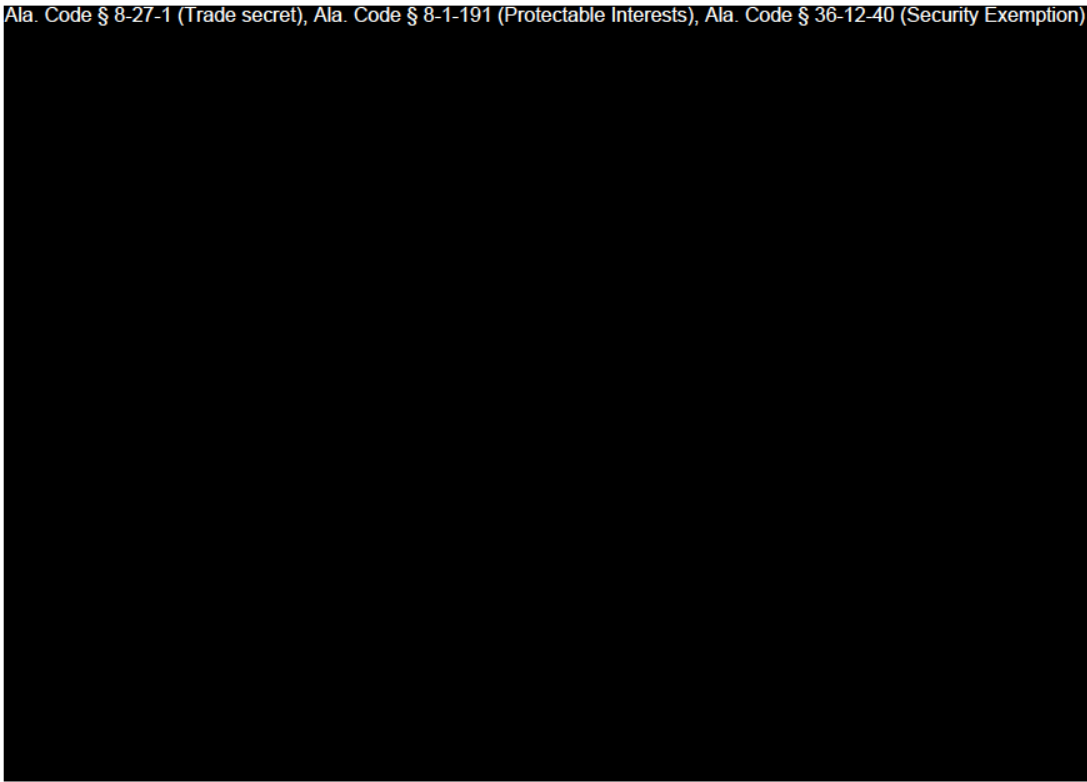
A.M.C.C. 538-x-4-.07 Duty to Meet and Maintain Standards, Policies, Procedures and Operations Per Application.

Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interests), Ala. Code § 36-12-40 (Security Exemption)

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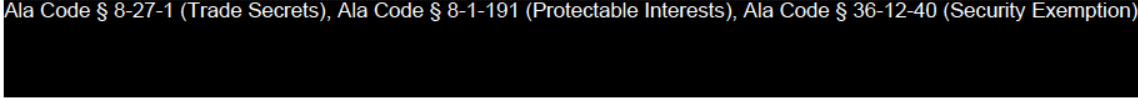
License Type: Processor

Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interests), Ala. Code § 36-12-40 (Security Exemption)



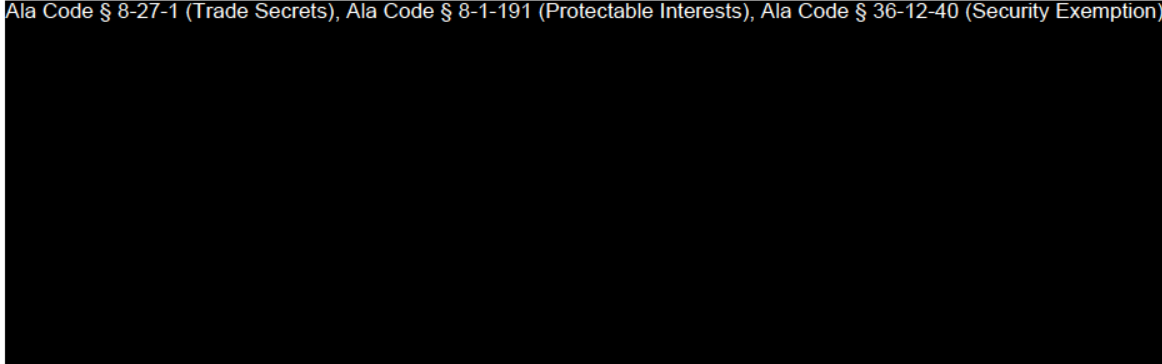
EQUIPMENT & SUPPLIES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



PROCEDURES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



INVENTORY STORAGE CONDITIONS & ACCESS			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

PURPOSE

To provide standard operating procedures for environmental standards related to the safe, secure, and sanitary storage of cannabis and medical cannabis products in the following ways:

- Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interests), Ala. Code § 36-12-40 (Security Exemption)
- [Redacted]

RELEVANT REGULATIONS

A.M.C.C. 538-x-4-.07 Duty to Meet and Maintain Standards, Policies, Procedures and Operations Per Application.

License Type: Processor

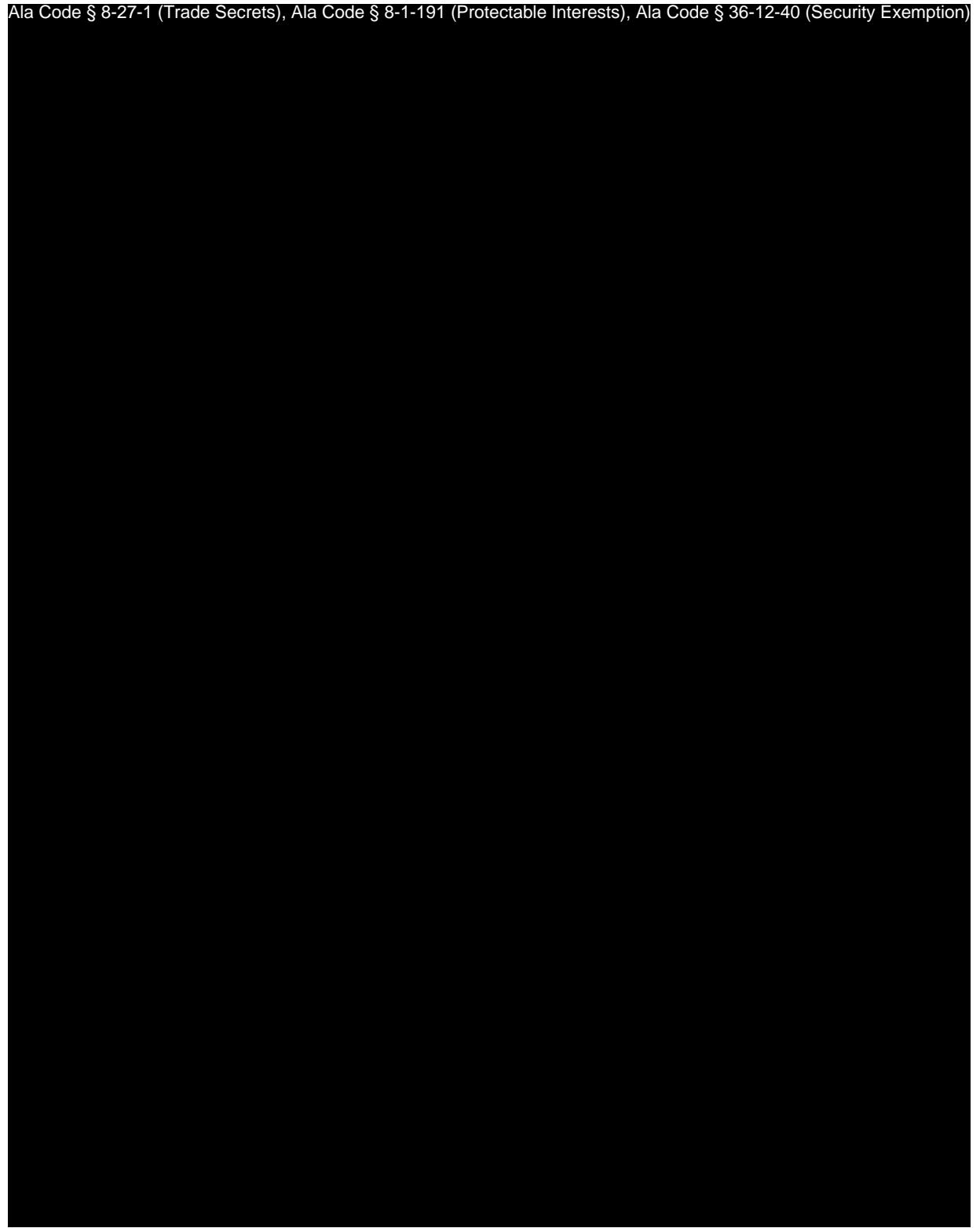
- (12)(o) The licensee's verified Standard Operating Plan and Procedures. The licensees must demonstrate and maintain standard operating procedures regarding the following subjects in such a way that they can be readily accessed from the physical site of operations upon the request of inspectors, the Commission, or Commission staff, including, at a minimum, the following: (2) A Cannabis/Medical Cannabis Storage and Maintenance Plan. Licensees must maintain at all times and review at least annually a plan for maintenance and storage of cannabis and medical cannabis in the possession and control of licensee. Such plan shall include, at a minimum, maintaining cannabis and medical cannabis in a moisture- and temperature-controlled environment free of pests; keeping stored items secure, properly separated and labeled; and limiting access to cannabis and medical cannabis to essential personnel by position.

PROCEDURES

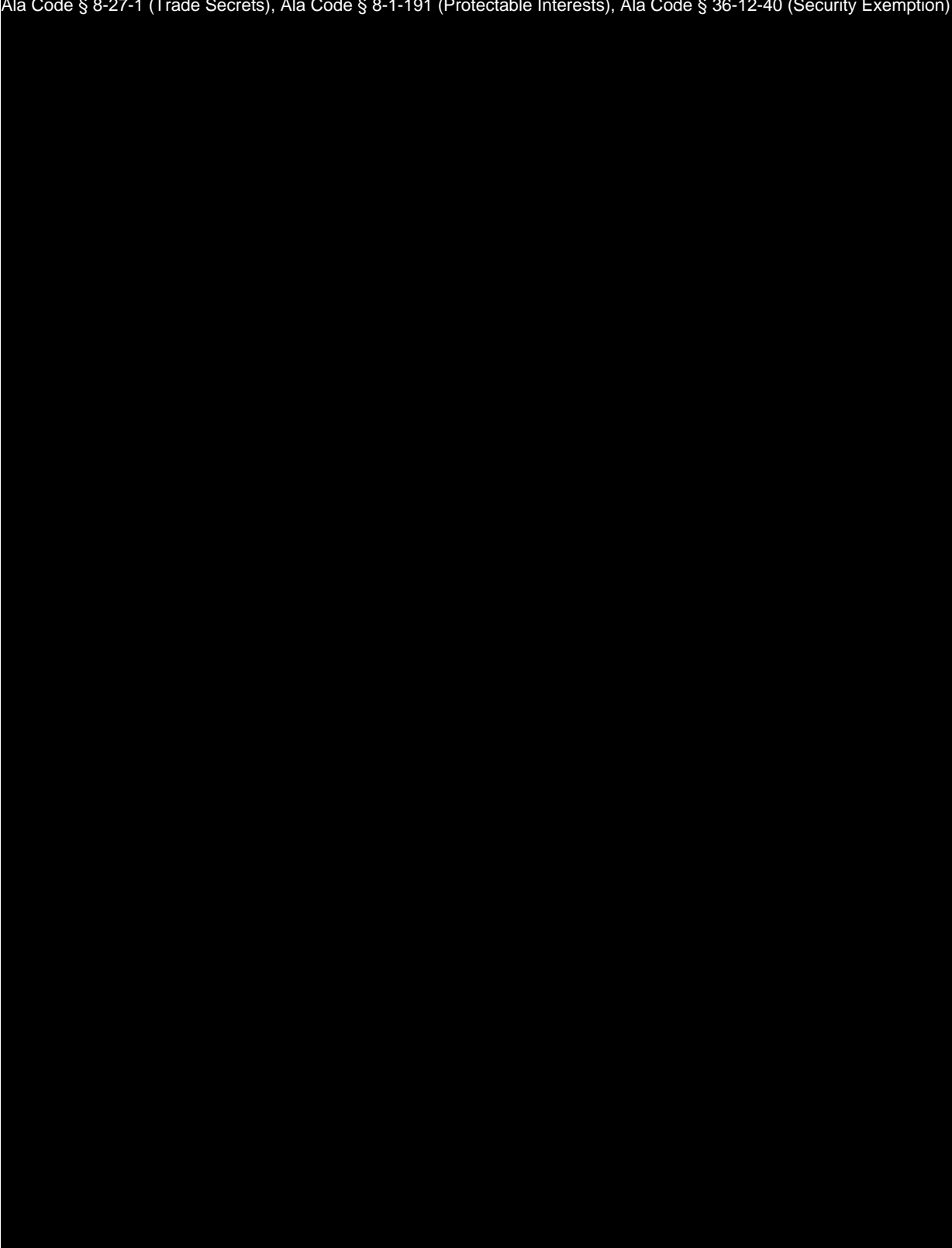
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



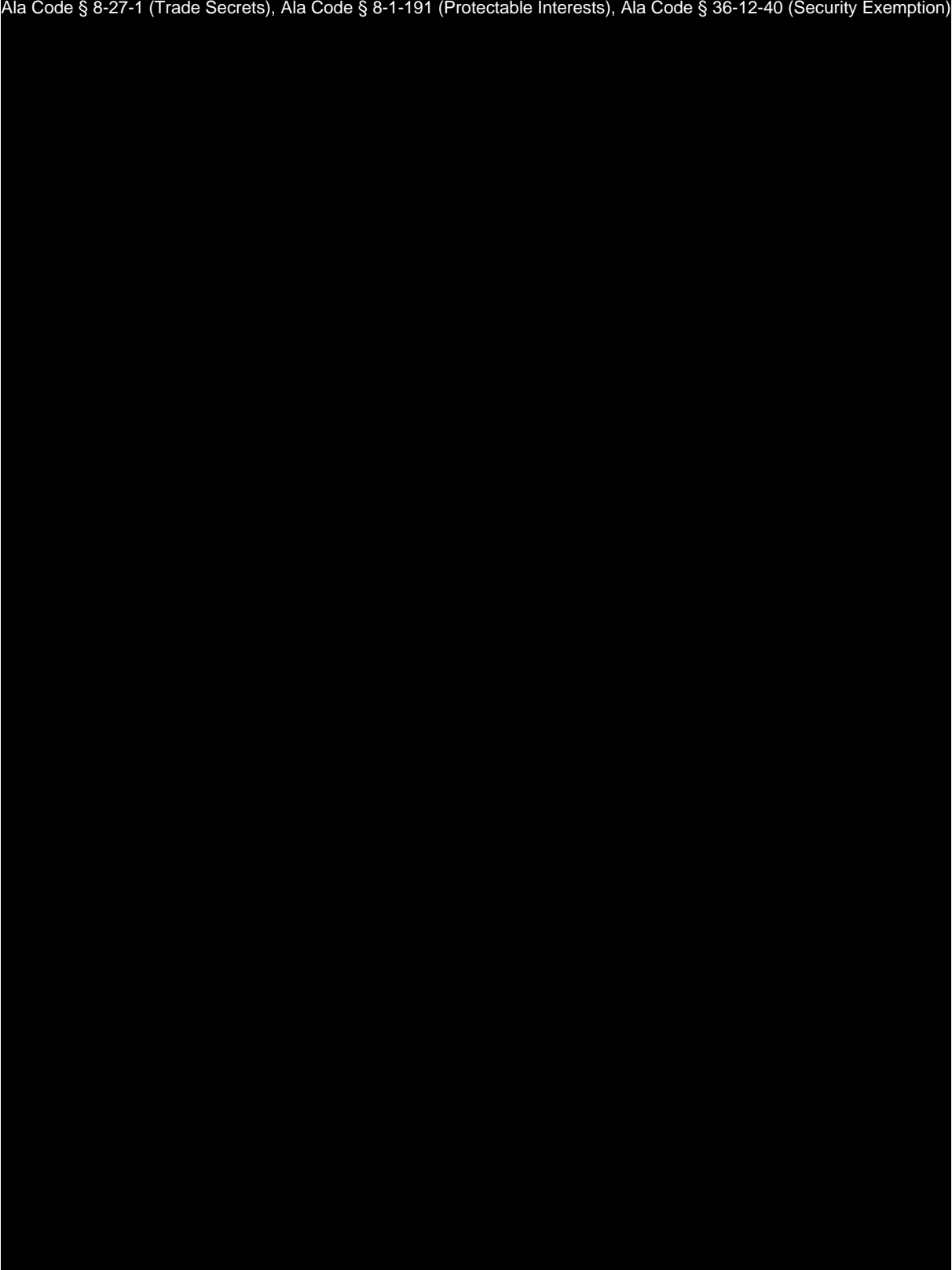
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



License Type: Processor

RECEIVING CANNABIS INVENTORY			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: QA/QC MANAGER			

PURPOSE

To ensure proper, consistent, and legal receipt of incoming cannabis from licensed facilities, packaging materials and supplies with appropriate documentation.

RELEVANT REGULATIONS

A.M.C.C. 538-x-6-.06 Applications and Licensing Procedures as to Processors Generally.

- (3)(f) Processor applicants must create a receiving and shipping plan that, at a minimum, ensures the following, in coordination with the contracted Secure Transporter or State Testing Laboratory, as applicable:
 - (1) Individual batches of cannabis being received for storage and/or processing were appropriately prepared, tagged or otherwise identified, and inserted in containers at the time of receipt.
 - (2) Batches and containers arriving from another licensee's facility or another of the Processor's own facilities have been QR coded or otherwise digitally coded to identify, at a minimum, the Cultivator, facility, plant tag or harvest batch number, date of harvest, expiration date (or, if no expiration date, a notation that the expiration date does not apply), the date of the cultivator's State Laboratory testing approval, and the Alabama Poison Control contact information as provided on the AMCC website.

License Type: Processor

- (3) Incoming cannabis is accompanied by the Secure Transporter's manifest and other appropriate documentation; the information thereon is accurate and has been duly executed by all appropriate parties.
- (4) All information from the QR code relating to the incoming cannabis, as well as the date and time of arrival, has been logged into the Statewide-Seed-to-Sale Tracking System.

EQUIPMENT AND SUPPLIES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

PROCEDURES

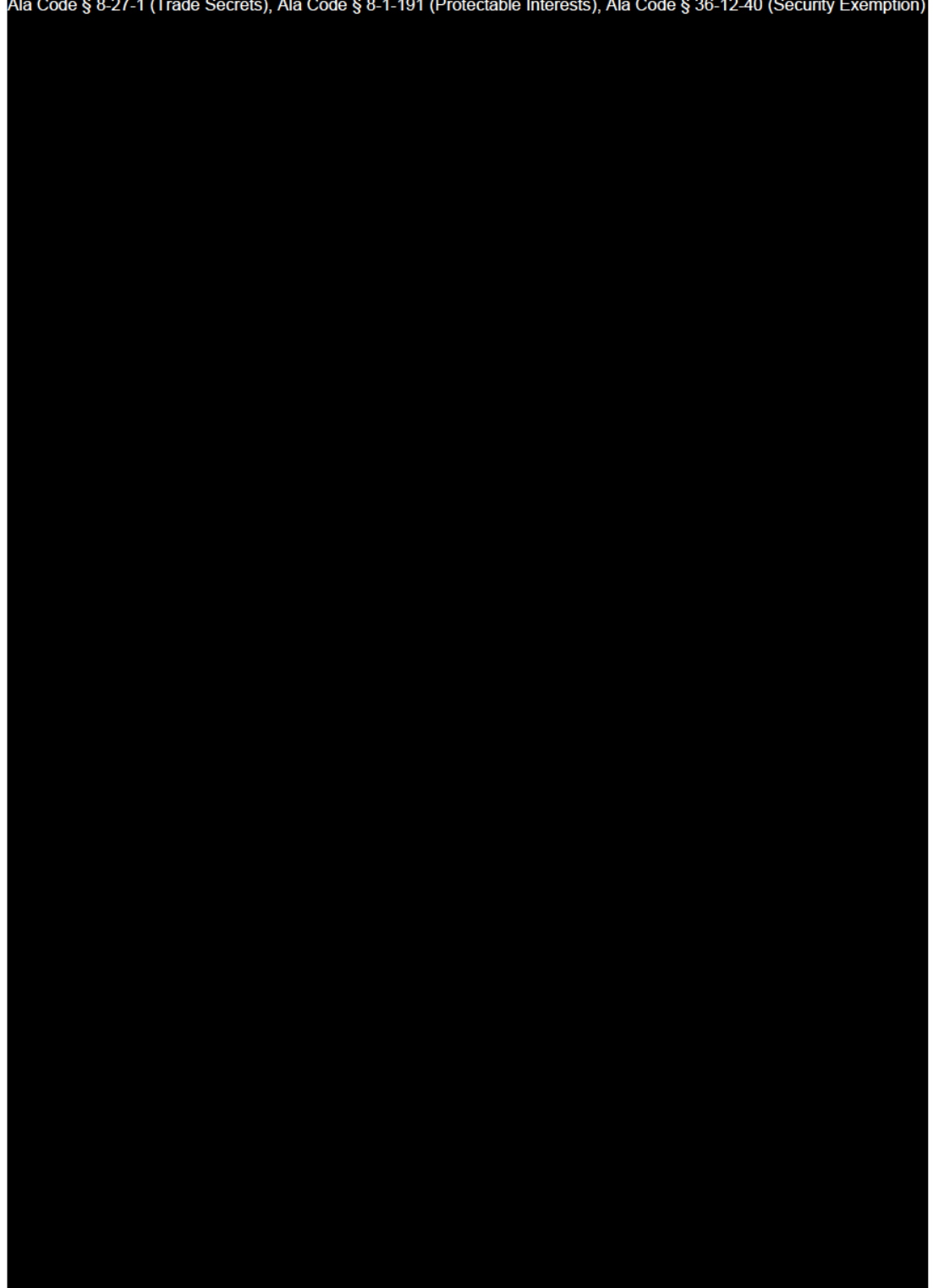
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

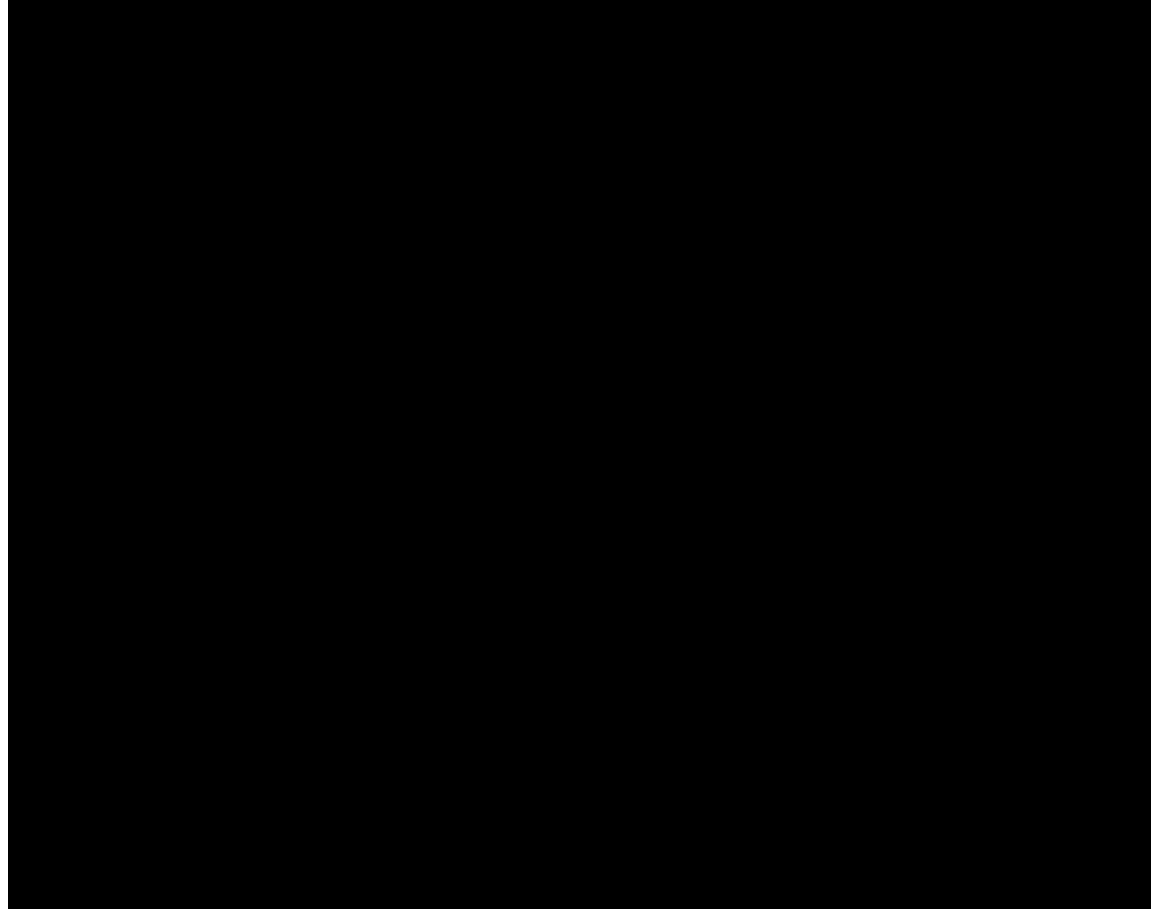


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



PRODUCT DISPOSAL			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

PURPOSE

To ensure proper disposal of cannabis waste, cannabis products, and any material that has made contact with cannabis with appropriate documentation. Processor waste disposal procedures will be implemented in the Company facility.

RELEVANT REGULATIONS

A.M.C.C. 538-x-4-.07 Duty to Meet and Maintain Standards, Policies, Procedures and Operations Per Application.

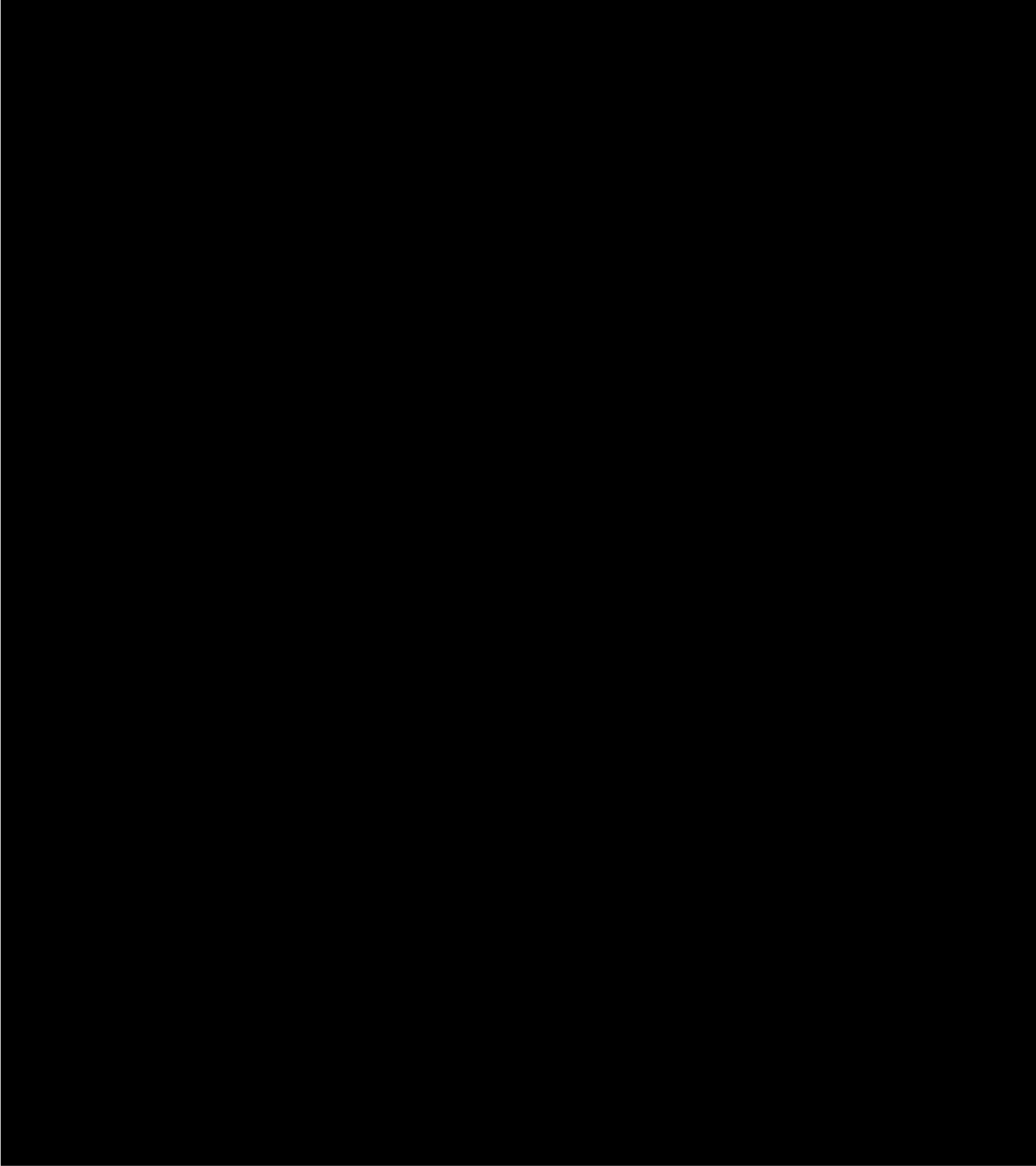
- (3)(o)(10) A Cannabis/Medical Cannabis Waste and Disposal Plan. Licensees must maintain at all times and review at least annually, a plan for tracking and proper disposal of waste cannabis or medical cannabis, including all parts thereof, as applicable. Such a plan must, at a minimum, leave no part of the disposed or waste cannabis or medical cannabis either usable or recognizable as such.

EQUIPMENT AND SUPPLIES

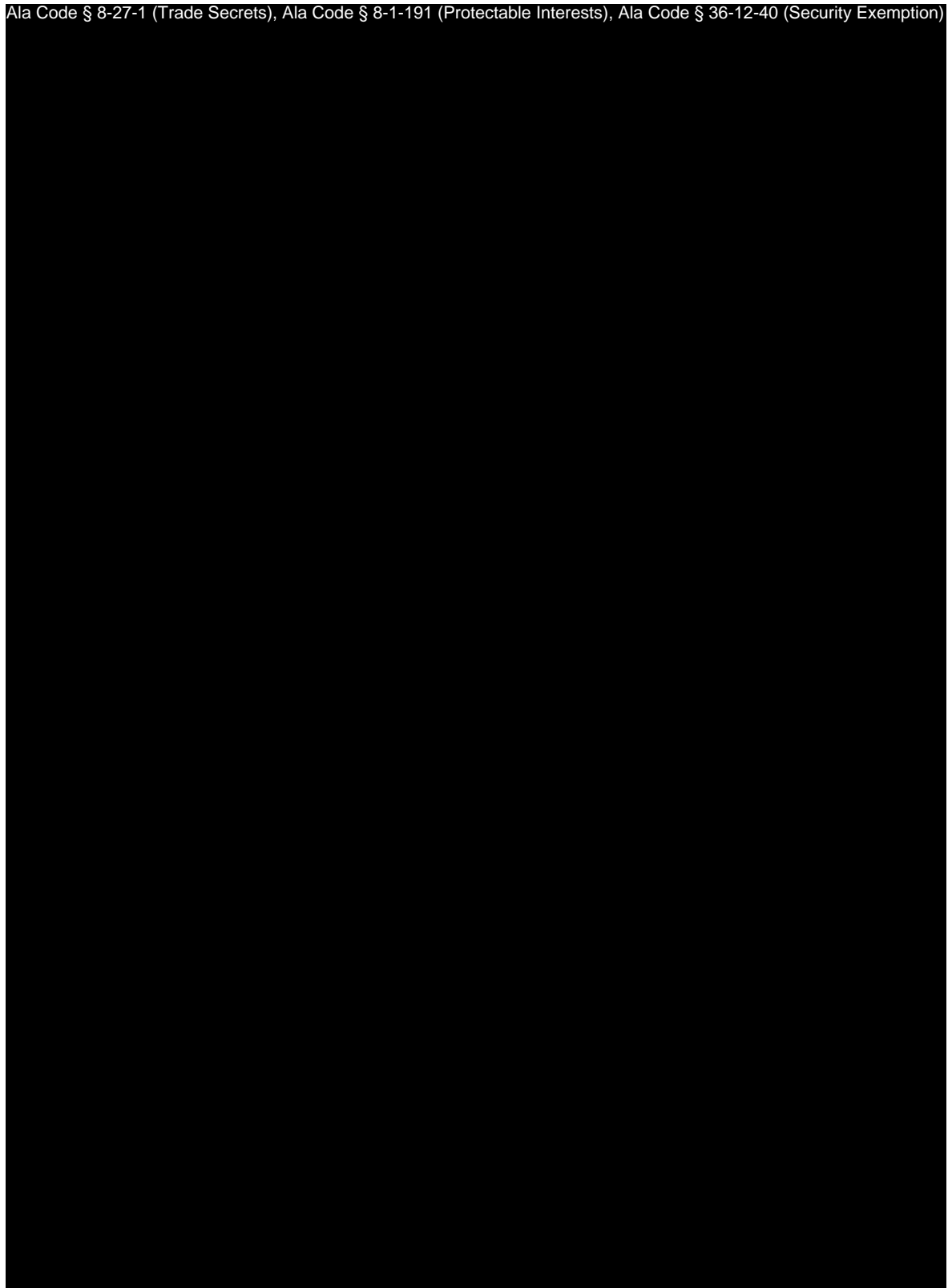
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

PROCEDURES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

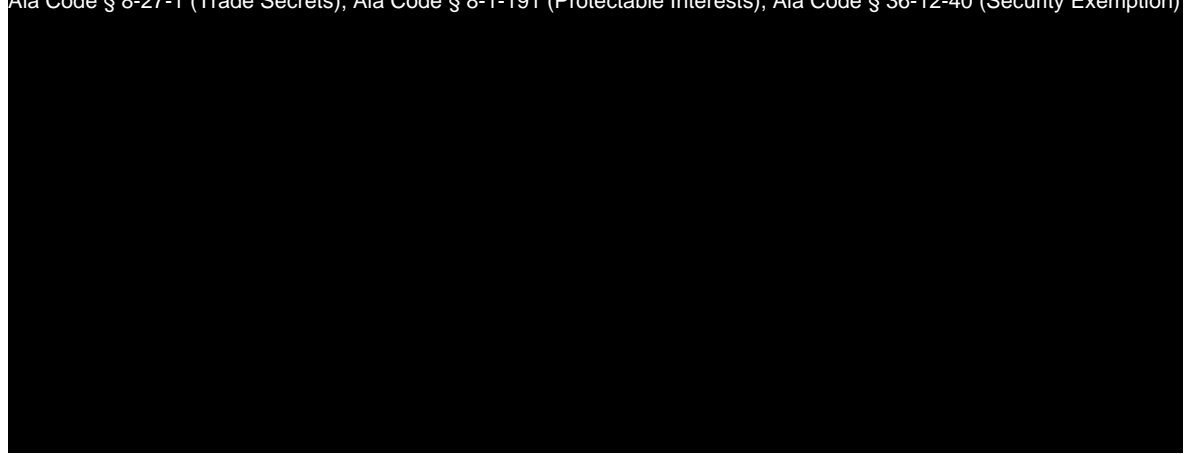


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

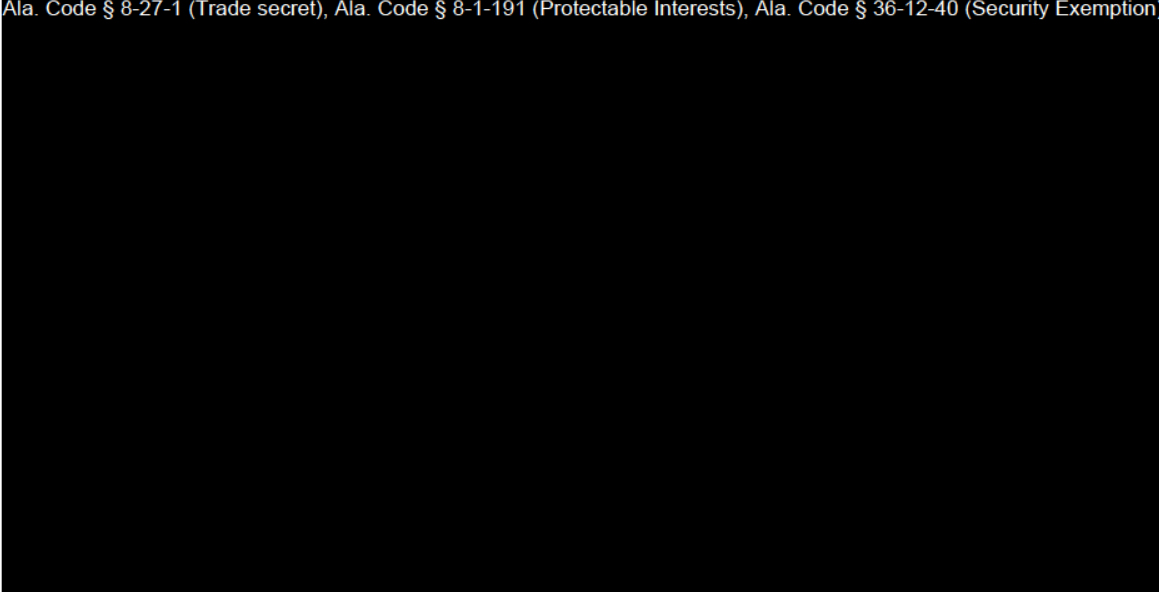


License Type: Processor

RENDERING CANNABIS & NON-CANNABIS WASTE			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: QA/QC MANAGER			

PURPOSE

In accordance with the Alabama Medical Cannabis Commission (AMCC) rules, Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interest)
Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interests), Ala. Code § 36-12-40 (Security Exemption)



RELEVANT REGULATIONS

A.M.C.C. 538-x-4-.07 Duty to Meet and Maintain Standards, Policies, Procedures and Operations Per Application.

License Type: Processor

- (3)(o)(10) A Cannabis/Medical Cannabis Waste and Disposal Plan. Licensees must maintain at all times and review at least annually, a plan for tracking and proper disposal of waste cannabis or medical cannabis, including all parts thereof, as applicable. Such a plan must, at a minimum, leave no part of the disposed or waste cannabis or medical cannabis either usable or recognizable as such.

EQUIPMENT AND SUPPLIES

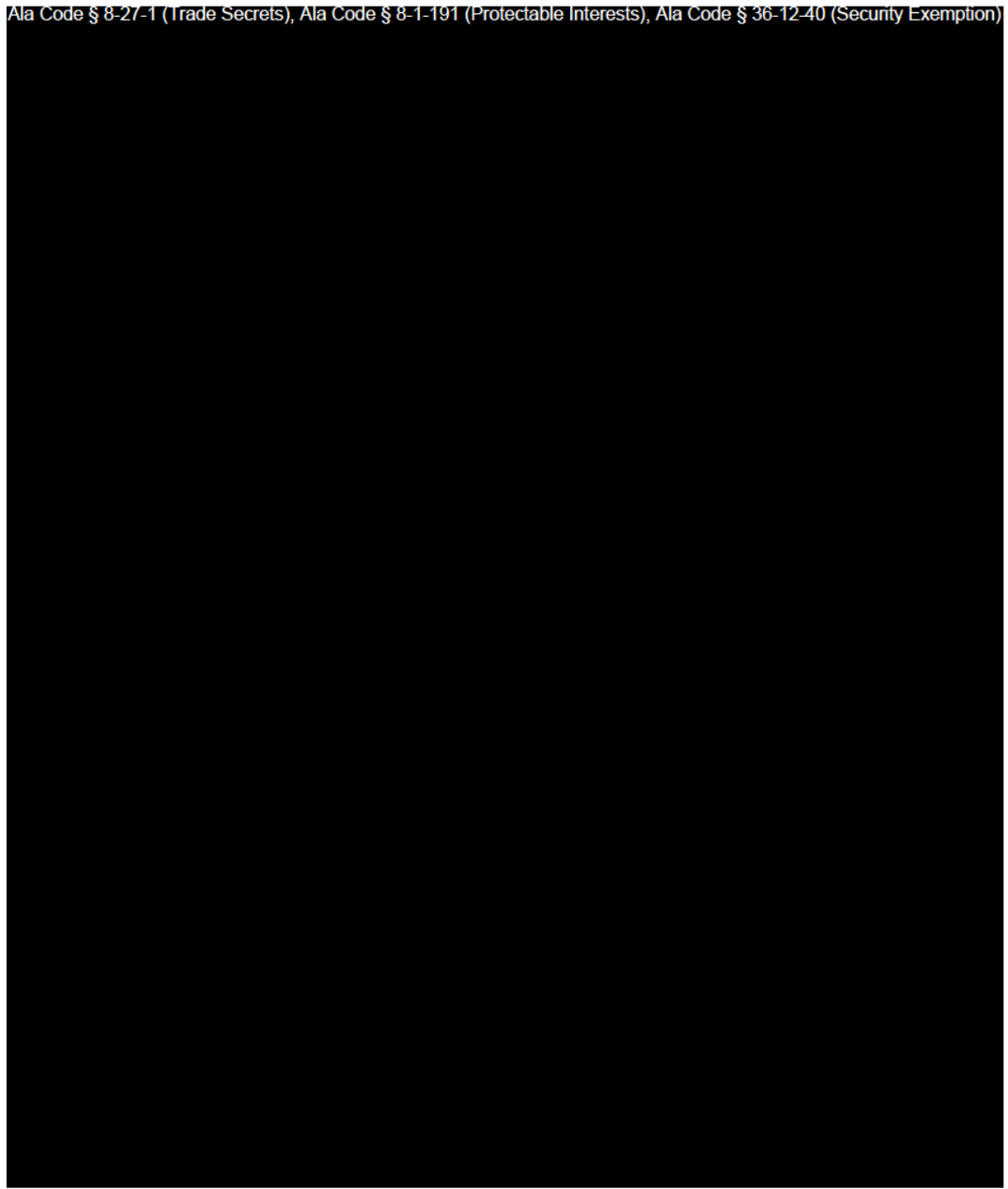
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

PROCEDURES

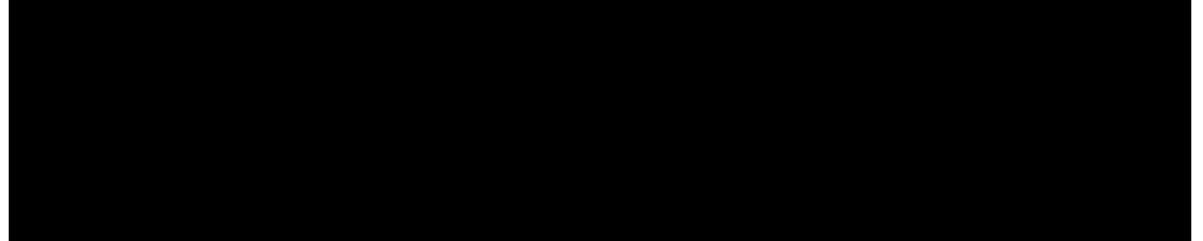
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

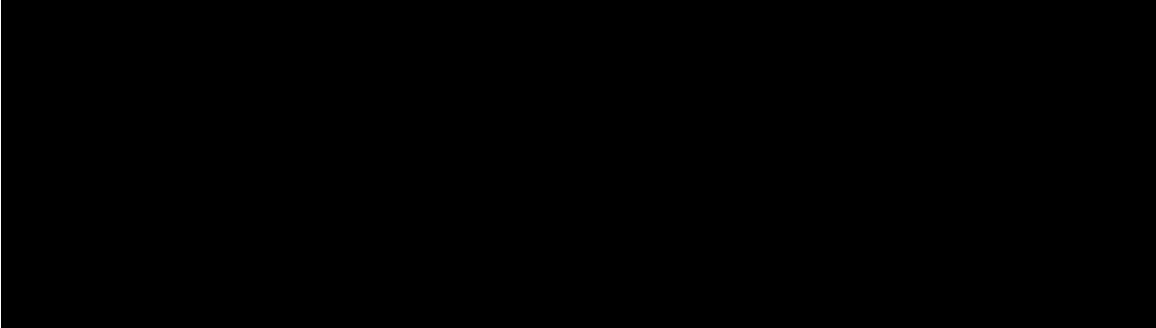


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

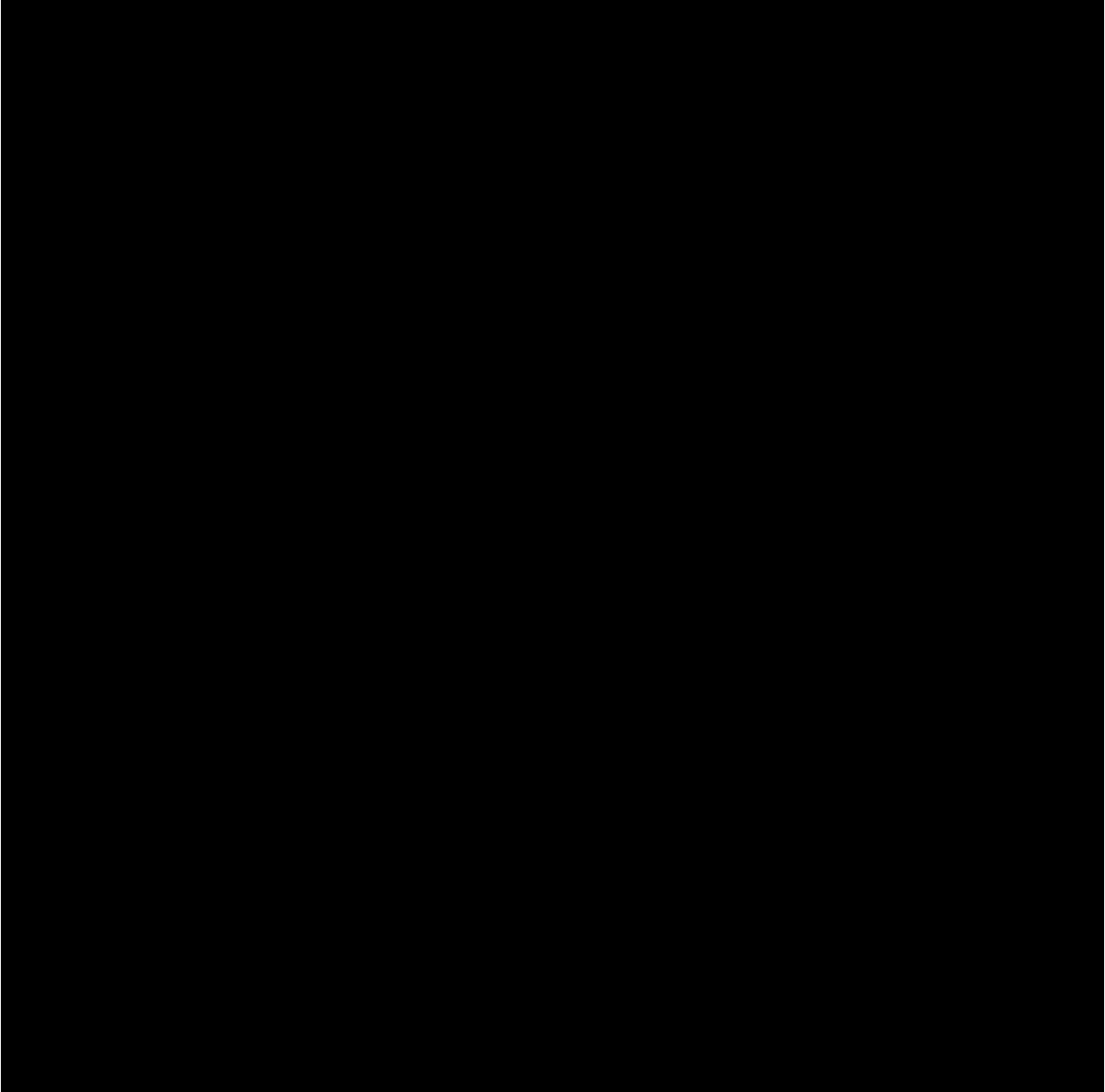


License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

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License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



WASTE PRODUCT QUARANTINE			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: QA/QC MANAGER			

PURPOSE

To define different forms of cannabis and medical cannabis waste inside the facility and returning to the facility, and the procedures for quarantining any cannabis or medical cannabis, or dedicated waste before the destruction of cannabis or medical cannabis waste outlined in Product Disposal. Prior to destruction, quarantined items must be inspected and approved for destruction by the **QA/QC Manager**.

RELEVANT REGULATIONS

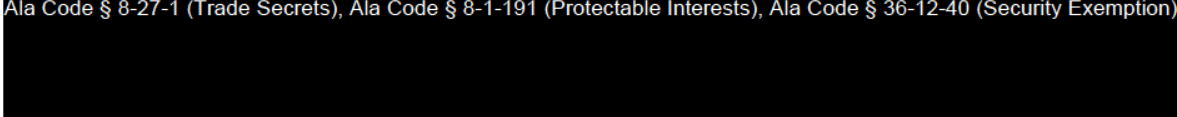
A.M.C.C. 538-x-4-.07 Duty to Meet and Maintain Standards, Policies, Procedures and Operations Per Application.

- (3)(o)(10) A Cannabis/Medical Cannabis Waste and Disposal Plan. Licensees must maintain at all times and review at least annually, a plan for tracking and proper disposal of waste cannabis or medical cannabis, including all parts thereof, as applicable. Such plan must, at a minimum, leave no part of the disposed or waste cannabis or medical cannabis either useable or recognizable as such.

EQUIPMENT AND SUPPLIES

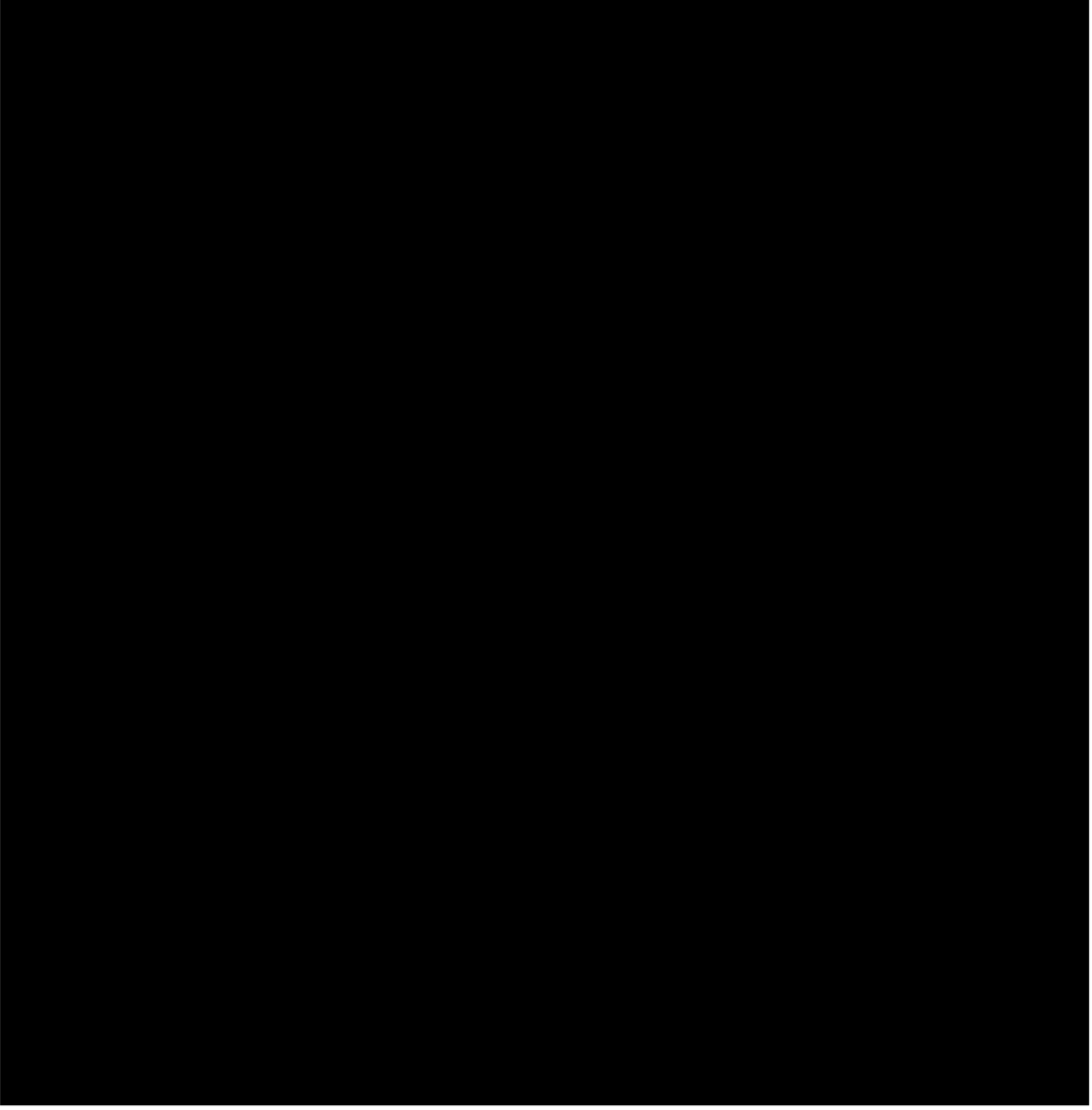
License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

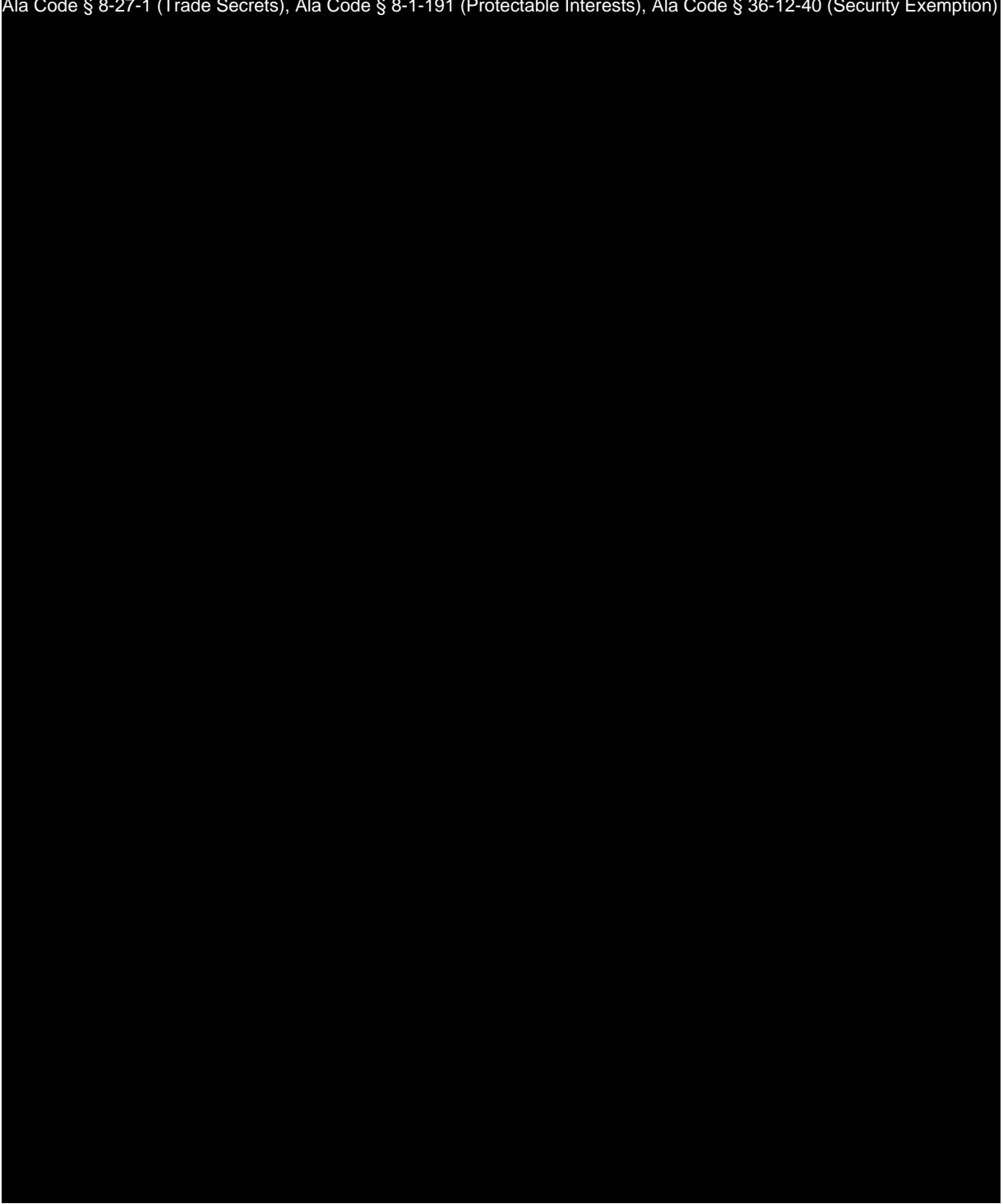


PROCEDURES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



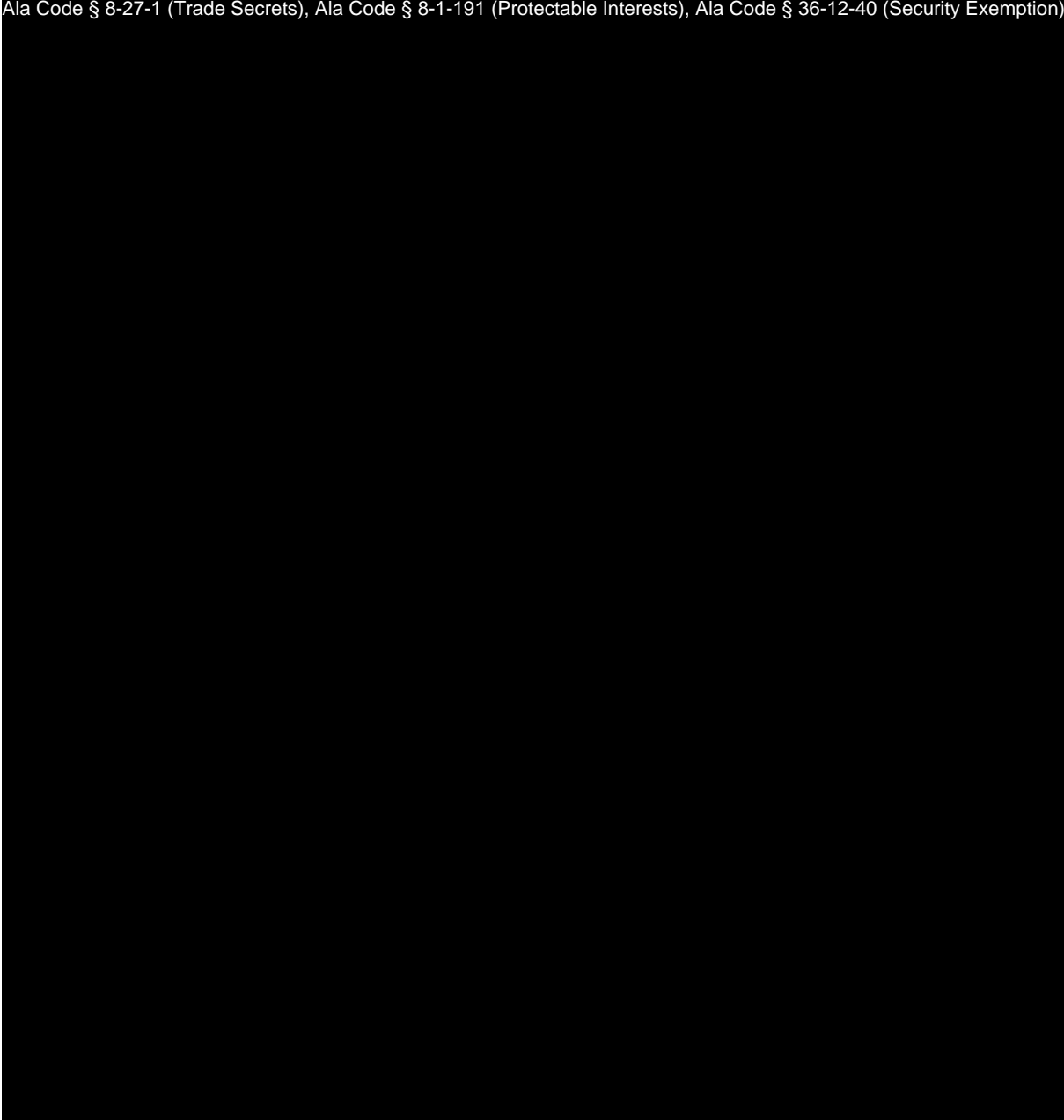
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



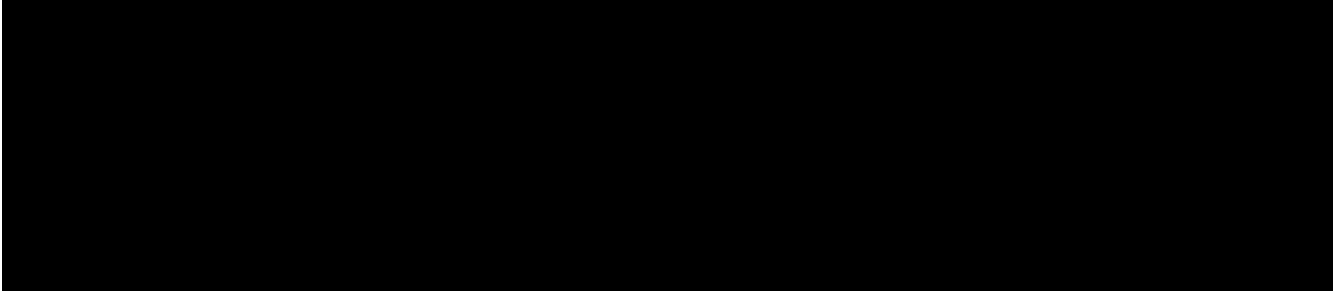
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



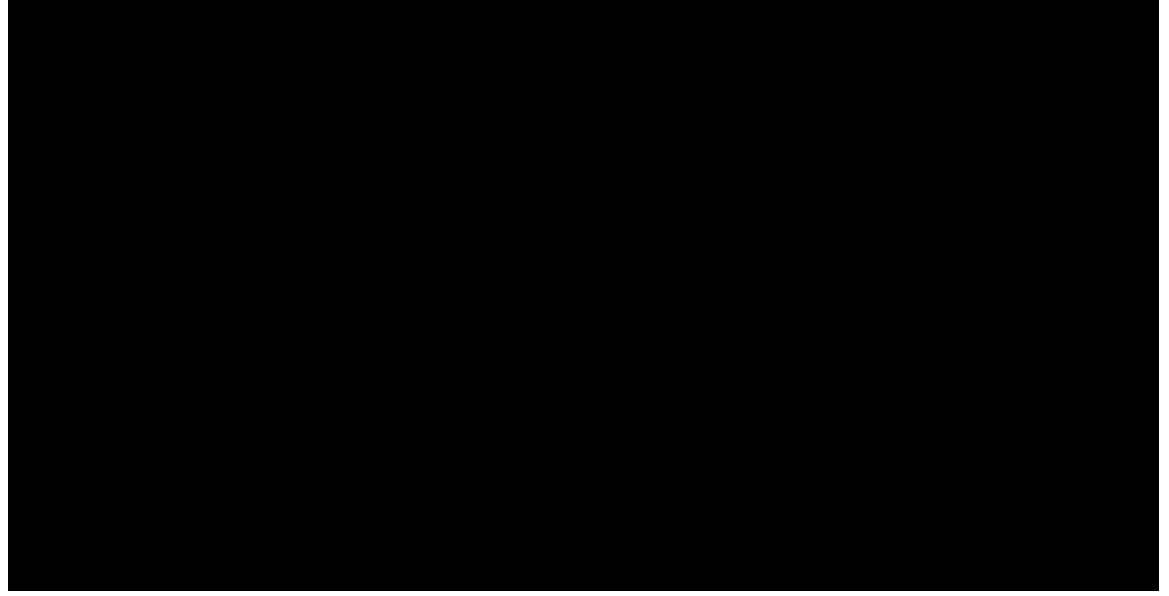
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



EMERGENCY ACTION PLAN			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: SECURITY/EMERGENCY RESPONSE TEAM			

PURPOSE

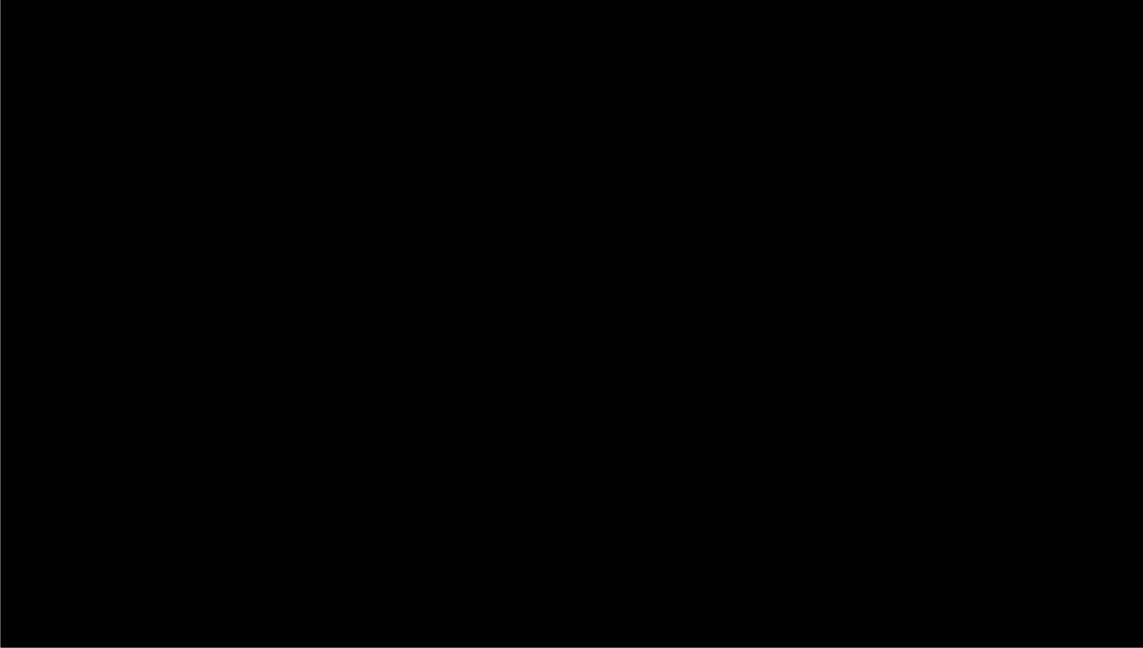
To outline the Emergency Action Plan (EAP) in the event of a hazardous situation requiring evacuation, or intervention to protect the company’s employees, and physical or intellectual property. The EAP further demonstrates the company’s commitment to employees and the community by formally addressing potential hazards, and preparing for business continuity during and after emergency situations. The Company actively operates in accordance with all applicable federal, state, and local rules and regulations.

The Security and Emergency Response Team (SERT) is led by the Security Manager and Production Manager. SERT Team members will be thoroughly trained on emergency procedures during the onboarding process, and retrained quarterly. All other employees will receive basic instruction on general hazards.

The Business Continuity Plan (BCP) helps to ensure the Company will be able to continue business operations during and after an emergency. The CSO serves as the Company’s law enforcement liaison to maintain professional relationships with local law enforcement agencies. EAP procedures are reviewed and updated on a quarterly basis.

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



RELEVANT REGULATIONS

A.M.C.C. 538-x-3-.05 Contents of Application.

- (3)(m)(16)(f) Emergency procedures/disaster plan. Applicants must, during the application process, provide to the Commission, and, upon licensing, must maintain and review at least annually thereafter, a clear written Emergency Procedures and Disaster Plan, detailing the steps the Applicant will take to ensure the safety of employees and others on the premises, the preservation of cannabis or medical cannabis, and the reasonable efforts to maintain access to medical cannabis by those who depend on it, in the event of any reasonably foreseeable emergency, or natural disaster that may affect the licensee, its facilities, personnel, products or customers.
- (3)(m)(16)(k)(v) Exterior doors of each facility must be designed or reinforced to withstand unlawful forcible entry; exterior doors shall, at all times, remain locked against outside intruders, while allowing free egress by the facility's occupants in the event of an emergency; doors must permit ingress to employees and other

License Type: Processor

appropriate persons only by means of a keycard or other similar electronic access device.

COMPANY EMERGENCY CONTACTS

CONTACT NAME/TITLE	CONTACT INFORMATION

EXTERNAL EMERGENCY CONTACTS

CONTACT NAME	CONTACT INFORMATION

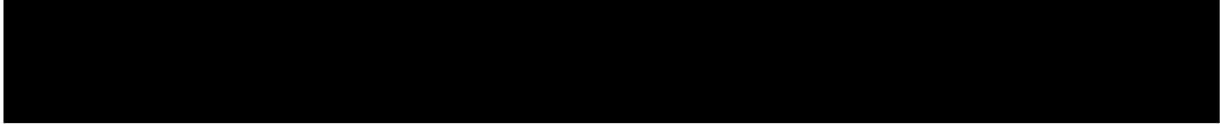
EMERGENCY MEDICAL LOCATIONS

LOCATION	DIRECTIONS FROM FACILITY
Nearest medical urgent care facility:	
Nearest hospital/ emergency room:	

EQUIPMENT AND SUPPLIES

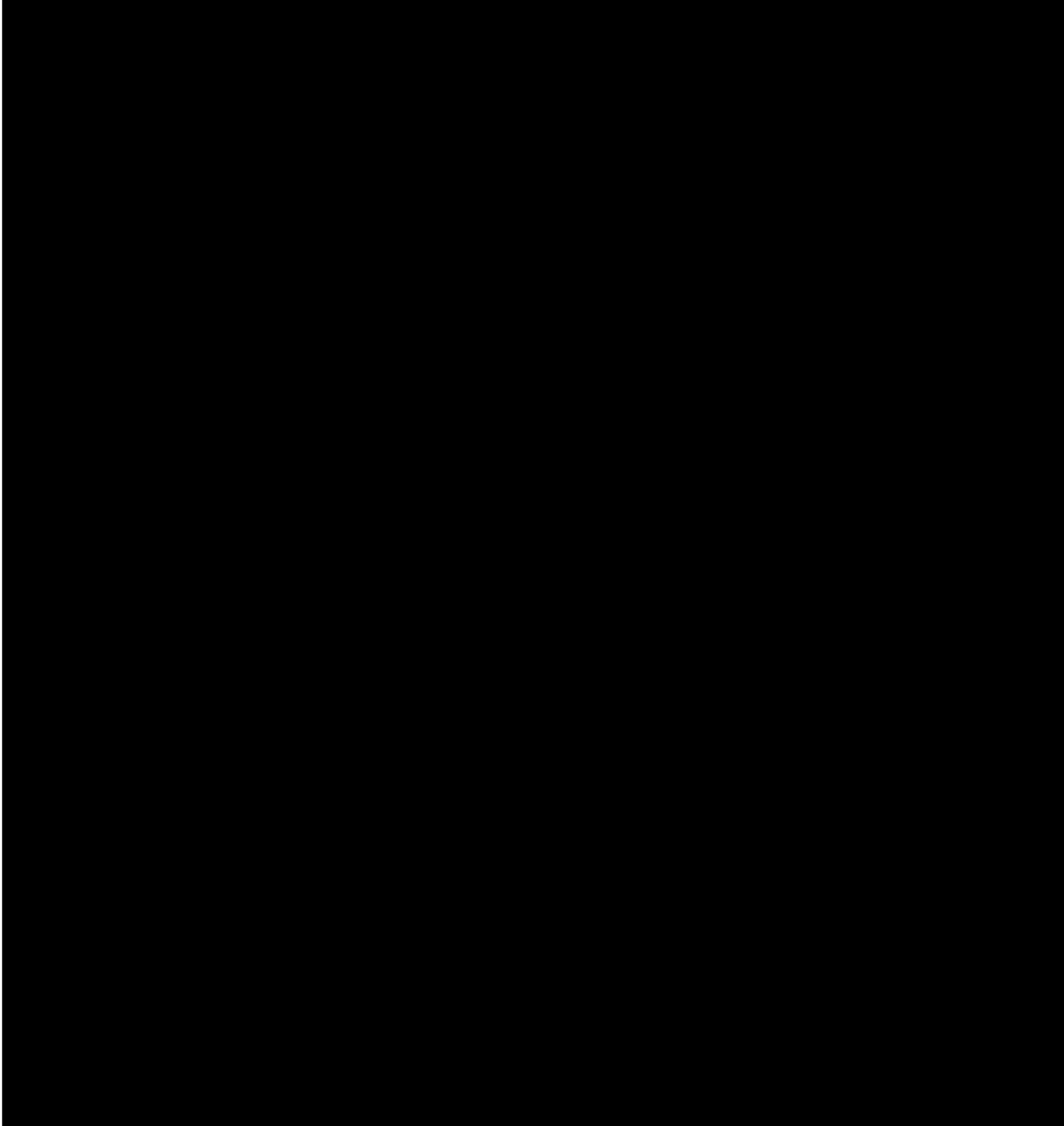
License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



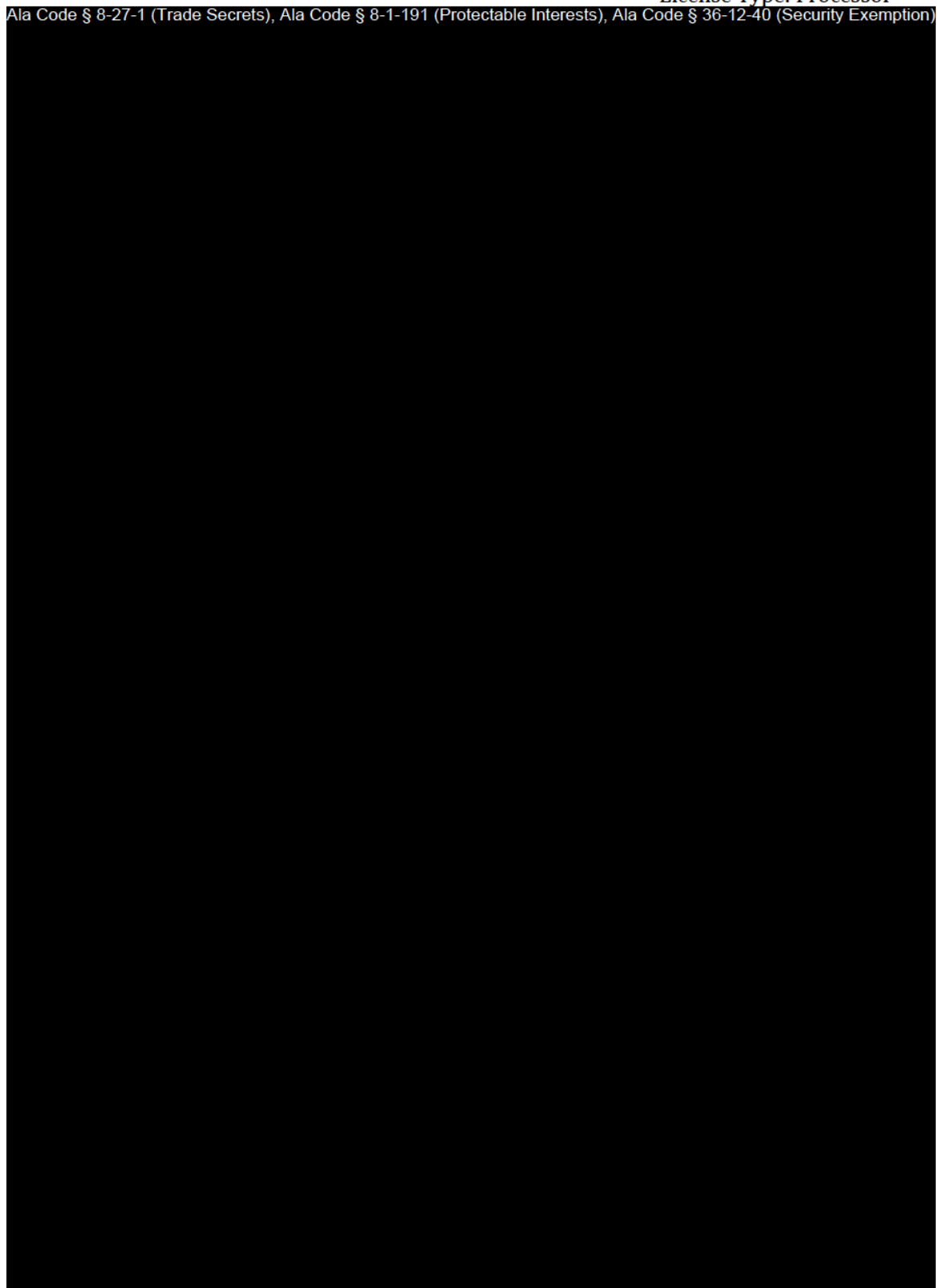
PROCEDURES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

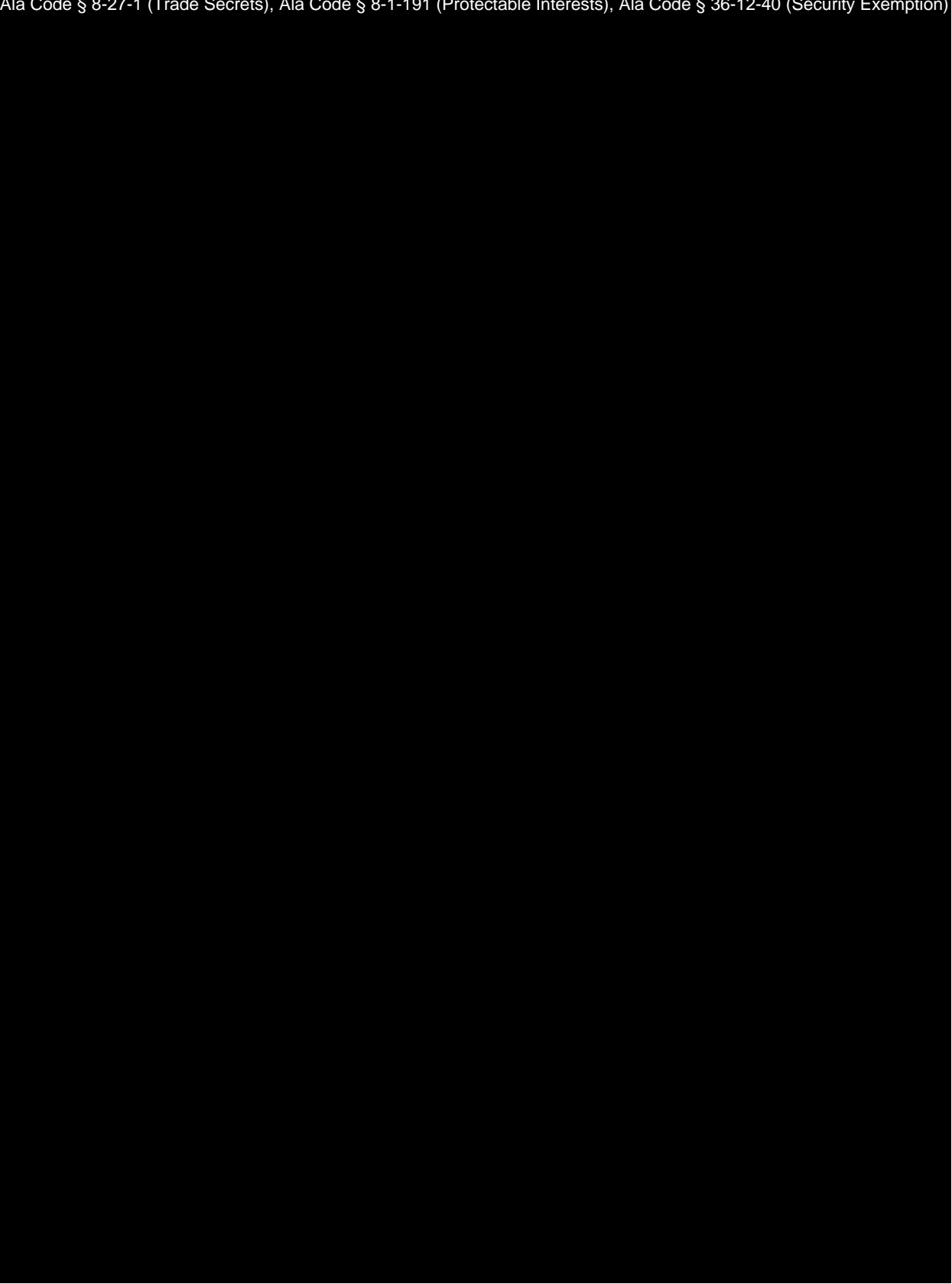


License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)




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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



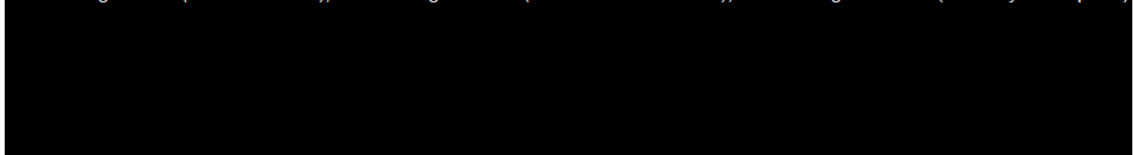
SCALE CALIBRATION			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

PURPOSE

To ensure scales used to weigh cannabis and cannabis products are properly calibrated, and actions are appropriately documented. The procedure describes the process of calibrating the facility scale(s) for legal trade.

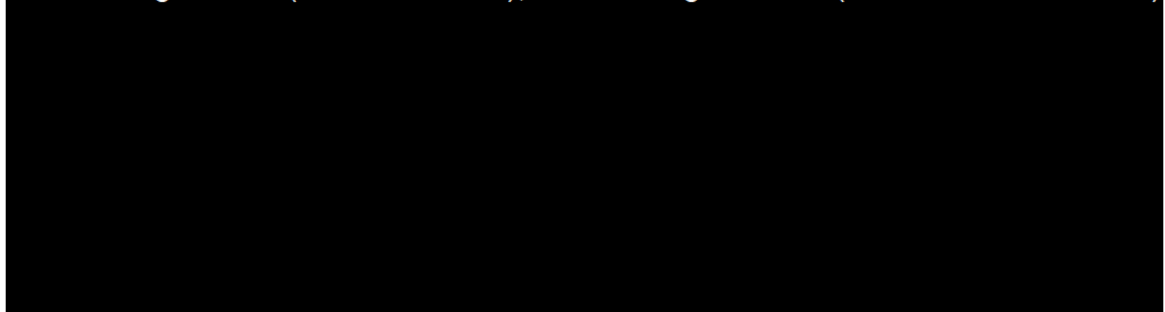
EQUIPMENT AND SUPPLIES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



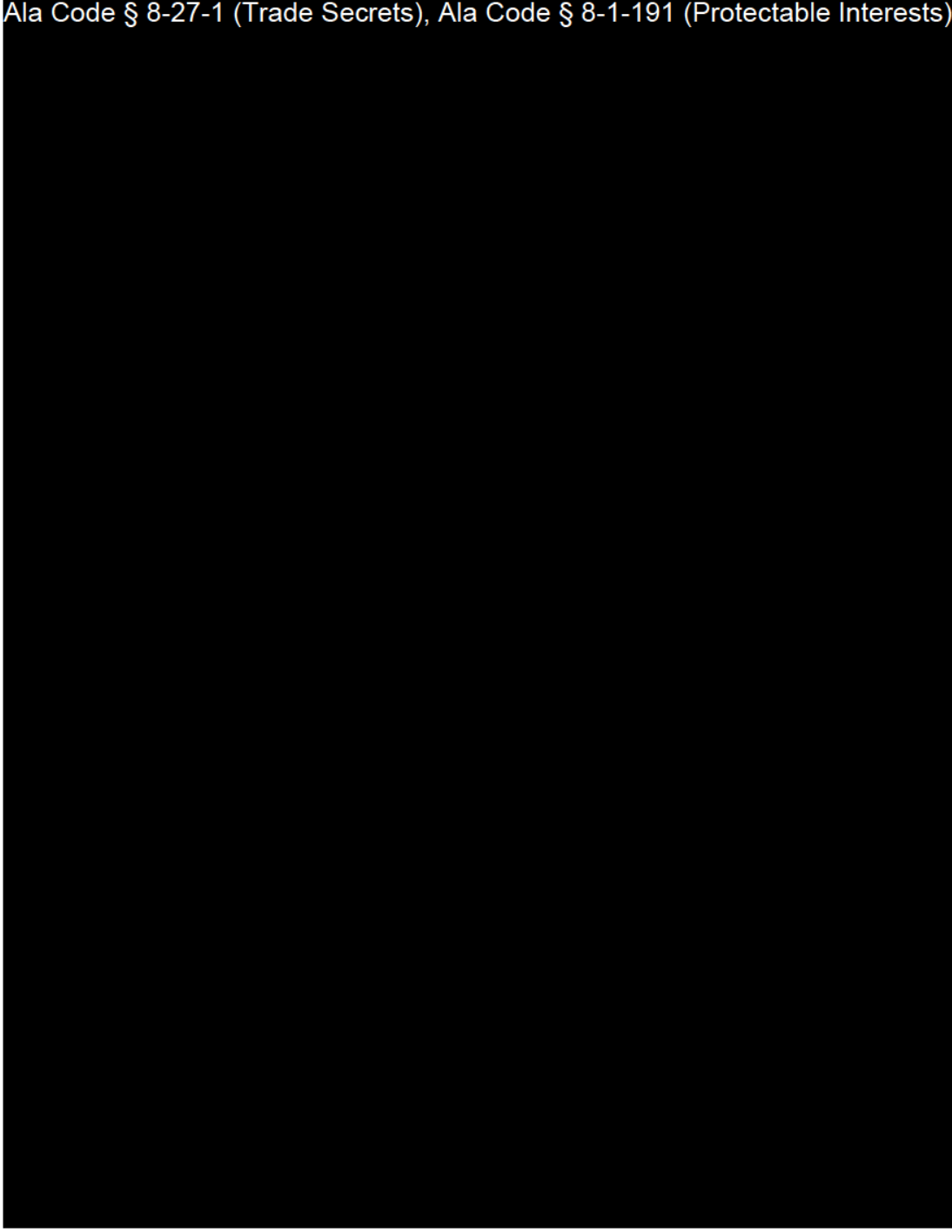
PROCEDURES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

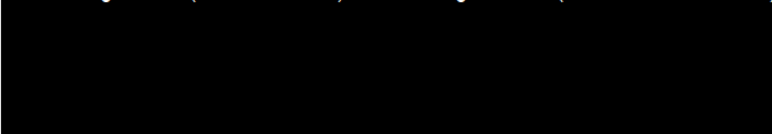


License Type: Processor


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)




Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



SANITATION

1. General Sanitation

- 1.1. Immediately place any paper towels and gloves used in the calibration process into a designated waste receptacle.

PREPARE FOR TRANSPORTATION PROCEDURE			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: DELIVERY SPECIALISTS			

PURPOSE

To ensure proper, consistent procedures are followed in the transport of medical cannabis through the use of a Secure Transporter to another licensed facility or site. The Company ensures the safety of employees and medical cannabis are the top priority throughout the transport process.

RELEVANT REGULATIONS

A.M.C.C. 538-x-6-.06 Applications and Licensing Procedures as to Processors Generally.

- (3)(f) Processor applicants must create a receiving and shipping plan that, at a minimum, ensures the following, inncoordination with the contracted Secure Transporter or State Testing Laboratory, as applicable:
 - (5) Individual batches of medical cannabis products being shipped from the Processor's facility to a Dispensary or Cultivator by means of a Secure Transporter must be appropriately packaged, labeled, and inserted in containers prior to transport.
 - (6) Batches and containers being shipped from the Processor's facility to another licensee's facility or another of the Processor's own facilities must be QR coded or otherwise digitally coded to identify, at a minimum, the Processor, facility, type of product, date of processing and packaging,

License Type: Processor

expiration date (or, if no expiration date, a notation that the expiration date does not apply), the date of the Processor's State Laboratory testing approval, and the Alabama Poison Control contact information as provided on the AMCC website.

- (7) Outgoing medical cannabis is accompanied by the Secure Transporter's manifest and other appropriate documentation; the information thereon is accurate and has been duly executed by all appropriate parties.
- (8) All information from the QR code relating to the outgoing medical cannabis, as well as the date and time of shipment, has been logged into the Statewide-Seed-to-Sale Tracking System.

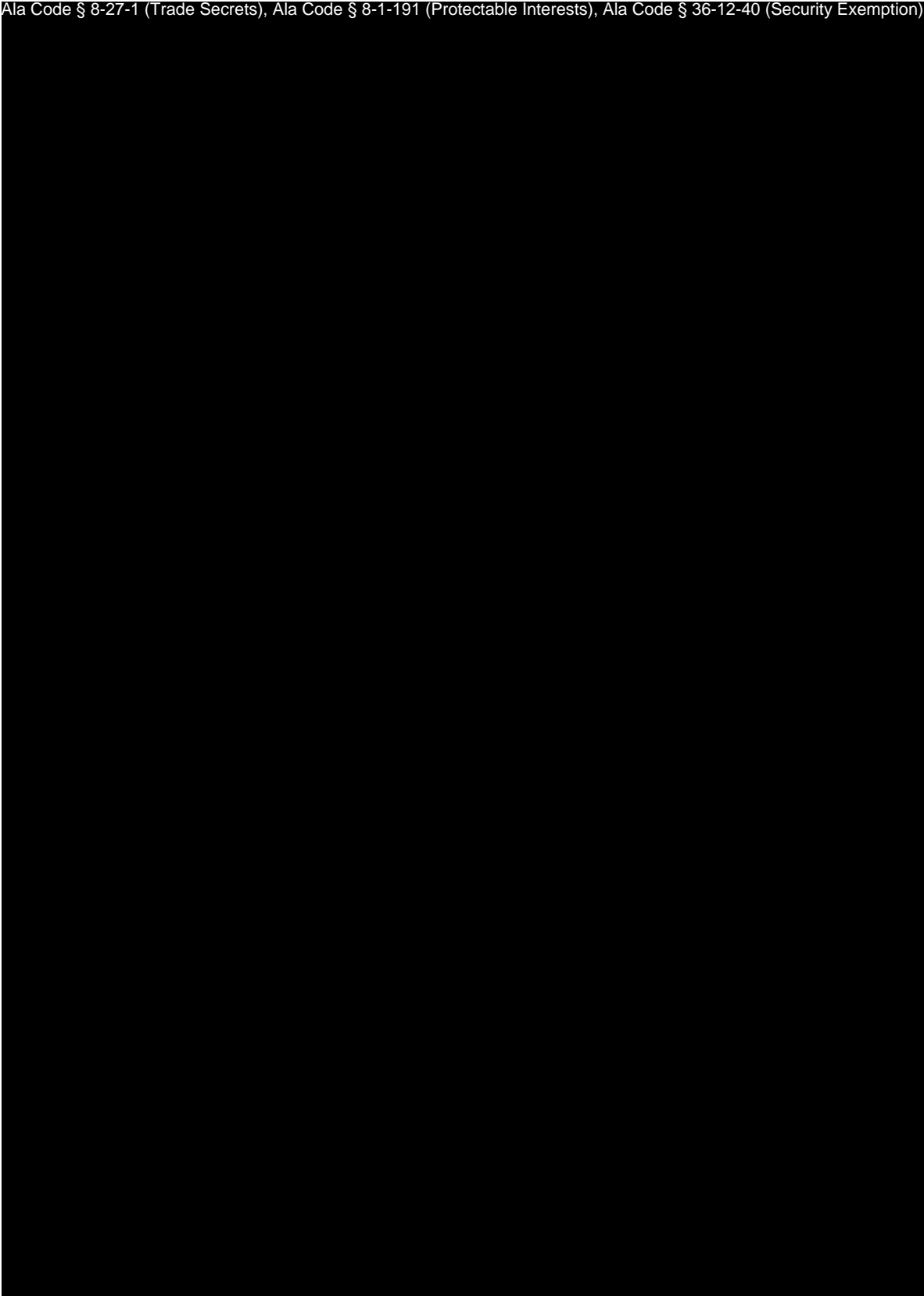
EQUIPMENT AND SUPPLIES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

PROCEDURES


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)



PEST CONTROL PROGRAM			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT: Processing	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: SANITATION SUPERVISOR			

PURPOSE

To ensure proper, consistent procedures are followed in the prevention and elimination of rodents and insects within the processing facility, with appropriate documentation completed. The Company will mitigate rodents and other pests with the following procedures.

RELEVANT REGULATIONS

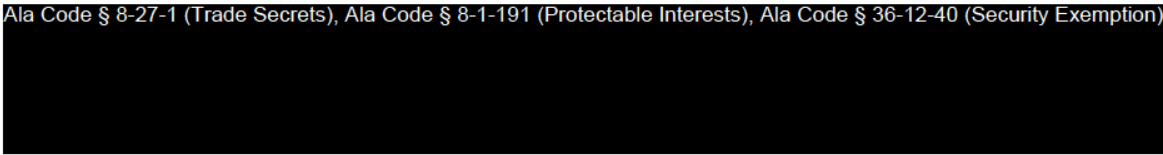
A.M.C.C. 538-x-4-.07 Duty to Meet and Maintain Standards, Policies, Procedures and Operations Per Application.

- (12)(o)(2) A Cannabis/Medical Cannabis Storage and Maintenance Plan. Licensees must maintain at all times and review at least annually a plan for maintenance and storage of cannabis and medical cannabis in the possession and control of licensee. Such plan shall include, at a minimum, maintaining cannabis and medical cannabis in a moisture- and temperature-controlled environment free of pests; keeping stored items secure, properly separated and labeled; and limiting access to cannabis and medical cannabis to essential personnel by position.

EQUIPMENT AND SUPPLIES


License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 36-12-40 (Security Exemption)

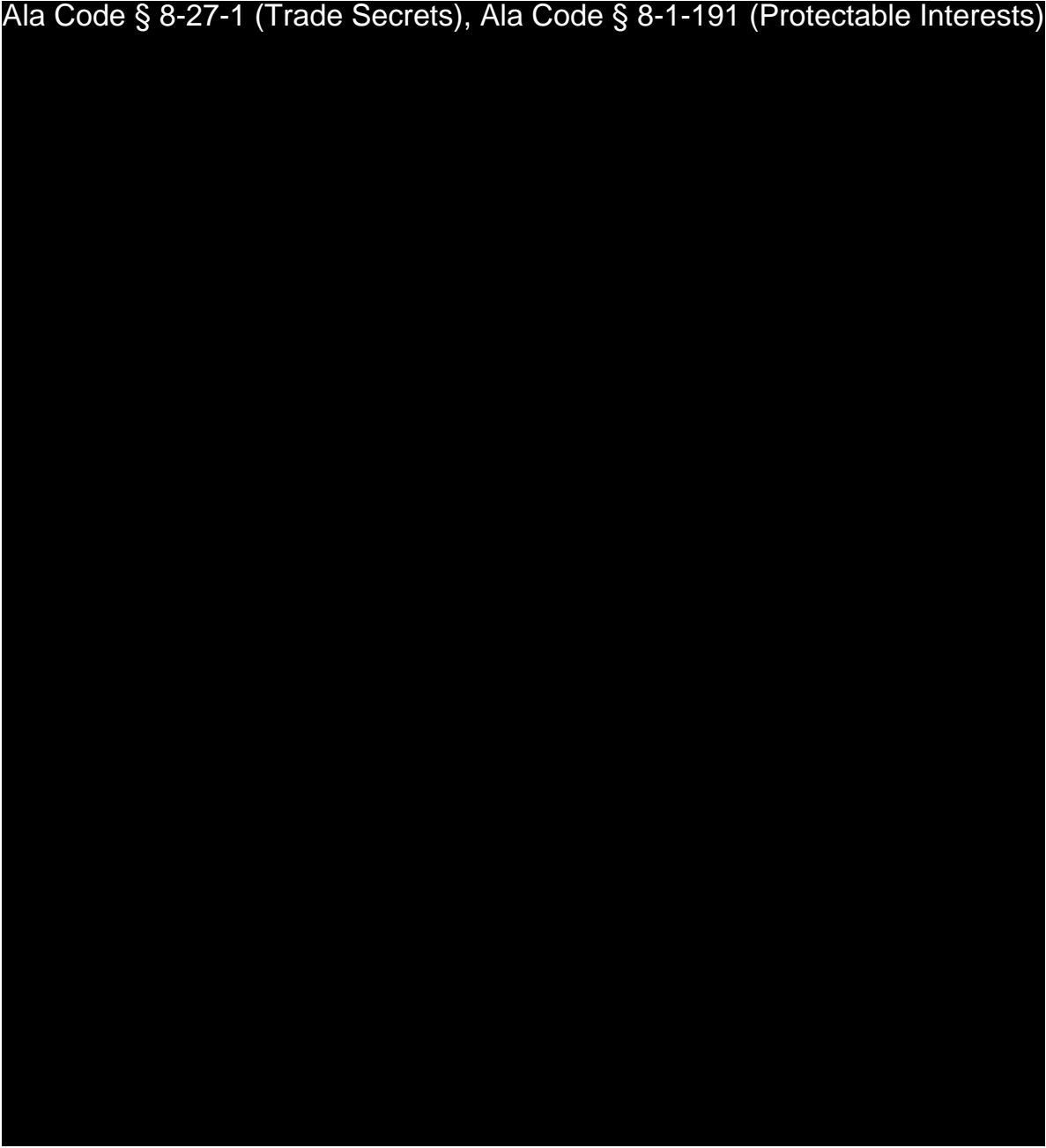


PROCEDURES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



License Type: Processor

DAILY OPENING CHECKLIST			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

MANAGER:	EMPLOYEE:	DATE:

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



MANAGER DAILY CHECKLIST			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANAGER			

MANAGER:	SIGNATURE:	DATE:
----------	------------	-------

Write initials in each check box

TASK	TARGET TIME	MON	TUE	WED	THU	FRI	SAT	SUN
	8:00 AM							
	9:00 AM							
	10:00 AM							
	11:00 AM							
	12:00 PM							
	1:00 PM							
	2:00 PM							
	3:00 PM							
	4:00 PM							
	5:00 PM							

License Type: Processor

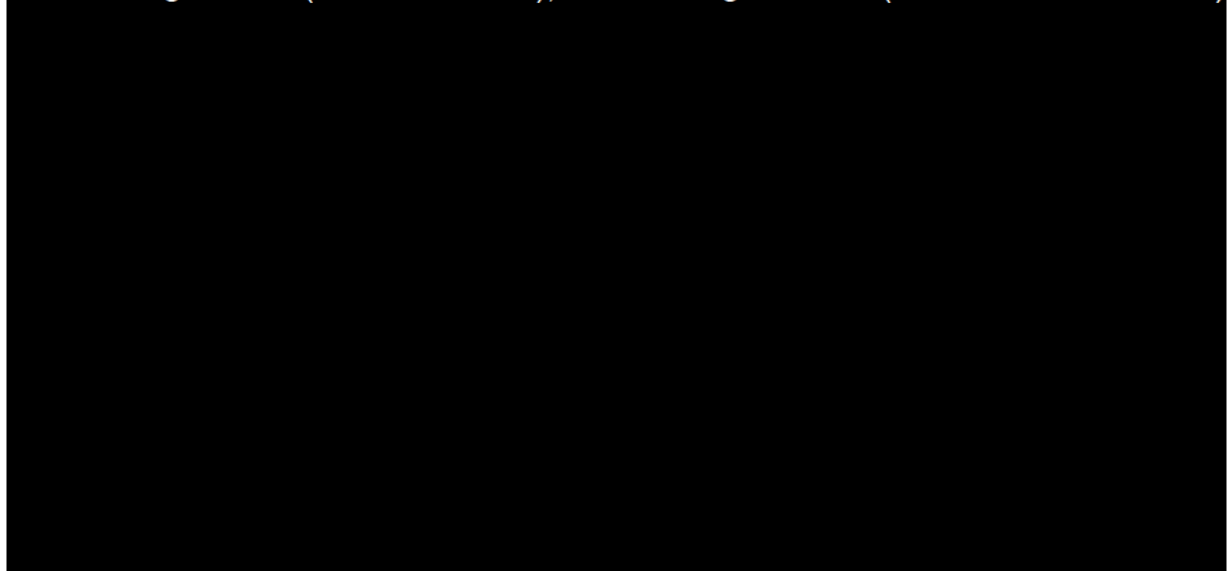
PRODUCT SAFETY & QUALITY SELF-INSPECTION			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: Production Manager			

PURPOSE

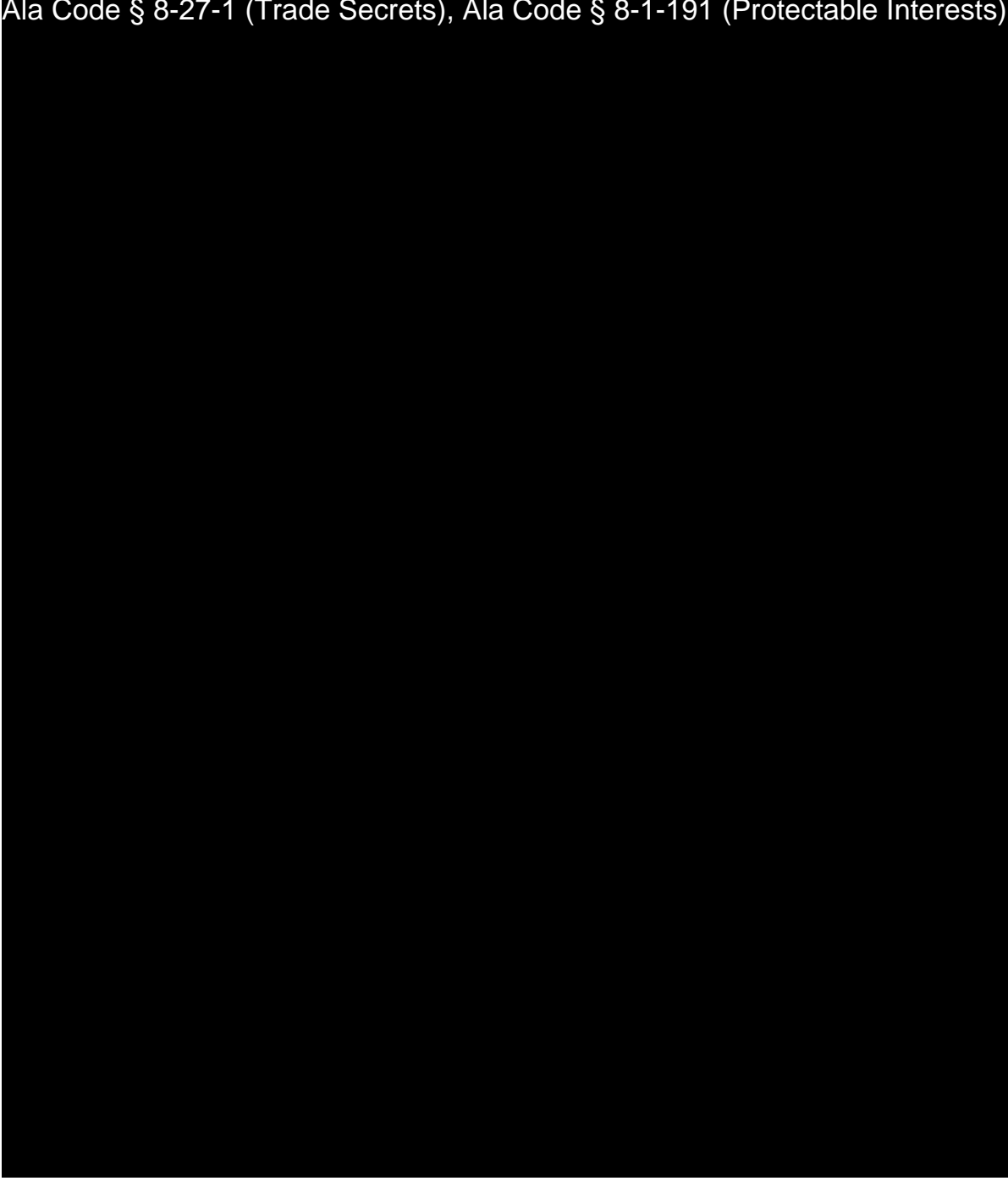
The Product Safety & Quality Self-Inspection Log is to ensure self-inspections of the facility by the Production Manager are completed correctly.

FACILITY NAME:		MANAGER NAME:	
INSPECTION DATE:		MANAGER SIGNATURE:	
TOPIC	YES	NO	NOTES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



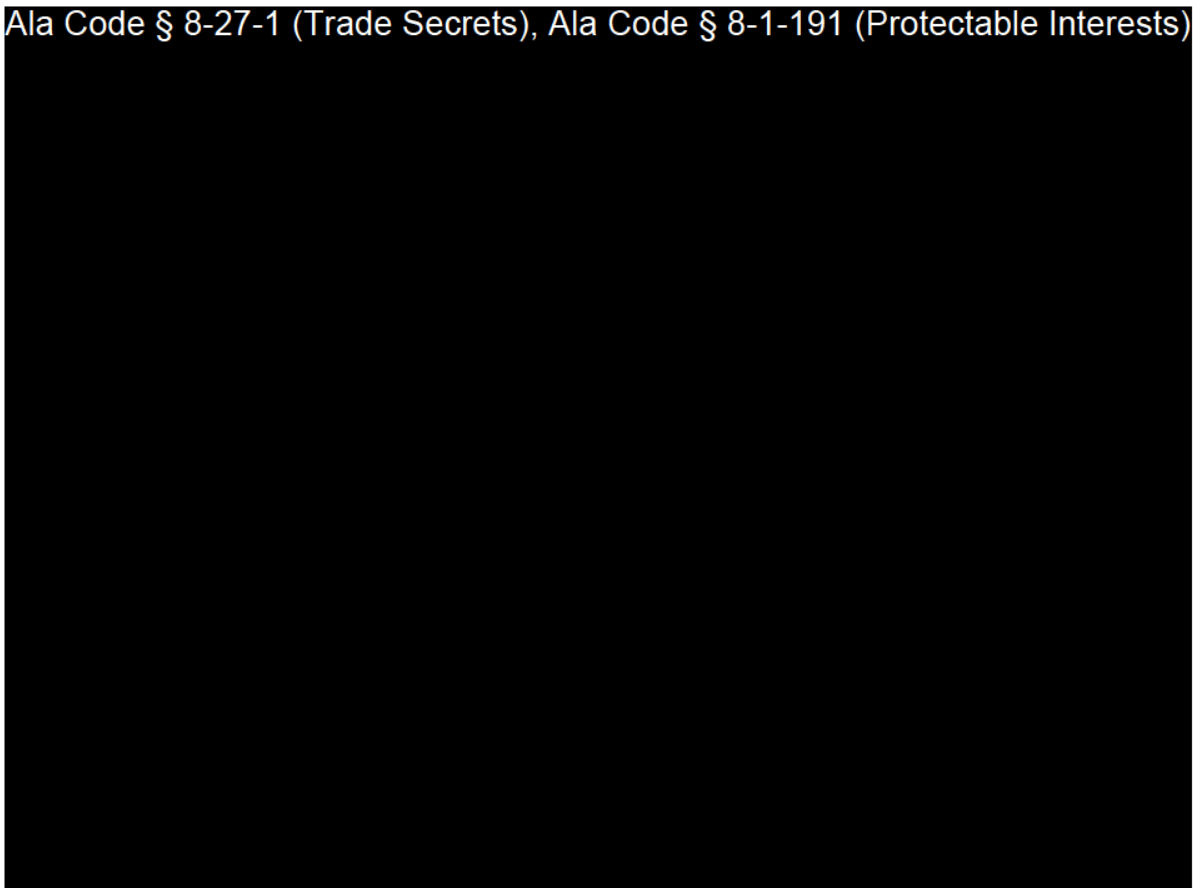
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



License Type: Processor

EXTRACTION MATERIAL WASTE CONSOLIDATION LOG			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: QA/QC MANAGER/MANUFACTURING AGENTS			

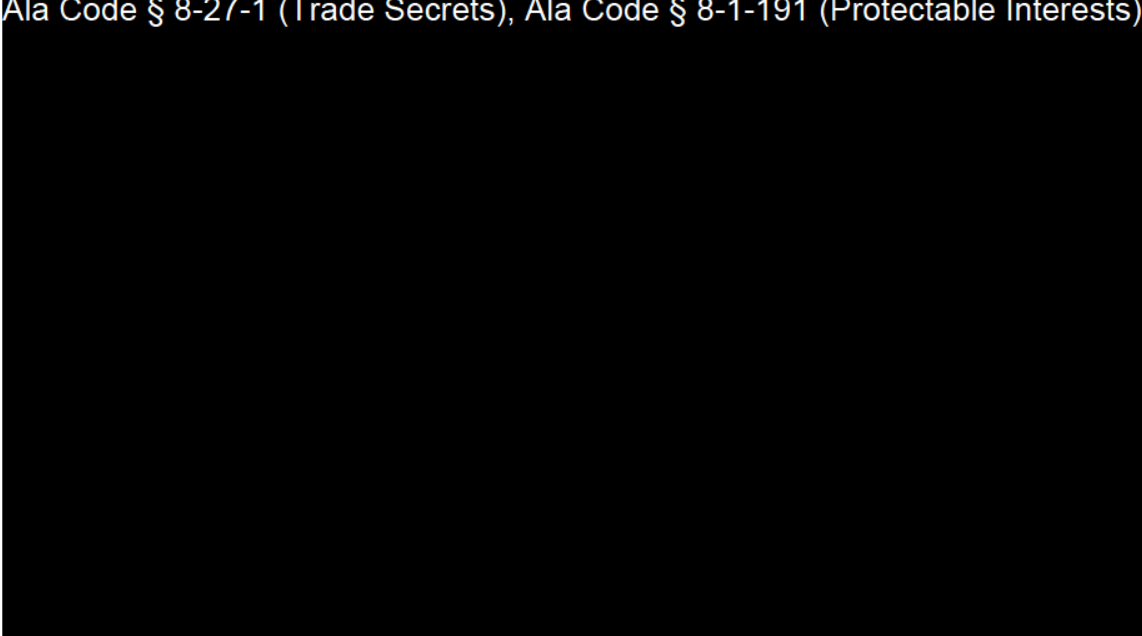
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



CHIPPER/GRINDER WASTE DESTRUCTION LOG			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: QA/QC MANAGER/MANUFACTURING AGENTS			

QA/QC MANAGER:	EMPLOYEE NAME:	EMPLOYEE/BADGE NUMBER:
SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE:	DATE:	DATE:


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



License Type: Processor

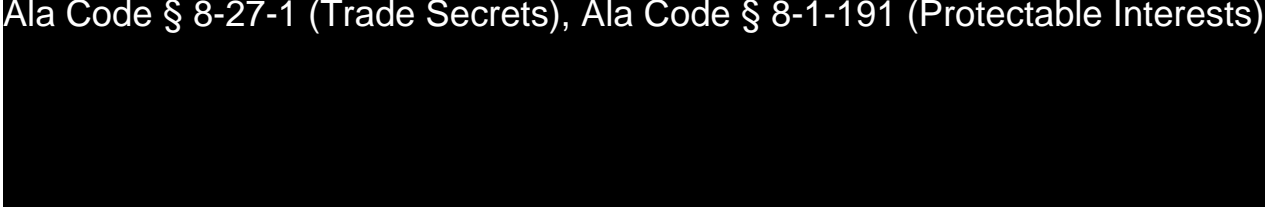
PACKAGING CHECKLIST			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: PACKAGING AGENTS			

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Type of Packaging : _____

Starting Units: _____

Packaged Units: _____

Variance (if any): _____

Date: _____

Employee Signature: _____

Manager Signature: _____

INCOMING PRODUCT INSPECTION FORM			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: QA/QC MANAGER			

RELEVANT REGULATIONS

A.M.C.C. 538-x-6-.06 Applications and Licensing Procedures as to Processors Generally.

- (3)(f) Processor applicants must create a receiving and shipping plan that, at a minimum, ensures the following, in coordination with the contracted Secure Transporter or State Testing Laboratory, as applicable:
 - (1) Individual batches of cannabis being received for storage and/or processing were appropriately prepared, tagged or otherwise identified, and inserted in containers at the time of receipt.
 - (2) Batches and containers arriving from another licensee’s facility or another of the Processor’s own facilities have been QR coded or otherwise digitally coded to identify, at a minimum, the Cultivator, facility, plant tag or harvest batch number, date of harvest, expiration date (or, if no expiration date, a notation that the expiration date does not apply), the date of the cultivator’s State Laboratory testing approval, and the Alabama Poison Control contact information as provided on the AMCC website.
 - (3) Incoming cannabis is accompanied by the Secure Transporter’s manifest and other appropriate documentation; the information thereon is accurate and has been duly executed by all appropriate parties.
 - (4) All information from the QR code relating to the incoming cannabis, as well as the date and time of arrival, has been logged into the Statewide-Seed-

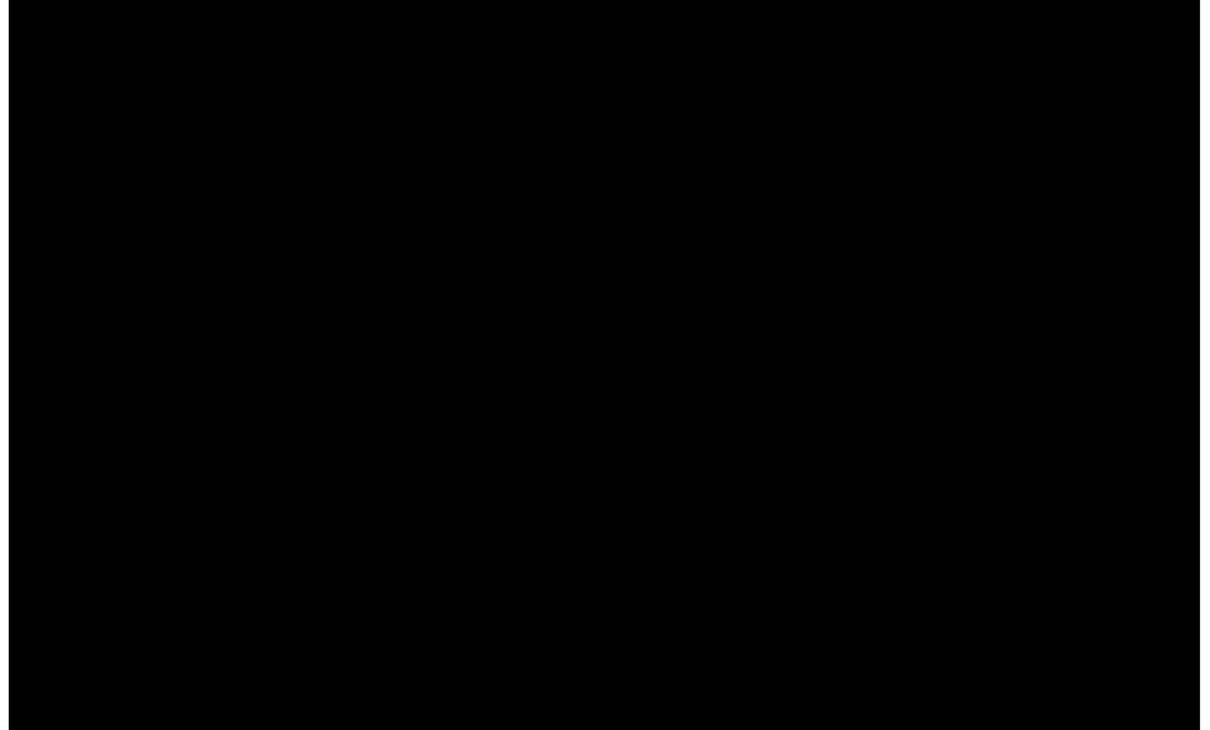
to-Sale Tracking System.

PURPOSE

To ensure all raw, printed, and packaging materials being delivered to the processing facility are fully inspected upon delivery for discrepancies and quality. The Company is mandated to adequately inspect and record the incoming raw, printed, and packaging materials on a log. Inspection of products include but are not limited to; search for bad odor; no evidence of chemical spills; inspection of tamper evident tape; and rodent activity. Notify the supervisor immediately of any issues.

The following are the standards required for incoming raw material to receive a status of PASS for inspections. If one or more of the below statements are not met, the product will receive a status of FAIL for the inspection.

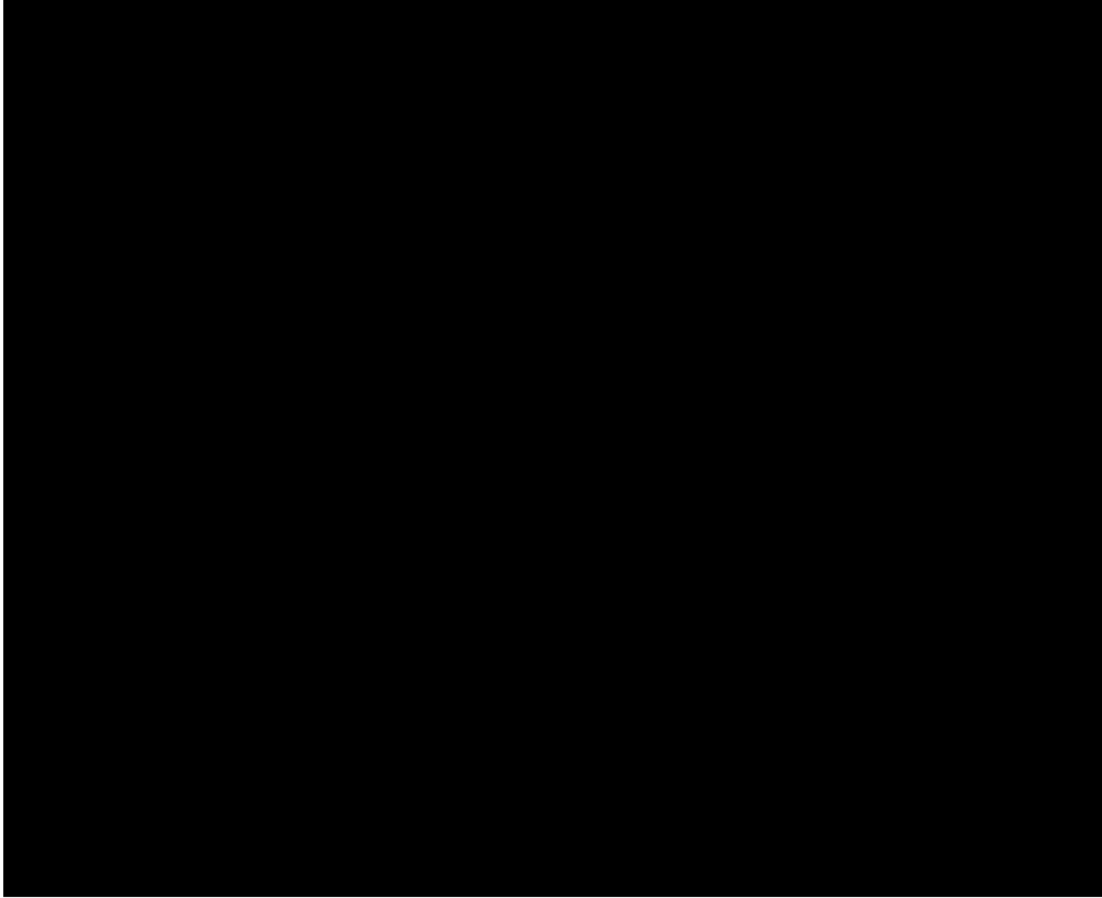
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



License Type: Processor

INCOMING NON-CANNABIS PRODUCT INSPECTION FORM	
Facility Name:	Incoming Facility Name:
Facility ID:	Incoming Facility ID:
Date:	Receiving Employee Signature:

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



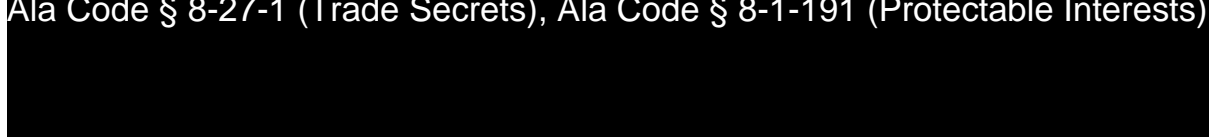
License Type: Processor

RECEIVING CANNABIS INVENTORY LOG			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: QA/QC MANAGER			

Checklist prior to receiving cannabis inventory:	Initials
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)	
[Redacted Content]	

License Type: Processor

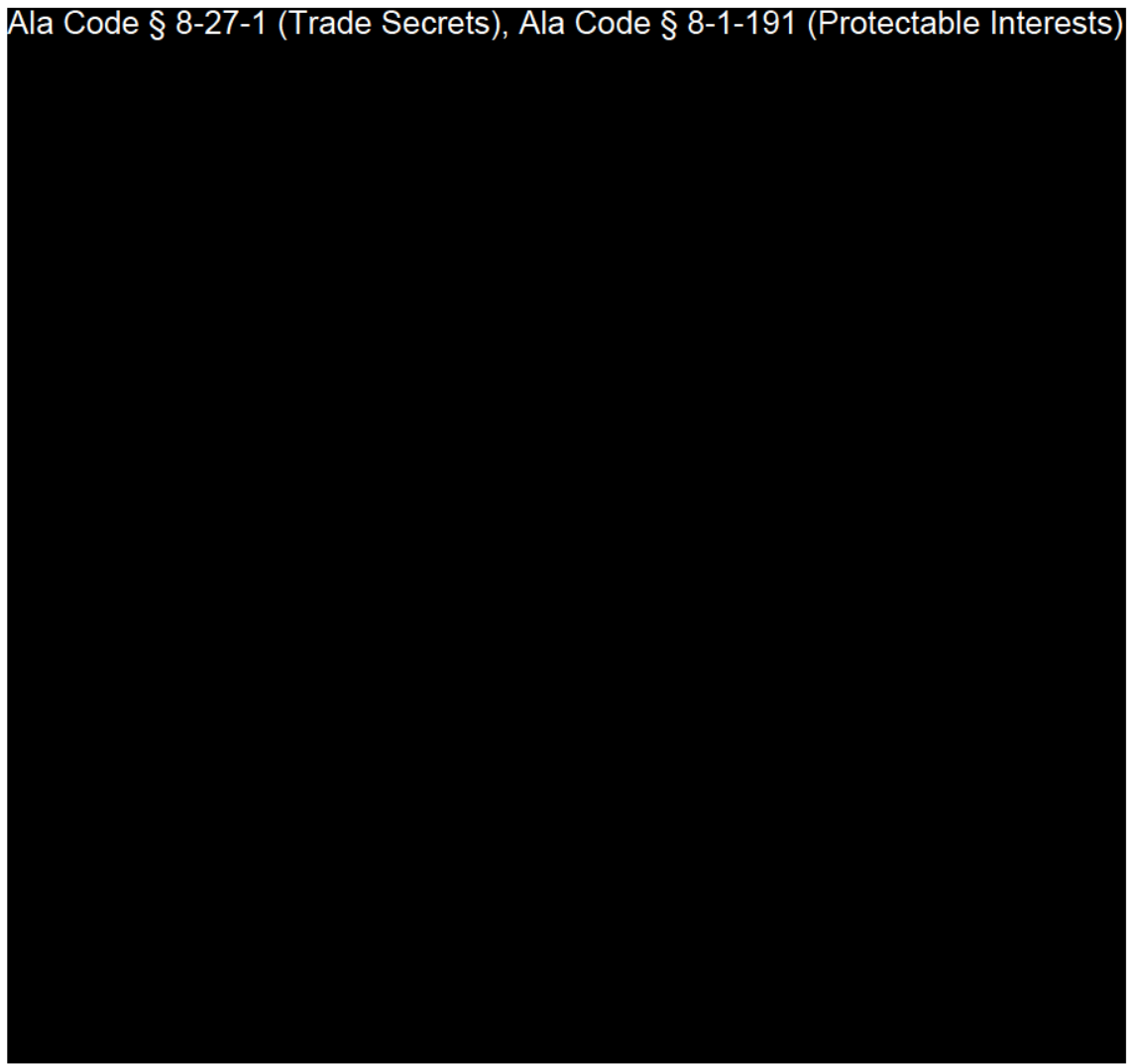
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



EMPLOYEE SIGNATURE	DATE:
---------------------------	--------------

SCALES CALIBRATION LOG			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: Production Manager/QUALITY ASSURANCE DIRECTOR			

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



BATCH YIELD RECONCILIATION LOG			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS/PACKAGING AGENTS/QUALITY ASSURANCE			

PURPOSE

Reconciliation and yield is calculated in percentage and recorded in the Batch Yield Reconciliation Log. Manufacturing and packaging personnel are responsible for calculation of the yield and reconciliation. Quality Assurance personnel are responsible for verifying the calculation.

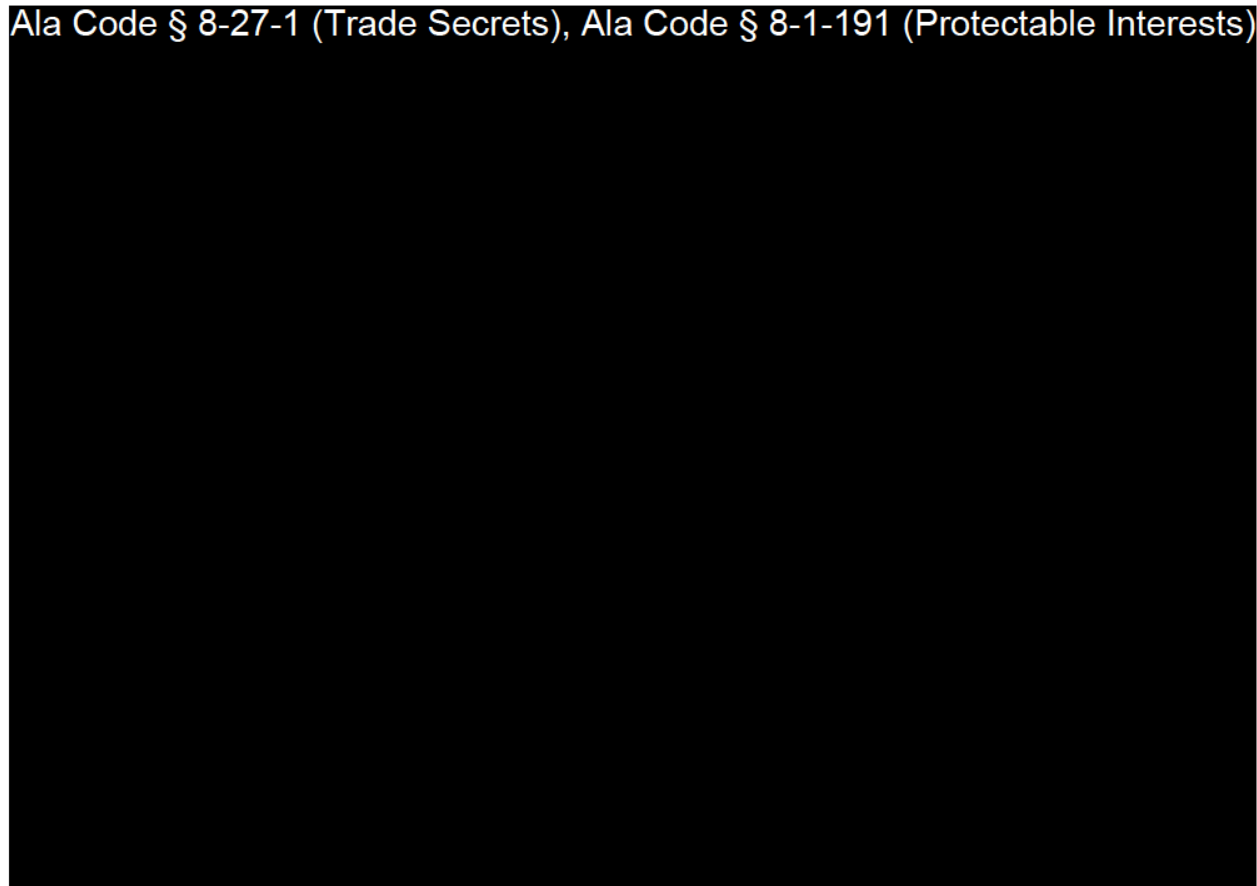
BATCH YIELD RECONCILIATION LOG					
DATE	BATCH	DEVIATION	CORRECTIVE ACTION	DISPOSAL OF PRODUCT?	EMPLOYEE NAME

PEST ACTIVITY LOG			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: SANITATION SUPERVISOR			

PURPOSE

The Sanitation Supervisor lists detailed information regarding pest activity in the Pest Activity Log, and documents the corrective actions taken to solve the problem(s).

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



CHEMICAL INVENTORY LOG			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: QA/QC MANAGER			

PURPOSE

The Chemical Inventory Log is utilized to track all chemical inventory within the facility. Employees must record the chemical being added to, or removed from inventory, the date the chemical was moved, and the amount of the chemical. Employees must sign-off after adding or removing a chemical from inventory.

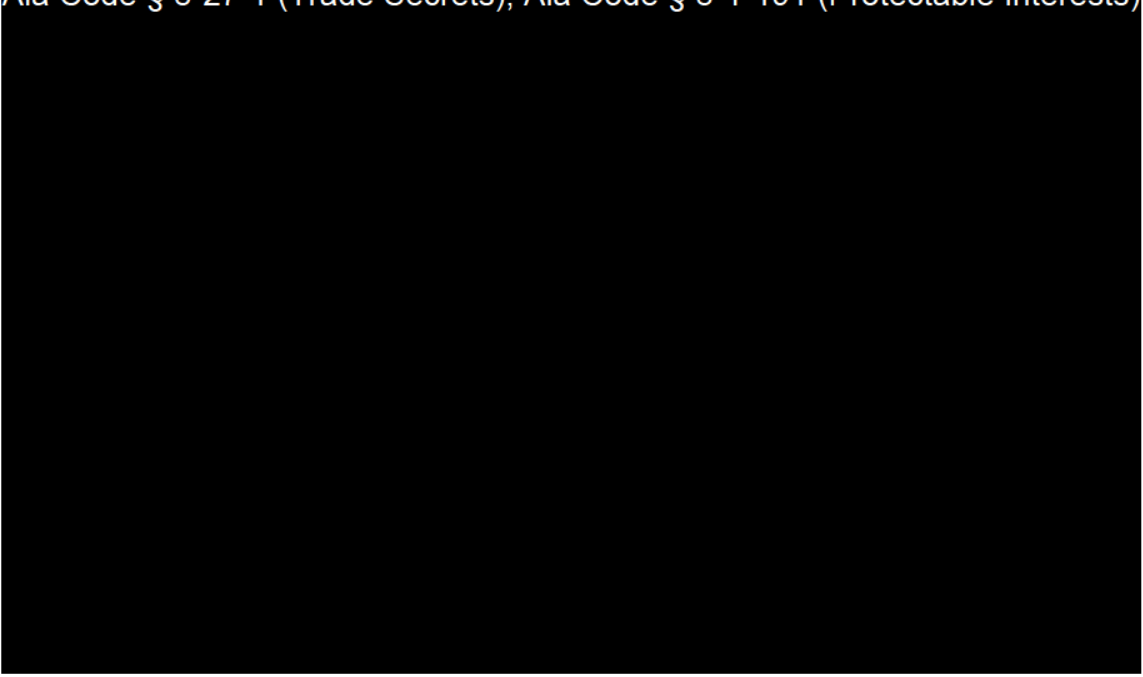
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



License Type: Processor

PRODUCT HANDLING LOGS			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: QA/QC MANAGER			

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



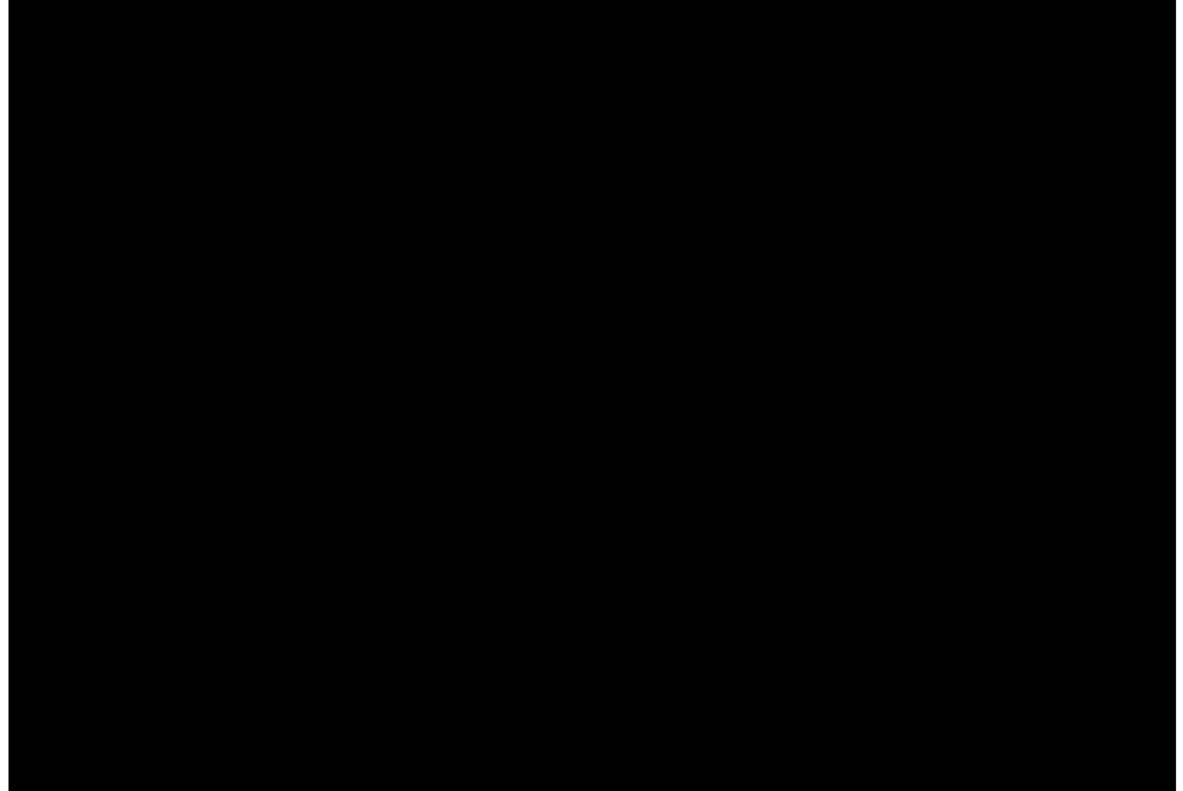
License Type: Processor

PRODUCT HANDLING AREA SANITATION LOG			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

PURPOSE

After cleaning, record date, area or item(s) cleaned, and sign.

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



License Type: Processor

PRODUCT HOLDING CONTAINER/TOOLS/EQUIPMENT SANITATION LOG			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

PURPOSE

After cleaning equipment/containers/tools that come in contact with cannabis products and/or chemicals, record all sanitation servicing dates, descriptions, and processes.

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

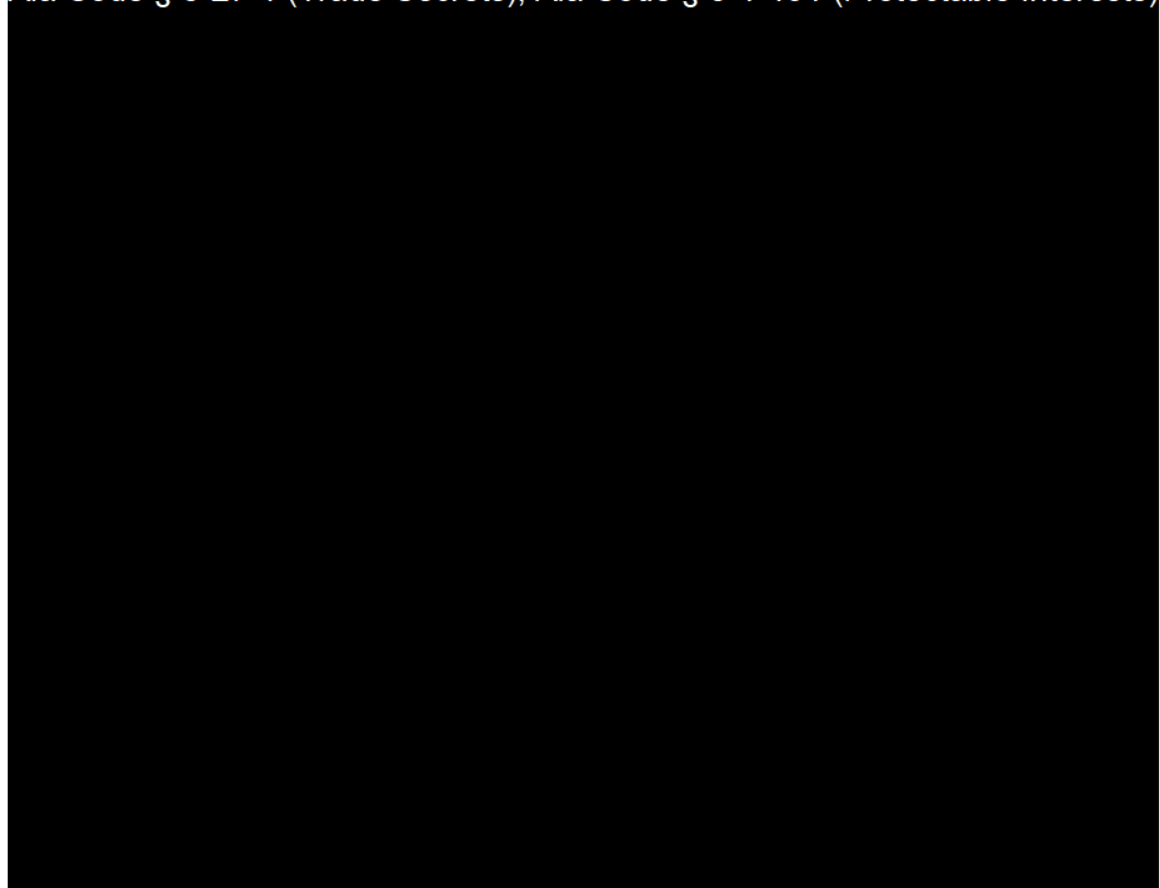


License Type: Processor

EQUIPMENT CALIBRATION CHECKLIST			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

MANAGER:	EMPLOYEE:	DATE:

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)




Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



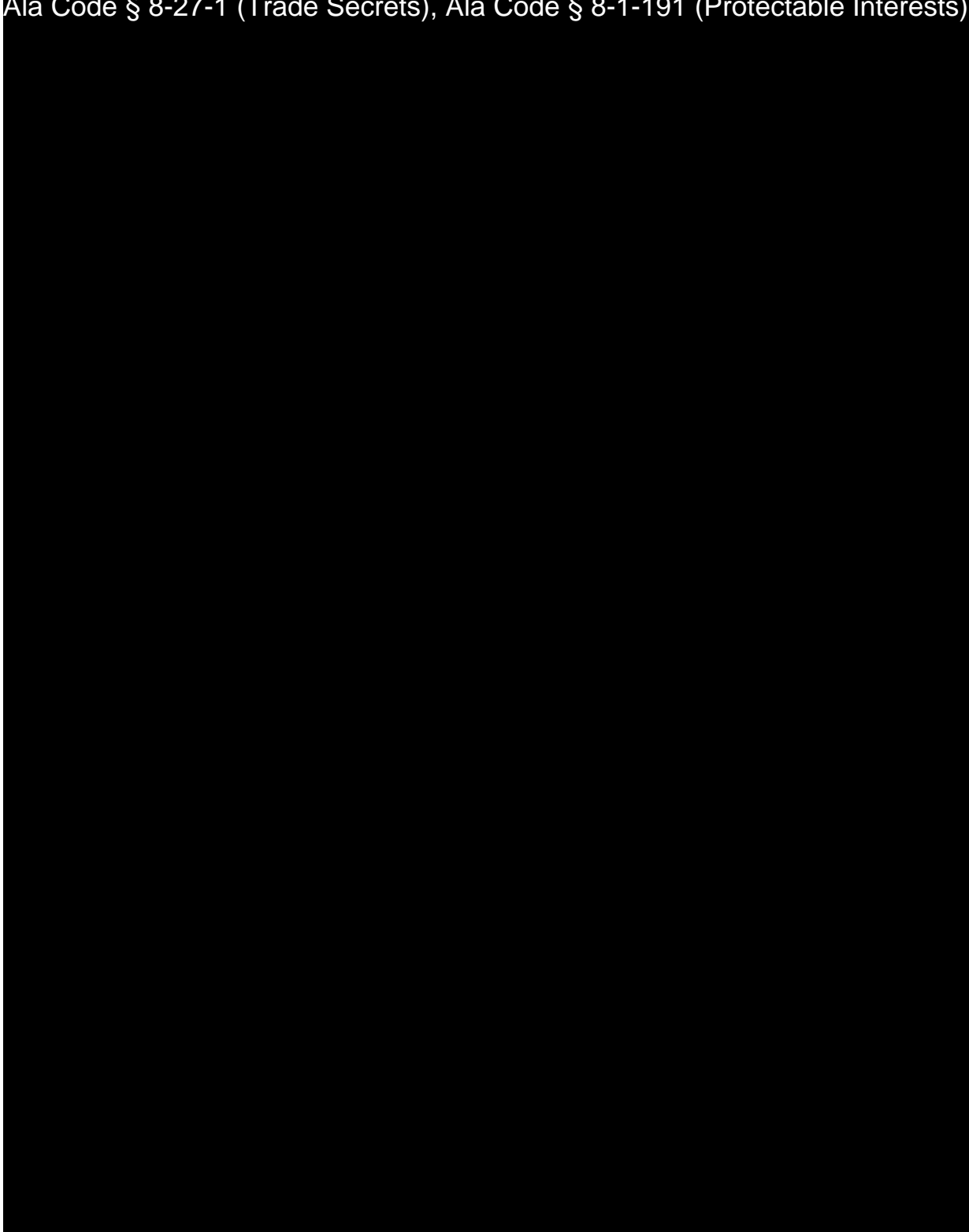
License Type: Processor

EXTRACTION TRACKING LOG			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



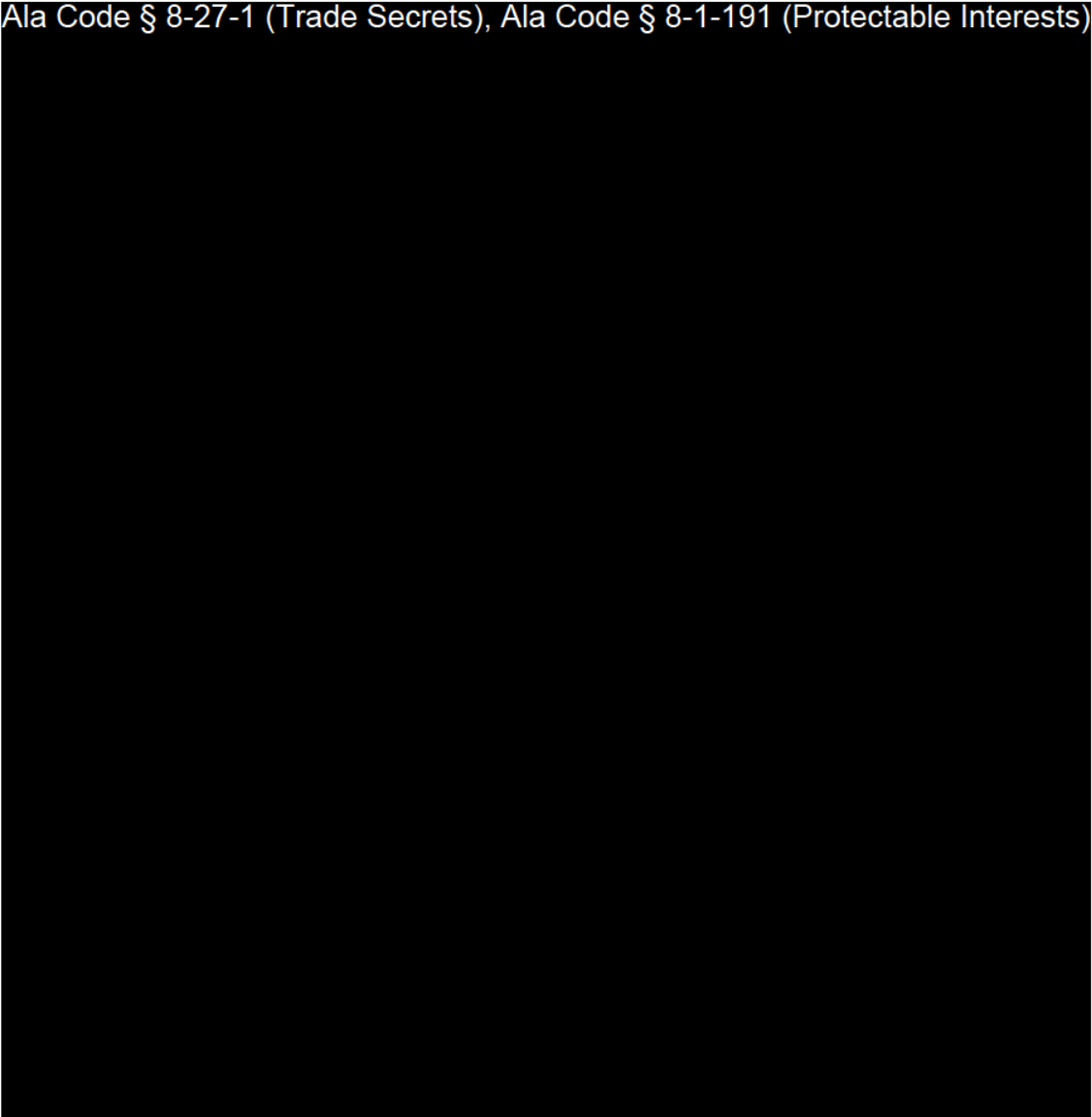
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



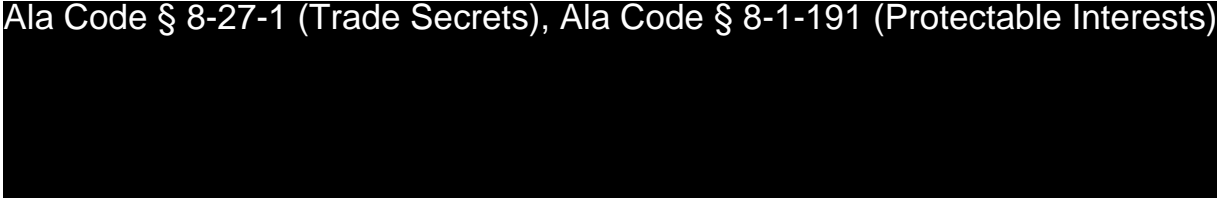
License Type: Processor

EQUIPMENT MAINTENANCE LOG			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



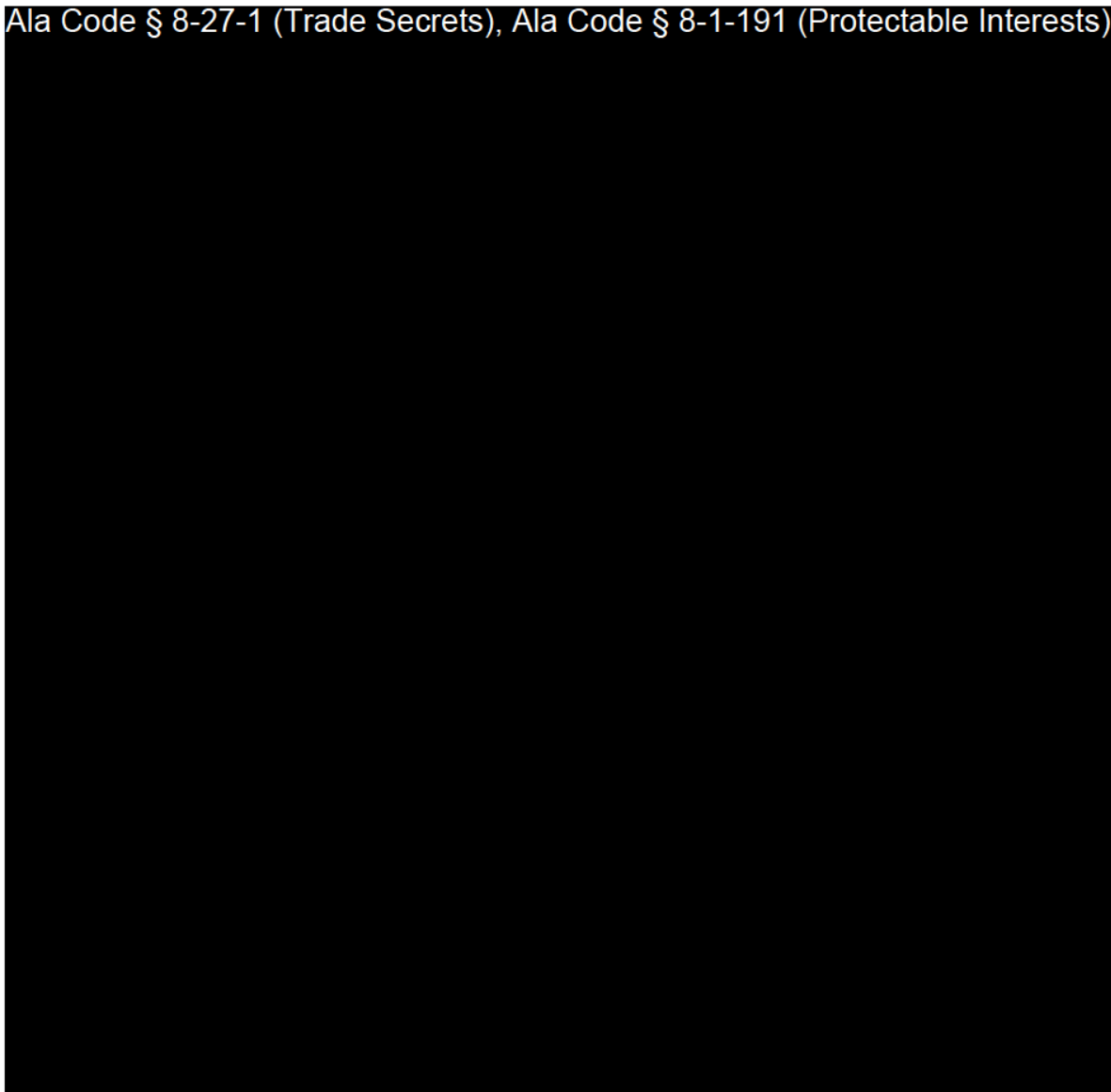
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



License Type: Processor

END OF DAY WASTE DISPOSAL CHECKLIST			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: QA/QC MANAGER/MANUFACTURING AGENTS			

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



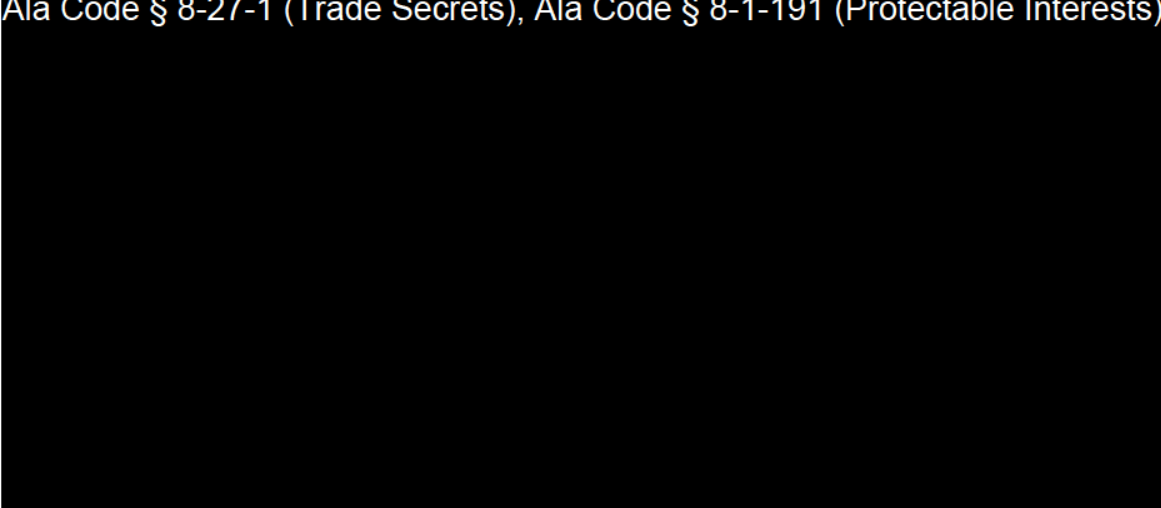
CHEMICAL SPILL			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

PURPOSE

To provide the necessary steps to manage and mitigate a chemical spill in order to minimize the potential for injury to employees and damage to the facility and equipment. Emergency procedures consider the immediate danger to employees and others to ensure effective containment and clean up, appropriate disposal of waste material, and notification to the Security Team.


EQUIPMENT & SUPPLIES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



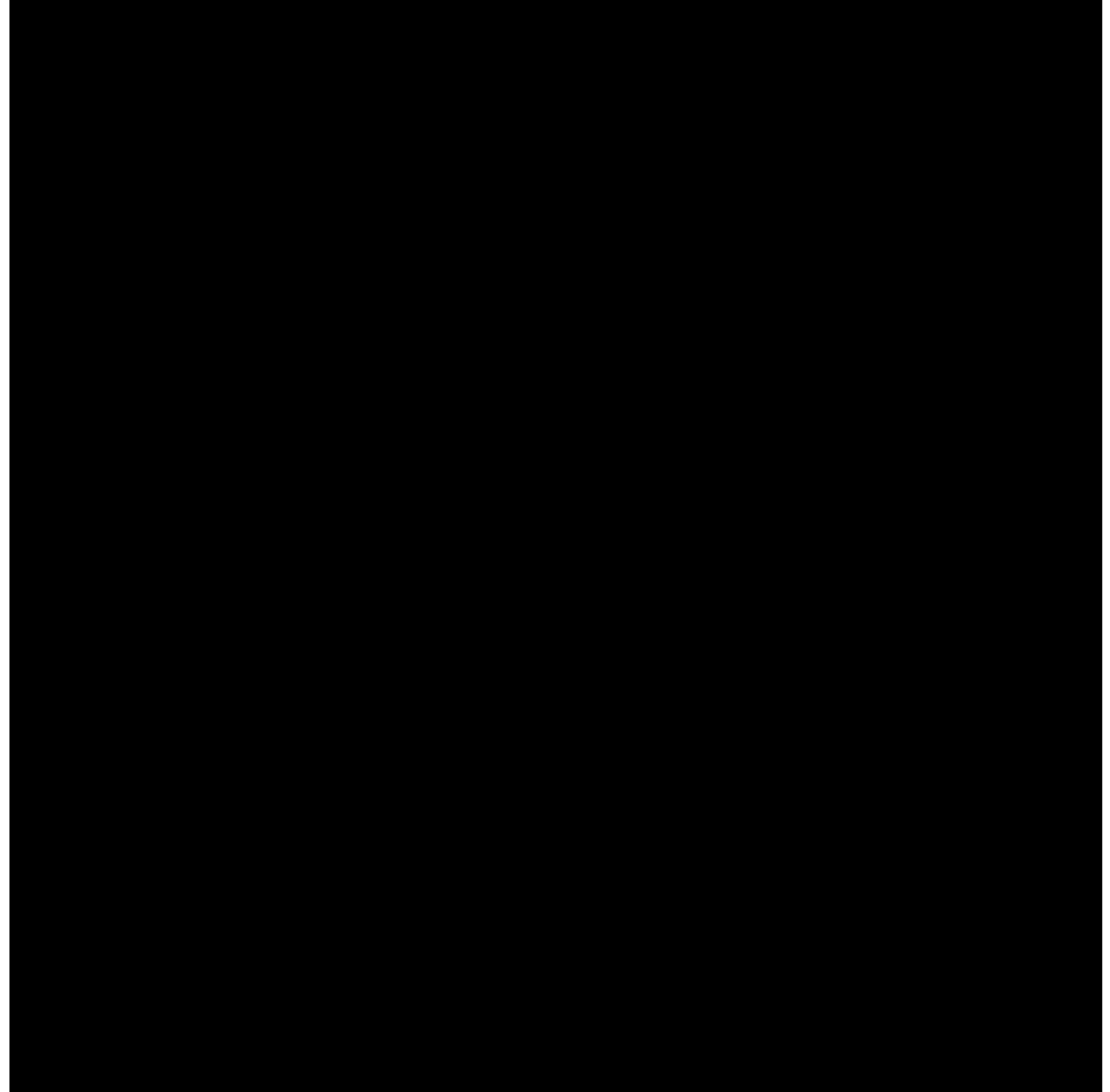
License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



PROCEDURES

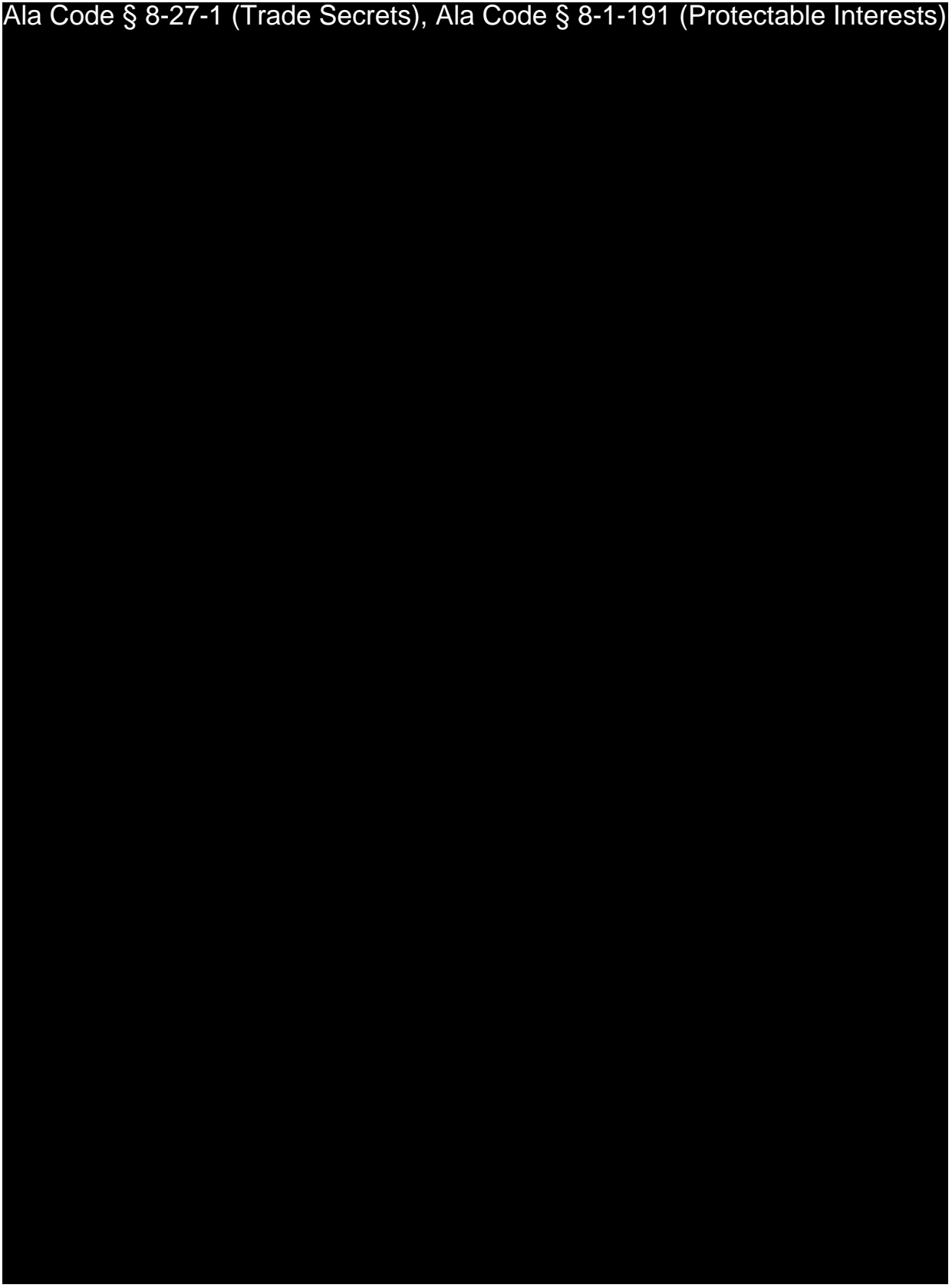
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

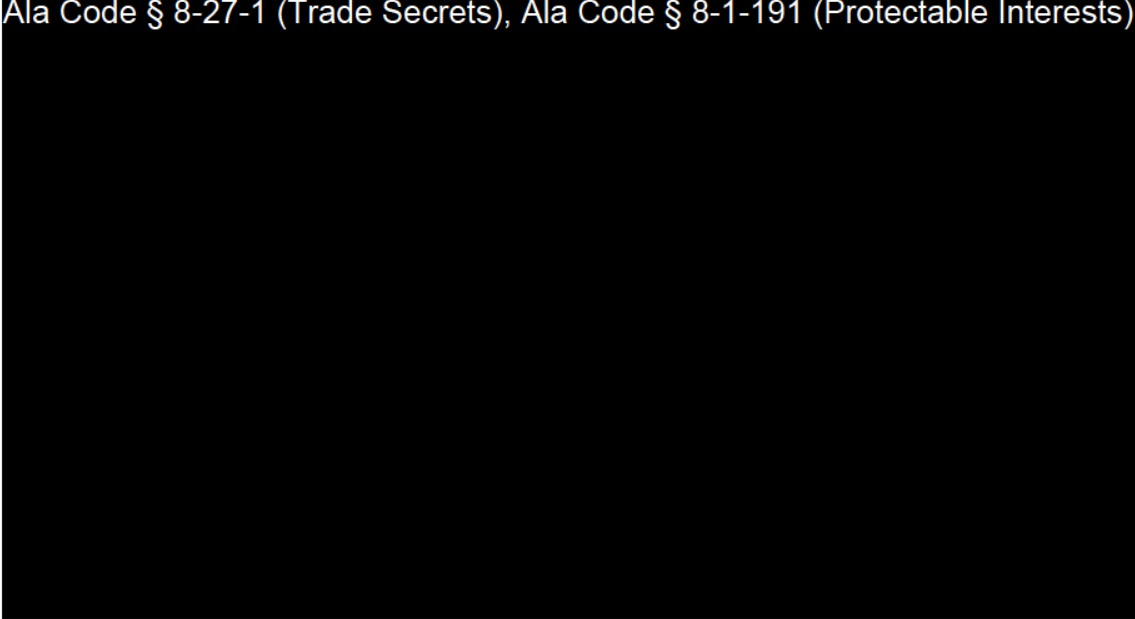


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



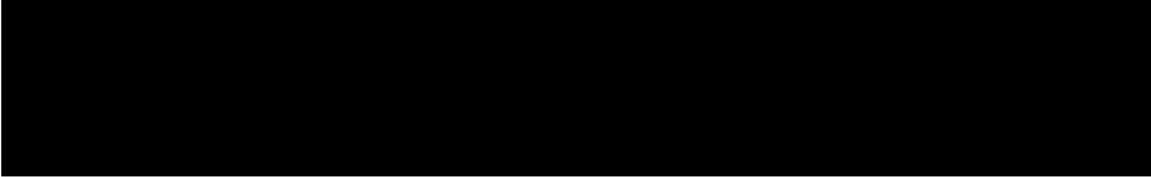
License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



SANITATION

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



FIRE DRILL EVACUATION PROTOCOL			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: FIRE PREVENTION COORDINATORS			

PURPOSE

Fire safety is the responsibility of each and every employee. All employees must know how to prevent fires from occurring, and how to respond to a fire should an accident occur. All employees are responsible for adhering to Company policy and the Company's Emergency Action Plan regarding fire emergencies.

SCOPE & APPLICABILITY

The Fire Prevention coordinators are responsible for the implementation of the Fire Prevention Plan and maintaining all records pertaining to the Plan.

FIRE PREVENTION COORDINATORS:

1. Develop and administer the Company's Fire Prevention Training Program.
2. Ensure that fire control equipment and systems are properly maintained.
3. Control fuel source hazards.
4. Conduct fire risk surveys and make recommendations.

SUPERVISORS:

Supervisors are responsible for ensuring that employees receive appropriate fire safety training, and for notifying the Fire Prevention COOrdinators when changes in operations increase the risk of fire.

EMPLOYEES:

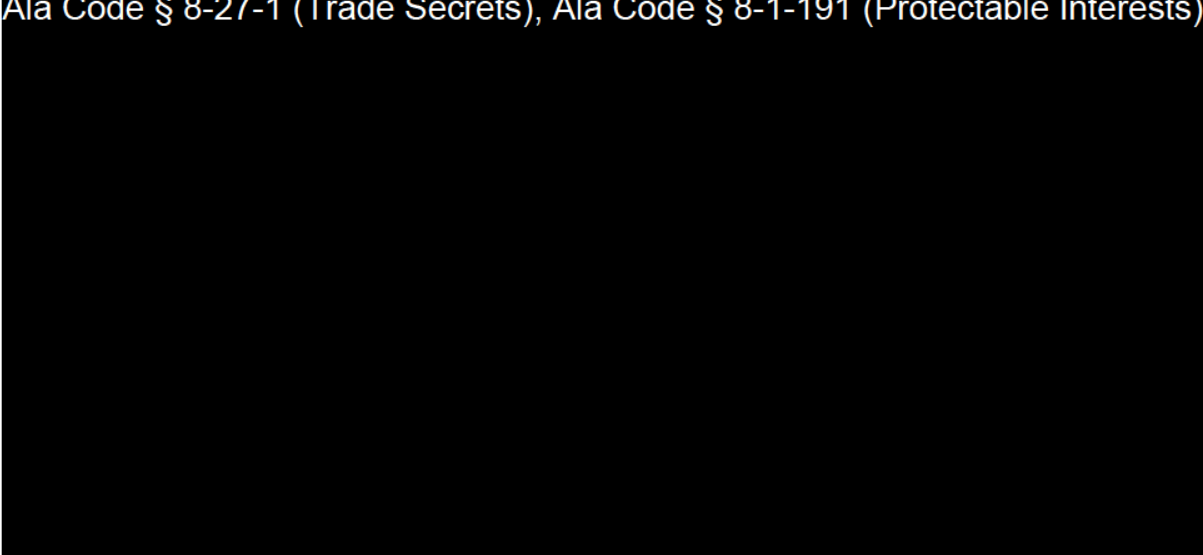
License Type: Processor

1. Complete all required training before working without supervision.
2. Conduct operations safely to limit the risk of fire.
3. Report potential fire hazards to their supervisors.
4. Follow fire emergency procedures in the event a fire occurs.

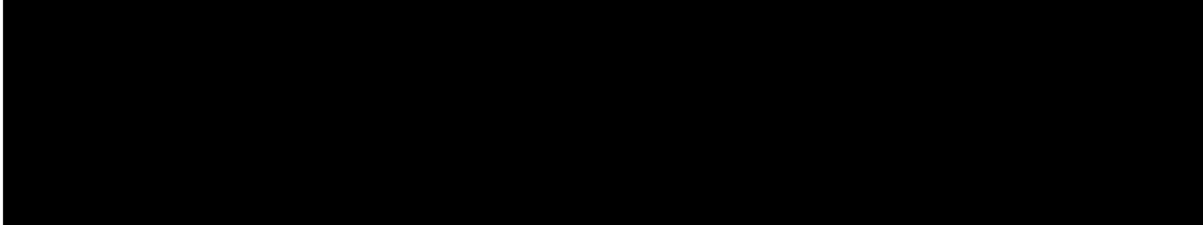
Fire extinguishers will be mounted in public view throughout the facility, and all facility employees will be instructed in the proper operation and use of the fire extinguisher. All exhaust fans, fire extinguishers, and lighting will be maintained in compliance with the state and local building codes.

PROCEDURES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



License Type: Processor

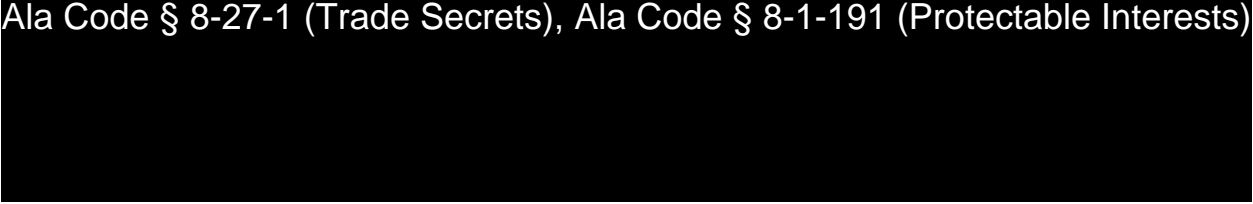
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



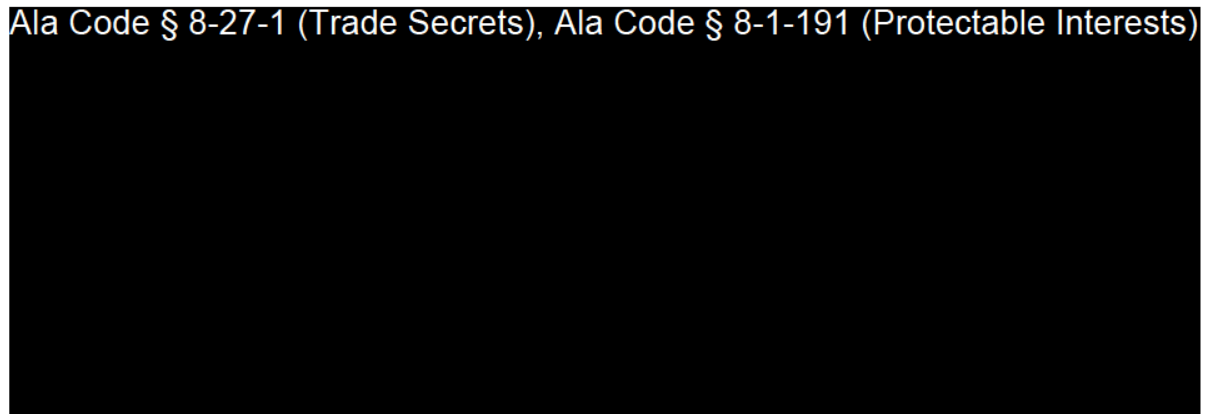
GAS LEAK EVACUATION			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: SECURITY/EMERGENCY RESPONSE TEAM			

PURPOSE

The Company stores and utilizes multiple gasses within the facility, including, but not limited to Ethanol Monitors are installed throughout the facility to alarm if gasses reach an unsafe level. If alarms don't sound but gas odors are strongly detected inside or outside, and/or they are accompanied by a hissing sound, then an emergency exists. This procedure outlines steps to be taken immediately if an alarm sounds or gas is detected.

SCOPE & APPLICABILITY


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



PROCEDURES

EVACUATION PROCEDURE

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



SIGNAGE AND COMPLIANCE			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: GENERAL MANAGER/DIRECTOR OF HUMAN RESOURCES			

PURPOSE

To ensure that the Company adheres to and complies with all federal, state, and local laws and Alabama Medical Cannabis Commission (AMCC)'s rules regarding required signage outside and within the premises.

RELEVANT REGULATIONS

A.M.C.C. 538-x-4-.17 Marketing and Advertising.

- (8) Licensees shall not do any of the following:
 - (a) Display external signage larger than sixteen inches in height by eighteen inches in width that is not attached to the entity's permanent structure or vehicle;
 - (b) Illuminate a sign advertising a medical cannabis product or strain at any time;
 - (d) Advertise medical cannabis brand names or utilize graphics related to medical marijuana on the exterior of any building or vehicle operated by the licensee;

PROCEDURES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



EMPLOYMENT LAW SIGNAGE

1. U.S. Department of Labor Required Signage is posted and in the Break Room.
 - 1.1. The Employee Polygraph Protection Act (EPPA)
 - 1.2. The Equal Employment Opportunity Poster
 - 1.3. The Fair Labor Standards Act (FLSA)
 - 1.4. The Fair Labor Standards Act (FLSA) / Section 14(c)
 - 1.5. The Occupational Safety and Health (OSH) Act
 - 1.6. Uniformed Services Employment and Reemployment Rights Act (USERRA)
 - 1.7. Whistleblower Protections
 - 1.8. The Family and Medical Leave Act (FMLA)
2. The State of Alabama Required Signage must be posted in addition to Federal requirements, and some may be based on the total number of employees. The following signage is posted in the Break Room.
 - 2.1. Alabama Child Labor Law
 - 2.2. Your Job Insurance
 - 2.3. Workers' Compensation Notice - English
 - 2.4. Workers' Compensation Notice - Spanish
3. All required Employment Law Signage is posted in both English and Spanish, as well as any other languages that are spoken by employees in the event English is not their first language.

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



NOTIFICATION TO DISPENSARIES			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: Production Manager/DIRECTOR OF QUALITY ASSURANCE			

PURPOSE

To effectively inform dispensaries and laboratories of a voluntary or mandated recall, ensuring records of communication are maintained and concise when contacting a facility that received recalled product from the Company.

RELEVANT REGULATIONS

A.M.C.C. 538-x-6-.06 Applications and Licensing Procedures as to Processors Generally.

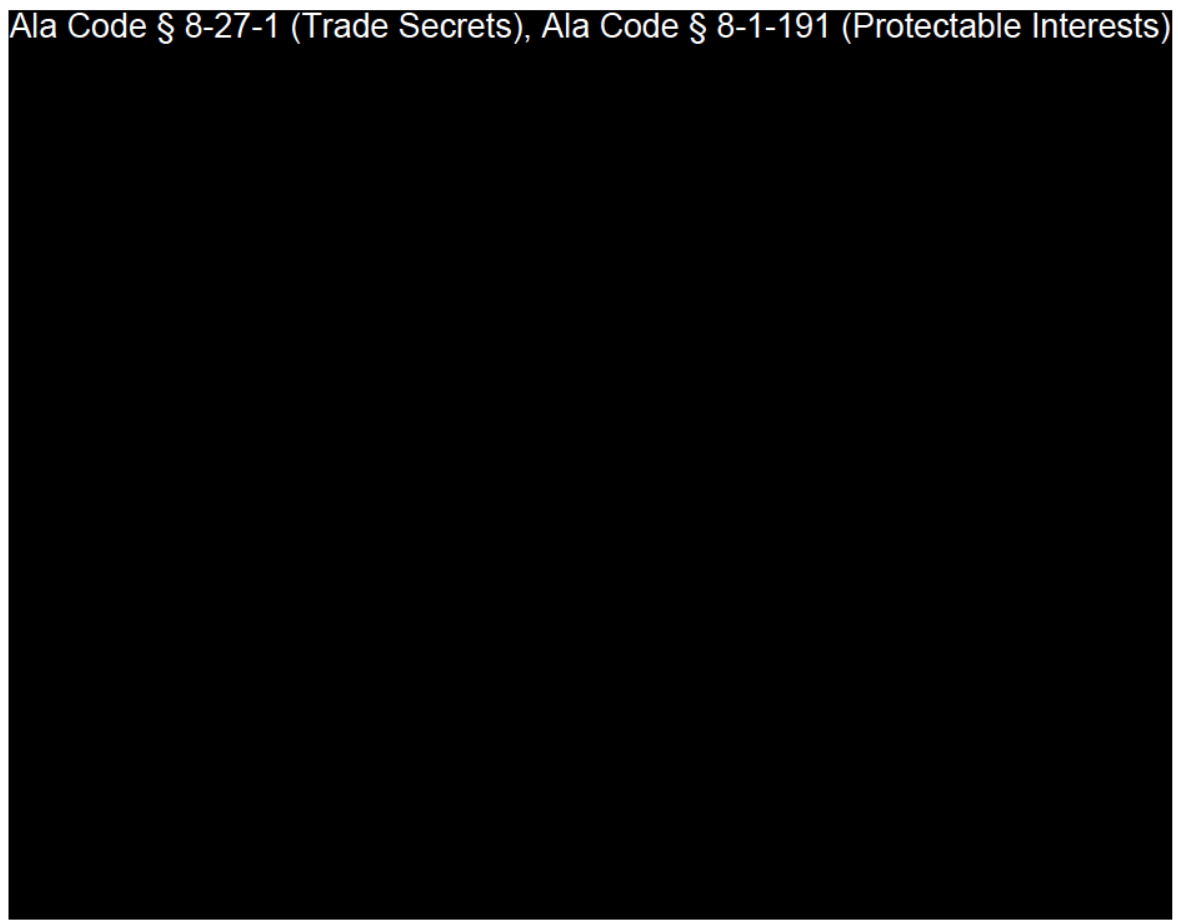
- Processor applicants must provide a detailed recall plan that will be followed in the event one or more of its products, including any lots or batches thereof, is determined to require recall. The plan must include, but should not be limited to, the following:
 - (1) Provisions for notifying the Processor of an adverse event;
 - (2) Factors about an adverse event that would likely necessitate a recall, and any potential for retesting or remediation;
 - (3) Responsible individuals or positions within the Processor’s organization who will oversee the recall process;
 - (4) Notification protocols to other licensees and the Commission through the Statewide Seed-to-Sale Tracking System
 - (5) Processes to ensure that the recalled product is returned, remediated (and approved as safe), or destroyed;

License Type: Processor

- (6) Processes to report to the Commission and any other appropriate regulatory body regarding crisis response and steps taken to mitigate or avoid danger to the public;
- (7) Steps to be taken to avoid further contamination, to preserve and protect uncontaminated cannabis or medical cannabis products, and to ensure access to said products by those who depend on it; and
- (8) Investigation and analysis of the factors that led to the unsafe condition requiring the recall, and any adjustments to internal protocols and processes to avoid recurrence.

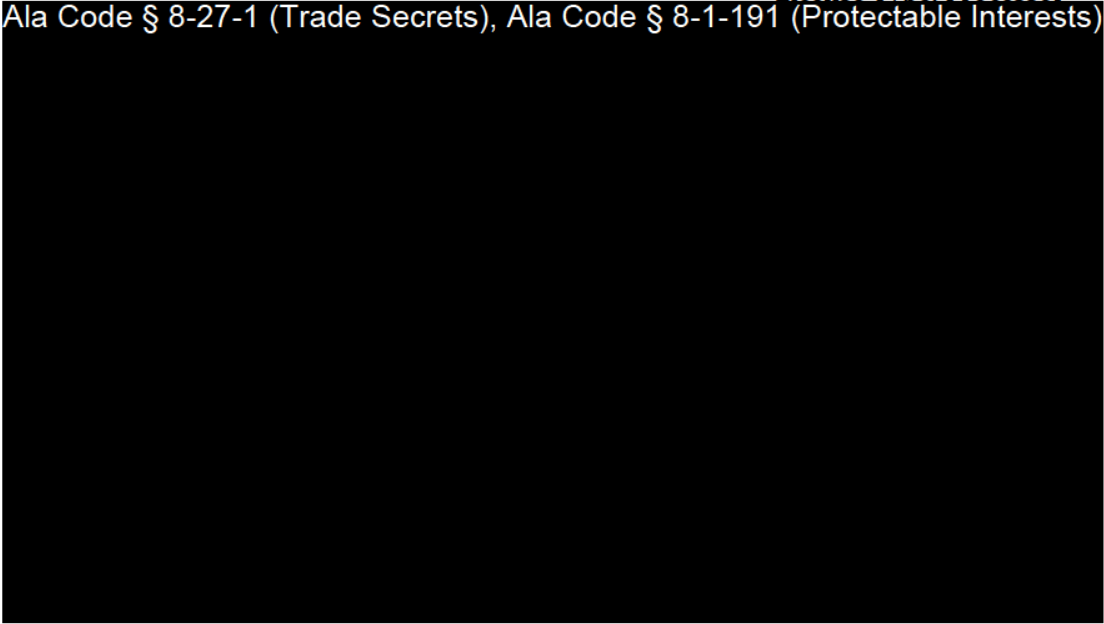
PROCEDURES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



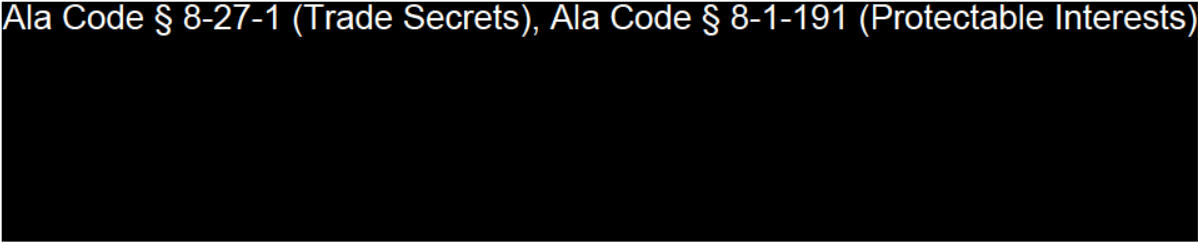
License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

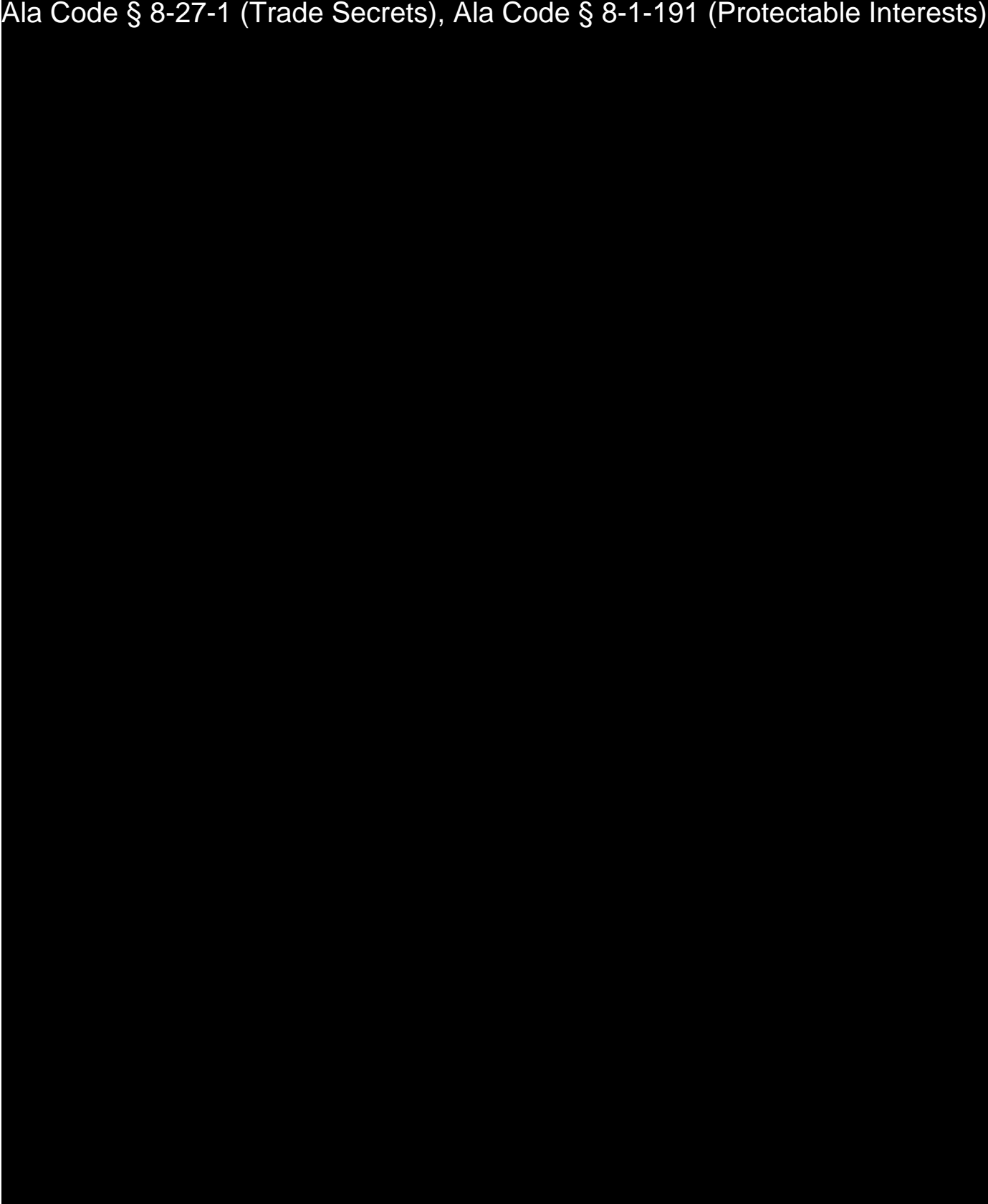


RECORD KEEPING

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



License Type: Processor

FACILITY INSPECTIONS			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: ALL EMPLOYEES			

PURPOSE

Given the nature of the business, there may often be unannounced inspections at the facility. Inspectors may include Alabama Medical Cannabis Commission (AMCC), Occupational Safety and Health Administration (OSHA), local police officers, excise tax and licenses professionals, and firefighters among others.

RELEVANT REGULATIONS

A.M.C.C. 538-x-4-.02 Post-Licensing Inspection of Facilities.

- (1) Generally. Inspections of licensees (except cultivators, who shall be inspected under procedures set forth in Rule 80-14-1-.10, promulgated by the Department) shall be carried out by the Commission in accordance with § 20-2A-52(a)(3), Code of Alabama 1975 (as amended). Immediately prior to commencing operations and, thereafter, no less often than annually (and more often, depending on the type of license provided), a licensee shall undergo at least one announced inspection by the Commission or its representatives; the licensee may also be subject to one or more unannounced inspections.

- (2) Announced Inspections. (a) Pre-Commencement Inspection. When a licensee is set to commence operations at any facility, the licensee shall contact the Commission to set a date for inspection under the procedures for an announced inspection set forth in this Chapter, except that the Pre-Commencement Inspection may be set at any mutually acceptable time. No licensee's operations may commence at any facility until the facility has passed a pre-commencement inspection with no critical violations and all minor infractions having been corrected. Reinspection following a failed pre-commencement inspection shall occur within 30 days, after which, if the licensee passes the inspection it may commence operations; a licensee having failed a second pre-commencement inspection must petition the Commission for permission for a further pre-commencement inspection; if the Commission denies a third pre-commencement inspection or the licensee fails the third inspection, the licensee is precluded from commencing operations and its license shall be revoked. (b) Announced Inspections Generally.
- (1) Timing. Not less than 14 days prior to any announced inspection, the Commission, acting by and through its representative, will notify the licensee of its intention to conduct an announced inspection of the licensee's facilities, operations, and documentation, advising the licensee of a specific date and time for the inspector's anticipated arrival as well as the individuals who are anticipated to be part of the inspection team. (2) Scope. At the time of the announced inspection, licensees shall make their facilities, personnel, operations, and documentation available for review and auditing at the request of the inspector. Areas of inspection shall include, but are not limited to: all areas of all facilities that have been in operation at any time since the last announced inspection; all facilities not in operation that the licensee is planning to put in operation at any time during the next two years; proper credentialing, licensing, qualifications, education, suitability and experience, as applicable, for all personnel, including owners, officers, administrators, managers, employees (full-time or part-time) and volunteers; all operations and processes being conducted by the licensee, including but not limited to, all machinery, equipment and supplies; all security monitoring and video surveillance files and log book data maintained by the licensee; all IT files maintained by the licensee, including but not

limited to the licensee's test results, any third-party inventory control and tracking systems, and the Statewide Seed-to-Sale Tracking System; background check certificates and/or personnel files of all owners, officers, administrators, managers, employees (full-time or part-time), and volunteers; and all documents provided to the Commission at the time of licensing, including all updates to such documents made at any time since the last announced inspection, with or without the permission of the Commission. (See 538-x-4-.07 of this Chapter.). (3) Compliance liaison. Throughout the announced inspection, the licensee shall have a designated compliance liaison who is knowledgeable about the licensee's facilities, personnel, operations, and documentation, and who will be on hand to answer questions or coordinate with additional persons to provide answers or information in response to questions by the inspection team. (4) Duty of Director of cooperation. The licensee is expected to comply with all inspections with the highest level of integrity and transparency. Failure to cooperate with an inspection by the Commission may lead to sanctions, within the Commission's discretion, up to and including revocation of license. (c) Unannounced Inspections. (1) Timing. Unannounced Inspections may be conducted without prior notice at any time, without respect to whether the licensee has or has not undergone an announced inspection. (2) Scope. An unannounced inspection may cover any and all areas described above with respect to announced inspections. (3) Procedures. The licensee shall, at the time of licensing, receive confidential instructions relating to procedures that will be implemented immediately before the unannounced inspection begins. The licensee shall follow these instructions and can therefore be secure in the knowledge that the inspection is authentic and is being carried out at the instance of the Commission and not otherwise. (4) Point of Contact. At the time of any unannounced inspection, the licensee shall identify to the inspectors an acceptable point-of-contact for the inspection, usually one of the leaders of the company then on duty, who will fill the role of compliance liaison (as set forth in subparagraph 2.b.(3) of this rule) in all respects possible for the unannounced inspection. (5) Duty of cooperation. To the extent the Commission follows the confidential procedures set forth at the time of licensing, the licensee, during an unannounced inspection, has the same obligations


License Type: Processor

of cooperation as with an announced inspection, and the same consequences for failing to cooperate.


- (3) Use of Third-Party Inspectors. The Commission may, in its discretion, utilize qualified independent third parties and may cooperate with State and Local Agencies in conducting inspections, both announced and unannounced.
- (4) Inspection Report. As a result of all inspections, the Commission, acting by and through its inspectors, shall issue a written report within 14 days, covering all areas inspected, addressing any noted infractions and, in addition to the notation described below, any critical violations.

PROCEDURES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

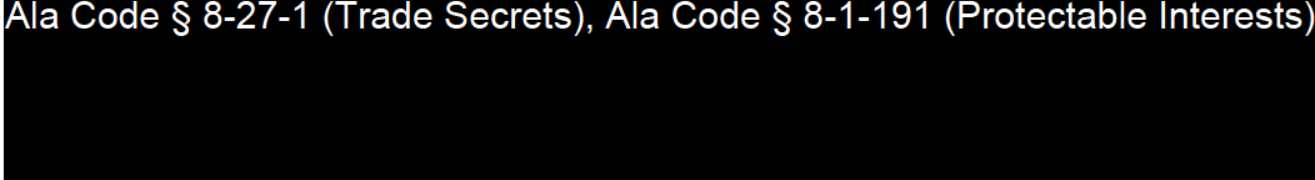


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



RECORD KEEPING

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



CONTACTING A REGULATORY AGENCY			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: Production Manager/Manager Of Quality Assurance			

PURPOSE

To provide clear direction on how and when the AMCC is to be contacted and notified, specifically in the event of a compliance issue, product recall, or breach of security.

RELEVANT REGULATIONS

A.M.C.C. 538-x-6-.06 Applications and Licensing Procedures as to Processors Generally.

- (3)(h) Processor applicants must provide a detailed recall plan that will be followed in the event one or more of its products, including any lots or batches thereof, is determined to require recall. The plan must include, but should not be limited to, the following: (6) Processes to report to the Commission and any other appropriate regulatory body regarding crisis response and steps taken to mitigate or avoid danger to the public;

A.M.C.C. 538-X-6-.06 Applications and Licensing Procedures as to Processors Generally.

- (3)(i) The Processor Applicant's Security Plan must include a plan for security at each facility, including but not limited to the following:
 - (14) Processors shall maintain, review and update policies to report theft, diversion, or other loss of cannabis products to the Commission and to law

License Type: Processor

enforcement as early as practicable and not more than 24 hours from the event or its discovery.

A.M.C.C. 538-x-4-.07 Duty to Meet and Maintain Standards, Policies, Procedures and Operations Per Application.

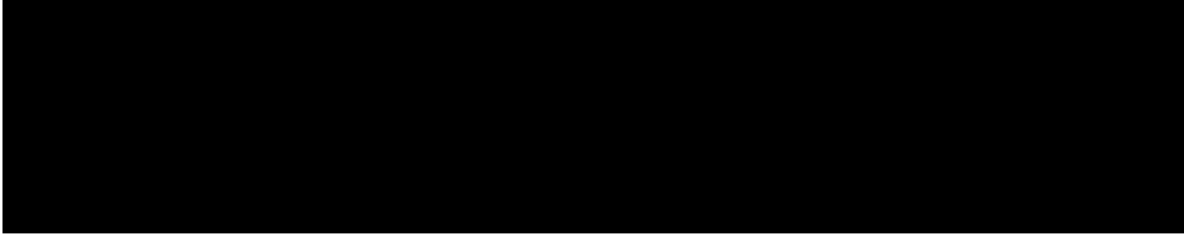
- (12)(o)(11)(m) Licensees shall maintain, review and update policies to report theft, diversion or other loss of cannabis or medical cannabis to the Commission and to law enforcement within 24 hours of the event or its discovery.

A.M.C.C. 538-x-4-.08 Duty to Notify or Seek Permission Regarding Material Change in Licensing Information.

- (2) Procedure for Reporting Material Change. Licensees shall notify the Commission within 30 days of any material change in the information provided at the time of its application for license, in accordance with the procedures and documentation for doing so set forth in Chapter 3 of these Rules. A “material change” is one that in any way affects or relates to (a) the licensee’s eligibility
- (3) Self-Reporting. A licensee’s duty to report is mandatory in the event of “injury,” “loss,” or a “material breach” of the licensee’s policies and procedures as affirmed to the Commission in the application or any amendment thereto; reports should be made promptly to the Commission, and, as applicable, law enforcement, in no event more than 24 hours after its occurrence or discovery, to allow for swift investigation and remediation.

PROCEDURES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

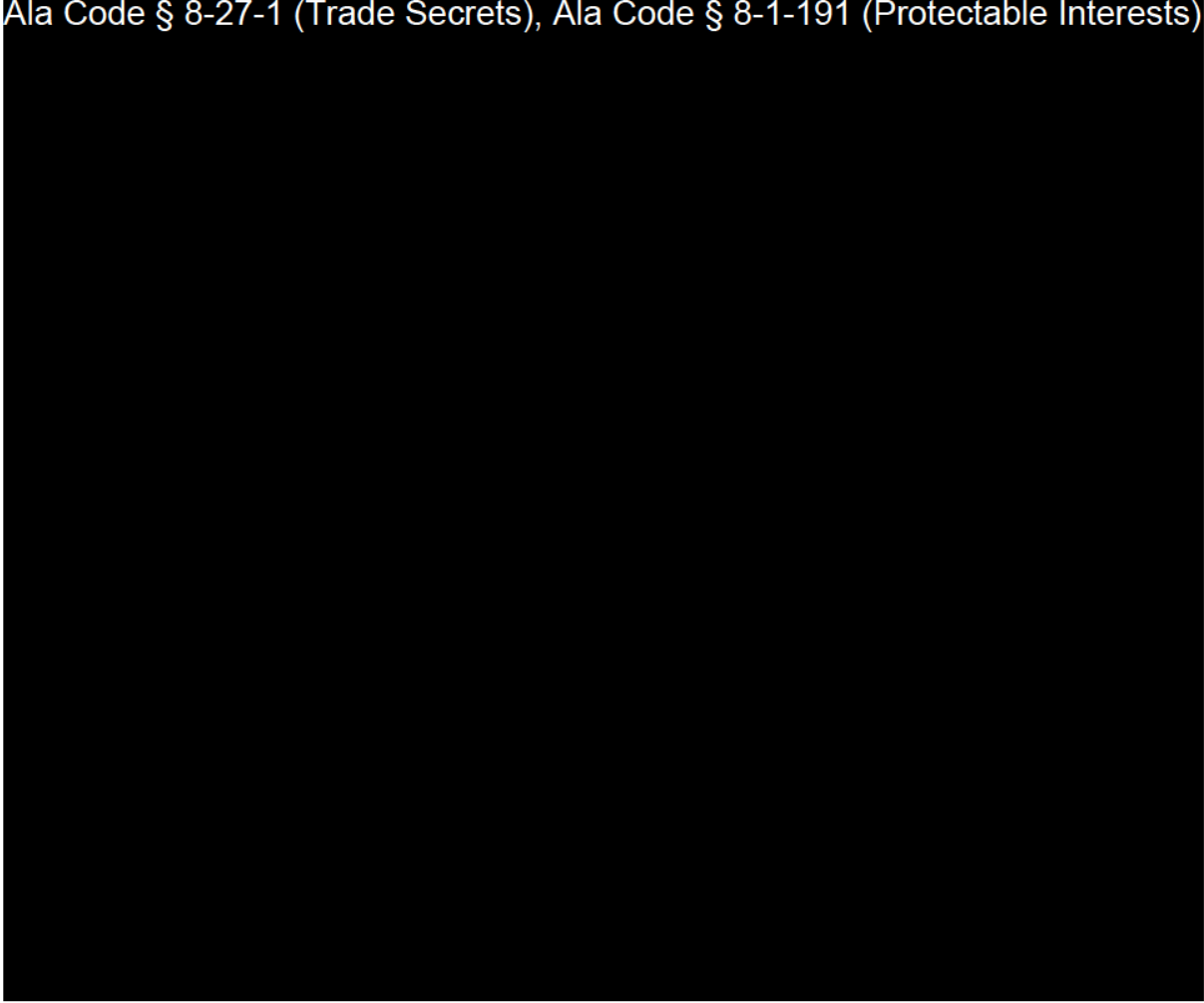


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



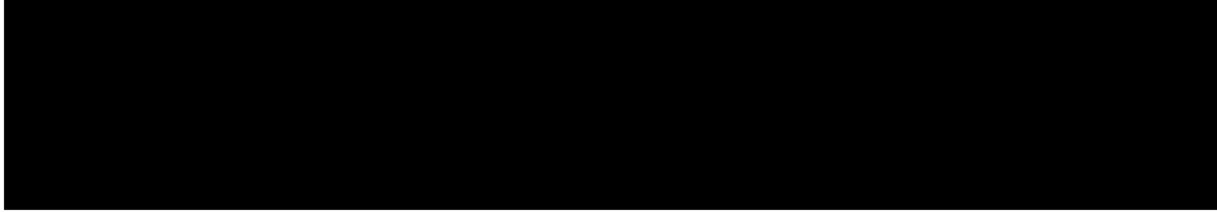
License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



RECORD KEEPING

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



OSHA HAZARD COMMUNICATION			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: All Employees			

PURPOSE

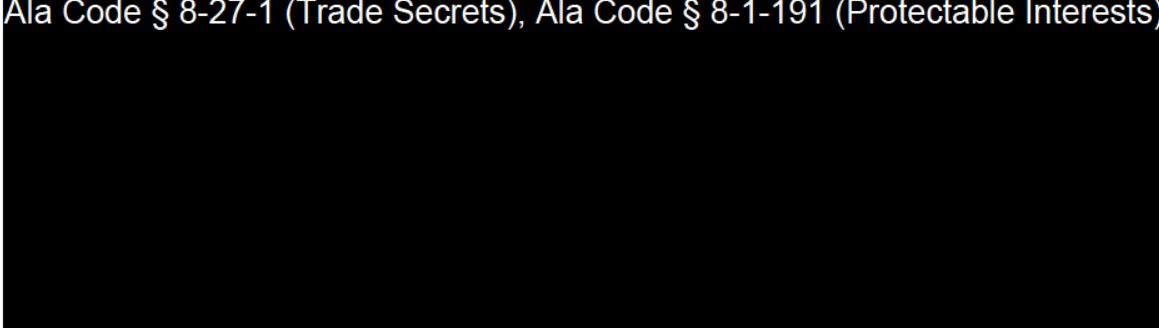
To prevent accidents and ensure the safety and health of employees, visitors, vendors, and contractors while on the premises, as well as ensuring strict compliance with all applicable federal, state, and local health and safety rules and regulations.

EQUIPMENT AND SUPPLIES

OSHA Hazard Communications Standard

PROCEDURES


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



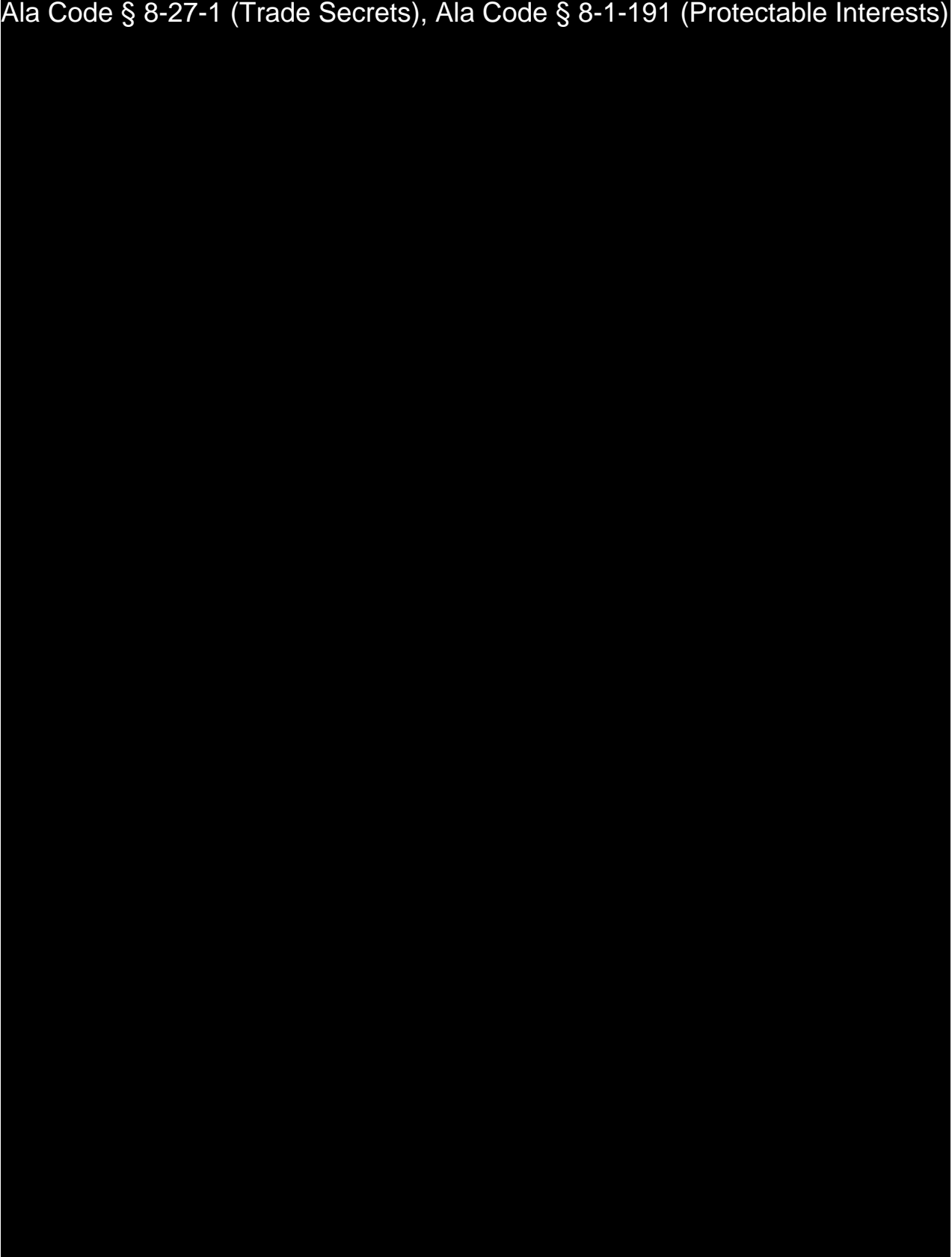
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



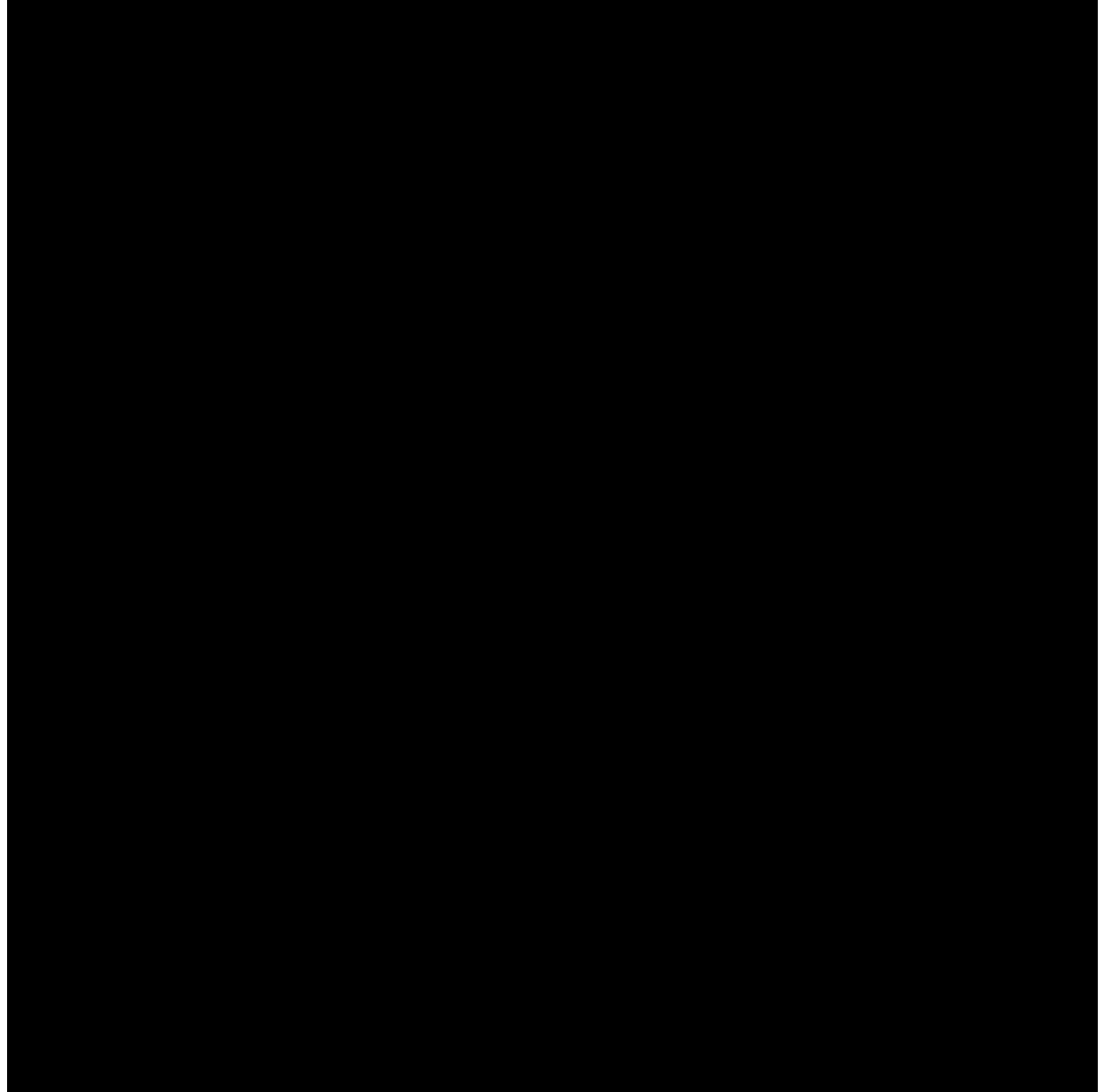
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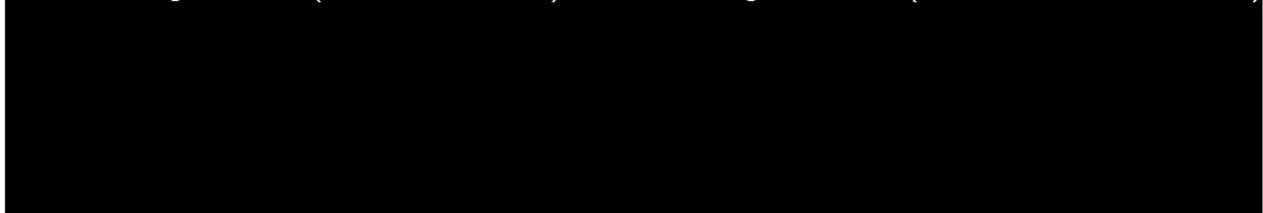
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

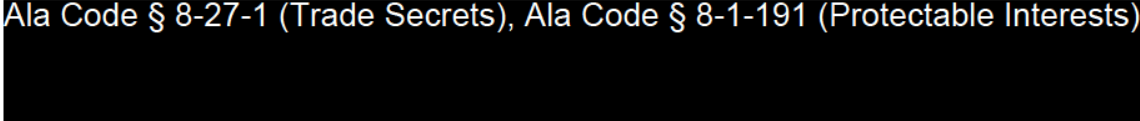


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



RECORD KEEPING

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



MEDICAL EMERGENCY PROTOCOL RESPONSE			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANAGEMENT TEAM			

PURPOSE

Emergency protocol training will allow employees to respond to medical emergencies on site prior to the arrival of emergency responders. The facility will be equipped with medical emergency equipment, including a First-Aid kit. With adequate response training, all employees will be equipped with the knowledge and skills necessary to manage a medical emergency.

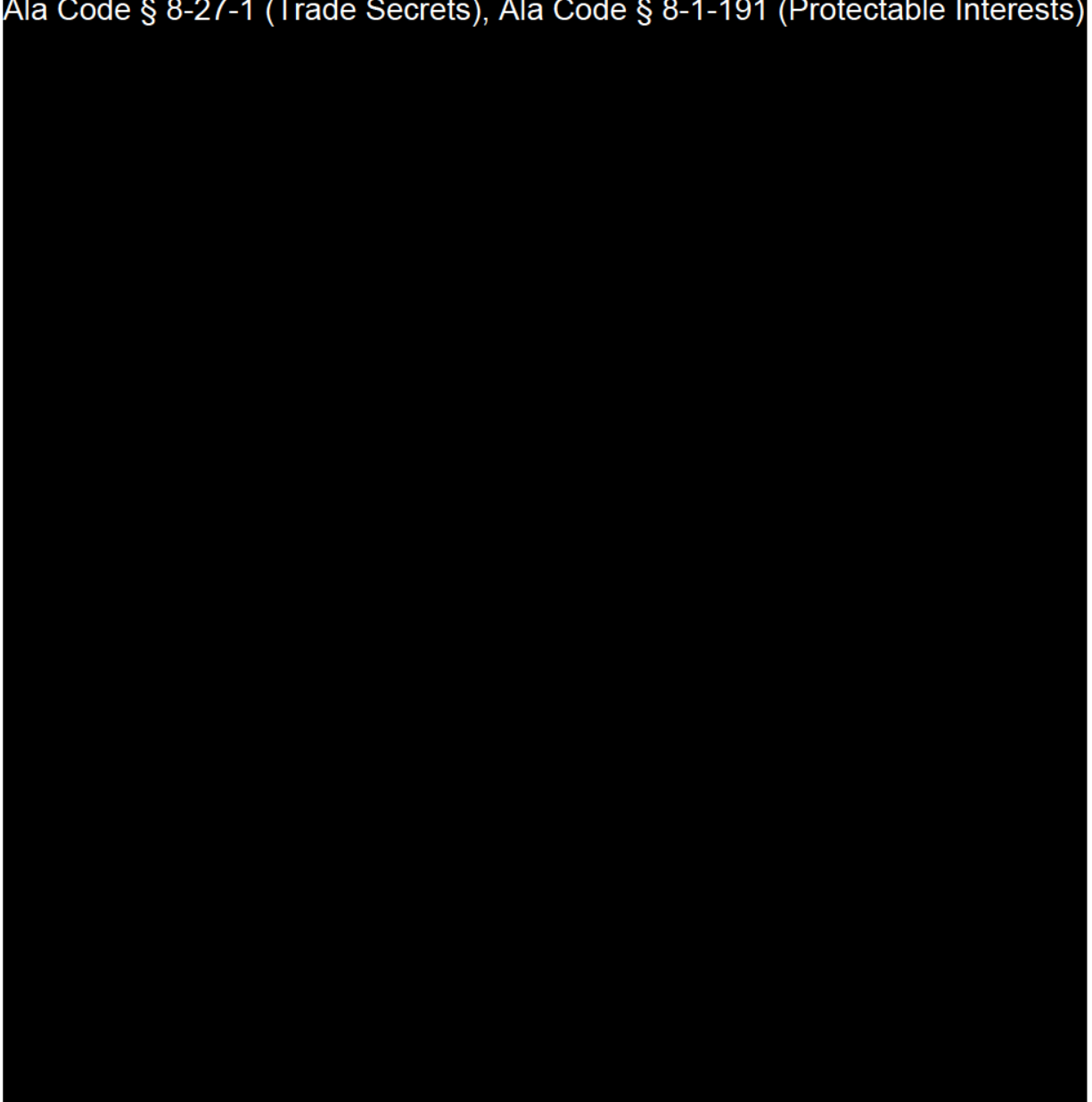
SCOPE & APPLICABILITY

To increase preparedness, the Management Team will periodically research possible medical emergencies, and related onset symptoms for conditions that may affect both employees and visitors while on the facility premises. These conditions may include, but are not limited to injury from equipment; falling; eye irritation; choking; heart attacks; seizures; and loss of consciousness.

Moreover, Applicant will ensure that the facility is adequately equipped with medical emergency equipment, such as First Aid kits and an eyewash station. Additionally, management will ensure that medical emergency information is posted throughout the facility so that information is easily accessible in the event of a medical emergency.

PROCEDURES

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



2. GENERAL FIRST-AID GUIDELINES

License Type: Processor

- 2.1. Swallowed Poison: If instructed by approved emergency personnel on the phone, try to induce vomiting.
- 2.2. Poison in Eye: If poison splashes into an eye, hold the eyelid open, and wash quickly and gently with clean, running water from the tap or a gentle stream from a hose for at least fifteen (15) minutes. Do not use eye drops or place chemicals or drugs in the wash water.
- 2.3. Poison on Skin: If pesticide or chemicals splash on the skin, drench the affected area with water, and remove contaminated clothing. Wash skin and hair thoroughly with soap and water.
- 2.4. Inhaled Poison: Carry or drag victim to fresh air immediately. Immediately notify the Fire Department.
- 2.5. Other: Contact local health and/or safety officials as required.

RECORD KEEPING

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

CORRESPONDING TRAINING

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

**APPLICANT
SAFETY FACILITY FORMS**



FIRE DRILL EVACUATION SHEET			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANAGEMENT TEAM			

PURPOSE

Fire drills are critical for ensuring the safety of the employees, visitors, vendors, and contractors who enter the Company’s premises. Practicing scheduled fire drills will help to ensure individuals have the knowledge to safely escape a fire without injuring themselves or others.

Meeting Location:	
Date of Incident/Drill:	
Time of Incident/Drill:	

Each department will have a predetermined meeting place in case of a fire. Ensure all doors are CLOSED as you leave the building or room. Fire extinguishers must never be used on fires larger than desk size or with black smoke. The Fire Department must be contacted immediately when fire or smoke is discovered. Use the Attendance Sheet below. If someone from your department is absent from work, please note this below.

License Type: Processor

First Name	Last Name	Absent/Present

Additional Notes:

Manager/Supervisor Submitting Form:

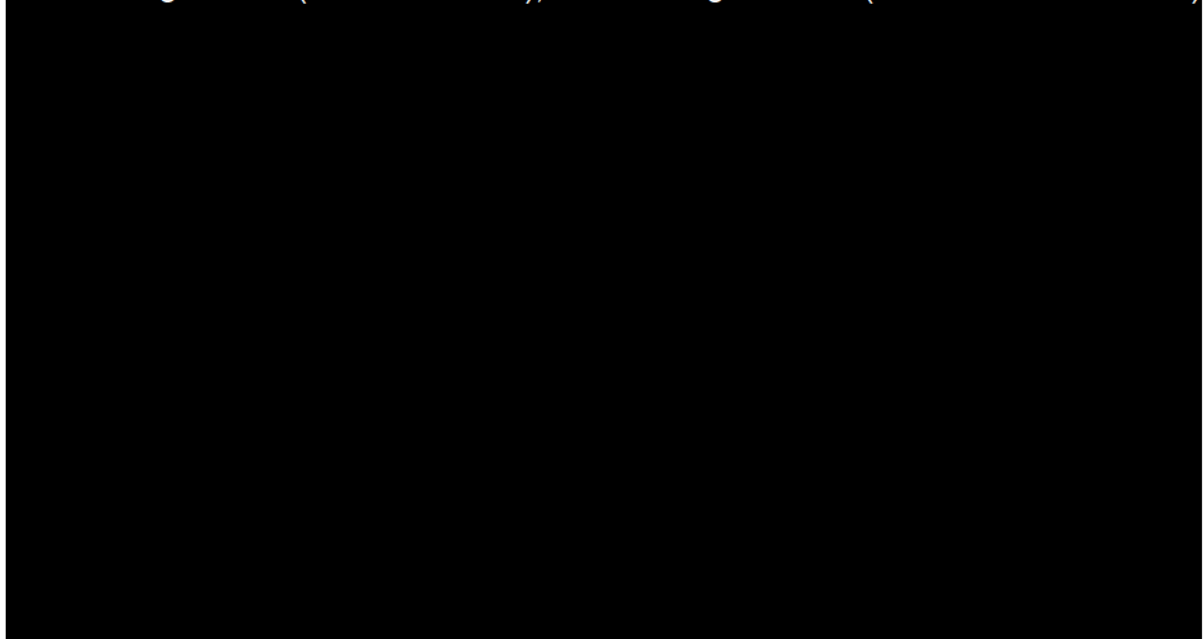
Signature: _____ Date: _____

INCIDENT REPORT LOG			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANAGEMENT TEAM			

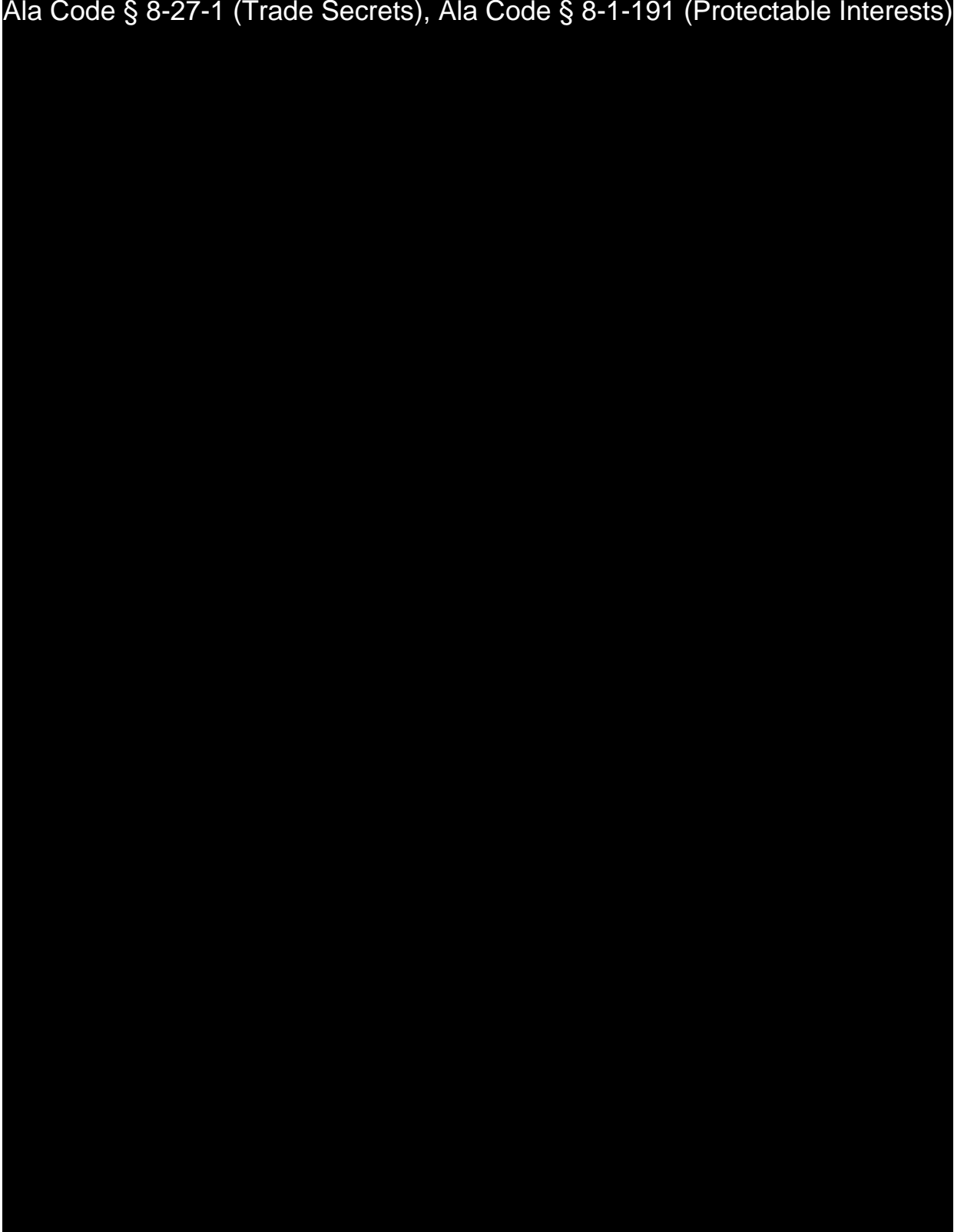
PURPOSE

The Incident Report Form must be completed by the Production Manager whenever an accident and incident occurs. The Production Manager will be responsible for completing this form in the absence of the Production Manager. The Department Manager must ensure a copy of the completed report is forwarded to the Human Resources.

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



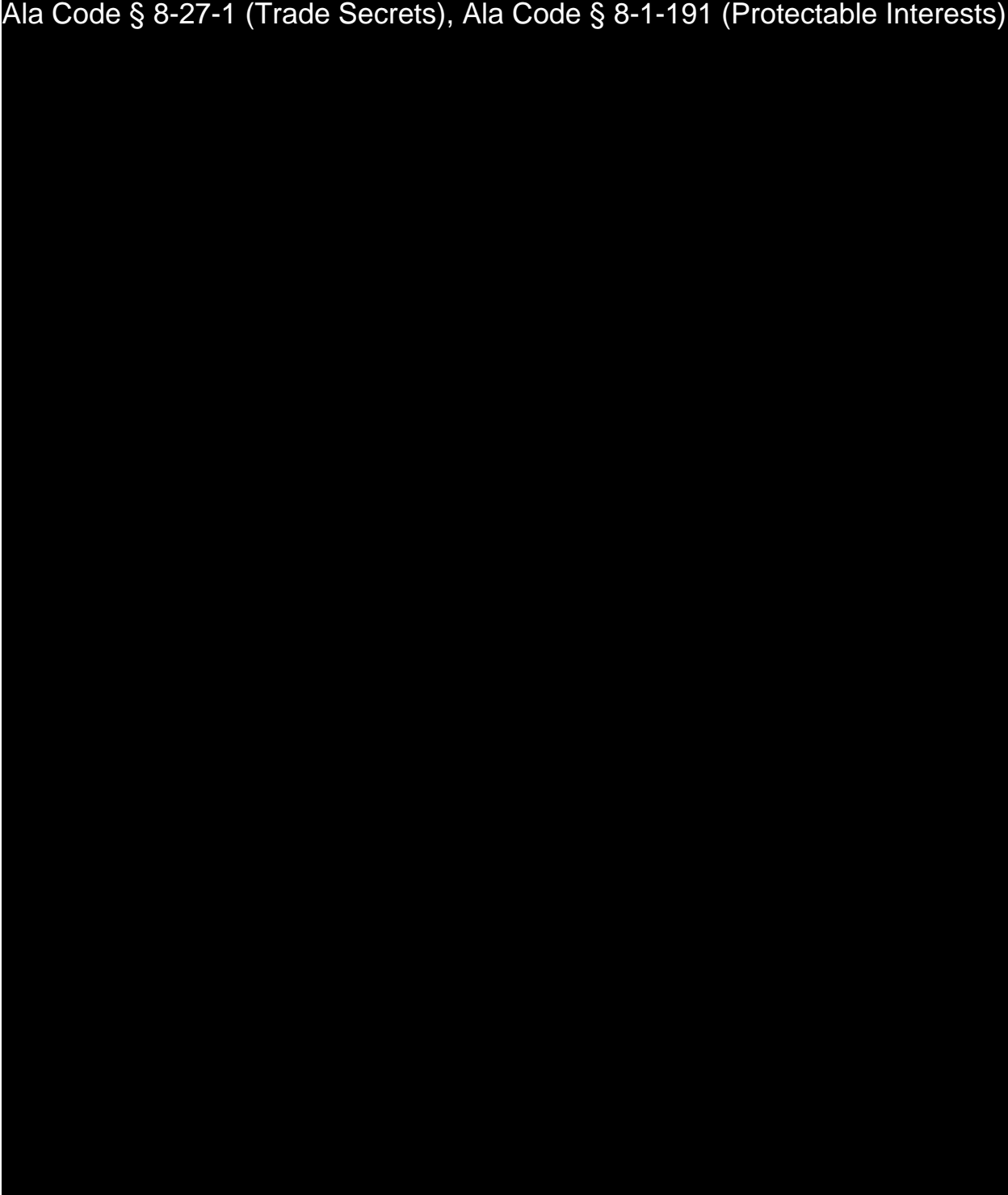
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



ADVERSE EVENT INVESTIGATION FORM			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANAGEMENT TEAM			

PURPOSE

Should an individual experience adverse effects, or a receiving facility report an adverse event resulting from an individual consuming a purchased cannabis product from the Company, the Adverse Event Investigation Form must be completed. The form must be submitted to the Alabama Medical Cannabis Commission (AMCC) and to the originating licensed receiving facility, if applicable, should the event reflect serious adverse effects and may potentially warrant a recall.

PATIENT INFORMATION

Name: _____ Phone Number: _____

Address: _____

PRODUCT INFORMATION

Product Name and Number: _____

Product Lot/Batch Number: _____

License Type: Processor

Date/Time of Complaint: _____

Date of Receipt: _____

Complaint Received via: In Person / Phone / Email / Text (Circle One)

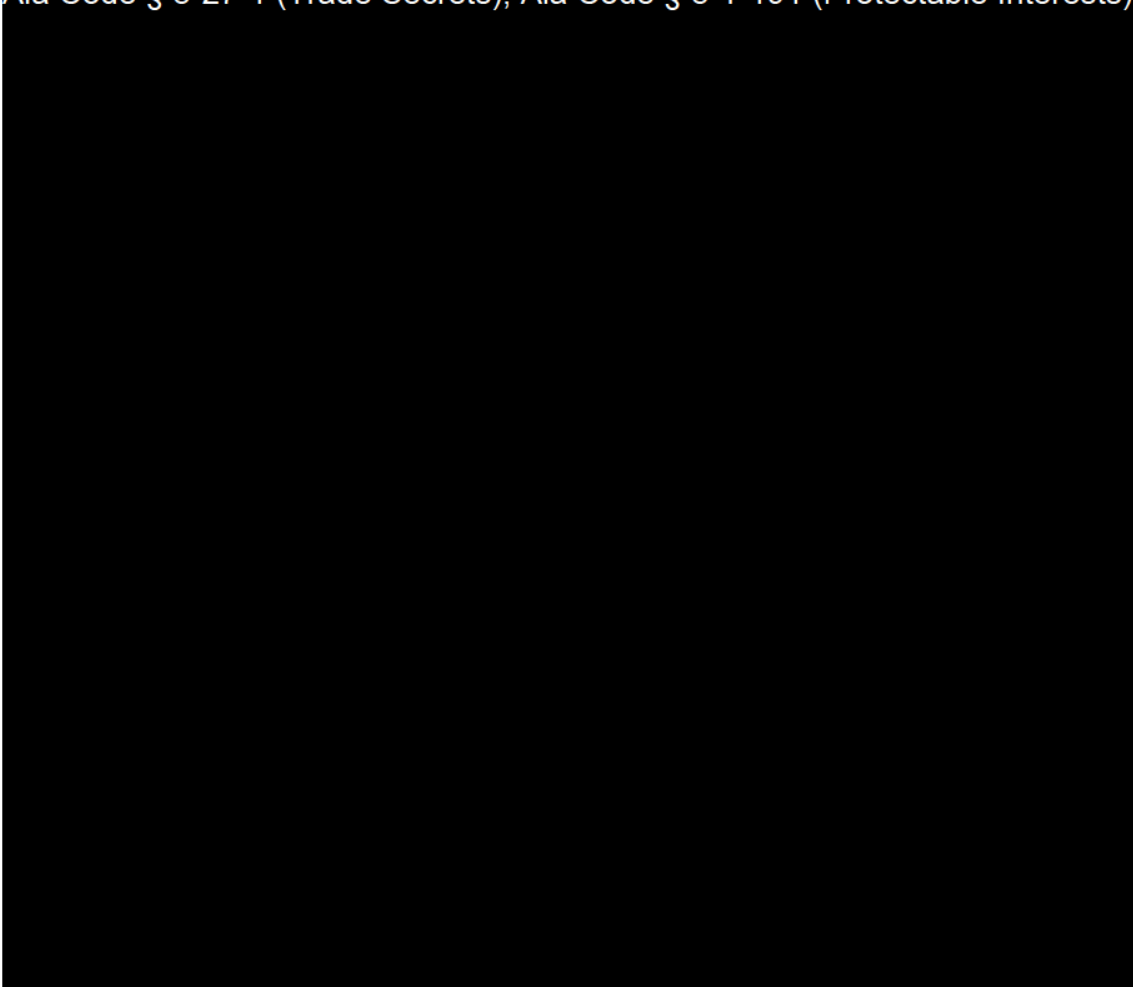
PATIENT'S STATEMENT OF PROBLEM:

Production Manager Name: _____


Agent Identification #: _____

FIRE DRILL REPORT			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: All Employees			

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



License Type: Processor

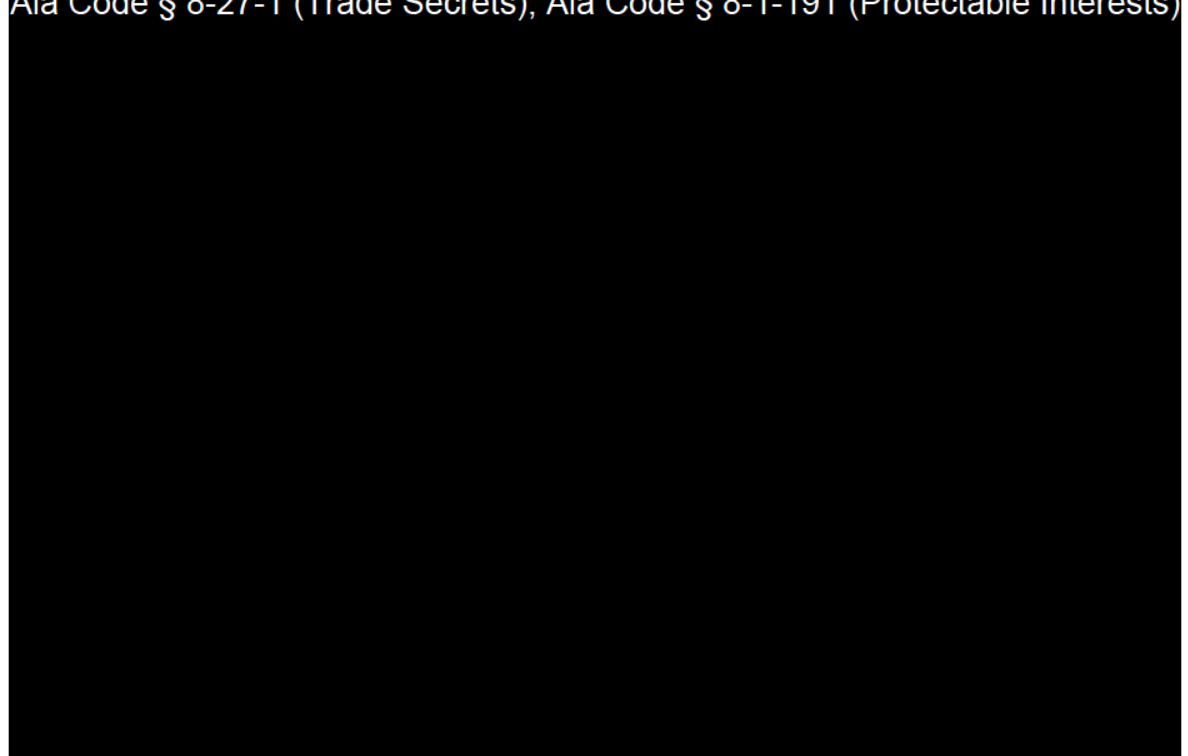
INSPECTION REPORT			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANAGEMENT TEAM			

PURPOSE

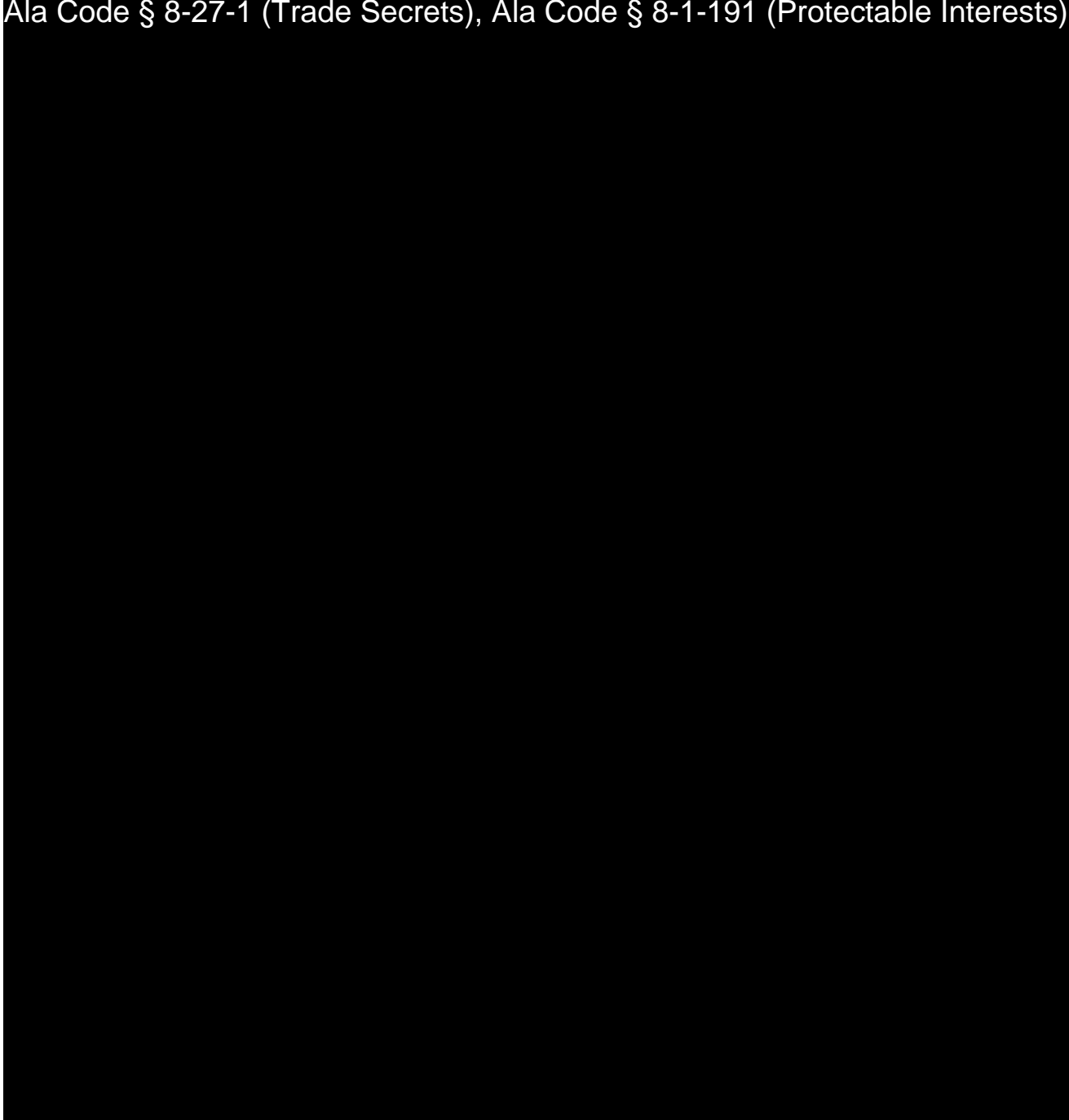
The following report is completed by the manager on duty anytime there is an inspection. If an urgent matter arises as a result of an inspection, immediately notify Production Manager.

INSPECTION DETAILS

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Si

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



EYE WASH STATION CLEANING LOG			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

STATION LOCATION	EYE WASH FLUSHED	STATION WORKING	DATE	✓ BY NAME	COMMENTS
	<input type="checkbox"/> Eye Wash Flushed	<input type="checkbox"/> Station Working			
	<input type="checkbox"/> Eye Wash Flushed	<input type="checkbox"/> Station Working			
	<input type="checkbox"/> Eye Wash Flushed	<input type="checkbox"/> Station Working			
	<input type="checkbox"/> Eye Wash Flushed	<input type="checkbox"/> Station Working			
	<input type="checkbox"/> Eye Wash Flushed	<input type="checkbox"/> Station Working			
	<input type="checkbox"/> Eye Wash Flushed	<input type="checkbox"/> Station Working			

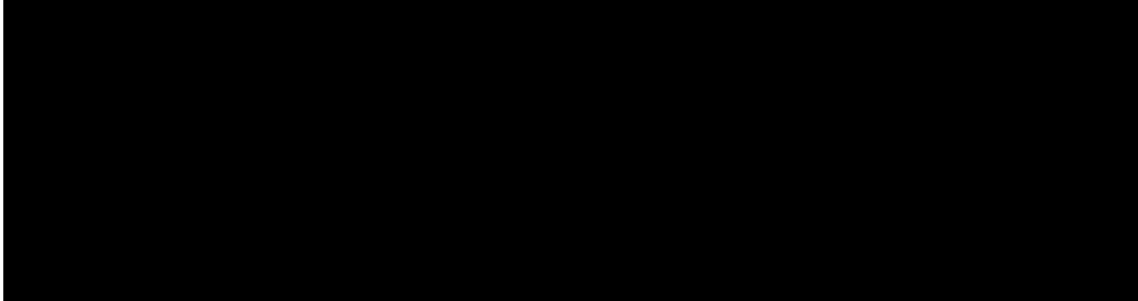
RESTROOM CLEANLINESS			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: ALL EMPLOYEES ON A ROTATIONAL BASIS			

PURPOSE

To ensure proper, consistent procedures are followed in the cleaning and sanitation of all restrooms, with appropriate documentation completed.

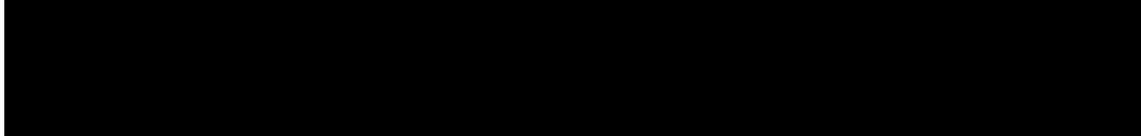
SCOPE & APPLICABILITY

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



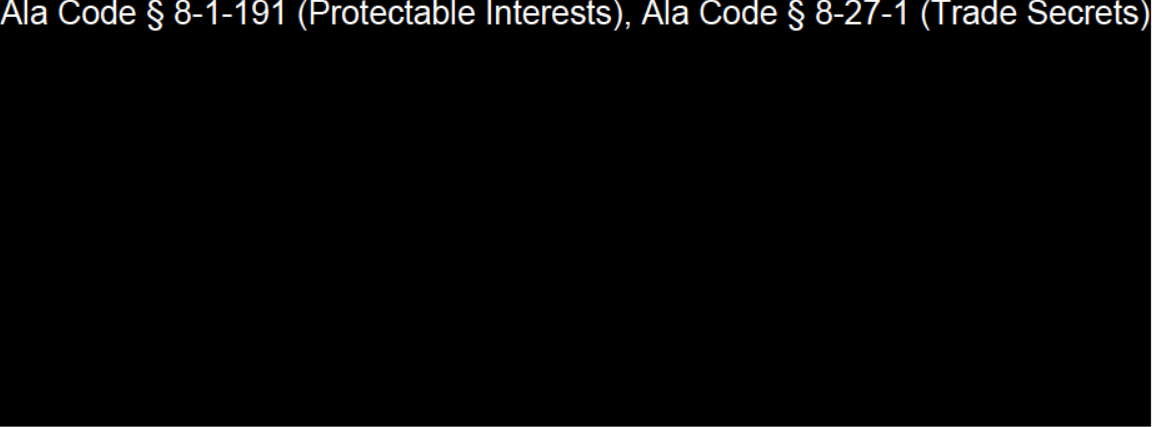
EQUIPMENT AND SUPPLIES

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



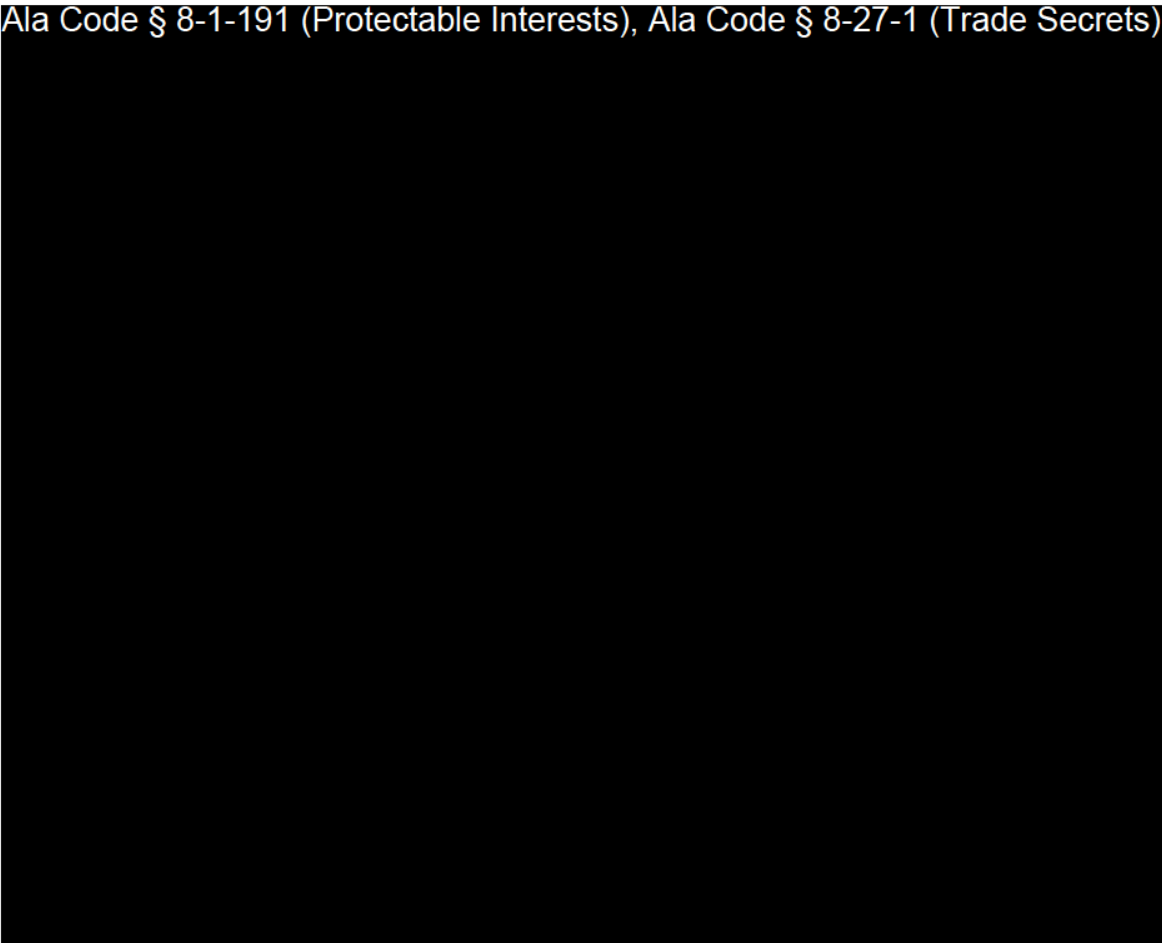
License Type: Processor

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



PROCEDURES

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)

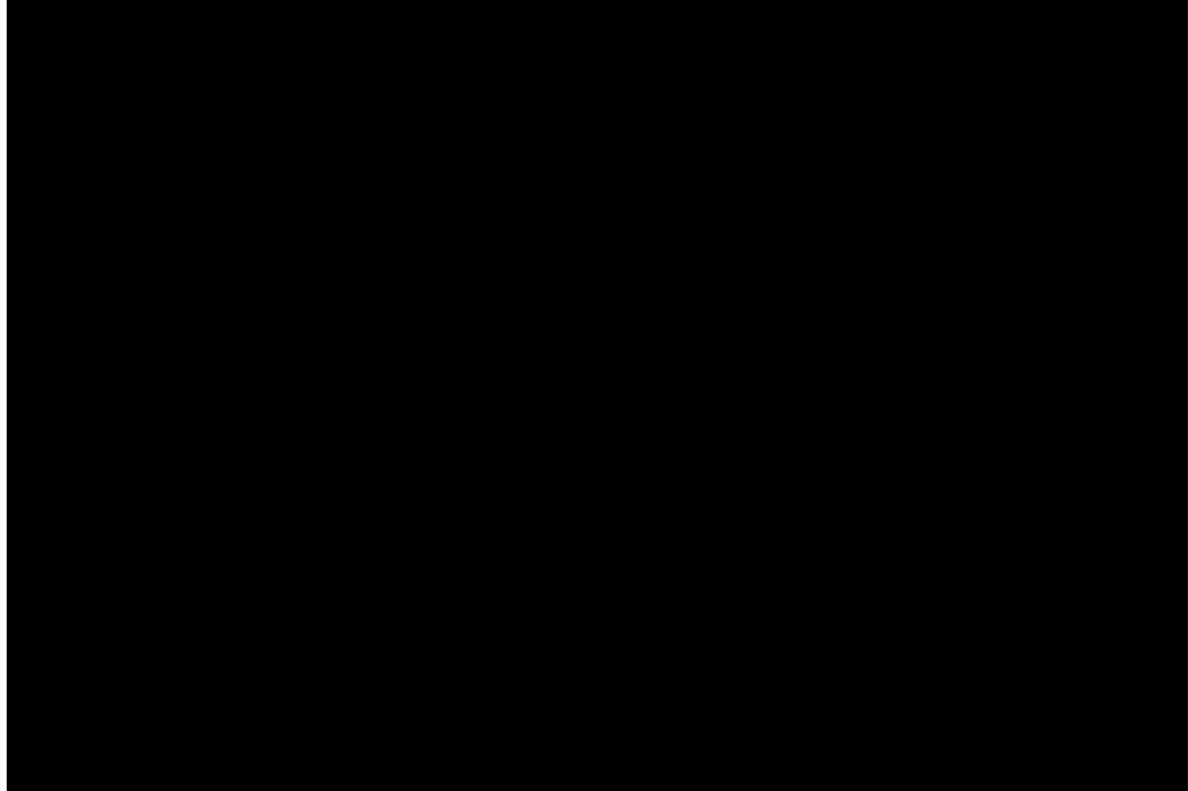


License Type: Processor

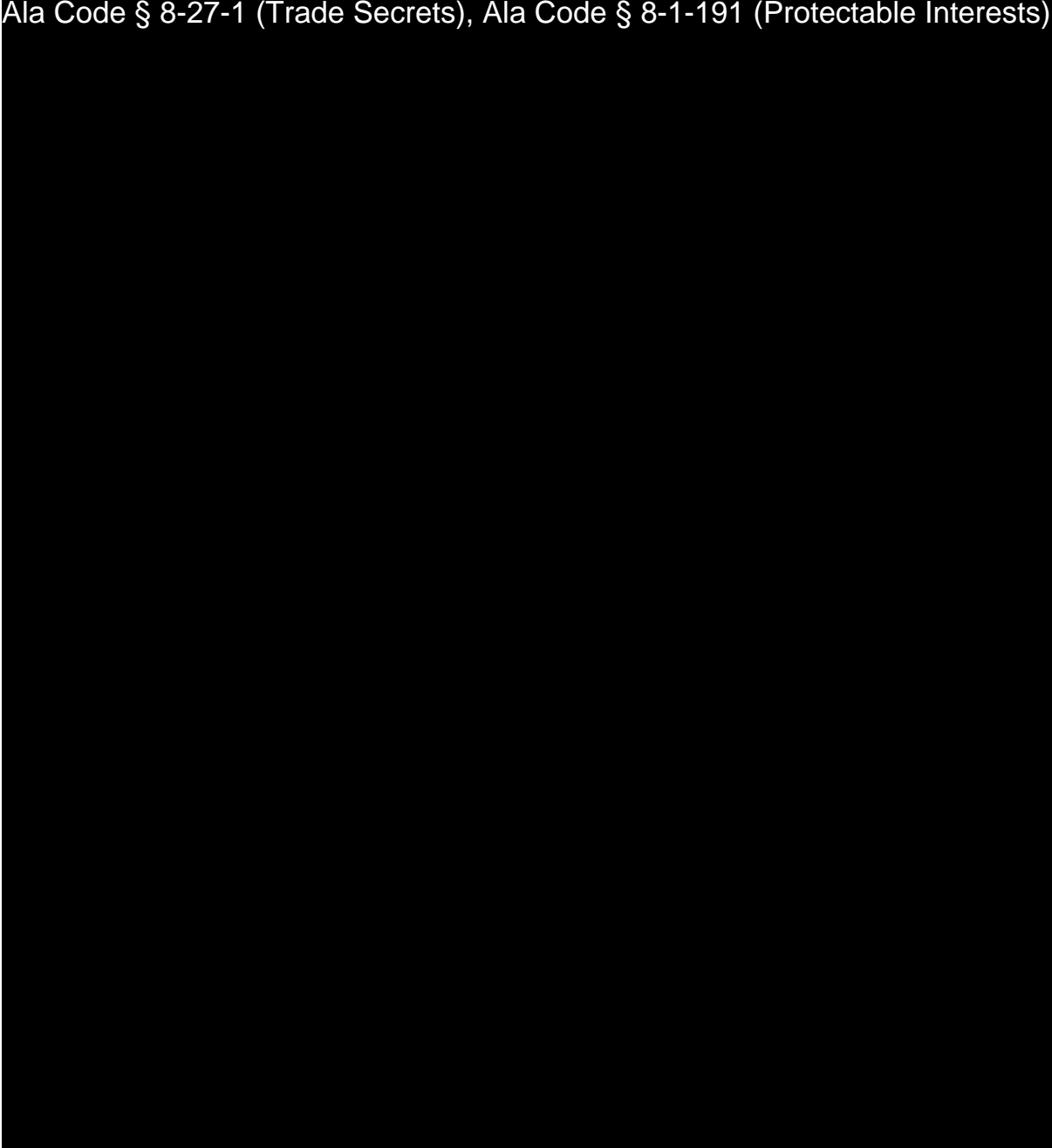
DAILY/WEEKLY SANITATION CHECKLIST			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

MANAGER SIGN OFF:	EMPLOYEES:	DATE:
--------------------------	-------------------	--------------

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



License Type: Processor

CLEANING LOG			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

DATE	TIME	NAME	TASKS ACCOMPLISHED

REFRIGERATION TEMPERATURE CONTROL LOG			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

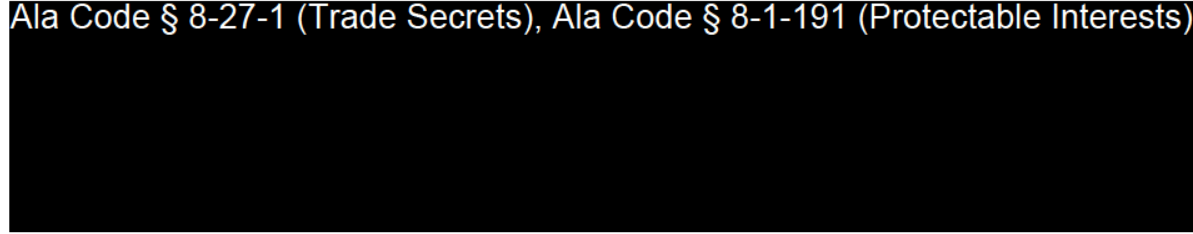
	9:00 AM				
	3:00 PM				
	9:00 PM				
	9:00 AM				
	3:00 PM				
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	9:00 AM				
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	9:00 PM				
	9:00 AM				
	3:00 PM				
	9:00 PM				

License Type: Processor

TEMPERATURE & HUMIDITY CHECKS			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

PURPOSE

The facility must maintain adequate temperature and humidity in areas where cannabis and medical cannabis items and raw, or temperature-sensitive products are stored. In order to Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



TEMPERATURE & HUMIDITY CHECK LOG					
DATE	TIME	RECORDED TEMPERATURE	RECORDED HUMIDITY %	CORRECTIVE ACTION (IF APPLICABLE)	EMPLOYEE INITIAL
	8:00 AM				
	1:00 PM				
	6:00 PM				
	8:00 AM				
	1:00 PM				
	6:00 PM				
	8:00 AM				
	1:00 PM				
	6:00 PM				
	8:00 AM				
	1:00 PM				
	6:00 PM				
	8:00 AM				
	1:00 PM				
	6:00 PM				

TOXIC SUBSTANCE AND CLEANING PRODUCT INVENTORY			
APPROVED SIGNATURE:			
EFFECTIVE DATE:	REVISION:	DEPT:	AUTHOR:
ASSOCIATED DOCUMENTS:			
RESPONSIBILITY: MANUFACTURING AGENTS			

PURPOSE

Complete this form while conducting inventory of hazardous substances.

TOXIC SUBSTANCE AND CLEANING PRODUCT INVENTORY LOG			
DATE	SUBSTANCE/ PRODUCT	INVENTORY	EMPLOYEE SIGNATURE

REDACTION INDEX

Ala Code § 36-12-40 (Security Exemption) – The verifying signatures and initials have been redacted pursuant to the “security or safety of persons” exemption contained in the Alabama Public Records statute. Signatures and initials, if left unredacted, may be forged and used for innumerable illicit purposes.

Furthermore, this exhibit contains diagrams and detailed maps of the applicant’s proposed facility, detailed information regarding security plans and procedures, as well as confidential information related to the transport of medical cannabis and cannabis products. Disclosure of such information would be against public policy and place the applicant’s facility at a significant risk. As such, the information contained in this exhibit should be exempt from disclosure.

Ala Code § 8-27-1 (Trade Secrets)/Ala. Code § 8-1-191 (Protectable Interests) – This exhibit contains confidential information including, but not limited to, management and marketing plans, business strategy and methodology, business models and data, and company provided files and software. As such, certain portions of this exhibit have been designated as “Protectable Interests” exempt from disclosure. Further, this exhibit contains information that is used or intended for use in a trade or business, included or embodied in a formula, pattern, compilation, computer software, drawing, device, method, technique, or process, and is not publicly known or generally known in the trade or business. The information contained in this exhibit cannot be readily ascertained or derived from publicly available information and has significant economic value to the applicant. As such, certain portions of this exhibit have been designated as “Trade Secrets” exempt from disclosure.

Protectable Interests and Trade Secrets are redacted as the disclosure to any third party would give an unfair advantage to competitors and would result in the loss of rights and cause harm to the owner of this information. In the normal course of business, the owner of this information requires all individuals who view such information to be bound by confidentiality agreements and access to any of this material is extremely limited and on a need-to-know basis only. The owner of this information will take all steps to enforce such confidentiality agreements and will ensure that employees surrender such information upon termination of employment. If such information is disclosed, competitors of the owner of this information in Alabama and in other states will take such information to better compete against the owner of this information in the regulated commercial market.

Furthermore, the applicant believes the identified information to be confidential and if disclosed would give advantage to competitors because the material is related to the applicant’s planning, site location, expansion, operations, product development and marketing. Because this information can be used to recruit appropriate personnel, locate a site, finance and undertake the operation and go to market, the disclosure of this information would allow new competitors to enter the market to compete against the Company. In addition, the disclosure of this information would also allow existing competitors to potentially optimize the manufacture of their products and/or create similar products to the applicant causing grave economic harm to the owners of this information.

Finally, the applicant claims the marked material marked is exempt from disclosure as the mere formulation of the words and descriptions of processes could prove successful in competitive,

REDACTION INDEX

multi-million-dollar merit-based medical marijuana application processes similar to Alabama. Permitting any of this marked application language to be publicly released would substantially reduce the intrinsic value of the applicant's business – allowing anyone in the public to appropriate the processes, methods, and standard operating procedures that the applicant employs or will employ.

Application Number 1632

Exhibit 13 - Production and Manufacturing Process

Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

Jason Cobb

Printed Name of Verifying Individual

Ala Code § 36-12-40 (Security Exemption)

[Redacted Signature]

Signature of Verifying Individual

CEO

Title of Verifying Individual

12/30/2022

Verification Date

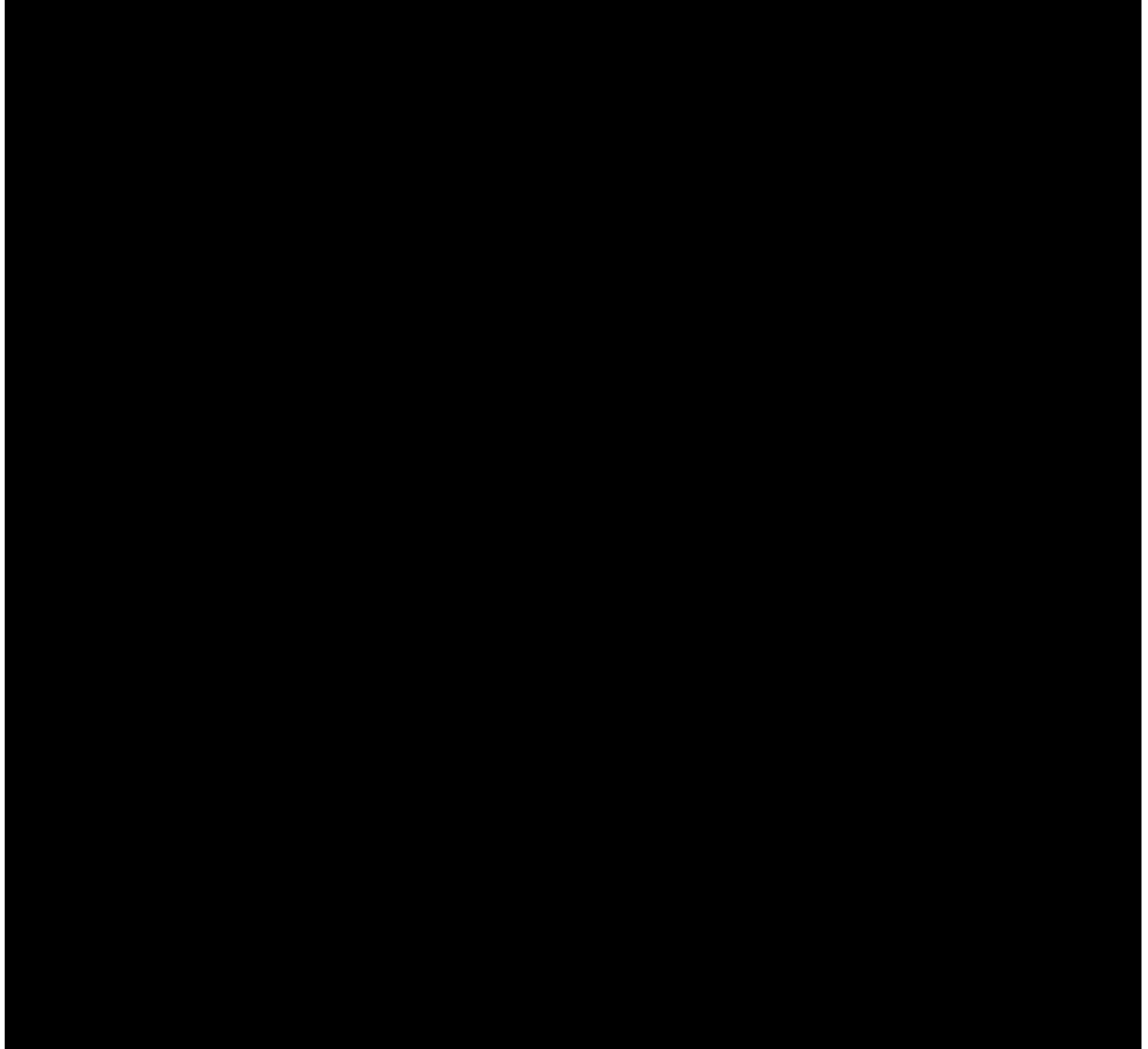
13.1 – Identify which of the approved types of medical cannabis will be produced at each facility where cannabis is to be processed.

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

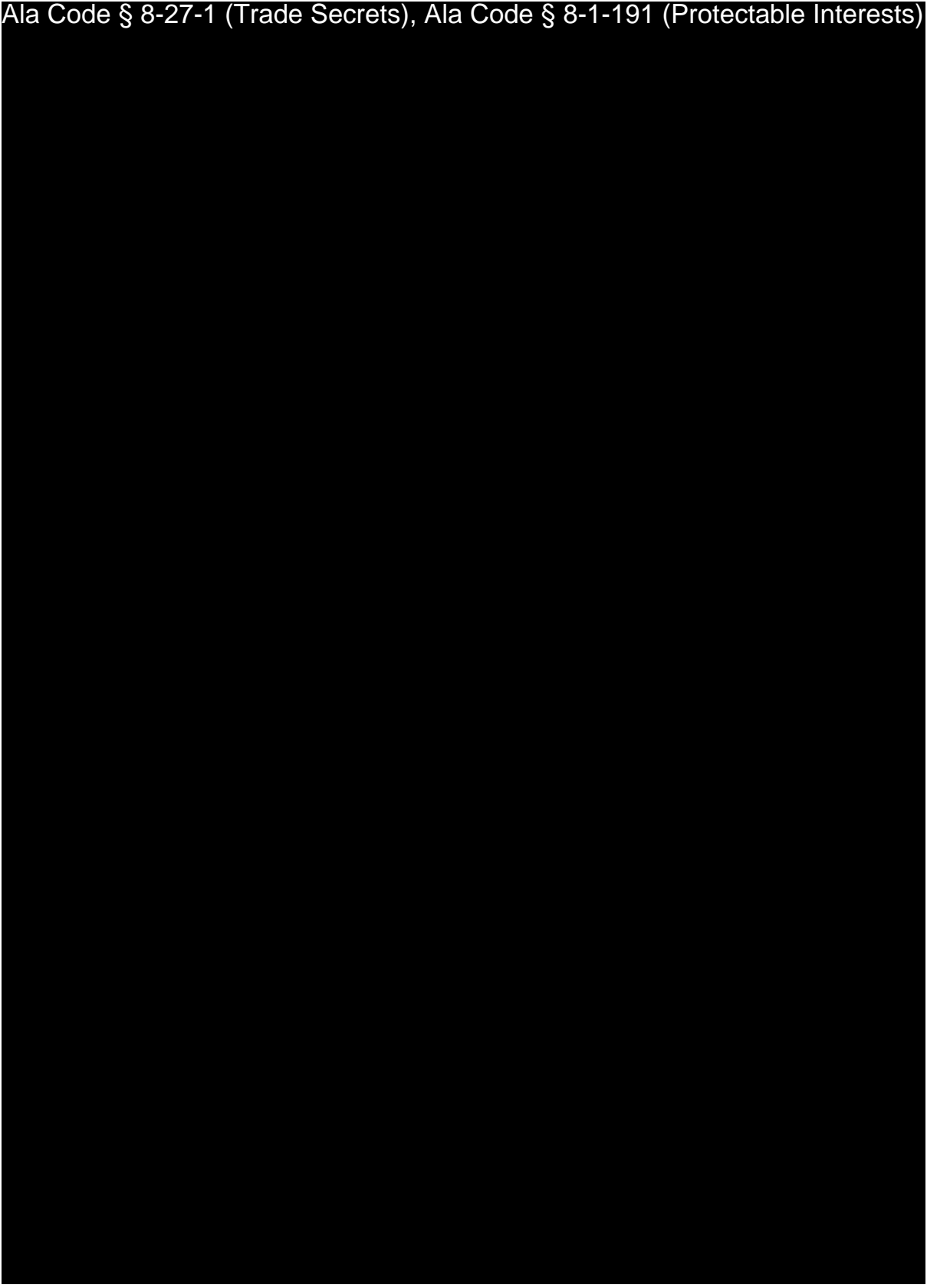
13.2 – Provide a summary of the manufacturing processes and methods to be utilized to produce each product, including the machinery, equipment, materials, and personnel necessary to produce each product.

Pursuant to 538-x-6-.06(3)(b)(2), Applicant has provided a summary of the manufacturing processes and methods that will be used to produce cannabis products at the medical cannabis processor facility.

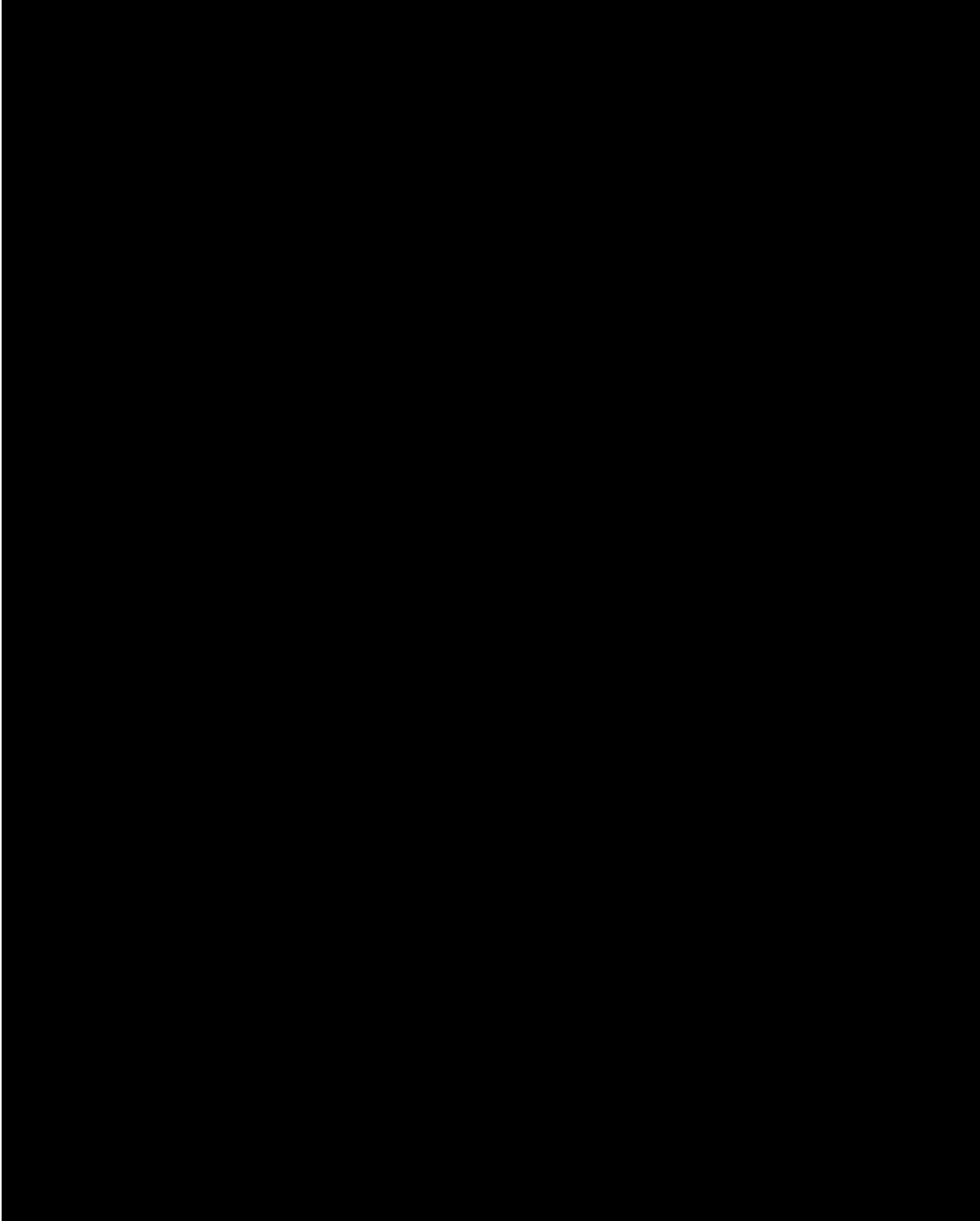
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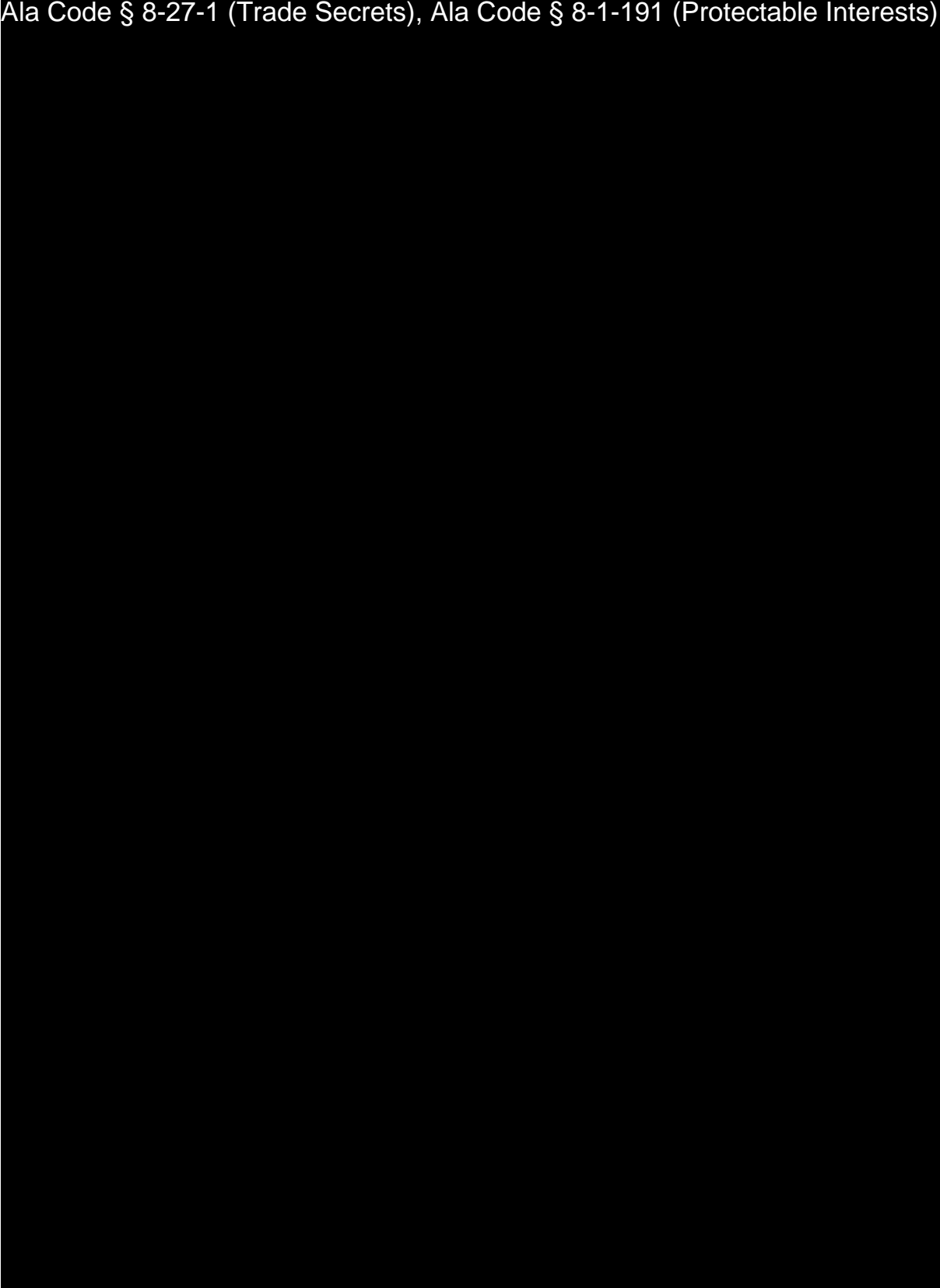
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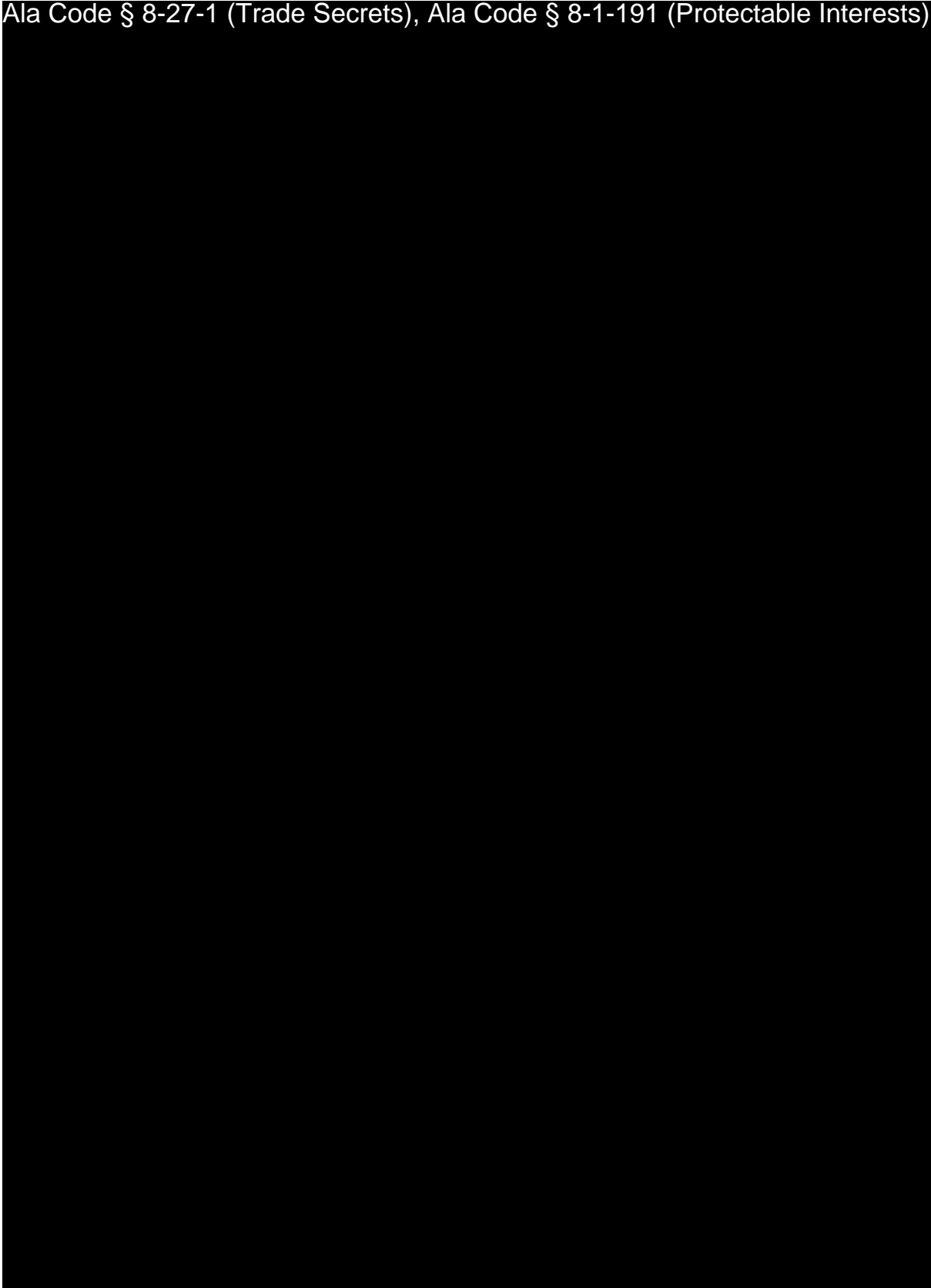
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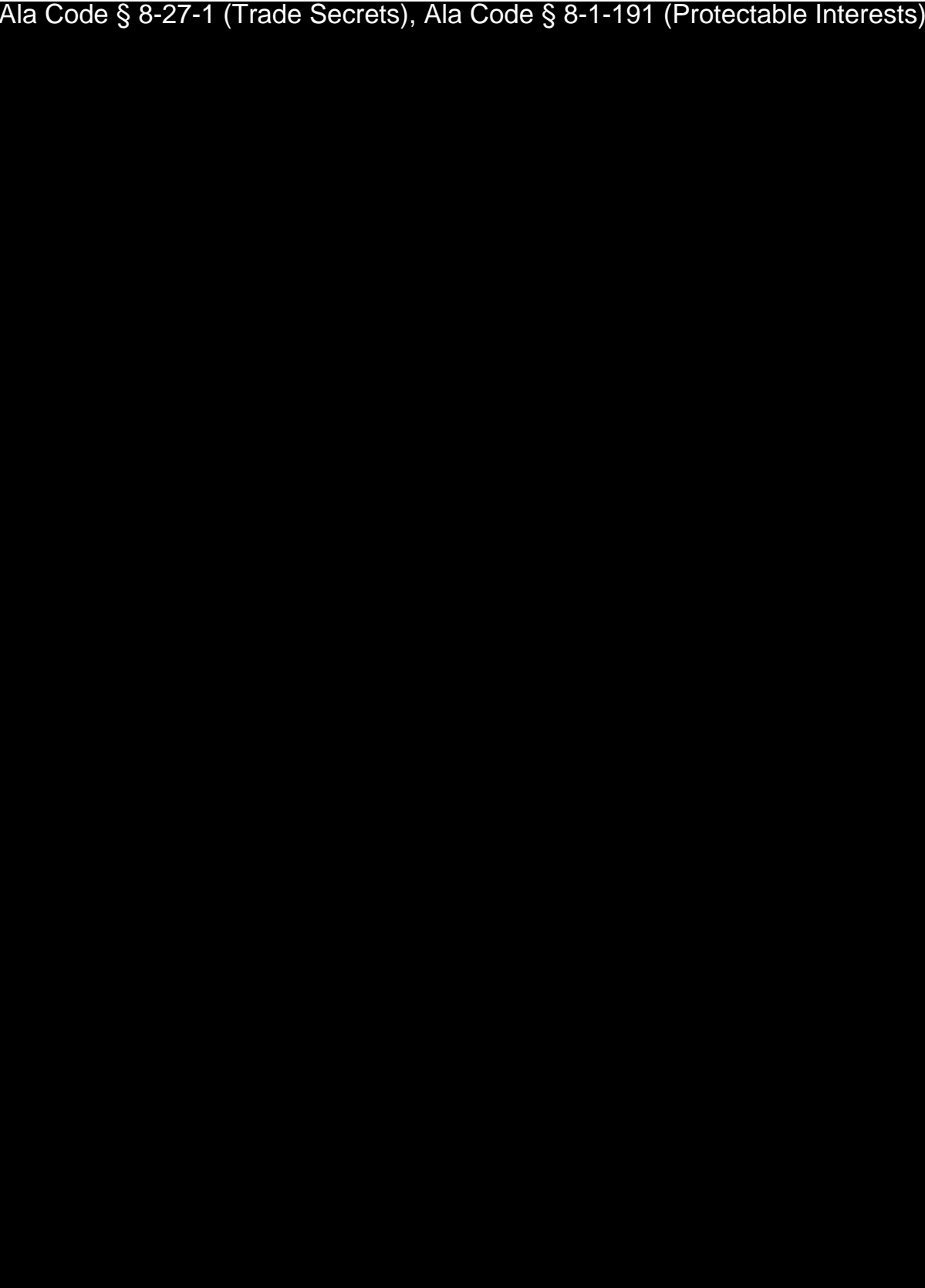
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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



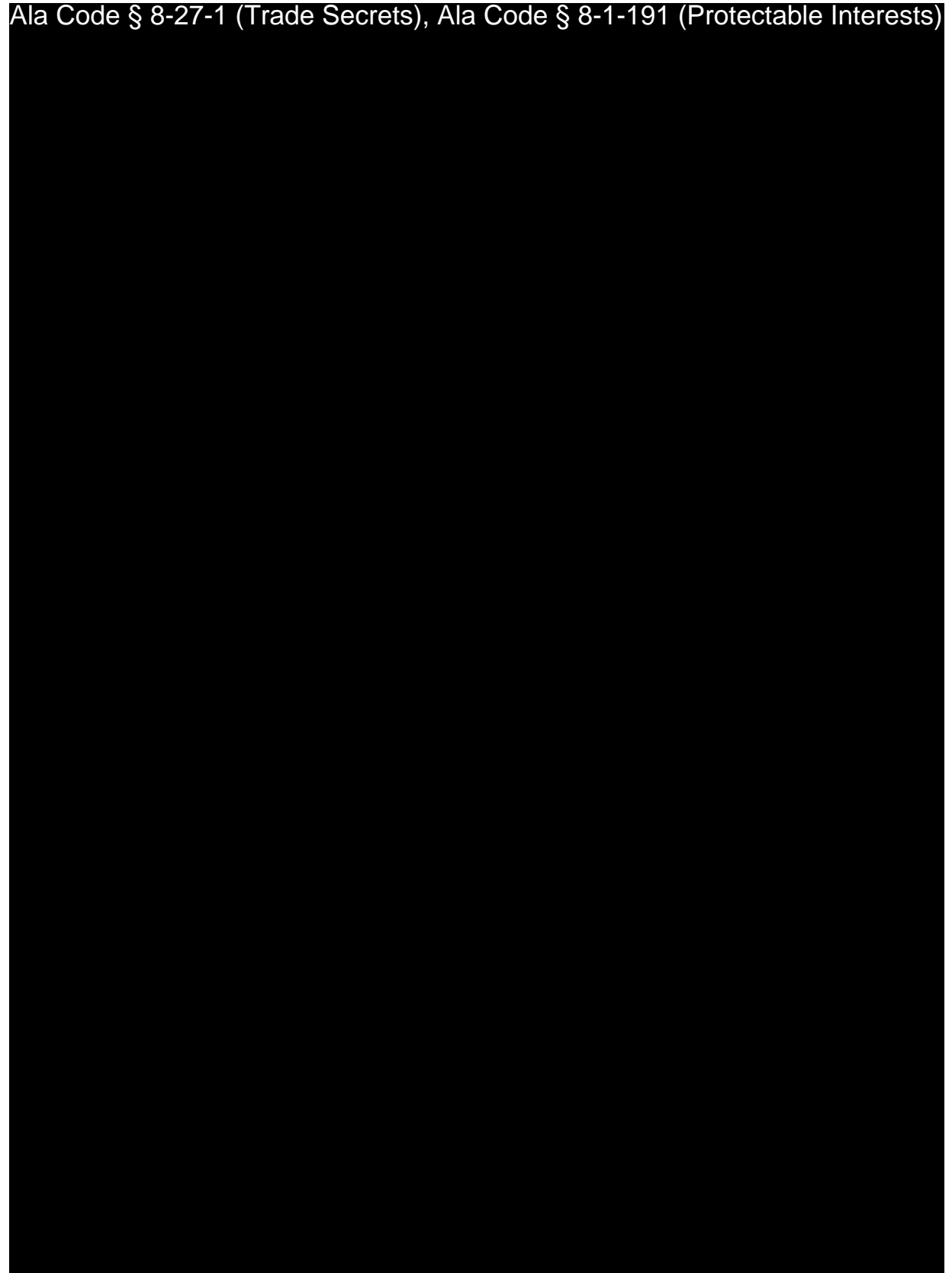
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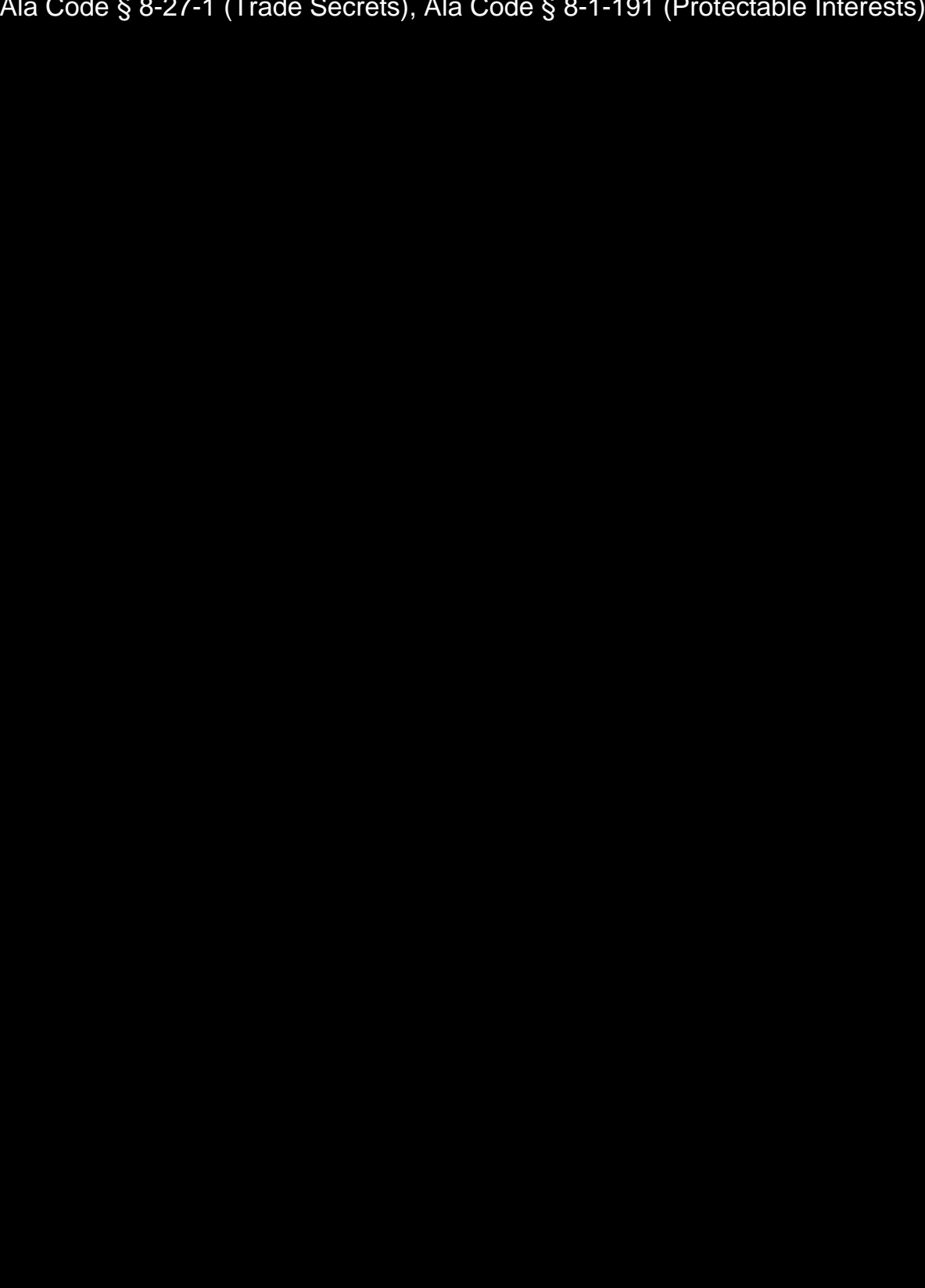
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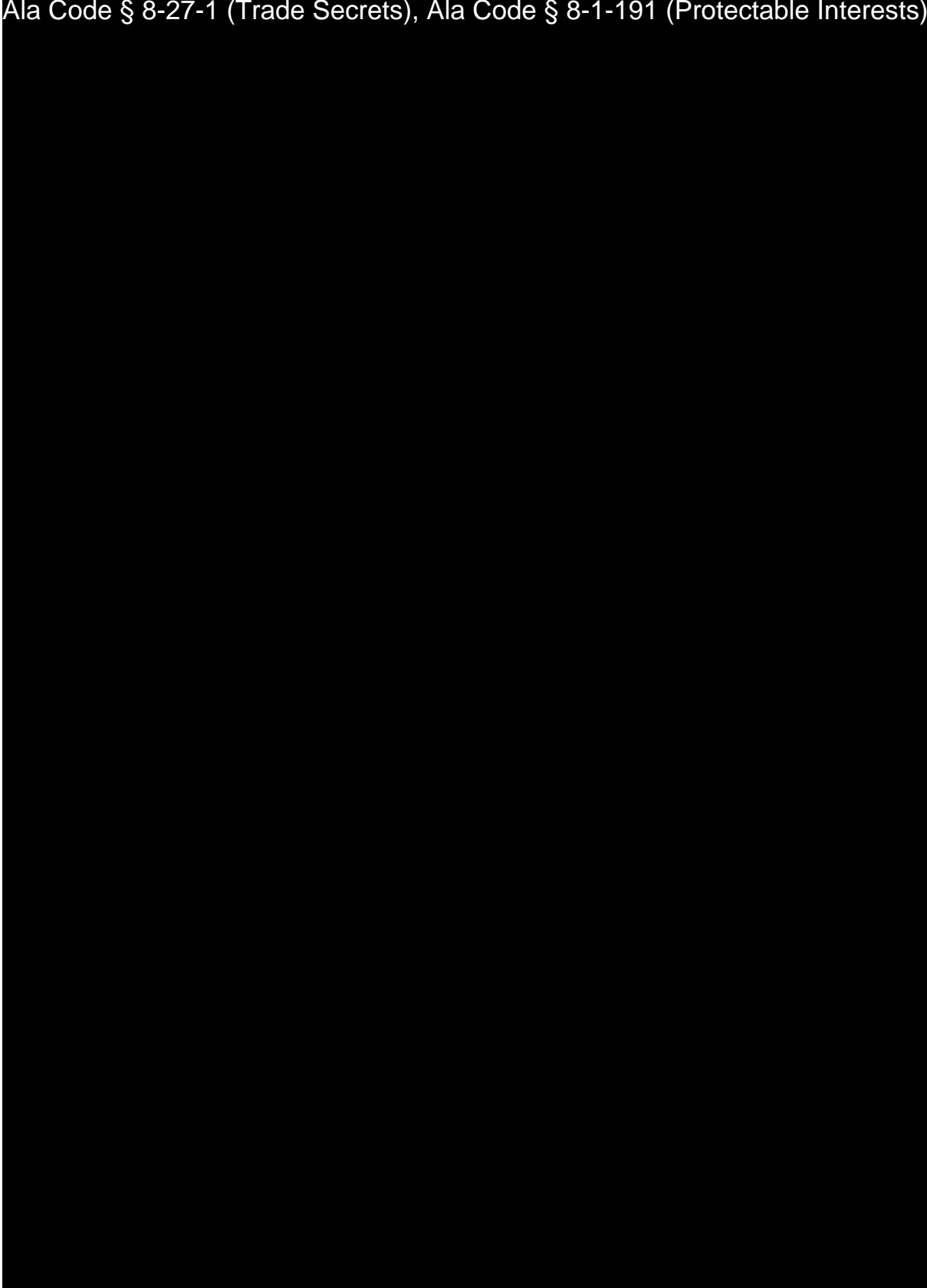
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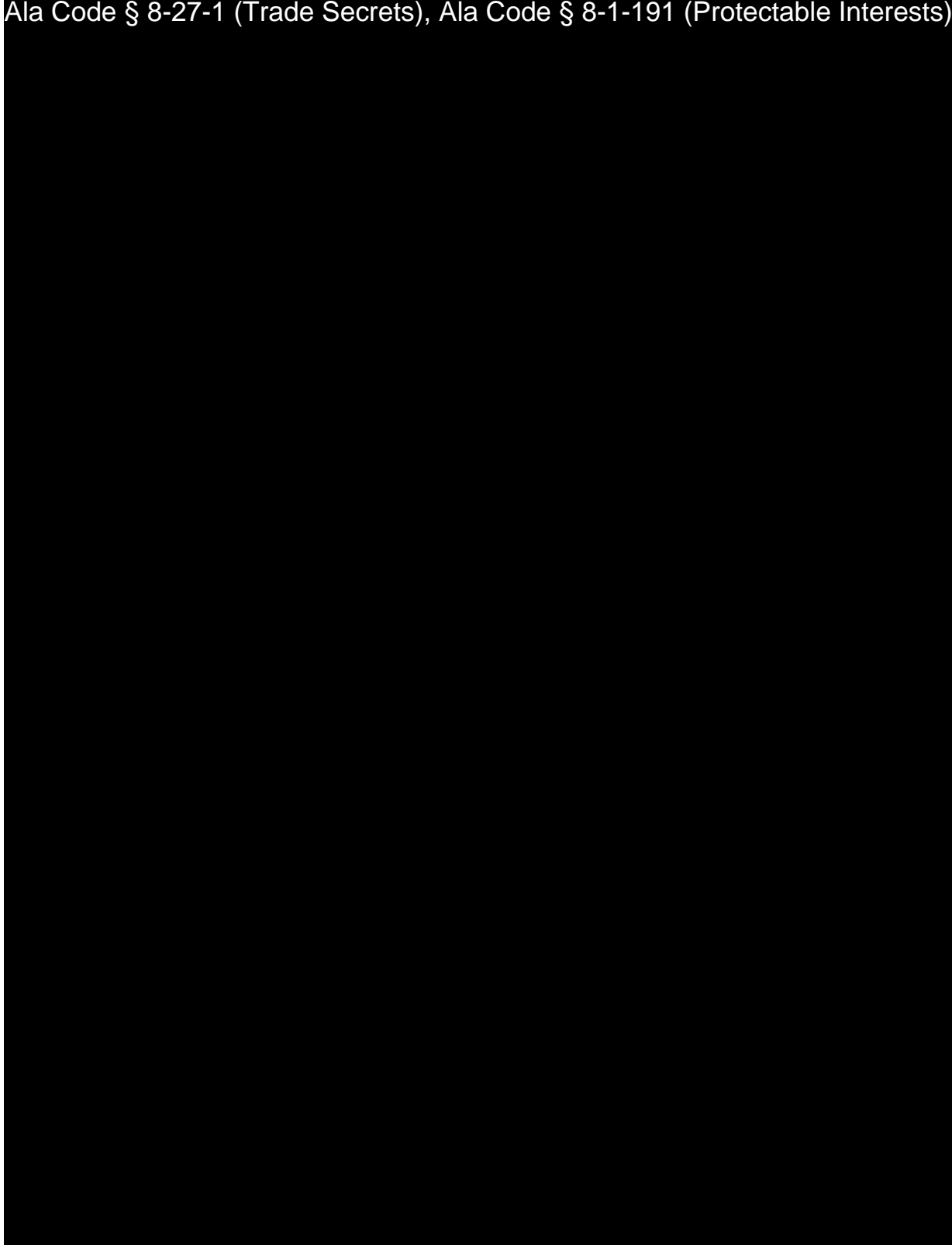
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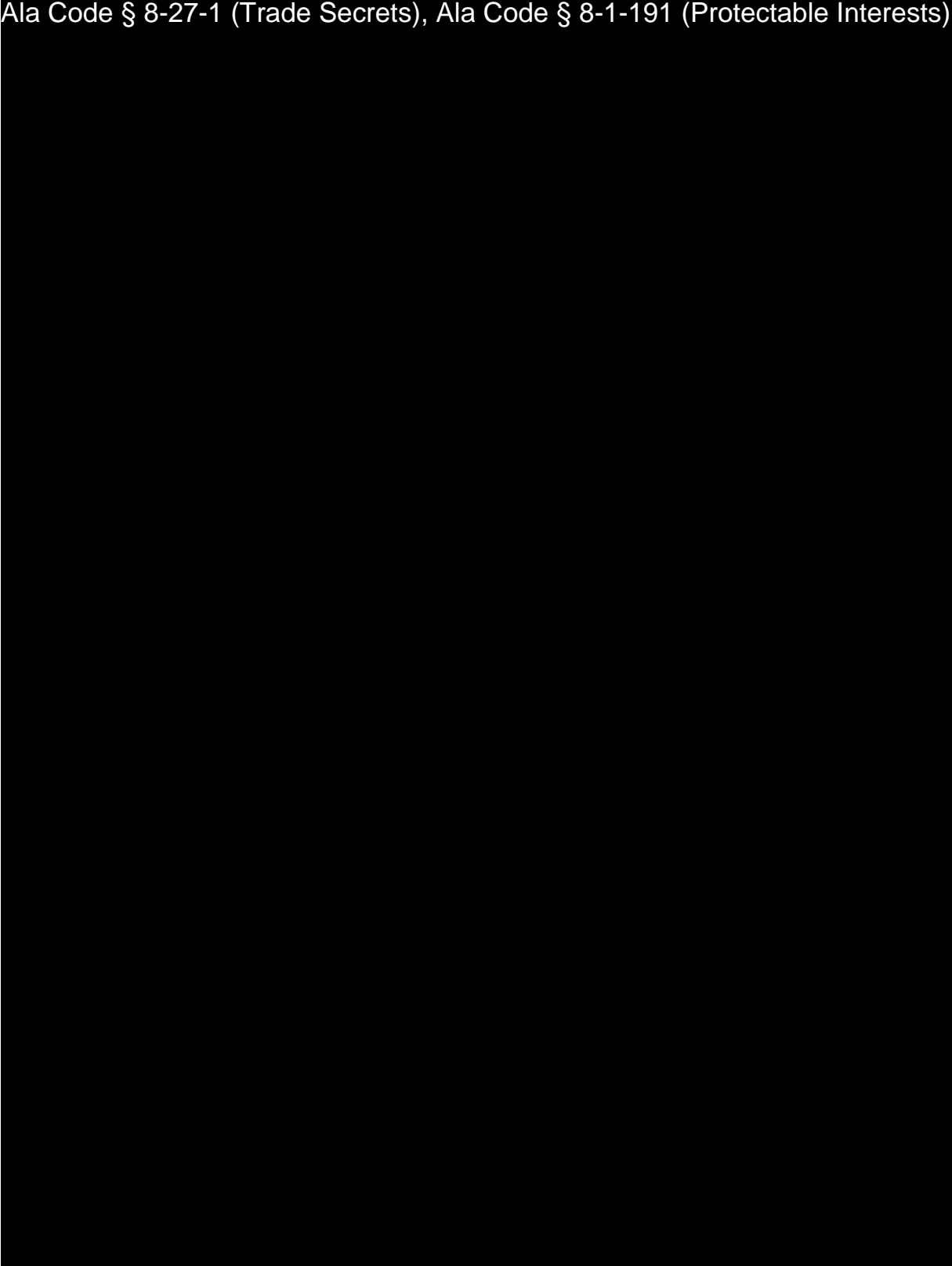
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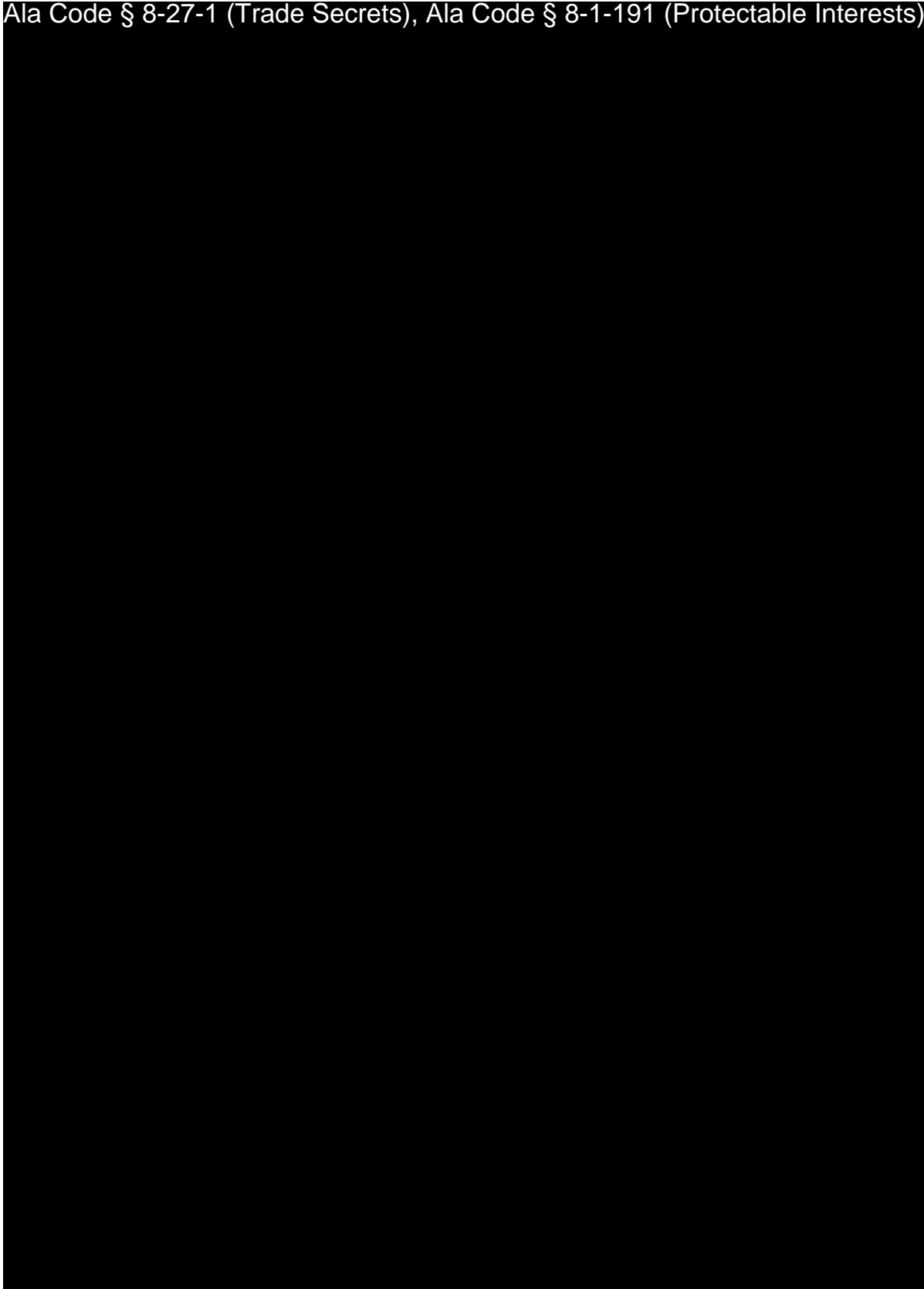
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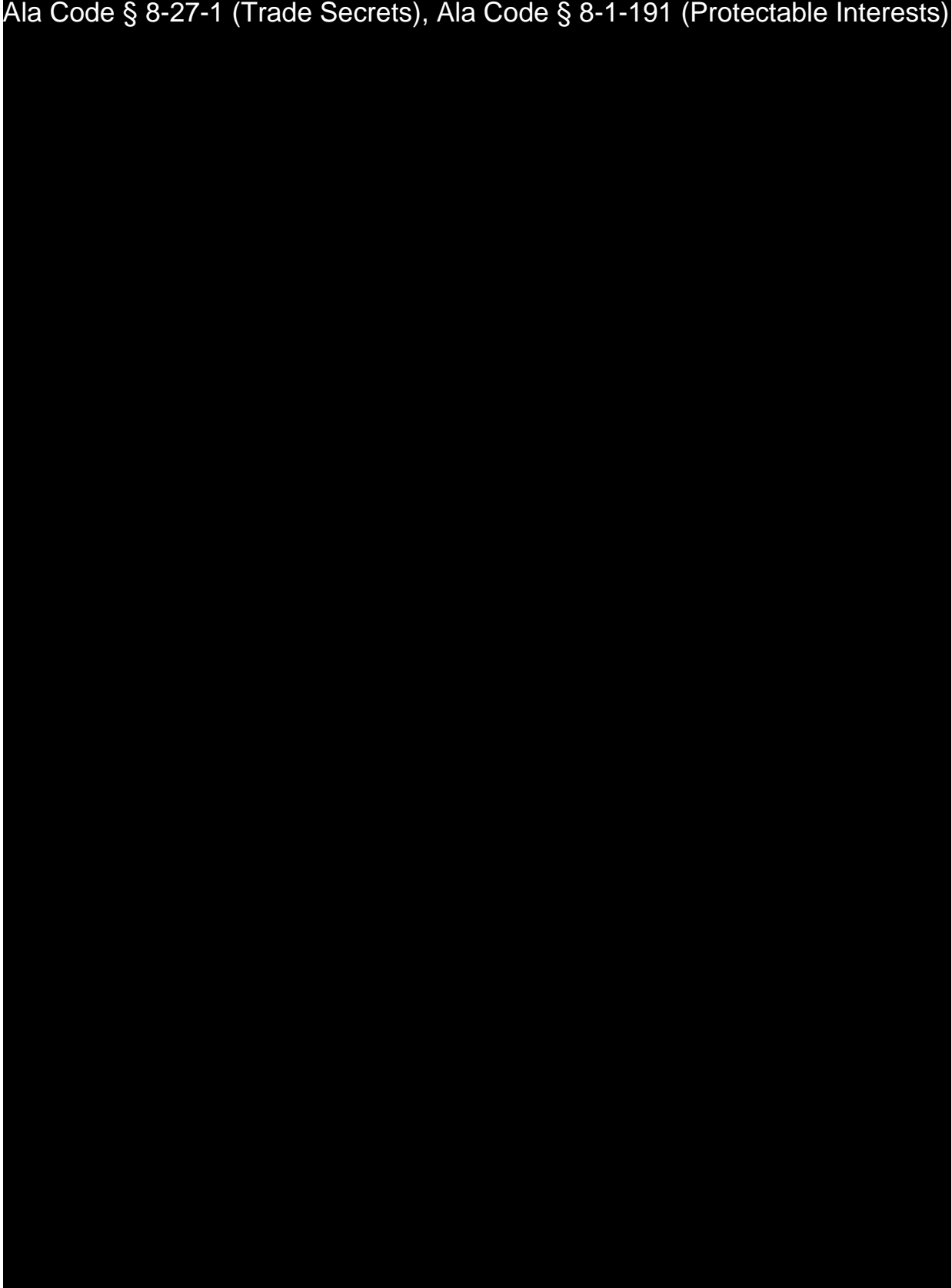
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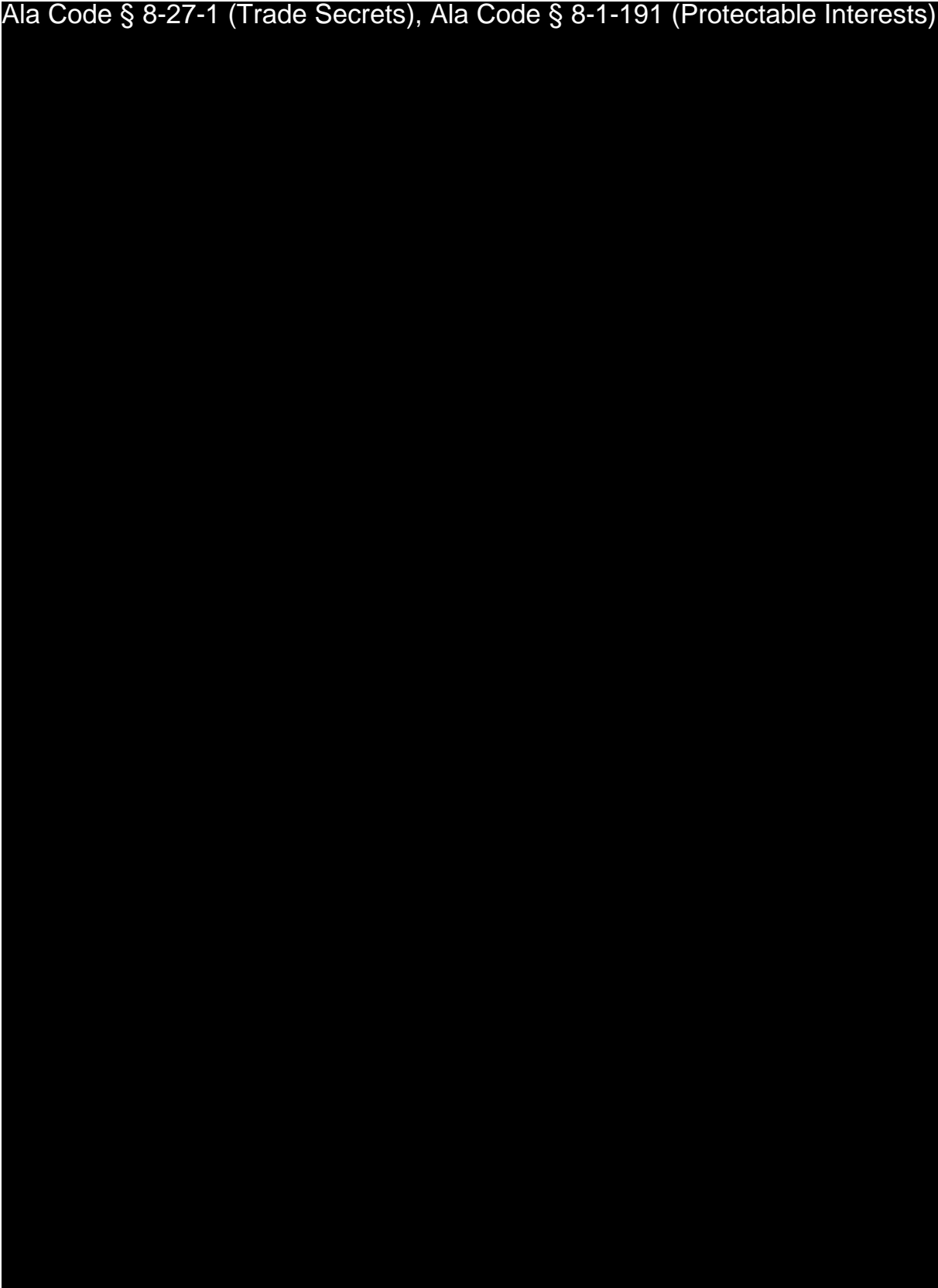
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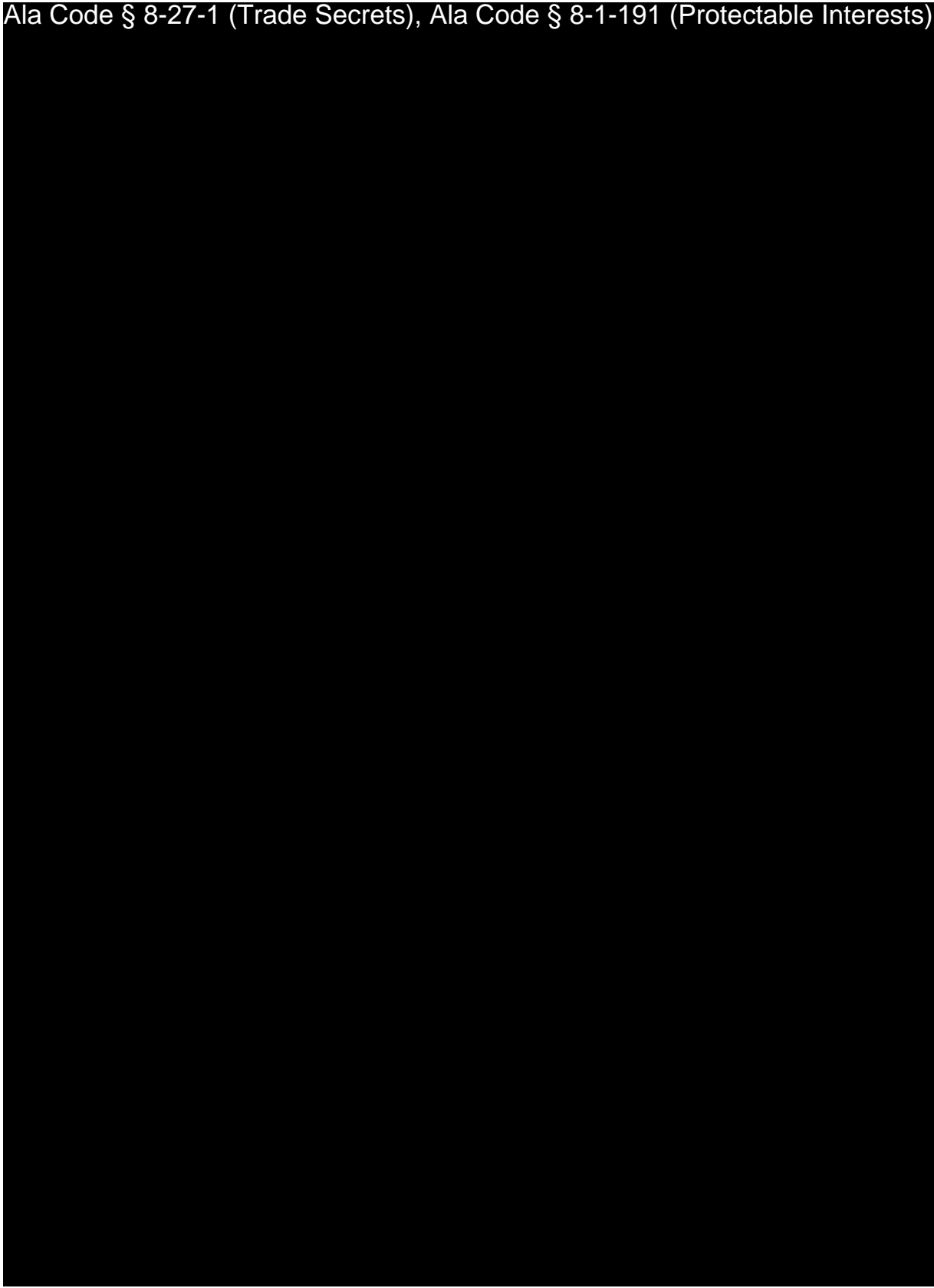
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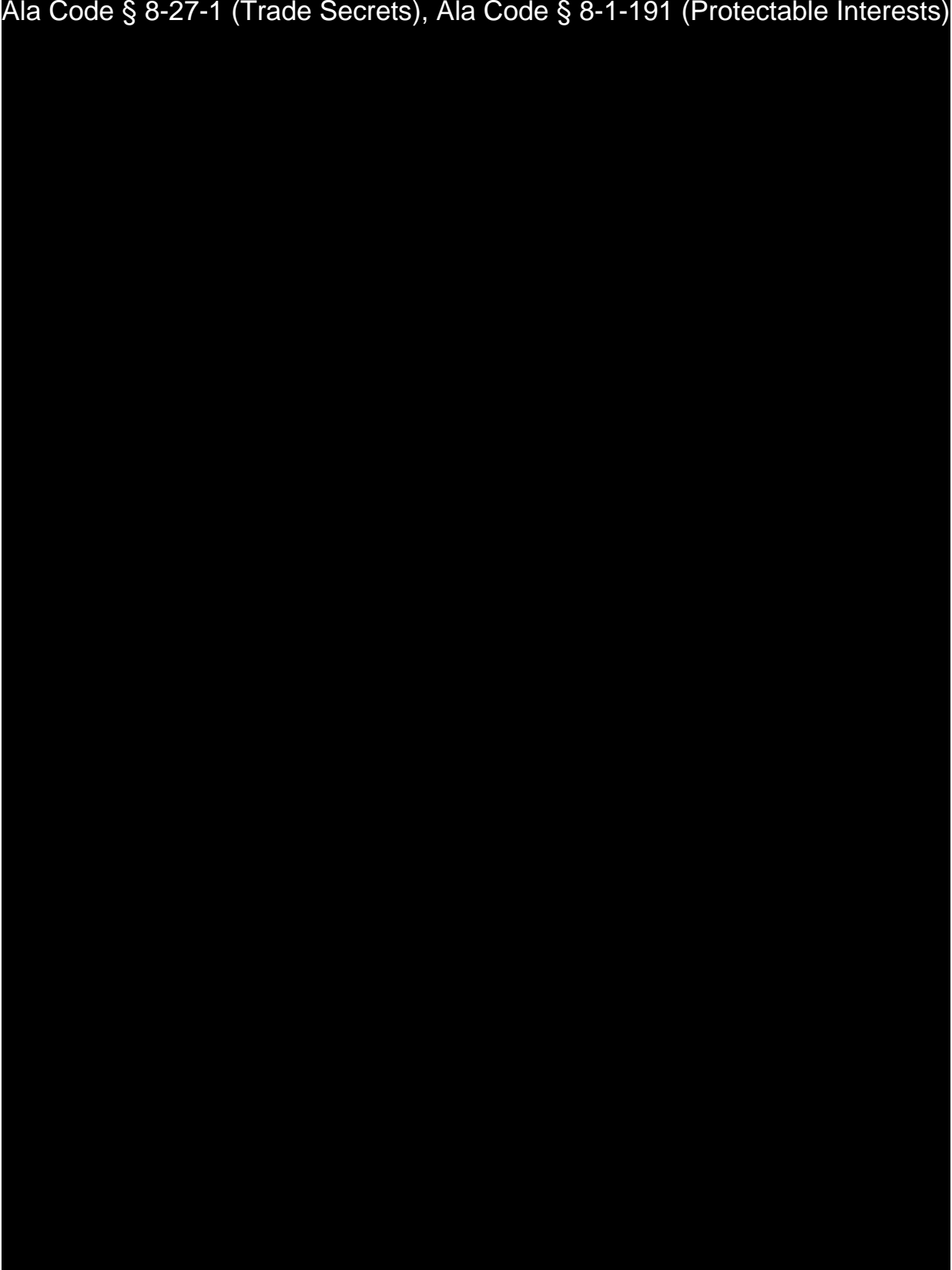
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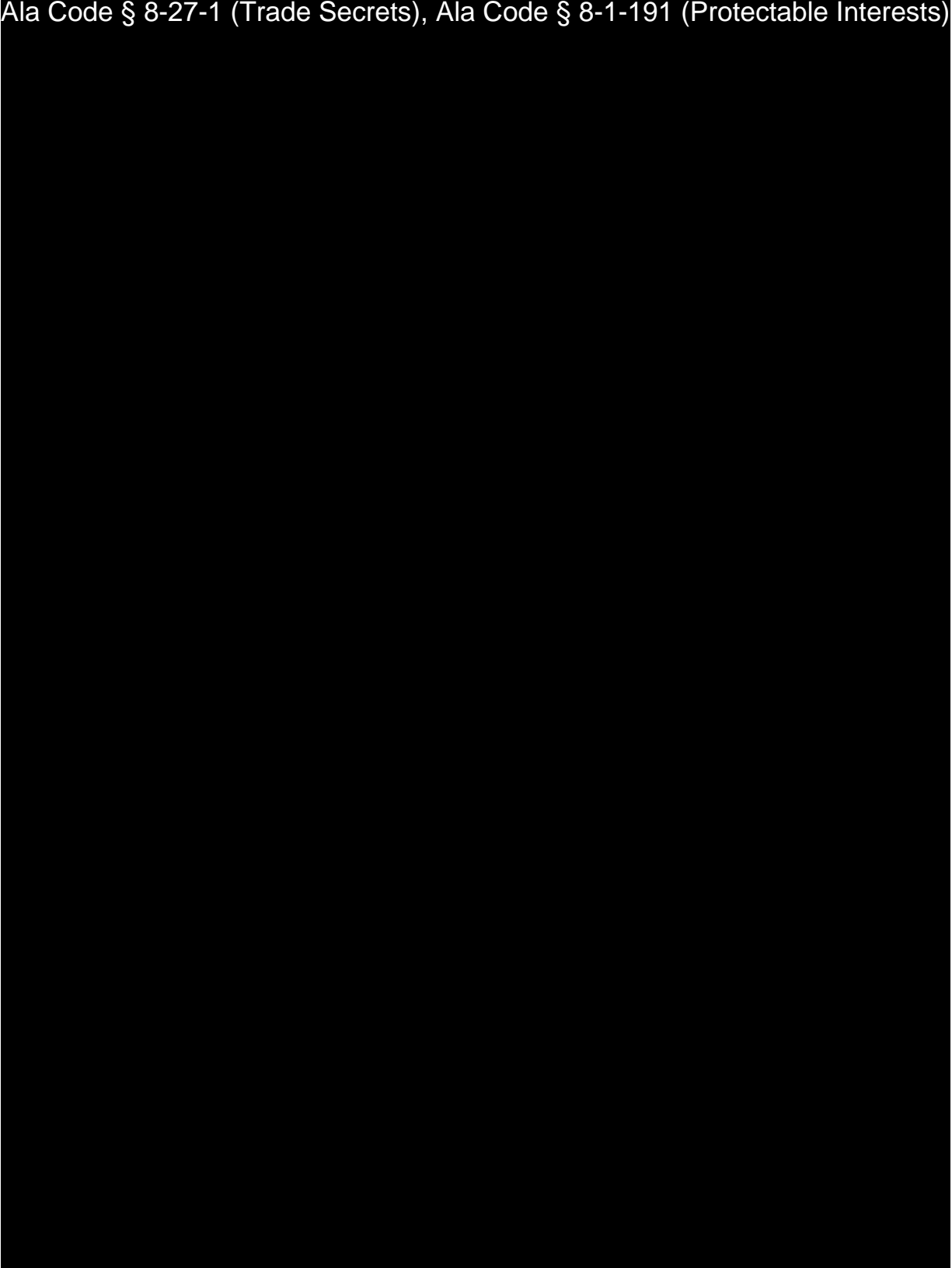
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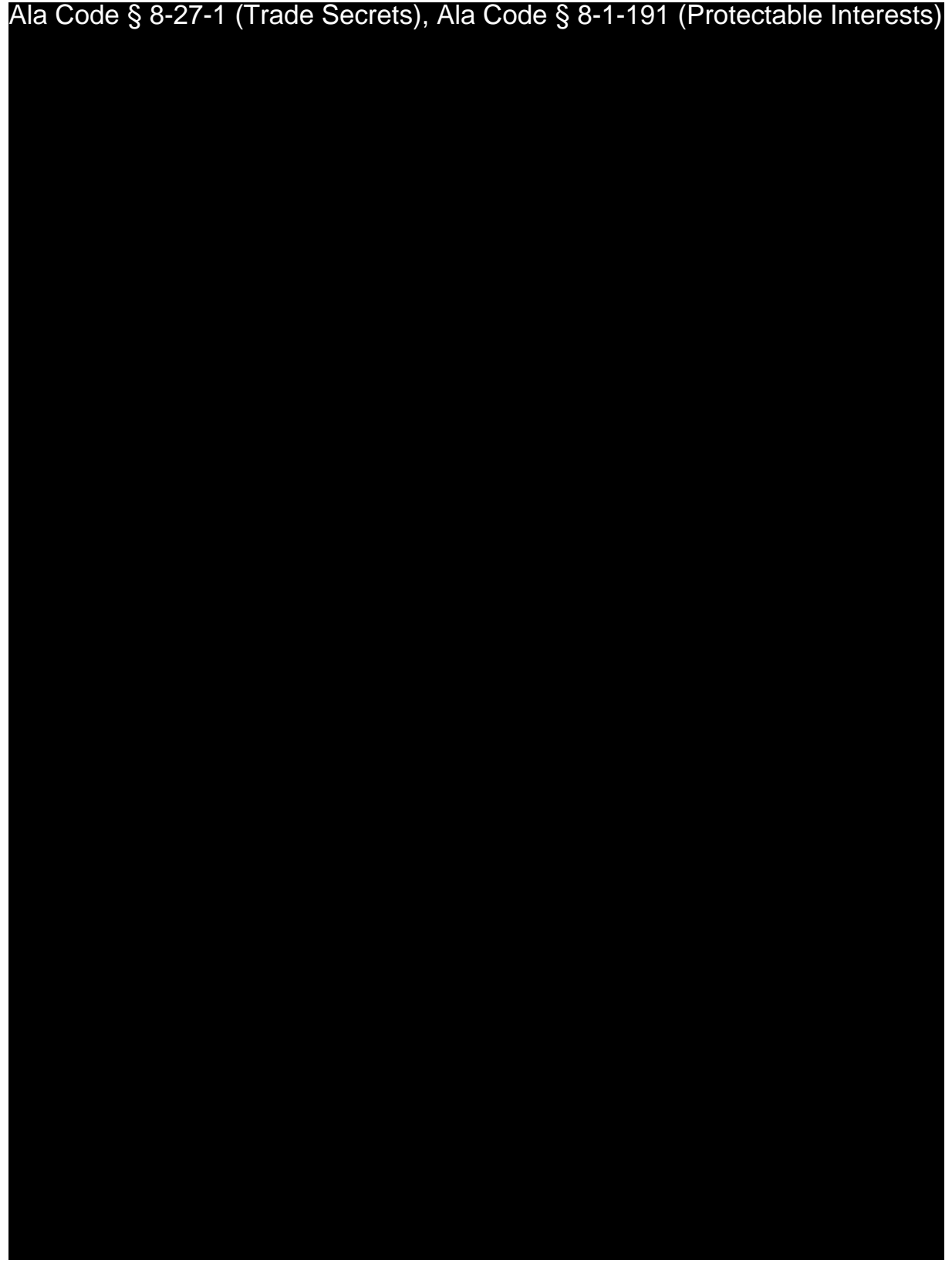
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



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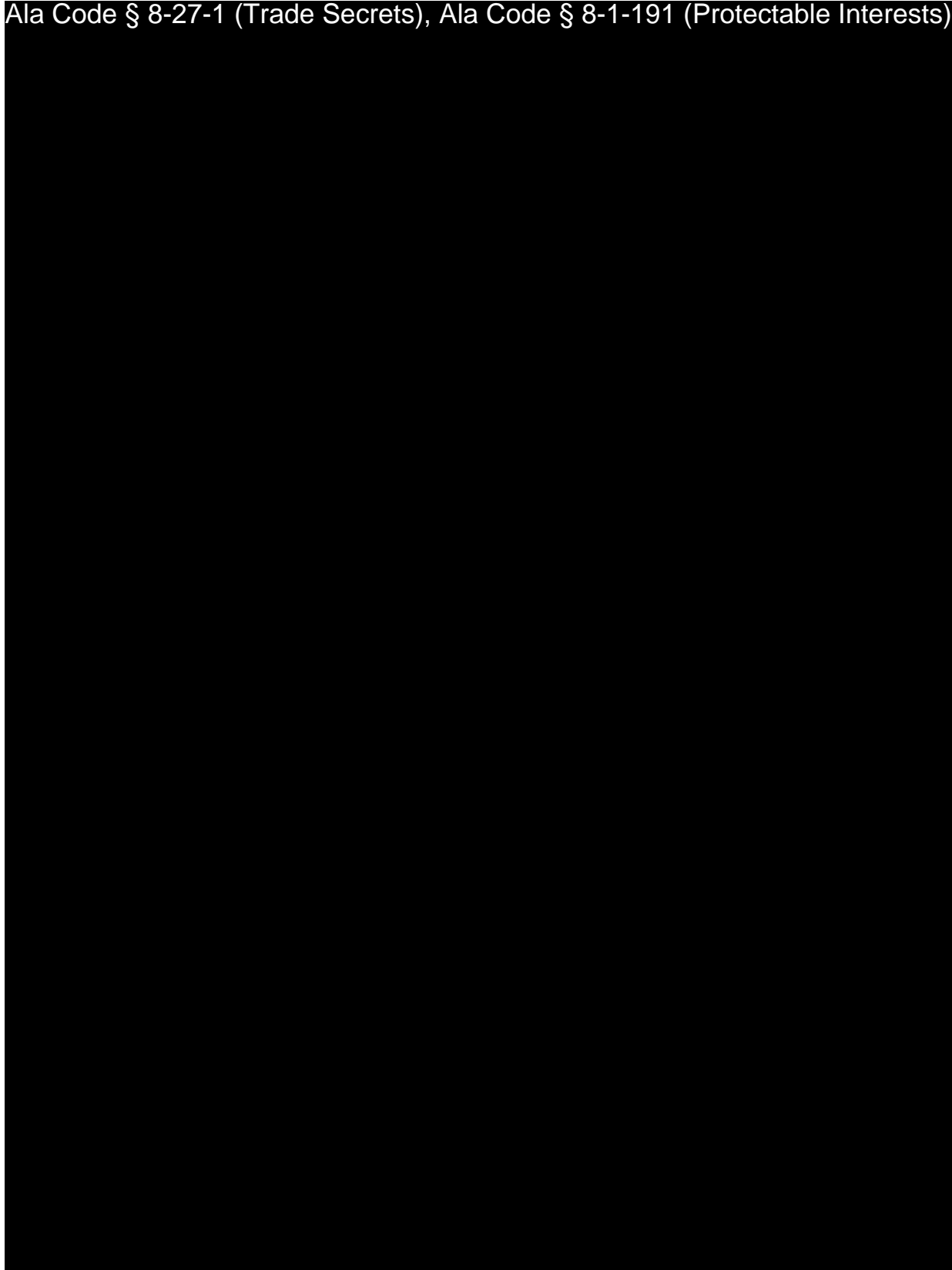


13.4 – Provide a detailed list of formulae and ingredients for each medical cannabis product, including a list of all excipients to be utilized in the manufacture of each product, and the purpose served by each.

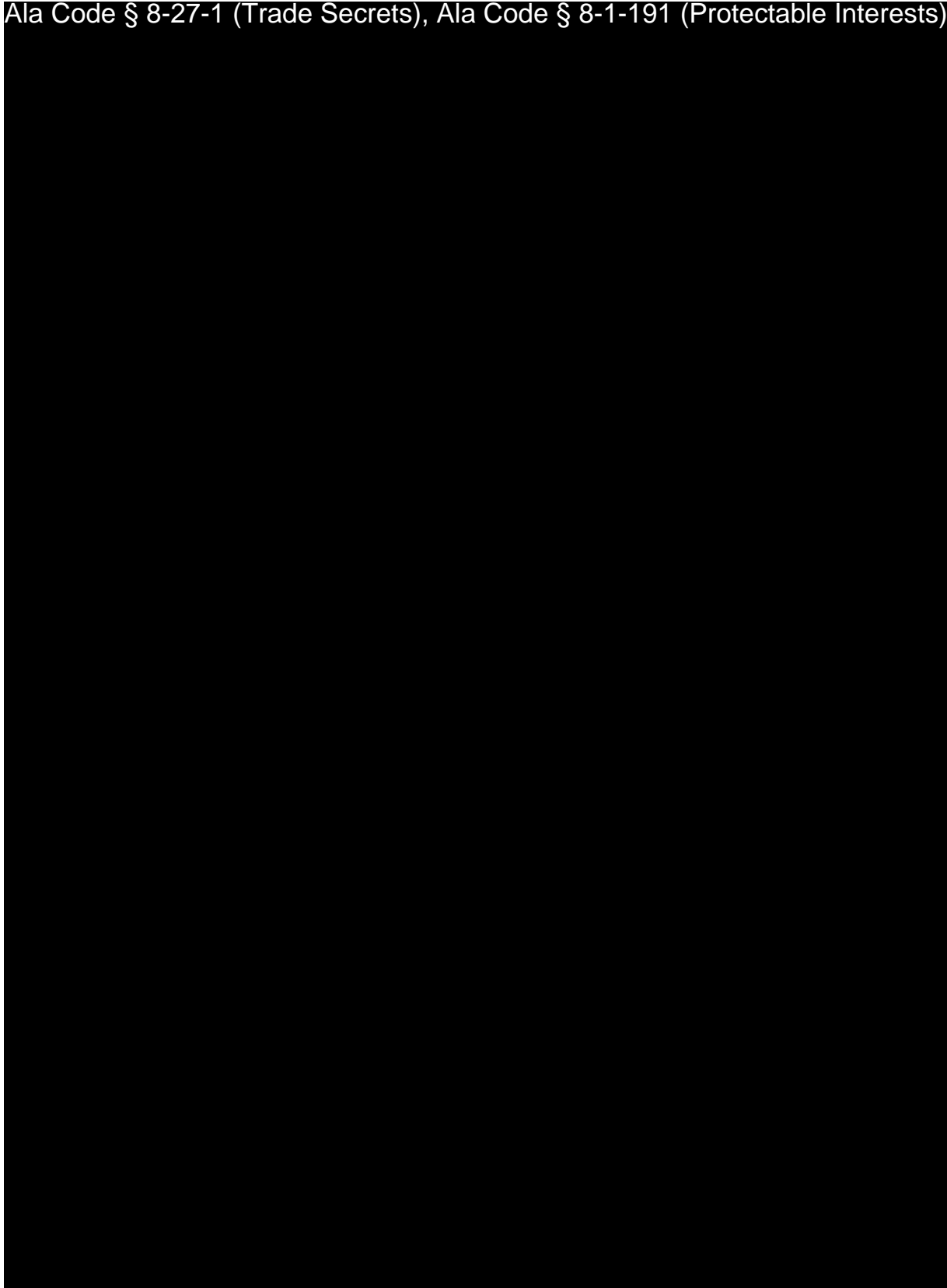
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)




Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



REDACTION INDEX

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Protectable Interests and Trade Secrets are redacted as the disclosure to any third party would give an unfair advantage to competitors and would result in the loss of rights and cause harm to the owner of this information. In the normal course of business, the owner of this information requires all individuals who view such information to be bound by confidentiality agreements and access to any of this material is extremely limited and on a need-to-know basis only. The owner of this information will take all steps to enforce such confidentiality agreements and will ensure that employees surrender such information upon termination of employment. If such information is disclosed, competitors of the owner of this information in Alabama and in other states will take such information to better compete against the owner of this information in the regulated commercial market.

Furthermore, the applicant believes the identified information to be confidential and if disclosed would give advantage to competitors because the material is related to the applicant’s planning, site location, expansion, operations, product development and marketing. Because this information can be used to recruit appropriate personnel, locate a site, finance and undertake the operation and go to market, the disclosure of this information would allow new competitors to enter the market to compete against the Company. In addition, the disclosure of this information would also allow existing competitors to potentially optimize the manufacture of their products and/or create similar products to the applicant causing grave economic harm to the owners of this information.

Finally, the applicant claims the marked material marked is exempt from disclosure as the mere formulation of the words and descriptions of processes could prove successful in competitive, multi-million-dollar merit-based medical marijuana application processes similar to Alabama. Permitting any of this marked application language to be publicly released would substantially reduce the intrinsic value of the applicant’s business – allowing anyone in the public to appropriate the processes, methods, and standard operating procedures that the applicant employs or will employ.

Application Number 1632

Exhibit 14 - Machinery and Equipment

Verification

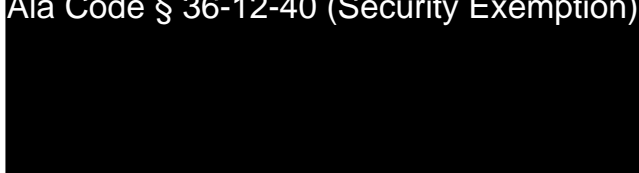
The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

JASON COBB

CEO

Printed Name of Verifying Individual

Ala Code § 36-12-40 (Security Exemption)



Signature of verifying individual

Title of Verifying Individual

3/9/2023

Verification Date

14.1 - Sales contracts and receipts, lease agreements or other documentation demonstrating possessory interest in all machinery and equipment to be used in the processing of medical cannabis.

Lease Contracts

Applicant has proactively contacted machinery and equipment companies to obtain pricing and lead time information. Applicant has obtained a Lease for the following pieces of equipment:

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Lease is identified as "Lease Contract — Exhibit 14, Attachment to 14.1"

Sales Contracts

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



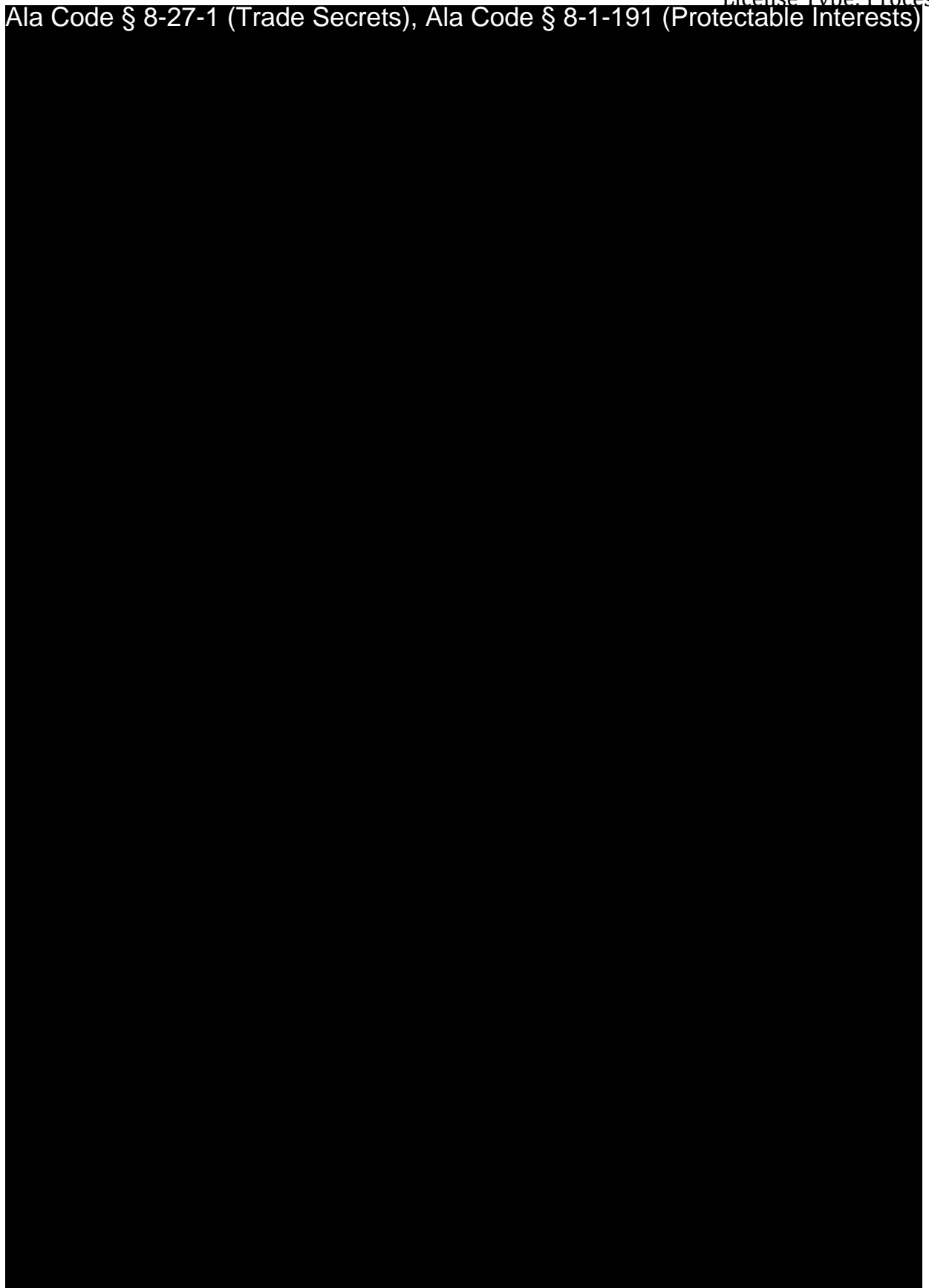
14.2 - Specifications and operations manuals of all machinery and equipment to be used in the processing of medical cannabis.

Machinery and Equipment List | Processing of Medical Cannabis

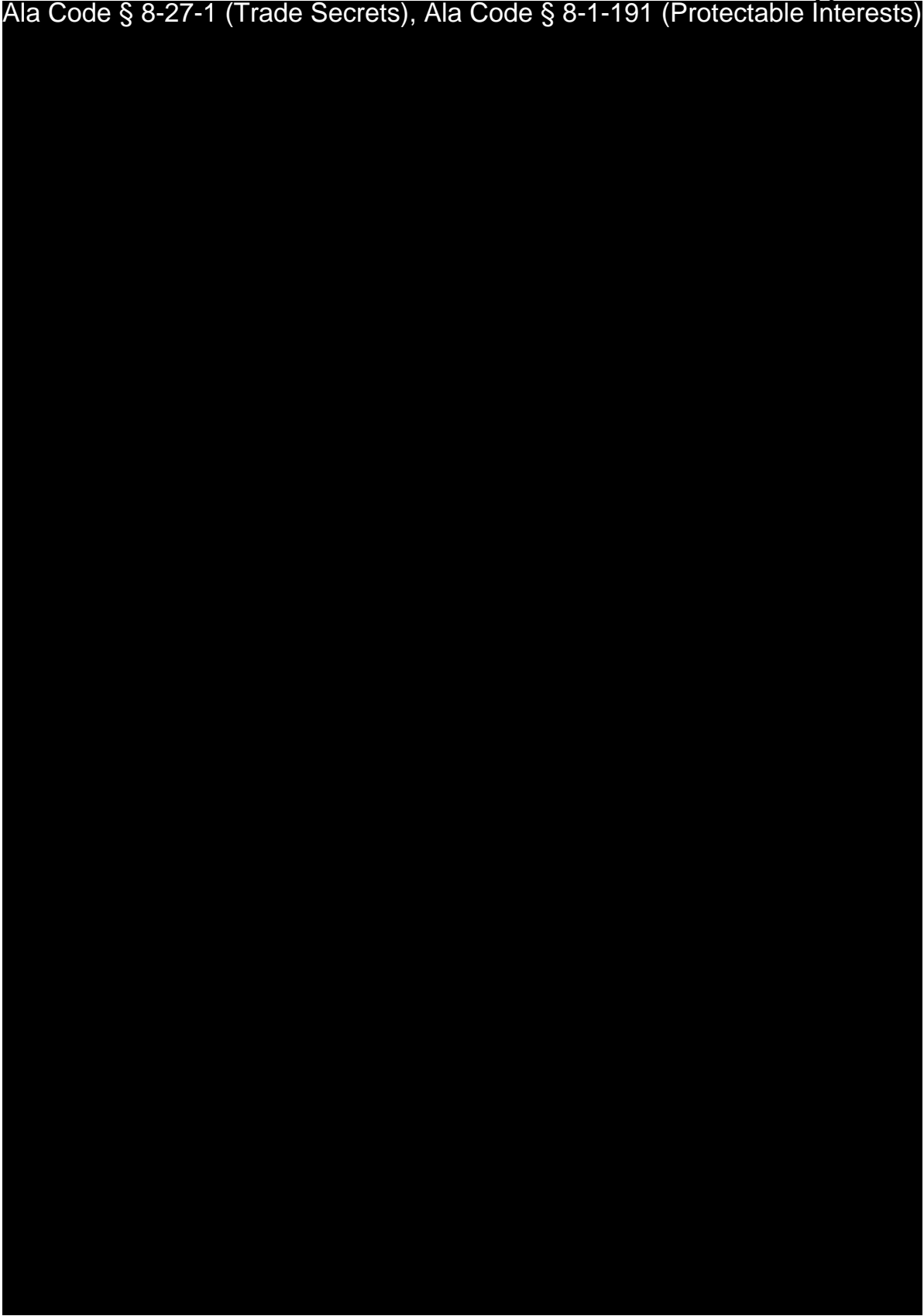
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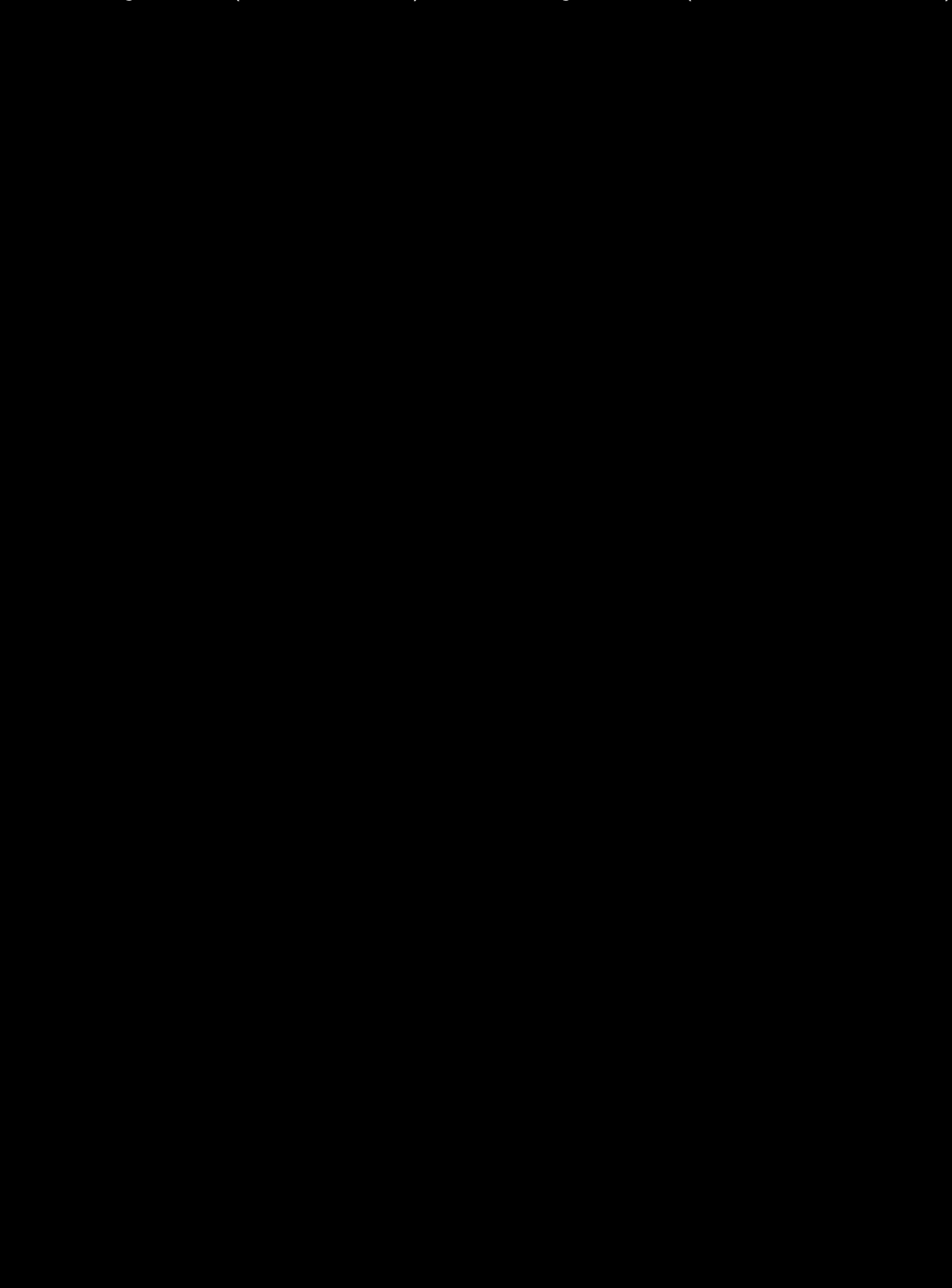
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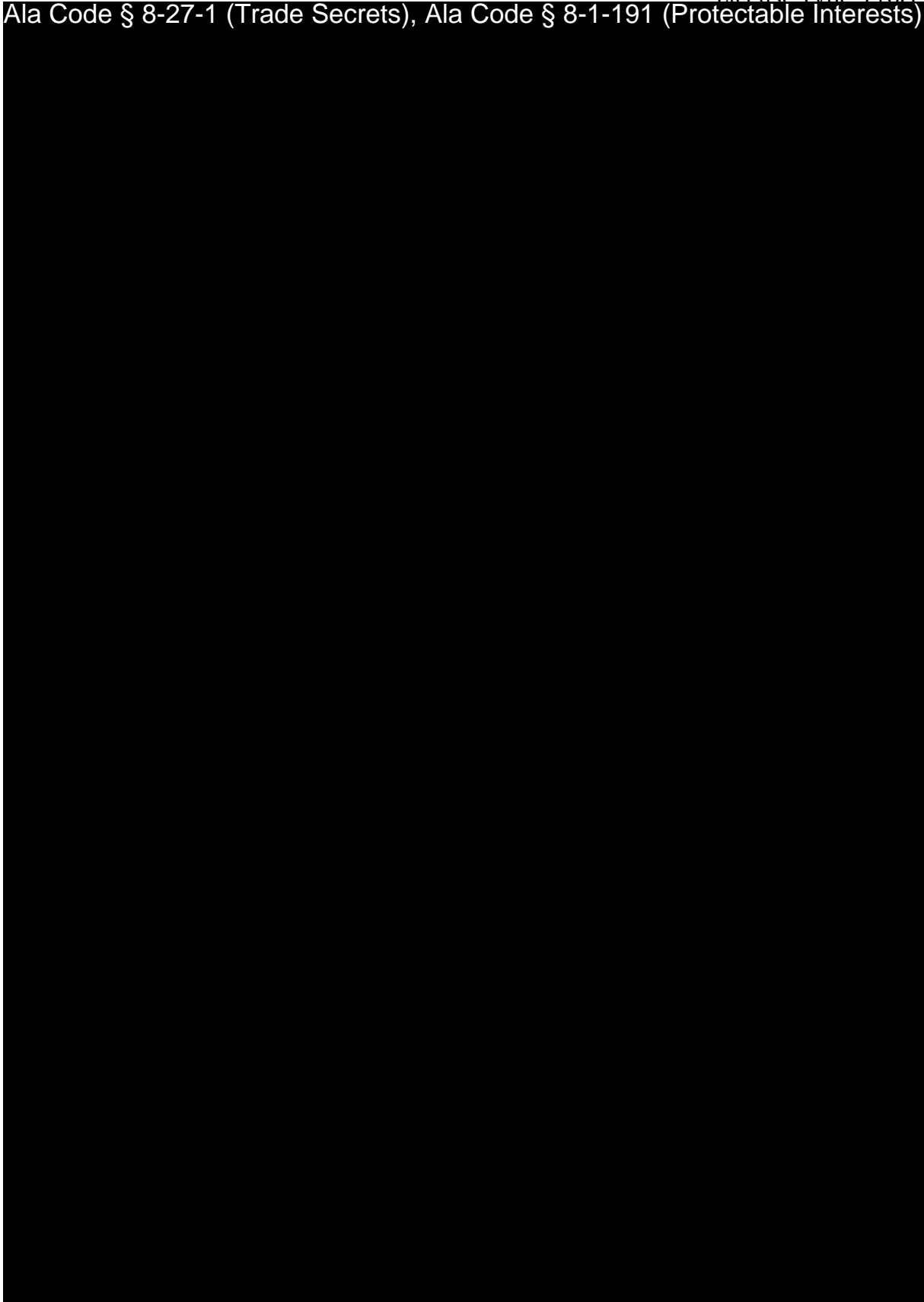
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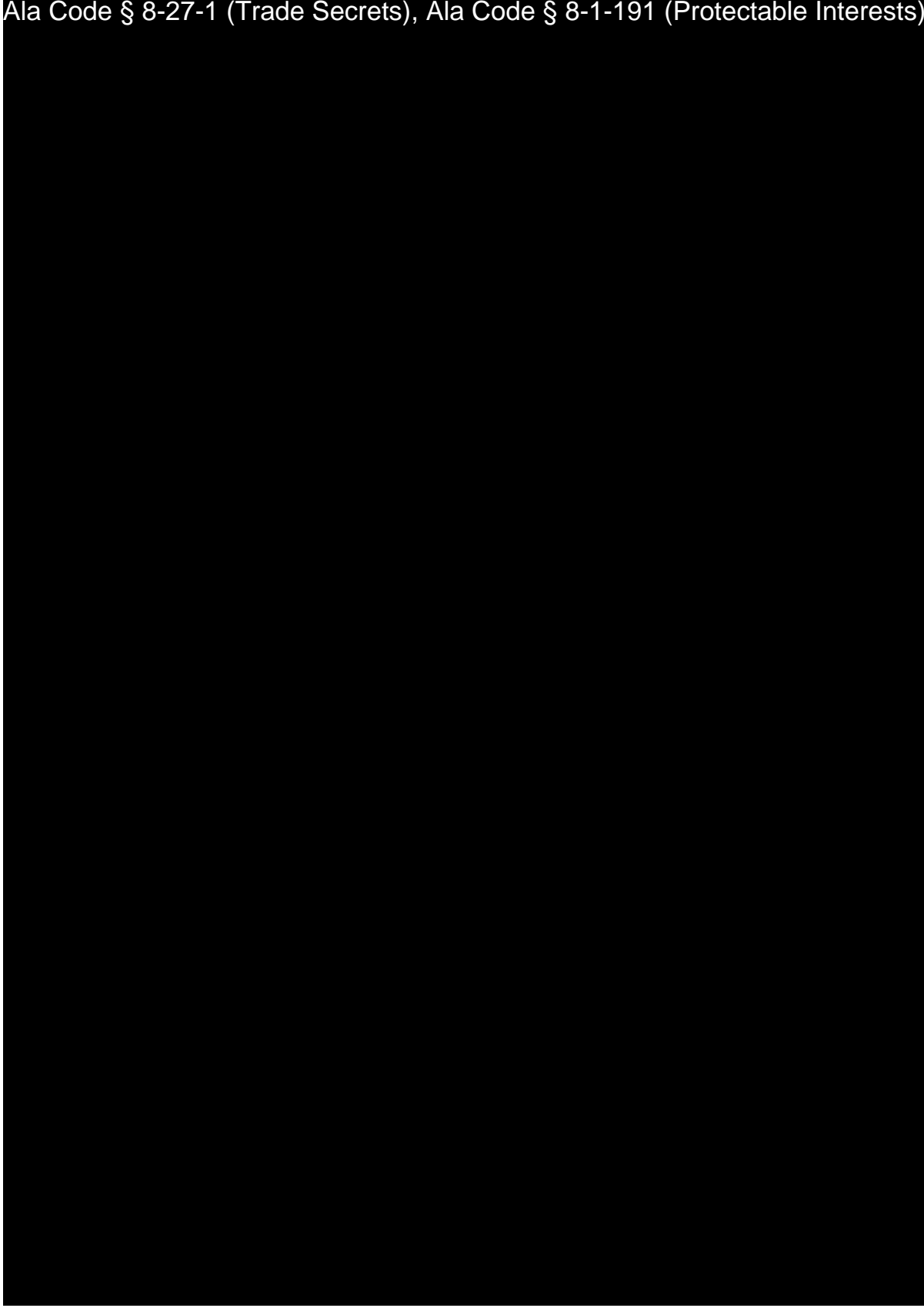
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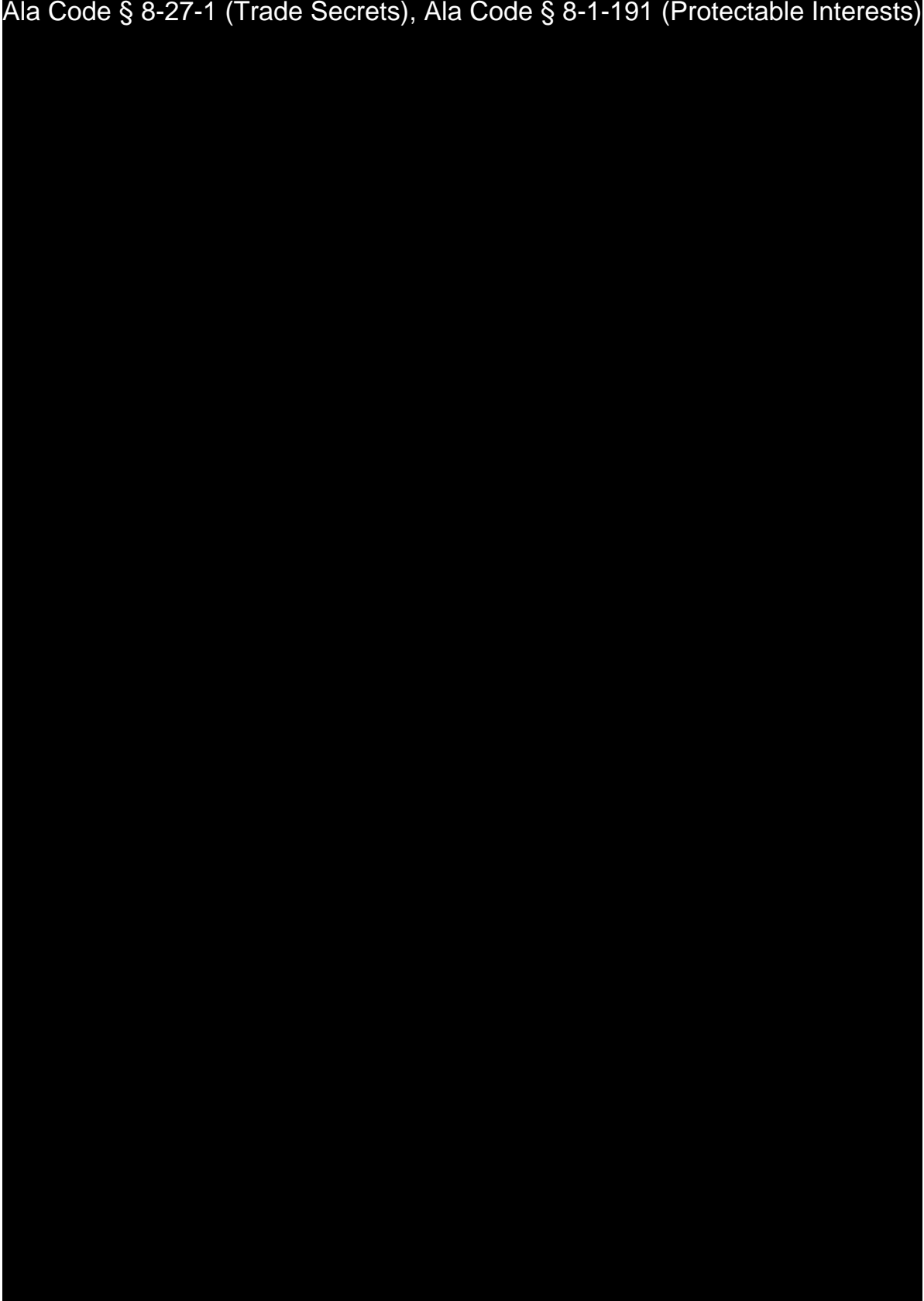
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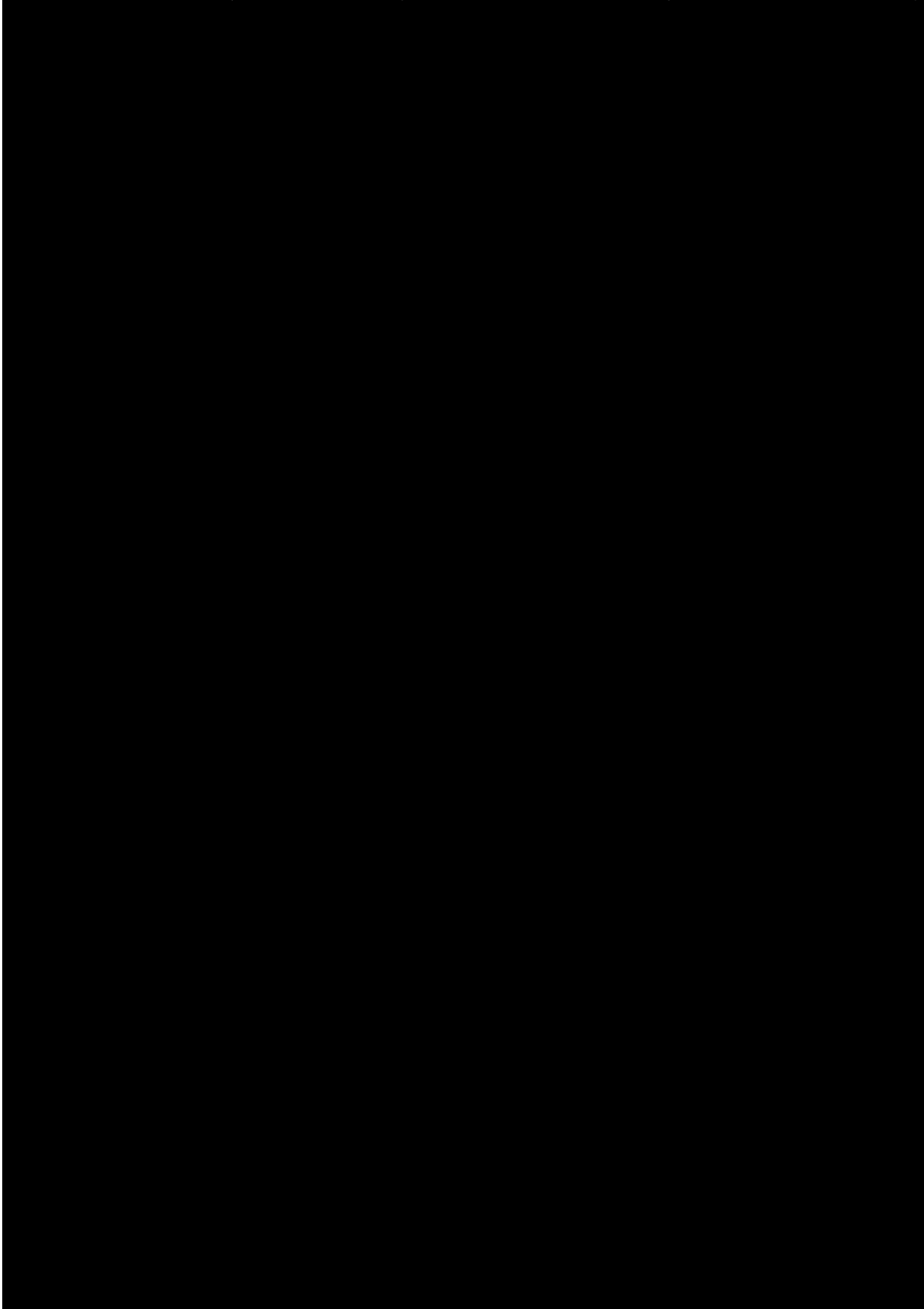
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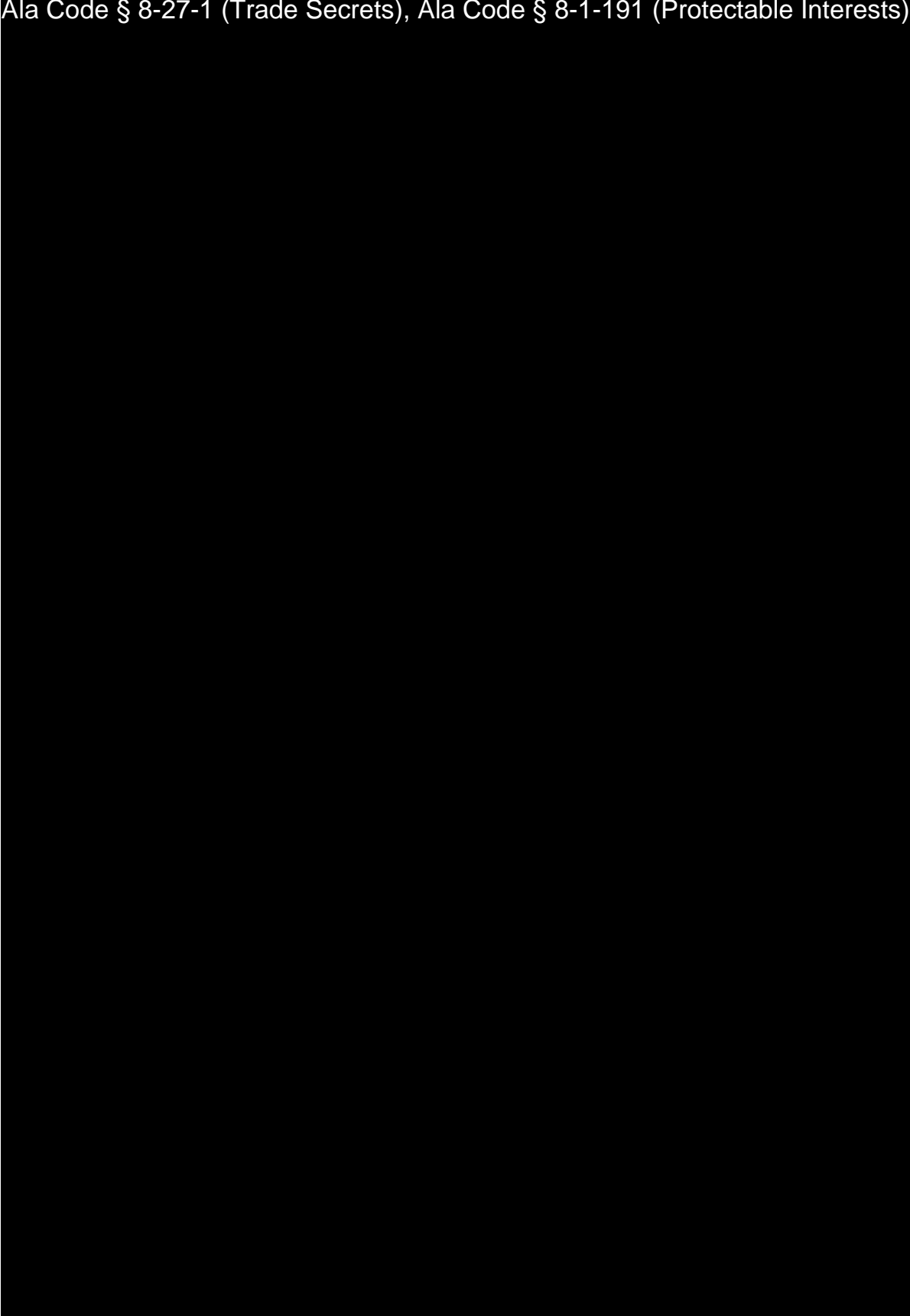
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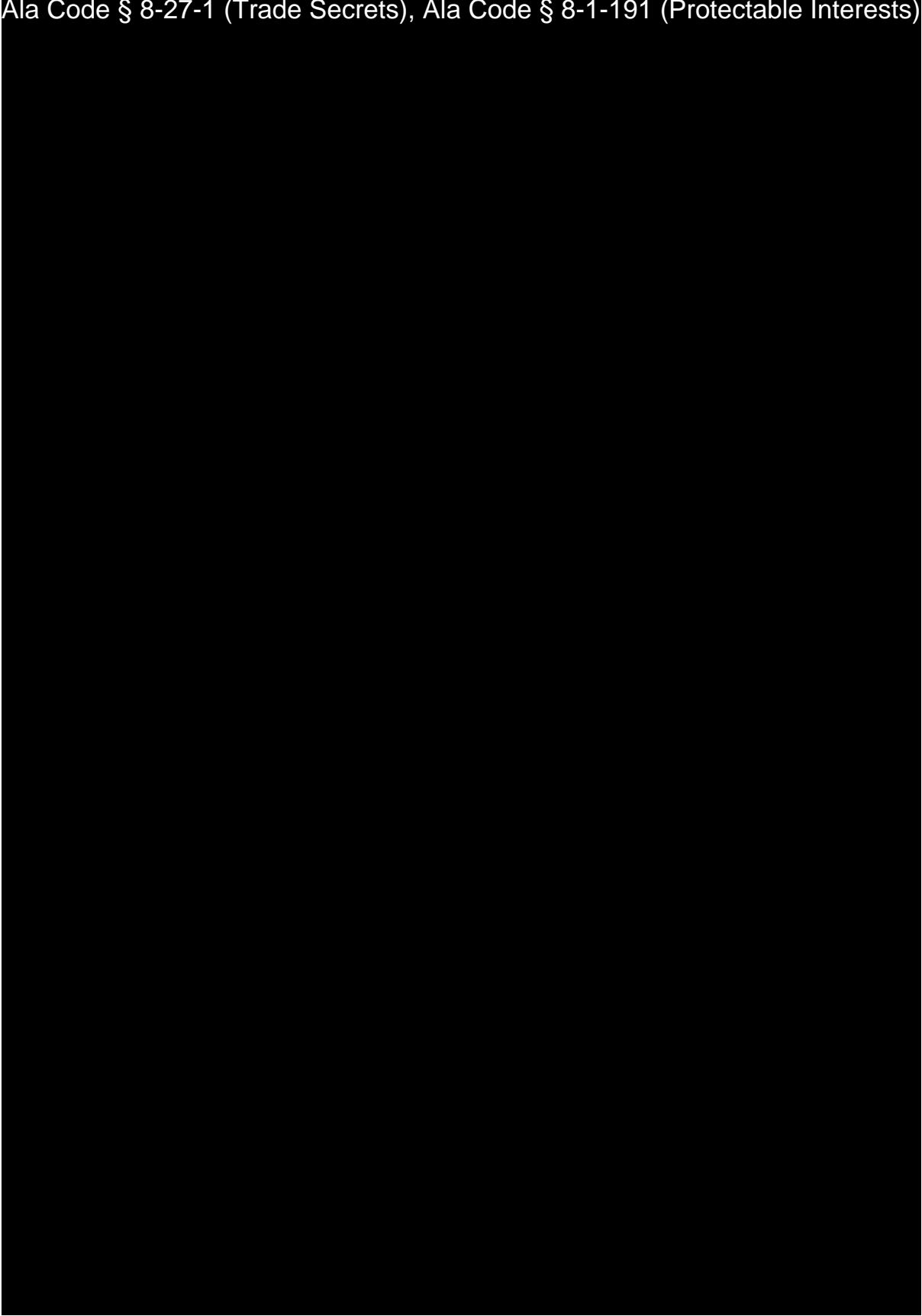
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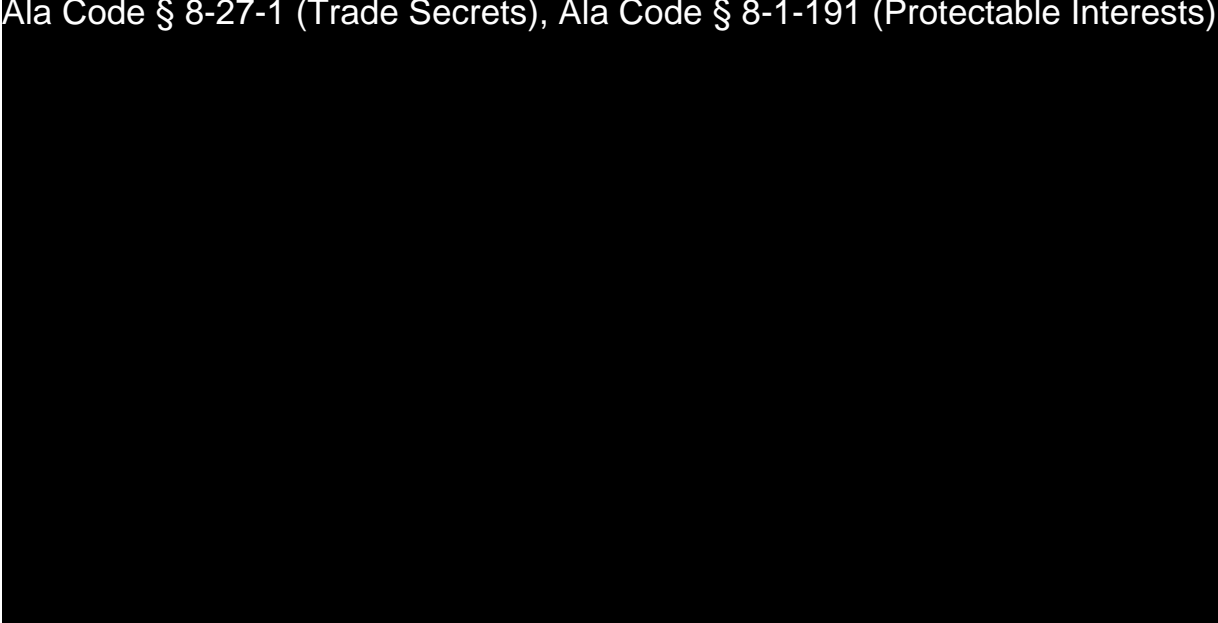
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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Processing Manuals

Applicant is in possession of all operating manuals, as applicable, and has included the manuals on an additional USB drive submitted to the AMCC along with the Original and Redacted USB drives. Due to file size limitations that exist within the AMCC's designated application submission portal, Applicant is unable to include the manuals within this exhibit.

Lease Contract — Exhibit 14, Attachment to 14.1


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)





SHOPBVV.COM

45L Centrifuge Operating Manual



1251 Frontenac Rd. Suite 150
Naperville, IL 60563
(331) 281-0154
support@shopbvv.com
www.shopbvv.com



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 ii. Cleaning and Gear Maintenance.....7
Troubleshooting.....8



Introduction

The 45L Centrifuge is designed to soak and spin dry large amounts of biomass. The unit should be operated in an appropriate space based on the solvent being used for extraction. Please read all safety information and check with your local fire marshal for any applicable laws in your area before using the unit.

Here are some features that make running the BVV Centrifuge so effective:

- Multiple Lid Ports for different configurations
- User Adjustable Settings
- Live Temperature Readout
- Low Operating Temperature
- Ex Rated Motor and Controller

General Uses and Extraction Information

Alcohol extraction is performed by soaking organic material in a solvent to separate botanical compounds. Solvent is used to carry the compounds away from the plant material, and the solvent is later distilled to leave the extracted compounds behind. This system is intended to be run with ethanol, but other solvents may be used if they are compatible with the chosen gasket material.

General Safety Information

When operated and maintained according to the directions in the manual, common practices and safety procedures, the 45L Centrifuge should provide a safe and reliable extraction process. This unit should be run only in well ventilated areas. If running the unit indoors, it must be operated in areas approved by local fire marshal, in accordance to local and state laws/ordinances. Make sure all gasket seals are cleaned with compatible solvents and checked for wear before each use.



Unit uses flammable solvents. Use caution while operating unit. ALWAYS OPERATE IN EXTREMELY WELL VENTILATED AREAS



Do not reach within the basket unless the unit is completely disconnected from the power source.



ELECTRICAL SHOCK HAZARD! Do not have the unit connected to a power source while the main control box is open.



Preparing to Extract

Before you begin, you are going to want to make sure you have the necessary supplies to run the unit. Here is a list of some things that will be needed to operate the unit.

- Tools (various wrenches/sockets)
- Solvent
- Vacuum pump and tubing
- Liquid pump and hoses
- Inline filter (recommended)
- Nitrogen gas cylinder with regulator (recommended)
- Cleaning solvent (D-limonene is recommended)

For the best results, it is recommended to chill the solvent. Chilled solvent will aid in the dewaxing process, as cold temperatures below -40°C will not immediately dissolve the fats and waxes from the plant. Solvent can be chilled by an explosion proof freezer, or a designated ethanol chiller.

This unit requires a 220V single phase circuit. The machine should be wired straight into the facility power on it's own circuit breaker. For step by step instructions on how to connect all of the wiring, please see the provided wiring document. A certified electrician is recommended.



Before beginning the first run, it is important to heavily clean all gear. Oils and metal shavings from manufacturing, as well as warehouse and packing dust can potentially be on all equipment. Failure to do so can result in contaminated extracts.



Controller

This centrifuge is controlled by a Siemens Smart Line PLC. This PLC is pre-programmed to have both a soaking cycle, shown as AGITATION TIME on the screen, and a spin drying cycle, made of 4 separate specifications. SPIN TIME 1 through 4 allow the user to choose four different speeds and however long they wish to be at each speed. All four parameters labeled as SPIN TIME combine to make one spin cycle when the Spin button is pressed. To change a parameter, simply tap on the number to be changed and type in the desired value when prompted on screen. Any number displayed within a white box can be adjusted.



SPEED SET: This number represents the RPM as a percentage of the machine max speed. In this case the max speed is 1500RPM.

SET: This column will dictate how long the centrifuge spins for a cycle or at a specified speed within the cycle. For the Agitation Time, the Set value will control the total length of the agitation cycle. The FWD/REV TIME will control how long the basket will spin in one direction before reversing to cause agitation. The “current” value will only count up while at the set speed for the agitation cycle.

CURRENT: The “current” column will give a readout of how long the basket has been spinning at the set speed. This value will not increase while the centrifuge is increasing speed between SPIN TIME values. When running the agitation cycle, it will be complete when the count of seconds in the CURRENT reaches the value in the SET column. The centrifuge will stop automatically. For the spin cycle, the centrifuge will go through all 4 set SPIN TIME values, the CURRENT column will only begin to count when the centrifuge is at the set speed. The cycle time will not account for time taken to get up to speed.

Temperature: Shows a live readout of the temperature inside the centrifuge.

Inlet Valve and Drain Valve: These are two pre-programmed buttons that can be used with electronic valves. This unit does not come standard with these valves, but leaves the option open for the user to add them in the future. Wiring instructions are included as well.



Start-up and Operation:

In this section, we will cover pre-run procedure and the operation of the centrifuge. Every extraction should be performed with a provided mesh bag. It is recommended to fill the bag outside of the centrifuge and place the bag inside once you are ready to extract. For best results use dried material and freeze the biomass below -40°C in a cryogenic freezer, this will negate part of the dewaxing process later on. Do not drop any solid pieces of botanical material between the outer wall and basket of the centrifuge, this will cause clogging of filters or damage to a liquid pump used to move the extracted solution to the next vessel. The prefilled bag should be placed in the center of the centrifuge and evened out if needed. If the packing of biomass is uneven, it may cause large vibrations at high speeds.

Always utilize the jacket of the centrifuge, whether it is a chiller continuously flowing through or just a simple vacuum jacket. The base centrifuge comes with a vacuum port on the jacket of the centrifuge. Simply hook up a vacuum pump, pull a deep vacuum, and close off the valve to hold vacuum. The built in gauge will tell you if it is ever necessary to hook up the vacuum pump and pull the jacket to a deep vacuum again by the analog readout. It is recommended to keep the jacket below -28inHg.

i. AGITATION CYCLE

After the bag has been loaded into the unit, close the centrifuge and tighten down all clamps. Solvent can be injected by using a vacuum pump hooked up the center port of the lid and a hose running out of the back port of the lid into a drum or tote of solvent. A chemically resistant diaphragm vacuum pump is recommended. If you are using pre-chilled solvent, be sure all gaskets and valves are rated appropriately. With all valves closed, open the vacuum valve on the lid of the centrifuge. You will see the gauge on the lid of the centrifuge start to drop, this means a seal is being created. For this application, it is not necessary to use a deep level of vacuum, a vacuum release valve may be triggered if the degree of vacuum goes below -15inHg. If the gauge does not move, tighten all clamps and lid mounts to be sure lid contact is being made uniformly around the centrifuge. While the liquid injection hose is submerged in the solvent, open the liquid injection valve to allow the negative pressure to suck solvent into the unit. If desired, this can be done while the centrifuge basket is moving at low speed (2-5%) for better saturation of the material. Using the built-in sight glass on the lid, watch the level of the solvent within the centrifuge. When the solvent level gets to the top of the basket, close the liquid injection valve and vacuum valve, and turn off the vacuum pump. Open the air inlet valve to equalize pressure, use nitrogen if it is preferred. DO NOT hold positive pressure within the centrifuge. Set the agitation speed between 2 and 5% to let the material tumble around while spinning, if the speed is too high the material will be pressed to the outside of the spinning drum and not get a good agitation. Setting the speed too high may also trip circuit breakers from drawing too high of amperage from the motor, or cause force against the lid gasket that causes it too leak liquid out of the centrifuge. Start the Agitation cycle and let the extraction occur naturally. Make note of the starting and ending temperatures of the extraction if you are performing low temperature extraction.

After your material has undergone the extraction process during the Agitation cycle, it is time to empty the liquid solution. While the centrifuge basket is stationary, open the air inlet port on top of the centrifuge if not already done. If you are using a liquid pump to evacuate the centrifuge, start it now.* Open the drain valve to the centrifuge and let the solution flow through the liquid pump and into your holding vessel or drum. For best



results, pass the mixture through an inline filter using the output pressure of the pump. If there is no liquid pump available, use a small amount of nitrogen pressure to push the liquid out of the centrifuge into the secondary container. Please note that over pressurizing will cause liquid to spray out of the main seal of the centrifuge. After all the mixture has drained, move on to the next cycle.

ii. SPIN CYCLE

To start the spin cycle, leave the drain valve and air inlet valves open. If you are using a liquid pump on the outlet that cannot run dry, turn it off momentarily. Press the green Spin button to start the cycle. As the centrifuge picks up speed, more solvent will be removed from the biomass. (Check inline sight glass if installed to see when to turn on the liquid pump) leave the liquid pump running at low speed throughout the duration of the spin cycle to assist in emptying the solvent and extracted oils. After the spin cycle ends and the centrifuge stops spinning, take the secondary vessel to further refinement. Be sure to leave the air inlet valve in the open position on top of the centrifuge to allow pressure to equalize. Open the lid of the centrifuge and remove the bag of spent material. The biomass can be disposed of or placed in a compost pile. Inspect the bag for any rips, and reuse the bag if possible.

Post Run Procedure:

Once the centrifuge is emptied with the lid open, use clean ethanol to wipe down the sealing gasket for the next run. If you notice any liquid that has pooled up at the bottom of the centrifuge while removing the bag and cleaning the gasket, turn on your outlet pump briefly to empty it out.



Always check chemical compatibility before using solvents to clean gaskets. Incompatible solvents will deteriorate gaskets and compromise seal. It is recommended to replace gaskets after heavy use.



DO NOT LEAVE EXCESS LIQUID IN CENTRIFUGE. FLAMMABLE SOLVENT SHOULD NOT BE ALLOWED TO EVAPORATE FREELY INTO THE ATMOSPHERE.

i. Removing the Extract:

Now that the solution has all been removed from the centrifuge, the collection vessel can be disconnected and taken to the next processing step. Depending on the extraction method and desired end product, it may be taken to a dewaxing stage or straight to an alcohol recovery stage. For more information on post processing steps, please contact BVV: (331)–281–0154



ii. Cleaning and Maintenance:

The centrifuge should be completely emptied and sanitized daily with clean solvent. Failure to do so may result in bacterial build up. Always turn off the circuit breaker when the unit is not in use to prevent accidental damage to the unit.

Troubleshooting

Issue	Possible Cause	Troubleshooting measures
Machine will not power on	Low voltage input	Using a voltmeter touch the leads to the Line and Neutral input wires, verify 220V power.
	Bad Ground Connection	Ensure the ground wire is properly connected on both ends.
The controller screen flickers on and off	Not enough usable amperage	Check the breaker/ fuses for each leg of circuit. Ensure 20A per leg.
The vacuum pump will not start to pull a vacuum	Impediments in the main sealing gasket	Wipe the main sealing gasket and sealing face with an appropriate solvent.
	Clamps are uneven	Evenly adjust all clamping fixtures around the lid. None should have movement after the lid is shut.
The screen displays that the motor is running but the centrifuge is not spinning	Broken drive belt	Replace item

Replacement parts are available upon request, please call for more information.

-86°C Ultra Low Temperature Freezer

Installation Operation Manual



IOM

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Model Covered:

Model	Capacity (liters)	Voltage(V/Hz)
BVV-86C162	480	110V/60Hz
BVV-86C25	650	110V/60Hz

Packing List:

Part Number	Description	Quantity	Part Number	Description	Quantity
1	Door key	2	5	Fuse	1
2	Controller box key	2	6	Remote Alarm Connector (WS16-3)	1
3	IOM	1	7	Backup system Connector (WS16-2)	1
4	Screw trim cap	6	8	Deicing shovel	1



Important Read this instruction manual. Failure to read, understand and follow the instructions in this manual may result in damage to the unit, injury to operating personnel, and poor equipment performance.

Caution All internal adjustments and maintenance must be performed by qualified service personnel.

Material in this manual is for information purposes only. The contents and the product it describes are subject to change without notice.

Symbol descriptions related to this product:

Important operating and/or maintenance instructions. Read the accompanying text carefully.



Potential electrical hazards. Only qualified persons should perform procedures associated with this symbol.



Extreme temperature hazards, hot or cold. Use special handling equipment or wear special, protective clothing.



Hot surface(s) present which may cause burns to unprotected skin, or to materials which may be damaged by elevated temperatures.



Marking of electrical and electronic equipment, which applies to electrical and electronic equipment falling under the Directive 2002/96/EC (WEEE) and the equipment that has been put on the market after 13 August 2005.

This product is required to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2002/96/EC. It is marked with the WEEE symbol.

if the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

- ✓ Always use the proper protective equipment (clothing, gloves, goggles, etc.)
- ✓ Always dissipate extreme cold or heat and wear protective clothing.
- ✓ Always follow good hygiene practices.
- ✓ Each individual is responsible for his or her own safety.

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Section 1 Installation and Start-Up

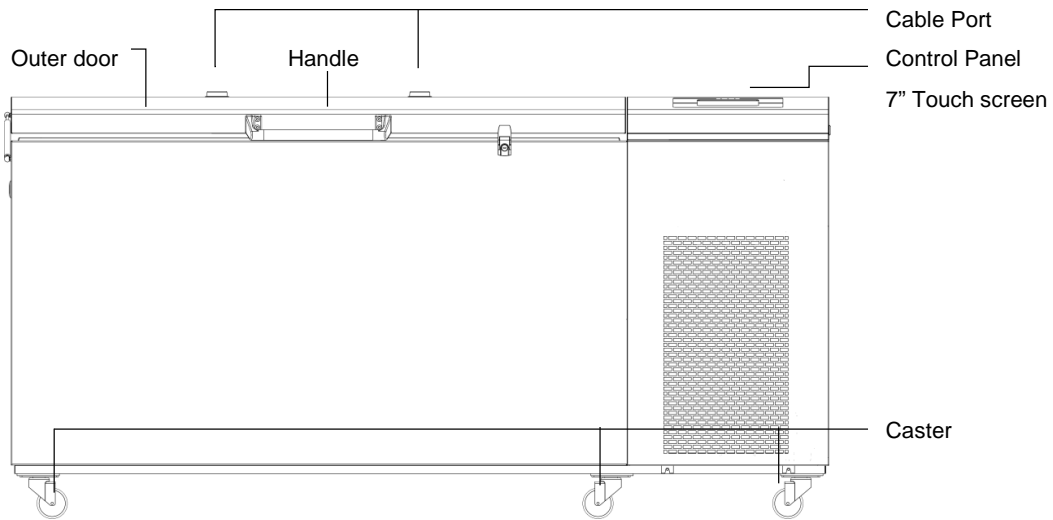


Figure 1-1. Freezer Front View Components

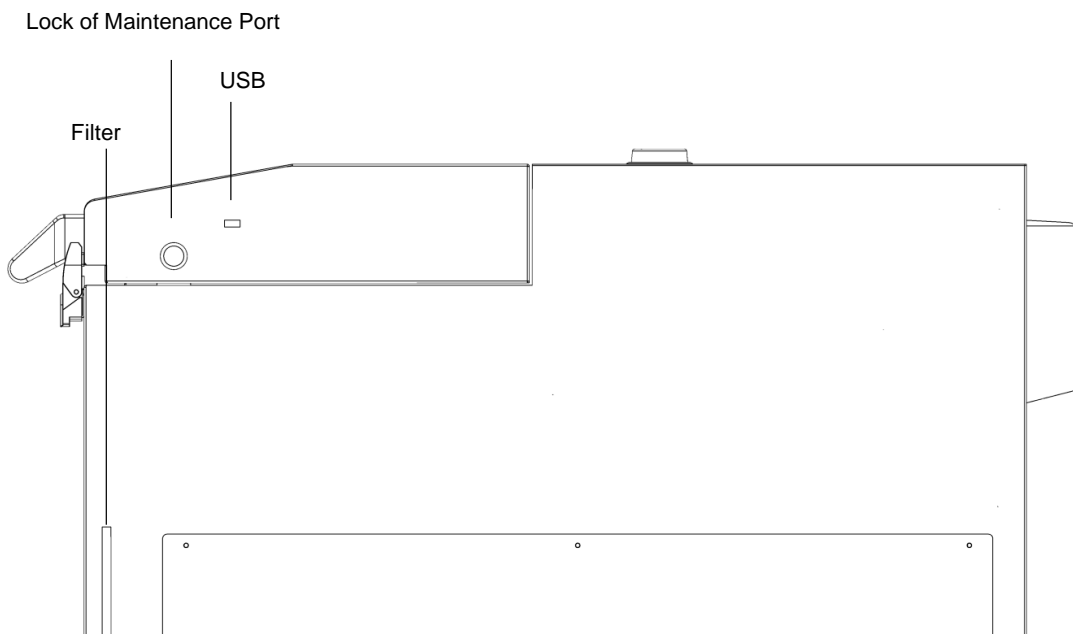


Figure 1-2. Freezer right side View Components

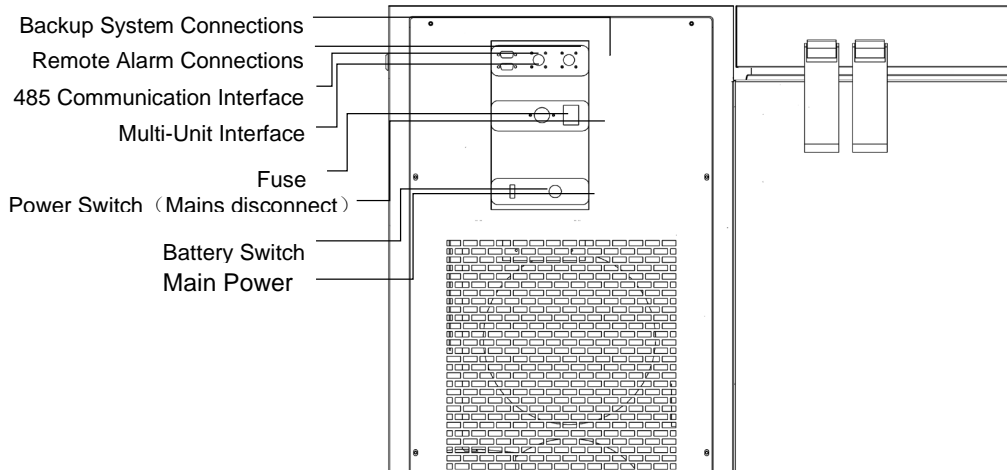


Figure 1-3. Freezer right side View Components

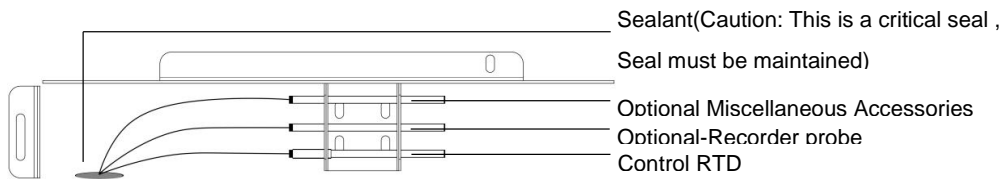


Figure 1-4. Chamber Probe

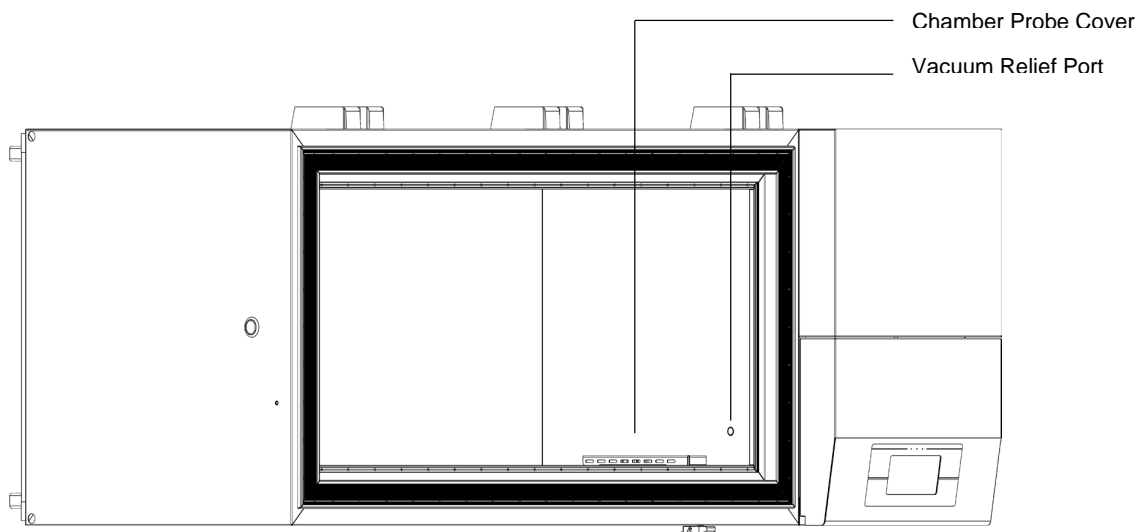


Figure 1-5. Vacuum Relief and Probe Cover Location

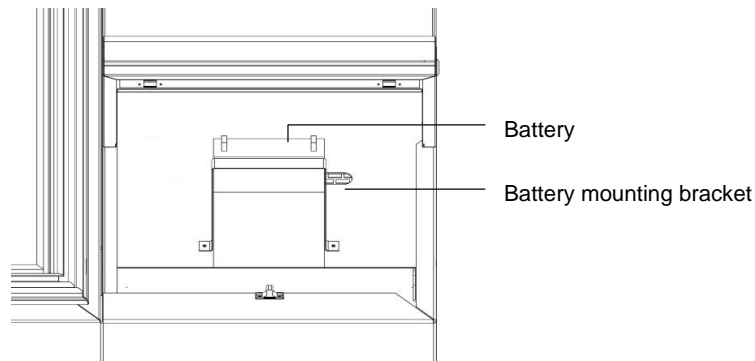


Figure 1-6. Battery location

Install Freezer

Note: If tipped more than 45°, allow the unit to sit upright for 24 hours before start up.

Choose Location

When the freezer is in position, set the front caster brakes.

Note: The freezer must not be moved with the product load inside.

Note: For proper ventilation and airflow, a minimum clearance of 127mm at the rear and top and a clearance of 203mm on the side of the freezer is required. Allow adequate space in the front of the freezer for door opening. Locate the freezer on a firm, level surface in an area with an ambient temperature between 18°C and 32°C.

Provide ample room to reach the mains disconnect switch (power switch) located on the rear of the freezer.

Remote Alarm Contacts

See Figure 1-3 for the location of the remote alarm contacts.

The remote alarm connector is located in the parts bag provided with the manual. If you need to connect the cryogenic storage box to the independent alarm system, you need to connect the alarm system to the aviation plug, insert the remote alarm interface, and lock the nut clockwise.

The remote alarm connector is equipped with a normally open (NO) output, an normally closed (NC) output and a common end (COM) . Connect the interface can trigger the alarm generated by the unit

Connect Unit to Electrical Power

When the product is powered on for the first time, please refer to the following steps:

- 1) Check the location of the external components of the product to ensure that the external components of the product are not damaged.
- 2) See the serial tag on the side of the unit for electrical specifications or refer to the electrical schematics in this manual. The freezer should be operated on a dedicated grounded service. Check the voltage rating on the serial tag of the unit and compare it with the outlet voltage. Then, with the power switch turned off, plug the line cord into the wall outlet.
- 3) Check whether the power switch of the unit is in the OFF state. If not, please dial to the OFF position, ON–“ I ”, OFF–“ O ”(as shown in Figure 1-7), insert the power cord into the power socket and turn on the power switch (I).
- 4) Check whether the battery switch is in the ON state. If not, please dial to the ON position. ON–“ I ”, OFF–“ O ” (as shown in Figure 1-8), (If you hear an alarm, press the buzzer silence button (BUZZER) to stop the buzzing)。

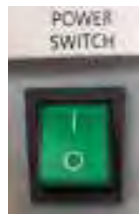


Figure 1-7. Power switch



Figure 1-8. Battery switch

Note: Make sure the battery switch is set to standby mode. “Low battery” alarm will be issued when the battery is low. Should a power failure occur during the initial start-up period, the electronics will have limited operation.

Parameter setting

- 1) After the product is powered on, the display will automatically enter the screen saver, and the temperature in the freezer will be displayed in real time in the screen saver. As shown in Figure 1-9.



Figure 1-9.

2) Touch anywhere on the screen saver to enter the home page. As shown in Figure 1-10.

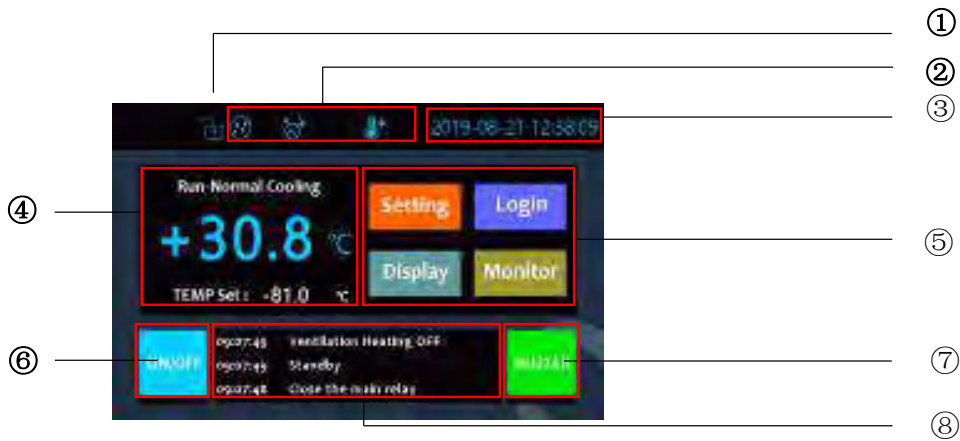
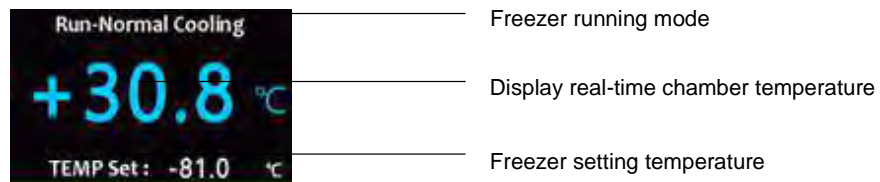


Figure 1-10.

In the home page,

- ① —Log in / Log out icon, it turns to blue after log in and turns to grey after log out.
- ② —Options icon, display after activation
- ③ —Time display area.
- ④ —Chamber temperature display area.



- ⑤ —Main operating area including four buttons.



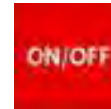
⑥ —Freezer “ON/OFF” button.



Freezer standby



Freezer running



Freezer shutting down

⑦ —“BUZZER” button

⑧ —Running records display area, display the latest three records.

- 3) Touch the “Login” button and put in the login username “admin” and password “8888”, as shown in Figure 1-11. all buttons are activated after the user logs in, as shown in Figure 1-12.

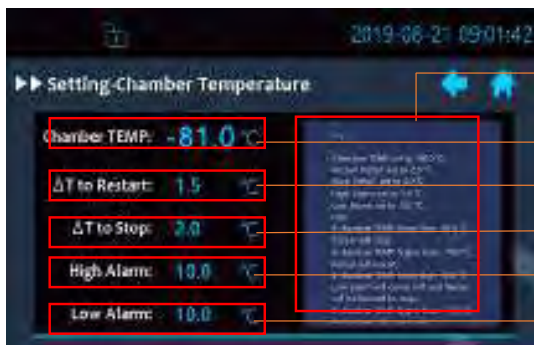


Figure 1-11.



Figure 1-12.

- 4) Touch the temperature display area from the home page to enter the temperature setting page, as shown in Figure 1-13.



- Examples of temperature settings. Touch on the font in this area to enlarge it, as shown in Figure 1-14.
- Set the chamber temperature
- Set the ΔT (when the TEMP reaches $T+\Delta T$) to restart
- Set the ΔT (when the TEMP falls to $T-\Delta T$)to stop
- Set the high alarm ΔT
- Set the low alarm ΔT

Figure 1-13.

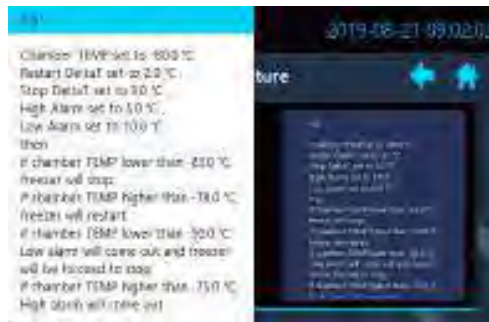


Figure 1-14.

- 5) Touch the running record display area from the home page to enter the running record page, as shown in Figure 1-15.



Figure 1-15.

The running history of the freezer are displayed in the running record page, slide the right scroll bar to view more history; Insert U disk into the right interface of the control panel. Touch the "Data Download" button, the history data will be saved to the U disk, the file format is .csv, and they can be opened by Excel to view.

- 6) Touch the time display area from the home page to enter the data/time modification page, as shown in Figure 1-16.

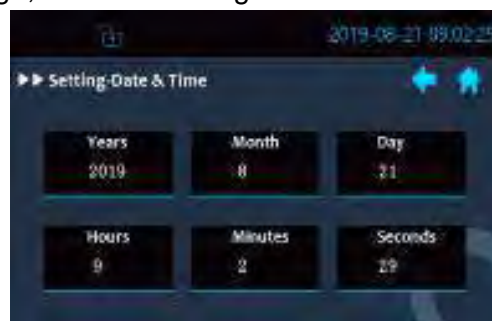


Figure 1-16.

In the data/time modification page, digital keyboard pops up by touching on the numbers. Put in the corresponding time to change the date or time.

- 7) Touch the "Setting" button from the home page to enter the setting page,

as shown in Figure 1-17.



Figure 1-17

- 8) Touch the “User Management” button from the setting page to enter the user management page, as shown in Figure 1-18.



Figure 1-18.

The current registered users can be viewed in the user management page, There are two buttons on the right side, "Add user" and "Delete User". The “Add User” window pops up by touching the “Add User” button. In this window you can add users and set the current user's usage rights, as shown in Figure 1-19.



Figure 1-19.

The “Delete User” window pops up by touching the “Delete User” button, The user will be deleted after putting in the user name and the password in this window, as shown in Figure 1-20.



Figure 1-20.

- 9) Touch the “System settings” button from the setting page to enter the System settings page, as shown in Figure 1-21.



Figure 1-21.

Digital keyboard pops up by touching the number location of “Screen saver” / “Backlight”. Put in the number to set the time of “Screen saver” / “Backlight”. The backlight intensity can be adjusted by click the “+” or “-” or slide the scroll bar of “Backlight intensity”. The click tone can be set up by click the “ON” or “OFF” or slide the scroll bar of “Click tone”.

- 10) Touch the “Delay settings” button from the setting page to enter the Delay settings page, as shown in Figure 1-22.



Figure 1-22.

Digital keyboard pops up by touching the number location of “Door open” (the blue number is editable). Input the number to set the delay time.

Freezer Start-Up

Freezer will run by touching the “ON/OFF” button in the home page after the parameter settings.

Data/Information Retrieval

- 1) Touch the “Display” button from the home page to enter the Display page, as shown in Figure 1-23.



Figure 1-23.

- 2) Touch the “Operating Log” button from the display page to enter the operating log page, as shown in Figure 1-24.



Figure 1-24.

The operation records of the current user can be viewed in the operating log page. Touch the left button of “Search” button to put in the target date, then touch the "search" button to view the operation records of the user in certain day.

- 3) Touch the “Temp Log” button from the display page to enter the temperature log page, as shown in Figure 1-25.

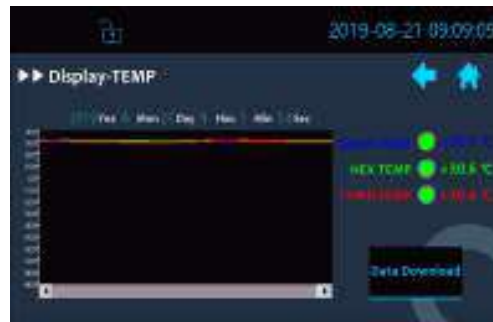



Figure 1-25.

The trend of chamber temperature can be viewed in the temperature log page. TEMP Limit window pops up by touching the ordinates, the TEMP Limit can be adjusted in this window, as shown in Figure 1-26. Touch on the display area of the curve to see the corresponding temperature values at the point. Double-click on the display area of the curve to zoom in the display curve; Press the display area of the curve and slide on the screen to enlarge

a section of the temperature curve; Touch the circle button  on the right to display or hide the corresponding temperature curve. Insert U disk into the right interface of the control panel. Touch the "Data Download" button, the history data will be saved to the U disk, the file format is .csv, and they can be opened by Excel to view.

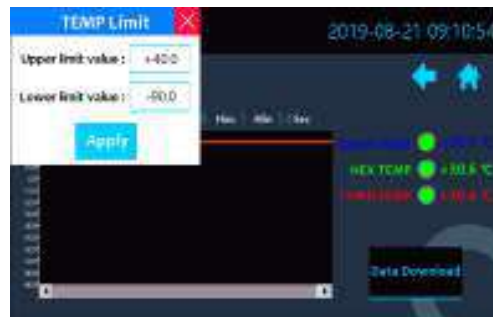


Figure 1-26.

- 4) Touch the "Alarm Event" button from the display page to enter the alarm log page, as shown in Figure 1-27.

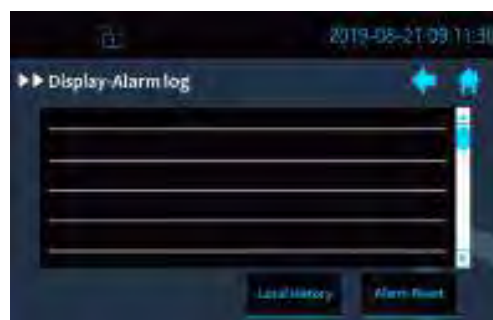
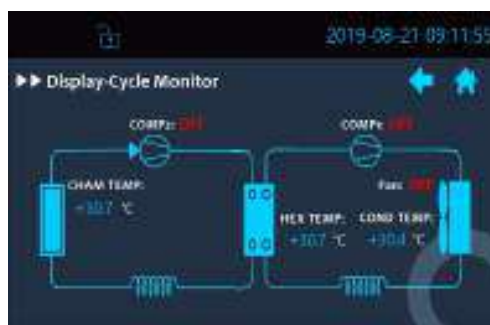


Figure 1-27.

Alarm histories in the operation of products can be viewed in the alarm log page. Click the "Data Download" button, the history data will be saved to the U disk, the file format is .csv, and they can be opened by Excel to view. The history alarm information will be cleared and only the current alarm message will be retained by touching the "Alarm reset" button.

- 5) Touch the "Cycle Monitor" button from the display page to enter the Cycle Monitor page, as shown in Figure 1-28.

**Figure 1-28.**

The running states of the freezer and temperature values at various locations can be viewed in the Cycle Monitor page.

BOT Mode

Touch the "BOT" button from the setting page to enter the BOT page, as shown in Figure 1-29.

**Figure 1-29.**

Digital keyboard pops up by touching the blue numbers. Put in the number to set the BOT running time. The gray numbers after the "remaining" represents the remaining time of BOT Mode and it is non-editable. Commands to be performed by the freezer after the BOT Mode can be set up by turning the right block icon into blue.

Section 2 Calibrate

Once the freezer has stabilized, the control probe may need to be calibrated. Calibration frequency is dependent on use, ambient conditions and accuracy required. A good laboratory practice would require at least an annual calibration check. On new installations, all parameters should be checked after the stabilization period.

Caution Before making any calibration or adjustments to the unit, it is imperative that all reference instruments be properly calibrated.

Calibrate Control Probe

Connect the thermocouple used for calibration to the data recorder. Then place it in the same position as the temperature sensor that needs to be calibrated. Compare two temperature display values. Touch the “Calibration” button from the setting page to enter the calibration page, as shown in Figure 2-1.

Digital keyboard pops up by touching the corresponding number location. Put in the number to set the adjustment value. Parameter setting instructions window pops up by touching the “Cham TEMP”, “HEX TEMP”, “Cond TEMP” or “Spare TEMP”, as shown in Figure 2-2. Complete the calibration referring to the instructions.



Figure 2-1.



Figure 2-2.

Temperature Stabilization Periods

Startup - Allow 12 hours for the temperature in the cabinet to stabilize before proceeding.

Already Operating - Allow at least 2 hours after the display reaches set point for temperature to stabilize before proceeding.

Section 3 Alarms

The -86C ULT upright freezer alarms are displayed on the freezer control panel. When an alarm is active, The alarm message will be displayed in the alarm record screen, and there will be an audible alarm in the home page screen .Press the “BUZZER” key to disable the audible alarm. The alarms are momentary alarms only. When an alarm condition occurs and then returns to normal, the freezer automatically clears the alarm condition.

** All alarm delays have an deviation of ± 5 seconds.*

** Battery detection will be carried out automatically immediately after the unit is powered on.*

Trouble shooting

Trouble indication	Possible reasons	Solution
Power supply failure	<ul style="list-style-type: none"> Power input does not meet the requirements The main switch of the power supply is not closed Power failure 	<ul style="list-style-type: none"> Check the power supply is normal
Low battery	<ul style="list-style-type: none"> Disconnect the battery switch Low battery 	<ul style="list-style-type: none"> Close the battery switch for charging
Abnormal chamber TEMP	<ul style="list-style-type: none"> Disconnection of line The temperature sensor in the chamber is damaged 	<ul style="list-style-type: none"> Check whether the wiring is loose or detached Replace the temperature sensor
Abnormal HEX TEMP	<ul style="list-style-type: none"> Disconnection of line The heat exchanger temperature sensor is damaged 	<ul style="list-style-type: none"> Check whether the wiring is loose or detached Replace the temperature sensor
Abnormal COND TEMP	<ul style="list-style-type: none"> Disconnection of line The condenser temperature is too high The condenser temperature sensor is damaged Too much dust accumulated in the filter of condenser 	<ul style="list-style-type: none"> Check whether the wiring is loose or detached Improve the ambient temperature Replace the temperature sensor Clean the filter
High TEMP	<ul style="list-style-type: none"> The actual temperature in the chamber is larger than the preset allowable temperature range. 	<ul style="list-style-type: none"> Check whether the high temperature alarm value is too small
Low TEMP	<ul style="list-style-type: none"> The actual temperature in the chamber is less than the preset allowable deviation temperature. 	<ul style="list-style-type: none"> Check whether the low temperature alarm value is too small
Compressor Not Turning On	<ul style="list-style-type: none"> Either Both Compressors or one compressor fail to turn after adequate startup time or screen indicates it is on but it is in fact off. 	<ul style="list-style-type: none"> Reset Relays with pressing blue reset buttons on relay modules. (See appendix 1)

Chamber Temperature wrong	<ul style="list-style-type: none"> If the chamber temperature displayed at startup is inaccurate. 	<ul style="list-style-type: none"> Correct and verify calibration settings (See Appendix 2)
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※ In case of any fault, the user is not allowed to disassemble the product for repair or replace parts. The user must contact the BVV before attempting to service the unit!

Section 4 Maintenance

Clean Exterior Cabinet

Wipe down the freezer exterior using soap and water and a general use laboratory disinfectant. Rinse thoroughly with clean water and dry with a soft cloth.

Caution: Avoid excessive use of water around the control area due to the risk of electrical shock. Damage to the controls may also result.

Clean Air Filter

The air filter should be cleaned four times a year, minimum.

1. Pull out the filter.
2. Wash the filter material with water and mild detergent.
3. Dry by pressing between two towels.
4. Install the filter back.



Figure 4-1. Location of Filter

Defrost Chamber

1. Remove all product and place it in another freezer.
2. Turn the unit off and disconnect it from the power source.
3. Open the door and place towels on the chamber floor.
4. Allow the frost to melt and become loose.
5. Remove the frost with a soft cloth.
6. After defrosting is complete, clean the interior with a non-chloride detergent.

Rinse thoroughly with clean water and dry with a soft cloth.

7. Plug unit in and turn power switch on
8. Allow the freezer to operate empty overnight before reloading the product.

Clean Door Gasket

The door gasket should be cleaned monthly, minimum. Using a soft cloth, remove any frost build-up from the gasket and door(s). The door gasket may need to be cleaned more frequently if dirt or excessive frost build-up prevents the door from closing properly.

Vacuum Relief Port

The exterior door gasket provides an excellent seal to protect product, provide an energy efficient thermal barrier to keep cold air in and room temperature air out, and reduce frost build up on the inner doors.

Because the door gasket seals so well, a vacuum can be created after a door opening. Warm air enters the cabinet, cools and contracts, creating a vacuum that pulls the door in tightly against the seal.

To equalize the pressure inside the cabinet after a door opening requires 1.5-3.0 cu.ft. of ambient air to be drawn into the cabinet. The amount of air required to equalize the pressure varies depending on the cabinet size, cabinet temperature, duration of door opening, inventory volume and the temperature/humidity of the ambient air. The unit is designed with a "vacuum relief port" that allows the pressure to be equalized.

The time required to draw 1.5-3.0 cu.ft. of air into the cabinet depends on two factors:

1. the size and number of paths available for the air to enter the cabinet, and
 2. the pressure difference between the internal cabinet and the ambient room.
- Cabinets with the vacuum relief port operating normally, (i.e. vacuum relief port is not iced over) will require a minimum of 30 seconds up to a maximum of 120 seconds for the cabinet to equalize. This is also a good indication that the exterior door is well sealed.

The vacuum relief port requires routine maintenance. It will ice over unless preventive measures are taken. If the vacuum relief port becomes iced over, the freezer will take several hours to equalize pressure.

Warning: Do not leave the freezer unattended while the door is unlatched. The vacuum could release, resulting in a door opening and possible product loss.

Observe the inner side of port periodically for frost and ice build-up. Remove any frost with a soft dry cloth. If the tube should become clogged with ice, it

must be cleaned. **Make sure during cleaning that the vacuum relief tube is completely free of ice to prevent rapid ice formation.**

Factors that can affect the performance of the vacuum relief port include: high ambient temperature and high humidity conditions and frequent door openings. Maintenance should be performed weekly or as needed.

Warning: Failure to maintain the vacuum relief port may result in excessive ice build up inside the tube, clogging the port, and inability to open the door. The vacuum relief port may need to be cleaned more often with frequent door openings and high humidity environments.

Replace Battery

1. See Figure 1-2 for the location of the battery power switch, Turn the battery power switch to the off position (O).
2. Remove the battery mounting bracket.
3. Disconnect the battery connections.
4. Remove the old battery and install the new battery.
5. Reconnect the battery.
6. Turn the battery switch to Standby mode (I)
7. Re-install the battery mounting bracket.

Warning: The % of charge can vary depending on the age, usage and condition of the battery. For a consistent and dependable charge, replace the battery every 2 years. Replacement batteries must be rechargeable. Refer to the parts list for stock number and description of the replacement batteries. Dispose of the used batteries in a safe manner and in accordance with good environmental practices.

Prepare Unit for Storage

Defrost the unit as described in 'Defrost Freezer'. This will prepare the unit for storage. Turn off the battery power switch (O). Turn off the freezer power switch. Disconnect power to the battery(s) and to the freezer.

Note: If the unit has been in service, turn it off and disconnect the power cord connector before proceeding with any maintenance.

PREVENTIVE MAINTENANCE

Freezers

Your equipment has been thoroughly tested and calibrated before shipment. Regular preventive maintenance is important to keep your unit functioning properly. The operator should perform routine cleaning and maintenance on a regular basis. For maximum performance and efficiency, it is recommended that the unit be checked and calibrated periodically by a qualified service technician.

The following is a condensed list of preventive maintenance requirements. See the specified section of the instruction manual for further details.

We have qualified service technicians, using NIST traceable instruments, available in many areas. For more information on Preventive Maintenance or Extended Warranties, please contact the Technical Services Department. Cleaning and calibration adjustment intervals are dependent upon use, environmental conditions and accuracy required.

Tips:

- Fill a chest by starting at the left side near the probe. Filling with room temperature racks will result in a long pull-down time.
- Fill unit with frozen product to help overall performance; frozen water jugs, for example.
- Always make certain the vacuum relief port is free of frost and ice, to allow for timely re-entry into the freezer after a door opening.

Action	Monthly	Yearly	Every 2 Years
Verify ambient temperature, <32.2°C	√		
Check and clean probe cover, gaskets, hinges and door(s) of ice and snow. See Figure 1-4 for probe location. See "Cleaning the Door Gasket".	√ <i>More frequent cleaning may be required, depending on use and environmental conditions.</i>		
Check air filter. Clean or replace as needed. See "Cleaning the Air Filter".		√ 4 times	
Check alarm back-up battery. See "Connecting the unit to Electrical Power" in Section 1 and "Replacing the Battery" in Section 4	√		** Replace
Check condenser fan motor for unusual motor noise or vibration.		√	
* Verify and document calibration, at the minimum, annually. See Section 2 Calibration		√	

* Qualified service technicians only

** Dispose of properly, according to all state and federal regulations.

To minimize ice build-up inside of freezer:

- Locate the freezer away from drafts or heating/cooling vents
- Keep the number of door openings to a minimum
- Minimize the length of time door is open

Section 5 Specifications

Model Number	BVV-86C162
Capacity	480 liters
Temperature Range	-50°C (-58°F) to -86°C (-123°F) in an 32°C (89.6°F) ambient
Exterior Dimensions	79.8"W x 41.3" H x 36.3" F-B (202.6cm x 105.0cm x 92.1cm)
Interior Dimensions	51.6"W x 25.1"H x 23.2" F-B (131cm x 63.7cm x 58.9cm)
Insulation	Non CFC, foamed-in-place urethane
Electrical	110V~ (±10%) , 60 Hz

Model Number	BVV-86C25
Capacity	650 liters
Temperature Range	-50°C (-58°F) to -86°C (-123°F) in an 32°C (89.6°F) ambient
Exterior Dimensions	79.8"W x 41.3" H x 43.8" F-B (202.6cm x 105.0cm x 111.2cm)
Interior Dimensions	51.6"W x 25.1"H x 30.7" F-B (131cm x 63.7cm x 78.0cm)
Insulation	Non CFC, foamed-in-place urethane
Electrical	110V~ (±10%) , 60 Hz

Safety Specifications

Indoor Use Only

Altitude - up to 2,000 meters

Temperature - 5°C to 40°C

Humidity - Maximum RH 80% for temperatures up to 31°C, decreasing linearly to 50% RH at 40°C

Mains Supply Fluctuations - Mains supply voltage fluctuations not to exceed ±10% of the nominal voltage

Installation Category II ¹

Pollution Degree 2²

Class of Equipment I

Intended Use

This product is intended for use as a General Purpose Laboratory Freezer for storing samples or inventory between -50 and -86°C

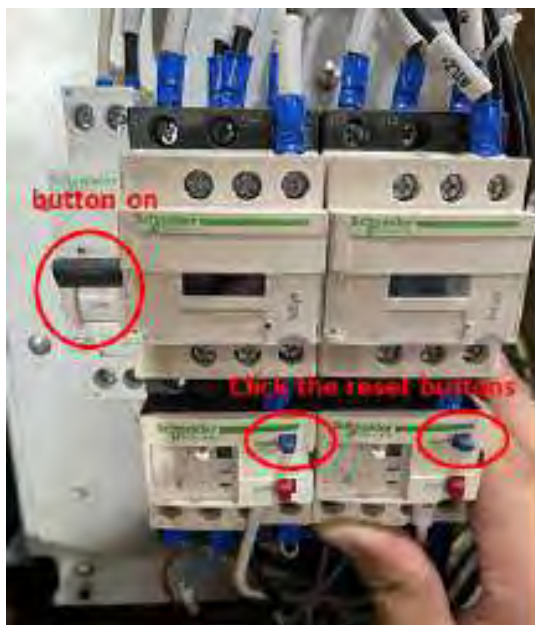
This unit is not intended for use in an explosive environment, nor to be used for the storage of flammable inventory.

1 *Installation category (overvoltage category) defines the level of transient overvoltage which the instrument is designed to withstand safely. It depends on the nature of the electricity supply and its overvoltage protection means. For example, in CAT II which is the category used for instruments in installations supplied from a supply comparable to public mains such as hospital and research laboratories and most industrial laboratories, the expected transient overvoltage is 2500V for a 230V supply.*

2 *Pollution degree describes the amount of conductive pollution present in the operating environment. Pollution degree 2 assumes that normally only non-conductive pollution such as dust occurs with the exception of occasional conductivity caused by condensations.*

Appendix 1

To reset breakers if compressors fail to turn on, Ensure the main line breaker is in the on position at the far left. Then click the reset buttons to reset the relays. (if this does not fix the compressor issue contact BVV)



Compressor 1 left, Compressor 2 Right.

Appendix 2

In order for correct operation of the temperature probes and software, ensure your settings calibration menu matches the screen below.





Recirculating Chiller Manual

Model: UC Series

5/10, 20/20, 20/40, 30/30, 30/40, 50/30, 50/40, 30/80



All Chillers  Certified

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Safety Precautions and Explanations

At USA Lab, safety is our number one priority. The following information provides guidelines for safety when using USA Lab equipment. Any piece of machinery can become dangerous to personnel when improperly operated or poorly maintained. ALL employees operating and maintaining USA Lab equipment should be familiar with its operation, thoroughly trained, and instructed on the best safety practices. Most industry accidents are preventable through safety awareness.

Training

It is the responsibility of the customer to ensure that all personnel who will be expected to operate or maintain the equipment. Participate in training and instruction sessions to become trained operators. All personnel operating, inspecting, servicing, or cleaning this equipment must be properly trained in the operation and machine safety. **BEFORE** operating this equipment, read the operating instructions in this equipment manual.

Become thoroughly familiar with the machinery and its controls.

Safety

- Never leave the equipment running unattended and use this equipment only for its intended purpose.
- Ensure that all power sources are turned off when the machine is not in use. This encompasses electrical and pneumatic power.
- Read the manual for any special operational instructions for each piece of equipment. All USA Lab authored manuals are typically included with each device as well as posted online.
- Know how the equipment functions and understand the operating and halting processes.
- Wear the appropriate personal protective equipment for the task.
- When working on or around all equipment, avoid wearing loose clothing, jewelry, unrestrained long hair, loose ties, belts, scarves, or articles that may be caught in moving parts. Keep all extremities away from moving parts. Entanglement can cause death or severe injury.
- For new equipment, check input voltage and compare with the equipment voltage rating. DO NOT supply the incorrect power to any equipment for any reason whatsoever. Electrical specifications for your machine are printed on the machine tag. A properly grounded receptacle is required for safe operation regardless of voltage requirements.
- Keep the equipment operating zone free of obstacles that could cause a person to trip or fall toward an operating machine. Keep fingers, hands, or any part of the body out of the machine and away from moving parts when the machine is operating.
- Any machine with moving parts and/or electrical components can be potentially dangerous no matter how many safety features it contains. Stay alert and think clearly while operating or servicing the equipment. Be aware of operations and personnel in your surroundings. Be attentive to indicator lights, warning lights, and/or operator interface screens displayed on the machine and know how to respond.
- Do not operate machinery if you are fatigued, emotionally distressed, or under the influence of drugs or alcohol.
- Know where the FIRST AID SAFETY STATION is located.
- Know where the FIRE EXTINGUISHING EQUIPMENT is located.
- Never sit or stand on the machine or on anything that might cause you to fall against the machine.
- Rotating and moving parts are dangerous. Keep clear of the operating area. Never put any foreign object into the operating area.
- Use proper lifting and transporting devices for heavy equipment. Some types of equipment can be extremely heavy. An appropriate lifting device should be used.
- Use caution when moving portable equipment. In some cases, the machinery can be heavy and/or may be top heavy. Portable equipment can gain momentum during transporting and must always be controlled.

Symbols and Warnings

Below are examples of commonly used symbols and what they mean.
Understand them and their potential consequences.

	High Voltage or Electrical Hazard
	Explosive Hazard
	Not User Serviceable
	Flammable Hazard
	Hot Surface or Steam Hazard

Section 1 | Important Information

1.1 Safety Notices

ONLY DISTILLED WATER + GLYCOL BLEND IN THE TANK.

(See section 4.1)

The use of Personal Protection Equipment (PPE) is REQUIRED.

Follow all federal, state, and municipal laws, codes, and ordinances.

Please make sure the power connection is correct and well-grounded. (See section 1.3)

Fluid lines should be unobstructed without any hard bends in the run.

Apply a rag to wipe the parts clean after washing away stains; do not use hard objects.

Do not use flammable, corrosive, or explosive substances on, in, or near the equipment.

Do not run the liquid pump dry, allow plenty of time to prime the pump.

The compressor imposes a 10-minute cool down before it will run again.

Do not allow the compressor to cycle more than 5 times per day.

Do not unplug the unit while it is running.

Install the equipment in a climate-controlled facility ONLY.

Never use a generator to power this equipment.

Do not change the length of the power cable.

Repairs must be made by USA Lab or by instruction from USA Lab.

If there is a problem, do not continue to use the chiller.

Contact us immediately.

USA Lab, Inc.

Main Phone: (734) 855-4890 | Monday – Friday from 10am to 6pm

Support@usalab.com

Tech@usalab.com

1.2 Features

- The UC Series of high-performance open loop recirculating heater chillers, use internationally recognized phase change compressors.
- The pump can move your transfer fluid quickly.
- Casters aid in the portability of the chillers.
- When connected to a rotary evaporator, the UC can maintain a consistent condensation rate.
- The included insulated silicone hoses remain flexible at lower temperatures.
- Clear and easy to read display.
- Touchscreen (only on select versions).

UC model number breakdown:

UC-XX/XX = Liter Capacity / Lowest Rated Set Point

1.3 Technical Parameters

Model Specifications

Model	5/10	20/20	20/40	30/30
Reservoir Capacity (L)	5L	20L		30L
Reservoir Dimensions (In)	8" x 8"	11.8" x 11.8"		13.7" x 13.7"
Temperature Range (°C)	Ambient to -10°C	Ambient to -20°C	Ambient to -40°C	Ambient to -30°C
Power Requirements (Phase / V / A)	Single / 110V / 12A	Single / 220-240V / 20A		Single / 220-240V / 30A
Plug Type	NEMA 5-20P	NEMA 6-20P		NEMA L6-30P
Compressor BTU Capacity (@20°C / @Min°C)	4,387 BTU / 1,000 BTU	10,317 BTU / 3,000 BTU	12,250 BTU / 3,300 BTU	13,313 BTU / 4,000 BTU
Pump Wattage (W)	100W			
Pump Flow Rate of Water (L/min)	30 L/min			
Pump Pressure (bar)	0.4 bar	2.2 bar		
Port Connection Size	1/2" Barb	5/8" Barb		
Overall Dimensions (In)	19" x 14" x 29"	24.8" x 20.4" x 43.3"	24.8" x 20.4" x 43.3"	30.3" x 25.5" x 39.7"
Weight (lbs.)	100 lbs.	154 lbs.	164 lbs.	171 lbs.
Model	30/40	30/80	50/30	50/40
Reservoir Capacity (L)	30L		50L	
Reservoir Dimensions (In)	13.7" x 13.7"		17.7" x 13.7"	
Temperature Range (°C)	Ambient to -40°C	Ambient to -80°C	Ambient to -30°C	Ambient to -40°C
Power Requirements (Phase / V / A)	Single / 220-240V / 30A			
Plug Type	NEMA L6-30P			
Compressor BTU Capacity (@20°C / @Min°C)	13,742 BTU / 4,300 BTU	16,000 BTU / 1,450 BTU	25,235 BTU / 12,000 BTU	37,500 BTU / 4,050 BTU
Pump Wattage (W)	100W			
Pump Flow Rate of Water (L/min)	30 L/min			
Pump Pressure (bar)	2.2 bar			
Port Connection Size	5/8" Barb			
Overall Dimensions (In)	30.3" x 25.5" x 39.7"	39" x 31.9" x 48.4"	31" x 26" x 46"	27" x 24" x 46"
Weight (lbs.)	180 lbs.	473 lbs.	174 lbs.	341 lbs.

Section 2 | Diagrams

2.1 Example connections for a chiller with rotary evaporator and vacuum pump:



2.2 Plug Types

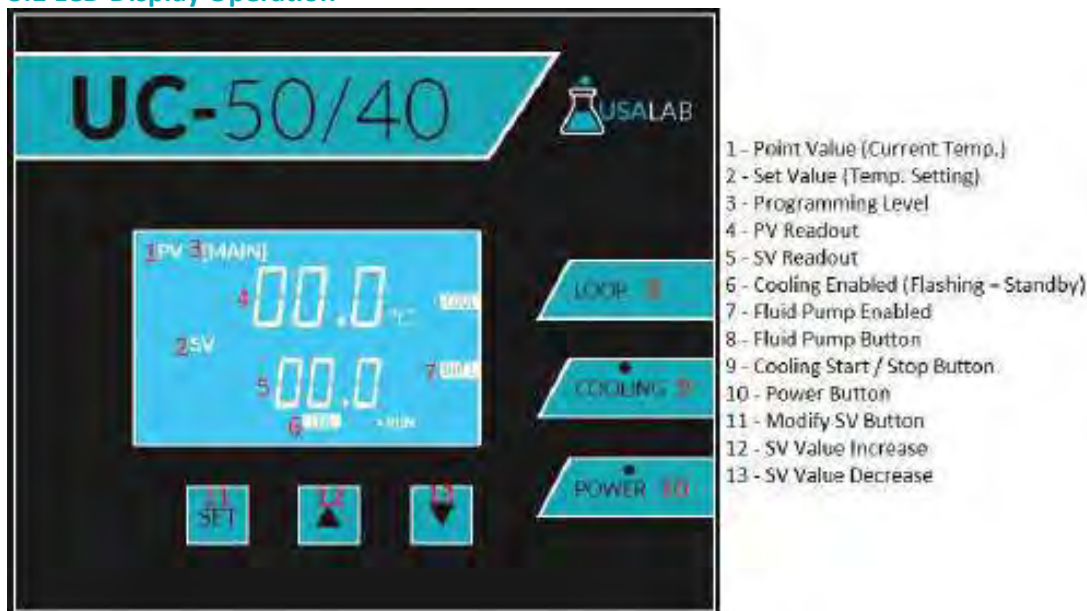


2.3 Unit Features



Section 3 | Control Panel Operation

3.1 LCD Display Operation



[Prior to running the chiller, your fluid loop should be setup and the tank filled]

To set your desired temperature:

Press Set (11) to enter the temperature set menu. Adjust the value using the Up (12) or Down (13). Then Press Set (11) again to save the desired value (5). Next press Loop (8), then Cooling (9). This turns on the fluid pump and cooling.

Disclaimer – Parameters are not allowed to be modified by end users. This is to protect the equipment from accidental damage. Modifying parameters for any reason, without our knowledge and permission will constitute a void of the warranty.

3.2 PLC Display Operation (UC-30/80)



①	Heating indication		Heating has output
②	Cooling indication		Cooling output delay
			Cooling has output
③	Setting temperature	SV -30.0 °C	Current temperature setting value
④	Measured temperature	-20.0 °C	Current temperature measured value
⑤	Local temperature	Temp_L: 12.5 °C	Current local instrument temperature or backflow liquid temperature (Note: refer to [System Settings 2] to get specific options)
⑥	Running time	Time: 1 : 23	Display the current running time(Hour: minutes)
⑦	Setting time	2 : 0	Display the current setting time(Hour: minutes)
⑧	Operating cycle	Cycle : 2 / 5	Display the current running cycle and setting cycle
⑨	Running steps	Step: 12 / 30	Display the current running steps and setting steps



①	Menu		Click this button to enter the directory page.
②	Stir		Indicating that stir function is closed. Click this button to start the stir function.
			Indicating that stir function is on. Click this button to turn off the stir function.
③	Heat		Indicating that heat function is closed. Click this button to start the heating function.
			Indicating that heat function is on. Click this button to turn off the heat function.
④	Cool		Indicating that cool function is closed. Click this button to start the cool function.
			Indicating that cool function is on. Click this button to turn off the cool function.
⑤	Cycle		Indicating that the cycle function is closed. Click this button to turn on the cycle function.
			Indicating that the cycle function is on. Click this button to turn off cycle function.
⑥	Setting temperature		Click the temperature setting value to quickly enter the program setting or fixed value setting interface.
⑦	Measured temperature		Click the temperature measurement value to enter real time curve interface.
⑧	Real time		Display the current real-time time. Click to enter the real-time time modification interface to modify the real-time time.



The user can enter the menu interface by clicking the [Menu] button on any page. The user can enter the [Monitor Interface], [User Set], [Mode Set], and [System Set] interfaces on the menu interface. The version number of the project is displayed on the lower left corner of the menu interface.

3. Parameters setting

1.) Keyboard interface.



①	input value display	Displaying the input value. The default is 0 if no key is clicked
②	Cancel button	Cancel setting. Click this button to exit the keyboard and also the entered value is not saved
③	Delete button	Delete the last number in the value display column.
④	Minus button	Key in or cancel the minus sign before number
⑤	Enter button	Confirm the settings. Click this button to exit the keyboard and save the entered value. When the input number exceeds the range of the currently setting parameter value, clicking this button is invalid. The input value needs to be corrected according to the manual and then confirm again;
⑥	Number button	Key in corresponding value
⑦	Cancel button	Cancel setting. Click this button to exit the keyboard and also the entered value is not saved



①	Password entry field	Click the text box and then touch keyboard to enter the password;
②	Back button	Click this button to return the monitor page.
③	Input again button	Click this button to exit wrong password prompt and return password entry page.
④	Back button	Click this button to return the monitor page.
⑤	Ok button	Click this button to enter the parameters setting interface if the input password is correct; if the entry password is incorrect, a password error prompt will appear.

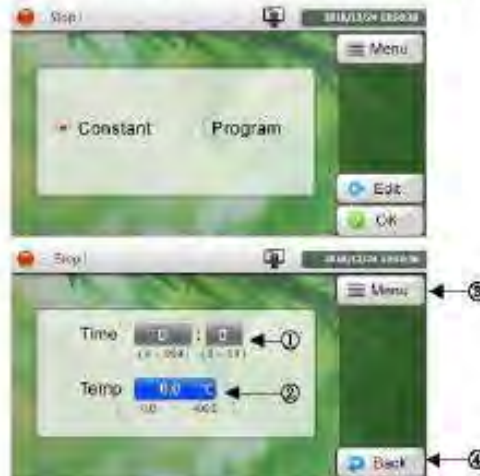
Password: 3

Disclaimer – Configuration parameters are not allowed to be modified by end users. This is to protect the equipment from accidental damage. Modifying parameters for any reason, without our knowledge and permission will constitute a void of the warranty.

Setting a program does not apply.

4. Setting Interface

Click the mode setting in the menu interface to enter the following interface:



Select the constant value mode and click Edit, you can set the timing time and the temperature in this interface.

①	Set time	Click to edit the setting time(Hour: minutes)
②	Set temperature	Click to edit the setting temperature
③	Menu	Click to enter the menu interface
④	Back	Click to return to the menu interface



Select the program mode and click Edit., you can set the cycle period, the number of running steps, and the time and temperature of every step on this interface.

①	Cycle setting	Click to edit the setting cycle. When the setting cycle is 0, the device keeps running cyclically.
②	Step setting	Click to edit setting steps. The program runs in step.
③	Hour setting	Click to edit the setting time(unit: hours)
④	Minutes setting	Click to edit the setting time(unit: minutes)
⑤	Temperature setting	Click to edit the setting temperature
⑥	Menu	Click to enter the menu interface
⑦	Back	Click to return the menu interface

Section 4 | Installation

4.1 Included Items

If you are missing any items, contact us.

Packing List	
Chiller	1 Unit
Insulated Tubing	11 ft.
Barbed Fitting + Valve	1 pc
PTFE Sealing Tape	1 pc

4.2 Thermal Transfer Fluids

Recommended: Propylene Glycol + Distilled Water

Blends by volume %				
Lowest Degree C	-10°C	-20°C	-30°C	-40°C
PG : DW	30 : 70	40 : 60	50 : 50	60 : 40

Do Not Use Automotive Anti-freeze, it Contains Additives That Have Been Known To Corrode Heat Exchangers.

Do Not Use Tap Water, as it Can Cause Rusting of Many Internal Parts.

Dynalene HC can be used.

(Special fluids may be required for DLSB 30/80)

Model	UC-5/10	UC-20/20	UC-20/40	UC-30/30	Legend:
PG 30:70 Distilled Water	X				Good
PG 40:60 Distilled Water		X			Caution
PG 50:50 Distilled Water				X	Bad
PG 60:40 Distilled Water			X		
Silicone Oil					
Ethanol (ISO, 200P, 200P+H)	X	X	X	X	
Model	UC-30/40	UC-30/80	UC-50/30	UC-50/40	
PG 30:70 Distilled Water					
PG 40:60 Distilled Water					
PG 50:50 Distilled Water			X		
PG 60:40 Distilled Water	X			X	
Silicone Oil					
Ethanol (ISO, 200P, 200P+H)	X	X	X	X	

4.3 Tubing Connections

Ensure both the outlet port and the fitting have PTFE thread tape on the threads no less than 4 wraps. Install the ball valve onto the outlet port of the chiller. Then connect the 5/8" MNPT x Barb fitting onto the end of the ball valve. (ball valve and barb fitting included in the manual pouch)

Fluid lines should be unobstructed without any hard bends in the run.

Tubing insulation is pre-installed. Simply cut the tubing to your required length.

Connect the outlet of the chiller to the lowest point, and the inlet to the highest point.

4.4 Electrical Connections

Each unit has its own power requirements, please understand their differences. This unit must be operated on its own circuit Installed by a licensed professional.

Plug Types	
UC-5/10	NEMA 5-20p
UC-20/20	NEMA 6-20p
UC-20/40	NEMA 6-20p
UC-30/30	NEMA L6-30p
UC-30/40	NEMA L6-30p
UC-30/80	NEMA L6-30p
UC-50/30	NEMA L6-30p
UC-50/40	NEMA L6-30p

4.5 Operating Area

Always leave 12-16 inches around the unit. Obstructing the ventilation will cause poor performance or part failure. Always keep the operating area clean and organized to prevent injury or damage.



4.6 Operating Instructions and Notes

Only operate the unit in a climate-controlled facility. Operating temperature is 70°F or 20°C. If the temperature exceeds 80°F or 26°C performance will be degraded.

Units returned that have signs of outside use. Will automatically be determined to be improperly used and cared for.

Wait 12-hours after receiving shipment before operating the equipment. This gives the compressor oil a chance to settle back inside the compressor.

Priming instructions:

- Power on the unit.
- Fill the tank with your fluid.
- Open the ball valve.
- Run the pump.
- Wait for 5 minutes to allow the air bubbles to empty from the pump.
(A lack of bubbles in the tubing and a strong flow are signs of a well primed pump)
- Then shut off the pump and close the ball valve.

It is very important to prime the pump correctly. Do not use an air locked pump. Call us for help.

When filling the system:

- Power on the unit.
- Fill the tank.
- Open the ball valve and turn on the fluid pump.
- Continue to fill the tank watching the level. Do not allow level to drop below 1/4.
- When the system is full and the tank reaches the inlet elbow, stop filling.
- Close the lid.

Operating notes: When using the unit always enable the pump first. Then enable the cooling function. When not operating the unit, close the ball valve and shut off the power. Failure to close the valve may cause the tank to overflow.

Operating steps:

- Power on the unit.
- Open the ball valve.
- Run the pump.
- Set the target temperature.
- Enable cooling.
- Run until the process is complete.
- Then shut off the chiller and close the ball valve.

If you have any questions on how to operate the unit further, contact the technical department.

Section 5 | Maintenance

5.1 Periodic Maintenance

Shut off the power switch AND disconnect the power cord before any maintenance.

Use a damp soft cloth to wipe clean. Stubborn stains should be cleaned by neutral detergents.

The maintenance of internal electrical and heating parts must be performed by professionals or trained electricians.

Do not directly splash water over the product or use abrasive powder, diluent, oil, kerosene, acidic material, and similar substances during cleaning, or else shock or other accidents will occur.

Fluid:

Propylene Glycol will degrade over time. It is recommended to purchase glycol test strips, test monthly

Condenser:

Check and clean the condenser regularly. Every quarter for low dust facilities, or every month for high dust facilities.

Unit:

Check the unit over monthly for leaks, broken glass, melting, burning, or any other damages.

Please bring any concerns to our attention immediately.

5.2 Long Term Storage

Empty the unit of fluid.

Cap the inlet and outlet.

Clean the condenser.

Clean the body of the unit.

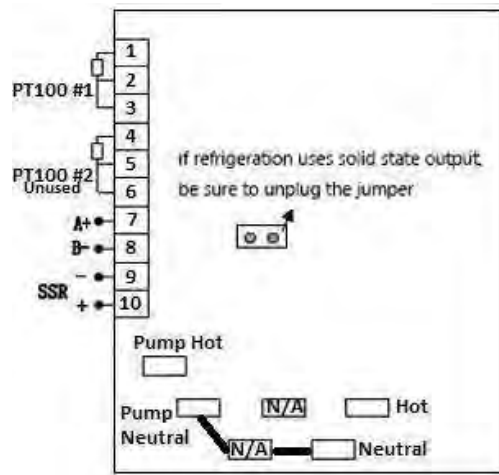
Wrap the unit with plastic.

Store in a secure level location.

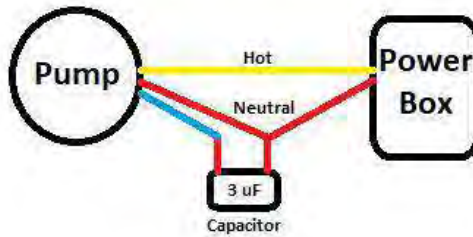
Section 6 | Technical Diagrams and Troubleshooting

6.1 Circuit Board Diagrams

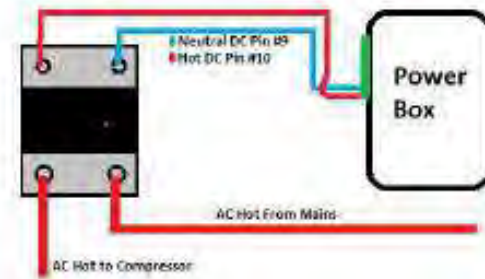
Power board



Pump



Relay



6.2 Troubleshooting

Problem	Cause	Solution
No power	<ul style="list-style-type: none"> A. Not plugged in. B. No power from outlet. C. Outlet has power, chiller doesn't. D. Fuse is broken (older 5/10 models). 	<ul style="list-style-type: none"> A. Plug unit in. B. Reset Breaker or GFCI. Call electrician. C. Unplug unit, open the rear panel and check for damage. D. Replace fuse.
Temperature display incorrect	<ul style="list-style-type: none"> A. Probe wire is loose. B. Temperature probe has a short. C. Control board has failed. 	<ul style="list-style-type: none"> A. Repair loose wire. B. Replace temperature probe. C. Replace the control board.
Temperature display not working correctly or flashing	<ul style="list-style-type: none"> A. Check supply voltage. B. Power board has failed. 	<ul style="list-style-type: none"> A. Verify the power supply and requirements match. B. Replace power board.
Shock from the shell of the unit	<ul style="list-style-type: none"> A. System ground fault. 	<ul style="list-style-type: none"> A. Repair fault to system ground.
Not cooling	<ul style="list-style-type: none"> A. Cooling not enabled. B. Condenser fan not spinning. C. Compressor doesn't start. D. Refrigerant leaked. 	<ul style="list-style-type: none"> A. Press cooling button on display. B. Replace condenser fan. C. Check capacitors, relay, and power board. D. Call HVAC Technician to repair and recharge system.
Cooling slowly or warming	<ul style="list-style-type: none"> A. Compressor stopped running. B. Condenser fan not spinning. C. Incorrect glycol blend. D. Capillary or refrigerant blocked. E. Liquid pump running slowly. F. Load is greater than the chiller can handle. G. Tubing lines are not insulated. 	<ul style="list-style-type: none"> A. Wait for compressor to start again. 5-10 minutes. B. Replace condenser fan. C. Never use more than 60% glycol in your blend. D. Call HVAC Technician to repair and recharge system. E. Purge the liquid circulation pump. F. Reduce heat load on the chiller. G. Use included line insulation to prevent thermal loss.

Section 7 | Warranty Information and Coverages

7.1 Warranty

Continental United States

USA Lab products are warranted to be free of workmanship, mechanical, and material defects for **one to two years** from date of purchase depending on product. Within this warranty period USA Lab will replace or repair components that fail due to manufacturer defect. For such repairs or parts, shipping charges will be covered in full or in part by USA Lab.

This warranty **does not cover any failures** due to alteration, repairs, misuse, accident, or abuse. This warranty also **does not cover wear items** such as glassware, heating elements, thermocouples, oil seal sets, switches, and sensors. The warranty does also not cover wrongful input voltage. The customer needs to be responsible in monitoring power rating and routine checking. If using water in a heater or chiller, the customer must only use **distilled water**. Other forms of water will **void the warranty**.

Non-continental United States

USA Lab products are warranted to be free of workmanship, mechanical, and material defects for **one to two years** from date of purchase depending on product. Within this warranty period USA Lab will replace or repair components that fail during normal daily use. Such repairs or parts will be covered in full by USA Lab and **the customer will be responsible for shipping, labor, and custom duties**.

This warranty **does not cover any failures** due to alteration, repairs, misuse, accident, or abuse. This warranty also **does not cover wear items** such as glassware, heating elements, thermocouples, oil seal sets, switches, and sensors. The warranty does also not cover wrongful input voltage. The customer needs to be responsible in monitoring power rating and routine checking. If using water in a heater or chiller, the customer must only use **distilled water**. Other forms of water will **void the warranty**.

7.2 Return Policy

We offer a 30-day return policy from when your package is delivered to your shipping address. By placing an order with USA Lab, you express that you have read and agreed to the following return policies.

- **We do not accept returns for customized items.** When purchasing a customized item, you agree that there are no returns due to the nature of the item(s) being specific to your needs. **We do not accept returns on any solvents or consumables.**
- **Pre-orders:** There will be a **10% non-refundable fee** associated with pre-orders that are canceled. This covers the banking fees and the hold fee.
- By default, a **15% restocking fee** is applied on all items that are in original packaging and unused with no damage. This applies to all items returned within 30 days. **No exceptions.** You will be responsible for the return shipment unless deemed defective by USA Lab. In that case, we will pay for return shipment and replacement shipment costs.
- The item(s) must be returned in original packaging and in undamaged condition. The item(s) must have no signs of usage or wear including stickers, scratches, dents, resins, non-standard fluids, plant matter, or any other wear not representing a new, unused item.

Unused and undamaged products not in original packaging will be subject to a restocking fee equal to 25% of the purchase price.

Products deemed defective with any signs of usage or wear whatsoever of damage or usage (including but not limited to the presence of botanical material, resins, cleaning agents, stickers or decals, or any damage, wear, or tear) will not be accepted for return.

- Once the returned item is received, tested, inspected, and processed, a refund will be issued. If your item(s) are in original packaging and unused, **you will be refunded the initial purchase price with the 15% restocking fee deducted.** If your item(s) are deemed damaged or used, **you will not be refunded.**

7.3 Notes

Keep all original packaging in the event you need to return the unit or to send it in for to us for repair.
We are not responsible for providing packaging material.

This manual and its contents are subject to change without notice.

USA Lab reserves the right of ultimate interpretation of the instruction manual. Additionally, USA Lab is not responsible for damages or injuries caused by improper use; knowingly or unknowingly.

Revision 2022.10.21



Rotary Evaporator Manual

Models: R1005 – R1050
Automatic 5L – Automatic 50L
(Includes explosion proof models)



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- 3. Control panel operation
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- 9. After-sales service
- 10. Troubleshooting



At USA Lab, safety is our number one priority. The following information provides guidelines for safety when using USA Lab equipment.

Any piece of machinery can become dangerous to personnel when improperly operated or poorly maintained.

All employees operating and maintaining USA Lab equipment should be familiar with its operation and should be thoroughly trained and instructed on safety.

Most accidents are preventable through safety awareness.

Training

It is the responsibility of the customer to ensure that all personnel who will be expected to operate or maintain the equipment participate in training and instruction sessions and become trained operators. All personnel operating, inspecting, servicing or cleaning this equipment must be properly trained in operation and machine safety. BEFORE operating this equipment, read the operating instructions in the equipment manual. Become thoroughly familiar with the machinery and its controls. (Training is not provided by USA Lab, it is your responsibility to use the equipment properly and in accordance with local, state and federal laws.)

Safety

- Ensure that all power sources are turned off when the machine is not in use. This includes electrical and pneumatic power.
- Read the manual for any special operational instructions for each piece of equipment. All USA Lab authored manuals are typically included with each device as well as posted online at: <https://www.usalab.com/resources>
- Know how the equipment functions and understand the operating processes.
- Know how to shut down the equipment.
- Understand the label on the front of the equipment.
- Wear the appropriate personal protective equipment for the job to be performed (EX: eye protection, gloves, safety shoes). Ensure that nothing you are wearing could get caught in the machinery.
- When working on or around all equipment, avoid wearing loose clothing, jewelry, unrestrained long hair, or any

License Type: Processor

loose ties, belts, scarves or articles that may be caught in moving parts. Keep all extremities away from moving parts. Entanglement can cause death or severe injury.

- For new equipment, check plant voltage with the voltage specified on the machine. Electrical specifications for your machine are printed on the machine tag. A properly grounded electrical receptacle is required for safe operation regardless of voltage requirements.
- Use this equipment only for its intended purpose.
- Keep the operating zone free of obstacles that could cause a person to trip or fall toward an operating machine. Keep fingers, hands or any part of the body out of the machine and away from moving parts when the machine is operating.
- Any machine with moving parts and/or electrical components can be potentially dangerous no matter how many safety features it contains. Stay alert and think clearly while operating or servicing the equipment. Be aware of operations and personnel in your surroundings. Be attentive to indicator lights, warning lights and/or operator interface screens displayed on the machine and know how to respond.
- Do not operate machinery if you are fatigued, emotionally distressed or under the influence of drugs or alcohol.
- Know where the FIRST AID SAFETY STATION is located.
- Know where FIRE EXTINGUISHING EQUIPMENT is located.
- Never sit or stand on the machine or on anything that might cause you to fall against the machine.
- Rotating and moving parts are dangerous. Keep clear of the operating area. Never put any foreign object into the operating area.
- Use proper lifting and transporting devices for heavy equipment. Some types of equipment can be extremely heavy. An appropriate lifting device should be used.
- Use caution when moving portable equipment. In some cases the machinery can be heavy and/or may be top heavy. Portable equipment can gain momentum during transporting and must always be controlled.

1 Safety Instructions and Features

1.1 Safety Instructions

ONLY USE SILICONE OIL or DISTILLED WATER IN THE WATER BATH. Any elements, sensors or switches damaged due to not using distilled water, WILL NOT BE COVERED UNDER WARRANTY.

All gaskets must be greased and cleaned regularly, failure to do so will result in leaks and loss of performance. The use of Personal Protection Equipment (PPE) is REQUIRED.

Follow all state, local and municipal laws, codes and ordinances.

Please make sure the power connection is correct and well-grounded. (see the technical parameters for details)

Cooling water line and vacuum line should be unobstructed without any hard bends in the run. Rotate and push forward to install water and vacuum lines.

If flammable or organic solvent is used, please make sure to clean any solvent immediately and take all fire safety precautions.

Apply a rag to wipe the glass parts clean after washing away stains; do not use hard objects against the glass.

1.2 Purposes and features

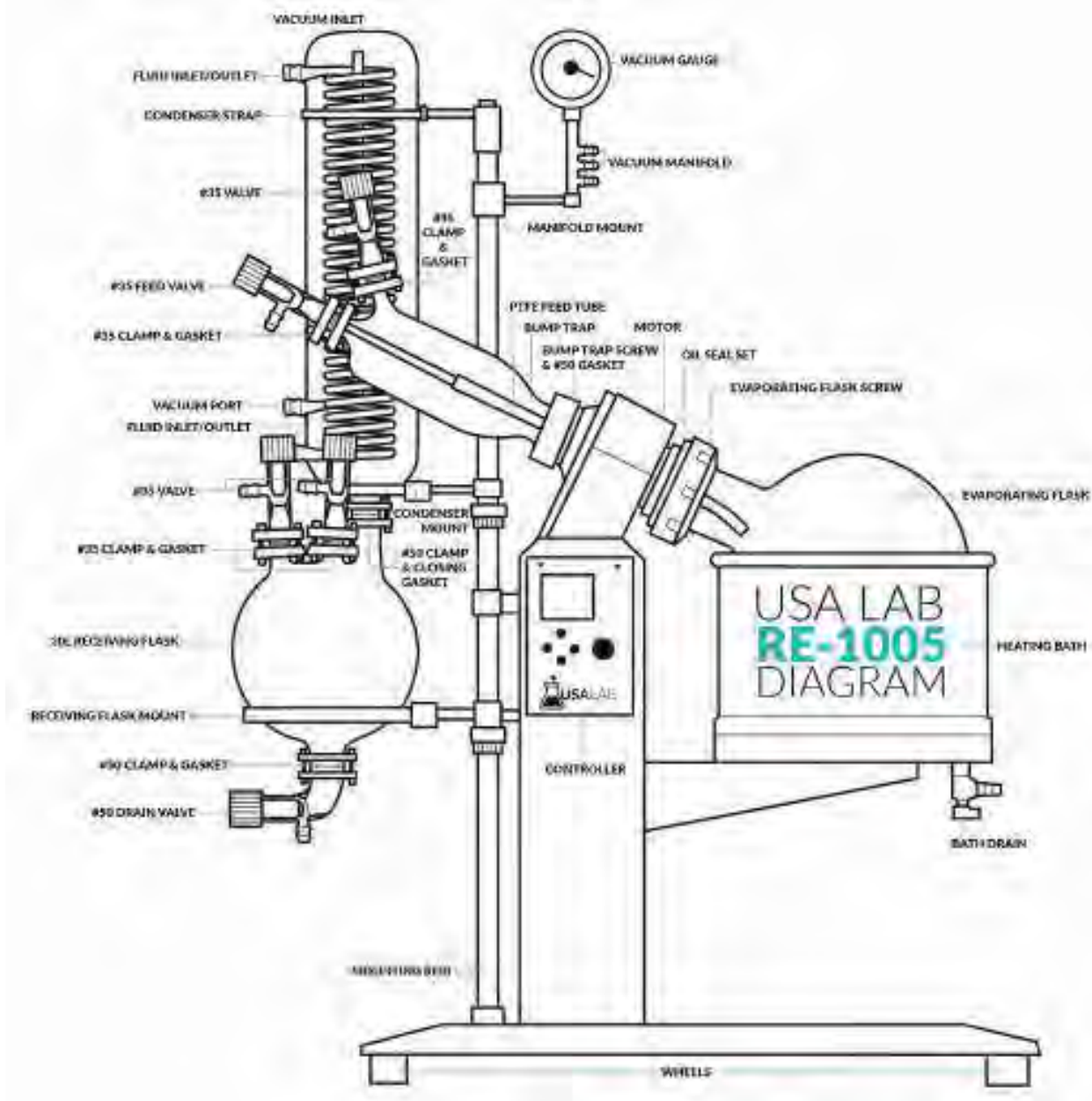
R-series large rotary evaporators are mainly used in the small-scale test and production of biological, pharmaceutical, chemical, food and other extractions. With large capacity and large-diameter rotary evaporating flasks, when it is placed in a water bath, it allows the solution to spread and evaporate rapidly. What's more, the product may be fitted with a multi-purpose water circulating vacuum pump, diaphragm vacuum pump, or low-temperature circulating vacuum pump, circulating cooler, constant-temperature circulator, low-temperature circulating pump to form a complete system. Teflon (PTFE) and rubber dual spin seals are included to ensure the highest vacuum pressure. Accurate and reliable temperature control system do not affect the vacuum and solution distillation. The system is capable of continuous solvent recovery.

1.3 Technical specifications

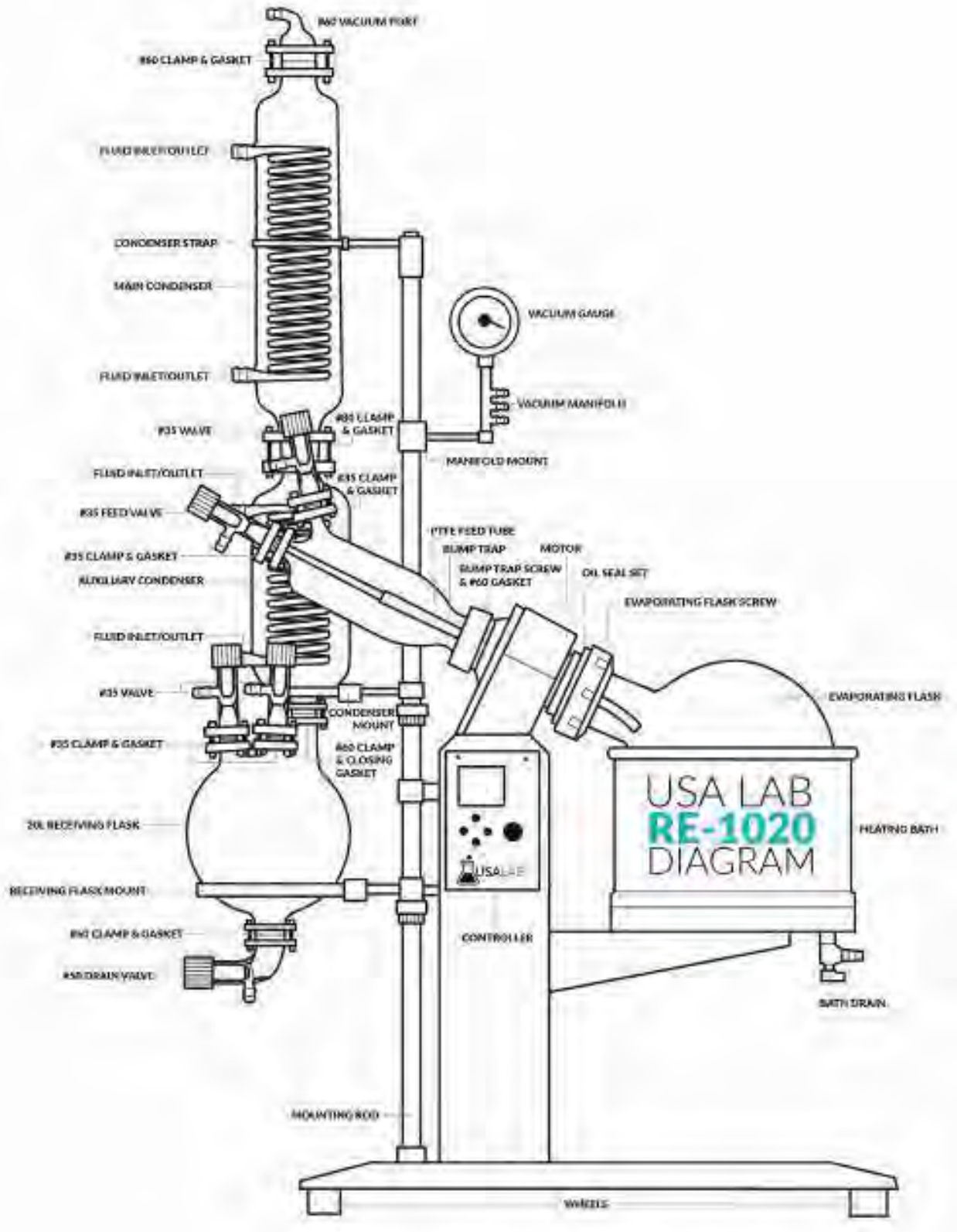
Model	RE-1005	RE-1020	RE-1050	EXR-1050	EXRDS-1050
Optimum Ambient Temperature (°C)	5 - 25°C				
Power (Phase/V/Hz)	Single / 110V / 60Hz	Single / 220V / 60Hz			
Motor Type	Digital AC Stepless	Digital DC Stepless			
Min - Max Rotation Speed (RPM)	10 - 120 RPM				
Motor Wattage (W)	40W	250W			
Temperature Control	Digital Temperature Control with Over Temperature Shutoff				
Max Vacuum Pressure	3.99 Millibar / 3 Torr / 29.98 inHg				
Boiling Flask Size (L)	5L	20L	50L		
Boiling Flask Flange (mm)	50mm	125mm	125mm		
Receiving Flask Size (L)	3L	10L	20L	Dual 20L	
Condenser Style	Single Column Dual Coil w/ Bump Trap	Dual Column, Dual Coil w/ Bump Trap			Quad Column, Dual Coil w/ Bump Trap
Minimum Evaporative Capacity L/hr	Water ≥ 2L Alcohol ≥ 4L	Water ≥ 5L Alcohol ≥ 11L	Water ≥ 7L Alcohol ≥ 15L		Water ≥ 13L Alcohol ≥ 27L
Heating Bath Material	304 Stainless Steel				
Heating Bath Size (mm)	300mm x 170mm	450mm x 260mm	550mm x 320mm		
Heating Bath Lift Style	Internal Motor, Platform Lift		Internal Telescoping Lift	External Explosion Proof Motor, Telescoping Lift	
Lift Stroke (mm)	0-150mm	0-190mm	0-180mm		
Total Current Draw (kW)	2.2kW	6.3kW	8.3kW		

2 Diagrams

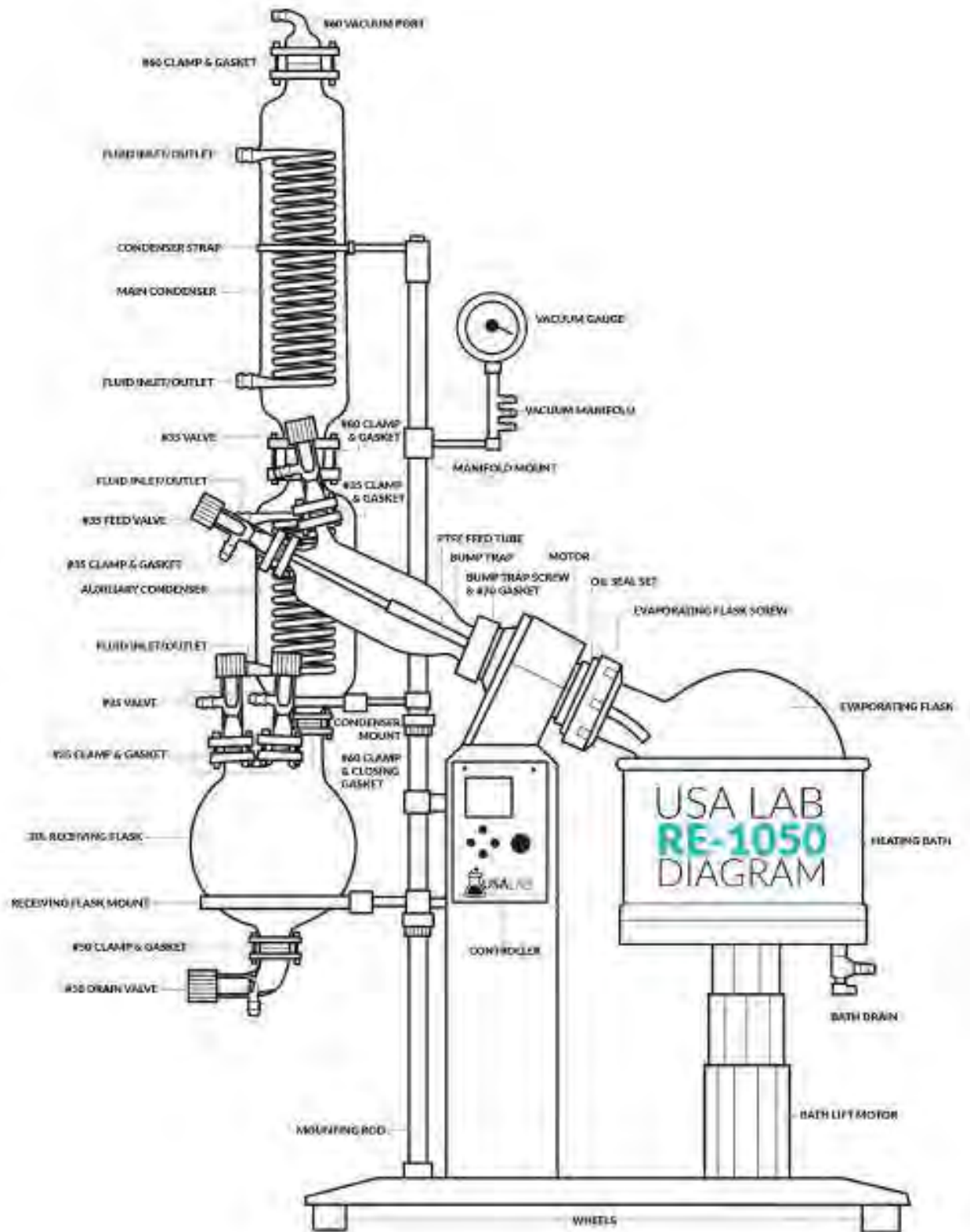
2.1 RE-1005



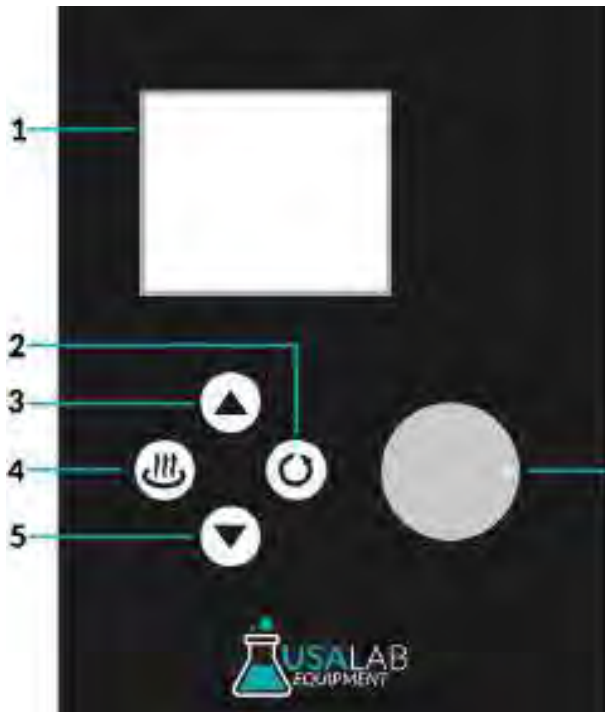
2.2 RE-1020







2.3 RE-1050 & EXR-1050 (EXRDS-1050 Similar)



3 Control Panel Operation



Control Panel :

1. LCD display
2. “” Press this key to start or shut down the rotation function
3. “” Press this key to raise the bath, long press to raise continuously
4. “” Press this key to start or shut down the heating function
5. “” Press this key to lower the bath, long press this key to lower continuously
6. “Settings Dial” Press to enter the menu for temperature, speed and timer settings; Long press to edit internal parameters. DO NOT ADJUST PARAMETERS WITHOUT OUR PERMISSION OR DIRECTION

SP - Temp | **SU** - Speed | **ST** – Timer

If your unit shuts down automatically unintentionally. Ensure that the **ST** function is set for 0 (no timer).

EXR-1050 and EXRDS-1050 have the same display and buttons behind the spark proof outer shell. The boards, relay, fuse and contactor are inside the spark proof outer shell.

4 Preparing for Installation



1. When removing the evaporator from your crate, please be careful and use two people if available. You can lift from any point on the base to remove the evaporator from the crate.

2. Please refer to the packing list to check whether the components and parts are included. If there are any missing parts, please contact us.

3. Remove any residue on the glass parts before assembly and keep the glass flange surfaces clean; apply vacuum grease to both sides of the seal ring gasket, ground joints and PTFE gaskets before the installation.

4. Tools that might be needed in the installation include: metric Allen wrenches and a screwdriver.

5a. A professionally installed 5-20 receptacle. (R1005 – 110V 20A)

5b. A professionally installed L6-30 receptacle. (R1020 or R1050 – 220V 30A)

5c. A professionally installed explosionproof AC disconnect panel. (EXR-1050 or EXRDS-1050 – 220V 30A)

^ not pictured below ^



5 Installation

EXR-1050 Follows the same assembly instructions for RE-1050.

EXRDS-1050 Follows the same assembly instructions for RE-1050 with a second mirrored condenser assembly.

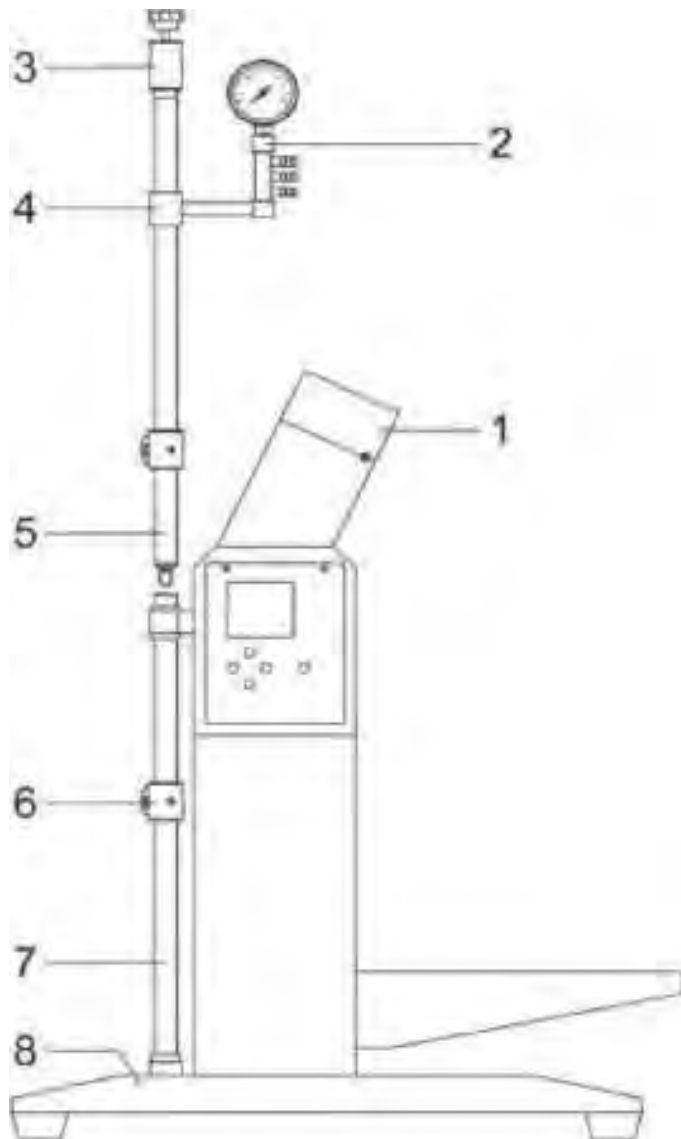
Setup: Unpack all parts, inspect glass pieces and crosscheck with packing list. If any part is broken, cracked or missing, contact us. Do not remove white ptfе from gaskets. Clean all glass before installation and use. Grease all glass joints and gaskets with vacuum grease. The vapor duct must be well greased along with the oil seals that ride on it. One gasket has a center valve. That valve gasket must hang down when installed between the condenser and the receiving flask. Check the manual for specific part diagrams and installation. Install the stand, gauge, condenser strap and support rings. Then the glass pieces with the gaskets in-between flanges. Be sure the clamps are tightened evenly on all sides. The system should be vacuum tested for leaks before adding any product. When vacuum leak testing, the vacuum gauge should read between 0.09 and 0.1 in the red zone. After vacuum leak testing, fill and prime the chiller. Refer to instructions on priming the chiller. Once priming has been completed attach and cut to length all insulated chiller hoses.

Quick Clamp:

Our new quick clamp eliminates the need for completely disassembling the clamp. Simply loosen all 3 black caps. Loosen and remove the blue cap bolt. Then open the clamp. Wrap the clamp around the flanges with the sealing clamp in the middle. Align the fingers where the blue cap bolt was and replace the bolt. An example is pictured below.



5.1 Vertical Stand installation

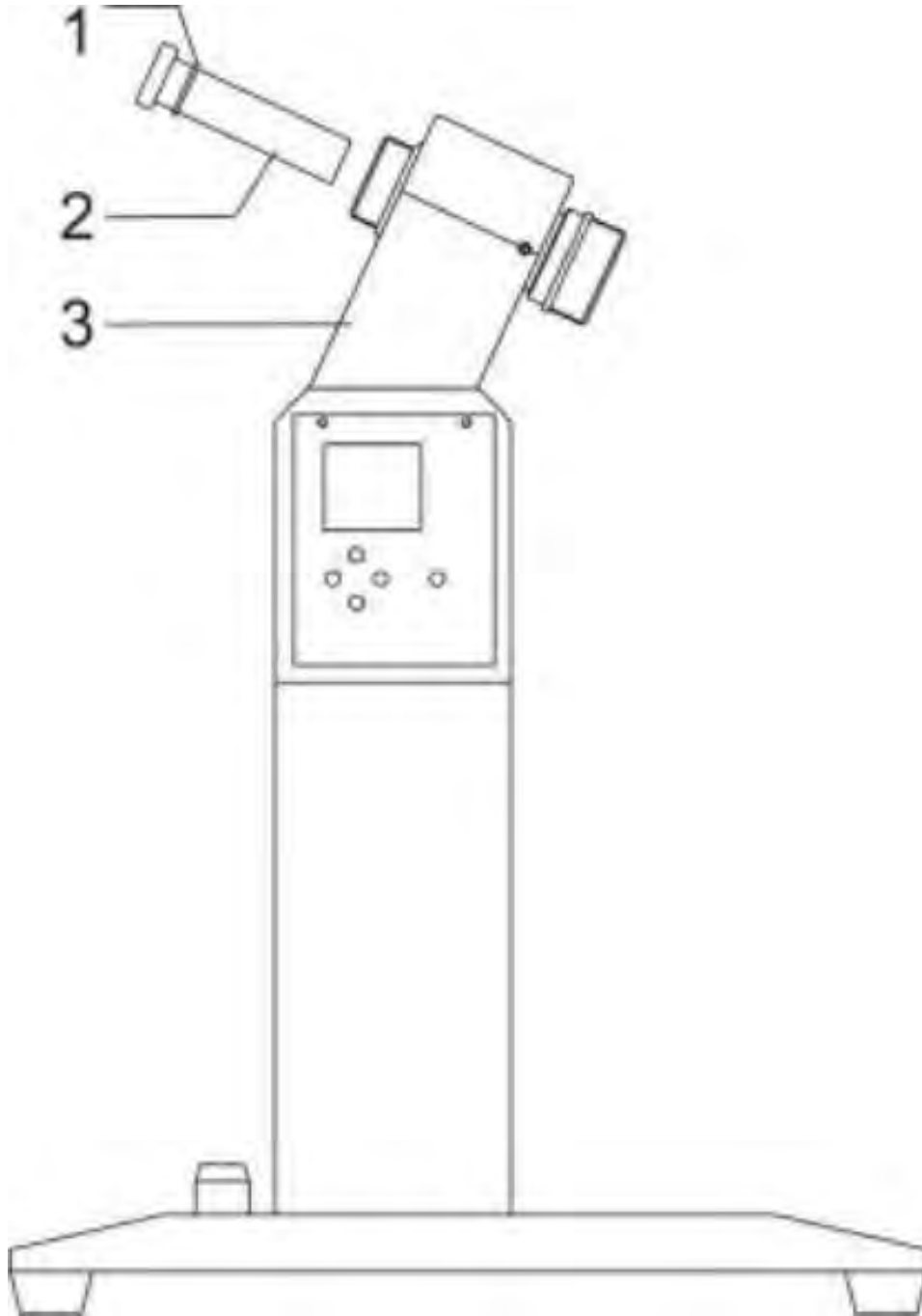


Rotating in clockwise direction, the upper section of the vertical stand is connected with the lower section of the vertical stand by screw threads (as shown below), on which, the condenser cross clamp, vacuum gauge bracket and condenser clamp holder are pre-installed.

1. Motor shell
2. Vacuum gauge and vacuum manifold
3. Condenser strap clamp
4. Vacuum gauge bracket
5. Upper vertical stand
6. Receiving flask mount clamp
7. Lower vertical stand
8. Main body

5.2 Vapor duct installation

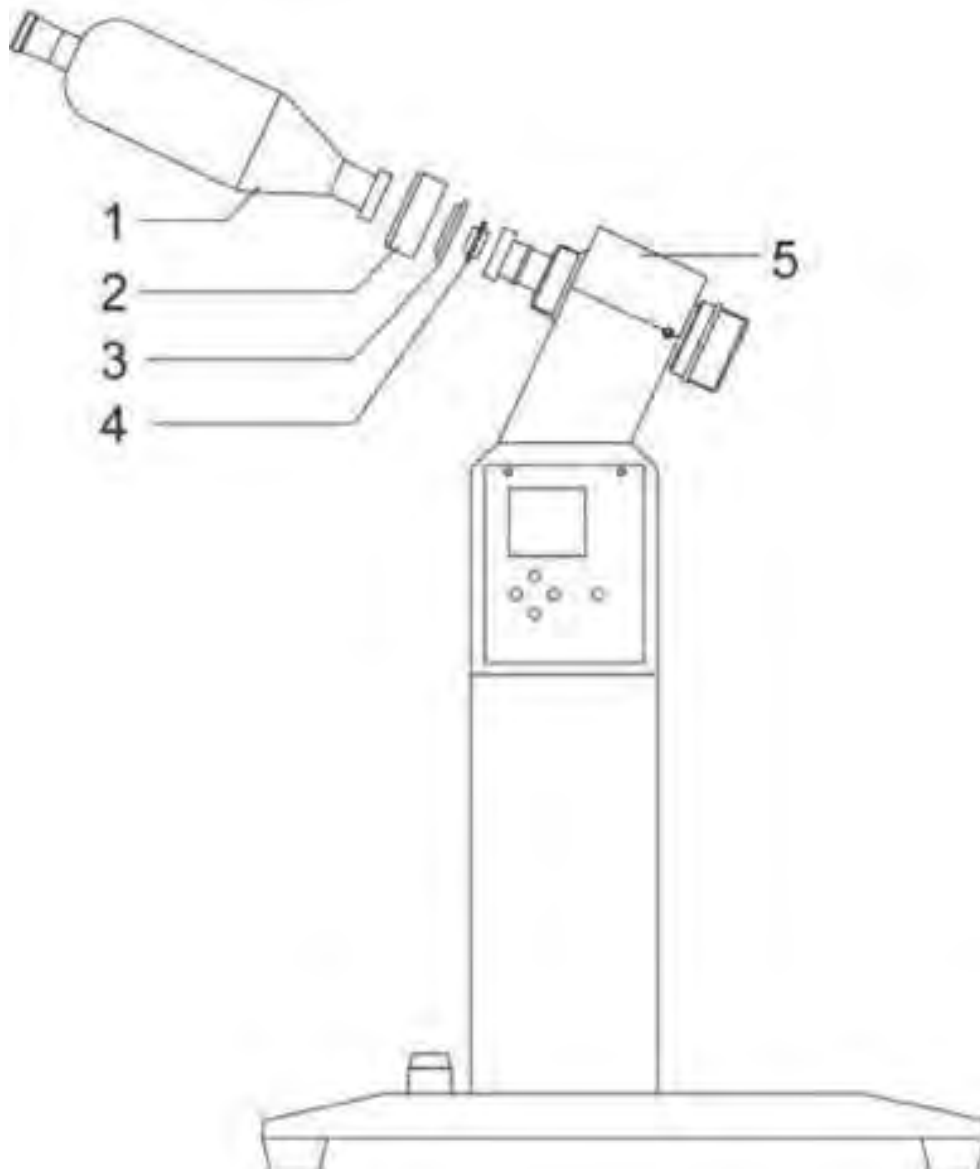
Set the O-ring on the glass vapor duct which shall be placed into the motor coupler with the O-ring against the motor shell. (As shown below, usually pre installed)



- 1. O-Ring
- 2. Glass vapor duct
- 3. Motor shell

5.3 Bump trap Installation

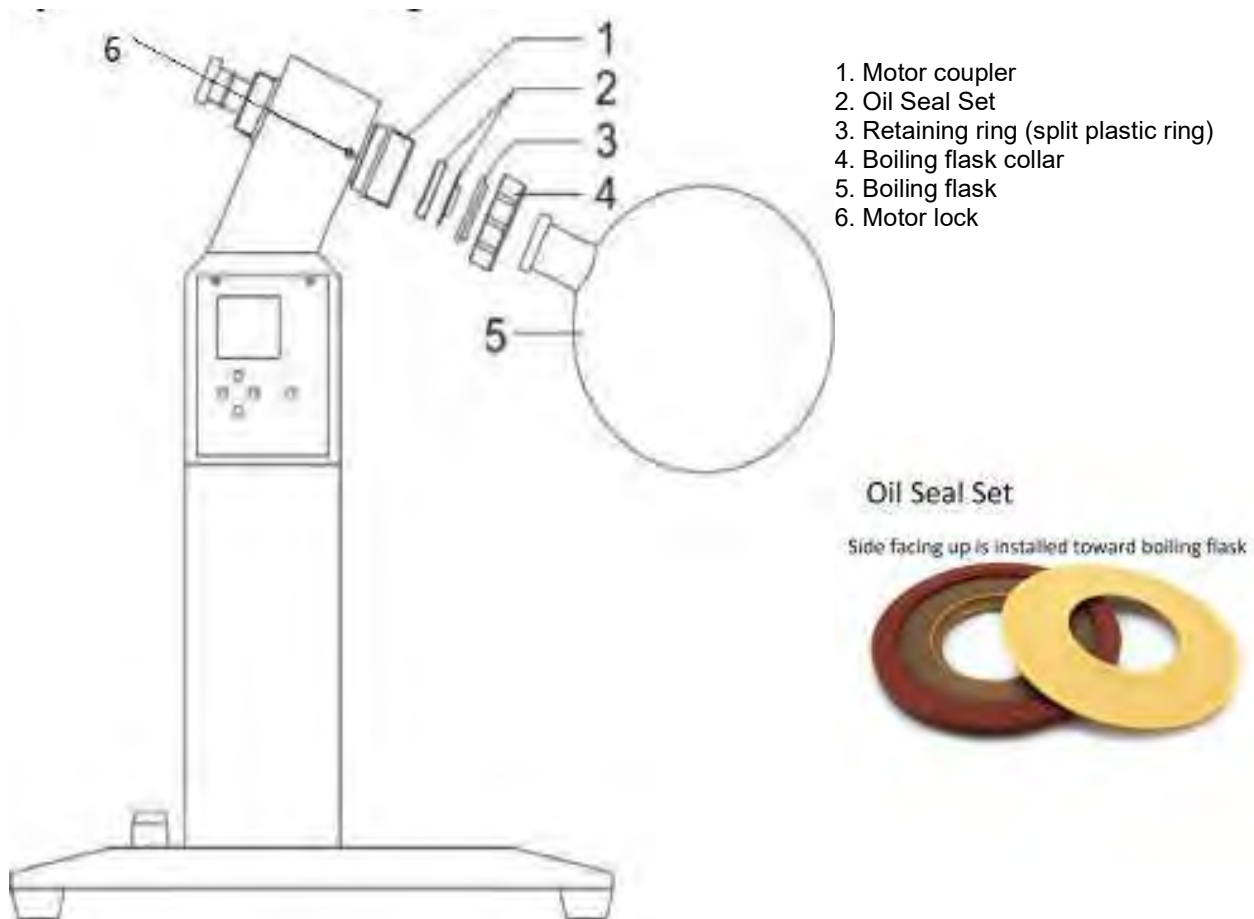
Place the metal retaining nut on the lower flange of bump trap and then add the plastic check ring inside of the metal retaining nut. Next, insert the flange seal washer onto the vapor duct in the motor coupler. Be sure to grease both sides of the washer. Last, insert the bump trap assembly onto the washer and tighten the retaining nut. (As shown below)



- 1. Bump trap
- 2. Bump trap collar
- 3. Bump trap retaining ring (split plastic ring)
- 4. Flange seal washer
- 5. Motor shell

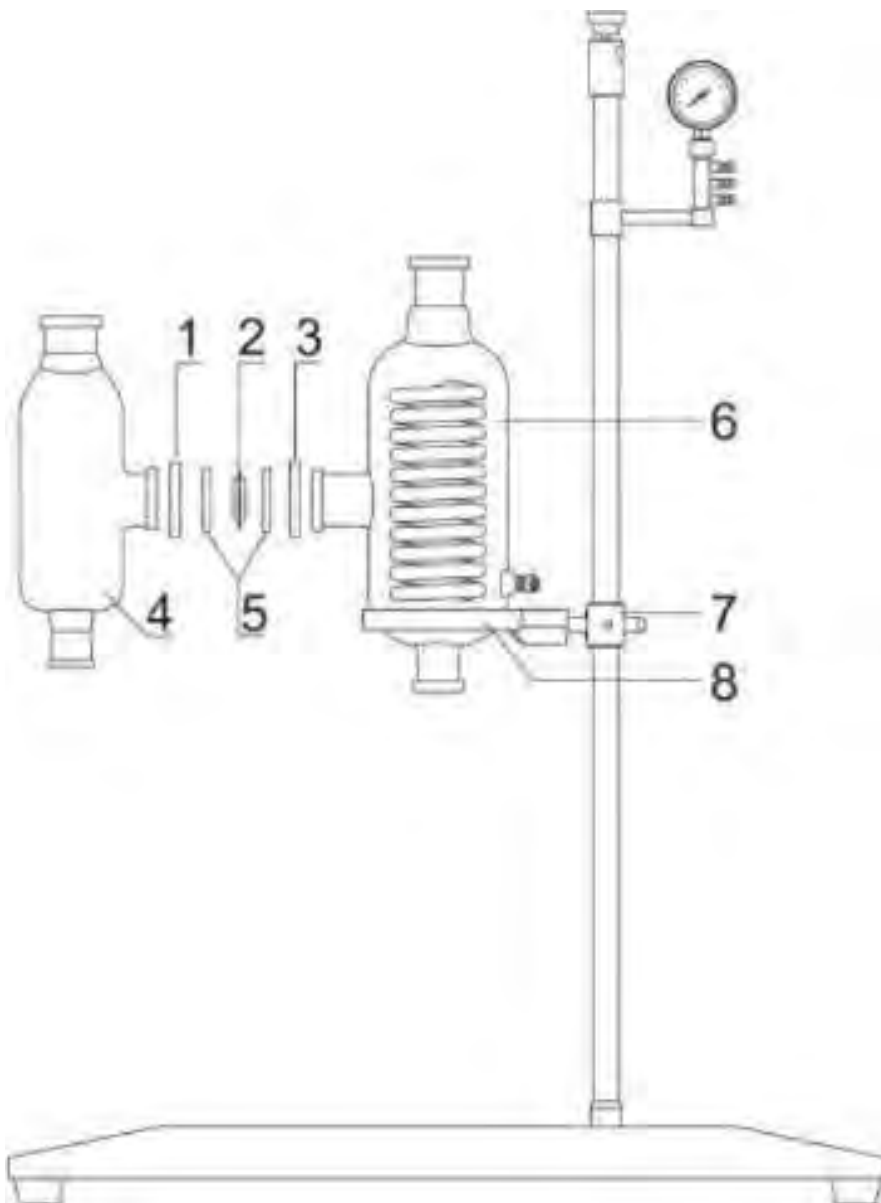
5.4 Boiling flask installation (All Models)

Remove the Oil Seal Set (preinstalled). Use the supplied vacuum grease to fully grease the Oil Seal Set. Refer to section 8 of this manual for grease locations. Then place the greased Oil Seal Set on the assembled vapor duct shaft as shown in the drawing below. (spring side of the thick seal toward the motor coupler) Next, place the boiling flask nut on the boiling flask flange with the plastic retaining ring (split plastic ring) on the inside of the nut. Insert an Allen wrench into the motor lock hole to keep the collar from turning. Align the boiling flask neck with the Oil Seal Set and screw the boiling flask nut onto the coupler. Ensure that the boiling flask is center properly while tightening. If the boiling flask is loose, try wiggling the flask up and down while tightening the collar down.



5.5 Auxiliary condenser installation (RE-1020, RE-1050)

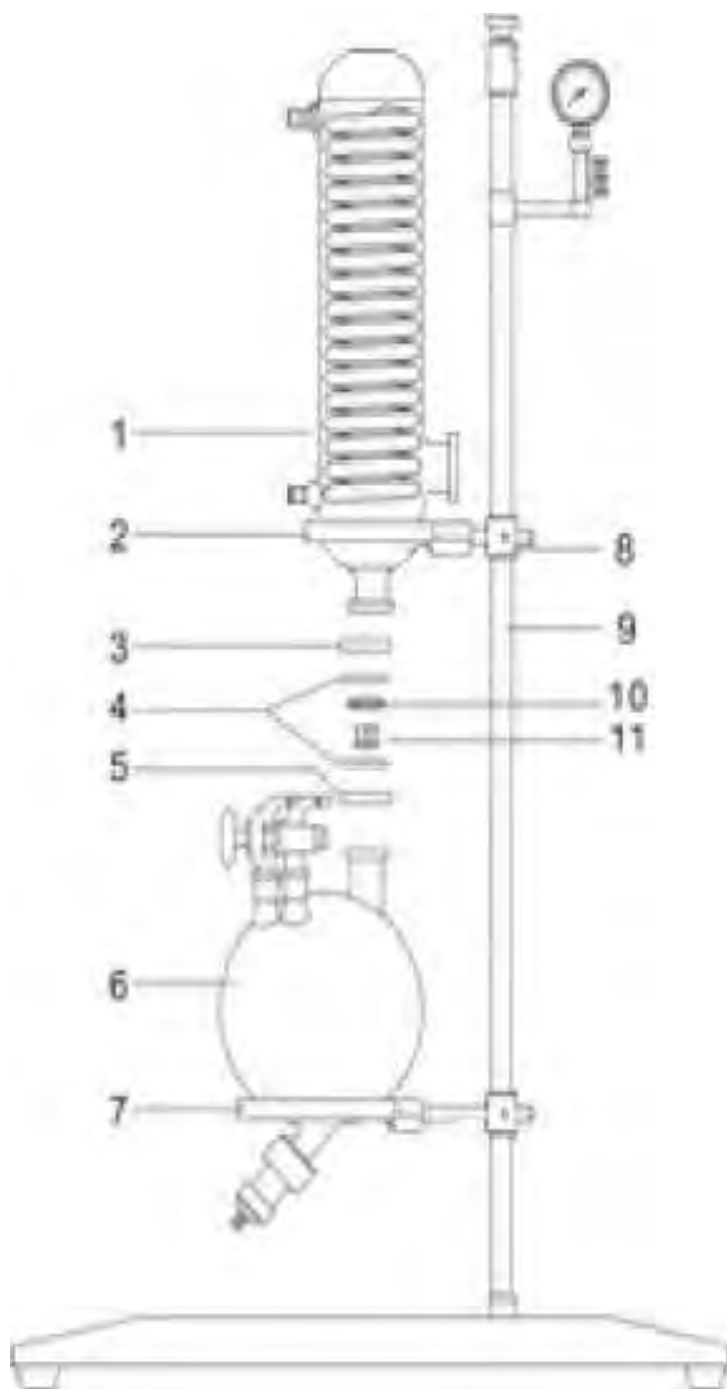
With the bump trap installed on the motor shell. Install the auxiliary condenser mount. Place the auxiliary condenser on the mount. Grease the seal washer on both sides and place it between the two flanges. Open the quick clamp by removing the bolt with the blue nut. Align the flanges and place the opened quick clamp over the flanges. Next, close the quick clamp and add the bolt and nut you removed. Tighten the nuts evenly, in an X cross pattern. (For EXRDS-1050 there is two condenser assemblies)



1. Flange clamp
2. Teflon seal washer
3. Flange clamp
4. Bump trap
5. Flange clamp retaining gaskets

5.6a Condenser and receiving flask installation (RE-1005)

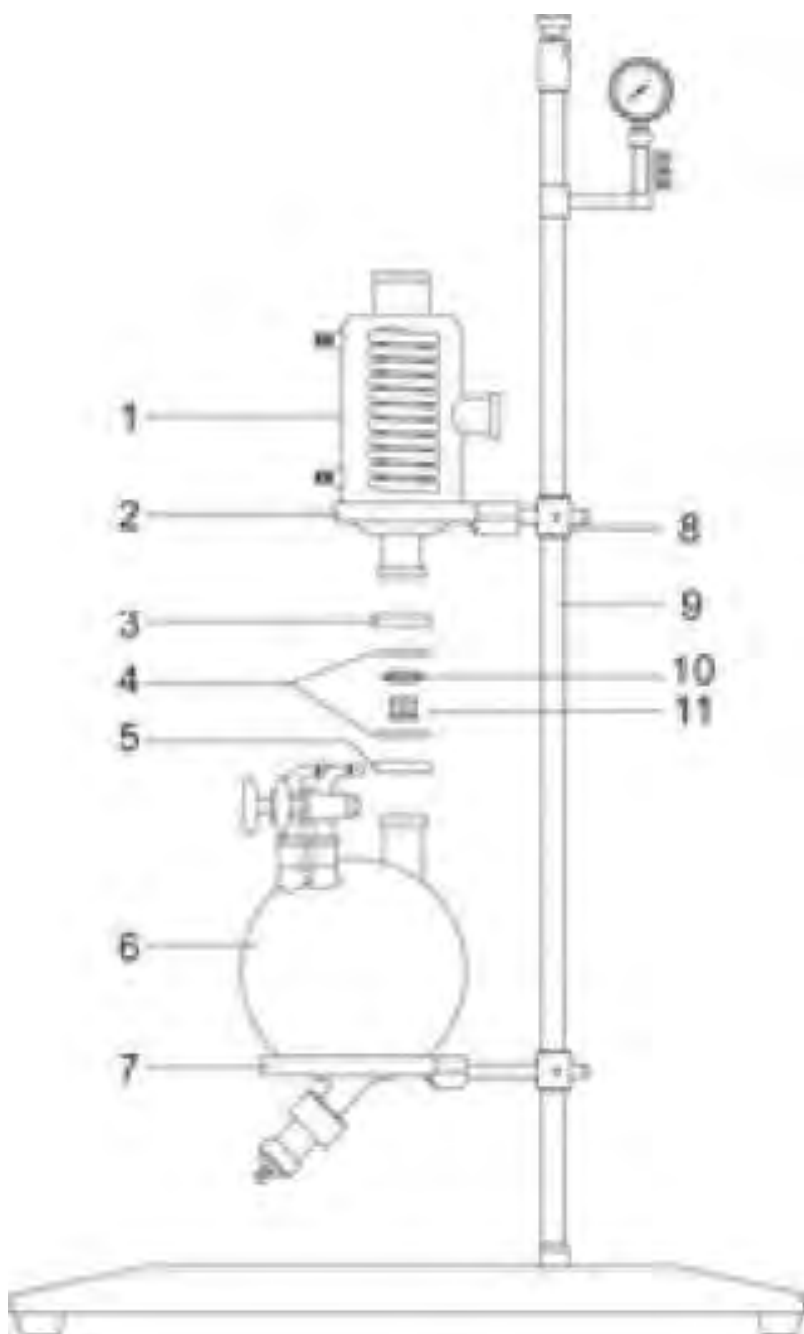
With the bump trap installed on the motor shell. Install the condenser mount. Place the condenser on the mount. Grease the seal washer on both sides and place it between the two flanges. Open the quick clamp by removing the bolt with the blue nut. Align the flanges and place the opened quick clamp over the flanges. Next, close the quick clamp and add the bolt and nut you removed. Tighten the nuts evenly, in an X cross pattern. Repeat the process paying special attention the orientation of the vacuum break valve. It must hang down to allow the condensed solvent to flow into the receiving flask.



1. 5L Condenser
2. Condenser mount
3. Flange clamp
4. Flange clamp retaining gaskets
5. Flange clamp
6. Receiving flask
7. Receiving flask mount
8. Condenser cross clamp
9. Vertical stand
10. Teflon seal washer
11. Vacuum break valve (built into seal washer)

5.6b Receiving flask installation drawing (RE-1020, RE-1050)

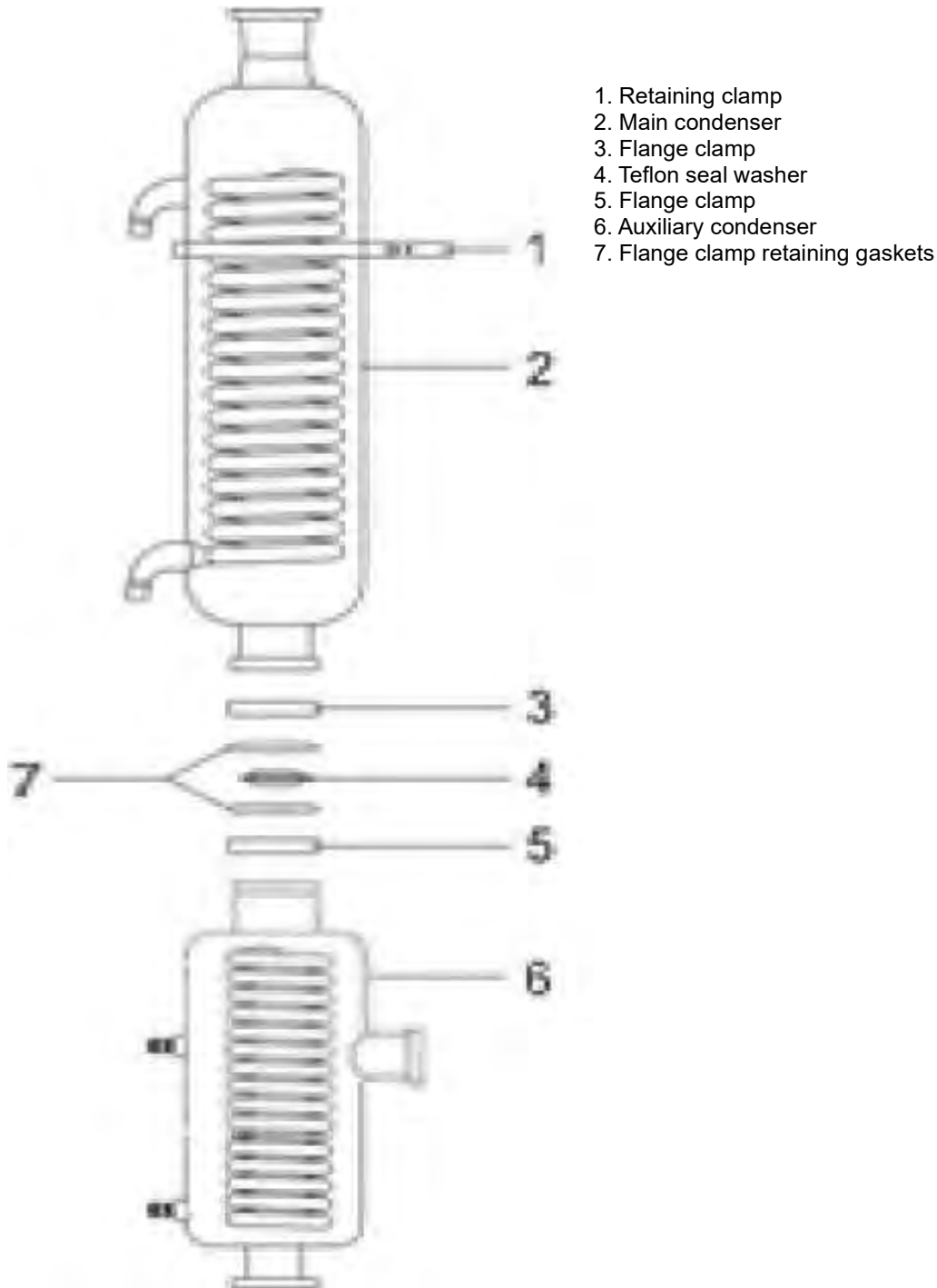
With the auxiliary condenser installed on the bump trap. Install the receiving flask mount. Place the flask on the mount. Grease the seal washer on both sides and place it between the two flanges. Open the quick clamp by removing the bolt with the blue nut. Align the flanges and place the opened quick clamp over the flanges. Next, close the quick clamp and add the bolt and nut you removed. Tighten the nuts evenly, in an X cross pattern. Pay special attention the orientation of the vacuum break valve. It must hang down to allow the condensed solvent to flow into the receiving flask.



1. Auxiliary condenser
2. Auxiliary condenser mount
3. Flange clamp
4. Flange clamp retaining gaskets
5. Flange clamp
6. Receiving flask
7. Receiving flask mount
8. Condenser cross clamp
9. Vertical stand
10. Teflon seal washer
11. Vacuum break valve (built into seal washer)

6.7 Main Condenser (RE-1020, RE-1050)

With the auxiliary condenser installed on to the bump trap. Install the main condenser strap. Place the main condenser on the auxiliary condenser carefully. Grease the seal washer on both sides and place it between the two flanges. Open the quick clamp by removing the bolt with the blue nut. Align the flanges and place the opened quick clamp over the flanges. Next, close the quick clamp and add the bolt and nut you removed. Tighten the nuts evenly, in an X cross pattern.



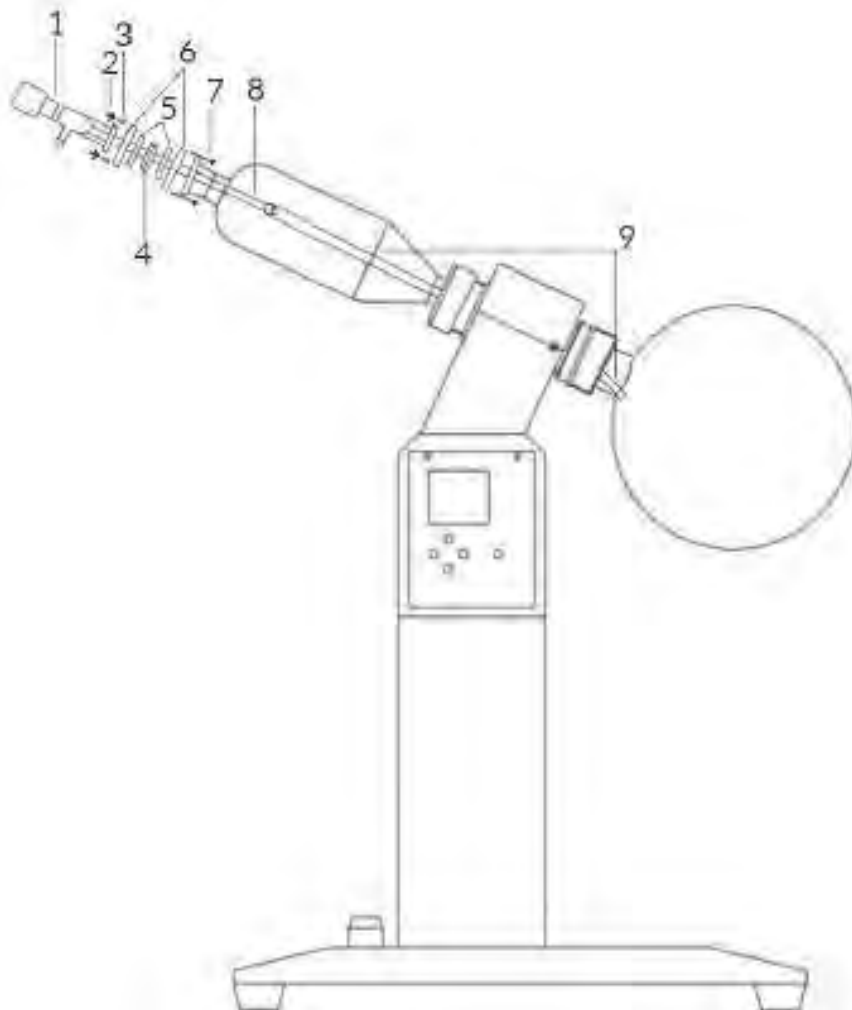
6.8 Miscellaneous Parts

Vacuum gauge installation:

Put the vacuum gauge and vacuum manifold assembly onto the vacuum gauge bracket and tighten the retaining screw, adjusting the holder to an appropriate height to view.

Bump trap glass valve feed port:

With the bump trap installed on the motor shell. Grease the seal washer on both sides and place it over the glass stem and slide it down to the flange. Put the Teflon tube on the end of the glass stem, you can heat it up to push it over the barbs. Slide the Teflon tube and stem into the end of the bump trap. Open the quick clamp by removing the bolt with the blue nut. Align the flanges and place the opened quick clamp over them. Next, close the quick clamp and add the bolt and nut you removed. Tighten the nuts evenly, in an X cross pattern.

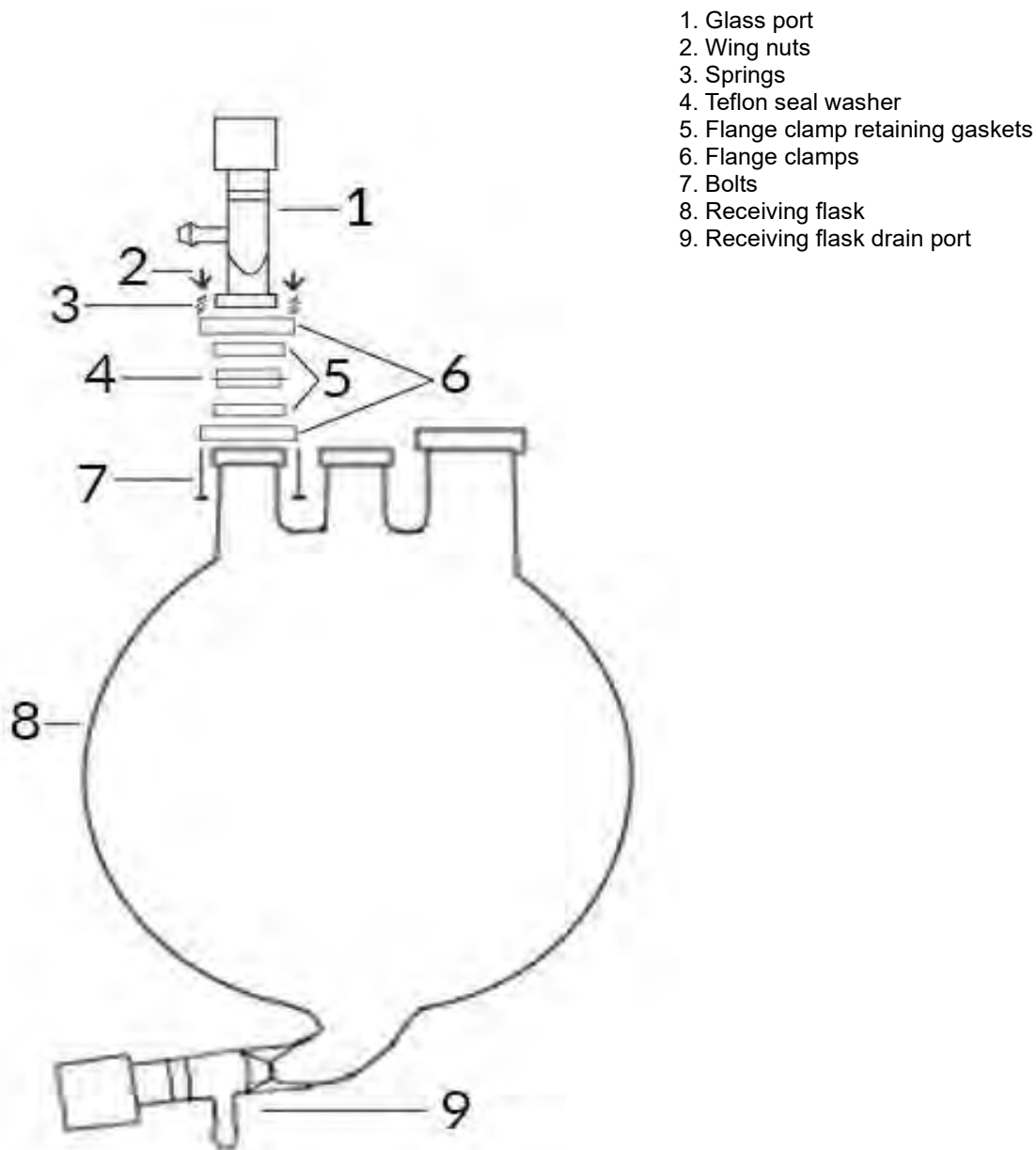


1. Glass feed port
2. Wing nuts
3. Springs
4. Teflon seal washer
5. Flange clamp retaining gaskets
6. Flange clamps
7. Bolts
8. Glass feed port stem
9. Teflon tube

Receiving flask glass valve ports:

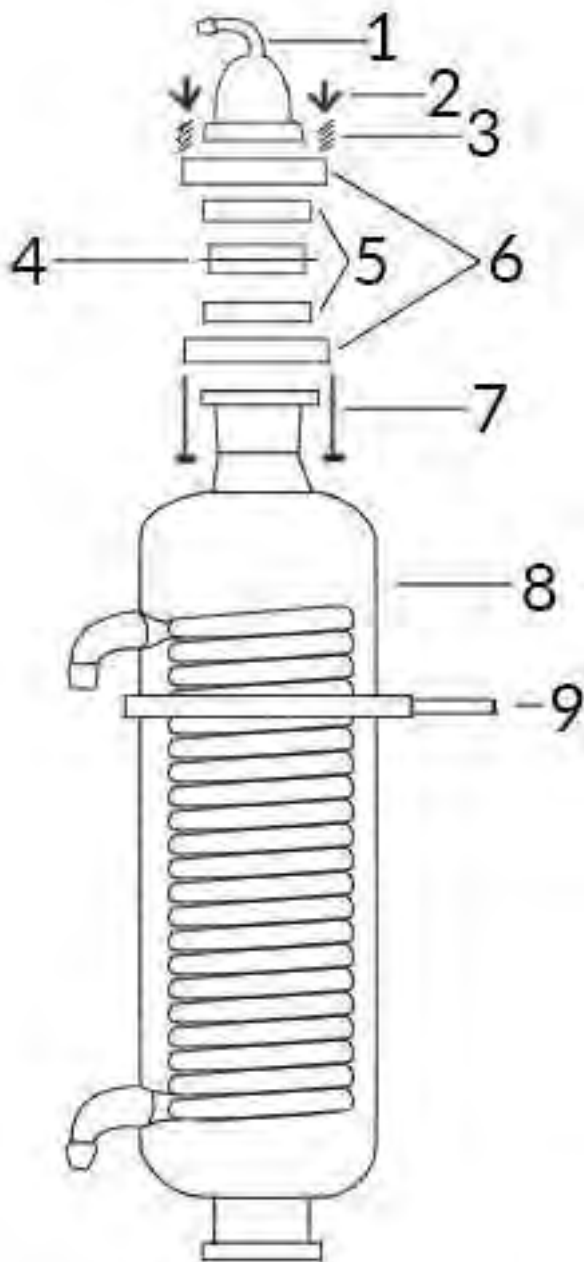
Grease the seal washer on both sides and place it between the two flanges. Open the quick clamp by removing the bolt with the blue nut. Align the flanges and place the opened quick clamp over the flanges. Next, close the quick clamp and add the bolt and nut you removed. Tighten the nuts evenly, in an X cross pattern. Repeat the process for the 2nd valve. (Many new kits do not have a built-in drain port)

Use one valve to break vacuum on the receiving flask and one valve to re-pressurize the receiving flask.



Vacuum port (RE-1020, RE-1050):

Grease the seal washer on both sides and place it between the two flanges. Open the quick clamp by removing the bolt with the blue nut. Align the flanges and place the opened quick clamp over the flanges. Next, close the quick clamp and add the bolt and nut you removed. Tighten the nuts evenly, in an X cross pattern.



- 1. Vacuum port
- 2. Wing nuts
- 3. Springs
- 4. Teflon seal washer
- 5. Flange clamp retaining gaskets
- 6. Flange clamps
- 7. Bolts
- 8. Main condenser
- 9. Condenser clamp

6 Water and vacuum tubing connections

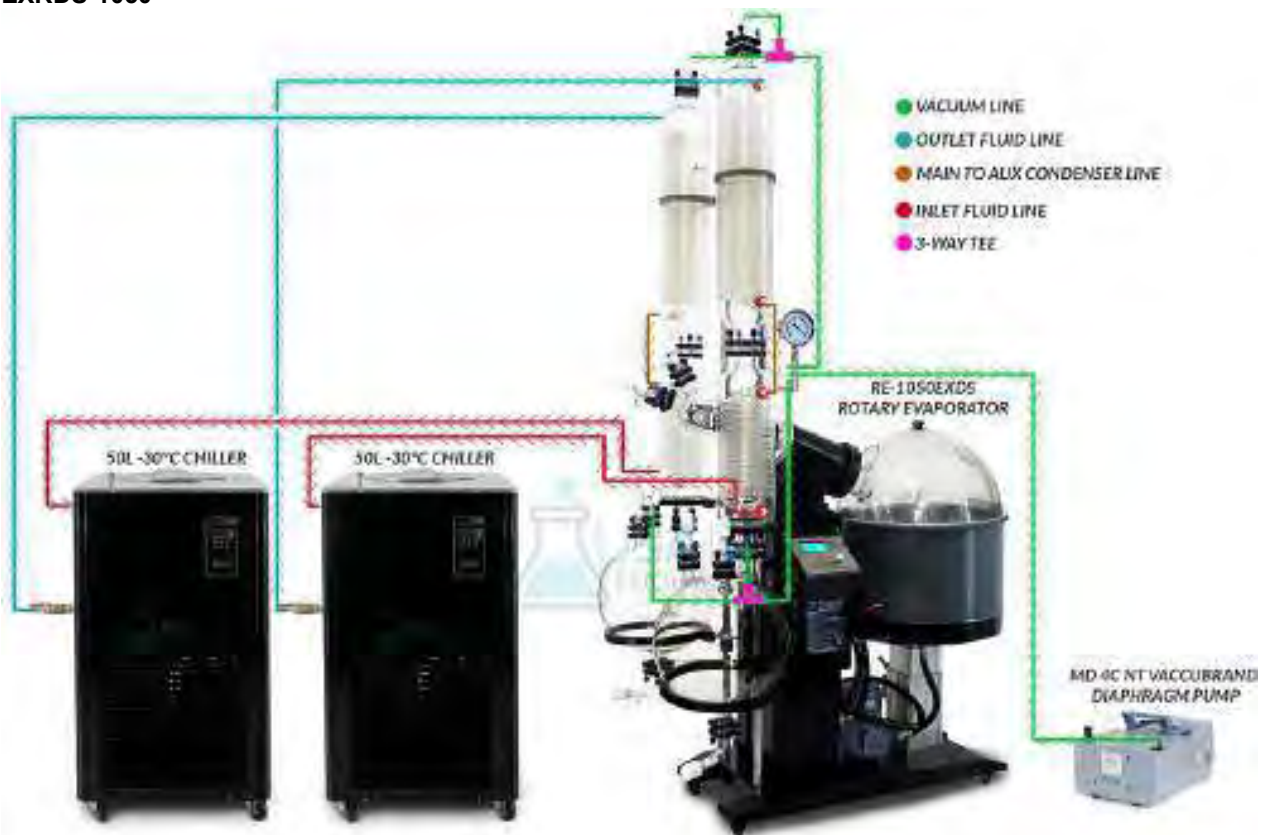
RE-1005



RE-1020, RE-1050 and EXR-1050



EXRDS-1050



7 Operation

7.1 Operating method

Set your chiller for the rated lowest temperature. Always run the loop. Allow the chiller to cool the entire loop until it is close to the set temperature. Raise the bath until the water covers half of the outside of the flask. Turn on the bath heating and set between 50C – 75C. Turn on the rotation for as fast as possible, while stable. If the glass wiggles, slow the rotation down. Place the cover over the boiling flask onto the edges of the bath. The vacuum should be started. Add a tube that runs from the feed port down to your vessel. Start the run when the chiller reaches 29C, when set for 30C. Open the feed port to begin filling the boiling flask. Do not fill the flask more than half-way. The evaporation will begin at this point. Evaporation can be boosted with pre heated solution. 40-45C. It will be necessary to refill the boiling flask over time. When the receiving flask is full. Close the vacuum port on the receiving flask. Then open the vent port to release the vacuum and close the receiving flask valve. Empty the receiving flask. Then close the vent valve and open the vacuum valve slowly. The receiving flask should equalize with the rest of the system and open the valve below the condenser. Dumping the solvent recovered while emptying the flask. Keep recovering until the flask is half full of solution that does not continue to evaporate solvent.

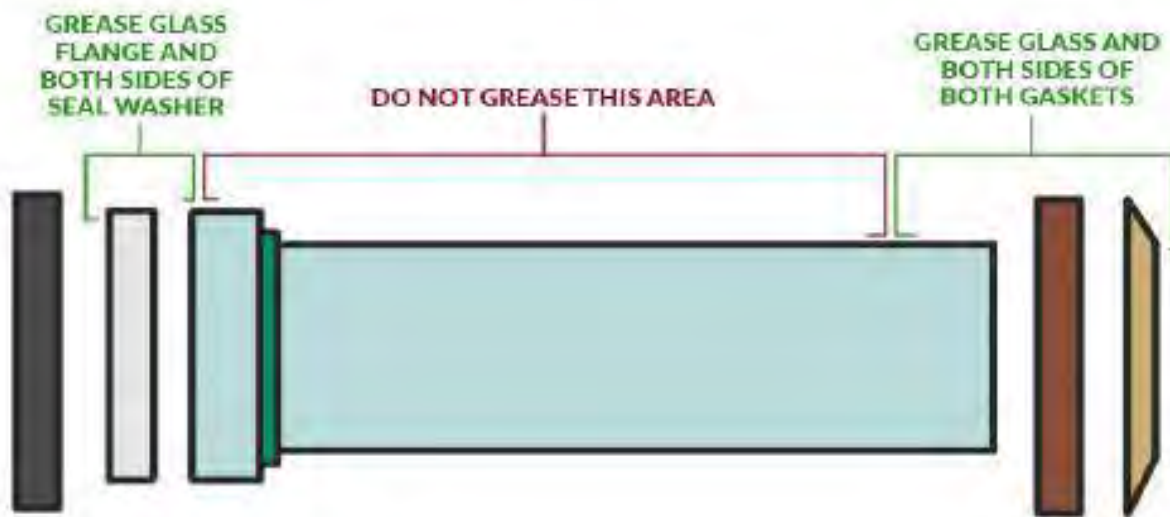
7.2 Storage

For long periods, please shut off the power switch and disconnect the power. Empty the water bath, boiling flask, receiving flask and condenser coil(s) Allowing time to dry completely. Cover while in storage.

8 Maintenance

1. Please shut off the power switch and disconnect the power cord before any maintenance.
2. Please use damp soft cloth to wipe clean. Stubborn stains should be cleaned by neutral detergents.
3. The maintenance of internal electrical and heating parts must be preformed by professionals or trained electricians.
4. Do not directly splash water over the product or use abrasive powder, diluent, oil, kerosene, acidic material and similar substance during cleaning, or else shock or other accidents will occur.

Periodic maintenance of the vapor duct is required. See image below for vacuum grease locations. If the vapor duct is not maintained, vacuum leaks and loud grinding noises in the motor area may occur.



9 Service

Our company provides limited warranty for any product with failures due to manufacturing quality within 12 months after the date of delivery on the premise of normal operation by users. Reasonable repair costs will be charged for damage caused by improper use. After-sales service Tel : (734) 855-4890 or sales@usalab.com

USA Lab reserves the right of ultimate interpretation of the instruction manual. Additionally, USA Lab is not responsible for damages or injuries caused by improper use; knowingly or unknowingly. Glassware is not covered under warranty. We ship all glassware products with additional care, but sometimes they arrive broken. If glassware arrives broken, please contact us within 3 days of receiving your product and we will either send you a brand new or send you a refund. Any glassware broken 3 days after or later will not be covered by warranty. Maintenance items such as seals and gaskets are not covered under the warranty. Thank you for understanding!

Return Policy:

We offer a 30-day return policy from when your package is delivered to your shipping address. By placing an order with USA Lab, you express that you have read and agreed to the following return policies.

- We do not accept returns for customized items. When purchasing a customized item, you agree that there are no returns due to the nature of the item(s) being specific to your needs.
- By default, a 15% restocking fee is applied on all items that are in original packaging and unused with no damage. This applies to all items returned within 30 days. No exceptions. You will be responsible for the return shipment unless deemed defective by USA Lab. In that case, we will pay for return shipment and replacement shipment costs.
- The item(s) must be returned in original packaging and in undamaged condition. The item(s) must have no signs of usage or wear including stickers, scratches, dents, resins, non-standard fluids, plant matter, or any other wear not representing a new, unused item. Products deemed defective with any signs of usage or wear will result in a 25% restocking fee.
- Once the returned item is received, tested, inspected, and processed, a refund will be issued. If your item(s) are in original packaging and unused, you will be refunded the initial purchase price with the 15% restocking fee deducted. If your item(s) are deemed damaged or used, you will be refunded the initial purchase price with the 25% restocking fee deducted.
- If an item has been deemed to be severely misused, modified resulting in catastrophic failure, operated anywhere but inside of a climate-controlled facility. A minimum of 25% restocking fee will be deducted from the refund.

Revision 2.0

10 Troubleshooting

Failure	Cause	Troubleshooting
The unit is plugged in but the power indicator light or LCD panel won't turn on.	Check the power cord to see if its loose or disconnected	Re-connect the power cord.
	Power switch failure.	Replace the power switch.
	Circuit board failure.	
The rotation indicator turns on but the motor does not rotate.	Motor failure.	Stop using the machine and contact us immediately.
	Circuit board failure.	
The heating indicator turns on but the bath does not heat.	Faulty relay or level switch.	Replace the relay or switch.
	Faulty heater element.	Replace the heater element.
The temperate display shows □□□	The bath temperature sensor has a short circuit or an open circuit.	Check sensor and wiring.
The temperature display shows "Er-1", ALM1 identifier is on.	The bath temperature sensor has a short circuit or an open circuit.	Check the sensor and wiring.
The temperature display shows "Er-2", ALM1 identifier is on.	The bath protection sensor has a short circuit or an open circuit.	
The temperature display shows "Er-3", ALM1 identifier is on.	The bath protection sensor exceeds the set value.	Restart the unit.
The temperature display shows "Er-1", ALM2 identifier is on.	Faulty power module.	Remove the boiling flask. Run the unit under no load. If the fault continues, stop using the machine and contact us immediately.
The temperature display shows "Er-2", ALM2 identifier is on.	The motor has stalled.	
The temperature display shows "Er-3", ALM2 identifier is on.	Holzer logic error	
The temperature display shows "Er-4", ALM2 identifier is on.	Board under voltage.	Check the power cord voltage value.
The temperature display shows "Er-5", ALM2 identifier is on.	Board over voltage.	
The temperature display shows "Er-6", ALM2 identifier is on.	Serial communication fault.	Stop using the machine and contact us immediately.
An abnormal noise occurs.	Abrasions on the seal ring.	Replace the seal ring.
	Abrasions on the internal gears.	Stop using the machine and contact us immediately.
	A lack of grease in the motor shell.	
	Failure of the motor bearings.	
Low vacuum pressure.	Abrasions of the glass rotary shaft.	Replace the glass rotary shaft.
	Abrasions on the seal ring.	Replace the seal ring.
	Incorrect installation of the Teflon vacuum break seal washer.	Remount the seal ring.
	Leaking from any of the seal washers or glass port valves	Replace the seal washer or glass port valve o-ring.
	Aging of the vacuum hose.	Replace the vacuum hose.
Uneven bath lifting.	Circuit board or motor failure.	Stop using the machine and contact us immediately.
	Abrasion or rusting of the sliding bearing.	

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Operation Manual

BTpro Botanical Diaphragm Pumps

8-Headed BTpro170

► Models: 7040, 7042



4-Headed BTpro100

► Models: 7030, 7032



We are constantly working on the further development of all our product models.
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Diaphragm pumps BTpro170, BTpro100

MAINTENANCE AND INSTALLATION INSTRUCTIONS

Read and understand the information and instructions included with this product before using. This information is for your safety and to prevent damage to this product. Failure to observe these safety precautions could result in severe bodily injury, including death in extreme cases.



CAUTION: To reduce risk of electrical shock...

1. Do not disassemble. Disassembly or attempted repairs if accomplished incorrectly can create electrical shock hazard. Refer servicing to qualified service agencies only.
2. If this pump assembly is supplied with a three-pronged plug, connect unit to a properly grounded outlet only.



WARNING: To reduce risk of electrocution...

1. This product should never be left unattended when plugged in.
2. Always unplug this product immediately after use and store in dry place.
3. Do not use this product in or near area where it can fall or be pulled into water or other liquids.
4. Do not reach for this product if it has fallen into liquid. Unplug immediately.
5. To Reduce the Risk of Electric Shock or Injury, Use Indoors Only.



DANGER: To reduce risk of explosion or fire...

1. Do not use this product in or near explosive atmospheres or where aerosol (spray) products are being used.
2. Do not pump combustible liquids or vapors with this product or use in or near an area where flammable or explosive liquids or vapors may exist.
3. Do not use this product near flames.



CAUTION: To prevent Injury...

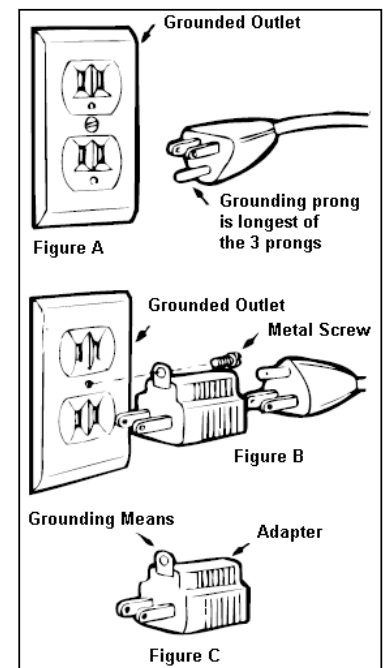
1. Close supervision is necessary when this product is used near children or invalids. Never allow children to operate unit.
2. Never operate this product if it has a damaged cord or plug, if it is not working properly, if it has been dropped or damaged, or if it has fallen into water. Return the product to a service center for examination and repair.
3. Keep the cord away from heated surfaces.
4. Never use while sleeping or drowsy.
5. Do not operate this product where oxygen is being administered.
6. This unit is thermally protected. See page 2 Thermal Switch Protection for full details.
7. Always disconnect power source before servicing.
8. Wear safety glasses or goggles when operating this product.
9. Use only in well ventilated areas.
10. All electrical products generate heat. To avoid serious burns never touch unit during or immediately after operation.

Grounding Instructions

This product should be grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current. This product is equipped with a cord having a grounding wire with an appropriate grounding plug. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.



DANGER – Improper installation of the grounding plug can result in a risk of electric shock. If repair or replacement of the cord or plug is necessary, do not connect the grounding wire to either flat blade terminal. The wire with insulation having an outer surface that is green with or without yellow stripes is the grounding wire. Check with a qualified electrician or serviceman if the grounding instructions are not completely understood, or if in doubt as to whether the product is properly grounded. Do not modify the plug provided; if it will not fit the outlet, have the proper outlet installed by a qualified electrician. This product is for use on a nominal 120-volt circuit, and has a grounding plug that looks like the plug illustrated in Fig. A. A temporary adapter that looks like the adapter illustrated in Fig. B and Fig. C may be used to connect this plug to a 2-pole receptacle as shown in Fig. B, if a properly grounded outlet is not available. The temporary adapter should be used only until a properly grounded outlet (Fig. A) can be installed by a qualified electrician.



License Type: Processor

The green colored rigid ear, lug, or the like extending from the adapter must be connected to a permanent ground such as a properly grounded outlet box cover. Whenever the adapter is used, it must be held in place by a metal screw. This adapter shown in Fig. B and Fig. C is not acceptable in Canada.

Extension Cords – Use only a 3-wire extension cord that has a 3-blade grounding plug, and a 3-slot receptacle that will accept the plug on the product. Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. For lengths less than 25 feet, No. 18 AWG extension cords should be used. For lengths less than 100 feet, No. 12 AWG extension cords should be used. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. If in doubt, use the next heavier gage. The smaller the gage number, the heavier the cord.

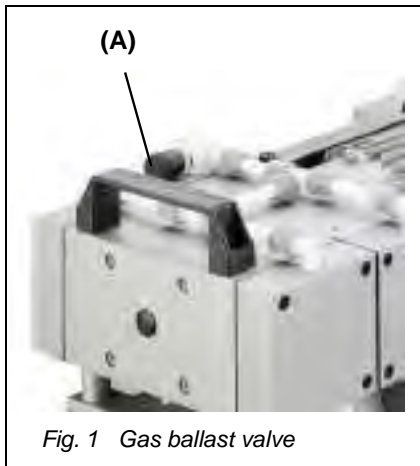
Ambient Conditions – This unit should be operated in a well-ventilated area where the surrounding air is relatively clean, dry and temperatures are consistently within the range of 41°F (5°C) and 104 °F (40°C). Adequate ventilation is required for proper operation.

Thermal Switch Protection - This unit is supplied with self-holding thermal protection. If the thermal protection were to trip from overheating the supply voltage needs to be disconnected and the unit allowed to cool down. Once the thermal protection resets only then reconnect the supply voltage. If the supply voltage is not disconnected the thermal protection will continue to stay open.

Operation

The intended use for this vacuum pump is for general physical and chemical laboratory applications requiring vacuum ranging from atmospheric pressure down to an ultimate vacuum of 8 mbar.

1. The pump is equipped with an ON/OFF (I/O) power switch.
2. **Gas Ballast** – A gas ballast valve **(A)** is provided on the pump. When condensable vapors are pumped, they may be compressed above the saturated vapor pressure and condense in the pump. Opening the gas ballast valve admits air into the last stage of the vacuum pump there by reducing the partial pressure of the condensable vapors and preventing condensation and flushing the pump clear. Gas ballast operation leads to increasing the ultimate pressure and operating temperature.



Maintenance

General Requirements

1. Check the pump daily for unusual running noises and heat building up on the surface of the pump.
2. Replace the diaphragm after 10,000 operating hours. The user may specify replacement be made earlier, depending upon the application process.
3. Check the electrical and vacuum connections daily.
4. When the unit is not in use, Unplug and wrap the cord securely and store in a dry place. Do not abuse cord or plug.
5. Inspect hose, plug and cord for signs of damage before use. Do not use if a deficiency is found. Contact your nearest service centre for replacement parts. Never operate a damaged unit.

Maintenance Performed by the User

1. Warning! Be sure to unplug the pump before conducting any maintenance work.
2. Loosen and remove the hoses
3. Open and remove the pump heads
4. Inspect the pump chambers, diaphragms and valves
5. Deposits in the inside of the pump must be cleaned out
6. Change the diaphragms, valves and seals



Tools required:**Tool kit: Order no. 402106-US, consists of:**

- Order no. 826801 Pin type face wrench, adjustable, size 3,
- Order no. 826801-6 Hex wrench, size 4mm,
- Order no. 826801-5 Open spanner, size 17mm.

Disassembly

1. Open the screw clamps (9) of the hoses (10) on the pump body with the size 17 open spanner.
2. Remove four machine screws (1) from each connection head with an Allan key, size 4.
3. Lift off the connection head (2) and the pump head (5). The valves (3), O-rings (4) and diaphragm (7) are now freely exposed.
4. Loosen the diaphragm (7) at the strain washer (6) by turning the size 3 pin type face wrench anticlockwise.
5. Clean the valves (3), the pump head (5) and the diaphragm (7) with a soft cloth and acetone.
6. Check that the drive is in good working order.

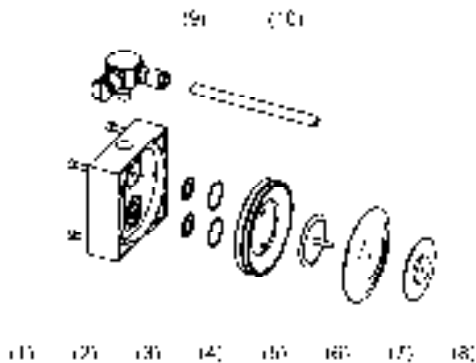


Fig. 2 Disassembly, assembly

Assembly (see Fig. 2)

1. Place the pump so that the diaphragm is lying in a horizontal position.
2. Use the size 3 pin-type face wrench to tighten the pressure disc (8), the diaphragm (7) and the strain washer (6) with the correct torque of 5 - 6 Nm.
3. Bring the piston rod (see Fig. 4,6) and the diaphragm (7) into the central position.
4. Replace the pump head (5).
5. Insert the valves (3) and the O-rings (4).
Ensure that they are lying completely flat. Do not insert the burred side facing the sealing surface. Align the connection head flush with the pin.
6. Tighten the four machine screws (1) symmetrically with a torque of 3 to 4 Nm.
7. Reattach the hose connections (10) with clamping ring screw fittings (9).

Test

Connect a vacuum gauge to the intake connection and measure the ultimate pressure.

The pump must not make any abnormal noises. Moving parts must not touch each other. If the repair was successful and the pump is working properly, then a fully warm pump should attain the specified ultimate pressure stated in the specifications data.

Maintenance by the Manufacturer

Repairs and maintenance going beyond the extent of the work described *above* or reconditioning or modification may only be performed by the manufacturer or authorized dealer.



Service kits

Designation	Order no.
Service kit for model: BTpro170 BTpro100	402043-US 402042-01-US

The Service kit consists of:

Designation	Kit - Order no. 402043-US		Kit - Order no. 402042-01-US	
	for Model BTpro170		for Model BTpro100	
	Piece	Order no.	Piece	Order no.
O-Ring ø 12 x 2	36	829217-3	8	829217-3
O-Ring ø 25 x 2	16	829250-1	8	829250-1
Valve	16	400656	6	400656
Valve with hole	-	-	2	400656-4
Diaphragm	8	400732	4	400732



Technical Data - BTpro170

Dimensions

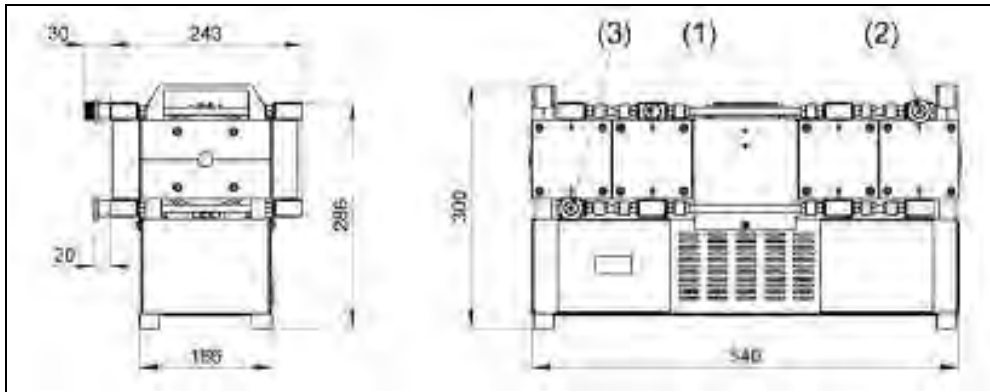


Fig. 3 Dimensions

Device Data

Parameter	Unit	Diaphragm pump – BTpro170
		(two-stage)
Free Air Displacement @ 60 Hz	CFM	6.0
	L / min	170
Ultimate pressure	mbar	8
Max. inlet pressure	bar	1
Max. outlet pressure		1
IN - Intake (1) and EX - Exhaust (2) connections	standard	Small flange DN 16 KF
	option	Hose nozzle DN 8 for hose inside diameter 8 mm (<i>enclosed</i>)
Ambient temperature	°C	+ 10 to + 40
Max. operating gas temperature		+ 40
Bearing	-	maintenance-free
Voltage	V	230, 115
Frequency	Hz	50/60
Power	W	370 / 440
Motor protection	-	IP 54
Motor / Class of insulation	-	F
Dimensions (W/D/H)	mm	540 / 240 / 300
Weight	kg	32.8
Order numbers for Diaphragm pumps <i>inclusive mains connection cables IEC with:</i>	-	
- 230 V Schuko and UK plug		7042-01
- 115 V American plug		7040-01

The information presented in this material is based on technical data and test results of nominal units. It is believed to be accurate and reliable and is offered as an aid to help in the selection of products. It is the responsibility of the user to determine the suitability of the product for the intended use and the user assumes all risk and liability whatsoever in connection therewith. Gardner Denver Thomas GmbH does not warrant, guarantee or assume any obligation or liability in connection with this information.



Spare Parts Overview

Spare parts view - Basic structure – BTpro170

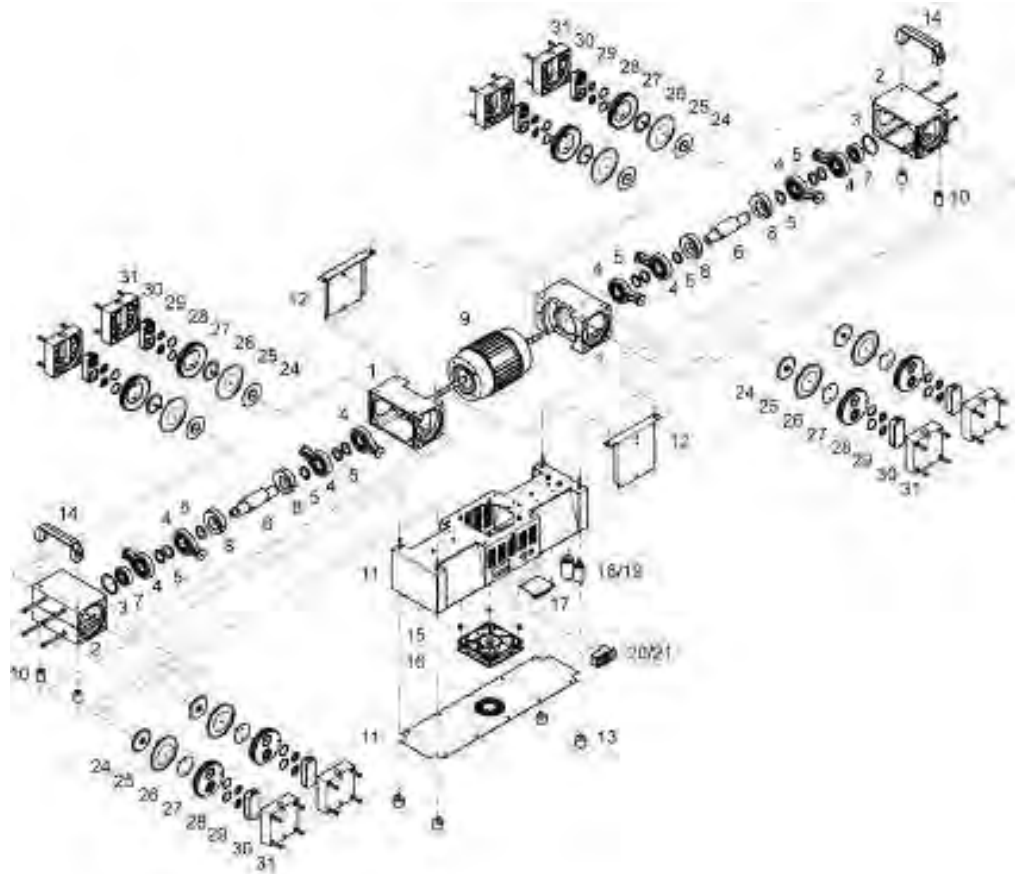


Fig. 4 Exploded view - Basic structure (Diaphragm pumps 8-headed)



Spare Parts Overview

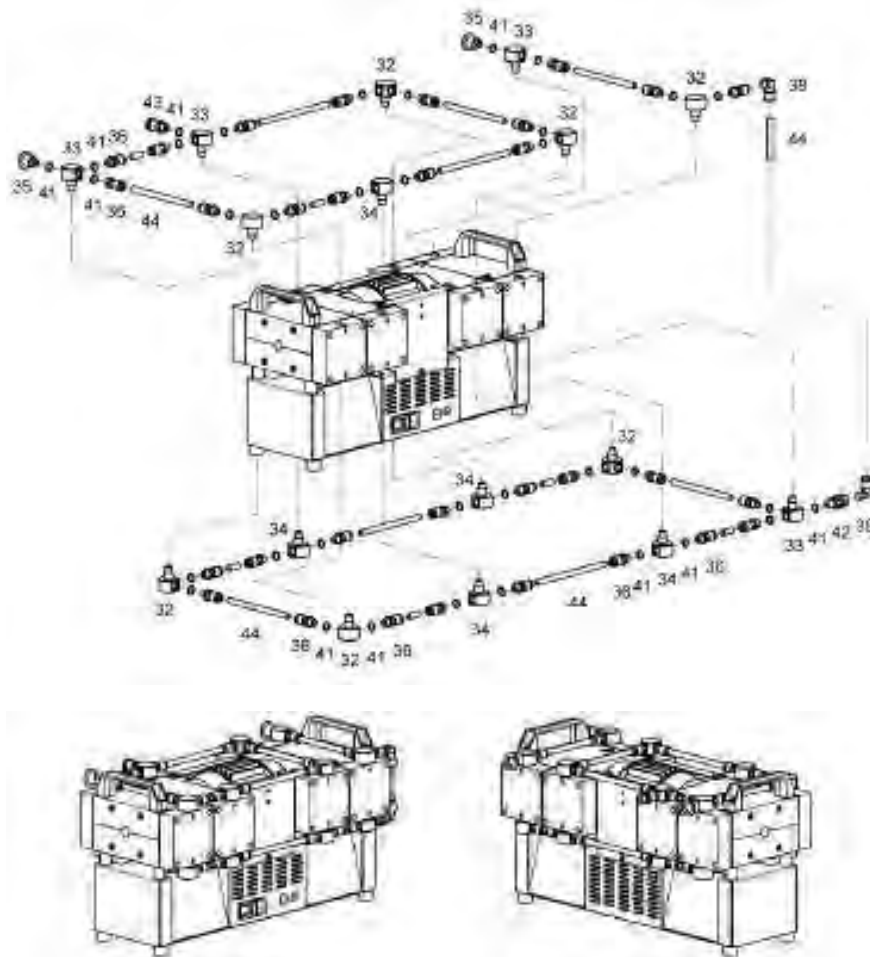
Spare parts list - Basic structure – BTpro170

Item no.	Designation	Piece	BTpro170	
			230 V	115 V
			Order no. 7042-01	Order no. 7040-01
			Order no.	Order no.
- *)	Basic pump complete (consisting of position: 1 – 9)	1	-	-
		1	-	410404-07
1	- Pump casing 1	2	400640-01	400640-01
2	- Pump casing 2	2	400640-3	400640-3
3	- O-Ring \varnothing 47.22 x 3.53	2	829269	829269
-	- Drive complete (consisting of position: 4 – 8)	1	400844	400844
4	- Piston rod with ball bearing	4	400647-01	400647-01
5	- Close tolerance spacer 25 x 35 x 1	6	824957-1	824957-1
6	- Eccentric shaft	1	400742-1	400742-1
7	- Ball bearing	1	824949-3	824949-3
8	- Mass balance	2	400678-1	400678-1
9	- Alternating-current motor	1	826390-5	826390-7
10	Spacer distance - Foot	4	410437	410437
11	Foot	1	410435	410435
12	Air duct	2	410438	410438
13	Rubber metal-pad	4	829141-2	829141-2
14	Handle	2	828670	828670
15	Spacer for fan	4	103521	103521
16	AC axial fan	1	829819-3	829819-5
17	Time controlling VAPU 0003	1	825681	825681-1
18	Motor operating condenser 20 μ F	1	-	825458
18	Motor operating condenser 16 μ F	1	-	-
19	Motor operating condenser 12 μ F	1	-	-
20	Device plug for non-heating apparatus - combination	1	825274	825274
21	Fine fuse T 6.3 A	1	825372	825372
24	Pressure washer	8	400680	400680
25	Diaphragm	8	400732	400732
26	Tightening washer	8	400707	400707
27	Pump head	8	400705-02	400705-02
28	O-Ring EPDM \varnothing 25 x 2	16	829250-1	829250-1
29	Valve	16	400656	400656
30	PTFE insert	8	400902	400902
31	Connection head	8	410432	410432

*) The "basic pump" module (items 1 – 9) can only be supplied complete under order number 410404-07.

Spare Parts Overview

Spare parts view - Vacuum connection BTpro170



Spare parts list - Vacuum connection BTpro170

Item no.	Designation	Piece	7042-01	7040-01
			230 V	115 V
			Order no.	Order no.
32	Manifold 2	7	400903	400903
33	Manifold 3	3	400904	400904
34	Manifold 4	6	400911	400911
35	Intake-/exhaust port PP, DN16KF – ¼"	2	710116	710116
36	Straight threaded joint with seal edge PVDF, 10 – ¼"	30	829931	829931
37	Threaded elbow joint PVDF, 10 – M 12 x 1	-	-	-
38	Threaded elbow joint PVDF, 10 – ¼"	-	-	-
39	Threaded elbow joint with attitude taps PVDF, 10 – ¼"	2	829913-1	829913-1
40	T - screw connection PP, 10 – 10 – 10	-	-	-
41	O-Ring EPDM ø 12 x 2	34	829217-3	829217-3
42	Check valve PVDF, 8	1	829909	829909
43	Gas ballast valve	1	400599-01	400599-01
44	Vacuum hose PTFE 10 / 8x1mm	1.5 m	828332	828332



Technical Data

Technical Data - BTpro100

Dimensions

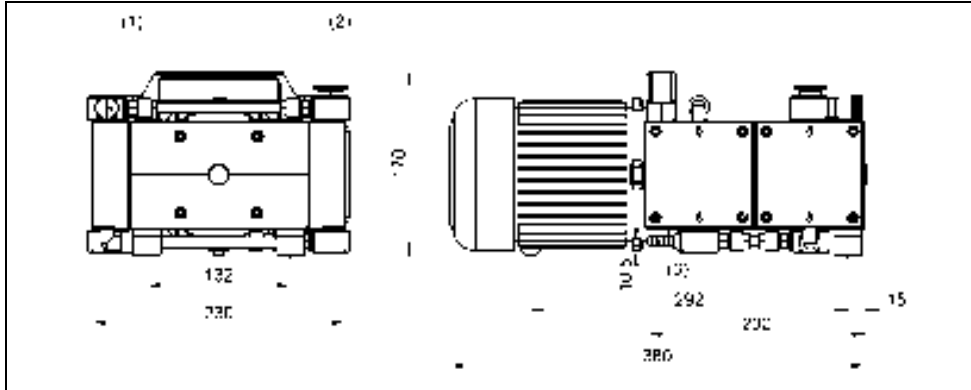


Fig. 5 Dimensions (Model BTpro100)

Device Data

Parameter	Unit	Diaphragm pump – BTpro100
		(two-stage)
Free Air Displacement @ 60 Hz	CFM	3.5
	L / min	100
Ultimate pressure	mbar	8
Max. inlet pressure	bar	1
Max. outlet pressure		1
IN - Intake (1) and EX - Exhaust (2) connections	standard	Small flange DN 16 KF
	option	Hose nozzle DN 8 for hose inside diameter 8 mm (enclosed)
Ambient temperature	°C	+ 10 to + 40
Max. operating gas temperature		+ 40
Bearing	-	maintenance-free
Voltage	V	230, 115
Frequency	Hz	50/60
Power	W	370
Motor protection	-	IP 54
Motor / Class of insulation		F
Dimensions (W/D/H)	mm	230 / 380 / 170
Weight	kg	18.3
Order numbers for Diaphragm pumps inclusive mains connection cables IEC with:	-	
- 230 V Schuko and UK plug		7032-01
- 115 V American plug		7030-01

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Spare Parts Overview

Spare parts view - Vacuum connection BTpro100

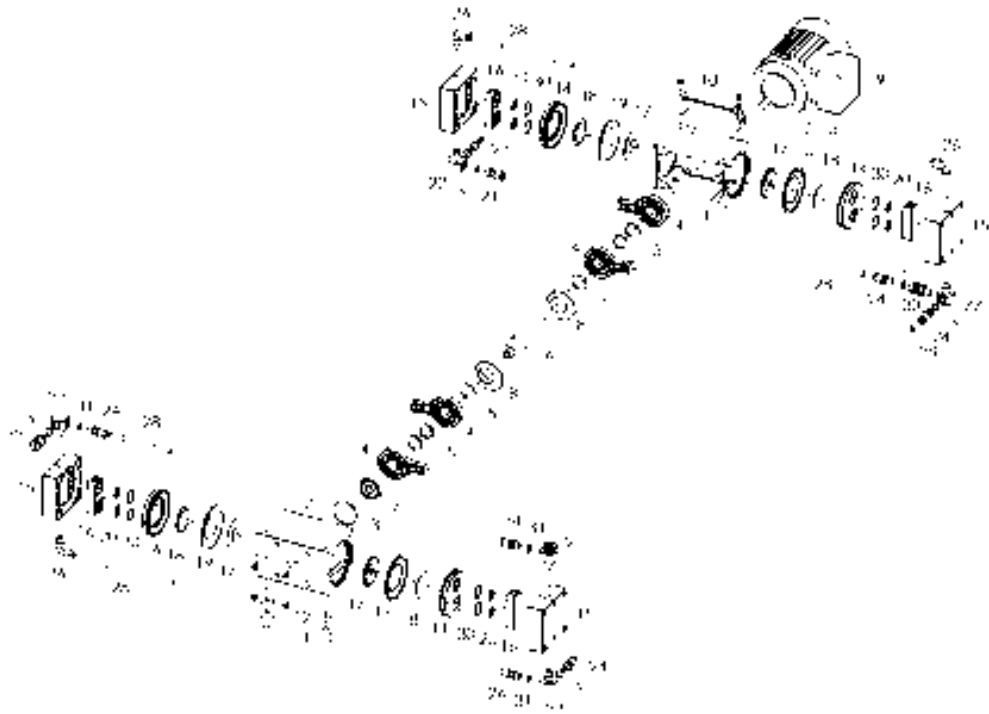


Fig. 6 Exploded view (BTpro100)

Spare Parts Overview

Spare parts list - Diaphragm pump - BTpro100

Item no.	Designation	Piece	7032-01	7030-01
			230 V	115 V
			Order no.	Order no.
- *)	Basic pump complete <i>(consisting of position: 1 – 9)</i>	1	410403	410403-01
1	- Pump casing 1	1	410430-01	410430-01
2	- Pump casing 2	1	410430-3	410430-3
3	- O-Ring ø 47.22 x 3.53	1	829269	829269
-	- Drive complete <i>(consisting of position: 4 – 8)</i>	1	400844	400844
4	- Piston rod with ball bearing	4	400647-01	400647-01
5	- Close tolerance spacer 25 x 35 x 1	6	824957-1	824957-1
6	- Eccentric shaft	1	400742-1	400742-1
7	- Ball bearing	1	824949-3	824949-3
8	- Mass balance	2	400678-1	400678-1
9	- Alternating-current motor	1	826390-1	826446-1
10	Handle	1	828634	828634
11	Rubber metal-pad	2	829141-2	829141-2
12	Spacer distance PP, Foot	2	400784-01	400784-01
13	Rubber pad	1	400785-1	400785-1
14	Pump head	4	400705-02	400705-02
15	Connection head	4	410432	410432
16	PTFE insert	4	400902	400902
17	Pressure washer	4	400680	400680
18	Tightening washer	4	400707	400707
19	Diaphragm	4	400732	400732
20	Valve	8	400656	400656
	Valve with hole	2	400656-4	400656-4
21	Manifold 5	2	400917-01	400917-01
22	Manifold 2	2	400903	400903
	Manifold 4	1	400911	400911
23	Hose nozzle PP, DN 8 – ¼" <i>(2x enclosed)</i>	2	710798	710798
24	Straight threaded joint with seal edge PVDF, 10 – ¼"	6	829931	829931
25	T - screw connection PP, 10-10-10	2	829930-02	829930-02
26	Threaded elbow joint 10, PVDF, M12 x 1	3	829972	829972
27	Threaded elbow joint PVDF, 8 – ¼"	1	829984	829984
28	Vacuum hose PTFE, 10 / 8 x 1 mm	0.7 m	828332	828332
29	Threaded elbow joint with attitude taps PVDF, 10 – A10	1	829913-1	829913-1
30	O-Ring EPDM, ø 25 x 2	8	829250-1	829250-1
31	O-ring EPDM, ø 12 x 2	8	829217-3	829217-3
32	Gas ballast valve	1	400599-01	400599-01
33	Check valve	1	829909	829909
-	Mains connection cable IEC with plug CEE (D)	1	825885	-
	Mains connection cable IEC with plug NEMA5-15 (US)	1	-	825903

*) The "basic pump" module (items 1 – 9) can only be supplied complete under order numbers 410403 or 410403-01

IMPORTANT NOTICE TO PURCHASER: WARRANTY

UNPACKING

Inspect the pump carefully. If any damage has occurred, file claim with the carrier immediately. Save the shipping container for carrier to inspect.

OPERATING PUMP

Refer to the enclosed Instruction/Operation Manual for all information to properly operate and maintain the pump.

WARRANTY

This Welch Vacuum product is warranted to be free from defects in material and workmanship. The liability of Welch under this warranty is limited to servicing, adjusting, repairing or replacing any unit or component part which in the judgment of Welch-Ilmvac has not been misused, abused or altered in any way causing impaired performance or rendering it inoperative. No other warranties are expressed or implied. The method of executing this warranty: servicing, adjusting, repairing or replacing shall be at the discretion of Welch. Vacuum pumps that have been used for any period, however short, will be repaired under this warranty rather than replaced.

The warranty is effective for one year from the date of original purchase when:

1. The warranty card has been completed and returned.
2. The product is returned to the factory or other designated service centers, freight prepaid.
3. The product in our judgment is defective through no action or fault of the user.

If the product has become defective through misuse, abuse, or alteration, repairs will be billed regardless of the age of the product. In this event, an estimate of the repair costs will be submitted and authorization of these charges will be required before the product is repaired and returned.

To obtain a return authorization number, please fill in the on-line request form on www.welchvacuum.com. Products without a return authorization number will be refused by our receiving department. Before shipping, properly pack the pump, insure it against loss or damage, and on the outside of the pump packaging and the packing slip write in the return authorization number. Pumps damaged due to improper packaging are the customer's responsibility.

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Vacuum Oven

Model: 32NEO 75NEO

User Manual



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Maximum Theoretical Vacuum / Elevation Chart

Elevation (Feet)	Vacuum Level				
	inHg	mmHg	PSI	kPa	Torr
10,000	20.58	522.7	10.10	69.64	522
9,000	21.39	543.3	10.50	72.40	543
8,000	22.23	564.6	10.91	75.22	564
7,000	23.1	586.7	11.34	78.19	586
6,000	23.99	609.3	11.78	81.22	609
5,000	24.90	632.5	12.23	84.33	633
4,500	25.37	644.4	12.46	85.91	644
4,000	25.84	656.3	12.69	87.49	656
3,500	26.33	668.8	12.93	89.15	669
3,000	26.82	681.2	13.17	90.81	681
2,500	27.32	693.9	13.41	92.46	694
2,000	27.82	706.6	13.66	94.19	706
1,500	28.33	719.6	13.91	95.91	719
1,000	28.86	733	14.16	97.63	732
500	29.38	746.3	14.43	99.49	746

Sea Level	29.92	760	14.696	101.33	760
-----------	-------	-----	--------	--------	-----

1. User Warning



Failure to follow all warnings and instructions could result in serious injury. Your safety is very important to us, so we urge you to take the following precautions when using this product.

We are not responsible for injury or damage caused by misuse.

- **Always use eye protection and appropriate thermal gloves during use.**
- **Always unplug the oven when performing maintenance or moving the oven.**
- **Do not heat flammable materials or materials that may outgas corrosive compounds.**
- **Ensure that items and materials heated by the oven are heated below their flash or ignition point.**
- **Do not unplug the oven when it is running. You must switch the unit off using the power switch located on the front of the unit, then unplug.**
- **Oven must be used in a stable environment (77°F @ ≤85%RH).**
- **Oven must not be stored around corrosive chemicals or moist environments that could damage the electronics and hardware.**
- **Never use a damaged or modified power cable. Do not use on an ungrounded circuit. Failure to follow warning could result in electric shock.**
- **Always close the vacuum valve PRIOR to turning off the vacuum pump. As with our other vacuum products, this could result in pump oil being pulled into the oven.**
- **Avoid corrosive chemicals when cleaning the gasket, or oven chamber.**
- **Take caution when removing items as the oven, door, and sample will be hot. Always use proper personal protection.**

- A high temp 212F+ run will burn out any residue left from the assembly process.

2. Components

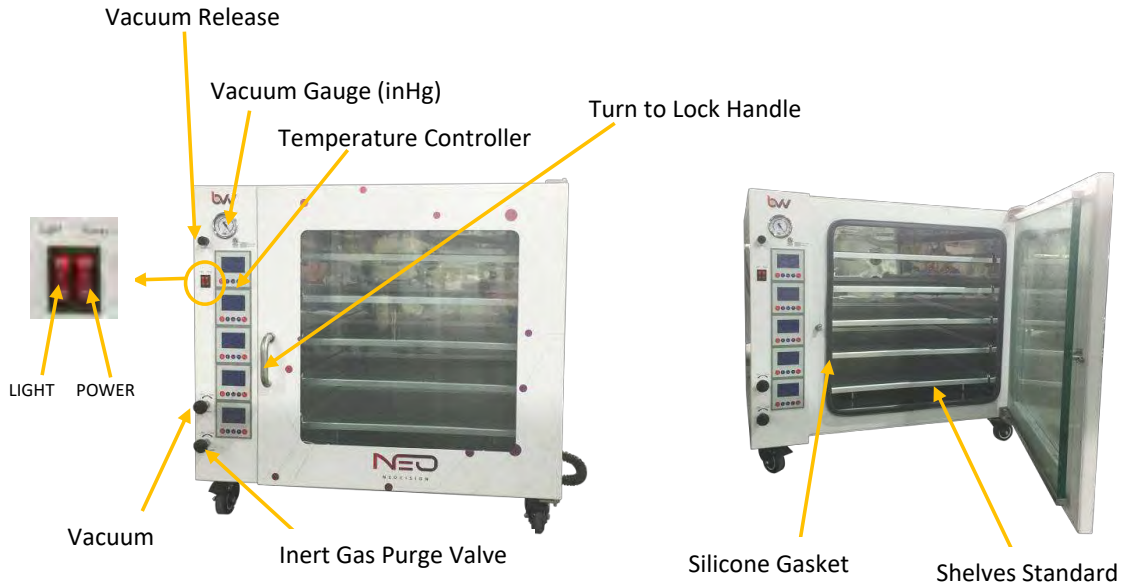


Fig.1. Oven Front

Fig.2. Shelves and Gasket

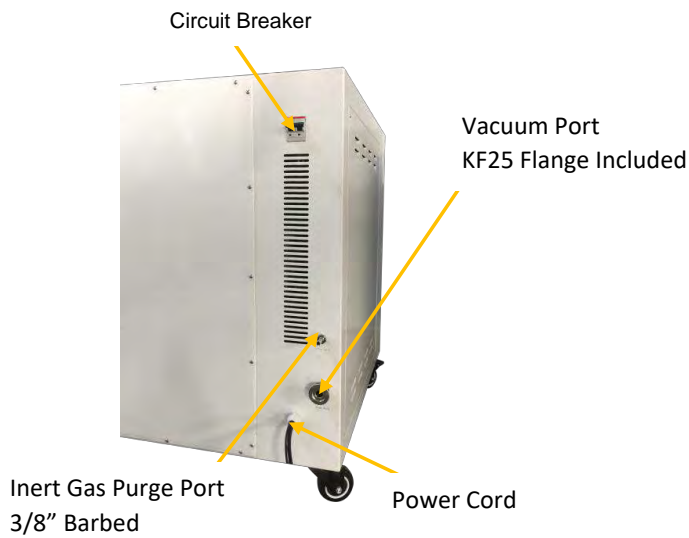


Fig.3. Oven Rear



Fig.4. Circuit Breaker

3. Product Specifications

Item	32NEO Ovens			75NEO Ovens		
Interior Capacity (volume)	5560 in ³			13181 in ³		
Total Shelves	4			5		
Shelf Capacity (area)	276 in ²			507 in ²		
Total Shelf Capacity	1104 in ²	7.7 ft ²		2535 in ²	17.6 ft ²	
Temperature Range	RT – 212 ^o F	RT – 100 ^o C		RT – 212 ^o F	RT – 100 ^o C	
Temperature Stability	± 1.8 ^o F	± 1.0 ^o C		± 1.8 ^o F	± 1.0 ^o C	
Electrical Characteristics	120 VAC	60 Hz	1050W	120 VAC	60 Hz	1960 W
Gasket	Silicone			Silicone		
Window	½" Tempered Glass			½" Tempered Glass		
Maximum Vacuum Level	-29.9" Hg			-29.9" Hg		
	-75.4 cmHg			-75.4 cmHg		
	-1 MPa			-1 MPa		
	<1 torr			<1 torr		
Interior Material	Polished Stainless Steel			Polished Stainless Steel		
Weight	305 lbs			492 lbs		
Outside Dimensions	30"w x 23"d x 24"h			37"w x 29"d x 30"h		

*RT = Room Temperature

*CE Listing Recognized

*ISO 9001: 2015

*Manufactured in Acc. w/ Q/TIWI7-2004

IEC68-2-3



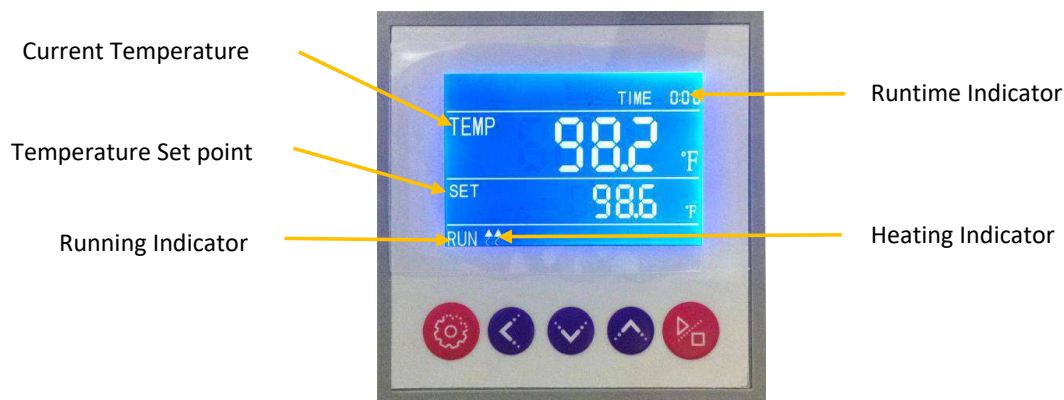
REV.1 2/7/2020

4. Operating Instructions

- a. Place the sample in the oven and lock the door by rotating the handle downwards.
- b. Close the **Vacuum Valve** and **Inert Gas Purge Valve** by rotating the dials clockwise.
 - a. Check the **Vacuum Release Valve**, and rotate closed if necessary.
- c. Turn on your pump and open the **Vacuum Valve** by twisting counterclockwise.
- d. When your desired vacuum level has been reached, close the **Vacuum Valve**, then, power off your vacuum pump.
- e. Turn on the oven and set your desired temperature. The oven may take 30 – 60 mins to reach initial temperature, depending on settings.
- f. We recommend letting your oven sit for 10 – 20 minutes upon reaching temperature to allow for optimal heat distribution. For detailed controller instructions, please see the next section.
- g. To release vacuum upon completion, first power off the oven.
 - a. Rotate the **Vacuum Release Valve** to release your vacuum using atmospheric pressure. Or,
 - b. Connect an inert gas source to the **Inert Gas Purge Port**, and open the **Inert Gas Purge Valve** to release your vacuum using an inert gas such as nitrogen.
- h. When ambient pressure has been restored inside the oven, the door will open. You must wait until pressure is completely restored, or a vacuum seal will hold the door closed.
 - a. Sometimes, it may be necessary to use your thumb or a flat screwdriver to separate a small section of the Door Gasket from the glass window. A small “flick” will be enough to break the seal- do not pierce the gasket! Please contact our support if you require assistance.
- i. Take proper precaution when removing items from the oven as the contents will be hot!

5. Temperature Controller Detailed Operation






When the oven is initially switched on, the temperature controller will take a few moments to load.



REV.1 2/7/2020

Fig.5. Controller Details

5.1. Time Settings

1. When the instrument is switched on, pressing one time the  button, the last value of the set time (timer) starts flashing. Set the desired value (hh:mm) by pressing  or  keys. It's possible a quick movement between the digits using the  button.
 2. Confirm the set value with another press of  button.
- NOTE: the value "00:00" indicates the operating mode "continuous", that means once you start the operating cycle by the START / STOP button, it continues maintaining the set temperature until it is stopped manually (START/STOP)
3. If you set a value of time, such as 1 hour, the instrument will reach the set temperature and maintain it for an hour.

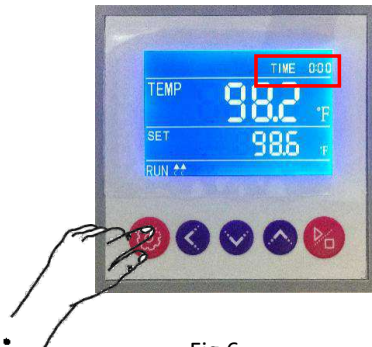



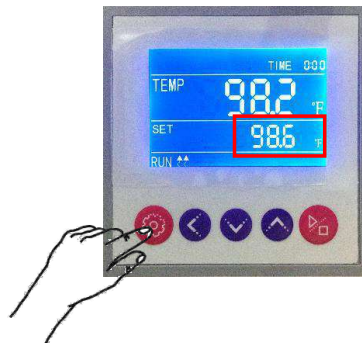


Fig.6

5.2. Temperature Setting


1. When the instrument is switched on, pressing one time the  button, the set temperature value starts to blink. Set the desired temperature value (in Celsius degrees) pressing keys.
2. It's possible a quick movement between the digits using the  button.
3. Confirm the set value with another press of  button



REV.1 2/7/2020

Fig.7

5.3. Start / Stop Operation

1. After setting the operating parameters, pressing  button with long pressure (4-5 seconds), the heating cycle starts for the defined time in hh:mm or continuous (00:00). The word "end" at the top right corner of display disappears, the message RUN appears in the bottom left corner and display shows contemporary: timer, temperature measured inside the chamber, set temperature a if present

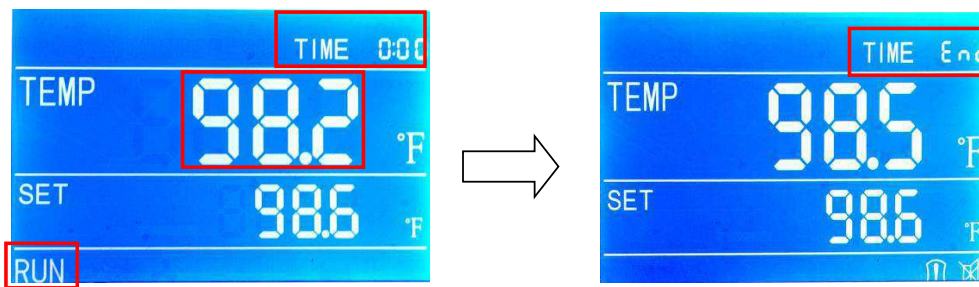



Fig.8

2. At any time, you can always manually stop the cycle by pressing the  button with long pressure (4-5 seconds).
3. Once the set time or after manual stop, the instrument beeps intermittently, the icon of visual alarm and the word "end" appear on the display. Pressing any button, it's possible to silence the audible signal and the icon appears.

NOTE: the acoustic signal will not end until it is stopped by the operator, but the heating cycle is terminated so for the samples inside the instrument will remain exposed to the internal temperature the chamber.



Fig.9

5.4. Alarm / Faults

The oven has a built-in overtemperature protection circuit. If the oven's temperature overshoots, the controller will enter an Alarm Mode that disables all heating elements to protect your samples.




When in Alarm Mode, a red alarm indicator will display on the screen. The oven will automatically resume operation when the temperature has dropped back below the overshoot threshold.

Setting the temperature setpoint higher will also resume heating function.

If your oven alarm is sounding due to an elapsed timer, press the Any key to mute!

6. Troubleshooting

Issue	Symptom	Cause	Solution
Unit does not switch on	No lights, no display when switched on	Circuit breaker has tripped	Reset breaker, located on oven rear. See Fig. 4.
No temperature reading	Controller displays "----"	Loose electrical connection	Check connections on circuit board
		Faulty probe	Replace probe. RTD 100Ω.
Oven does not heat	Oven remains at room temperature	Temperature setting is too low	See section 5.1. Temperature Setting
		Timer has expired	See section 5.2. Additional Timer Information
		Faulty controller. Check controller for solid or blinking Heat Indicator icon (yellow). See Fig.5.	If temperature is correctly set and still no Heat Indicator, replace controller
		Faulty heating relay	Check heating relay. LED on relay will blink in sync with controller Heat Indicator. Replace if faulty.
Oven significantly overheats	Oven constantly heating	Temperature set too high	See section 5.1. Temperature Setting
		Faulty heating relay	Replace if $R < 1M\Omega$
Inaccurate temperature reading	Controller readout does not match real-world temperature	Check preheat duration	Allow proper time for heat to saturate oven internals
		Check measurement method	Releasing vacuum pressure will temporarily cool oven due to colder atmosphere It is not recommended to use a laser probe to check temperature without compensating for reflective emissivity.

			Use conventional thermometer with direct physical contact to shelf.
		Perform probe calibration	See section 6.1. Calibration
Poor temperature maintenance	Temperature regulation does not meet $\pm 1^{\circ}$ stability	Check environmental operating conditions	Oven operational environment must be from 0 - 30°C and < 30% RH
		Perform automated PID-tuning routine	**Must contact technical support for detailed instructions. Doing this operation without contacting technical support will VOID any warranty.
Cannot initiate vacuum	Vacuum gauge needle does not move, door can open easily	Check vacuum connection	Be sure all pump and hose fittings are secured Ensure vacuum valve, purge valve, and release dial are in appropriate position
		Check door seal	Remove and clean door gasket with warm water to remove potential dust or debris
Issue	Symptom	Cause	Solution
Cannot initiate vacuum (continued)	Vacuum gauge needle does not move, door can open easily	The door is not closed well The door does not create a complete seal between gasket and glass	 <p>Loosen nut 3-5 turns counterclockwise.</p>  <p>Tighten door pin 1 full turn clockwise.</p> 





			Using a wrench to maintain upright position of door pin, tighten nut clockwise with 2 nd wrench, locking door pin. Repeat steps until door handle firmly latches against pin.
Cannot pull full vacuum	Vacuum gauge cannot reach desired pressure	Check elevation	Maximum vacuum level is limited by operating elevation Check elevation chart to confirm maximum possible vacuum
		A pipe connection or fitting is loose	Tighten and secure vacuum connections Check release dial and purge valve
		The vacuum gauge is damaged	Replace vacuum gauge
Oven vacuum leak	Vacuum loss of >1”Hg within 24 hours	Door gasket is worn	Replace door gasket
		Valves improperly closed	Check valve positions
		A pipe connection or fitting is loose	Tighten and secure vacuum connections
		Vacuum valve is leaking	Replace vacuum valve

6.1. Calibration

While the oven arrives pre-calibrated from the factory, certain adjustments may be necessary for optimal performance. Please note these adjustments will affect your oven settings! We recommend writing down any factory settings prior to adjustment so they may be reset in the event of undesirable operation.

Probe Calibration

Follow the instructions below to adjust the temperature readout. These steps are only necessary in the event there is a discrepancy between the display and measurements taken with an alternate device. For example: a thermometer placed inside the oven with a different measurement than the controller. Please note: laser probe measurements will be inaccurate without compensating for emissivity. Refer to your laser probe’s user manual.

1. Press  for few seconds until the time position shows “LK 0000”
2. Press  to set LK 0003
3. Press  three times, you can see Pb, this is Temperature offset on single point.
4. After set the Pb value, Press  to exit.

7. Packing List

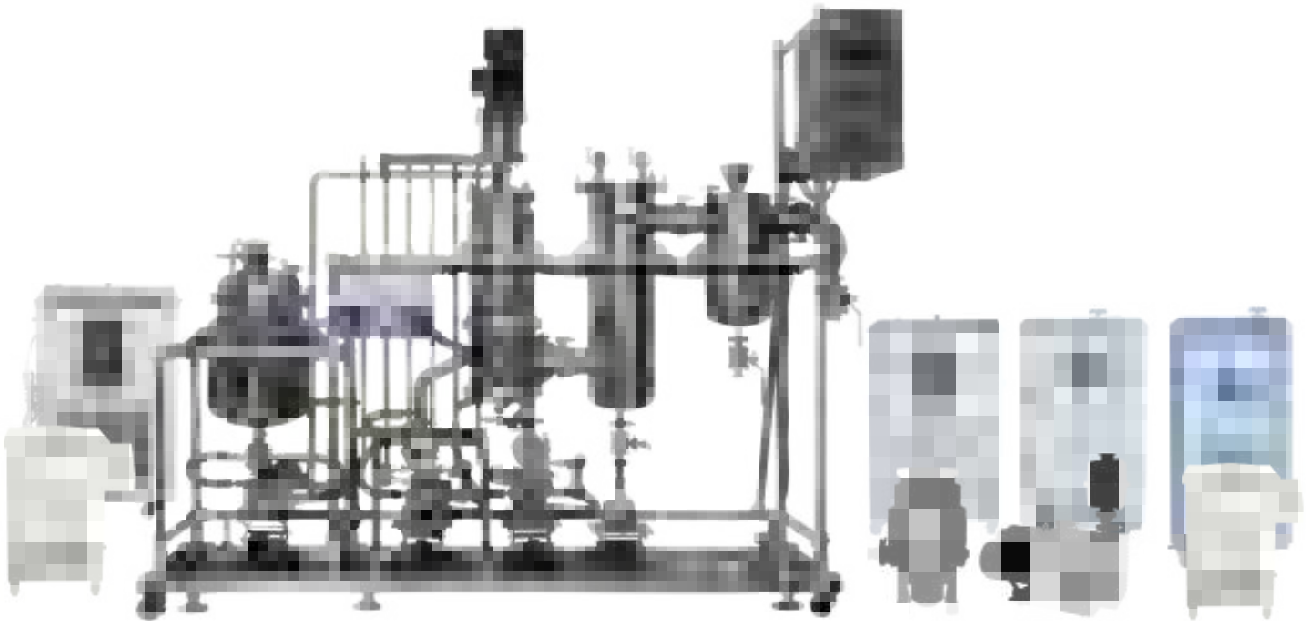
Name	Quantity
User Manual	Included, 1
Vacuum Hose	5ft x ¼" JIC/Flare
Vacuum Pump Flare Fitting	KF25 centering ring and gasket, 2 KF25 clamp, 1 KF25 x ¼" JIC/Flare adapter, 1

8. Warranty

Best Value Vacs will warrantee this Oven to be free from defects in materials and workmanship for a period of 1 year (extendable to 2 years with registration) from the original purchase date. Failure to follow the instructions contained herein may void your warranty. For complete warranty information, service, sales, questions, or comments, please contact us at (331) 281-0154, or support@bestvaluevacs.com.

9. Notes





YHCHEM-Operation Manual-YMD-2S-2

SHANGHAI YUANHUI INDUSTRIAL CO.,LTD

SAFETY PRECAUTIONS



Danger-1

1. Please use the power supply coincides with the equipment duty plate; otherwise, the damage to equipment may result!
2. Make sure to switch off the power supply before equipment maintenance; otherwise, the electric shock incident may result!



Danger-2

1. Make sure there is enough heat-conducting medium (water or heat transfer oil) when using the heating circulator, excessive low liquid level may result in burnout to the heating tube or fire accident!
2. Make sure to use the heat transfer oil within the prescriptive temperature range!



Danger-3

1. Please switch off the general power supply before equipment maintenance or opening electric control cabinet, make sure a standby operator ready for emergency operation on the switch to prevent any personal injury due to faulty operation!



Warning-1

1. Please connect the equipment to the earth; otherwise, the electric shock danger or static electricity danger may result!



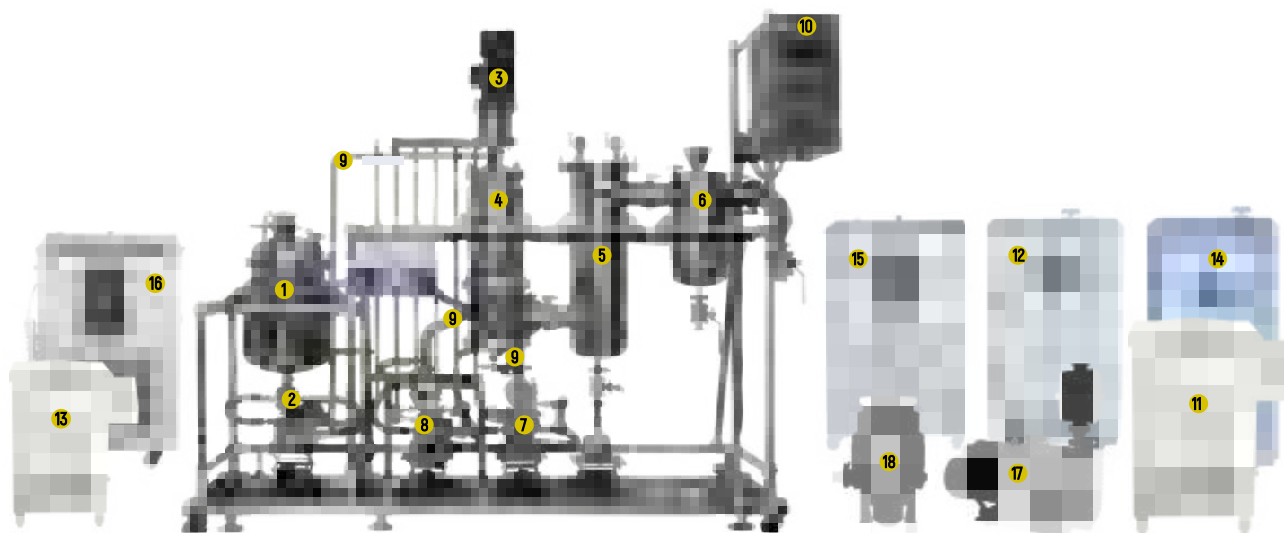
Warning-2

1. Please drain out all materials inside the equipment or pipelines before disassemble or assemble the pipelines which connecting different components to prevent any material leakage.
2. Make proper safeguard and collection measures before equipment disassembly or assembly!

IMPORTANT NOTIFICATION

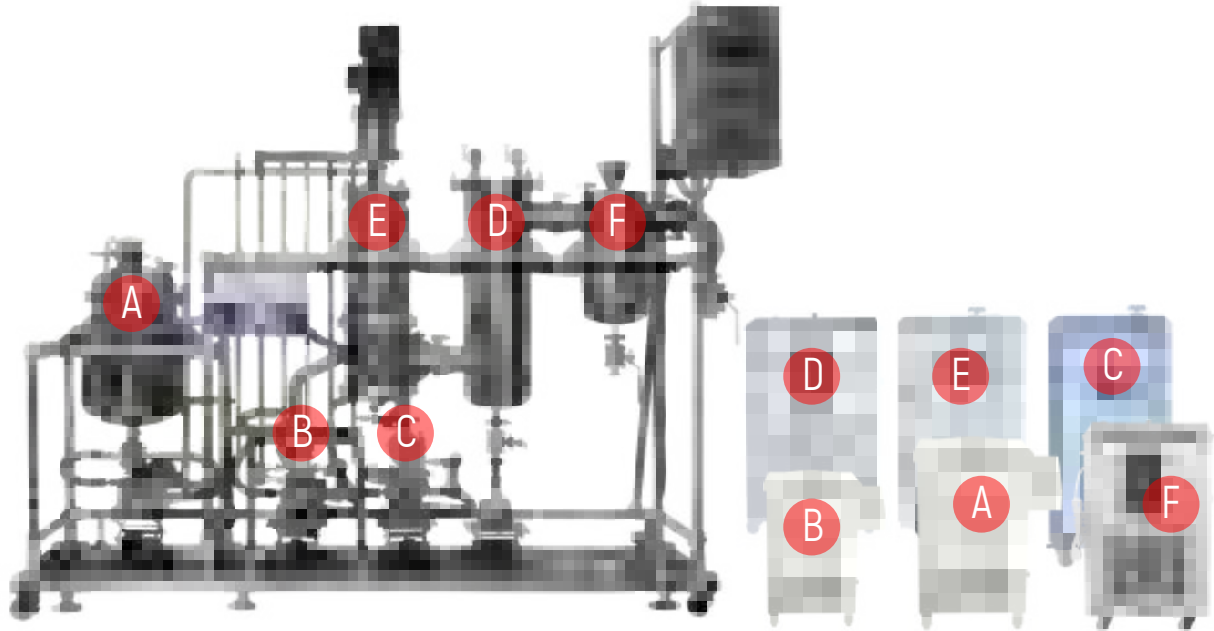
1. Customer shall firstly inspect the equipment whether in good conditions or not after receiving the goods, customer shall notify the shipper or supplier timely if any defect or damage found.
2. Customer shall check the conformity between the equipment and the packing list and contact the supplier timely in case of any unconformity.
3. Customer shall be aware that the general safety rules include local safety operation regulations.
4. Customer shall strictly follow the current existing mechanical and electrical engineering regulations and rules during the process of installation and maintenance.
5. Customer is obliged to conduct operation and regular maintenance in line with the stipulations, and replace the components if necessary. Customer shall stop operation immediately if abnormal condition or obvious danger happened.
6. Customer shall put safety as the first priority and use suitable tools, protective suits, goggles and others before installation, operation and maintenance.
7. Any operation against above warnings and operation rules may cause damage to the equipment or personal safety to the operators.
8. Manufacturer is not responsible for any consequence result from faulty operation against the manual.

EQUIPMENT STRUCTURE DISPLAY



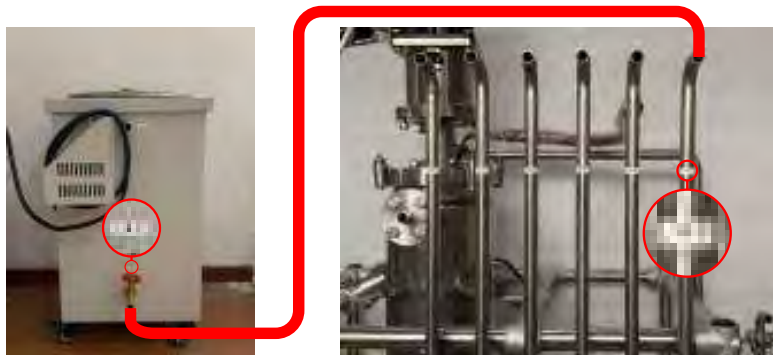
1	Jacketed feeding vessel with sight glass
2	Feed pump for automatic and continuous feeding
3	Motor to drive rotation with mechanical sealing (Optional: Magnetic sealing)
4	Jacketed evaporator with internal condenser
5	External Condenser with sight glass
6	Multifunctional condenser (Both with dry ice cold trap and cooling coils condenser)
7	Collection pump (Distillate) for automatic and continuous collection
8	Collection pump (Residue) for automatic and continuous collection
9	Full jacketed pipe (feeding and collection section)
10	Control cabinet
11	Heating circulator for feeding vessel and pipeline
12	Heating circulator for jacketed evaporator
13	Heating circulator for residue collection section
14	Heating & cooling circulator for internal condenser and distillate collection section
15	Cooling circulator for external condenser
16	Cooling circulator for multifunctional condenser
17	Rotary vane vacuum pump
18	Molecular pump (Optional: Diffusion Pump)

CONNECTION WITH HEATER & CHILLER



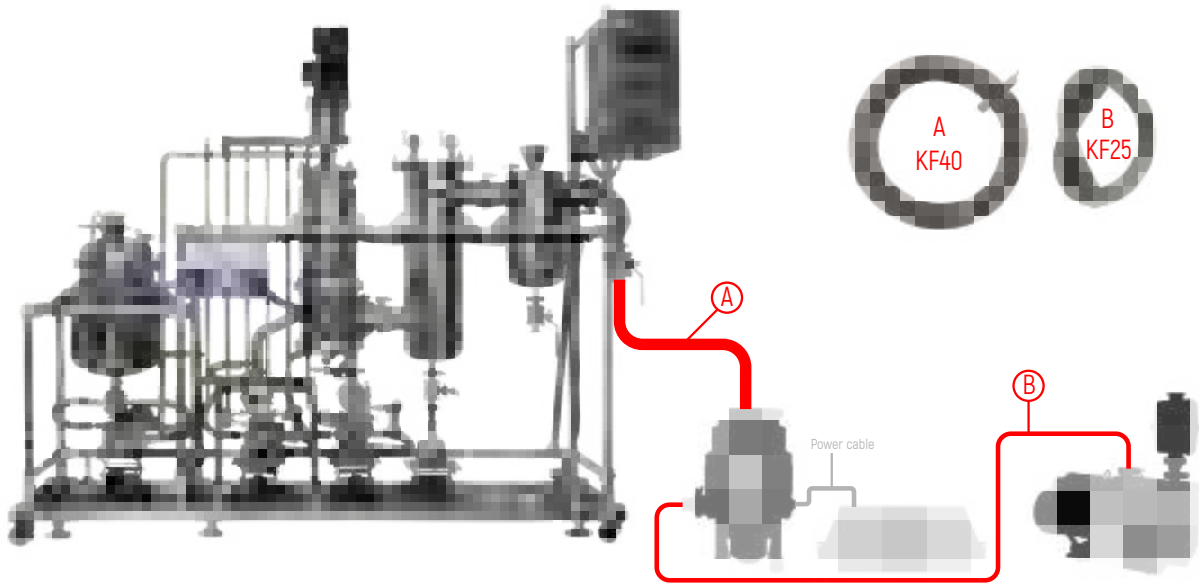
There are tags on each fitting of the main distiller and supporting heater and chiller, please find corresponding tags to connect. The connection way for tags is as below.

A	A1 ↔ A1	B	B1 ↔ B1	C	C1 ↔ C1
	A2 ↔ A2		B2 ↔ B2		C2 ↔ C2
D	D1 ↔ D1	E	E1 ↔ E1	F	F1 ↔ F1
	D2 ↔ D2		E2 ↔ E2		F2 ↔ F2



Remark: PTFE gaskets need to be added for all of the stainless steel pipes

CONNECTION WITH ROTARY VANE VACUUM PUMP & MOLECULAR PUMP

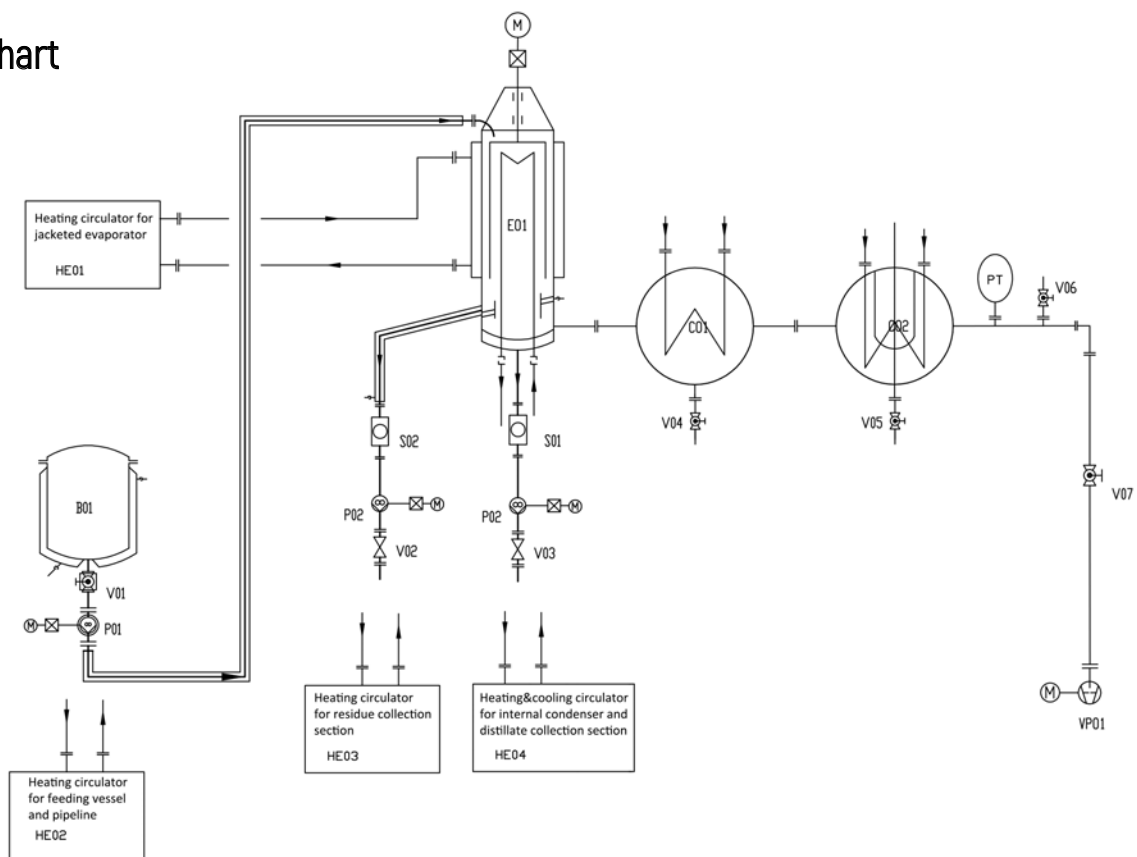


SYSTEM CONFIGURATION

System Overview

The main body of YMD-2S-2 distillation equipment includes one feeding system, one 0.2 square short-path evaporator, one dual set of cooling unit, and two discharging units. The auxiliary facility includes one heating cycle unit, one vacuum unit, one cooling unit and one thermal insulating and heating unit. When the distillation is delivered into the short-path evaporator through the feeding system, it will be distributed on to the heating surface continuously and evenly by the liquid distributor on the rotor. Moreover, the thin-film wiper will wipe the distillation into an extra thin liquid film in the form of turbulent liquid. During this process, the light molecules evaporated from the heating surface will condense to form liquid inside the condenser, and then the liquid will be delivered through the condenser pipeline and discharged from the outlet pipe at the bottom of evaporator. The vacuum valve will collect the active light molecules into the condenser for the secondary condensation. The residue, which means the heavy molecules, will be discharged from the outlet pipe at the side of the evaporator.

Flowchart

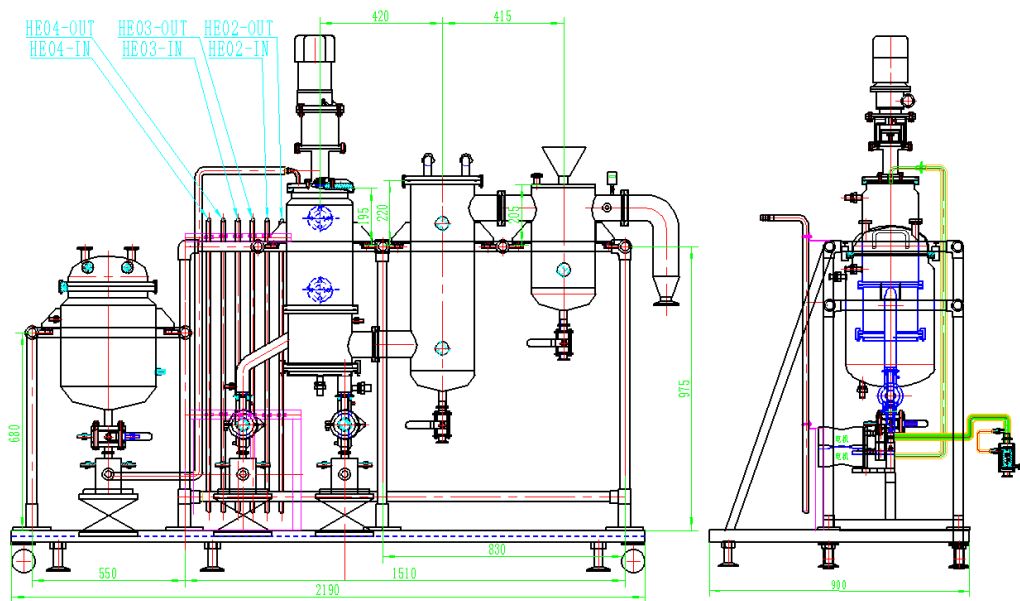


SYSTEM CONFIGURATION

List of Components

Drawing No.	Name	Specification	Quantity	Material	Remarks
No.s	Flowchart No.	Name of Component	Specification /Type	Material	Functional Feature
1	E01	Main Evaporator	0.2 m2	S31603	Magnetic transmission, Mechanical speed governor
2	B01	Feed Bucket	30L	S31603	
3	P01	Feed pump	WHT-4.5CC	Compound material	
4	P02	Discharge pump	WHT-4.5CC	Compound material	
5	P03	Discharge pump	WHT-4.5CC	Compound material	
6	C01	Dual set cold trap		S31603	
7	S	Sight glass			
8	P	Vacuum gauge	RO-52	Compound unit	
9	V01	Thermal ball valve	DN15	S31603	
10	V02	Check valve	KF25	S31603	
11	V03	Check valve	KF25	S31603	
12	V04	Vacuum ball valve	KF25	S31603	
13	V05	Vacuum micro-metering valve	KF16	S31603	
14	V06	Vacuum ball valve	KF40	S31603	
15	V07	Vacuum ball valve			
16		Compound molecular pump			
17		Rotary-vane vacuum pump			

Equipment Assembly and Layout



DAILY OPERATION AND MAINTENANCE

Notice before Operation

1. Please make complete reading and get full understanding of the operation manual before usage, formulate the operation state form, make equipment state check before operation.
2. Formulate operation regulations according to the production process and equipments based on full understanding of the usage of each unit, and train the operators.
3. Make sure the operator is on duty during in the process of equipment operation, and the operator shall make operation by strictly following the operation regulations.
4. Stop the equipment immediately if any fault happens, make fault diagnosis on fault location and cause based on information showed on display instrument, ask the relevant technician to debug the faulty timely.
5. Switch off the water supply, power supply and other facilities after stopping the equipment, and make sure each unit are in the shutdown state correctly.

Operation Process

① Startup

- 1 Start the equipment accessories including circulation heater, cooling unit and so on, set the temperatures for all accessories as per the product process; shut down the equipment and connect all valves, start the vacuum pump until the equipment being in the state of negative pressure condition.
- 2 When the equipment's internal pressure is under 30 Pa, switch on the molecular pump to pump out the pressure to the exceptional parameters.

Reminder: During this process, the operator must check that the components are running properly and could meet the product process requirement. After the molecular pump is started, either subsequent operation shall be prohibited unless the molecular pump running stably and the vacuum meeting the requirements.

② Feed Material

Feed the molten state material into the feed bucket B01 by using the filter screen, and the mesh hole diameter of the filter screen shall be less than 200 pieces per square inch.

DAILY OPERATION AND MAINTENANCE

Operation Process

③ Equipment Operation

1 Material Feeding: Start material feeding after the parameters of each component meet the process requirements. Open valve V01 and P01 to adjust the feeding speed, switch on the thin film wiper motor M-E01 to activate the thermal separation process. Observe the distribution of light fraction and heavy fraction by the sight glass S01 and S02, adjust the feeding speed and temperature of the main evaporator to change the distillation proportion and achieve the exceptional distillation effect.

2 Material Discharge: Start the discharge pump P03 when the material flows into S01, adjust the discharging speed until it is equivalent to the evaporation amount of light fraction. Turn on the discharge pump P02 when the material flows into S02, adjust the discharging speed until it is equivalent to the evaporation amount of heavy fraction.

Reminder: Both feed and discharge pumps are strictly prohibited from idling, and the thin film wiper is strictly prohibited from idling for a long time. The volatile content of the material to be distilled should be less than 500ppm.

3 Shutdown:

When a production batch is completed or the equipment suffers shutdown by any other reasons, operator shall follow below steps:

- a. Close the feed pump P01 and feed valve V01.
- b. Observe through the sight glass S01 and S02 to make sure there is no outflow of both light fraction and heavy fraction, turn off the the wiper motor M-E01.
- c. Turn off all heating and cooling accessories.
- d. Close the front and rear valves (CODE) of the molecular pump to shut down the molecular pump. Turn off the power after the molecular pump is completely stopped (about 10 minutes), then open the front and rear valves of the molecular pump.
- e. Use the exhaust system to remove the material out of the equipment.
- f. Use the suitable organic solvent to clean the equipment during the cooling period to prevent product with high melting point from solidifying and blocking the equipment.
- g. Turn off the vacuum pump.
- h. Turn off all units.

DAILY OPERATION AND MAINTENANCE

Special Fault

The internal cycle is in state of negative pressure condition to guarantee the normal operation of equipment. If any failure in material discharging when the discharge pump running normally, operator shall check the sealing property of backpressure valves at the outlets of the discharge pump, to make sure there is no air leakage, check and clean the gasket.

NOTES OF GEAR PUMP

1. The gear pump shall be handled with care and kept away from knock and crash.
2. Putting hands or lifting rope on the joints of inlet/outlet pipes or coupling is strictly prohibited during transportation.
3. The storage site shall be dry, tidy and antiseptic when the pump being stored for long period. If the pump is going to be stopped for a long period after being in service for some time, please drain out the relevant solvents inside the pump and seal the pump after cleaning to prevent the material being coagulated inside the pump.
4. The gear pump shall be installed as close as possible to the liquid tank. Since the self-suction capacity of the gear pump is limited, the gear pump inlet should be installed below the liquid level of the liquid tank.
5. The gear pump has a certain directional design, and it is not allowed to reverse. Therefore, it is necessary to find out the inlet and outlet of the material before installation, make sure the viscosity of the delivered medium is within the design scope of the pump.
6. The inner diameter of the selected connecting pipe should be bigger than the inner diameter of the pipe joint. The suction pipe should be made of hard material or treated with skeleton process to prevent the suction pipe being sucked up; the outlet pipe should have thick enough pipe wall to withstand the maximum pressure.
7. The internal pipe must be clean and free from any impurity to prevent foreign matter from entering into the gear pump and damaging internal components.
8. Any rounded corner or dead corner arising from the pipeline is strictly prohibited; it may retain air inside the pipes. Any knot or entanglement that may block the pipeline is strictly prohibited. When installing the inlet pipe and the outlet pipe, be careful not to press the weight on the gear pump, otherwise it will affect the usage and service life of the gear pump.
9. The pipeline connection must be tight enough to prevent material leakage and air leakage to ensure the accuracy of the gear pump.

Special Tip: Make sure and pay high attention to the sealing property of all connection pipelines at the valves, inlet and outlet of the gear pump to prevent air from entering the suction pipe. Otherwise, it may affect the flow and accuracy of the pump, block material discharging or even cause damage to the pump!

COMMON FAULT CAUSES AND SOLUTIONS

Faults	Possible Causes	Solutions
Material delivery failure	Inlet/outlet valve is not opened	Open the inlet/outlet valve
	Rotating in reverse direction	Reverse motor rotating direction to comply with the design rotating direction of pump
	No liquid material filled in suction pipeline, and there is air in suction pipe	Inject liquid material into the suction pipeline to exhaust the air
	Damage in suction pipeline or air leakage in joints of suction pipeline	Seal suction pipeline tightly
	Block in suction pipe or blow-off pipe	Clean up suction pipe or blow-off pipe
	High viscosity of material	Reduce the material viscosity by heating up operation or slowing down the rotating speed of pump. Check the conformity between material viscosity and the design viscosity, please contact supplier if any unconformity found
	Damage inside gear pump	Repair or replace gear pump
Low flow	Low rotating speed of motor	Increase the rotating speed of motor
	Block in suction pipe or blow-off pipe	Check valve to repair or replace it
	Damage in suction pipeline or air leakage in joints of suction pipeline	Seal suction pipeline tightly
	Block in suction pipe or blow-off pipe	Clean up suction pipe or blow-off pipe
	Diameter of suction pipe is too small	Replace new suction pipe with bigger diameter, make sure the diameter of suction pipe is a little bit bigger than pipe joint
	Knot or dead corners in suction pipeline which retain the air	Make sure the suction pipeline is downward from liquid bucket to the gear pump smoothly
	Knot or dead corners in blow-off pipeline which retain the air	Make sure the blow-off pipeline is upward from gear pump to outlet smoothly
Motor Overload	Wear out inside pump	Repair or replace gear pump
	Excessive viscosity of pumped liquid	Reduce the material viscosity by heating up operation or slowing down the rotating speed of pump. Check the conformity between material viscosity and the design viscosity, please contact supplier if any unconformity found
	Excessive pressure in outlet	Check and make sure the outlet valve is completely open and the blow-off pipeline is unobstructed. Check the conformity between actual pressure and the design pressure, please contact supplier if any unconformity found
	Jam in pump caused by foreign matter	Stop equipment immediately and clean up foreign matter. Check filter and repair it if damaged
Suddenly stop in gear pump	Packing seal is extremely tight	Adjust the packing seal nuts
	Power outage	Disconnect motor power and wait for power network restoration
	Excessive motor overload results in automatic power-off protection	Find out overload cause and solve it as per solutions stipulated in motor overload section
	Jam in pump caused by foreign matter	Stop equipment immediately and clean up foreign matter. Check filter and repair it if damaged

NOTES OF COMPOUND MOLECULAR PUMP

1. Start the backing pump before use. Start the molecular pump when the pressure of the backing system is less than 10 Pa.
2. Any position movement or impact to the molecular pump is strictly prohibited during the operation. Turning off the main power switch to shut down the pump is forbidden. Operator should turn off the main power switch after the molecular pump stop rotating; otherwise, the main power will be burnt out.
3. Check whether the lubricating oil is normally filled before use (the lubricating oil used in the pump belongs to a special lubricating oil and it cannot be replaced by other oils). The sealing direction is different for the regular vacuum valves, and it shall be judged correctly.
4. There should be a partition valve installed between the backing pump and the molecular pump to avoid back diffusion of the mechanical pump oil after shutdown.
5. The cooling water should be the low-precipitation tap water or the water provided by the cooling water system. For high-precipitation tap water or oil-corrosive water, we recommend using the circulating water system. The flow rate should be no less than 1 L/min.
6. The vertical angle of the pump port connecting flange should not exceed 5°. The plane of the pump body must be horizontal and free of any vibration. We recommend installing an isolator or shock absorber.
7. If the pump body is seriously polluted, and its vacuum performance cannot be restored after baking for a long time, the pump should be returned to the manufacturer for maintenance and cleaning.
8. The balance adjustment of the whole machine should be done when the bearing need to be replaced. Meanwhile, the new bearing should be conducted with test of coefficients, so the user cannot replace it on its own.
9. High magnetic field shielding: As the rotating rotor will generate an eddy current in the magnetic field that will heat up the rotor, and such heat will weaken the physical strength of the aluminum material, the application of the molecular pump in the magnetic field is limited.
10. Electromagnetic interference: Some high-frequency equipment (such as molecular pumps and frequency converter) may cause electromagnetic interference to the surrounding environment. However, the application of molecular pumps is not limited if the corresponding international standards are met.
11. The inside of the oil pool should be cleaned and oiled when replacing the lubricating oil. The first replacement of the lubricating oil shall be conducted at the time of 1,000 working hours of the pump, then every 3,000 working hours per replacement. However, the replacement should be conducted at least once a year.

FLOW TABLE OF COMMON OPERATIONS

Power On, Acceleration and Normal Operation	
The display shows during the power-on initialization.	Turn on the power switch, the LED digital display window will show that the actual output frequency (equal to the current output frequency), and power supply is normal. Press the MODE button repeatedly; the LED digital display window will display the set frequency F550 (=550 Hz), the actual output frequency (equal to the current output frequency), the actual output current and so on in turn.
The display shows if any exceptional fault occurs.	If the power-on initialization is abnormal, the LED digital display window will show the alarm codes correspondingly. The most frequently showed alarm code is , which means disconnection in connection cables between power supply and molecular pump, or the internal cables are broken, or the body of the molecular pump is over-heated. Use a pair of insulated tweezers or the conductive part of a wire to connect the 5th pin and 6th pin (the electrodes of temperature control) of the air plug to get short-circuited, the alarm will disappear if the power is normal. This aims to check whether the cable connectors are in good connection and whether the pump body obviously exceeds 50 °C. If the temperature of the pump body is too high, it is generally caused by insufficient flow of cooling water. Check whether the water cooling system if it is unobstructed. (Check whether the fan of the air-cooled pump rotates or the room temperature exceeds 28 °C, reduce the room temperature by adjusting the on-site air conditioning system properly.)
Check the vacuum system and the molecular pump to make sure the molecular pump can start safely. Press the start button, and the molecular pump enters the acceleration process.	Check and make sure the vacuum in the vacuum chamber or gas path above the molecular pump port is less than 30Pa, and the backing pump is working normally. The molecular pump blades are in operation or at rest. Press the green start button on the control panel of the power supply, the molecular pump power supply will start to track down from 550Hz until the frequency begins to increase, and then will work at the full speed of 550Hz. Generally, refer to the small-scaled vacuum system; the molecular pump can be started to acceleration immediately upon the start of the backing pump. Because it will take less than 2 minutes for the mechanical pump to reduce the vacuum chamber pressure to 10 Pa downward, however, it will take at least 10 minutes for the molecular pump acceleration. Thus, as long as it is confirmed that the mechanical pump has started normally and the vacuum chamber is not leaking, the molecular pump can be started, and the molecular pump in the acceleration will increase the pumping speed of the backing pump.
Observe the output current and monitor the operating load status of molecular pump.	Observe the current flow parameters by pressing the MODE button repeatedly if necessary. This parameter is the 55 V output phase current inside the equipment (the output voltage will become 50 V after transformation in the internal transformer).When both the vacuum chamber and the backing pump are in good condition, the acceleration current will be less than 3.5 A. The acceleration current will be less than 1.7 A during full speed operation as long as the vacuum chamber is in good condition (no severe leakage). During the acceleration process, when the current continues to be above 3.5 A, the backing pressure may cause overload to the molecular pump shall be checked whether it is higher than 100 Pa. When the current continues to be above 4 A, the molecular pump power supply will stop outputting and send alarm signal to indicate the fault in torque. If the molecular pump power supply is started, the molecular pump blades are in high-speed operation because they are not been decelerated during the previous operation, then the molecular pump power supply will track the frequency downward and then accelerate to normal. If the rotating speed is close to the rated speed, the molecular pump power supply will directly reach the full speed of 550Hz.

FLOW TABLE OF COMMON OPERATIONS

Stop by Deceleration, System Inflation and Power Off	
Press the STOP button	Press the red STOP button on the control panel. The molecular pump power supply will employ the frequency reduction braking method to stop the molecular pump from rotating in a short while. This process takes approx. 5 minutes.
System inflation Power off	Turn off the power when the output frequency of the molecular pump power supply reaching . After the molecular pump is completely stopped after 10 minutes, the vacuum system can be inflated with nitrogen or dry air. Do not inflate the molecular pump before it is completely stopped! Please note that if the power is turned off during the deceleration, the pump motor will regenerate energy to the power supply and produce a certain amount of self-sustaining power during the baking process, (the display shows deceleration) while the power supply will continue to work. It is normal that the power supply will power off automatically when the deceleration is running at half-speed; however, please do not pull out the cable of the molecular pump freely in such circumstance. Because at this time, there is still power exchange between the power supply and the molecular pump although the power has been cut off. Either plugging or unplugging cables will produce power-on or power-off frequency jitter that may burn out the power supply device accidentally.

Common Faults and Trouble-shootings Table

Fault	Fault Diagnosis and Trouble-Shooting	Fault	Fault Diagnosis and Trouble-Shooting
Failure in starting molecular pump	Failure in power - (Please see the power section of this manual) Failure in connection cables - (Use a multi-meter to test the conductivity of connection cables and check if the whether the plug and socket are in good connection) Other reasons - (Please consult the manufacturer)	The pump cannot reach the rated speed after a long time operation, or rotation suffers stop	Leakage in vacuum system - (Check and seal the leakage, and make sure the backing system pressure should be less than 10 Pa) Damage in bearing - (Check if there is any severe stagnation in the rotor, return the damaged bearing to the manufacturer for replacement)
Large vibration and noise generated during the operation of molecular pump	The pump works in the resonant frequency environment - (Change the assembly position and connection size, and reinforce the movable parts or install rubber damping pad) Dynamic balance damaged in pump - (If there is noise during trial sole operation, the pump should be returned to the manufacturer for repair) Damage in bearing - (Return the damaged bearing to the manufacturer for repair or replacement)	Low vacuum	Leakage in backing vacuum pipe - (Check and seal the leakage in the backing vacuum pipeline) Leakage in high vacuum pipe - (Check the leakage and seal the leakage) Large gas output of gauge tube - (Bake the gauge tube with 200 ° C for at least 2 hours, and degas the cathode timely) Abnormal operation of the backing pump - (check and make repair)
Vacuum index ultimate limit cannot be reached after baking	High backing pressure - (Make sure the backing pressure should be less than 10 Pa) Insufficient pumping speed of backing pump - (The pumping speed should be no less than the suggested min. index of backing pump in Table #1) The pump and the vacuum system get polluted - (Clean the vacuum system and return the pump to the manufacturer for cleaning)		

ALARM CODE COMPARISON TABLE AND SOLUTIONS

Alarm Display	Explanation and Solution	Alarm Display	Explanation and Solution
	The output side of power supply is short-circuited during operation. Check if the cables and pump motor windings are short-circuited.		Over-current occurs during operation. Check if the output cables are short-circuited or disconnected.
	The internal voltage of the power supply is too high. Check if the molecular pump brake is too fast and the power supply voltage is too high.		The molecular pump temperature is too high or the molecular pump drive cable is disconnected. Check water flow of the pump. Check fan of the air-cooled pump, lower room temperature properly.
	The temperature of the power supply is too high. Turn on the on-site air conditioning system properly. Make sure the operating ambient temperature is less than 40 °C.		The power supply suffers error. Turn off the power and restart the pump.
	The voltage of power supply is too low. Check if the system is powered insufficiently (Shutdown alarm is abnormal).		The power supply suffers error. Turn off the power and restart the pump.
	The power supply is overloaded during operation. The molecular pump is overloaded during operation.		The power out suffers electric leakage. Return it to the manufacturer for repair.
	The rotating speed is re-accelerated by 0 Hz when the pump is running at high speed. Such action will cause overload in the acceleration. Reset and then start the acceleration.		Restart the pump if failure in the power self-check. Return the pump to the manufacturer for repair if alarm does not disappear.
	The backing vacuum is too low. Check if the backing pump and the backing valves are open, or the pump blades get stuck (Return the pump to the manufacturer for repair).		The power output stops temporarily. It is caused by the abnormal internal wirings. Return the pump to the manufacturer for repair.
	The current suddenly increases during acceleration. Besides the above solutions, the output cables should be check if they are short-circuited or disconnected.		Return the pump to the manufacturer for repair if the power circuit is abnormal.
	Over-current occurs during deceleration. Check if the output wires are short-circuited or disconnected.		



Single Jacket Reactor
Model: JR Series
JR-5, JR-10, JR-20, JR-50, JR-100



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1 Safety Instructions and Features

1.1 Safety Instructions

The use of Personal Protection Equipment (PPE) is REQUIRED.

Follow all federal, state and municipal laws, codes and ordinances.

Please make sure the power connection is correct and well-grounded. (see the technical parameters for details)

Fluid lines should be unobstructed without any hard bends in the run. Install gasket inside fittings before use.

Apply a rag to wipe the parts clean after washing away stains; do not use hard objects.

Do not use flammable, corrosive or explosive substances on, in, or near the equipment.

If there is a problem, do not continue to use the reactor. Contact us immediately.

Safety Precautions and Explanations

At USA Lab, safety is our number one priority. The following information provides guidelines for safety when using USA Lab equipment. Any piece of machinery can become dangerous to personnel when improperly operated or poorly maintained. ALL employees operating and maintaining USA Lab equipment should be familiar with its operation, thoroughly trained, and Instructed on the best safety practices.

Most industry accidents are preventable through safety awareness.

Training

It is the responsibility of the customer to ensure that all personnel who will be expected to operate or maintain the equipment. Participate in training and instruction sessions to become trained operators. All personnel operating, inspecting, servicing, or cleaning this equipment must be properly trained in the operation and machine safety. **BEFORE** operating this equipment, read the operating instructions in this equipment manual. Become thoroughly familiar with the machinery and its controls.

Safety

- Never leave the equipment running unattended and use this equipment only for its intended purpose.
- Ensure that all power sources are turned off when the machine is not in use. This encompasses electrical and pneumatic power.
- Read the manual for any special operational instructions for each piece of equipment. All USA Lab authored manuals are typically included with each device as well as posted online.
- Know how the equipment functions and understand the operating and halting processes.
- Wear the appropriate personal protective equipment for the task.
- When working on or around all equipment, avoid wearing loose clothing, jewelry, unrestrained long hair, loose ties, belts, scarves, or articles that may be caught in moving parts. Keep all extremities away from moving parts. Entanglement can cause death or severe injury.
- For new equipment, check input voltage and compare with the equipment voltage rating. DO NOT supply the incorrect power to any equipment for any reason whatsoever. Electrical specifications for your machine are printed on the machine tag. A properly grounded receptacle is required for safe operation regardless of voltage requirements.
- Keep the equipment operating zone free of obstacles that could cause a person to trip or fall toward an operating machine. Keep fingers, hands, or any part of the body out of the machine and away from moving parts when the machine is operating.
- Any machine with moving parts and/or electrical components can be potentially dangerous no matter how many safety features it contains. Stay alert and think clearly while operating or servicing the equipment. Be aware of operations and personnel in your surroundings. Be attentive to indicator lights, warning lights, and/or operator interface screens displayed on the machine and know how to respond.
- Do not operate machinery if you are fatigued, emotionally distressed, or under the influence of drugs or alcohol.
- Know where the FIRST AID SAFETY STATION is located.
- Know where the FIRE EXTINGUISHING EQUIPMENT is located.
- Never sit or stand on the machine or on anything that might cause you to fall against the machine.
- Rotating and moving parts are dangerous. Keep clear of the operating area. Never put any foreign object into the operating area.
- Use proper lifting and transporting devices for heavy equipment. Some types of equipment can be extremely heavy. An appropriate lifting device should be used.
- Use caution when moving portable equipment. In some cases, the machinery can be heavy and/or may be top heavy. Portable equipment can gain momentum during transporting and must always be controlled.

Symbols and Warnings

Below are examples of commonly used symbols and what they mean.

Understand them and their potential consequences.



High Voltage or Electrical Hazard



Explosive Hazard



Not User Serviceable



Flammable Hazard



Hot Surface or Steam Hazard

1.2 Features

The JR Series Jacketed Reactor is an advanced jacketed reaction vessel. Each reactor has a jacket allowing circulation of liquid. This creates higher chilling or heating efficiency as well as less temperature loss. The jacket can be drained and released of pressure with ease, due to the convenient drain ports near the bottom portion of the reactor. The stirring paddles are made of PTFE, mounted to a PTFE coated stainless steel rod. Allowing for better chemical compatibility and cleaning.

1.3 Technical Parameters

JR-5:

JR-5 SPECIFICATIONS
•Glass Material: GG-17 Borosilicate Glass
•Reaction Vessel Capacity: 3L
•Material Flask Capacity: 1L
•Fluid Jacket Capacity: 0.8L
•Rotary Speed: 0-450RPM
•Glass Temperature Range: -80°C to 250°C / -112°F to 482
•Power Requirements: 110V 60Hz 15A 5-15P Plug Included
•Stirrer Wattage: 90W
•Vacuum Level: Under 0.098Mpa
•Dimensions: 14"L x 15"W x 22"H
•Weight: 75lbs
•Speed Regulation: Digital Step-Less
•Condenser and Feed Valve Barbs: 10MM - 3/8"
•Bottom Drain Port: 35MM - 1 3/8"
•Fluid Connection: 16MM - 5/8"

JR-20:

JR-20 SPECIFICATIONS
•Glass Material: GG-17 Borosilicate Glass
•Reaction Vessel Capacity: 20L
•Material Flask Capacity: 5L
•Fluid Jacket Capacity: 8L
•Rotary Speed: 0-450RPM
•Glass Temperature Range: -80°C to 250°C / -112°F to 482
•Power Requirements: 110V 60Hz 15A Single Phase
•Stirrer Wattage: 90W
•Vacuum Level: Under 0.098Mpa
•Dimensions: 38"L x 20 1/2"W x 25"H
•Weight: 175lbs
•Speed Regulation: Digital Step-Less
•Condenser and Feed Valve Barbs: 10MM - 3/8"
•Bottom Drain Port: 35MM - 1 3/8"
•Receiving Flask Barb: 10MM - 5/8"
•Fluid Connection: 16MM - 5/8"

JR-10:

JR-10 SPECIFICATIONS
•Glass Material: GG-17 Borosilicate Glass
•Reaction Vessel Capacity: 10L
•Material Flask Capacity: 2L
•Fluid Jacket Capacity: 5L
•Rotary Speed: 0-450RPM
•Glass Temperature Range: -80°C to 250°C / -112°F to 482
•Power Requirements: 110V 60Hz 15A Single Phase
•Stirrer Wattage: 90W
•Vacuum Level: Under 0.098Mpa
•Dimensions: 20 1/2"L x 20 1/4"W x 20"H
•Weight: 140lbs
•Speed Regulation: Digital Step-Less
•Condenser and Feed Valve Barbs: 10MM - 3/8"
•Bottom Drain Port: 35MM - 1 3/8"
•Receiving Flask Barb: 10MM - 5/8"
•Fluid Connection: 16MM - 5/8"

JR-50:

JR-50 SPECIFICATIONS
•Glass Material: GG-17 Borosilicate Glass
•Reaction Vessel Capacity: 50L
•Material Flask Capacity: 5L
•Fluid Jacket Capacity: 13L
•Rotary Speed: 0-450RPM
•Glass Temperature Range: -80°C to 250°C / -112°F to 482
•Power Requirements: 110V 60Hz 15A Single Phase
•Stirrer Wattage: 90W
•Vacuum Level: Under 0.098Mpa
•Dimensions: 31"L x 23"W x 30"H
•Weight: 205lbs
•Speed Regulation: Digital Step-Less
•Condenser and Feed Valve Barbs: 10MM - 3/8"
•Bottom Drain Port: 35MM - 1 3/8"
•Receiving Flask Barb: 10MM - 5/8"
•Fluid Connection: 16MM - 5/8"

JR-100:

JR-100 SPECIFICATIONS
•Glass Material: GG-17 Borosilicate Glass
•Reaction Vessel Capacity: 100L
•Material Flask Capacity: 5L
•Fluid Jacket Capacity: 18L
•Rotary Speed: 0-450RPM
•Glass Temperature Range: -80°C to 250°C / -112°F to 482
•Power Requirements: 110V 60Hz 15A Single Phase
•Stirrer Wattage: 250W
•Vacuum Level: Under 0.098Mpa
•Dimensions: 48"L x 34"W x 102"H
•Weight: 275lbs
•Speed Regulation: Digital Step-Less
•Condenser and Feed Valve Barbs: 10MM - 3/8"
•Bottom Drain Port: 35MM - 1.3/8"
•Receiving Flask Barb: 16MM - 5/8"
•Fluid Connection: 16MM - 5/8"

2 Diagrams

JR5



JR10



JR20-JR100



3 Control Panel Operation



4 Preparing for Installation

JR-5:

JR-5 PACKING LIST	
USA Lab 5L Jacketed Reactor JR-5	1 set
Main Condenser	1 pc.
1L Material Flask	1 pc.
Reflux Flask with Valve	1 pc.
Feed Ports	1 sets
Lid Glass PTFE Stopper w/ Barbs	1 pc.
Strap for Condenser	1 sets
Control Box	1 pc.
Vacuum Gauge	1 pc.
Support Rings	1 pos.
Stirring Motor w/ Paddle	1 set
Temperature Probe	1 pc.
S35 Metal Clamp	1 pc.
3oz. Vacuum Grease	1 pc.
Vacuum Hose	10 ft.
5-15P Plug (Pre-Installed)	1 pc.

JR-10:

JR-10 PACKING LIST	
USA Lab 10L Jacketed Reactor JR-10	1 set
Main Condenser	1 pc.
2L Material Flask	1 pc.
5L Receiving Flask	1 pc.
Reflux Flask with Valve	1 pc.
Feed Ports	3 sets
Lid Glass PTFE Stopper w/ Barbs	1 pc.
Strap for Condenser and Material Flask	2 sets
Sealing Screw / Flange	2 sets
Fluid Line Sealing Clamp / Flange	2 sets
Control Box	1 pc.
Vacuum Gauge	1 pc.
Support Rings	2 pos.
Stirring Motor w/ Paddle	1 set
Temperature Probe	1 pc.
Liquid 5/8" Connections	2 pos.
S35 Metal Clamp	1 pc.
3oz. Vacuum Grease	1 pc.
Vacuum Hose	10 ft.

JR-20:

JR-20 PACKING LIST	
USA Lab 20L Jacketed Reactor JR-20	1 set
Main Condenser	1 pc.
2L Material Flask	1 pc.
Reflux Flask with Valve	1 pc.
Glass - Material Flask to Lid	1 pc.
29/32 Stopper	1 pc.
Lid Glass PTFE Stopper w/ Barbs	1 pc.
Strap for Condenser and Material Flask	2 sets
Condenser Sealing Flange	1 set
Lid Sealing Flange (Pre-Installed)	1 sets
Fluid Line Sealing Flange (Pre-Installed)	2 sets
Control Box (Pre-Installed)	1 pc.
Vacuum Gauge	1 pc.
Support Rings (Pre-Installed)	1 pc.
Stirring Motor w/ Paddle (Pre-Installed)	1 set
Temperature Probe (Pre-Installed)	1 pc.
Liquid 1/2" Connections (Pre-Installed)	2 pos.
3/8" Drain Valve (Pre-Installed)	1 pc.
Lift Remote Control	1 pc.
PTFE Sealing Tape	1 pc.
Allen Keys and hex screws	1 set
3oz. Vacuum Grease	1 pc.
Vacuum Hose	10 ft.

JR-50:

JR-50 PACKING LIST	
USA Lab 50L Jacketed Reactor JR-50	1 set
Main Condenser	1 pc.
5L Material Flask	1 pc.
10L Receiving Flask	1 pc.
Reflux Flask with Valve	1 pc.
Feed Ports	6 sets
Stopper	1 pc.
Clamp for Material Flask	1 pc.
Strap for Condenser	1 sets
Sealing Screw / Flange	3 sets
Fluid Line Sealing Clamp / Flange	2 sets
Control Box	1 pc.
Vacuum Gauge	1 pc.
Support Rings	2 pos.
Stirring Motor w/ Paddle	1 set
Temperature Probe	1 pc.
Liquid 5/8" Connections	2 pos.
Metal Clamp	2 pc.
3oz. Vacuum Grease	1 pc.
Vacuum Hose	10 ft.

JR-100 PACKING LIST	
USA Lab 100L Jacketed Reactor JR-100	1 set
Main Condenser	1 pc
5L Material Flask	1 pc
10L Receiving Flask	1 pc
Reflux Flask with Valve	1 pc
Field Ports	6 sets
Stopper	3 pc
Clamp for Material Flask	1 pc
Strap for Condenser	1 sets
Sealing Screw / Flange	3 sets
Fluid Line Sealing Clamp / Flange	2 sets
Control Box	1 pc
Vacuum Gauge	1 pc
Support Rings	2 pcs
Stirring Motor w/ Paddle	1 set
Temperature Probe	1 pc
Liquid 5/8" Connections	2 pcs
Metal Clamp	2 pc
3oz. Vacuum Grease	1 pc
Vacuum Hose	10 ft.

1. Please refer to the packing list above to check whether the components and parts are included. If there are any missing parts, please contact us immediately.
2. Remove any residue before assembly and keep all surfaces clean.
3. Tools that might be needed in the installation include: large adjustable wrench.
4. A professionally installed 5-15R receptacle. See Specs in section 1.3.

5 Instructions for Installation

Steps:

- Assemble glass material column and condenser.
- Add gaskets into UHC tubing.
- Install tubing from top of the liquid jacket to the outlet of the UHC, then bottom of the liquid jacket to inlet of UHC.
- Follow the Instructions in the UHC manual to fill the reactor liquid jacket.
- Add tubing from UC / DLSB to condenser coil inlet and outlet.
- Follow the instructions in the UC / DLSB manual to fill the condenser loop.

6 Notes

6.1 Purpose

The JR reactor is intended to be used with the UHC chiller for the fluid jacket and the UC / DLSB chiller series for the condenser.

6.2 Storage

For long periods, please disconnect the power. Empty and clean the reaction vessel, stirrer, jacket, the condenser, and material flask.

7 Maintenance

- Shut off the power switch and disconnect the power cord before any maintenance.
- Use a damp soft cloth to wipe clean. Stubborn stains should be cleaned by neutral detergents.
- The maintenance of internal electrical and heating parts must be performed by professionals or trained electricians.
- Do not directly splash water over the product or use abrasive powder, diluent, oil, kerosene, acidic material and similar substances during cleaning, or else shock or other accidents will occur.

8 Service

Our company provides limited warranty for any product with failures due to manufacturing quality within 12 months after the date of delivery on the premise of normal operation by users. Reasonable repair costs will be charged for damage caused by improper use. After-sales service Tel : (734) 855-4890 or sales@usalab.com

USA Lab reserves the right of ultimate interpretation of the instruction manual. Additionally, USA Lab is not responsible for damages or injuries caused by improper use; knowingly or unknowingly. Glassware is not covered under warranty. We ship all glassware products with additional care, but sometimes they arrive broken. If glassware arrives broken, please contact us within 3 days of receiving your product and we will either send you a brand new piece or send you a refund. Any glassware broken 3 days after or later will not be covered by warranty. Maintenance items such as seals and gaskets are not covered under the warranty. Thank you for understanding!

Return Policy:

We offer a 30-day return policy from when your package is delivered to your shipping address. By placing an order with USA Lab, you express that you have read and agreed to the following return policies.

- We do not accept returns for customized items. When purchasing a customized item, you agree that there are no returns due to the nature of the item(s) being specific to your needs.
- By default, a 15% restocking fee is applied on all items that are in original packaging and unused with no damage. This applies to all items returned within 30 days. No exceptions. You will be responsible for the return shipment unless deemed defective by USA Lab. In that case, we will pay for return shipment and replacement shipment costs.
- The item(s) must be returned in original packaging and in undamaged condition. The item(s) must have no signs of usage or wear including stickers, scratches, dents, resins, non-standard fluids, plant matter, or any other wear not representing a new, unused item. Products deemed defective with any signs of usage or wear will result in a 25% restocking fee.
- Once the returned item is received, tested, inspected, and processed, a refund will be issued. If your item(s) are in original packaging and unused, you will be refunded the initial purchase price with the 15% restocking fee deducted. If your item(s) are deemed damaged or used, you will be refunded the initial purchase price with the 25% restocking fee deducted.
- If an item has been deemed to be severely misused, modified resulting in catastrophic failure, operated anywhere but inside of a climate-controlled facility. A minimum of 25% restocking fee will be deducted from the refund.

Revision 1.0



INSTRUCTION MANUAL

Circulating Water Temperature Control System

Models Covered:
Duratherm, Hydrotherm II, & Minitherm

2150 Elmwood Avenue - Buffalo, NY 14207
P# 716-876-9951 - F#716-874-8048 - www.mokon.com

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Water Systems Quick Start-Up Checklist

Please verify that the product received matches the product ordered and that the equipment is designed for the intended application. The following quick checklist is an abridged version - always refer to the Mokon Manual provided for additional data and requirements prior to the commissioning of the unit.

✓ Electrical Inspection

- Verify amp draws and voltage on serial tag match electrical service being supplied.
- All electrical termination points checked for tightness.
- Electrical wiring completed and disconnect sized and installed per code and compliance.
- Motor rotation verified, motor(s) bumped.
- Verify any remote control wiring is complete.

✓ Mechanical Inspection

- Mechanical fittings tight.
- Unions tight.
- Compression fittings tight.
- Insure Supply, Drain and Process connections are connected properly and operating pressure does not exceed ratings.

✓ Location and Good Standard Installation Practices

- Confirm safe access to equipment for maintenance, removal and lockout- tag out.
- Insure equipment is designed for the installed environment.
- Allow a minimum of 4 feet (1.2 meters) on all four (4) sides to allow for proper maintenance and operation.
- Allow a minimum of 4 feet (1.2 meters) or more above unit for proper ventilation. Please use extreme caution when dealing with hot surfaces.



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MOKCLST7000 2/15

Section 1 – Warnings and Cautions

Please read and understand this section before operating the system!

1.1 Electrical Warning



The Mokon temperature control system, as with all high voltage electrical equipment, should be connected according to all local and national codes. All installation, maintenance, service, repair, adjustment, and operation should be done only by qualified trained electrical personnel who have read and completely understood this instruction manual. To the upper right is a symbol for Electrical Danger. When it is seen on the following pages of this manual as well as on the system, care should be taken to avoid possible electric shock. All maintenance and service should be performed with the power isolated and locked out except where noted.

1.2 Hot Fluid Warning



Exercise Extreme Caution while working on or in the area of the Mokon temperature control system. The high temperature of the fluid will cause the process lines, the system components, and the metal cabinetry to become very hot and therefore should not be touched. To the upper right is a symbol for surface may be hot, high temperature. When it is seen on the following pages of this manual, care should be taken to avoid possible burns. All maintenance and service must be performed with the system completely cooled. It is advisable to plug the process ports of any unused zones so that if a wrong button is pressed, fluid will not be pumped through them.

1.3 Cold Weather Caution



If the Mokon temperature control system will be moved from your plant and will be subjected to freezing temperatures, the water in the system must be completely drained and/or sufficient antifreeze added to prevent serious water damage from freezing.

1.4 Excessive Supply Pressure Caution

Model: DN, DO, DP, DQ, DR, DT, DU, DV, DW, DX, DY, DZ, HN, HR, HW, HX, HY, HZ, MT

Mokon suggests an optional pressure regulator on Mokon temperature control systems for applications with high supply water pressure (exceeding 50 PSI, 345 kPa) to reduce or eliminate the potential for water hammer. Recommended pressure is 30 PSI (207 kPa). Water hammer in the Mokon temperature control system or the process and cooling lines can lead to system damage and reduced system life. If a pressure regulator is added to the Mokon temperature control system, it must be of the design that incorporates a bleed off for thermal expansion of the fluid.

1.5 Excessive Supply Pressure Caution

Models: DA, DB, DC, DD, DE, DF, DG, DH, DJ, DK, DL, DM

A water supply of 60 PSI (414 kPa) is required to operate these systems at 300°F (149°C). Mokon suggests an optional pressure regulator on Mokon temperature control systems for applications with high supply water pressure (exceeding 75 PSI/ 517 kPa) to reduce or eliminate the potential for water hammer. Water hammer in the Mokon temperature control system or the process and cooling lines can lead to system damage and reduced system life. If a pressure regulator is added to the Mokon temperature control system, it must be of the design that incorporates a bleed off for thermal expansion of the fluid.

1.6 Overhead Piping Warning

When overhead piping is connected to a Mokon temperature control system equipped with an open reservoir or non-**pressurized expansion tank there is risk of overflow of the system's reservoir tank** upon shutdown, this is due to the back flow of fluid volume from the overhead piping system.

To prevent reservoir tank overflow an overhead piping kit should be installed. This kit is available from Mokon as an option.

1.7 Short Circuit Current Rating Caution

Equipment supplied with a safety door disconnect or power cord is design rated for a short circuit current rating (SCCR) of 10,000 amperes RMS if protected with a class "J" fuse.

1.8 No Flow Warning

It should be noted that if any external valves are installed in the process flow path, they must be opened before starting the Mokon temperature control system or risk causing serious damage to the system and the process.

Fluid must be established (flowing) through the Mokon temperature control system in order for the safety features to work properly and adequately protect the Mokon temperature control system.

The use of valves downstream of the Mokon temperature control system are not recommended as they could potentially render the system safeties inoperative if closed. This could cause serious system damage and would void the warranty. To avoid disabling the standard safety features, please contact Mokon to discuss optional safety features that may be required to adequately protect the assembly.

1.9 Non-Potable Water System

This system has been designed for use in non-potable water applications only. For applications requiring potable water use please contact Mokon directly to discuss a product offering.

Section 2 – Installation

2.1 Unpacking

Upon arrival inspection should be done to assure there was no damage during shipping. In addition, all electrical and mechanical connections should be inspected to ensure that they are secure and tight. This includes all electrical terminations, mechanical fitting union bulbs, compression fittings, etc.

Note: Refer to Section 4.1 Maintenance and service.

The maximum weights of the Mokon water systems when drained of water are:

Duratherm - 475 lbs (160 kg)

Dual Zone Duratherm - 950 lbs (232 kg)

Hydrotherm II - 175 lbs (80 kg)

Minitherm - 110 lbs (50 kg)

Properly rated equipment should be used to move this machinery.

When removing system from pallet, lift from bottom only. Care should be taken to ensure that the system will not tip. After removing from pallet, the system should only be placed on a level surface.

2.2 Location

Mokon systems should be located in an area that provides adequate space for pedestrian and vehicle traffic. If this is not feasible, owner should provide additional safeguards including safety signs.

For optimum system performance, allow adequate space and ventilation around entire system, as well as a means to direct vapors away from work area.

There should be a minimum of four (4) feet of clearance around the entire Mokon system (all sides) for adequate ventilation and operation of the system.

If braking casters are included, they must be in the locked position when system is in the operating position. Prior to moving, unlock the casters.

Customer supplied and installed air vents (mechanical or electrical) should be placed at the highest point in the process for application where the process height is greater than eight (8) feet above Mokon system.

2.3 Warnings

Owner should ensure by adequate supervision that correct safety, installation, maintenance and operating procedures described in this manual, as well as recognized industry practice, are followed by all personnel.

All panels must be in place during normal operation.

The top of the machinery should not be used for storage.

Power sources or energy types referred to in this manual are water and electricity.

This machinery is not for use in hazardous or explosion proof environments.

Under normal operating conditions, the decibel level of the machinery is 67 db or lower.

Any alteration, additions or modifications to any part of the system must receive prior written **approval from Mokon's Engineering or Customer Service Departments.**

Refer to serial tag for motor and heater electrical information and schematic drawing number.

2.4 Electrical Connections



Warning: The Mokon temperature control system, as with all high voltage electrical equipment, should be connected according to all applicable state and local codes. All installation, maintenance, service, repair, adjustment, and operation should be done only by qualified trained electrical personnel who have read and completely understood this instruction manual.

Before operating the Mokon temperature control system, the grounding wire must be connected. The grounding wire is the green or green and yellow wire connected to the frame of the system.

Connect ground wire to the ground screw (labeled PE or GND) located in the electrical box. Connect power lines L1, L2, L3, to disconnect switch or terminal blocks marked L1, L2, and L3 respectively, inside the electrical box. Overcurrent protection of the supply conductors should be sized according to The National Electrical Code (NEC) and any other applicable state and local codes.

2.5 Water Connections



Exercise extreme caution while working on or in the area of the Mokon temperature control system. The high temperature of the fluid will cause the process lines, the system components, and the metal cabinetry to become very hot and therefore, they should not be touched.

There are four (4) convenient and clearly marked connections, "Supply Water," "To Process," "From Process" and "Drain Water."

Note: It is not recommended that quick disconnects be used on any of the connections, as they will restrict the flow.)

Caution: **The "Supply Water" fluid connection must not be valved in any way.** If you add or replace a pressure regulator to a Mokon temperature control system it must be of the design that incorporates a bleed off for thermal expansion of the fluid. This style of regulator is available from Mokon. During a heating cycle, thermal expansion is created and is bled off through the supply. If the supply source is valved or restricted in any way, this will cause the Mokon temperature control **system to lose it's capabilities of bleeding off** for thermal expansion, and can damage the system. Consult the Mokon factory for recommendations.

Supply Water: Connect this port to an adequate source of cold, clean supply water. Do not restrict incoming water to the Mokon temperature control system for the reasons outlined above. The pressure regulator (if included on system as an option) is set at the factory for suitable operation of the Mokon temperature control. For systems with a pressure regulator, see Section 6.1 for adjustment procedures. For systems without a pressure regulator see Section 1.4 or 1.5 for recommended pressures.

To Process: Connect this port to the process inlet, through which temperature controlled water will enter the process. Use full size unrestricted high temperature hose or pipe rated for the proper pressure and temperature.

From Process: Connect this port to the process outlet, from which temperature controlled water will leave the process. Use full size unrestricted high temperature hose or pipe rated for the proper pressure and temperature.

Caution: **The "Drain Water" connection must not be valved in any way. In plant recirculating systems return line pressure restrict the performance of open circuit type Mokon temperature control systems.** If plant drainage systems are pressurized it can cause the Mokon temperature control system to reduce or lose its cooling capabilities. Consult the Mokon factory for recommendations.

Drain Water: Connect this port to drain (or return line in an in plant closed recirculation system).

Reservoir Filling: For Mokon temperature control systems with an optional fluid reservoir, the reservoir needs to be filled prior to operation. Fill to a minimum of 1/2 full with a water or water/glycol mixture.

Section 3 – Operation

3.1 Initial Starting Procedure

- Turn on the water supply connected to the Mokon temperature control system. (See Section 2.5 for water connections)
- Turn on the electrical main disconnect switch. (See Section 2.4 for electrical connections)
- If provided, turn on the electrical box door disconnect switch.
- For each zone, check the motor rotation by turning on the system momentarily (press the **“Start” button then the “Stop” button**). **As the pump slows down, check the motor rotation.** If the motor is not rotating in the direction of the arrow label located on the motor housing (clockwise from the lead end), reverse any two power cord leads to change the direction of the motor rotation. (See Section 2.4)
- Restart the system and set the controller to the minimum temperature. (See Section 5 for controller instructions)
- Allow the system to run for several minutes with the controller set to the minimum temperature to remove air from the system. All systems have as standard an auto-air purge, factory default set for 5 minutes. After 5 minutes of operation at the minimum temperature the system should automatically purge itself of air. There is also a manual purge button that can be used on Duratherm and Minitherm systems for Hydrotherm II systems refer to Section 5.5 and 5.6 for additional air purge instructions.

Note: Some processes require a different air purge timed cycle other than the factory default set value. Adjustments can be made to either lengthen or shorten this timed cycle. Please refer to Sections 5.5 and 5.6 for additional information on the automatic air purge feature.

- Set the controller to the desired temperature. The system will reach the setpoint temperature. (See Section 5 for controller instructions)

Note: Automatic air purge, during start-up removes air from lines (add an air-bleed and/or air separator at highest process loop point if needed to help expel air from process).

3.2 Process Flow Adjustment

- The operator must determine and set proper water flow rate for the most efficient and trouble free operation.
 - Water flow rate through the process is determined by the pressure losses in the process loop. Generally, higher flow rates result in turbulent flow achieving maximum temperature control and lower maintenance.
 - If the flow rate exceeds the motor HP capacity, the electric motor will draw excessive amps. **This is a result of the process loop’s ability to flow water at a greater rate than can be provided by the pump.** This will eventually result in tripping the thermal motor overload relay (overload relays open and the unit will shut down)
- If an excessive flow situation is encountered and the motor overload circuit has tripped, the operator must manually reset the overload relay before operations can continue. This is done by opening the electrical panel cover, identifying the reset level of the overload relay, **and pushing the reset level “in” until the overloads are reset.**
- If a motor overload situation persists, the operator must adjust the flow rate to match the system pressure loss (reduce flow rate) to prevent continual tripping of the overload relay.

- o Open electrical cabinet panel door.
Note: That the electrical power is engaged at this point and caution must be observed while the cabinet panel is open.
- o Identify the motor starter block. This block consists of the motor starter contactor and the overload relay.
- o Place an amp meter on a single power lead coming from the overload relay.
- o Locate the motor name plate on the pump motor housing. The full load amp rating for the motor is listed on the name plate.



- o Engage the electrical power supply and start the unit.
- o The amp meter will display the motor amps. Compare the actual motor amps as displayed on the amp meter to the full load amp rating as listed on the motor name plate.
- o If the amp draw is excessive (higher than the listed name plate amp rating), a throttling valve must be installed in **the "from process" water line**. The throttling valve can be a gate valve or a ball valve.
- o With the throttling valve installed, fully close the valve and then engage the pump motor. Slowly open the throttling valve and monitor the motor amps as displayed on the amp meter until the actual motor amps equal the listed full load amp rating of the motor. The process flow is correctly adjusted. The valve should remain in this position during operation.

3.3 Changing Temperature Settings

If a new temperature setting is required while the system is in operation, adjust the controller to the new desired setpoint temperature. See Section 5 for controller instructions.

3.4 Shut Down Procedure

Cool the Mokon temperature control system down by reducing the setpoint temperature to 100°F (38°C) or lower. When the system is cooled, push the "Stop" button to shut off the system. *Do not shut the system off at elevated temperatures, this can be detrimental to system life.* The water and main electrical power to the Mokon temperature control system may be turned off if desired but is not necessary unless the system is being relocated or for prolonged shut down.

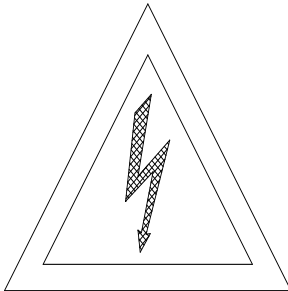
3.5 Restarting Procedure

- If the water lines and main electrical power have not been disconnected, refer to Section 3.1.
- If the water lines and/or the main electrical power have been disconnected, refer to Section 2.4 for Electrical Connections, Section 2.5 for Water Connections, and Section 3.1 for Initial Start-Up Procedure.

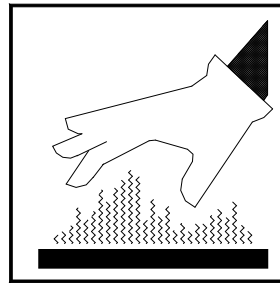
Section 4 – Maintenance and Service

Warning: The maintenance and service procedures included in Sections 4.1 – 4.11 require that all power sources to the Mokon temperature control system be shut off, isolated and locked out (exceptions noted) and that the system be completely cooled. Follow all local and national codes and procedures for working on electrical equipment. Failure to do so could result in injury or death. Only qualified electrical personnel should install, maintain, repair, adjust, and operate Mokon temperature control systems. The instruction manual furnished with the system should be completely read and understood before system maintenance.

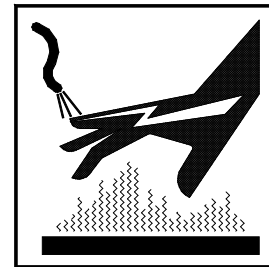
The following hazard warning symbols will be used to denote a specific hazard associated with a procedure.



Electrical Danger



High Temperature
Surface May Be Hot



High Voltage &
Hot Surface

4.1 Preventative Maintenance



Mokon temperature control systems are designed for a long, trouble free service life under a variety of conditions, with a minimum of maintenance. Performing the following preventative procedures will extend the life of your system. Refer to Section 4.1 - 4.11 in the instruction manual for specific adjustment or service procedures. Refer to the condensed parts list included in Section 8 of the instruction manual for proper replacement parts if required.

The preventative maintenance section is broken into weekly, monthly, and every three months checks. Associated with each check is a series of corrective procedures that may solve a problem detected in the check. If the corrective procedures do not resolve a problem detected in the check, see the trouble shooting guide in Section 7 for a complete list of corrective measures.





Electrical Preventative Maintenance

Weekly Checks	Corrective Procedures
Check electrical box interior components for any discoloration, or any burn marks	Correct component wiring
	Verify voltage and frequency stamped on system matches customer supply voltage and frequency
	Correct excessive system load (current draw)
	Verify customer supply voltage is balanced and fluctuations are within 5% of nominal
	Verify wire gauge for main power hookup is properly sized
	Replace components if needed
Check for blown fuses	Replace with the correct size and style fuse
For units with solid state contactors, inspect the screen covering the fan inside the electrical enclosure	If clogged with debris, clean or replace the screen. If not cleaned or replaced excessive heat build-up can occur in the electrical enclosure reducing component life and wiring. System warranty will be void.
Monthly Checks	Corrective Procedures
Check that the high temperature switch (TS) has a set of N.O. and N.C. contacts, and it is properly wired	Replace the switch if necessary
Check that the low pressure switch (PS) has a set of N.O. and N.C. contacts, and it is properly wired	Replace the switch if necessary
Every 3 Months Checks	Corrective Procedures
Check that the interior electrical and mechanical components are securely fastened to the back panel, and/or to the sides of the electrical box	Tighten with proper tooling
Check that the ratings of overload protection (such as fuses and circuit breakers) adequately protect the line's maximum current carrying capacity	Inspect/replace fuses
	Inspect/replace motor starter overloads
Check the fuses against the electrical schematic for proper size according to the systems voltage	Replace if different
Slightly tug on each wire / conductor to make sure it makes a solid contact to its attached component. Pay close attention to the green grounding wires.	Tighten with proper tooling

Pump/Motor and Mechanical Connections Preventative Maintenance

Weekly Checks	Corrective Procedures
Check for foreign materials obstructing airflow in the motor and pump area	Remove all dust, lint, grease or oil with a cloth and/or brush
Check the motor rotation is correct by observing the direction of rotation through the grillwork on the motor (Power On then Off)	Reverse any two incoming power cord leads to correct rotation
Monthly Checks	Corrective Procedures
Check that all bolts and screws are securely tightened	Tighten with proper tooling
 Check for plumbing leaks	Repair solder joints Replace necessary parts if leaks persist
Visually check all threaded fittings for signs of leakage	Tighten with proper tooling
	Replace necessary parts if leaks persist
Check that the motor current draw matches the serial tag rating	Correct motor wiring
	Verify supply voltage is balanced and fluctuations are within 5% of nominal
 Check gauge readings on the cabinet (Power On)	Verify suction or discharged line not partially clogged
	Verify no restrictions in process or supply lines
	Replace gauge(s) if needed
Semi Annual Checks	Corrective Procedures
Check that all threaded fittings within the fluid loop are securely tightened	Tighten with proper tooling
	Replace necessary parts if leaks persist

Miscellaneous Preventative Maintenance

Monthly Checks	Corrective Procedures
 <p>Check that all applicable lights, gauges, and optional indicators are functioning properly (Power On)</p>	<p>Replace necessary components</p>
 <p>Check the cooling solenoid operation by elevating setpoint temperature manually. While in the heating mode, push the manual air purge button. Listen for the cooling solenoid's audible energizing and de-energizing "clicking sound." Observe process temperature decreasing. (Power On)</p>	<p>Using a Voltmeter, determine if solenoid coil is energizing</p> <p>Replace solenoid valve, if necessary</p>
 <p>Check the controller calibration by setting the controller for three random setpoints within the operating range of the system. Observe that the process temperature output is within the accuracy of the controller. (Power On)</p>	<p>Calibrate controller using Section 5 in the instruction manual (Power On)</p> <p>Verify the thermocouple wires at controller are secure</p> <p>If controller does not respond to any of the above steps, consult the Mokon factory <u><i>Do not attempt repairs as the warranty could become void.</i></u></p>
 <p>Check the system for leaks at operating temperatures. As the system reaches the setpoint temperature, visually check for leaks.</p>	<p>Repair leaks and/or tighten fittings</p> <p>Replace necessary parts</p>

Monthly Checks	Corrective Procedures
Check that the heater current draw matches the serial tag rating	Verify heater wiring stake-on is secured
	Correct heater wiring
	Verify customer supply voltage is balanced and fluctuations are within 5% of nominal
Replace elements if necessary	
Check that the "Warning," "High Voltage," "Caution," and lamicoid labeling are adhering to the correct locations	Replace torn, damaged or missing labels
Check screen in optional pressure regulator for debris	Remove screen and clean

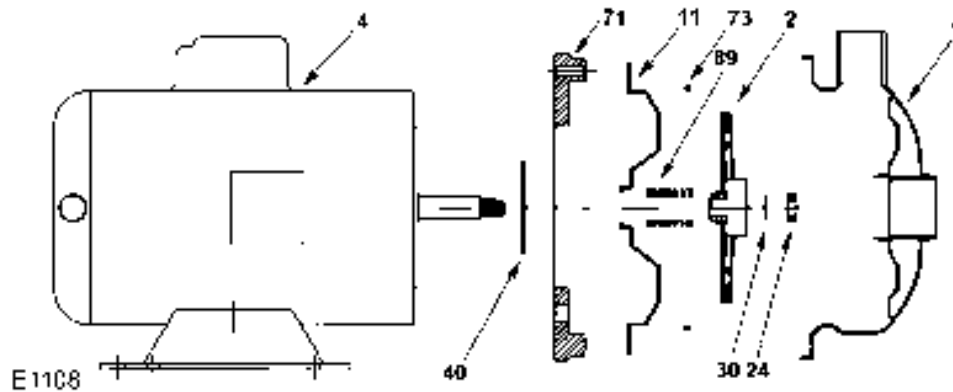
4.2 Pump Maintenance

Models: DN, DO, DR, DT, DU, DW, DY, DZ, HN, HR, HW, HX, HY, HZ

Exploded View Drawing Models: DN, DO, DR, DT, DU, DW, DY, DZ

REF. NO.	QTY.	DN 3 HP	DO 5 HP	DR 1.5 HP	DT ¾ HP	DU 5 HP	DW 3 HP	DY 1.5 HP	DZ ¾ HP	DESCRIPTION	PART #
1	1									CASE 1.25 x 1 NPT	018266
	1	✓		✓	✓		✓	✓	✓	CASE 1.25 X 1 NPT	018268
	1		✓			✓				CASE 1.5 x 1.25 NPT	018267
2	1				✓				✓	IMPELLER 4.88", STAINLESS	018275
	1			✓				✓		IMPELLER 5.25", STAINLESS	018276
	1	✓					✓			IMPELLER 6.3", STAINLESS	018277
	1		✓			✓				IMPELLER 6.3", STAINLESS	018342
4	1	✓	✓	✓	✓	✓	✓	✓	MOTOR 56J	CONSULT FACTORY	
11	1	✓	✓	✓	✓	✓	✓	✓	COVER, STAINLESS	018269	
24*	1	✓	✓	✓	✓	✓	✓	✓	NUT	018270	
30*	1	✓	✓	✓	✓	✓	✓	✓	D-WASHER	018271	
40*	1	✓	✓	✓	✓	✓	✓	✓	FLINGER	018272	
71	1	✓	✓	✓	✓	✓	✓	✓	DISC IRON	018273	
73*	1	✓	✓	✓	✓	✓	✓	✓	GASKET, CASE	018274	
89*	1	✓	✓	✓	✓	✓	✓	✓	SEAL, 5/8"	IN REPAIR KIT	

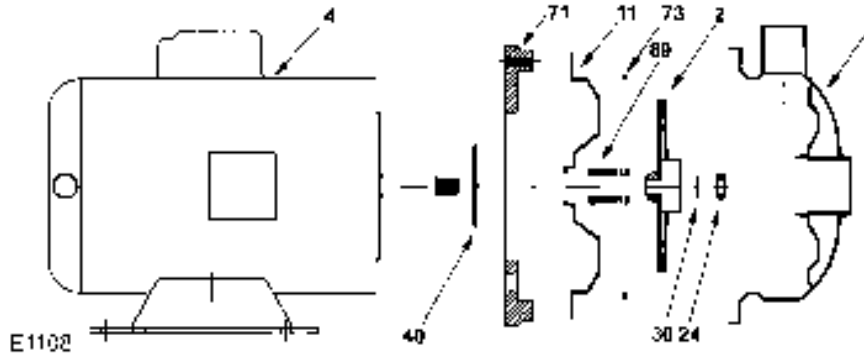
* - DENOTES COMPONENTS INCLUDED IN REPAIR KIT 018246.



Exploded View Drawing Models: HN, HR, HW, HX, HY, HZ

REF. NO.	QTY.	HN 3.0 HP	HR 1.5 HP	HW 2.0 HP	HX 1.0 HP	HY ¾ HP	HZ ½ HP	DESCRIPTION	PART #
1	1	✓	✓	✓	✓	✓	✓	CASE 1.25 x 1 NPT	018266
2	1				✓	✓		IMPELLER 4.88", STAINLESS	018275
	1						✓	IMPELLER 4.0", STAINLESS	018498
	1		✓	✓				IMPELLER 5.75", STAINLESS	018497
	1	✓						IMPELLER 6.3", STAINLESS	018277
	1							IMPELLER 6.3" STAINLESS	018342
4	1	✓	✓	✓	✓	✓	✓	MOTOR 56J	CONSULT FACTORY
11	1	✓	✓	✓	✓	✓	✓	COVER, STAINLESS	018269
24*	1	✓	✓	✓	✓	✓	✓	NUT	018270
30*	1	✓	✓	✓	✓	✓	✓	D-WASHER	018271
40*	1	✓	✓	✓	✓	✓	✓	FLINGER	018272
71	1	✓	✓	✓	✓	✓	✓	DISC IRON	018273
73*	1	✓	✓	✓	✓	✓	✓	GASKET, CASE	018274
89*	1	✓	✓	✓	✓	✓	✓	SEAL, 5/8	IN REPAIR KIT

* - DENOTES COMPONENTS INCLUDED IN REPAIR KIT 018246.



Seal Replacement/Maintenance

Warning: Make certain that the system is disconnected from the power source in compliance with all local and national codes before attempting to service or remove any components. Never run the pump when dry.

Maintenance:

Inspection: Pump should be periodically checked for proper operation. If the system has changed or if the pump is operating noisily or erratically, then the pump should be removed and examined. It should be repaired and parts replaced as necessary.

Cleaning: Remove oil, dust, dirt, water, chemicals from exterior of pump and motor. Blow out interior of open motors with clean compressed air at low pressure. Regularly drain moisture from TEFC motors.

Draining: If the pump is located in an area subject to freezing temperatures, the pump must be drained when not in operation or add sufficient antifreeze.

Seal Replacement:

Disassembly:

- Turn off power.
- Close suction and discharge valves (if equipped).
- Drain pump.
- Remove bolts holding base to foundation.
- Remove casing bolts.
- Remove motor and rotating element from casing, leaving casing and piping undisturbed, if possible. If not, then remove the whole assembly.
- Insert a screwdriver in one of the impeller waterway passages and back off the impeller nut (Ref 24).
- Remove motor shaft end cap. Insert a screwdriver in slot of motor shaft. While holding shaft against rotation, unscrew impeller (Ref 2) from shaft by turning counterclockwise when facing impeller.
- Pry off rotating member of mechanical seal from motor shaft by using two (2) screwdrivers. Be careful not to damage the pump cover (Ref 11).
- Remove pump cover (Ref 11 & 71) from cast iron disc. (There is no hardware used to attach cover to disc.) Place cover on a flat surface with convex side down. Push out stationary member of mechanical seal. It is not necessary to remove the cast iron disc from the motor to replace the seal.

Reassembly:

Caution: The mechanical seal is a precision product and should be handled accordingly. Use care when handling lapped running surfaces of the mechanical seal to ensure they remain clean and are free of chips or scratches.

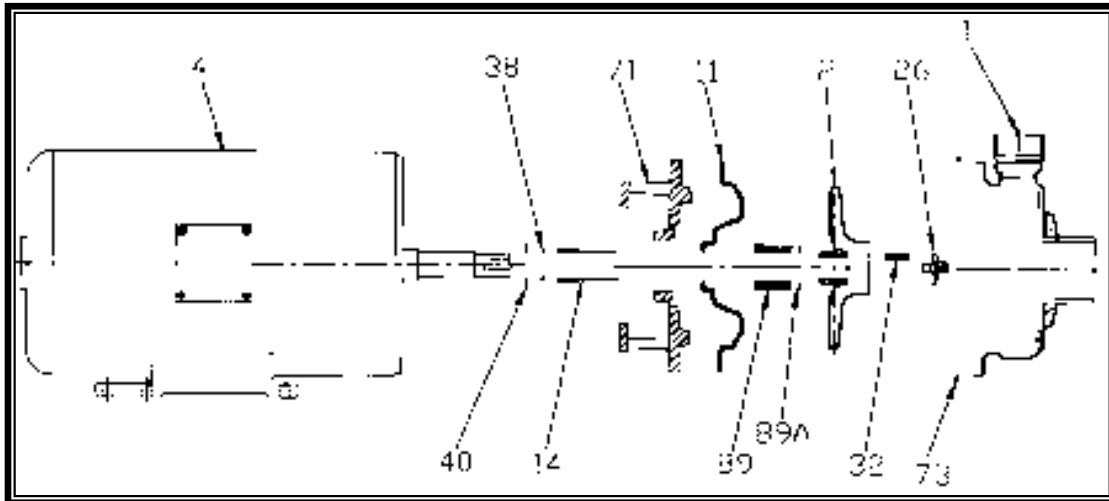
- Clean gasket and flange faces, seal seat cavity and shaft, in particular, shaft shoulder fitting against impeller.
- Lubricate the seal seat cavity of the cover and the rubber cup or O-ring of stationary seal seat with the lubricating fluid that comes with the mechanical seal or repair kit. Press the stationary seat in seal seat cavity in the cover squarely and evenly using an arbor press (if possible) and the cardboard disc supplied with the seal. Be certain that the lapped face (shiny side) is facing you.
- Position the cover (Ref 11) so that the convex side with the lapped seal seat is facing you. Place the cover on the motor disc and align the holes in the disc with the holes in the cover. **(Note: There isn't any hardware required to attach the cover to the motor disc.)**
- Apply the lubricating fluid that comes with the mechanical seal or repair kit to the motor shaft and the rubber bellows of the rotary seal. Slide the seal head on the shaft; press the rubber drive band on the rotary head until the lapped face on the head seats firmly against the lapped face of the stationary seat. Install seal spring on head and seal spring retainer on spring. Do not chip or scratch faces during installation. Take extra care to make sure the lapped faces are clean.
- Hold shaft against rotation as described in step 8 of disassembly procedure, then thread impeller on shaft until it is tight against the shaft shoulder. The impeller will compress the seal spring to the proper length assuring correct pressure on lapped faces.
- Replace D-washer (Ref 30) and impeller nut (Ref 24) holding impeller against rotation as indicated in step 7 of disassembly procedure.
- Remove any burrs caused by screwdriver on the vane of impeller in waterway passages.
- Replace motor and rotating element in casing. Be sure that any damaged O-rings are replaced. - or -
If whole assembly was removed install O-ring on cover. Be sure that any damaged O-ring is replaced.
- Position case (Ref 1), cover (Ref 11), and motor disc (Ref 71) so the holes line up. Install socket head cap screws through the case and cover and thread into motor disc. Tighten all cap screws alternately and evenly until finger tight. - or -
When whole assembly is removed place pump casing against pump cover. Ensure that impeller eye is centered in pump case and position case, cover and motor disc so that the holes line up. Install socket head cap screws through the case and cover, thread into motor disc. Tighten all cap screws alternately and evenly until finger tight.
- Finish tightening the cap screws alternately and evenly to approximately 6 ft. lbs. torque. Note: It is imperative that screws be tightened alternately and evenly, as this action centers the cover in the casing, assuring proper alignment. Binding of the impeller in the case and adaptor may occur if the cap screws are not tightened as listed above.
- Replace hold-down bolts.
- Check for free rotation after assembly is completed.
- Replace motor shaft end cap.
- Seal all drain openings using pipe sealant on threads.
- Re-prime before starting. Do not start until pump is completely filled with water.

Models: DP, DQ, DV, DX

Exploded View Drawing

REF.	QTY REQ.	DESCRIPTION	PART #
1	1	CASE, 236, 2.0" X 1.5" NPT	018310
2	1	IMPELLER, 236, 304SS, 6.3" DIAMETER	018311
4	1	MOTOR, 7.5 HP, 3/60/208-230/460, 3500 ODP	Contact Factory
	1	MOTOR, 10.0 HP, 3/60/208-230/460, 3500 ODP	Contact Factory
11	1	COVER	018312
14*	1	SHAFT SLEEVE	018313
26*	1	IMPELLER RETAINER	018314
32*	1	KEY	018315
38*	1	SHAFT O-RING	018316
40*	1	FLINGER	018317
71	1	ADAPTER	018318
73*	1	CASE GASKET	018319
89*	1	SEAL, VN-CARB/SIL	018308
89A	1	SEAL SPRING RETAINER	018320
*	*	REPAIR KIT, VN-CARB/SIL	018309

*-DENOTES COMPONENTS I INCLUDED IN REAPIR KIT



Seal Replacement/Maintenance

Warning: Make certain that the system is disconnected from the power source in compliance with all local and national codes before attempting to service or remove any components. Never run the pump when dry.

Maintenance:

Inspection: Pump should be periodically checked for proper operation. If the system has changed or if the pump is operating noisily or erratically, then the pump should be removed and examined. It should be repaired and parts replaced as necessary.

Cleaning: Remove oil, dust, dirt, water, chemicals from exterior of pump and motor. Blow out interior of open motors with clean compressed air at low pressure. Regularly drain moisture from TEFC motors.

Draining: If the pump is located in an area subject to freezing temperatures, the pump must be drained when not in operation or add sufficient antifreeze.

Seal Replacement:

Disassembly:

- Turn off power.
- Close suction and discharge valves (if equipped).
- Drain pump.
- Remove bolts holding down pump to mounting plate.
- Remove pump from system.
- Remove case.
- Insert a screwdriver in one of the impeller waterway passages and back off the impeller retaining assembly with a socket wrench.
- Remove impeller from shaft, being careful not to lose the impeller key, spring and gasket. If impeller is difficult to remove, it may be necessary to use a bearing puller to remove.
- Pry off rotating member of mechanical seal from motor shaft by using two (2) screwdrivers. Be careful not to damage the pump cover.
- Remove pump cover from cast iron disc. (There is no hardware used to attach cover to disc.) Place cover on a flat surface with convex side down. Push out stationary member of mechanical seal. It is not necessary to remove the cast iron disc from the motor to replace the seal.
- Inspect shaft sleeve. If damage or worn, remove from shaft and replace.

Reassembly:

Caution: The mechanical seal is a precision product and should be handled accordingly. Use care when handling lapped running surfaces of the mechanical seal to ensure they remain clean and are free of chips or scratches.

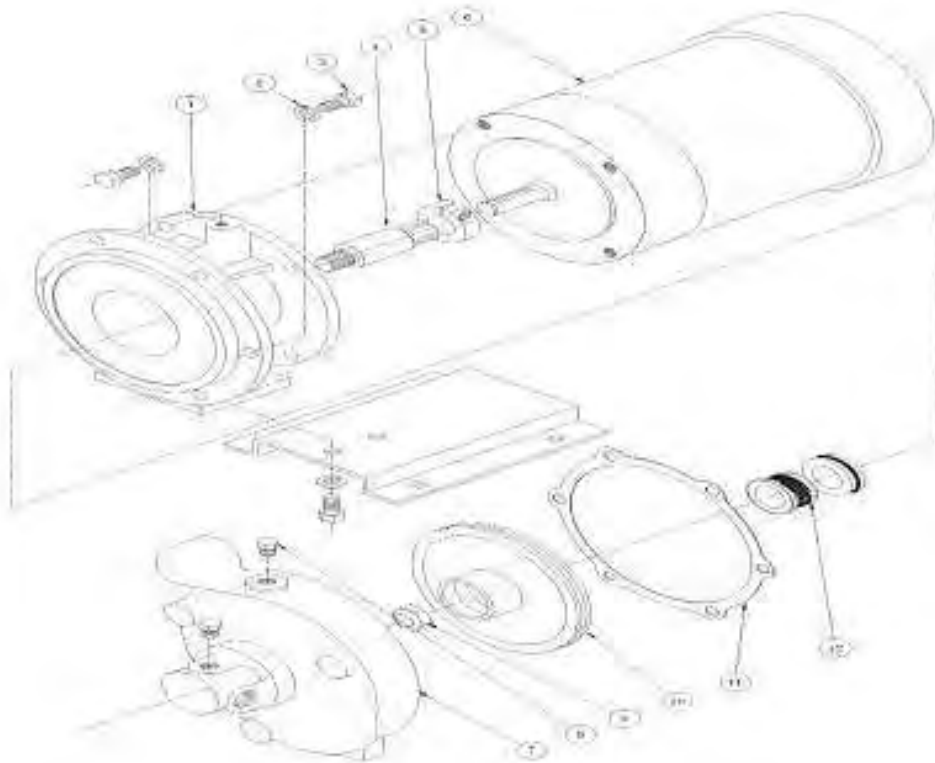
- Clean gasket and flange faces, seal seat cavity, shaft sleeve, and motor shaft.
- Position cover so that the convex side is facing you. Lubricate the seal seat cavity of the cover and the rubber cup or O-ring of seal seat with the lubricating fluid that comes with the mechanical seal or repair kit. Press the stationary seat in seal seat cavity of the cover squarely and evenly using an arbor press (if possible) and the cardboard disc supplied with the seal. Be certain that the lapped face (shiny side) is facing you.
- Install the flinger on the motor shaft until it bottoms on the motor shaft.
- Slide the shaft O-ring on the motor shaft until it is tight against the flinger. Make sure that the shaft O-ring does not get damaged during this procedure.
- Position the cover so that the convex side with the lapped seal seat is facing you. Place the cover on the motor disc and align the holes in the disc with holes in the cover. **(There isn't any hardware required attach cover to motor disc.)**
- Apply the lubricating fluid that comes with the mechanical seal or repair kit to the motor sleeve and the rubber bellows of the rotary seal. Slide the seal head on the shaft sleeve; press the rubber drive band on the rotary head until the lapped face on the head seats firmly against the lapped face of the stationary seat. Do not chip or scratch faces during installation. Take extra care to make sure the lapped faces are clean.
- Install the seal spring on the seal head and retainer on spring.
- Place key in key seat. Line up keyway in impeller with key on motor shaft. Be certain that the key is positioned in the keyway of the motor and impeller. Slightly compress seal spring with impeller and hold impeller while installing impeller retaining assembly in motor shaft.
- Insert a screwdriver in a waterway passage of the impeller holding it against rotation as discussed in Paragraph g of the disassembly instructions.
- Remove any burrs caused by screwdriver on the vane of impeller in waterway passage.
- Install O-ring on cover. Be sure that any damaged O-ring is replaced.
- Place pump casing against pump cover. Ensure that impeller eye is centered in pump case and position case, cover and motor disc so that the holes line up. Install socket head cap screws through the case and cover, and thread into the motor disc. Tighten all cap screws alternately and evenly until finger tight.
- Finish tightening the cap screws alternately and evenly to approximately 6 ft. lbs. torque. Note: It is imperative that the screws be tightened alternately and evenly, as this action centers the cover in the casing, assuring proper alignment. Binding of the impeller in the case may occur if the case is not positioned properly and/or the cap screws are not tightened as listed above.
- Replace hold-down bolts.
- Check for free rotation after assembly is completed.
- Close all drain openings, using pipe sealant on threads.
- Re-prime before starting. Do not start until pump is completely filled with water.

Models: DB, DC, DF, DG, DJ, DL

Exploded View Drawing

REF.	QTY.	DB	DC	DF	DG	DJ	DL	DESCRIPTION	PART #
1	1	✓	✓	✓	✓	✓	✓	ADAPTOR FRAME	034007
2	12	✓	✓	✓	✓	✓	✓	LOCK WASHER 3/8 x 1/8 S.S.	034004
3	12	✓	✓	✓	✓	✓	✓	HEX HEAD CAP SCREW 3/8-16 x 1" S.S.	034009
4	1	✓	✓	✓	✓	✓	✓	SHAFT DRIVE SLEEVE S.S.	034006
5	1	✓	✓	✓	✓	✓	✓	DRIVE CLAMP ASSEMBLY	034020
6	1	✓	✓	✓	✓	✓	✓	MOTOR 56 C FRAME	Contact Factory
7	1	✓	✓		✓	✓		HOUSING 1 X 3/4	034021
				✓			✓	HOUSING	034027
8	2	✓	✓		✓	✓		PIPE PLUG / GUAGE PORT	017043
9	1	✓	✓	✓	✓	✓	✓	HEX JAM NUT 5/8 - 18 x 5/16 x 3/8 S.S.	034016
10	1	✓	✓	✓	✓	✓	✓	IMPELLER BRASS 5.9"	034025
11	1	✓	✓	✓	✓	✓	✓	GASKET	034014
12	1	✓	✓	✓	✓	✓	✓	SEAL ASSEMBLY	034008
	1							SHIM SET .032 (NOT SHOWN)	034018

NOTE: YOUR PUMP MAY LOOK SLIGHTLY DIFFERENT



Seal Replacement/Maintenance

Warning: Make certain that the system is disconnected from the power source in compliance with all local and national codes before attempting to service or remove any components. Never run the pump when dry.

Maintenance:

Inspection: Pump should be periodically checked for proper operation. If the system has changed or if the pump is operating noisily or erratically, then the pump should be removed and examined. It should be repaired and parts replaced as necessary.

Cleaning: Remove oil, dust, dirt, water, chemicals from exterior of pump and motor. Blow out interior of open motors with clean compressed air at low pressure. Regularly drain moisture from TEFC motors.

Draining: If the pump is located in an area subject to freezing temperatures, the pump must be drained when not in operation or add sufficient antifreeze.

Seal Replacement:

Disassembly:

- Turn off the electric power and the water supply to the system.
- Drain the system. Flush if necessary.
- Remove the S.S. bolts (Ref 3) holding the housing (Ref 7) to the adaptor frame.
- Remove the two S.S. bolts mounting the assembly to the Mokon system base plate.
- Remove the cap screws, which hold the adaptor frame (Ref 1) to the motor.
- Loosen drive clamp assembly (Ref 5) and remove the pump.

The seal seat and seat cup will remain in the pump adaptor frame. If not damaged or worn, do not remove. If necessary, remove the adaptor frame counter bore with a piece of wood or a screwdriver handle inserted through the adaptor frame from the drive end. A sharp tap or two is usually sufficient to knock out the seal seat. Use caution when removing the seal seat so as not to damage the face or distort the metal seat.

Reassembly:

- Clean all castings with mild cleaning solvent such as kerosene. All dirt and foreign matter should be removed.
- The pump seal assembly must be installed over the clamp end of the drive sleeve. The large diameter end of spring goes against the impeller hub. The small diameter end of the spring rests against the seal cage. The small diameter of the seal cage faces the impeller. The large diameter of the seal cage holding carbon washer faces the adaptor frame holding seal.
- Make sure the drive sleeve is CLEAN and free of nicks or burrs. Use fine steel wool to polish sleeve. Lubricate the sleeve with soapy water.

Note: Do Not Use Oils or S.T.P. They allow the seal bellows to set up too quickly on the sleeve, thus preventing free movement of the seal cage after assembly.

- Lightly lubricate all internal surfaces of bellows, with soapy water.
- Place the spring over the drive sleeve (large diameter end) against the impeller hub.
- Place the seal cage over the sleeve with carbon washer facing away from the impeller.
- Press cage assembly down far enough to compress spring and release. The seal cage will return to free height.
- Lubricate the seal seat cavity with soapy water.
- Lubricate the seal seat gasket with soapy water.
- Use a wood dowel of sufficient diameter to press the seal seat squarely into cavity on pump frame. HAND PRESSURE ONLY

Note: Polished metal surface must face opposite the seal seat cavity on pump frame. Optional ceramic seal assemblies require less pressure to seat squarely, too much pressure will crack ceramic seal.

- Place impeller and seal cage assembly in housing as shown in the above figure. Affix the gasket on the frame over the drive sleeve onto housing.
- Attach the pump frame to pump head with bolts and secure evenly. Install the shaft clamp onto the shaft and attach entire assembly to motor. Tighten the shaft clamp with an Allen wrench.

See the next page to adjust the pump impeller clearance.

Mounting the Motor to the Pump

- Check the rotation of the motor to be sure it coincides with the required rotation of the pump assembly.
- Loosen the drive clamp assembly (Ref 5) but do not remove.
- Slide the pump assembly onto the motor drive shaft, aligning the holes in the adaptor frame (Ref 5) with tapped holes in the motor mounting face, until adaptor frame (Ref 1) contacts the motor mounting face.
- Install two cap screws (diagonally opposite) and tighten to secure the pump assembly to the motor.
- Center the drive clamp assembly (Ref 5) and tighten.
- Proceed to the next page to check the impeller clearance.

Impeller Removal

- Remove seal bellows and spring assembly (Ref 12).
Note: The seal bellows will be bonded to the shaft sleeve and will require some patience and caution to remove in order not to damage the seal bellows and cage.
- Place the impeller drive sleeve (Ref 4) between two pieces of wood in a vise. Take care so as not to damage sleeve.
- Remove the impeller jam nut (Ref 9) from the end of the shaft sleeve. Unthread the impeller (Ref 10) by turning counterclockwise (left hand).

Inspection

Check all parts for wear. For ease of reassembly, the shaft sleeve should have all nicks and burrs removed. Replace damaged parts with new parts. Inspect the seal seat and seal cup for grooves; scuff marks, or other deterioration. If a perfect lapped surface remains on the seal seat, it may be reused. If the seal cup is in good condition, it may be reused. If the seal seat, cup, washer, or bellows are damaged or worn, a new seal assembly should be installed (See Models: DB, DC, DF, DG, DT, DL; under Section 4.2 Pump Maintenance for seal replacement).

Impeller Clearance Adjustment

Impeller face and back clearances are not critical. The impeller must be adjusted axially so that it does not rub, that is it should be centered in the space between the adaptor frame and housing.

After the pump has been installed on the motor with two cap screws, the impeller can be adjusted as follows:

- Center the drive clamp assembly (Ref 5) and tighten.
- Loosen the two cap screws holding the pump to the motor (not shown).
- **Pull the motor away from the pump and insert the .032" (.813 mm) shims (Ref 12) between the pump adaptor frame (Ref 5) and the motor. Align the holes in the shims so that remaining two cap screws can be installed.**
- Install the remaining two cap screws and tighten all four.
- Rotate motor slowly by hand to make certain the impeller does not rub the housing or adaptor frame.

If the impeller still rubs, loosen the drive clamp assembly (Ref 5), remove two of the cap screws and shims (not shown), loosen the other two cap screws and repeat above procedure.

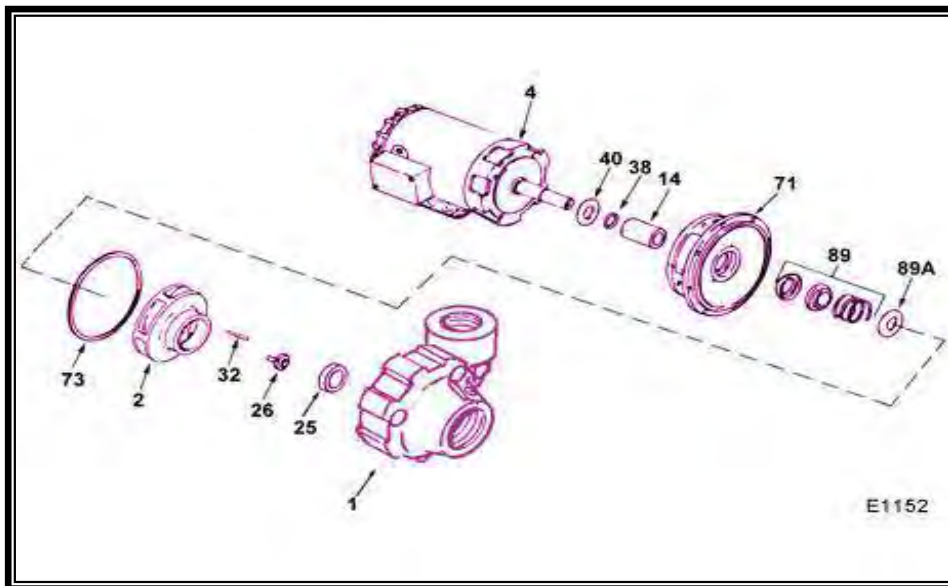
If the above procedure does not stop the impeller from rubbing, CONSULT THE FACTORY.

Models: DA, DD, DE, DH, DK, DM

Exploded View Drawing

REF.	QTY.	DESCRIPTION	PART #
1	1	CASE, 50, 2.0" X 1.5" NPT, IRON - 5, 7.5 HP	018321
		CASE, 52, 2.5" X 2.0" NPT - 10 HP	018333
2	1	IMPELLER, 50, IRON 6.25" - 5 HP	018322
		6.5" - 7.5 HP	018323
		IMPELLER, 52, IRON 6.5" - 10 HP	018334
4	1	MOTOR, 5.0 HP, 3/60/208-230/460, 3500, ODP	Consult Factory
		MOTOR, 7.5 HP, 3/60/208-230/460, 3500, ODP	Consult Factory
		MOTOR, 10 HP, 3/60/208-230/460, 3500, ODP	Consult Factory
14*	1	SHAFT SLEEVE	018324
25	1	WEAR RING, 50	018325
		WEAR RING, 52	018335
26*	1	IMPELLER RETAINER	018326
32*	1	KEY	018315
38*	1	SHAFT O-RING, VITON	018328
40*	1	FLINGER	018317
71	1	ADAPTER	018328
73*	1	CASE GASKET	018329
89*	1	SEAL, VN-CARB/SIL	018330
89A*	1	SEAL SPRING RETAINER	018331
*	*	REPAIR KIT, VN-CARB/SIL	018332

NOTE: YOUR PUMP MAY LOOK SLIGHTLY DIFFERENT



Seal Replacement/Maintenance

Warning: Make certain that the system is disconnected from the power source in compliance with all local and national codes before attempting to service or remove any components. Never run the pump when dry.

Maintenance:

Inspection: Pump should be periodically checked for proper operation. If the system has changed or if the pump is operating noisily or erratically, then the pump should be removed and examined. It should be repaired and parts replaced as necessary.

Cleaning: Remove oil, dust, dirt, water, chemicals from exterior of pump and motor. Blow out interior of open motors with clean compressed air at low pressure. Regularly drain moisture from TEFC motors.

Draining: If the pump is located in an area subject to freezing temperatures, the pump must be drained when not in operation or add sufficient antifreeze.

Seal Replacement:

Disassembly:

- Turn off power.
- Close suction and discharge valves (if equipped).
- Drain pump.
- Remove bolts holding base to foundation.
- Remove casing bolts.
- Remove motor and rotating element from casing, leaving casing and piping undisturbed, if possible. If not, then remove the whole assembly.
- Insert a screwdriver in one of the impeller waterway passages and back off the impeller nut.
- Remove impeller from shaft, being careful not to lose the impeller key, spring and seal retainer. If impeller is difficult to remove, it may be necessary to use a bearing puller to remove.
- Pry off rotating member of mechanical seal from motor shaft by using two (2) screwdrivers.
- Remove bolts holding adapter to motor and take off adapter.
- Place adapter on a flat surface with case rabbet facing down, and push out stationary part of mechanical seal.
- Inspect the shaft sleeve, shaft O-ring, and flinger. If damaged or worn remove and replace with a new one.

Reassembly:

Caution: The mechanical seal is a precision product and should be handled accordingly. Use care when handling lapped running surfaces of the mechanical seal to ensure they remain clean and are free of chips or scratches.

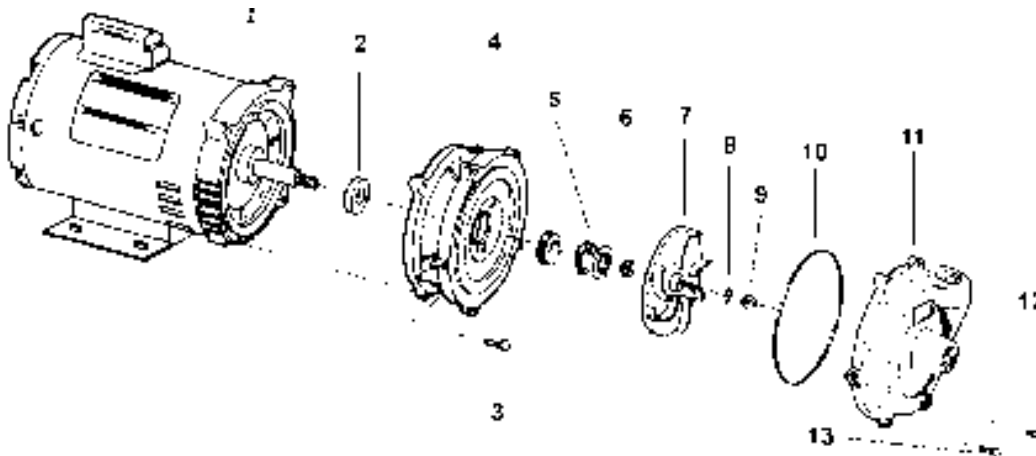
- Clean gasket and flange faces, seal seat cavity, shaft sleeve, and motor shaft.
- Lubricate the seal seat cavity of the adapter and the rubber cup or O-ring of seal seat with the lubricating fluid that comes with the mechanical seal or repair kit.
- Press the stationary seat in seal seat cavity of the adapter squarely and evenly using an arbor press (if possible) and the cardboard disc supplied with the seal. Be certain that the lapped face (shiny side) is facing you.
- Install the flinger on the motor shaft until it bottoms on the motor shaft.
- Slide the shaft O-ring on the motor shaft until it is tight against the flinger. Make sure that the shaft O-ring does not get damaged during this procedure.
- Position shaft sleeve chamfer toward motor and slide on motor shaft.
- With motor preferably in vertical position, remount the adapter on motor, making sure the motor shaft does not dislocate or chip the stationary seat of the seal.
- Apply the lubricating fluid that comes with the mechanical seal or repair kit to the stub shaft and the rubber bellows of the rotary seal. Slide the seal head on the stub; press the rubber drive band on the rotary head until the lapped face the head seats firmly against the lapped face of the stationary seat. Do not chip or scratch faces during installation. Take extra care to make sure the lapped faces are clean. Install seal spring on seal head and retainer on spring.
- Place key in key seat. Line up keyway in impeller with key on stub shaft, and slide impeller on stub shaft. Be certain that the key is positioned in the keyway of the stub and impeller. Slightly compress seal spring with impeller and hold impeller while installing impeller retainer assembly in stub shaft.
- Insert a screwdriver in a waterway passage of the impeller holding it against rotation and tighten the retaining assembly as discussed in step 7 of disassembly instructions. The impeller will compress the seal spring to the proper length assuring the correct pressure on the lapped surfaces.
- Remove any burrs caused by screwdriver on the vane of impeller in waterway passage.
- Slide motor and rotating element in casing. Be sure that any damaged O-ring or gasket is replaced.
- Tighten casing bolts alternately and evenly.
- Replace hold-down bolts.
- Check for free rotation after assembly is completed.
- Seal all drain openings using pipe sealant on threads.
- Re-prime before starting. Do not start until pump is completely filled with water.

Model: MT

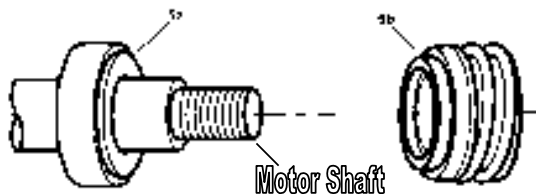
Exploded View Drawing

REF.	QTY.	DESCRIPTION	PART #
1	1	MOTOR	Consult Factory
2	1	5/8 SLINGER WASHER	034115
3	4	3/8-16 x 3/4" HEX HEAD CAP SCREW S.S.	Standard Hardware
4	1	ADAPTER	034114
5	1	SEAL ASSEMBLY- SILCONE CARBIDE (SEE NOTE BELOW)	034113
6	1	IMPELLER SHIM SET	034112
7	1	IMPELLER	034111
8	1	# 013 O-RING VITON	034110
9	1	7/16-20 ACORN NUT	034109
10	1	# 243 O-RING	034108
11	1	CASING	034107
12	1	1/8" PIPE PLUG S.S.	017044
13	5	1/4 - 20 x 7/8" CAP SCREW S.S.	Standard Hardware

NOTE: WHEN REPLACING SEAL ASSEMBLY (REF 5) A NEW IMPELLER O-RING (REF 8) SHOULD BE USED



SEAL ASSEMBLY DETAIL



Seal Replacement/Maintenance

Warning: Make certain that the system is disconnected from the power source in compliance with all local and national codes before attempting to service or remove any components. Never run the pump when dry.

Maintenance:

Inspection: Pump should be periodically checked for proper operation. If the system has changed or if the pump is operating noisily or erratically, then the pump should be removed and examined. It should be repaired and parts replaced as necessary.

Cleaning: Remove oil, dust, dirt, water, chemicals from exterior of pump and motor. Blow out interior of open motors with clean compressed air at low pressure. Regularly drain moisture from TEFC motors.

Draining: If the pump is located in an area subject to freezing temperatures, the pump must be drained when not in operation or add sufficient antifreeze.

Seal Replacement:

Disassembly:

Should the mechanical seal, which consists of seal seat (Ref 5a) and seal head (Ref 5b), require replacement, proceed as follows and refer to Figure 1.

Important: Always replace both the seal seat and seal head to insure proper mating of component! Also, the impeller seal should be replaced anytime the impeller lock nut (Ref 9) has been removed.

- Remove five bolts (Ref 13) connecting the casing (Ref 11) to the adaptor (Ref 4)
- Remove the casing.

Caution: **Care should be taken not to "pinch" or "shave" the O-ring gasket** (Ref 10) between the adaptor and the casing.

- Use a box and/or socket wrench to remove the impeller nut (Ref 9). Remove the impeller seal (Ref 8) and the impeller (Ref 7).

Important: Care should be taken to insure that the same number of shim washers (Ref 6) are placed behind the impeller as was removed. The shim washers are located directly behind the impeller and become loose as the impeller is removed.

- The seal head (Ref 5a) can now be pulled from the shaft.
- Pry the seal seat (Ref 5b) from the adaptor (Ref 4).

Reassembly:

Caution: The precision lapped faces on the mechanical seal are easily damaged. Handle your replacement seal carefully.

- Thoroughly clean all surfaces of the seal seat cavity.
- Using a clean cloth, wipe the shaft and shaft sleeve and make certain that they are perfectly clean.
- Wet the rubber portion of the new seal seat with a light coating of soapy water. While wearing clean gloves or using a clean light rag, press seal seat squarely into adaptor recess. Avoid scratching the white ceramic surface. If seat will not position properly, place a cardboard washer over the polished surface and use a piece of pipe to press in firmly but gently.
- Dispose of cardboard washer. Check again to see that ceramic surface is free of dirt and all other foreign particles and that it has not been scratched or damaged.
- Wet the inside rubber portion of the new seal head with a light coating of soapy water. Slide head onto the motor shaft with the sealing surface facing the seal seat. Reinstall any shims, which have been removed. (See below for Shim Adjustment)
- Thread the impeller onto the motor shaft and replace the impeller seal before screwing the impeller nut into place.
- Reassemble the pump.
- **A short "run-in" period may be necessary to provide completely leak proof seal operation.**

Shim Adjustment:

When installing a replacement impeller (Ref 7) or motor (Ref 1), it may become necessary to adjust the number of shims (Ref 8) to insure proper running clearance between the impeller and the casing. Proceed as follows:

Note: **A proper running clearance is between 0.015" and 0.020" (.38mm and .5mm).**

- For impeller replacement, add one (1) shim in addition to those removed originally.
- For motor replacement, add two (2) shims in addition to the shims removed during disassembly.
- Reassemble the pump as described in Steps 2 and 3. (See above for Reassembly)

Important: Insure that the casing is snugly in place and check the shaft to make sure it is turning freely. (Use the screwdriver slot in the motor to turn the shaft). If it turns freely, check to insure **that the casing cover and casing fitted "metal to metal" where they meet on the outside. If they are not "metal to metal", tighten the fasteners (Ref 13) and recheck the shaft for free turning.**

Tighten carefully turning the shaft while tightening so that the motor bearings are not damaged in the event that too many shims were installed. If shaft seizes before fasteners are completely tight, disassemble the pump and remove one (1) and repeat reassembly.

4.3 Cooling Solenoid Valve Maintenance

Note: For systems without a pressure regulator, consult factory for maintenance/troubleshooting procedures of the cooling solenoid valve.



For Mokon temperature control systems equipped with both a cooling solenoid valve and an optional pressure regulator with a safety relief, the following procedure can be used to detect which valve, if any, requires maintenance or replacement.

With the system running cold (below 100°F / 38°C), set controller at 250°F (121°C) and disconnect the 1/4" copper tubing from the pressure relief valve.

- If water comes out of the copper tubing, the solenoid valve may require cleaning or replacement. It may require cleaning, adjustment, or part replacement.
 - To Clean - Remove the coil from the valve. Remove center stem and flush with water. Reassemble.
 - To Replace - Remove the valve from the system and replace.

With a system running at a constant temperature, disconnect the 1/4" copper tube from the pressure relief valve.

- If water comes out of the pressure relief valve, then the valve is malfunctioning. The pressure relief valve may need cleaning or replacement.
 - To Clean - Remove the adjust stem, spring, and piston. Clean any debris from the seat and the piston then reassemble the pressure relief valve.
 - To Replace - Remove the pressure relief valve from the system and replace.

4.4 Low Pressure Safety Switch

Mokon Duratherm, Hydrotherm II, and Minitherm systems are equipped with low pressure safety shut down switch as standard. This switch incorporates an interlock to prevent the operation of the system should the supply water be insufficient. The switch is set to shut down at 8 PSI. Consult Mokon Factory If A Problem Is Suspected.

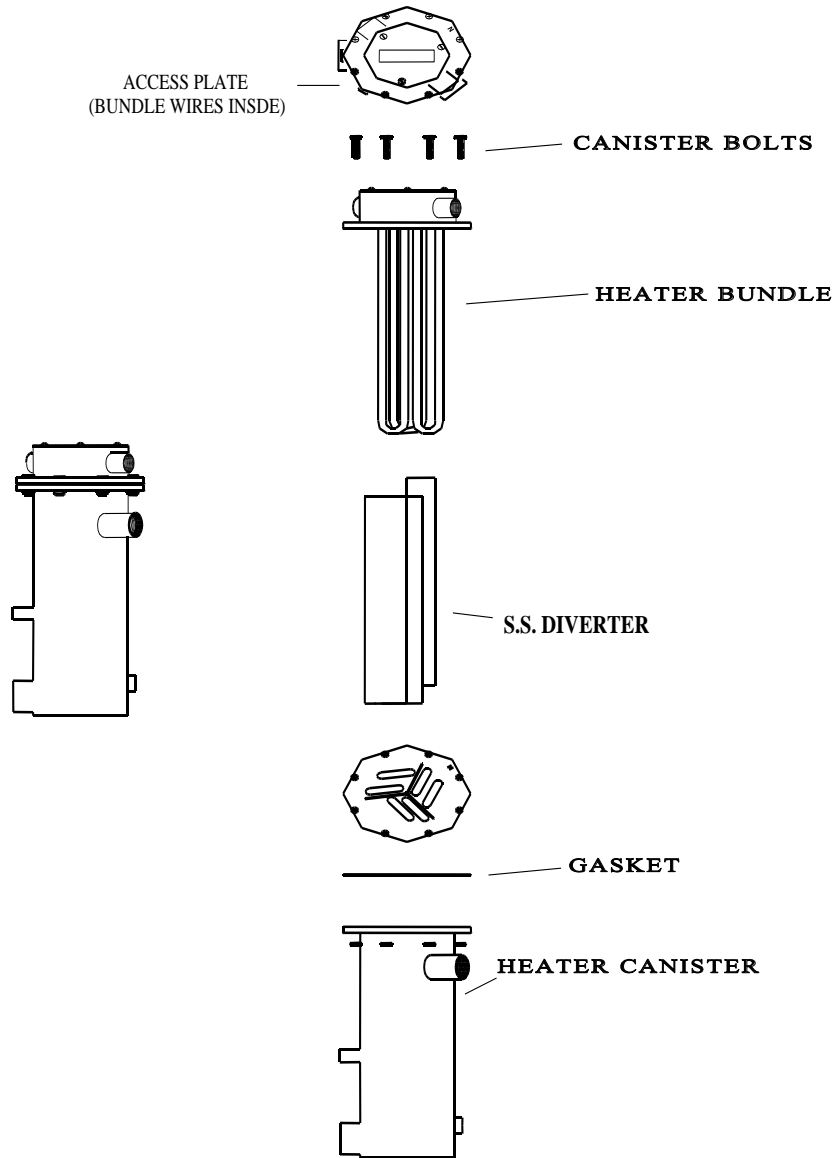
4.5 High Temperature Safety Switch

The High temperature safety shut off switch is located in or just after the heater manifold. This switch is factory set to shut the Mokon temperature control system off. For Mokon temperature control systems operating at a maximum temperature of 250°F (121°C), the switch will shut off the system when the temperature reaches 260°F (127°C). For Mokon temperature control systems operating at a maximum temperature of 300°F (149°C), the switch will shut off the system when the temperature reaches 310°F (154°C). This switch should not be adjusted in the field. Consult Mokon Factory If A Problem Is Suspected.

Note: Refer to Section 1.8 for the No Flow Warning.

4.6 Heater Assembly

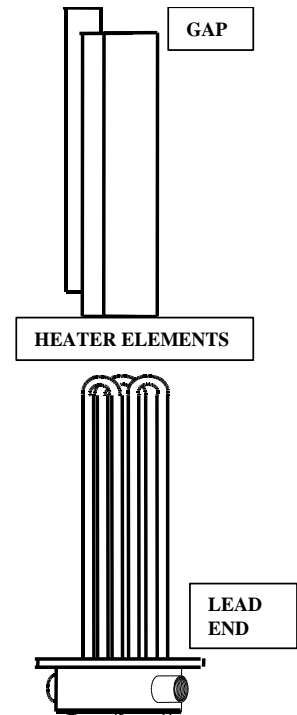
Models: DA, DB, DC, DD, DE, DF, DG, DH, DJ, DK, DL, DM, DN, DO, DP, DQ, DR, DT, DU, DV, DW, DX, DY, DZ



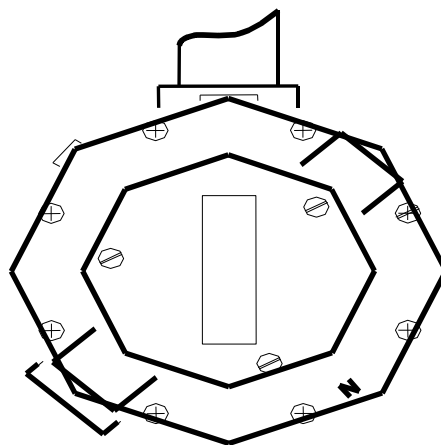
- Disconnect the electric power and the water supply to the system.
- Remove the back access panel to the system.
- Remove the heater bundle access plate.
- Disconnect the heater bundle wires.
- Remove the canister bolts.
- Pull the heater bundle away from the canister. The S.S. diverter is inserted between the heater elements.
Note: the position of the diverter relative to the elements; it must be inserted in the same position for the new heater bundle.



- Clean the canister. Pay particular attention to the flanged area where the gasket sits.
- Insert the diverter between the heater elements of the new heater bundle as follows (see figure to the right):
 - Locate the "N" stamped on the lead end of the heater bundle.
 - Set the heater bundle upright on the lead end with the "N" facing right (3 o'clock position).
 - Hold the diverter upright over the heater bundle with the gap on the top and facing right (3 o'clock position).
 - Slip the diverter straight down between the heater elements so that each section has an equal number of heater elements.



- Insert the new heater bundle into the canister with a new gasket so that the "N" stamped on the lead end is in the 5 o'clock position.
(See figure below)

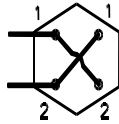
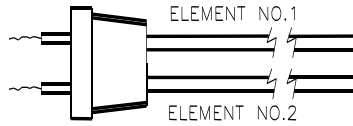
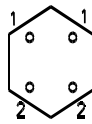


- Replace the canister bolts.
- Reconnect the heater bundle wires as diagramed on the back of the access plate.
- Replace the access plate.

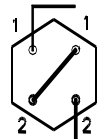
4.7 Heater Element Wiring
Models: HN, HR, HW, HX, HY, HZ, MT

Use the following chart to select between wiring method A and B to wire MOKON replacement heaters (dual element – hair pin type). Refer to the MOKON system electrical schematic for complete heater wiring illustrations.

	190-240 Volts	380-460 Volts	550-575 Volts
Water Systems	A	B	B



A



B

Section 5 – Eurotherm Controller (3000 Series)

5.1 Operation

This section of the manual contains all essential information needed to operate the controller. Contact Mokon Customer Service with controller problems as well as warranty and repair issues.

The controller is configured by model number. Inputs, outputs and alarm types are preset. Final setup and configuration are done from the keypad. The controller has four basic modes: Operator 1, Operator 2, Operator 3 and the configuration mode.

The controller's is default level is Operator 1, and is used for day to day operation.

Note: Operator 2, 3 and configuration are password protected.

Home List Navigation

To step through list levels press and hold the Page button until level 1 is obtained. Press the up button or the down button to change levels.

To step through parameters within a particular list, press the Scroll button until the required parameter is obtained.

To change the value (or state) of a parameter, press the Up button or the Down button.

*Refer to Section 5.1 Keys for button locations and descriptions.





Levels	Operator 1		
	Parameter Mnemonic	Scroll	Function
	WRK.OP	WORKING OUPUT The active output value	Output %
	SP1	SETPOINT 1	-----
	SP2	SETPOINT 2	-----
	DWELL	SET TIME DURATION	Auto air purge time setting
	T-REMIN	TIME REMAINING	Time remaining for Auto Air Purge
*	A1.xxx	ALARM 1 SETPOINT	Only shown if the alarm is configured. Where: xxx = alarm type. HI = High alarm; LO = Low alarm d.HI = Deviation high; d.LO = Deviation Low; D.HI = Deviation high
*	A2.xxx	ALARM 2 SETPOINT	
*	A3.xxx	ALARM 3 SETPOINT	
*	A4.xxx	ALARM 4 SETPOINT	
	A.TUNE	Auto Tune Enable	
	ID	Customer ID	Controller Revision #

*Optional

Keys

Note: Pictured is the 3216 Eurotherm controller - this also applies to 3116, 3204 and 3208 series controllers.



Button or Indicator	Name	Explanation
OP1	Output 1	When lit, it indicates that heating output is on . "HEATING" will scroll.
OP2	Output 2	When lit, it indicates that cooling output is on . "COOLING" will scroll.
	Page button	Press to select a new list of parameters.
	Scroll button	Press to select a new parameter in a list.
	Down button	Press to decrease a value in the setpoint.
	Up button	Press to increase a value in the setpoint.
*ALM	Alarm	Flashes when in alarm condition . "ALARM MESSAGE" will scroll.
OP4	Output 4	When lit indicates that the air purge output is on . "AUTO AIR PURGE" will
RUN	Timer Running	When lit indicates that the air purge output is on . "AUTO AIR PURGE" will

5.2 Automatic Tuning

In tuning, you match the characteristics (PID parameters) of the controller to those of the process being controlled in order to obtain good control. Good control means:

- **Stable, 'straight-line' control of the PV as set point** without fluctuation.
- No overshoot or undershoot, of the PV set point.
- Quick response to deviations from the set point caused by external disturbances, thereby rapidly restoring the PV to the set point value.
- Tuning involves calculating and setting the value of the parameters listed in the table below.

The PID controller consists of the following parameters:

Parameter	Meaning or Function
Proportional Band	The proportional term, in display unit or %, delivers an output which is proportional to the size of the error signal.
Integral Time	Removes steady state control offsets by ramping the output up or down in proportion to the amplitude and duration of the error.
Derivative Time	Determines how strongly the controller will react to the rate of change in the measured value. It is used to prevent overshoot and undershoot and to restore the PV rapidly if there is a sudden change in demand.
High Cutback	The number of display units, above set point, at which the controller will increase the output power, in order to prevent undershoot on cool down.
Low Cutback	The number of display units, below set point, at which the controller will cut back the output power, in order to prevent overshoot on heat up.
Relative Cool Gain	Only present if cooling has been configured. Sets the cooling proportional band, which equals the heat proportional band value divided by the cool gain value.

The controller uses a one shot tuner which automatically sets up the initial values of the parameters listed in the table.


The 'one-shot' tuner works by switching the output on and off to induce an oscillation in the measure value. From the amplitude and period of the oscillation, it calculates the tuning parameter values.

If the process cannot tolerate full heating or cooling being applied, then the levels can be restricted by setting the high power limit ('O P .HI') and low power limit ('O P .LO'). However, the measured value *must* oscillate to some degree for the tuner to be able to calculate values.

A One-Shot tune can be performed at any time, but normally it is performed only once during the initial commissioning of the process. However, if the process under control subsequently becomes unstable (because its characteristics have changed), you can re-tune again for the new conditions.

It is best to start tuning with the process at ambient conditions and with the SP close to the normal operating level. This allows the tuner to calculate more accurately the low cutback and high cutback values that restrict the amount of overshoot or undershoot.

How to Tune:

- Set the setpoint to the value at which you will normally operate the process.
- Operator level 1 list, press,  until A.Tune appears. Set to ON.
- Press the Page and Scroll buttons together to return to the Home display. The display will flash [tunE] to indicate that tuning is in progress.
- After one (1) minute to determine steady state conditions the controller will induce an oscillation in the temperature by turning the output on and then off. The first cycle will not complete until the measured value has reached the required setpoint.

5.3 Troubleshooting

Diagnostic Alarms:

Display Shows	What it means	What to do about it
E.ConF	A change made to a parameter takes a finite time to be entered. If the power to the controller is turned off before the change has been entered then this alarm will occur. <i>Do not</i> turn the power off to the controller while ConF is flashing.	Enter configuration mode then return to the required operating mode. It may be necessary to re-enter the parameter change since it will not have been entered in the previous configuration.
E.CAL	Calibration error	Re-instate Factory calibration
E2.Er	EEPROM error	Return to factory for repair
EEEr	Non-vol memory error	Note the error and contact your supplier
E.Lin	Invalid input type. This refers to custom linearization which may not have been applied corrector or may have been corrupted.	Go to the INPUT list in configuration level and set a valid thermocouple or input type.

Note: Some error messages may not appear, depending on the controller options.

5.4 Alarm Indicators

- ALM beacon flashing red = a new alarm (unacknowledged).
- This is accompanied by a scrolling alarm message. A typical default message will show the **source of the alarm followed by the type of alarm. For example, "ALARM 1 FULL SCALE HIGH".**
- If more than one alarm is present further messages are flashed in turn in the main display. The alarm indication will continue while the alarm condition is present and is not acknowledged.
- ALM beacon on continuously = alarm has been acknowledged.

To Acknowledge an Alarm

Press  and  together.

Non-Latched Alarms

Alarm condition present when the alarm is acknowledged.

- ALM beacon on continuously.
- The alarm message(s) will continue to scroll.

This state will continue for as long s the alarm condition remains. When the alarm condition disappears all indication also disappears.

If the alarm condition disappears before it is acknowledged the alarm reset immediately.

5.5 Automatic Air Purge Operation (Start-Up)

All systems with this controller are equipped with our auto-air purge function, it is factory set for five (5) minutes. When the system is started, the controller will operate a timer for five (5) minutes. The controller should be set at the minimum temperature, and the scrolling text will read **"Auto Air Purge." OP4 and Run will illuminate on the controller. The system should automatically be purged of air at the end of the five (5) minute timer. If pressure gauges are still erratic or air appears to still be present, refer to Section 5.6 for restarting the automatic air purge timer.**

Adjusting Auto Air Purge Timer (Factory Default Set for 5 Minutes)

- Press scroll button, toggling until you see the parameter DWELL.
- Using the arrow keys, change to desired setting
- The DWELL parameter relates to time in minutes. (The amount of time it will take to purge your process loop will be affected by the size of the loop and the backpressure on your drain.)
- Wait for the display to flash.
- Press Page button.
- Unit will return back to the normal user screen.







Symbols:

	Page button
	Scroll button
	Down button
	Up button

Refer to Section 3.1 for Initial Starting Procedure for air bleed and air separator devices on process.

5.6 Restarting the Automatic Air Purge Timer (After Start-Up)

After the original start-up of the system (Section 5.5), you can Run, Hold, or End the automatic air purge timer.

Operation	Action	Indication
To Run the Timer	Press and quickly release  + 	Beacon – RUN = On OP4 = On Scrolling test display: "AUTO AIR PURGE"
To Hold the Timer	Press and quickly release  + 	Beacon – RUN = Flashing OP4 = On Scrolling test display: "TIMER HOLD"
To End the Timer	Press and hold  +  for more than 1 second	Beacon – RUN = Off OP4 = Off
	Timer has timed out (END state)	Beacon – RUN = Off OP4 = Off

5.7 Manual Air Purge Operation (After Start-Up)

There is a manual purge button that can be used after the Automatic Air Purge time has expired. This is a momentary push button.

5.8 Remote Set Point and Retransmission "Scaling"

Scaling of the 4-20mA and 0-10V signals for this option are as follows:

- 4mA or 0V = minimum system operating temperature.
- 20mA or 5V, 10V = maximum system operating temperature.

Note: Maximum system operating temperature value is reflective of the series system purchased, (refer to serial tag for maximum operating temperature located on Mokon system).

Consult customer service at Mokon factory (716) 876-9951, regarding system's minimum and maximum temperatures if there are any questions.

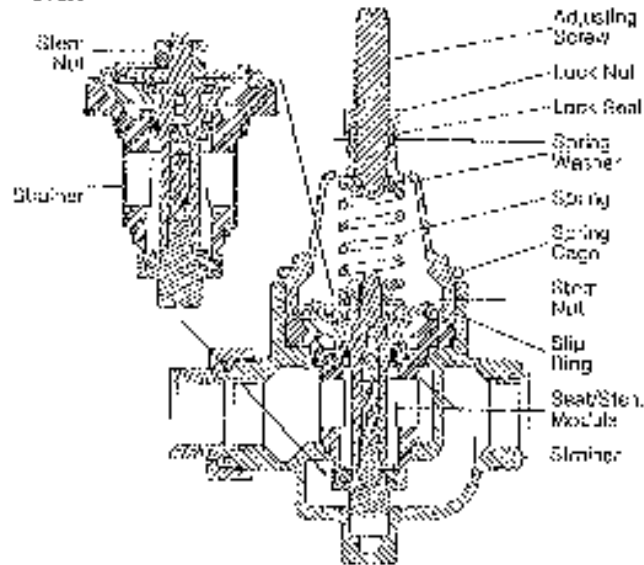
Section 6 – Options

6.1 Pressure Regulator

Exploded View Drawing

Note: Pressure regulators are optional on Mokon temperature control systems. The following instructions are only applicable for systems, which have a pressure regulator.

SEAT/STEM MODULE



Maintenance Instructions

- To clean strainer or replace seat/stem module shut off supply, loosen locknut and lock seal and back off adjusting screw.
- Remove spring cage, spring, washer and slip ring. Grasp stem nut with fingers or pliers and lift module from body.
- Replace module and reassemble valve.
- Readjust pressure setting.

Adjustment

To adjust the pressure setting, loosen the lock nut and turn the adjusting bolt clockwise to increase pressure, counterclockwise to decrease pressure so that the suction pressure gauge reads the recommended ratings as stated in Sections 1.4 or 1.5 for your model.

Caution: Anytime a reducing valve is adjusted, the use of a pressure gauge is recommended to verify correct pressure setting. Do not bottom out adjusting screw on spring cage.

6.2 Instruction for Initial Start-Up of Non-Pressurized Supply Tank

- Remove the fill port plug for the supply tank located on top of the system.
- Fill the supply tank to the top of the sight glass with fluid.
- With controller set at minimum temperature, press and hold the start button and the air purge button until the fluid is discharged from the tank. Note: On systems equipped with auto air purge pushing the air purge button is not required.
- Repeat steps 2 and 3 until the system is full.
- Final fluid level should be at the top of the sight glass.
- Replace and seal fill port plug.
- With controller at minimum temperature, start system and observe pump pressure gauge. Gauge reading should be steady. If fluctuations in needle are noted, press air purge button to remove trapped air and system's **gauge reading is steady**. Operate system at the minimum temperature for 10 minutes, observing gauge to insure all trapped air is removed. Check system and process for water or air leaks.
- Recheck fluid level. Adjust if necessary.

Note: Please refer to Section 1.6 if overhead piping will be required.

6.3 Instructions for Initial Start-Up of Pressurized Supply Tank

- Remove the fill port plug for the supply tank located on top of the system.
Note: Do not add air into the tank until step 7.
- Fill supply tank to the top of the sight glass with fluid.
- With controller set at minimum temperature, press and hold the start button and the air purge button until the fluid is discharged from the tank. Note: On systems equipped with auto air purge pushing air purge button is not required.
- Repeat steps 2 and 3 until the system is full.
- Final fluid level (without air pressure in the system should be at the top of the sight glass).
- Replace and seal fill port plug.
- Connect the air supply. Air supply line should be equipped with shut off valve to allow removal of supply line after pressurization
 - Verify the air pressure regulator setting:
 - 35 – 40 psi for units with 250°F maximum temperature.
 - 60 psi for units with 300°F maximum temperature.
 - Remove air supply line.
- With controller at minimum temperature, start system and observe pump pressure gauge. Gauge reading should be steady. Fluctuations in needle are noted, press air purge button to remove trapped air so that **system's gauge reading is steady**. Operate system at the minimum temperature for 1 minute, observing gauge to insure all trapped air is removed. Check system and process for water or air leaks.
- Recheck fluid level air pressure. Adjust if necessary.

6.4 System "Z" Purge Instructions for All Systems

- A 3 inch diameter threaded pipe connection is provided to receive an air or nitrogen supply, a 90 cfm blower is recommended. This blower shall not be installed or placed in the hazardous environment where hazardous fumes will be drawn from for supply air to the electrical enclosure or internal cabinetry of the Mokon system. The optimum nitrogen or air supply range to the Mokon system should be .15 to .5 inches of water column.

As an alternative to nitrogen, non-hazardous "clean" dry air can be supplied which can also include clean dry compressed shop air.

The discharge pressure of the fan or blower needs to be, at least, 3.0 inches of water column for every 100 equivalent feet of 3" duct. For 4" duct, 1.0 inch of water column per 100 feet is adequate. A 3" exhaust connection is also provided.

Note: Due to temperature considerations, the purge gas must flow (sweep) through the unit to insure adequate ventilation.

- Once the purge gas is introduced, the Dwyer model 1950-0-2F pressure switch will close, energizing a time delay relay. The relay prevents start-up of the Mokon system until an adequate sweep inside the unit has taken place. The switch is set at its minimum setting of **0.15 inches of water. A green pilot light will illuminate once the relay has "timed out"**, indicating it is safe to operate the unit.
- The magnehelic gauge has a scale of 0 to .5 inches of water, and is clearly visible to allow the operator to monitor the unit.
- If the purge is lost, for any reason, the pressure switch will open, thus activating a customer supplied alarm through a set of auxiliary contacts. The Mokon system will also shut off.
- For systems that are classified and applied properly the applicable Class, Group and Division is listed on the bottom of the systems serial tag.
- Methods: There are typically **two methods for the supply of purge gas to systems for "Z"** purge applications, they are as follows:

Method # 1 (recommended): Due to temperature considerations, the purge gas must flow (sweep) through the unit to insure adequate ventilation. This method would apply to water, oil, chiller, and full range heater/chiller systems.

Method # 2: (not recommended): Pressurization of the cabinetry when temperature build up is not as much of a concern can be applied. Here the exhaust coupling on the cabinet would be plugged. This method would apply to water-cooled chiller systems or very low heating capacity systems.

Note: **If the "Z" purge mechanism or any other system safety devices are modified or disable in any way Mokon considers them to be non-operational and the systems warranty could be void.**

6.5 NPS Option

Water Connections

To insure the system can overcome a drain pressure the system should be operated so the discharge pressure of the system is 10 psi greater than drain pressure. To achieve this the system should be equipped with a valve in the process line to restrict flow.

Note: This system is equipped with an automatic fill feature.

Unit Operation

The temperature control unit designed to circulate water through a process and to precisely, automatically and reliably maintain the water temperature at the selected set point temperature. The operating range of the unit is from 70°F (21.1°C) - 180°F (82.2°C). The system is well suited for use with city water, water from chillers, or cooling towers to provide the cooling water supply.

When the system is connected to the power source, an indicating light connected to a level probe inside the tank will indicate whether the water has been filled to the correct level. The system will automatically fill the tank to the correct level using the cooling water supply. When the system is operating and there is too little water in the tank, the lamp lights, the pump stops and heating ceases.

The microprocessor controls the temperature.

If a leak occurs in the mold or in the process, the built-in push-pull system permits stable temperature control without interrupting production.

Through the use of the vacuum adjusting valve, the push-pull system makes it possible to supply pressure to leak and vacuum from the leak back to the unit.

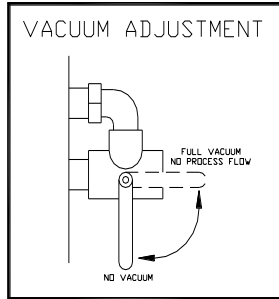
If a leak occurs, the flow through the circuit should be arranged so that the leak is at the end of the water circuit.

Initial Starting Procedure

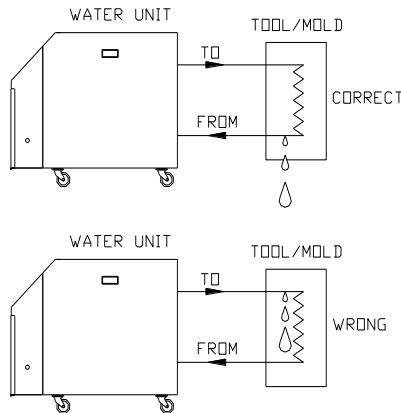
- Turn on the water supply connected to the Mokon temperature control system. (See Section 2.5 for water connection)
- Turn on the electrical main disconnect switch. (See Section 2.4 for electrical connections)
- If provided, turn on the electrical box door disconnect switch.
- **Check the pump rotation by turning on the system momentarily (press the "Start" button then the "stop" button).** As the impeller slows down, check the pump rotation. If the pump is not rotating in the direction indicated on the motor (clockwise from the lead end), reverse any two (2) power cord leads to change the direction of pump rotation. (See Section 2.4)
- Restart the system and set the controller to the minimum temperature. (See Section 5 for controller instructions)
- Allow the system to run for several minutes with the controller set to the minimum temperature to remove air from the system.
- Set the controller to the desired temperature. The system will reach the set point temperature. (See Section 5 for controller instructions)

Adjusting the Vacuum

Adjust the positive/negative flow through the mold by using the vacuum adjusting valve on unit back. Start by full closing the valve so that the injector makes a vacuum in the return line from process. At the leak, air is drawn into the circuit. The adjusting valve should be opened slowly to allow water to flow to the mold and pressurize the supply line. The leak will reappear as the pressure increases. At this point, the adjusting valve must be closed until the leak is eliminated.



Note: Do not run the system with the vacuum adjust valve in the full vacuum position, as this position allows no flow to the process. Process control could be lost.



Note: If a tool/mold has a leak the to/from process lines should be adjusted so the leak is closest to the from process connection.

6.6 Operation of Automatic Process (Mold) Purge

Connect compressed air supply (regulated to 5psi) to port labeled air supply. Turn the switch labeled **"Mold purge"** to the **"on"** position. This will activate a circuit that will hold open the drain solenoid valve while introducing compressed air (air pressure should be regulated to 5 psi or less) into the process lines to remove fluid from a process.

Note: Water supply must be turned off to the system prior to activating the mold purge switch.

6.7 Cool Down and Automatic Shut Off

This option consists of an activation button labeled Auto Cool/Shutdown, a relay, and a timed relay.

To enable this feature:

While the unit is currently in operation, push the black button labeled Auto Cool/Shutdown.

The machine will disable heating and start cooling for the preset amount of time. When the time runs out the machine will shut down.

If needed the machine can still be shut down by pressing the stop button.

A Timed Relay (TDR) mounted inside the machine's electrical enclosure controls the amount of time the machine cools before shutting down. Rotating the dial on the front of the TDR can change the amount of time. The factory-preset time limit is 5 minutes; the adjustable range of the TDR is from zero to ten minutes.

Adjusting Auto Cool Down/Shutdown Timer (Factory Default Set for 5 Minutes, Adjustable from 0 to 10 Minutes)

- Turn off machine.
- Locate the timer on the electrical subpanel.
- Refer to panel layout drawing for the particular machine, located in the door pocket. The Timer will be designated as auto cool/shutdown time delay relay.
- Turn adjustment dial on timer clockwise to increase time and counter-clockwise to decrease time.
- To determine the proper setting. Heat the machine up to operating temperature. Once you reach operating temperature, turn the set point down to the lowest setting. Start timing the cool down period; as soon as the unit reaches a temperature below 125F you can stop timing. The time you have recorded is where you want to set the auto cool timer to.

6.8 Emergency Stop

The emergency stop device will shut the machine down regardless of the operating mode. Once the emergency stop device has been activated, it must be disengaged by turning the button clockwise. Disengaging the emergency stop will not restart the machinery but only permit restarting.

- Per the risk assessment of the machine, the emergency stop is not wired to a safety rated relay.
- Do not wire additional safety components to the Mokon stop relay or modification of the emergency stop circuit is prohibited.

6.9 Valved Process Bypass

This option is simply a direct fluid path between the "TO" process line and the "FROM" process line that will allow you to bypass your process partially or completely via a metered globe valve on the outside back of the unit. This provides a means of controlling the amount of flow out to the process should you wish to reduce it from the normally full flow condition.

Section 7 – Troubleshooting Guide

Problem	Possible Cause	Corrective Measure
System will not start	System unplugged / power off	Plug system in / turn power on
	Low pressure on supply side (water off)	Turn water on
	Improper power source wiring	Check wiring (electrical schematics) and correct
	Blown fuse at power supply	Isolate open fuse and replace
	Blown control circuit fuse	Replace and check for ground condition
	Blown motor branch circuit fusing	Check fuse and replace. Check for ground condition
	Low voltage	Measure incoming voltage, if too low correct
	Overload on pump/motor starter	Consult factory
Circulating pump shut down during operation	Overload on pump/motor starter	Consult factory
	Safety shut down	Consult factory
	Open winding in pump motor	Check motor windings with an OHM meter, if open reading, replace motor
	Refer to possible causes and corrective measures for Problem #1	
Discharge pressure will not build up	Incorrect pump rotation	See Section 3.1 to check and correct pump rotation
	Entrapped air	Press purge button
	Pressure gauges	Inspect/replace instruments
Pressure gauges erratic and system will not hold temperature	Entrapped air	Press purge button
	Cooling solenoid valve or pressure regulator	See Maintenance Section 4.3 to clean valve(s)
High pressure and erratic temperature	Plugged flow paths, inadequate circulation through process and connecting lines	Inspect; if plugged, dislodge
Loss of pressure and volume output	Cooling solenoid valve or pressure regulator	See Maintenance Section 4.3 to clean valve(s)
	Leak in "To Process" line	Repair leak

Problem	Possible Cause	Corrective Measure
Temperature climbs beyond setpoint	Heater contactor	Inspect/replace component
	Temperature controller	See Controller Section 5
	Thermocouple or RTD	Inspect/replace component
	Controller calibration	See Controller Section 5
System does not reach and/or hold temperature	System at end of long feeder line	Install another supply source line
	Cooling solenoid valve or pressure regulator	See Maintenance Section(s) 4.3 and/or 6.1 to clean or replace valve(s)
	Heater burn out	Inspect/replace component
	Heater contactor	Inspect/replace component
	Lime deposits	Clean system (consult factory for recommendations)
	Temperature controller	See Controller Section 5
	Kilowatt capacity inadequate	Consult Mokon engineering
	Loose electrical connections	Tighten connection or replace broken wires
	Thermocouple or RTD	Inspect/replace component
	Controller calibration	See Controller Section 5
Variance in temperature readings	Plugged flow paths, inadequate circulation through process and connecting lines	Inspect; if plugged, dislodge
	Lime deposits	Clean system (consults factory for recommendations)
	Kilowatt capacity inadequate	Consult Mokon engineering
	Thermometers	Inspect/replace component
Leaking water around the motor shaft	Pump seal	See Maintenance Section 4.2 to replace pump seal
Slow response after changing temperature setting	Heater burn out	Inspect/replace component
	Heater contactor	Inspect/replace component
	Lime deposits	Clean system (consult factory for recommendations)
	Kilowatt capacity inadequate	Consult Mokon engineering
	Cooling solenoid valve or pressure regulator	See Maintenance Section(s) 4.3 and/or 6.1 to clean or replace valve(s)
	Thermocouple or RTD	Inspect/replace component

Problem	Possible Cause	Corrective Measure
Fluctuating temperature readings from controller	Lime deposits	Clean system (consult factory for recommendations)
	Thermocouple or RTD	Inspect/replace component
	Controller calibration	See Controller Section 5
Noisy pump	System at end of long feeder line	Install another source line
	Entrapped air	Press purge button
	Cooling solenoid valve or pressure regulator	See Maintenance Section(s) 4.3 and/or 6.1 to clean or replace valve(s)
	Incorrect pump rotation	See Section 3.1 to check and correct pump rotation

Section 8 – Condensed Parts List

8.1 All Models:

Part No.	Description
006257	40 Amp Heater Contactor 120V Coil
006298	50 Amp Heater Contactor 120V Coil
006256	24 Amp Motor Contactor 120V Coil
006373	0.2 – 1.0 Amp Overload
006366	1.0 – 5.0 Amp Overload
006367	3.2 – 16 Amp Overload
006368	5.4 – 27 Amp Overload
006396	5.0 Amp Mini Motor Contactor
006400	0.9 – 1.3 Amp Overload
006401	1.1 – 1.6 Amp Overload
006402	1.4 – 2.0 Amp Overload
006403	1.8 – 2.5 Amp Overload
006404	2.3 – 3.2 Amp Overload
006405	3.5 – 4.8 Amp Overload
008005	0 – 160 PSI Pressure Gauge, Suction, and Discharge
022038	Start/Stop Button
022185	Purge Button
022187	Low Pressure Safety Switch
025183	Adjustable Relief Valve
040002	Thermocouple

Note: Motor starter contactor is dependent on model/date purchase

8.2 Duratherm Models:

DA, DB, DC, DD, DE, DF, DG, DH, DK, DL, DM, DN, DO, DP, DQ, DR, DT, DU, DV, DW, DX, DY, DZ: (Refer to serial tag for kW capacity and voltage)

011026	9 KW Heater Element 460V
011020	18 KW Heater Element 460V
011021	24 KW Heater Element 460V
011023	9 KW Heater Element 230V
011024	18 KW Heater Element 230V
011025	24 KW Heater Element 230V
011036	9 KW Heater Element 208V
011042	18 KW Heater Element 208V
011055	24 KW Heater Element 208V
011029	9 KW Heater Element 575V
011030	18 KW Heater Element 575V
011031	24 KW Heater Element 575V
011053	9 KW Heater Element 380V
011034	18 KW Heater Element 380V
011056	24 KW Heater Element 380V
019036	Heater Canister Gasket
023070	High Temperature Switch (Adjustable)
023090	High Temperature Switch (260°F Preset – Not Adjustable)
023096	High Temperature Switch (310°F Preset – Not Adjustable)
	Note: For units built after 05/04/05

8.3 Minitherm Models:

(Refer to on serial tag for kW capacity and voltage)

011001	2 KW Copper Immersion Heater 230V and 460V
011004	2 KW Copper Immersion Heater 575V
011005	2 KW Copper Immersion Heater 208V and 380V
023090	High Temperature Switch
034113	Pump Seal Assembly

8.4 Hydrotherm II Models:

Models HN, HR, HW, HX, HY, HZ: (Refer to serial tag for kW capacity and voltage)

011043	2.25 KW Copper Immersion Heater 230V and 460V
011088	3 KW Copper Immersion Heater 230V and 460V
011089	3 KW Copper Immersion Heater 575V
011090	3 KW Copper Immersion Heater 208V and 380V
018246	Seal Replacement Kit
023090	High Temperature Switch

For additional part numbers refer to the specific section in the instruction manual or consult the Mokon factory (716) 876-9951.

Section 9 – Warranty

DURATHERM-HYDROTHERM II-MINITHERM WARRANTY

LIFETIME WARRANTY

For the life of the system (limited to the original customer) the following are guaranteed to be free of defective material and/or workmanship:

- Pump seal
- Plumbing
- Flow diverter
- All fittings
- Manifolds/heater canister

5 YEAR WARRANTY

For a period of up to 5 years from the date of shipment (limited to the original customer) the following are guaranteed to be free of defective material and/or workmanship:

- Pump housing
- Relief valve
- Standard microprocessor controller*
- Casters

3 YEAR WARRANTY

For a period of 3 years from the date of shipment (limited to the original customer) the following are guaranteed to be free of defective material and/or workmanship:

- Starter
- Low pressure shut off switch
- Motor
- Contactors
- Heater bundle/elements
- Cooling valve

NOTE: Any components not specifically listed are guaranteed to be free of defective material and/or workmanship for a period of 3 years from the date of shipment (limited to the original customer).

*Microprocessor Controllers with Special Features are covered for three (3) years; Solid State controllers are covered for one (1) year.

Upon discovery of any alleged defect, it is the responsibility of the customer to contact the MOKON Service Department with the complete model number, serial number and the date of purchase. **MOKON'S obligation under this warranty is limited to** make good, from or at its factory, any parts which are returned to the company (prepaid) and deemed to defective, within the time frame of the warranty. The customer also has the option of forwarding the system to MOKON (Buffalo, NY), prepaid by the customer and with a return authorization from MOKON for inspection and component replacement or repair. Repair or replacement in any manner provided above shall constitute a fulfillment of all liabilities of MOKON concerning the quality of the temperature control system.

No allowances, credits or reimbursements will be made for any replacement or repair made or provided for by the customer unless authorized in advance, in writing, by MOKON.

License Type: Processor

The warranty set forth above is in lieu of any and all other warranties expressed or implied including warranties of merchantability and fitness for a particular purpose. Mokon shall in no event be liable for any consequential damages or for any breach of warranty in an amount exceeding the original price of the unit.

Mokon's products are not guaranteed against damage caused by corrosion.



2150 Elmwood Avenue - Buffalo, NY 14207
P# 716-876-9951 - F#716-874-8048 - www.mokon.com

RoboCAP RL-300 Series

User Guide
Version 10.0



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Introduction

Safety

User's Manual

This User's Manual has been compiled in order to provide the user with information about how to use and maintain the machine correctly.

It is compulsory to read this manual. It is our intention that the information contained in this manual will be a valid aid for your work. This information is based on data and on our best current knowledge. Carefully read this manual, including the recommendations and suggestions. No part of this manual may be copied or passed to third parties without the prior written consent of ATG Pharma, Inc.

We advise you to carefully read this manual, as it is essential to install, check and service the machine correctly in order to keep it in a perfectly efficient working order. The manual contains tables, designs and diagrams, which will help you to get to know the machine in detail. Please don't hesitate to contact us if you find that an explanation has been omitted or is unclear.

Name Plate

For any servicing or overhaul operations not included in this manual or for any other technical problem which may arise, our Technical Personnel are available to provide you with information and to discuss any necessary action to take. When contacting us, please indicate the data on the machine's nameplate.



Preliminary Remarks

- The drawings and designs, which show the system, should be considered as reference and not necessarily faithful in every detail.
- The system dimensions and specifications contained in this manual are not binding and may be changed without warning.
- The designs and all of the other documents supplied as part of the system are the property of ATG Pharma, Inc.

The system is covered by a guarantee and a contract of purchase. During the period in which the machine is under guarantee, any repairs which have not been authorized by ATG Pharma, Inc. and are carried out on the same machine will automatically make the warranty void.

General Safety Regulations

- THESE SAFETY REGULATIONS HAVE BEEN DRAWN UP FOR YOUR OWN SAFETY. The strict observance of the safety regulations will reduce the risks of accidents for both you and or others.
- DO NOT attempt to move, install or operate the system without having first read and fully understood this manual. If in doubt, ask your supervisor.
- NEVER leave tools, mechanical parts or other unsuitable material on or in the machine.
- If a failure should occur (i.e. running the wrong program, incorrectly placed nozzle or not changing the timing on your peristaltic pump/air regulator when changing between programs), push the emergency stop button.
- NEVER WORK ON THE MACHINE WHILE IT IS RUNNING.
- Pay particular attention even when the main switch is in the "OFF" position, because the electrical power supply cables are still live.
- Always be cautious, remember that your safety and that of fellow workers depend on you.
- When moving or lifting components of the machine, make sure that all the regulations for these operations are respected.

Special Warnings

- The personnel who operates this machine must know and scrupulously observe the general safety regulations. If these regulations are not observed, this may cause injury to workers and damage components of the machine.
- The maintenance operations must be carried out with the machine at a standstill. Lockout machine prior to servicing. Failure to follow operating instructions could result in personal injury or damage to the equipment.
- The user must make sure that all of the instructions in the manual are followed to the letter.
- Any tampering with the safety systems of the machine done for any reason, will be at the user's own responsibility and risk.
- Do not ever try to bypass the safety systems or make them ineffective.
- Furthermore, the environmental conditions must be taken into account for the installation of the machine.
- The national laws governing the use of this type of machine must also be observed.
- Make sure the robot is connected to a properly grounded power source before operating.
- Keep away from any moving parts while the robot is running.
- Loading and unloading of parts and material must only be done when the robot is at a stop.
- Changing of fixtures or tooling must be done with the power source disconnected.
- The robot should only be operated in an environment between 0 and 40 degrees Celsius with humidity of 20 to 95 percent and no visible condensation.
- Do not store or setup the robot in an area where it is directly exposed to sunlight.
- Do not operate the robot where electrical noise is present.
- Only use a neutral chemical for cleaning the robot. Do not use benzene or thinners as it may damage the paint on the robot.
- Due to the electronic nature of this equipment and the potential for a spark or generation of heat, note that this equipment must NOT be used with any explosive material or in an explosive type environment.
- If product is spilled on the equipment, it must be cleaned immediately prior to the start of the next cycle to prevent the product seeping into the robot compartment. If product is found in the robot, this will void the warranty for the robot.

Warning

ATG Pharma, Inc. declines any responsibility for damage, which may derive from the non-compliance with the above-mentioned warnings.

The manufacturer's declaration will become null and void if the machine is tampered with, modified, and has its fixed and moving protective guards removed or is used for purposes other than those for which it was designed. The manufacturer disclaims all responsibility for any accidents or damage that may arise.



Overview

Purpose

The RoboCAP robotic liquid filling system is a semi-automated means of filling bottles, cartridges and capsules from sizes 000 through 5 with liquid or powder as well as vials

Product Features

- Canadian Manufactured
- Custom molded trays specific to your product
- Fast and Clean
- Upgradeable Nozzles
- GMP, Health Canada and FDA - Compliant
- +/- 1.5% Fill Volume Accuracy
- Completely Interchangeable option between the pressure system used for filling capsules and cartridges
- The pump systems makes set up and cleaning extremely simple and efficient because there is no pressure vessel and nozzle to clean, only the tubing. (Peristaltic Setup only)

Heating System Optional Add-Ons:

- Jacketed pressure vessel with temperature controller
- Jacketed lines from vessel to nozzles
- Mixer inside vessel (only available for 1 gallon tank or larger)
- SS Cannula Needle Tip (14 - 20 gauge)
- Volumetric Dispense Nozzle



Unpacking Your RoboCAP

- Always lift the robot from its base. Never lift the robot from the cross member.
- Remove all accessories from the shipping package before attempting to remove the robot.
- Place the robot on a stable workbench before operating.
- Do not discard the packing material, as these items may be needed if the robot is shipped or moved in the future.

Package Contents

General Parts



Main Unit



Teach Pendant



Power / Teach Pendant Cable



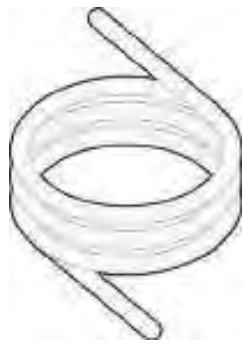
T-bar



Base plate



Peristaltic Parts



Silicone Product Tubing



Container Holding Fixtures
for 1 Sized Product



Connection Cables &
Power Cord



Peristaltic Pump



Touch Screen Controller



Stainless Steel
Counter Sunk



Stainless Steel
Nozzle Tube *
*Industry Specific

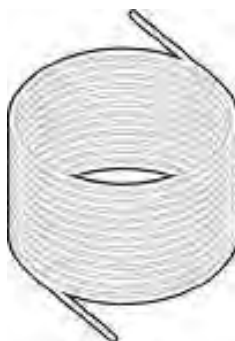


Non-Food Grade
Check Valve *
*Industry Specific

Pneumatic Parts



Dispensing Needle Valve



PTFEN Heat Resistant Product Tubing



8000D Air Regulator



Point of Air Use



SS Dispensing Nozzle

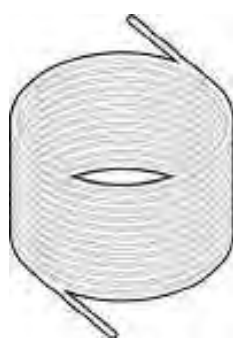


316L Stainless Steel Tank

Volumetric Parts



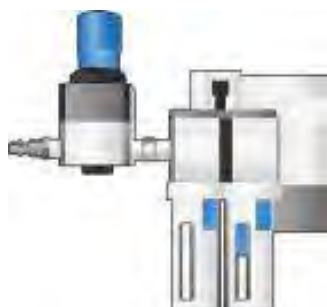
Volumetric Nozzle Assembly



PTFEN Heat Resistant Product Tubing



8000D Air Regulator



Point of Air Use



Cannula Needle Tips
12 Pack



SS Three-way Check Valve



5 ml Syringe



316L Stainless Steel Tank

Product Contact Parts

Refer to the chart below as it identifies each component of the various RL-300 Series models along with the corresponding material of construction.

		Materials Used												
		(Inox) 316 S/S	(Inox) 304 S/S	Hard Anodized Aluminum	Nylon	Teflon	H/D Polyurethane	HDPE	Spring Steel	Silicone Rubber	Polycarbonate	Acrylic	Glass	PTFEN
Parts Used	Peristaltic Pump Controller		P											
	Peristaltic Pump		P											
	Tubing									P				VN
	Fixture Trays		P				P							
	Plastic Check Valves							P						
	Peristaltic Filling Nozzle	P												
	Orienter Change Parts		VN						VN <small>Only for Springs</small>					
	Orienter Base		VN								VN	VN		
	Capsule Tray		VN	VN	VN						VN			
	Filler Excluding Capsule Tray		VN		VN					VN	VN			
	Powder Tray (not used in liquid fill)										VN			
	Tamper (not used in liquid fill)		VN											
	Dispensing Needle Valve	VN				VN								
	Pressure Vessel	VN												
	Cannula Tip Needle	V												
	5 ml SEC Syringe												V	V
	Stainless Steel Check Valve	V												
	Hypodermic Needle	V												

Volumetric = **V**

Peristaltic = **P**

Pneumatic = **N**



Product Specifications

Working Range X/Y/Z (mm)	300/300/50
Load Y-Axis / X-Axis	10 kg / 5 kg
X&Y / Z (mm/sec)	0.1-600/300
Resolution	0.001 mm/Axis
Repetitive Positioning Accuracy	+/- 0.01 mm/Axis
Program Capacity	100 Programs - 4000 points/program
Data Storage Type	512 MB Embedded Disk
Program Display	Teach Pendant LCD
Motor System	Single stepper motor
Control Method	PTP & CP
Interpolation Function	3 axis (3D)
Programming Method	Teach Pendant / PC
I/O Signals Port	8 Inputs / 8 Outputs
External Control Interface	RS232
Power Supply	AC110 ~220V 300W
Electrical Supply	2.7 Amperage
Working Temperature	0 - 40° C
Working Relative Humidity	20 - 90% no condensation
Dimensions (WxDxH) (mm)	485 x 500 x 590
Minimum Robot Weight (Kg)	30





Peristaltic Setup

Chapter 1: Cleaning

1.1 Purpose

Proper cleaning of your Filler will significantly increase its useful life. Follow these cleaning guidelines to maximize the life of your system.

1.2 Cleaning of Peristaltic Tubing

It is advised to use different tubing for each product as flavourings and additives may be left begin during cleaning and alter final product quality.

Wash all contact parts with an alcohol based solution or a soft detergent. Ensure the cleaning product does not deteriorate the material being cleaned.

Store cleaned and un-used tubing in clean, dry space to extend tubing life.



Chapter 2: Maintenance

2.1 Purpose

It is essential to correctly and periodically inspect and maintain the robot to prevent unexpected failures or malfunctions, thus ensuring safe operation and lengthening the machine's life. The outside parts of the machine should be kept clean. Use vacuum cleaner or soft cloth to clean the machine. Do not use compressed air or chemical products to clean the machine, as they can damage the internal cables, timing belts and other components of the unit. Use only the greasing materials recommended by the manufacturer of the machine.

2.2 Checking Cycles and Points of RoboCAP

The check cycles of the machine are classified in the following categories:

- Daily Check
- Weekly Check
- Check after every 3 months of operation
- Check after every 2 years of operation

Weekly

- Tilt or Deviation of Machine
- Status of Cables and Hoses
- Appearance
- Stability on the Work Bench
- Motor Running Condition

Every 3 Months

- Motions, Connections and Joints
- Unfastened Loose Bolts and Screws
- Internal Wires and Connectors
- Accuracy and Precision
- Ball and Screw Assembly, LM Guide, Slide Guide

Every 2 Years

- Tilt or Deviation of Machine
- Status of Cables and Hoses
- Appearance
- Stability on the Work Bench
- Motor Running Condition

2.3 Check Point Methods

Check Point	Check Action (See if)	Corrective Action
Tilt or deviation of machine	<ul style="list-style-type: none"> Robot working position is titled or inclined 	Set the machine in a proper vertical position
Status of cables and hoses	<ul style="list-style-type: none"> Electrical cables and peristaltic hoses are excessively twisted, bent, or squeezed Air leakage between peristaltic hoses and fittings 	<ul style="list-style-type: none"> Set the machine in a proper vertical position
Appearance	<ul style="list-style-type: none"> Damage on the robot's head from clashes during operation 	<ul style="list-style-type: none"> Pay attention to working area of robot and remove any obstacle
Stability on work bench	<ul style="list-style-type: none"> The edge of the robot is too close to the edge of the work table 	<ul style="list-style-type: none"> Rearrange the position of the robot on the table Remove sources causing table vibration
Motor running condition	<ul style="list-style-type: none"> Infiltration of grease Performance degradation due to overload 	<ul style="list-style-type: none"> Replace motor <p>See your agent, or contact ATG Pharma Inc. at +1-866-309-5029, or email us at info@atgpharma.com</p>
Motions, connections, and joints	<ul style="list-style-type: none"> The axes are not moving smoothly Noises, vibrations, and / or shakes 	<ul style="list-style-type: none"> Grease up <p>See your agent, or contact ATG Pharma Inc. at +1-866-309-5029, or email us at info@atgpharma.com</p>
Unfastened / loose bolts and screws	<ul style="list-style-type: none"> Stripped or damaged external cover or shield on cable and/or connectors 	<ul style="list-style-type: none"> Replace the damaged cables or connectors with new ones <p>See your agent, or contact ATG Pharma Inc. at +1-866-309-5029, or email us at info@atgpharma.com</p>



2.3 Check Point Methods (continued)

Check Point	Check Action (See if)	Corrective Action
Accuracy and precision	<ul style="list-style-type: none"> • Z run out over X or Y larger than 0.2mm • Wear on timing belt 	<ul style="list-style-type: none"> • Replace timing belt <p>See your agent, or contact ATG Pharma Inc. at +1-866-309-5029, or email us at info@atgpharma.com</p>
Ball screw (worm gear) assembly, LM guide, slide guide	<ul style="list-style-type: none"> • Lack of grease on shaft, LM guide and / or slide guide surfaces • Deflection of the shaft 	<ul style="list-style-type: none"> • Apply grease on grease-hole of worm gear, LM guide, and slide guide surfaces. • Replace the shaft <p>See your agent, or contact ATG Pharma Inc. at +1-866-309-5029, or email us at info@atgpharma.com.</p>
Overhaul	<ul style="list-style-type: none"> • Diagnose the whole system and make decision for the overhaul 	<p>See your agent, or contact ATG Pharma Inc. at +1-866-309-5029 or email us at info@atgpharma.com.</p>

2.4 Greasing Procedures

Grease Type and Greasing Interval

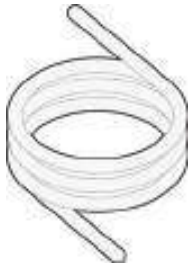
- Grease type: 30 – 100 centistokes (recommended: THK AFA 70G)
- Greasing period: every 6 months

Accessing Parts to be Greased

- Unscrew the bolts and remove the covers.
- Apply grease into the grease hole of ball screw (worm gear) and also thinly to the surfaces of LM guide and slide guide.
- Put back the covers and screw in the bolts.



Chapter 3: Spare Parts



Silicone Tubing

(Product Number #500107)

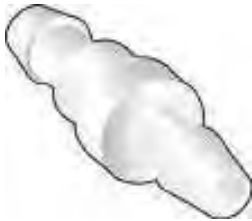
Recommended Quantity - 10 ft



#24 Stainless Steel Filling Nozzle

(Product Number N/A)

Recommended Quantity - 1



#24 Non-Food Grade Plastic Check Valve

(Product Number N/A)

Recommended Quantity - 1



Clamps

(Product Number N/A)

Recommended Quantity - 2 - 4



Couplers

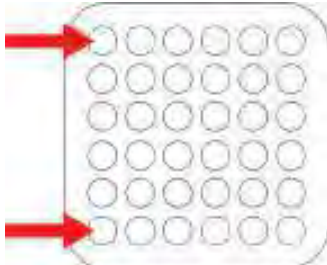
(Product Number N/A)

Recommended Quantity - 1



Chapter 4: Appendix

How to Make a Program

- Turn the RoboCAP on.
- Plug in your **teach pendant** unit into the front port labeled "TEACH PENDANT".
- Ensure the RoboCAP is in **TEACH** mode.
- Press **HOME** on the **teach pendant**.
- Address 1:** Press **F4**.
Locate **Point Dispense Set-up** and press **ENTER**.
(THIS IS WHAT SHOULD APPEAR)
Dispense Time: *Desired dispense time
Tail Time: ALWAYS 0.05
- Once complete, Press **ENTER**.
- Address 2:** Press **F4**.
Locate **Z-Clearance** and press **ENTER**.
(THIS IS WHAT SHOULD APPEAR)
1: **ABSOLUTE**
2: **RELATIVE**
Select: __
- Press **2** to choose **RELATIVE**.
(THIS IS WHAT SHOULD APPEAR)
Relative: __
Press: **5**
Press **ENTER**.
- Address 3:** Use the **X,Y** and **Z** keys located at the top of the **teach pendant** to locate the dispense nozzle to the bottom left or top left position on the tray.

- If you have more than 1 dispense nozzle, ensure that the dispense nozzle that is flush with the left hand side of the T-bar is positioned on the top or bottom left pocket.
- Once you have positioned the dispense nozzle Press **ENTER**.
- Dispense Dot** should be the first option that pops up. Press **ENTER**.
- Address 4:** Press **F1**. Use the **white** right arrow keys located at the top of the **teach pendant** to go to page 2. Locate **Step & Repeat** and press **ENTER**.
(THIS SHOULD APPEAR)
1.X 2.Y _ PRESS **1** THEN **ENTER**.
Start Position: PRESS **1** THEN **ENTER**.
Columns (X): Enter in the number of pockets on the X axis divided by the amount of dispense nozzles. Press **ENTER**.
Rows (Y): Enter in the number of pockets on the Y axis. Press **ENTER**.

OFFSET

X: Should be labeled on the front of the tray.

Press **ENTER**.

Y: Should be labeled on the front of the tray.

Press **ENTER**.

1. S Path

2. N Path

Select: __ (Press **1** for S path).

- Address 5:** Press **F1**. Use the **white** left arrow key located at the top of the **teach pendant** to go to page 1. Located **End Program** and press **ENTER**.

- You have now successfully made a program.

Chapter 5: Routine Operation

5.1 Definition

Routine operation includes the entire process of loading and filling of the bottles and can be separated into two stages: **Machine Preparation (Part A)** and **Machine Operation (Part B)**.

The process flow diagram below presents an overview of the steps in routine Operation of the RL 300P series:

Machine Preparation:

- Make All Electrical Connections
- Power on System and Set Operating Parameters
- Prime Tubing with Product

Machine Operation:

- Calibrate Peristaltic Pump to Appropriate Fill Volume
- Choose the Appropriate Program Listed in the Parameters Sheet
- Place the Appropriate Tray on the Base Plate
- Load Tray with Empty Bottles
- Press Start
- Take Full Tray Off
- Place Next Tray On

BEFORE STARTING:

- On the bottom of the peristaltic pump, cut off the tie strap and remove from the body of the machine.



Part A: Machine Preparation

NOTE: Read and understand the operation manual prior to operating or servicing this machine. Failure to follow operating instructions could result in personal injury or damage to the equipment.

5.2 Preparing Liquid Filling System:

- Place tubing end with nozzle tip into the valve holder
- Insert tubing into the peristaltic pump head and clamp it down
- Insert end of tubing into product

5.2.1 Electrical Connections:

- Connect the connector to the 15-pin connection at back of the Peristaltic Pump and plug other end into the back of the RoboCAP.
- Plug in Power Cord to back of the Peristaltic Pump and into an electrical outlet.
- Plug the 2-prong connection cord into the back of the controller and plug the other end into the back of the pump.
- Plug the 3-prong connection cord into the back of the controller and plug the other end into the back of the pump.
- Turn on power switch located in the back of the Peristaltic Pump.

Figure 1:

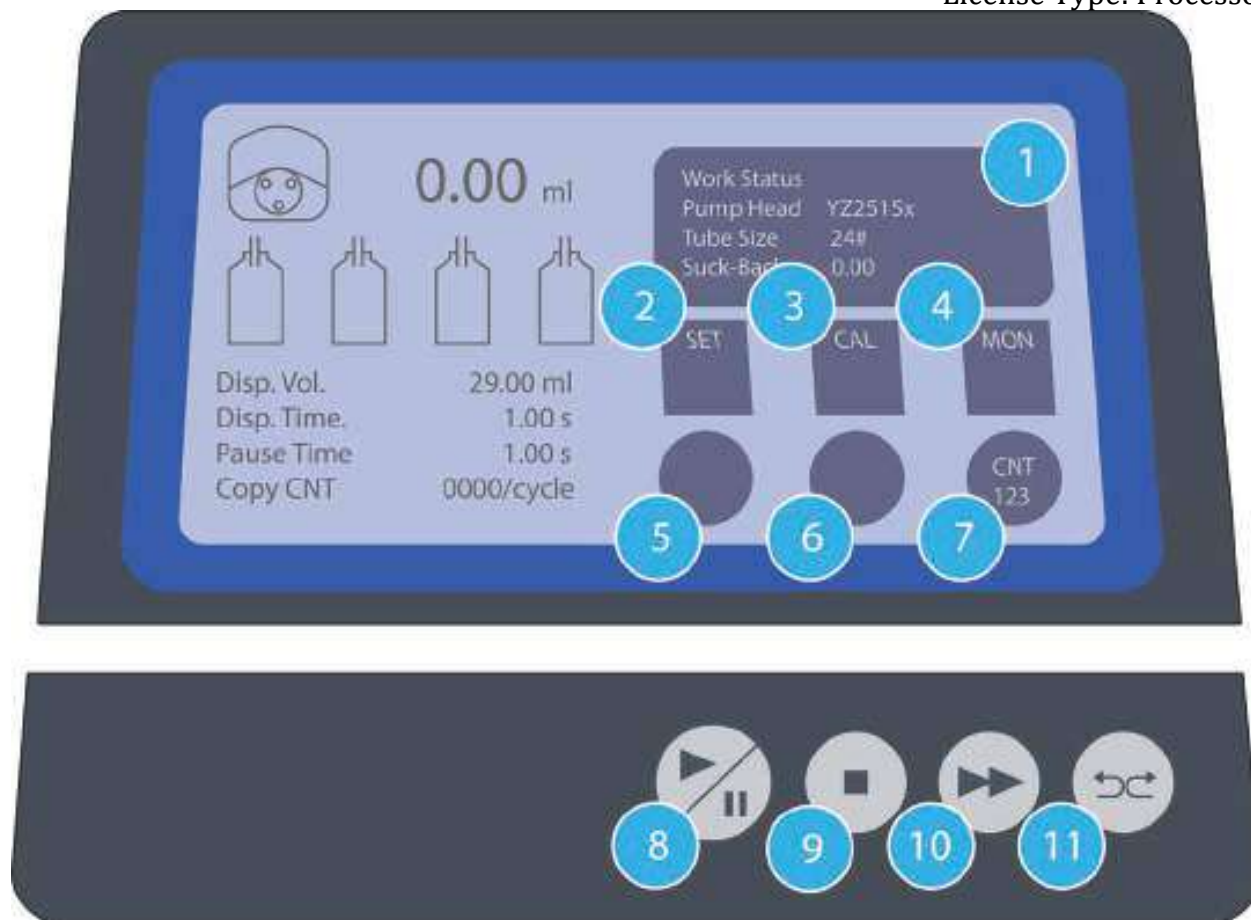


1. 15-pin connection
2. 2-prong connection
3. 3-prong connection
4. Power switch
5. Power Cord Outlet
6. 3-prong connection
7. Additional Pump
3-prong connection
8. 2-prong connection
9. 5-prong connection

5.3 Operating Parameters

1. Touch screen controller
2. Peristaltic pump
3. Pump number indicator
4. Pump head





- 1. Dispense direction indicator
- 2. Settings button
- 3. Calibration button
- 4. Monitor button
- 5. Dispense volume
- 6. Dispense time
- 7. Dispense counter
- 8. Play and pause
- 9. Stop button
- 10. Purge button
- 11. Dispense direction button

Part B: Machine Operation

5.4 Priming the Tubing

5.4.1 Once tubing is connected, put the end of the tubing into the product container and make sure that the dispense direction button is in a clock wise direction. Once the dispense direction button is in the proper direction you can then press and hold the purge button. This will then push product through the tubing and out the dispense nozzle.

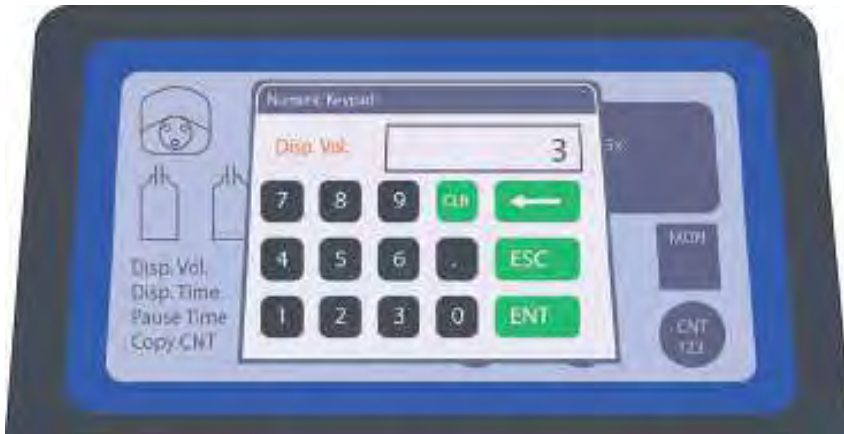


5.4.2 Once the line has been primed, you can then choose what fill volume you would like to dispense. Press the dispense volume button on the touch pad. The option to choose the dispense volume will come up. Use the number keys to choose the appropriate fill volume for your product.

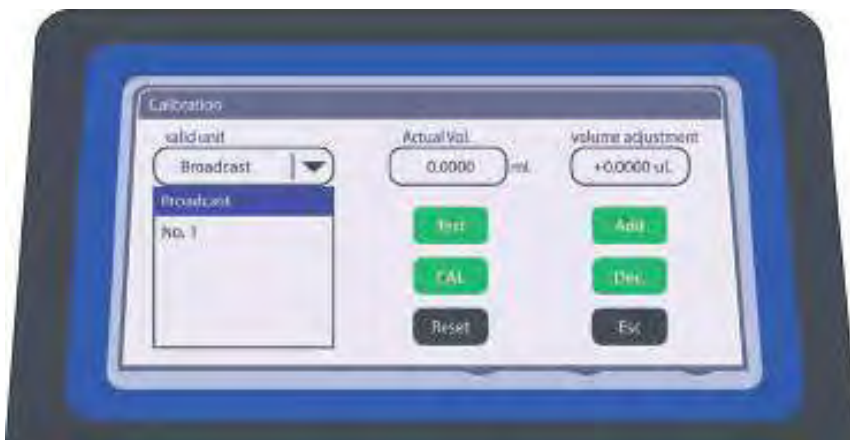


License Type: Processor

5.4.3 Once fill volume has been chosen, you will then have to choose an appropriate dispense time for that volume. Press the dispense time button and use the number key pad to pick an appropriate dispense time for the fill volume. Depending on the viscosity of your product there is a limit to how much volume can be dispensed.

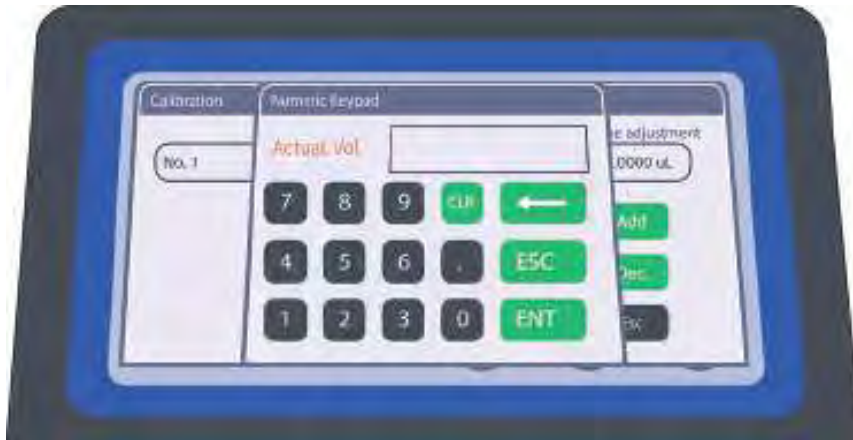


5.4.4 Once the appropriate dispense time has been chosen, you are now ready to calibrate the fill volume. Press the calibration button on the touch pad screen. Once you see the screen below, you will see the valid unit option, select No. 1. This will ensure that you are calibrating nozzle 1.



License Type: Processor

5.4.5 Once you have selected No.1, you can now press Test. Make sure there is a container or bottle underneath the nozzle tip as product will dispense. To ensure the best results with this calibration step, be sure to use a measuring cup or scale so you can document the exact fill volume. Once product has dispensed, you will then enter the fill volume achieved from measuring cup or scale. Type that measurement into the Actual Vol. Use the number pad on the touch screen to type in the fill volume and press enter.



5.4.6 Once the Actual Fill Volume has been typed in, the option to do 3 groups of testing will come up. This step is critical when you have hit the proper fill volume. If your fill volume is still off, press No and you will see the screen shown in Figure 2.

Figure 1:

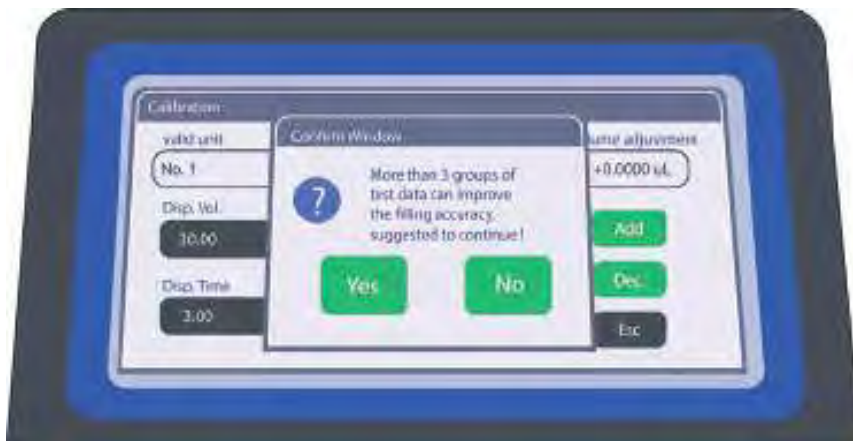
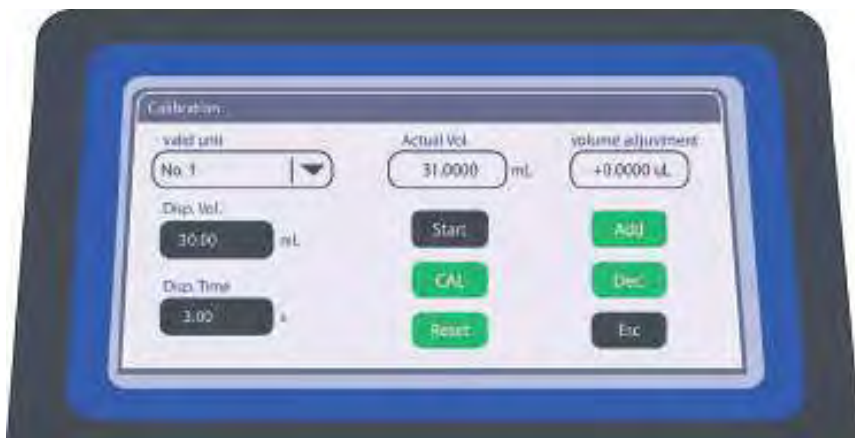
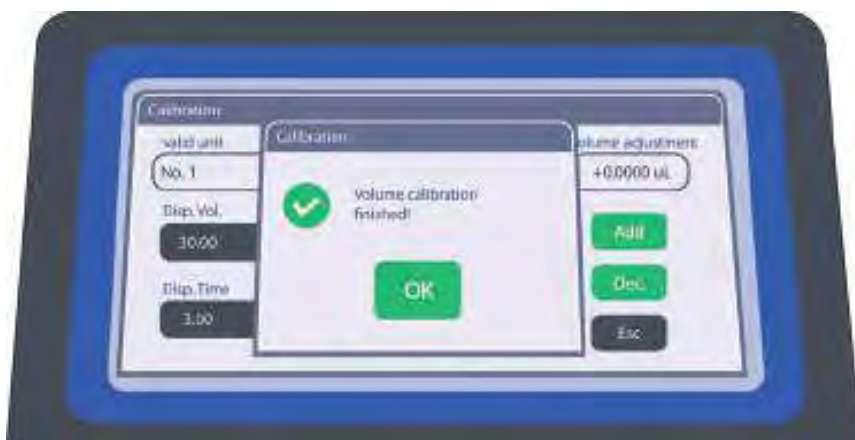


Figure 2:



5.4.7 Press the calibration button labeled CAL. You may need to repeat steps 5.4.5 –5.4.7 until you have reached the appropriate fill volume. When going through this step it is best to have a measuring cup or test cups to weigh after to get the most accurate results.



5.4.8 Once you have found the appropriate fill and you have done at least 3 groups of testing, you have now successfully calibrated your pump. Simply press the Esc key to ensure you are back at your home screen. You can now place your tray of empty bottles on your base plate and start filling. If you start to endure dripping coming from the dispense nozzle, press the Settings button. Press the top middle button labeled Suck-back. The screen shown in Figure 2 will come up. The Suck-back degree can go up to 360. This indicates how much of a rotation the router turns back after it dispenses. It's best to go up in variations of 45 degrees at a time if suck-back is needed.

Figure 1:

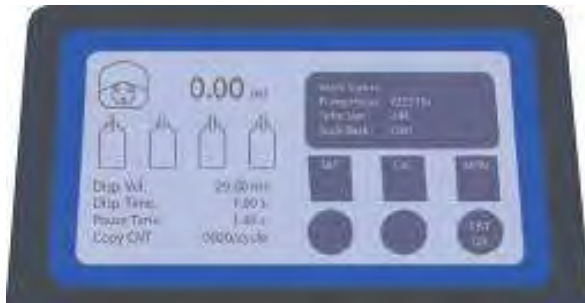
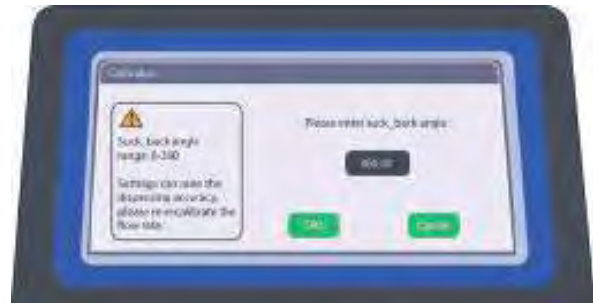


Figure 2:



5.5 Filling Bottles

5.5.1 Orient the tray with empty bottles onto the base plate.

5.5.2 Ensure that the valve holder is at the proper measurement on the T-bar noted on your parameters sheet.

5.5.3 Make sure the RoboCAP is in RUN mode.

5.5.4 Press **START**

5.5.5 Repeat steps **5.5.1 - 5.5.4** until all bottles have been filled. The nozzle will return to the starting position once the program cycle is complete.

Peristaltic Pump Specifications

Filling Volume Range	0.1-9999.99ml	Wash Tube Speed	400 rpm
Filling Time Range	0.5-9999.99s	External Control	Start/Stop Signal
Pause Time Range	0.5-9999.99s	Power Consumption	<200W
Filling Volume Resolution	0.01ml	Temperature	0-40°C
Time Resolution	0.01s	Relative Humidity	<80%
Filling Numbers Range	1-9999, 0 is unlimited	Dimension (L x W x H)	291 x 152 x 158 mm
Motor Speed Range	1-600 rpm	Weight	5.4 kg
Suck-back Angle	0-360°	Protection Level	IP31



5.6 Electrical Connections for Adding an Additional Pump

5.6.1 Electrical Connections

5.6.2 Plug the **3-prong connection** cord into the back of the first Peristaltic Pump and plug the other end of the connection cord into the additional Peristaltic Pump

5.6.3 Plug the power cord into the additional Peristaltic Pump. Turn on the Peristaltic Pump.

5.6.4 Refer to **Figure 1** in step 5.2 for a better indication on where to plug 3-prong connection cords.

5.7 Syncing the Peristaltic Pump

5.7.1 Once you have your set-up you can sync the additional pump. First make sure that the controller is at its home screen shown below in Figure 1. Next, press the Stop button on the controller 5 times. Next you will press the Settings button labeled SET on the touch pad screen. The screen shown in Figure 2 should come up. Press the "+" button to add an additional pump. Hold the silver button on the front of the peristaltic pump and press OK.

5.7.2 Once you are back at the home screen shown in Figure 1, you will now press the Settings button labeled SET. This will bring you to the screen shown in Figure 3. In the bottom left corner of the touch screen you will see a button labeled Effective Unit. Press that button and you will be brought to the screen shown in Figure 4. Press No. 1 and No. 2 so that they are both highlighted like shown in Figure 5. This will ensure that both pumps are now synced with the controller and will dispense at the same time.

Figure 1:



Figure 2:



Figure 3:



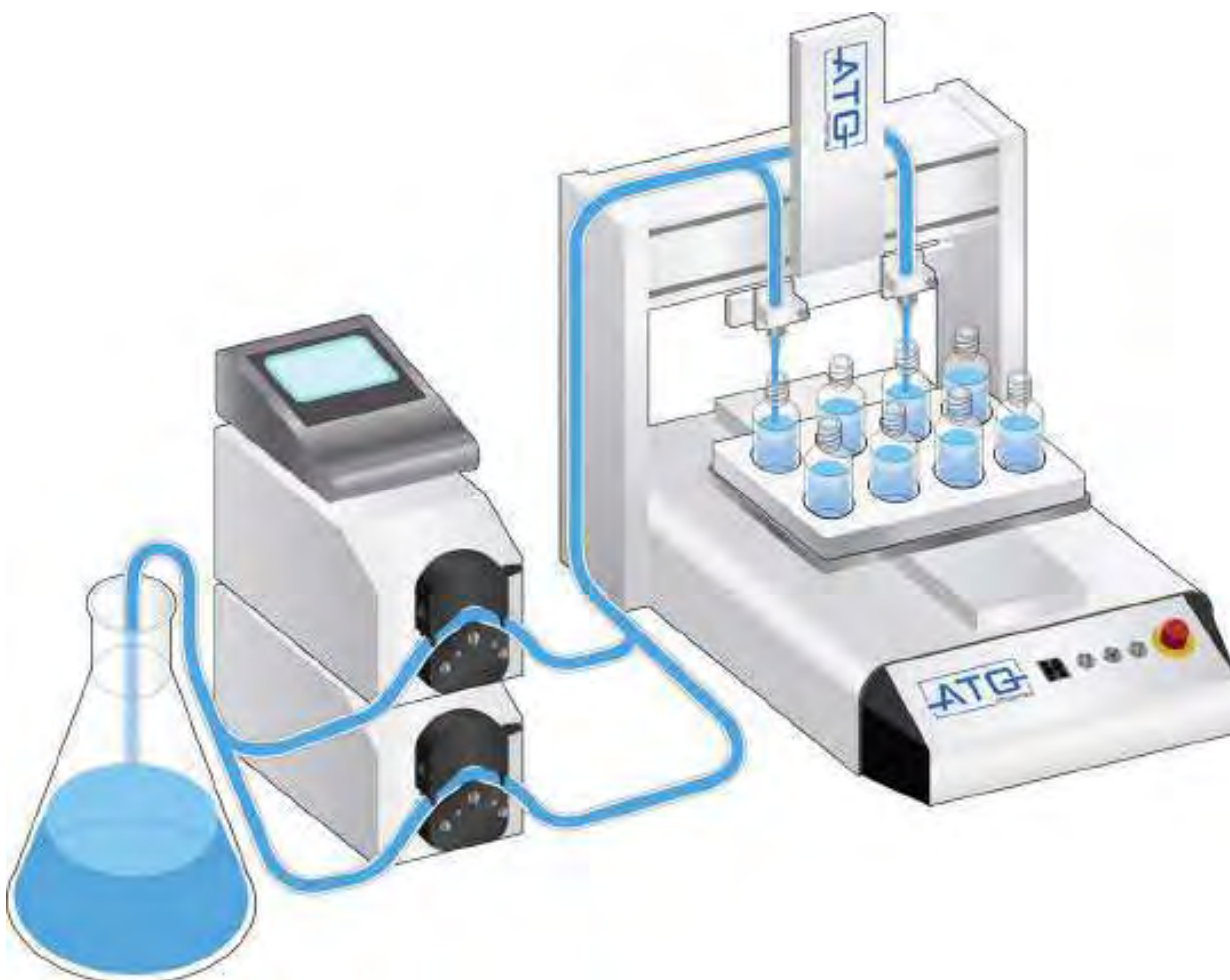
Figure 4:



5.8 Calibrating the Additional Peristaltic Pump

5.8.1 To calibrate the additional Peristaltic Pump you will need to repeat steps 5.4.4 – 5.4.8. But when you are at step 5.4.4 make sure you choose the appropriate number that has been delegated to that pump. For example, if you have 2 pumps you will have the option to calibrate No.2, 3 pumps you will be able to calibrate No.3 and so on. Choosing between these different options will ensure you are calibrating the appropriate pump.

5.8.2 Once the calibration step is complete you are now ready to go ahead and fill your bottles. Refer to steps 5.5.1 – 5.5.5 to do so.





Pneumatic Setup

Chapter 1: Components

1.1 Capsule Information

Size

The RoboCAP is designed to fill capsule sizes (sizes 000 through 5). The appropriate parts must be used each time a different capsule size is to be run.

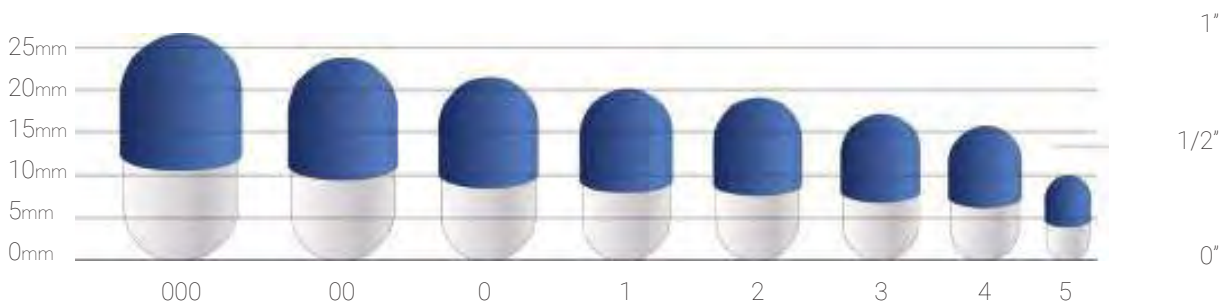
Orientation (positioning) of the capsules during processing is important. Capsules in the cap-up and cap-down positions are shown below:

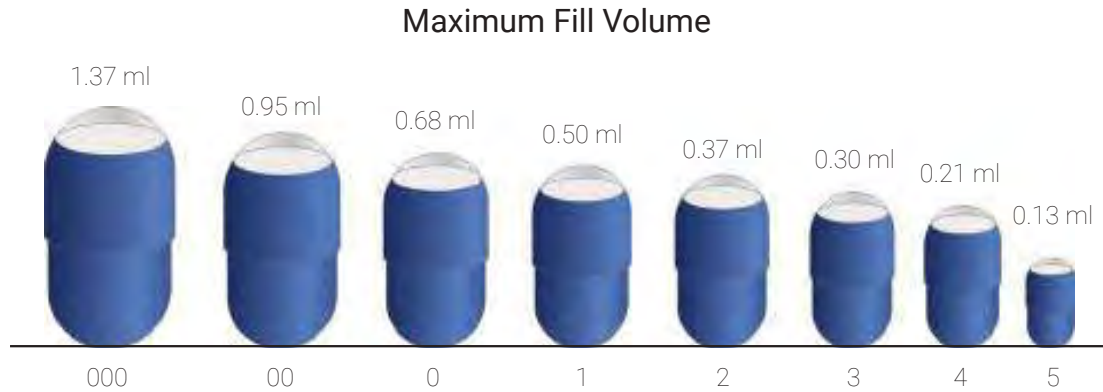


Environmental Conditions

The humidity and temperature of the area around the machine will influence the flow of the capsules. High humidity especially can promote "stickiness" in the capsules, leading to jams in the Manual Capsule Orienter system.

Approximate Locked Capsule Sizes





Special Capsules for Liquid Filling Available

Liquid filled hard capsules (LFHC) are becoming increasingly popular for both pharma and H&N applications.

- Choice of capsule material: Gelatin or Hypromellose (HPMC)
- Global regulatory acceptance
- FDA Drug Master File
- Available in sizes 00, 0, 1, 2, 3, 4

For pharmaceutical applications, these capsules are an ideal carrier for:

1. Poorly water-soluble compounds,
2. Cytotoxic/high potency drugs and,
3. Sensitive drugs (light or heat sensitive).

For health nutrition applications, these capsules provide key benefits including:

1. Faster and more consistent dissolution,
2. Improved bioavailability,
3. Increased product recognition through unique color combinations and printing options,
4. The ability to work with fewer excipients and therefore smaller capsules.

To learn more about the capsule or to receive pricing, please send an email to info@atgpharma.com, or give us a call at +1-866-309-5029.



Working with Capsules

When capsules are empty (unfilled) they are most susceptible to damage as the capsule walls are unsupported and there is a tremendous volume of air contained inside the capsule that can extract or release moisture from the capsule walls. Once the capsule is filled the walls are supported and the air inside the capsule is essentially eliminated. Thus, the sensitivity of capsules to environmental conditions is reduced. The major cause of customer problems with capsules is improper conditions during storage and filling or inadequate final packaging.

Packaging Of Empty Capsules:

To protect empty capsules from exposure to large variations in the surrounding relative humidity, they are packed in food grade anti-static plastic bags inside heavy-duty corrugated cartons.

Transportation of Empty Capsules:

Care must be taken during transportation to ensure there is no damage to capsules.

- Do not leave shipments on a loading dock or in a truck.
- Ensure your customs broker is aware that capsules are heat sensitive and can arrange pre-clearance of the capsules through customs.

Inspection of Capsules on Receipt:

Inspect your shipment on arrival. The following are examples of heat damage during transportation:

- Capsules are smaller in size (average length less than lower tolerance limit) or vary in size.
- Capsules are stuck together in lumps and do not come apart.
- Capsules are brittle or shatter very easily during handling or filling.
- Capsules are severely distorted in shape.
- Capsule cap is stuck to body and resists separation.

Contact your supplier immediately if you observe any of the above.

1.2 Filling System

Warehousing/Storage:

If the proper storage conditions are observed, empty hard gelatin capsules may be stored for several years.

Storage conditions are given in the table below:

	Min.	Ideal	Max
Relative Humidity	40%	50%	60%
Temperature	15° C	20° C	25° C
	60° F	68° F	75° F

- Store capsules away from direct sunlight (e.g. windows and skylights) as it can raise the surface temperature of a carton to 150° F.
- Store capsules away from hot water/air radiators, hot water pipes and steam pipes.
- Store capsules on pallets off the ground.
- Store capsules away from potential sources of water condensation e.g. under water pipes.
- Do not store empty capsules in freezers.
- The effect of prolonged storage (over a few days) in areas outside the recommended conditions may cause the damage indicated in the table below:

Damage to Capsule	Probable Cause	Capsule Moisture
Softening and loss of shape	Storage at high RH	Increased
Difficult to separate; lumps of capsules; visible condensation on surface of bag; some capsules slightly reduced in size	High temperature or temperature cycling during storage.	Decreased
Capsules shatter when pressure applied; all capsules slightly reduced in size	Storage at low RH	Decreased



License Type: Processor

The following equipment is available for monitoring temperature and humidity. ATG Pharma Inc. does carry these devices, Tel. 289-337-2970.

- Temperature/Humidity Digital Type
- Temperature/Humidity Chart

Capsule Filling:

Optimum filling conditions are between 20-25° C (68-75° F) and 45% to 55% Relative Humidity for gelatin capsules and 15-30° C (59-86° F) and 35% to 70% Relative Humidity for vegetable capsules.

Filling Problem	Environmental Cause	Solution
Capsules soft or sticky; denting during locking	High temp or RH or both.	Air Condition & Dehumidity
Capsules cling to each other or plastic surfaces due to static electricity	RH below 40%	Humidity
Capsules crack or shatter when pressure applied.	RH below 40%	Humidity

- To reduce the temperature or RH, use an air conditioner or dehumidifier. You may need to use a dehumidifier in addition to an air conditioner depending on the amount of moisture removal required to reduce the RH.
- Keep only the minimum level of stock open to the atmosphere (one bag) and for a maximum of 1-2 hours.
- Keep empty and filled capsules covered when not being filled to minimize moisture loss.
- Seal or tie bags containing empty capsules during shift breaks or at the end of shifts.
- Store filled capsules in plastic drums with lids until they are packed in final container.



Powder Capsule Filling:

The Powder Capsule Filling System Consists of:

- Capsule Orientor Base
- Caps Tray
- Capsule Filler Base
- Product Tray
- Product Spreader
- 50 Pin Tamper

Filling Capsules

Filling Liquid Into Capsules

The RoboCAP semiautomatic liquid dispensing system utilizes a robotic unit to manipulate the position of the liquid dispensing valve directly over each open capsule body. The capsule body is held in the filler base of the manual capsule filler.

Once the dispensing valve is in position over a capsule, the robot sends a signal to the dispense controller, which in turn sends a pulse of air to the valve. The air pressure lifts the plunger allowing the product to flow into the capsule. The fill volume is set by adjusting the air pressure and the dispense time on the dispense controller. At the end of the dispense cycle, the air pulse is terminated and a spring inside the valve forces the plunger back onto the valve plunger seat, which stops the flow of product. The robot moves the valve to the next capsule position and repeats the process to fill the rest of the capsules. When all the capsule bodies are filled, the robot returns the dispense valve to the home position.

The operator removes the capsule filler base with the liquid filled capsule bodies and brings over to the workbench to join the capsule caps to the capsule bodies for closure. (Refer Next Section for details)



Product Pressure Vessel

The product pressure vessel is manufactured from an electro polished 316L Stainless Steel. The product is held inside, and is pressurized between 10 and 15 psi, which forces the product up the dispense tube and into a product line, where it sits ready for the next fill cycle,



Dispensing Needle Valve

Needle valves are ideal for single micro shot deposits for fluids, providing the valve is suitably configured to handle the fluid. All the Needle Valve product contact parts are manufactured from 316L stainless steel, and virgin Teflon. The valve consists of a spring return cylinder and the Valve Body. It is adjustable for high pressure for high viscosity products. It is also suitable for low-to-medium viscosities as it can be can be opened for extended periods.

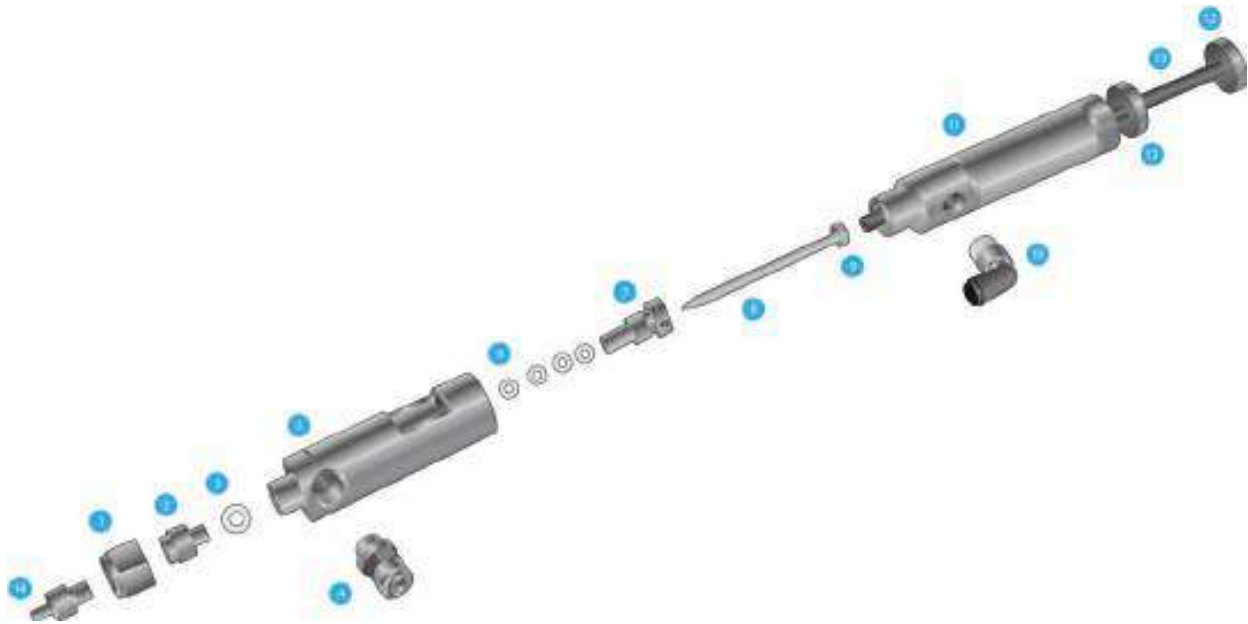
Valve Function

1. Air pressure from the controller enters the operating inlet of the air cylinder.
2. Air forces the cylinder piston upward against the spring and unsettling the needle plunger.
3. With the needle plunger lifted, product is allowed to flow through the line and into the valve through the nozzle and into the capsule.

The fill volume is set by the adjusting the air pressure and the dispense time on the dispense controller. At the end of the dispense cycle, the air pulse is terminated and a spring forces the needle plunger back onto the valve plunger seat and stopping the flow of product.



Valve Parts List



Part	Qty	Part No.	Material
1. Plunger Seal Lock Nut	1	410015	Stainless Steel
2. Cylinder Valve Plunger Seat	1	410014	Teflon
3. Cylinder Valve Washer	1	410013	Teflon
4. Push-in Fitting Food Grade 1/8 x 6mm OD	1	300039	Stainless Steel
5. Cylinder Valve Housing	1	410010	Stainless Steel
6. PTFE O-rings	4	410011	Viton
7. Cylinder Valve Packing Gland	1	410012	Stainless Steel
8. Cylinder Valve Plunger	1	410009	Stainless Steel
9. Valve Plunger Lock Nut	1	410003	Stainless Steel
10. Legris M. 90° Elbow 1/4 O.D - 1/8 BSPT	1	410006	Stainless Steel
11. Pneumatic Cylinder (Spring Return)	1	410004	Stainless Steel
12. Plunger Stroke Lock Nut 1/4 - 28 UNF	2	410008	Stainless Steel
13. Stroke Adjustment Rod 1/4 - 28 UNF	1	410007	Stainless Steel
14. Nozzle Tip 1mm ID	1	410016	Stainless Steel

Liquid Dispense Controller

The liquid dispense controller is used to control the air pressure sent to valve cylinder, along with the liquid fill time.



1. Control Panel
2. Adjustable air regulator
3. Air output gage
4. Suck back regulator
5. Air output (Barrel Holder Connector)

Teach:

Teaching Dispensing Time and Interval Time

Set/Up:

Setup Dispensing Time and Interval Time – Increase

Set/Down:

Setup Dispensing Time and Interval Time – Decrease

Shot:

Dispensing Shot / Setup Digital Number Left Shift

Mode/Exit:

Mode Setup / Exit Setup Key

Controller Function

The Liquid Dispense Controller is connected to the robot through an umbilical cord. It receives a signal from the robot when it has manipulated the dispensing valves over the open body capsule.

Once the controller receives a signal that the valve is in position, it actuates the dispense controller. A pulse of air is sent to the valve cylinder air inlet, lifting the plunger and holding for the predetermined fill time, allowing the product to flow into the capsule. Once the fill cycle is complete, the air pulse is terminated and a cylinder's forces the plunger back, stopping the flow of product. The controller sits idle, waiting for the robots next signal.



Chapter 2: Cleaning

2.1 Cleaning of Manual Capsule Filler

2.1.1 Cleaning and Drying Methods

Automatic Dishwasher	<p>The entire system is dishwasher safe. Items A, B, D, E, F, G, & H should be placed in the top rack of the dishwasher (<70°C/160°F).</p> <p>Remove accumulated powder from system before placing in a dishwasher.</p> <p>Item C, (if Anodized Aluminum) may be cleaned in an Automatic Dishwasher on rinse only.</p> <p>Automatic dishwasher detergents can discolor anodized aluminum.</p>
Cleaning Agents	<p>All items except (if Anodized Aluminum) may be cleaned with NaOH (caustic soda) 1-2% solution or with Bleaching Powder Solution.</p>
Isopropyl Alcohol	<p>All items except A, B, D, E, & H may be cleaned with isopropyl alcohol.</p> <p>Wipe with a cloth dipped in isopropyl alcohol, then immediately wipe dry with a clean cloth.</p>
Hot Air Drying	<p>All items may be dried in a hot air oven at temperatures up to 60°C or using a portable hair dryer.</p> <p>The following items should be removed from oven after 15-20 minutes: A, B, D, E, G, & H.</p> <p>If using a hair dryer, keep it at a distance of 12 inches (30 cm) from all items.</p>
Autoclave	<p>All items except those made of acrylic or LDPE (A, B, D, E, G, & H) are autoclave safe.</p> <p>Other parts may be autoclaved at 121°C, 15 psi pressure for 15 minutes.</p>

2.1.2 Daily Cleaning and Drying Methods

We recommend daily cleaning and preferably washing of the system to remove all powder.

After cleaning, lubricate Cam and Cam Bush.



Make sure Cam Handle is set to 0.

Unscrew 4 thumbscrews from corners of Filler Base.

Remove Body Sheets from Filler Base and separate sheets.

Remove clear Spacer Plate.



Remove excess product from Filler Base, Spacer Plate, Body Sheets, and

Tamper using a brush, cloth, vacuum, or compressed air.



Clean system using one of the methods below.

Lubricate cam head and cam bush with Dow Corning 111 grease or any other food grade lubricant, such as Vaseline.



Upon completion of the cleaning reassemble using the following process.

Position the Spacer Plate onto the Filler Base.



With the Cam Handle at 0°, position the Body Sheet

Set on the Filler Base, and the cam bush on the cam side.

If BSS does not easily fit onto the Filler, pull the 2 sheets apart slightly until the BSS sits properly on cam and in the locating holes.



Secure the BSS with the four thumbscrews.



2.1.3 Recommended Daily Cleaning Methods

Automatic Dishwasher

Place parts in dishwasher according to guidelines in section 2.1.1

Manual Cleaning

- Clean all the parts using a nylon brush.
- Clean the top and bottom of the Body Sheets, the Caps Tray and the Spacer Plate.
- Make sure the holes in Caps Tray and the Body Sheets are free of product.
- To clean the flat parts like the Locking Plate, and the Push Plate, wipe them with a clean cloth or sponge. Also wipe clean the Cam and the top of the Lifting Plate.
- Optionally, hand wash parts using hand a light detergent and water.

Vacuum or Compressed Air

- If you have a vacuum for powder or compressed air for liquid products.
- If using compressed air, pass air through all holes and corners.

Safety Note: Be sure to wear eye protection when using compressed air.

- To remove sticky product between Tamper pins and inside holes of Caps Tray and Body Sheets, use nylon brushes along cleaner and with vacuum or compressed air.
- To remove traces of sticky product from flat parts you may need to clean with cloth with Isopropyl alcohol.

2.1.4 Weekly Cleaning and Drying Methods

Weekly, or whenever there is a lot of build up or if there is a formula change, an Extensive Cleaning should be done. After washing parts, they must be lubricated to ensure proper operation of the system.



Turn the Filler over and position it so then Cam Bush and Cam Handle hang off table for stability.

Unscrew and the remove 4 rubber feet.



Set the Cam Handle to 0 (pulled away from Base).

Use the wrench #10 to loosen the Cam Handle screw.

Remove the screw, the washer and the Cam Handle and set aside.



Separate the Lifting Plate from Base Frame.

Remove the Spacer Plate.



Remove the 4 thumbscrews from the corners of the Filler Base.



Lift the Base Frame off of the Body Sheet Set.



Remove the Cam.

Separate the Body Sheet Set.



2.1.4 Weekly Cleaning and Drying Methods (continued)

Clean the system parts using one of the methods identified below.

2.1.5 Recommended Weekly Cleaning Methods

Automatic Dishwasher

Place parts in dishwasher according to guidelines in section 2.1.1

Manual Cleaning

- Clean parts with nylon brushes. You can use different sized brushes for the various hole sizes or gaps between the pins or parts.
- Put nylon brush between pins and in holes and gaps; rotate for maximum product removal.
- Prepare a cleaning solution in a tray of suitable size to dip all parts.
- The product being cleaned must be soluble in the cleaning solution, and the solution should not react with metals and plastic parts used in system.
- Dip all parts in the solution and shake to allow solution to pass through them.
- Use nylon brush to remove product from corners and nooks while dipping in solution.
- Use cloth and isopropyl alcohol to remove product from flat parts.
- Remove all parts from solution and rinse with purified water so that all residual product and cleaning solution is removed.
- Wipe with clean lint free cloth and allow to dry.
- You can use alcohol to speed drying on all parts except those made of acrylic.

Autoclave Sterilization

- After cleaning your system, you can sterilize it using an autoclave.
- Place parts in dishwasher according to guidelines in section 2.2.1.

2.2 Cleaning of Product Tank and Valves

- Release the air pressure from the tank through the pressure relief valve.
- Disconnect the product line from the tank.
- Place the loose end of the product line in a container and allow to drain.
- Disconnect the product lines from the valves.
- Place the loose end of the product line in a container and allow to drain.
- Disconnect cylinders from the valve and put aside.
- Remove all contact parts from the robot and place aside for cleaning.
- Disassemble the contact parts.
- Follow the weekly cleaning methods as identified in section 2.1.5.



Chapter 3: Maintenance

3.1 Purpose

It is essential to correctly and periodically inspect and maintain the robot to prevent unexpected failures or malfunctions, thus ensuring safe operation and lengthening the machine's life. The outside parts of the machine should be kept clean. Use vacuum cleaner or soft cloth to clean the machine. Do not use compressed air or chemical products to clean the machine, as they can damage the internal cables, timing belts and other components of the unit. Use only the greasing materials recommended by the manufacturer of the machine.

3.2 Checking Cycles and Points of RoboCAP

The check cycles of the machine are classified in the following categories:

- Daily Check
- Weekly Check
- Check after every 3 months of operation
- Check after every 2 years of operation

Weekly

- Tilt or Deviation of Machine
- Status of Cables and Hoses
- Appearance
- Stability on the Work Bench
- Motor Running Condition

Every 3 Months

- Motions, Connections and Joints
- Unfastened Loose Bolts and Screws
- Internal Wires and Connectors
- Accuracy and Precision
- Ball and Screw Assembly, LM Guide, Slide Guide

Every 2 Years

- Overhaul

3.3 Check Point Methods

Check Point	Check Action (See if)	Corrective Action
Tilt or deviation of machine	<ul style="list-style-type: none"> Robot working position is titled or inclined 	Set the machine in a proper vertical position
Status of cables and hoses	<ul style="list-style-type: none"> Electrical cables and peristaltic hoses are excessively twisted, bent, or squeezed Air leakage between peristaltic hoses and fittings 	<ul style="list-style-type: none"> Remove the causes of twisting, bending, or squeezing Cut away the damaged parts of hoses and make connections
Appearance	<ul style="list-style-type: none"> Damage on the robot's head from clashes during operation 	<ul style="list-style-type: none"> Pay attention to working area of robot and remove any obstacle
Stability on work bench	<ul style="list-style-type: none"> The robot is too close to the edge of the work table 	<ul style="list-style-type: none"> Rearrange the position of the robot on the table. Remove sources causing table vibration
Motor running condition	<ul style="list-style-type: none"> Infiltration of grease Performance degradation due to overload 	<ul style="list-style-type: none"> Replace motor <p>See your agent, or contact ATG Pharma Inc. at +1-866-309-5029, or email us at info@atgpharma.com</p>
Motions, connections, and joints	<ul style="list-style-type: none"> The axes are not moving smoothly Noises, vibrations, and / or shakes 	<ul style="list-style-type: none"> Grease up Reset and adjust gains <p>See your agent, or contact ATG Pharma Inc. at +1-866-309-5029, or email us at info@atgpharma.com</p>
Unfastened / loose bolts and screws	<ul style="list-style-type: none"> Loose or broken bolts and nuts 	<ul style="list-style-type: none"> Tighten loose bolts and nuts. Take corrective action to remove the cause.



3.3 Check Point Methods (continued)

Check Point	Check Action (See if)	Corrective Action
Internal wires and connectors	<ul style="list-style-type: none"> Stripped or damaged external cover or shield on cable and/or connectors 	<ul style="list-style-type: none"> Replace the damaged cables or connectors with new ones
Accuracy and precision	<ul style="list-style-type: none"> Z run out over X or Y larger than 0.2mm Wear on timing belt 	<ul style="list-style-type: none"> Replace timing belt <p>See your agent, or contact ATG Pharma Inc. at +1-866-309-5029, or email us at info@atgpharma.com</p>
Ball screw (worm gear) assembly, LM guide, slide guide	<ul style="list-style-type: none"> Lack of grease on shaft, LM guide and / or slide guide surfaces Deflection of the shaft 	<ul style="list-style-type: none"> Apply grease on grease-hole of worm gear, LM guide, and slide guide surfaces. Replace the shaft <p>See your agent, or contact ATG Pharma Inc. at +1-866-309-5029, or email us at info@atgpharma.com.</p>
Overhaul	<ul style="list-style-type: none"> Diagnose the whole system and make decision for the overhaul 	<p>See your agent, or contact ATG Pharma Inc. at +1-866-309-5029, or email us at info@atgpharma.com.</p>

3.4 Greasing Procedures

Grease Type and Greasing Interval

- Grease type: 30 – 100 centistokes (recommended: THK AFA 70G)
- Greasing period: every 6 months

Accessing Parts to be Greased

- Unscrew the bolts and remove the covers.
- Apply grease into the grease hole of ball screw (worm gear) and also thinly to the surfaces of LM guide and slide guide.
- Put back the covers and screw in the bolts.



3.5 ProFiller 3600 Capsule Filler Lubrication

Always fully clean parts of powder before lubricating. After cleaning your system, take care that inner parts are completely dried before reassembling.



3.5.1

Lay the Base Frame on the table with the mounting pins facing upwards.
Position the Lifting Plate onto the Base Frame so that the holes fit around the mounting pins.



3.5.2

Screw on the four rubber feet.



3.5.3

Lubricate the cam and cam bushing (underside of the body sheet) using Dow Corning 111 grease or any other food grade lubricant.



3.5.4

Turn the Filler over.
Drop the Cam into the Filler.
Rotate the Cam Head into the position as shown in the photo.



3.5.5

Position the Spacer Plate onto the 2 locating pins.



3.5.6

Position the Body Sheet Set on the Filler Base, the Cam bushing on the Cam side.
If the Cam Bushing does not fit onto the Cam Head, rotate the cam head to look like photo 3.5.4



3.5. ProFiller 3600 Capsule Filler Lubrication (continued)



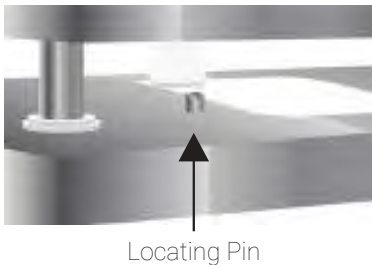
3.5.7
Secure the BSS with the four thumbscrews.



3.5.8
Turn the Filler over and hang the Cam over the edge of the table as shown.
Place the Cam Handle onto the Cam, fitting holes in handle around the bottom of the Cam Shaft and the Cam Handle locating pin.



3.5.9
Place the washer over the bottom of the cam shaft.
Insert the screw and tighten using the #10 wrench.



3.5.10
Turn the Filler over.
Adjust the Spacer Plate if it is not sitting properly on the 2 locating pins.
See photos number 3.5.11 and 3.5.12 below for proper and improper fits.
There should be only a slight movement of the Spacer Plate when pushed laterally. More than a couple of mm indicates the Spacer Plate has lifted off its locating pins. With your fingers, reach under the Body Sheet Set, lift the Spacer Plate, and place it back on the locating pins.



3.5.11
Spacer Plate sitting properly.



3.5.12
Spacer Plate NOT sitting properly.



3.6 Environmental Conditions & Capsule Performance

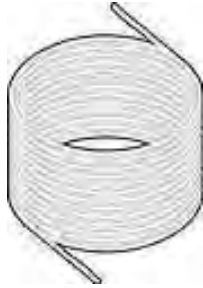
Both temperature and humidity affect capsule performance (orientation, separation, filling and locking). The room temperature where capsules are stored should be from 60-75°F (15-25°C), and the Relative Humidity (RH) from 40-60%.

Do not store empty capsules where they may be exposed to direct heat e.g. sunlight (windows, skylights), radiators, air vents or near ceilings (store capsules nearer to the ground). Do not allow capsules to freeze. If capsules are frozen you can usually fill them on hand-filling machines if you allow them to return to normal temperature naturally. Do not apply any form of direct heat.

The capsule filling and packaging area ("work area") should have an RH of 45-55% as the empty capsules are exposed directly to the air during filling and packaging. The temperature should be the same as in the storage area 60-75°F (15-25°C),

- High Temperature or Relative Humidity in the work area can cause the capsule shells to become soft or sticky impacting their performance at all stages of the filling process. Use an air conditioner or dehumidifier (residential or commercial) to keep the temperature and humidity within the recommended conditions. You may need to use a dehumidifier in addition to an air conditioner depending on the amount of moisture removal required to reduce the RH.
- Low Relative Humidity & Static. At below 40% RH the air is less conductive and static charges can build up on capsules and plastic items. This causes capsules to stick to plastic items such as the Orienter and plastic containers or scoops. At below 30% RH static build up is immediately noticeable.
 - We recommend air humidification using a humidifier (e.g. a residential room humidifier)
 - If you cannot humidify the air as you are filling a hygroscopic powder, we recommend the use of talc powder and an air ionizer to reduce any static electricity present on the capsules.
 - If you are using a hand-held Orienter (ProFiller 3600 or 3700), you can also apply talc powder or the powder you are filling to the bottom of the Orienter Base. Additionally, add 1 teaspoon of talc to every 5,000 capsules and mix well so the talc coats the outer capsule shells. Talc is known to reduce the build-up of static. The powder you are filling may also serve the same function depending on its conductivity.
 - Do not apply alcohol or acetone based anti-static sprays to plastic items or to the Orienter Base.
- Low Relative Humidity & Capsule Breakage (Brittleness). At below 40% RH the air absorbs moisture from the empty capsule shells and their moisture content can drop by 1-2% within a few hours. This leads to dry, brittle capsules that can crack or even shrink in size, impacting their performance at all stages of the filling process. Use a humidifier (e.g. a residential room humidifier) to add humidity to the air.
- If conditions are not optimal, keep no more than 1 to 2 hours of capsules exposed to the air. Seal, tie or fold-over bags containing empty capsules during production breaks or at the end of the day. Store filled capsules in plastic drums with lids or plastic bags until they are packed in their final container.

Chapter 4: Spare Parts



PTFEN Tubing

(Product Number #310001)

Recommended Quantity - 50 ft



Needle Cylinder Valve Plunger

(Product Number #410009)

Recommended Quantity - 2



Plunger Seat Lock Nut

(Product Number #410015)

Recommended Quantity - 1



Pneumatic Spring Return Cylinder

(Product Number #410004)

Recommended Quantity - 1



Valve Plunger Lock Nut

(Product Number #410003)

Recommended Quantity - 2





PTFE O-Rings (4 pack)

(Product Number #410011)

Recommended Quantity - 8



Cylinder Valve Washer

(Product Number #410013)

Recommended Quantity - 4



Cylinder Valve Plunger Seat

(Product Number #410014)

Recommended Quantity - 4



Nozzle Tips 1mm/2mm

(1mm Product Number #410016)

(2mm Product Number #410017)

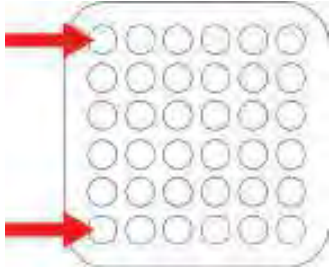
Recommended Quantity - 2

Any extra spare parts can be
purchased online at
atgpharma.com



Chapter 5: Appendix

How to Make a Program

1. Turn the RoboCAP on.
2. Plug in your **teach pendant** unit into the front port labeled "TEACH PENDANT".
3. Ensure the RoboCAP is in **TEACH** mode.
4. Press **HOME** on the **teach pendant**.
5. **Address 1:** Press **F4**.
Locate **Point Dispense Set-up** and press **ENTER**.
(THIS IS WHAT SHOULD APPEAR)
Dispense Time: *Desired dispense time
Tail Time: ALWAYS 0.05
6. Once complete, Press **ENTER**.
7. **Address 2:** Press **F4**.
Locate **Z-Clearance** and press **ENTER**.
(THIS IS WHAT SHOULD APPEAR)
1: **ABSOLUTE**
2: **RELATIVE**
Select: __
8. Press **2** to choose **RELATIVE**.
(THIS IS WHAT SHOULD APPEAR)
Relative: __
Press: **5**
Press **ENTER**.
9. **Address 3:** Use the **X,Y** and **Z** keys located at the top of the **teach pendant** to locate the dispense nozzle to the bottom left or top left position on the tray.

10. If you have more than 1 dispense nozzle, ensure that the dispense nozzle that is flush with the left hand side of the T-bar is positioned on the top or bottom left pocket.
11. Once you have positioned the dispense nozzle Press **ENTER**.
12. **Dispense Dot** should be the first option that pops up. Press **ENTER**.
13. **Address 4:** Press **F1**. Use the **white** right arrow keys located at the top of the **teach pendant** to go to page 2. Locate **Step & Repeat** and press **ENTER**.
(THIS SHOULD APPEAR)
1.X 2.Y _ PRESS **1** THEN **ENTER**.
Start Position: PRESS **1** THEN **ENTER**.
Columns (X): Enter in the number of pockets on the X axis divided by the amount of dispense nozzles. Press **ENTER**.
Rows (Y): Enter in the number of pockets on the Y axis. Press **ENTER**.

OFFSET

X: Should be labeled on the front of the tray.

Press **ENTER**.

Y: Should be labeled on the front of the tray.

Press **ENTER**.

1. S Path

2. N Path

Select: __ (Press **1** for S path).

14. **Address 5:** Press **F1**. Use the **white** left arrow key located at the top of the **teach pendant** to go to page 1. Located **End Program** and press **ENTER**.
15. You have now successfully made a program.

Chapter 6: Routine Operation

6.1 Definition

Routine operation includes the entire process of orienting, separating, filling and closing of the bottles and can be separated into two stages: **Machine Preparation (Part A)** and **Machine Operation (Part B)**.

The process flow diagram below presents an overview of the steps in routine operation of the RL-300 Series machine:

Machine Preparation:

- Make All Pneumatic and Electrical Connections
- Load the Product into Pressure Vessel
- Power on System and Set Operating Parameters

Machine Operation:

- Orient Capsules Onto Manual Capsule Filler
- Separate Capsule Cap from Body
- Place Cap Tray Aside
- Place Capsule Filler Base On The RoboCAP Fixture
- Press the Start Button
- Remove the Capsule Filler Base from Fixture
- Join the Capsule Cap to the Body
- Close the Capsule Cap onto the Body
- Dispense Filled and Closed Capsules into Bulk Container

Part A: Machine Preparation

NOTE: Read and understand the operation manual prior to operating or servicing this machine. Lockout machine prior to servicing. Failure to follow operating instructions could result in personal injury or damage to the equipment.

6.2 Electrical and Pneumatic Connections



6.2.1 Electrical Connections

Connect the power cord to the back of the RL-300 into the Power Inlet and then to a power supply. Be sure to use the correct power cord and power source for the robot model you are using (110V or 220V).

Connect the Dispense Controller communication cable first to the back of the Dispense Controller's Foot Switch port and then to the back of the RoboCAP's Dispenser port. Put back the covers and screw in the bolts.

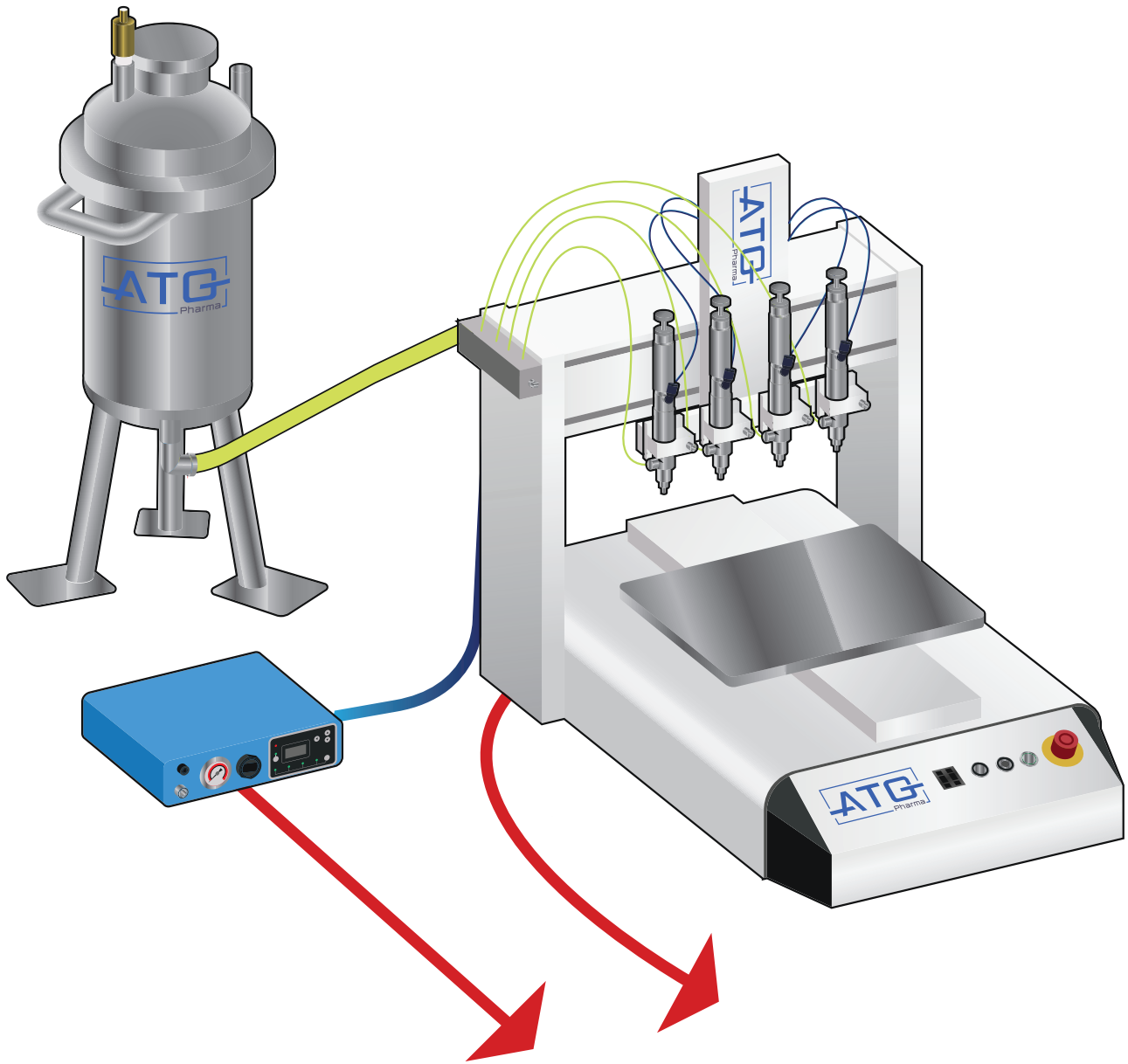


Connect the power cord to the back of the Dispenser Controller and then to a power supply.

Tie back all cables and air lines so that they will not interfere with the robot's motion when the robot is operating. Ensure cables are routed through the linear cable management system. Be sure that the cables and air lines do not restrict the motion of the robot's head and the robot's table and make sure that they cannot become jammed as the robot moves through the work area.

Electrical and Pneumatic Connections Diagram

Power Outlet Connections are made to the RoboCAP and the dispense controller.



Connections Index:

Pneumatic: █ Electrical: █ Product: █

6.2.2 Pneumatic Connections

- Connect an air hose from a compressed dry air system to the pressure vessel filter/regulator inlet.
- Connect an air hose from a compressed dry air system to the male quick connector, located on the back of the dispense controller.
- From the front of the dispense controller, connect an air hose to the air outlet, and connect the air supply to the 1/8" NPT side inlet of the air cylinder.
- Once the Dispensing Needle Valve has been set-up, refer to the section "6.2.3.1 Preparation of Liquid Filling Systems" for details, connect the product hose after completing the final step.



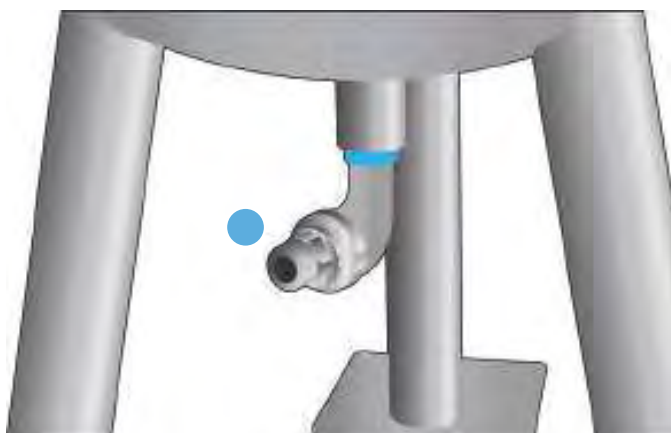
6.2.3 Preparation of Liquid Filling Systems:

6.2.3.1 Assembly of 316L Product Pressure Vessel

- There are 3 ports on the top of the Pressure Vessel. First port is allocated for the **Pressure Relief Valve**. The
- Second port is allocated for the **Push-in Fitting for Air Tubing**. The third port with the stainless steel elbow attached is allocated for the **Pressure Gauge**.
- Thread the Pressure Gauge onto the Stainless-Steel elbow located on the top of the Pressure Vessel.
- Ensure that the Point of Use Air Filter is mounted on the back of the RoboCAP.
- Install the air tubing into the Push-in fitting located at the top of the Pressure vessel.
- Install the other end of that air tubing into the Push-in fitting located at the end of the Point of Air Use Filter.
- Install a food grade product tubing into the Push-in fitting located at the bottom of the Pressure Vessel tank.
- Unscrew the larger Tri-clamp and lift off the top of the Pressure Vessel to pour product in.
- Reinstall the lid, ensuring of proper alignment and that it is clamped shut tightly. You may need to use a wrench to tighten both Tri-clamps to ensure that there is no air leakage.



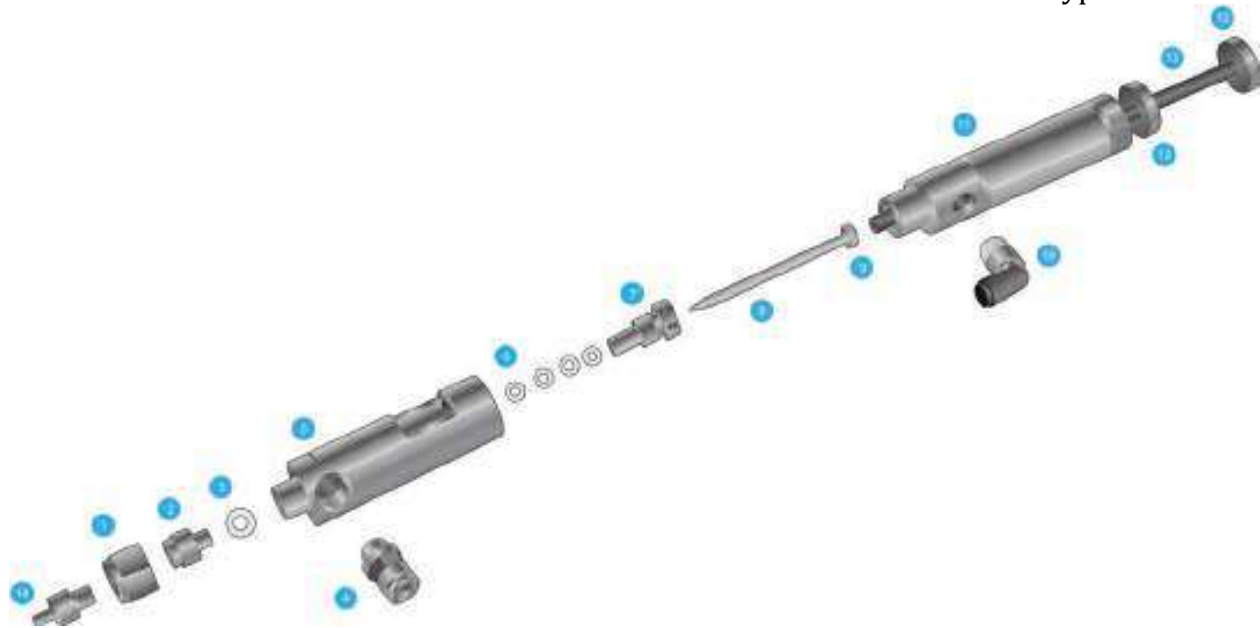
1. Pressure Relief Valve
2. Tri-Clamp
3. Push-In Fitting for Air Tubing
4. Larger Tri-Clamp
5. Push-In Fitting for Product Tubing



WARNING

Be aware, **DO NOT OVERTIGHTEN THE TRI_CLAMP.**

ATG is not responsible for overtightened and damaged Tri-Clamps.



6.2.3.2 316L Dispensing Needle Valve:

- A. Insert the threaded end of the Cylinder Valve Plunger Seat (2) into the bottom of the Plunger Seat Lock Nut (1) until the Cylinder Valve Plunger Seat (2) is protruding out the top of the Plunger Seat Lock Nut (1).
- B. Insert the Cylinder Valve Washer (3) into the non-threaded end of the Cylinder Valve Plunger Seat (2).
- C. Thread the Valve Plunger Lock Nut (9) into the threaded side of the Cylinder Valve Plunger (8). Insert the Cylinder Valve Plunger (8) into the bottom of the Pneumatic Cylinder (Spring Return) (11) so that the Cylinder Valve Plunger (8) protrudes outward approximately (56.80mm) from tip of the Cylinder Valve Plunger to the flat of the Valve Plunger Lock Nut (9). Ensure that both Plunger Stroke Lock Nuts (12) are attached to the Stroke Adjustment Rod (13). Insert the Plunger Stroke Adjustment Rod (13) assembly into the top threaded hole of the Pneumatic Cylinder (Spring Return) (11). Note: Further adjustments may be required.
- D. Insert the 4 PTFE O-Rings (6) 1 at a time into the open cavity of the Cylinder Valve Housing (5). Ensure to pack the O-rings down so they are flush with each other. Insert the Cylinder Valve Packing Gland (7) into the cavity of the Cylinder Valve Housing (5). Attach the Push-in Fitting Food Grade 1/8 x 6mm OD (4) into the side of the Cylinder Valve Housing (5). Ensure to use a wrench to tighten the Push-in Fitting Food Grade 1/8 x 6mm OD (4) until sealed.
- E. With the packing tool, press Valve Plunger Seal (8) down into cavity until seal is fully seated.
- F. Repeat for Valve Plunger Seals (8) two, three and four until all seals are fully seated.
- G. Insert Cylinder Valve Packing Gland (2), into Cylinder Valve Housing (4) and thread down until seated onto Valve Plunger Seals (8).

- H. Insert Cylinder Valve Plunger (1) into the Cylinder Valve Housing (4).
- I. Screw the Cylinder Valve Housing (4) and the Pneumatic Cylinder (12) together.
- J. Press fit, quantity 1 Cylinder Valve Plunger Seat (3) into the male threaded end of the Cylinder Valve Housing (4).
- K. Assemble quantity 1 Cylinder Valve Washer (5) onto the threaded male end of the Dispenser Valve Filling Nozzle (11) and thread it into the Cylinder Valve Plunger Seat (3).
- L. Thread Plunger Seat Lock Nut (6) onto the male threaded end of Cylinder Valve Housing (4) to complete the Dispensing Needle Valve.
- M. Take the Stainless Steel Straight Push-In Fitting with a 1/8 NPT thread for a 1/4" Outside Diameter tubing, and apply Teflon tape onto the thread.
- N. Thread the stainless steel fitting onto the valve housing.
- O. Repeat all steps until all of the Dispensing Needle Valves have been assembled.

6.2.3.3 Set-up of Dispensing Needle Valve:

- A. Install the assembled Dispensing Needle Valve into the valve holder and fasten into place.
- B. Connect the air supply to the 1/8" NPT side inlet of the air cylinder.
- C. Before running product into the valve, the packing nut must be adjusted.
- D. With air pressure applied to the dispense controller turn the Power Switch, which is located at the back of the 8000D dispense controller ON by flipping the switch from the 0 to I position.
- E. Adjust the Air Pressure Regulator located at the front of the dispense controller to 60 psi.
- F. Press the purge button, located on the front of the robot controller to cycle the valve up and down.
- G. With the valve cycling, tighten or loosen the packing nut with an Allen key until the plunger retracts slowly.
- H. Reset the air pressure to a normal setting of between 80 to 95 psi.
- I. Connect the product supply tubing to the material inlet of the Cylinder Valve Housing (4) using the appropriate fitting.
- J. After filling the tank with product, sealing and applying backpressure to the tank, press the purge button on the robotic controller until product flows into a container.
- K. With the fluid supply on, open the valve by activating the dispense controller and inspect the flow.
- L. The valve is equipped with a Plunger Stroke Adjustment Screw (10), which is located at the top of the cylinder (12). The Plunger Stroke Adjustment Screw (10), limits the backstroke of the Cylinder Valve Plunger (1) for fine tuning of the of the product flow.
- M. Once the adjustment has been made, turn the Plunger Stroke Lock Nut (9) to hold the Plunger Stroke Adjustment Screw (10) at the desired setting.
- N. Repeat these steps prior to dispensing on a daily basis.

6.2.3.4 Needle Valve Leak Test

- A. Ensure the vacuum closure lid of the pressure vessel has been properly sealed.
- B. Apply a back pressure to the of approximately 9 PSI.
- C. Listen for any leakage coming out of the nozzle tip.
- D. If air is leaking out of the nozzle tip, then disconnect the air hose from the cylinder, and unthread the cylinder from the valve housing.
- E. Loosen the Valve Plunger Lock Nut (7) and slightly extend the Cylinder Valve Plunger (1) so that it protrudes an additional 1 mm.
- F. Retighten the Valve Plunger Lock Nut (7).
- G. Reassemble the cylinder and plunger back onto the Cylinder Valve Housing (4).
- H. Re-pressurize the product tank 9 PSI and listen for air leaks from the nozzle tip.
- I. If any leak is heard, repeat steps **D** through to **H** until there no air leakage is heard.
- J. Repeat these steps **A** through to steps **I** until all the needle valve air leaks have been eliminated.
- K. Reconnect all of the air hoses to the cylinder tube fitting.

6.2.3.5 Setting the Nozzle Tip Height

- With the power off, push the Z-Axis upward until it comes to a stop.
- Completely loosen the 1/4-20 x 1.25 Socket Head Cap Screw from the front of the valve clamp.
- Place an empty manual capsule filler base onto the RoboCAP mounting plate.
- Position the nozzle tip over the filler base and close to the left hand side edge so that a measurement can be made between the top surface of the vial holder and the tip.
- Adjust the height of the nozzle tip to the surface top of the RoboCAP mounting base, until you achieve the following measurements: Between 105 to 106 mm
- Retighten the 1/4-20 x 1.25 Socket Head Cap Screw from the front of the valve clamp.
- With the RoboCAP power switched off push the Z-Axis head down until the adjusted nozzle tip touches the top surface of the RoboCAP mounting base.
- If the RoboCAP has two or more dispensing valves, adjust the height of the other nozzle tips so they all touch the top surface of the RoboCAP mounting base, at the same time.

6.2.3.6 Nozzle Tip Horizontal Alignment

- Loosen the three valve holder M5 thread x 16 mm long socket head cap screws.
- Align the left hand side (LHS) of the valve holder edge so that the left hand side edge of the T-Bar and the LHS of the valve holder measures 40 mm.
- Hand tighten the three valve holder M5 thread x 16 mm long socket head cap screws so the valve does not move.
- For RoboCAP system with Two or More valves, align the left hand side (LHS) of the first valve holder edge so that the left hand side edge of the T-Bar and the LHS of the valve holder are flush.
- Align the left hand side (LHS) of the other valve holder edge accordingly.

6.2.3.7 Introducing Product to the System

- Power on the RoboCAP robot by switching on the Power Switch located on the back of the robot.
- Power on the 8000D dispense controller by switching on the Power Switch located on the back of the unit.
- Remove the vacuum closure lid and place aside.
- Fill the product into the 316L stainless steel vessel.
- After filling the tank with product, re-install the vacuum closure lid and re-sealing.
- Adjust the precision air pressure regulator knob until the precision air pressure gauge reads a backpressure in the tank of approximately 4 to 12 PSI
- Place a bulk container underneath the needle valve.
- Press the purge button on the robotic controller until the product begins to flow into a container without it sputtering air. It should dispense a steady stream of product.
- Each valve is equipped with a Plunger Stroke Adjustment Screw (10), located at the top of the cylinder (12). The Plunger Stroke Adjustment Screw (10), limits the backstroke of the Cylinder Valve Plunger (1) for fine tuning of the of the product flow.
- Loosen the Plunger Stroke Lock Nut (9) on both the needle valves, so that the Stroke Adjustment Screw (10) turns freely.
- Adjust the Stroke Adjustment Screw (10) so that the Plunger Stroke Lock Nut (9) has been tightened down, the spacing between the adjustment screw and the lock nut should be measured and documented for future reference.
- Once the adjustment has been made, ensure that the Plunger Stroke Lock Nut (9) has been hand tightened to keep the Plunger Stroke Adjustment Screw (10) from changing its spacing during the production run.

6.2.4 Operating Parameters:

- Connect the compressed dry air system to the product pressure vessel.
- Set the pressure vessel regulator to a range between 10 to 15 psi.
- Power on the Dispense Controller by pressing the Power Switch (8).



- Adjust the air Pressure Regulator so that the Pressure Gauge reads between 80 to 95 psi.



- Setting 8000D Dispense Controller Dispense Time

Note: The fill volume is dependent on the air pressure, the nozzle tip, and the product viscosity.



- On the 8000D digital control panel, press the MODE button until the GREEN TIMER lamp is illuminated.
- Press and release the upward SET button until the appropriate value flashes.
- Press the upward or downward SET button until the appropriate value is achieved.
- Press the left pointing SHOT arrow until the next value flashes.
- Repeat steps until the desired dispense time has been set.
- Press the EXIT / MODE button to exit the TIMER mode.
- Adjust the Suck Back Regulator (4) dial as far clockwise as possible to turn off the vacuum, as suck back is not required with the Needle Valve. Turn it counter clockwise if the application requires a syringe cartridge.
- Verify that the EMERGENCY STOP button, located on the front of the RoboCAP controller, has not been pressed. If it has, twist and pull to release.
- Turn on the RoboCAP RL-300, by pressing the Power Switch located at the back of the robot, Refer to the images above for details. The Power lamp, which is located on the front of the robot controller, should be illuminated.
- At the front of the robot controller, select the program number that you wish to run, typically program "1 through to 99".
- At the front of the robot controller, flip the Teach/Run switch to the Run position.
- The RoboCAP Robotic Liquid Capsule filler is ready to Process Capsules.

Part B: Machine Operation

Read and understand the operation manual prior to operating or servicing this machine. Lockout machine prior to servicing. Failure to follow operating instructions could result in personal injury or damage to the equipment.

6.3 Capsule Orientation and Separation

In order for the capsules to be opened and filled, they must all be positioned (oriented) in the capsule Orienter Base, with the caps up and the bodies down. This process is called rectification and is performed by the Orienter system.

The capsule rectification is shown below:



6.3.1

- Place the Orienter Base onto the Caps Tray in Position
- Align the vertical grooves on the front edge of the Orienter Base with the vertical lines on the Caps Tray.
- Align the front edge of the Orienter Base with the horizontal line "1" on the Caps Tray.
- Place the Orienter Tray onto the Orienter Base.



6.3.2

- Fill Capsule Measuring Bowl for your capsule size and pour capsules onto the Orienter Tray.
- Lift the Orienter Tray and shake it back and forth moving the capsules into the empty slots.



6.3.3

- Tilt the Orienter Tray and press the tab down to lift the gate and pour off any excess capsules.”.
- Visually check filled Orienter and look for 2 capsules
- in a slot, missing capsules, capsules with a double cap, or capsules of incorrect size mixed into the lot.
- Manually replace problem capsules.



6.3.4

- Place the Orienter Tray onto the Orienter Base by sliding into 2 grooves on sides of Orienter Base.



6.3.5

- Push the sliding portion of Orienter Tray to the left to drop capsules into the Caps Tray, filling every third row.
- If a capsule is sitting in the Caps Tray with the cap down, use tweezers push the capsule up from underneath to avoid getting the cap stuck in the Caps Tray hole. Turn the capsule cap up and manually place it into the Caps Tray.



6.3.6

- Repeat steps 2-5.
- Move Orienter Base with Orienter Tray to Position III on Caps Tray.



6.3.7

- Repeat steps 2-5 one last time.



6.3.8

- Pull the Cam Handle toward you to secure the capsule bodies in the Filler Base



6.3.9

- Hold Locking Plate by its 2 handles and place onto Caps Tray.
- The 4 posts of the Caps Tray should enter 4 larger holes in Locking Plate.



6.3.10

- Hold Locking Plate by the handles and twist it clockwise to lock it into place.



6.3.11

- Push down on the Locking Plate handles while pulling up on Locking Plate to separate the capsule caps from the capsule bodies.
- Set aside the Caps Tray with the Locking Plate.
- If you do not achieve separation of the capsule caps from the bodies, pull the Cam Handle another few degrees.
- If some capsules fail to separate, check those capsules to make sure they were not already locked.



6.3.12

- Release the Cam Handle back to the 0o position, allowing the capsule bodies to drop into Filler Base.
- Use the Push Plate to press the capsule bodies level with Filler top sheet.
- Slide the Push Plate off to avoid static.

6.4 Filling Capsules



Figure 6.4.1

- 6.4.2 Once the capsules have been oriented and separated, take the Capsule Filler base and place it onto the four pockets of the RoboCAP mounting fixture, as shown in Fig. 6.4.1 above.
- 6.4.3 Press the green START button, which is located on the front of the RoboCAP control panel, located to the left of the red Emergency Stop button.
- 6.4.4 The robot will manipulate the X, Y and Z-axes to move the dispensing valve directly over the first empty capsule body.
- 6.4.5 The robot sends a ready signal to the dispense controller, therefore sending a pulse of air to the valves, which lifts the Cylinder Valve Plunger off of the Cylinder Valve Plunger Seat. This allows the product to flow, and therefore filling the empty capsule.
- 6.4.6 Once the first fill cycle has been completed, the RoboCAP will move the dispensing valves to the next capsule location in order to continue to fill product into capsules.
- 6.3.7 When the robot steps through, and has filled the last empty capsule on the manual capsule filler base, the Valves and the capsule filler returns to its home position and sits idle, waiting for the next command.



Figure 6.4.11

- 6.4.8 The robot sends a ready signal to the dispense controller, therefore sending a pulse of air to the valves, which lifts the **Cylinder Valve Plunger** off of the **Cylinder Valve Plunger Seat**. This allows the product to flow, and therefore filling the empty capsule.
- 6.4.9 Once the first fill cycle has been completed, the RoboCAP will move the dispensing valves to the next capsule location in order to continue to fill product into capsules.
- 6.4.10 When the robot steps through, and has filled the last empty capsule on the manual capsule filler base, the Valves and the capsule filler returns to its home position and sits idle, waiting for the next command.

6.5 Closing Capsules



6.5.1

- Place the Caps Tray with Locking Plate onto the Filler Base.
- The ProFiller logo should be on the right side up.



6.5.2

- With the palms of your hands press down on the clear Locking Plate while pulling up on the Lifting Plate to reassemble the capsules.



6.5.3

- Repeat step 6.5.2 with your hands positioned in opposite corners as shown.
- Repeat for the other 2 corners.
- **Caps and bodies are now re-assembled, but are not fully locked.**

- 6.5.4 The operator removes the filled and re-assembled Capsules, and moves it to the work area and places them on to the work bench.
- 6.5.5 While the RoboCAP was filling the first manual capsule filler, the operator moves back to the workbench, and begins to orient a second capsule tray. This is done to increase the system's output capacity.
- 6.5.6 The operator picks up the second capsule tray, and places it on the capsule filler base for separation of the capsule bodies and caps.
- 6.5.7 For capsule separation, repeat steps 6.3.9 to 6.3.14.
- 6.5.8 The operator repeats steps 6.4.2 and 6.4.3 to start the filling process.
- 6.5.9 The operator moves back to the filled capsules on the workbench.

Lock Ring

Cap

Body



6.5.9

- There are three stages of capsules in the locking process:
- **Filled:** The capsule bodies have not entered the caps.
- **Re-assembled:** The capsule bodies have pushed to the lock ring of the cap.
- **Locked:** The lock ring on the body enters the matching lock ring on the cap.



6.5.10

- Take the re-assembled Caps Tray with Locking Plate and turn them over onto the table.
- Use the Capsule Locking Block to lock the capsules..
- Apply pressure with both hands until you feel the capsules snap and lock.
- The holes in the Caps Tray help to guide the Capsules into the locked position.



6.5.11

- Flip the Caps Tray over.
- Rotate the Locking Plate counterclockwise and remove it from the Caps Tray.



6.5.12

- Turn over the Caps Tray into a capsule bin and use Push Plate to eject capsules.
- Capsules are now ready for packaging.

Part C: Capsule Size Change Over

6.6 Change Parts

- When changing to a new capsule size, several components of your Filler and your Orienter must be changed. The grid below shows the size- specific capsule parts. A check mark indicates the part must be changed whenever the capsule size is changed.



Size Changeover Table

Instructions x-ref	Part	Available Sizes / Size Range											
		000	00el	00	0	0el	1	1el	2	2el	3	4	
A	Change Part Set	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
B	Tamper (Optional)	✓	✓	✓	—————				—————			—————	
C	Orienter Base	✓	✓	—————									—————
D	Locking Plate	✓	✓	—————									—————

A solid bar indicates the part must be changed only when moving outside the size range indicated.

- Use the correct Capsule Measuring Bowl for your capsule size. Size ranges available are 00, 0-1, 2-3, all shipped with your original system. There are no size 000, 4, or EI size Measuring Bowls.

Orienter Tray / Orienter Base



6.6.1

- Lift Orienter the Tray out of the locating holes.
- Remove it and set it aside.





6.6.2

- If changing Orientor Base, use new base here.
- Refer to the Size Marking on the Orientor Base for size verification.



6.6.3

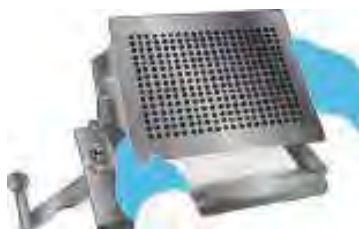
- Position the new Orientor Tray so that the 4 locating pins align with locating holes on the Base and slide it into place.

Body Sheet Set and Spacer Plate



6.6.4

- Set the Cam Handle to 0°.
- Unscrew the 4 thumbscrews from the corners of the Filler Base and lay them aside.



6.6.5

- Lift the Body Sheet Set and remove them from the Filler Base.



6.6.6

- Lift out the clear Spacer Plate and replace it with the correct size Spacer Plate.

License Type: Processor



6.6.7

- With the Cam Handle at 0o, position the new size Body Sheet Set (BSS) on the Filler Base, cam bush on cam side.
- If the BSS does not immediately fit onto the Filler, pull the 2 sheets apart slightly until BSS sits properly on the cam and in the locating holes.



6.6.8

- Secure the BSS with the four thumbscrews.



Volumetric Setup

Chapter 1: Initial Setup

1.1 Volumetric Filling Nozzle



- Insert 3 way check valve into syringe.



- Ensure the plunger and rim of syringe line up properly with the holders.
- Be careful when inserting the syringe.



- Insert the cover on the nozzle tip.
- Apply thumb screws.



- Insert the cover on the rim of the syringe.
- Apply thumb screws.



- Apply the product tubing nipple on to the product in check valve port.
- Insert the needle nose tip into the luer lock tip.



- Push spring return cylinder down and lock set screw.



- Attach the volumetric dispense nozzle to the T-bar on your robocap.
- Refer to Chapter 6 in your owners manual for the measurement from LHS of T-bar to LHS of nozzle holder.



- Connect the air our tubing from 8000D to legris elbow on volumetric dispense nozzle.



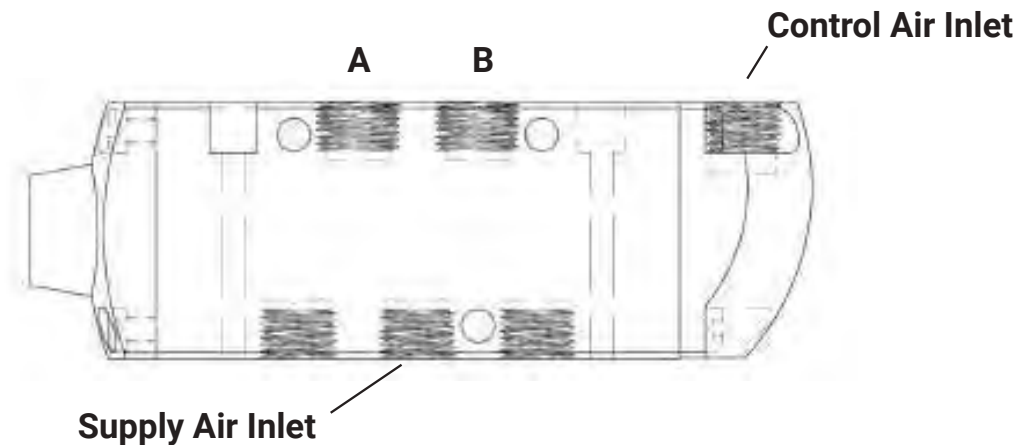


- Connect product tubing to tefflon product tubing nipple.
- Apply heated coils so most of the 3 way check valve is covered.

1.2 Volumetric Filler Deluxe (VFD) Nozzle: Air Connections

The VFD nozzle assembly procedure is the same as that of the Volumetric Filling Nozzle, outlined above in section 1.1, except when connecting air. The VFD nozzle utilizes a Double Acting Air Control Valve, which is connected as shown below:

- From the front of the dispense controller, connect an air hose to the air outlet, and connect the other end to the Control Air Inlet of the Double Acting Air Control Valve, as shown below



- Connect the air supply to the "Supply Air Inlet" of the Double Acting Air Control Valve.
- Connect port "A" to the air inlet at the top of the pneumatic cylinder. Depending on how many nozzles are used, this connection can be split to each nozzle.
- Connect port "B" to the air inlet at the bottom of the pneumatic cylinder. Depending on how many nozzles are used, this connection can be split to each nozzle.

Chapter 2: Cleaning

2.1 Purpose

Proper cleaning of your Filler will significantly increase its useful life. Follow these cleaning guidelines to maximize the life of your system.

- After each day of use, purge all excess product into container.
- Disassemble pressure vessel and clean using ethanol cleaner and hot water.
- Pour hot water in the vessel, pressurize, and purge hot water through the dispense nozzle to clean all product contact parts.
- Depressurize, disassemble the pressure vessel, and pour a light ethanol cleaner into the vessel.
- Pressurize the vessel and purge ethanol cleaner through the dispense nozzle to clean all product contact parts.
- Disassemble the pressure vessel wipe down any water and alcohol spots. Let sit to dry.
- Select a syringe cleaning agent depending on the contaminating material. Methanol, methylene chloride, acetonitrile and acetone are commonly used solvents for cleaning.
- Draw up & dispense the cleaning solvent 5 to 20 times using the full capacity of the syringe to thoroughly clean a syringe.
- Depending on the exact nature of the contaminating material, it may be necessary to repeat this process with more than one type of solvent (non-polar, medium polarity, & high polarity solvents).
- After the syringe has been cleaned, rinse the syringe with acetone, remove plunger and air dry. Clean externally by wiping with a lint-free tissue/towel.

Note:

- Do not immerse the entire syringe in solvent as this may damage the adhesive used to bond parts of the syringe.
- Plunger lifetime is dependent on the operating conditions. Factors like using high viscosity fluids, elevated operating pressures and temperatures, and high dispense and aspirate speeds will reduce plunger lifetime.
- For assistance in determining the appropriate plunger or syringe lifetime for your specific application, contact your ATG Pharma representative.
- Plunger replacements can be ordered through your ATG Pharma representative.

2.2 Checking Cycles and Points of RoboCAP

Weekly

- Tilt or Deviation of Machine
- Status of Cables and Hoses
- Appearance
- Stability on the Work Bench
- Motor Running Condition

Every 3 Months

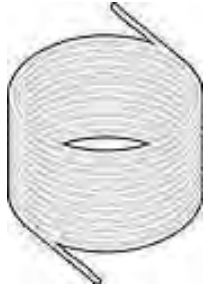
- Motions, Connections and Joints
- Unfastened Loose Bolts and Screws
- Internal Wires and Connectors
- Accuracy and Precision
- Ball and Screw Assembly, LM Guide, Slide Guide

Every 2 Years

- Tilt or Deviation of Machine
- Status of Cables and Hoses
- Appearance
- Stability on the Work Bench
- Motor Running Condition



Chapter 3: Spare Parts



PTFEN Tubing

(Product Number #310001)

Recommended Quantity - 50 ft



3-way check valve

(Product Number N/A)

Recommended Quantity - 2



Needle Tips

(Product Number #410020)

Recommended Quantity - 1



Syringe

Product Number N/A

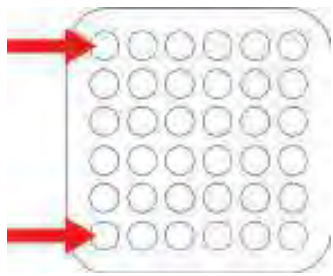
Recommended Quantity - 1

Any extra spare parts can be
purchased online at
atgpharma.com



Chapter 4: Appendix

How to Make a Program

- Turn the RoboCAP on.
- Plug in your **teach pendant** unit into the front port labeled "TEACH PENDANT".
- Ensure the RoboCAP is in **TEACH** mode.
- Press **HOME** on the **teach pendant**.
- Address 1:** Press **F4**.
Locate **Point Dispense Set-up** and press **ENTER**.
(THIS IS WHAT SHOULD APPEAR)
Dispense Time: *Desired dispense time
Tail Time: ALWAYS 0.05
- Once complete, Press **ENTER**.
- Address 2:** Press **F4**.
Locate **Z-Clearance** and press **ENTER**.
(THIS IS WHAT SHOULD APPEAR)
1: **ABSOLUTE**
2: **RELATIVE**
Select: __
- Press **2** to choose **RELATIVE**.
(THIS IS WHAT SHOULD APPEAR)
Relative: __
Press: **5**
Press **ENTER**.
- Address 3:** Use the **X,Y** and **Z** keys located at the top of the **teach pendant** to locate the dispense nozzle to the bottom left or top left position on the tray.

- If you have more than 1 dispense nozzle, ensure that the dispense nozzle that is flush with the left hand side of the T-bar is positioned on the top or bottom left pocket.
- Once you have positioned the dispense nozzle Press **ENTER**.
- Dispense Dot** should be the first option that pops up. Press **ENTER**.
- Address 4:** Press **F1**. Use the **white** right arrow keys located at the top of the **teach pendant** to go to page 2. Locate **Step & Repeat** and press **ENTER**.
(THIS SHOULD APPEAR)
1.X 2.Y _ PRESS **1** THEN **ENTER**.
Start Position: PRESS **1** THEN **ENTER**.
Columns (X): Enter in the number of pockets on the X axis divided by the amount of dispense nozzles. Press **ENTER**.
Rows (Y): Enter in the number of pockets on the Y axis. Press **ENTER**.

OFFSET

X: Should be labeled on the front of the tray.

Press **ENTER**.

Y: Should be labeled on the front of the tray.

Press **ENTER**.

1. S Path

2. N Path

Select: __ (Press **1** for S path).

- Address 5:** Press **F1**. Use the **white** left arrow key located at the top of the **teach pendant** to go to page 1. Located **End Program** and press **ENTER**.

- You have now successfully made a program.

Chapter 5: Routine Operation

Part A: Machine Preparation

NOTE: Read and understand the operation manual prior to operating or servicing this machine. Lockout machine prior to servicing. Failure to follow operating instructions could result in personal injury or damage to the equipment.

6.2 Electrical and Pneumatic Connections



Electrical Connections

Connect the power cord to the back of the RL-300 into the Power Inlet and then to a power supply. Be sure to use the correct power cord and power source for the robot model you are using (110V or 220V).

Connect the Dispense Controller communication cable first to the back of the Dispense Controller's Foot Switch port and then to the back of the RoboCAP's Dispenser port. Put back the covers and screw in the bolts.

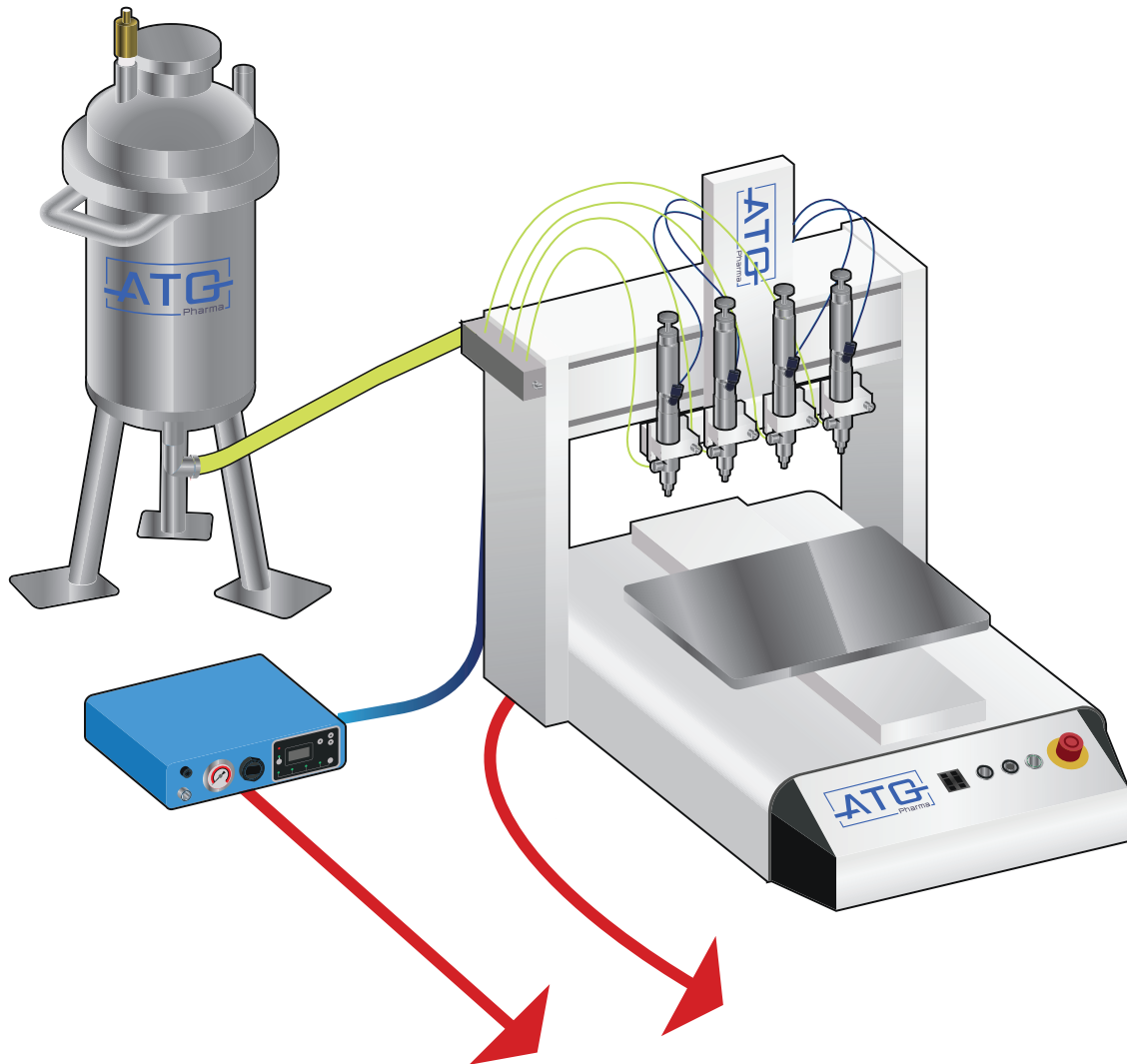


Connect the power cord to the back of the Dispense Controller and then to a power supply.

Tie back all cables and air lines so that they will not interfere with the robot's motion when the robot is operating. Ensure cables are routed through the linear cable management system. Be sure that the cables and air lines do not restrict the motion of the robot's head and the robot's table and make sure that they cannot become jammed as the robot moves through the work area.

Electrical and Pneumatic Connections Diagram

Power Outlet Connections are made to the RoboCAP and the dispense controller.



Connections Index:

Pneumatic: ■ Electrical: ■ Product: ■



Pneumatic Connections

- Connect an air hose from a compressed dry air system to the pressure vessel filter/regulator inlet.
- Connect an air hose from a compressed dry air system to the male quick connector, located on the back of the dispense controller.
- From the front of the dispense controller, connect an air hose to the air outlet, and connect the air supply to the 1/8" NPT side inlet of the air cylinder.
- Once the Dispensing Needle Valve has been set-up, refer to procedure in section 2.3.1 for details, connect the product hose after completing step 2.3.1.7



Preparation of Liquid Filling Systems:

Assembly of 316L Product Pressure Vessel

- There are 3 ports on the top of the Pressure Vessel. First port is allocated for the **Pressure Relief Valve**. The
- Second port is allocated for the **Push-in Fitting for Air Tubing**. The third port with the stainless steel elbow attached is allocated for the **Pressure Gauge**.
- Thread the Pressure Gauge onto the Stainless-Steel elbow located on the top of the Pressure Vessel.
- Ensure that the Point of Use Air Filter is mounted on the back of the RoboCAP.
- Install the air tubing into the Push-in fitting located at the top of the Pressure vessel.
- Install the other end of that air tubing into the Push-in fitting located at the end of the Point of Air Use Filter.
- Install a food grade product tubing into the Push-in fitting located at the bottom of the Pressure Vessel tank.
- Unscrew the larger Tri-clamp and lift off the top of the Pressure Vessel to pour product in.
- Reinstall the lid, ensuring of proper alignment and that it is clamped shut tightly. You may need to use a wrench to tighten both Tri-clamps to ensure that there is no air leakage.



1. Pressure Relief Valve
2. Tri-Clamp
3. Push-In Fitting for Air Tubing
4. Larger Tri-Clamp
5. Push-In Fitting for Product Tubing



WARNING

Be aware, **DO NOT OVERTIGHTEN THE TRI_CLAMP.**

ATG is not responsible for overtightened and damaged Tri-Clamps.

Set-up of Dispensing Needle Valve:

- With air pressure applied to the dispense controller turn the Power Switch, which is located at the back of the 8000D dispense controller ON by flipping the switch from the 0 to I position.
- Adjust the Air Pressure Regulator located at the front of the dispense controller between 75 psi- 85 psi.
- Press the purge button, located on the front of the robot controller to cycle the plunger up and down.
- After filling the tank with product, sealing and applying backpressure to the tank, press the purge button on the robotic controller until product fills into the syringe and dispense the desired amount.
- Repeat steps prior to dispensing on a **daily basis**.

Needle Valve Leak Test

- Ensure the vacuum closure lid of the pressure vessel has been properly sealed.
- Apply a back pressure into the pressure vessel to a MAXIMUM pressure reading of 2.5 PSI.
- Listen for any leakage coming out of the nozzle tip.

Operating Parameters:

- Connect the compressed dry air system to the product pressure vessel.
- Set the pressure vessel regulator to a range between 10 to 15 psi.
- Power on the Dispense Controller by pressing the Power Switch (8).



- Adjust the air Pressure Regulator so that the Pressure Gauge reads between 80 to 95 psi.



- Setting 8000D Dispense Controller Dispense Time

Note: The fill volume is dependent on the air pressure, the nozzle tip, and the product viscosity.



- On the 8000D digital control panel, press the MODE button until the GREEN TIMER lamp is illuminated.
- Press and release the upward SET button until the appropriate value flashes.
- Press the upward or downward SET button until the appropriate value is achieved.
- Press the left pointing SHOT arrow until the next value flashes.
- Repeat steps until the desired dispense time has been set.
- Press the EXIT / MODE button to exit the TIMER mode.
- Adjust the Suck Back Regulator (4) dial as far clockwise as possible to turn off the vacuum, as suck back is not required with the Needle Valve. Turn it counter clockwise if the application requires a syringe cartridge.
- Verify that the EMERGENCY STOP button, located on the front of the RoboCAP controller, has not been pressed. If it has, twist and pull to release.
- Turn on the RoboCAP RL-300, by pressing the Power Switch located at the back of the robot, Refer to the images above for details. The Power lamp, which is located on the front of the robot controller, should be illuminated.
- At the front of the robot controller, select the program number that you wish to run, typically program "1 through to 99".
- At the front of the robot controller, flip the Teach/Run switch to the Run position.
- The RoboCAP Robotic Liquid Capsule filler is ready to Process Capsules.

Part B: Machine Operation

- Allow the heated blanket and heated coil heat up to the desired temperature. Let sit for 10-15min.
- Pre heat product to desired heat and pour into heated vessel.
- Seal vessel and pressurize to a MAXIMUM of 2.5PSI.
- Pressurize the 8000D unit between 75-85PSI.
- Set your 8000D dispense time to the amount of time it takes to fill the desired amount in the syringe. You may need to adjust the time with regards to the viscosity of product.
- Press the SHOT button on the 8000D unit and manually fill test cups or products until satisfied with fill volume.
- Once dispense time has been set, ensure your RoboCAP dispense time is a full 1 second longer to ensure there is no dispensing in-between products.
- Turn off 8000D unit and press start to let the RoboCAP go through a dry run.
- Once all points of filling are confirmed. You may turn the 8000D on and commence filling.



Heating System & Mixer Section

Chapter 1: System Parts

Heating System Parts



WARNING

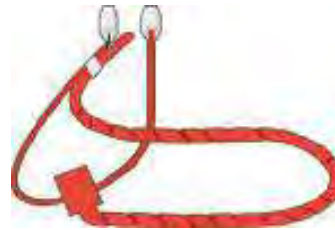
Be aware, **DO NOT TOUCH THE HEATED LINES OR JACKET.**

The lines and jacket heat up very quickly once plugged in and can cause severe burns.



Heated Jacket

Quantity - 1



Heated Line Stretch Coils

Quantity - 1

Recommended Spare Part Qty: 2



Temperature Controller

Quantity - 2



Polymide Tape (Heat Resistant Tape)

Quantity - 1

Recommended Spare Part Qty: 2



Thermometer Gauge

Quantity - 1



Power Cord

Quantity - 2

Heating System Parts Continued



Dual ThermoCouple

Quantity - 1



Single ThermoCouple

Quantity - 1

Mixer System Parts



Product Mixer

Quantity - 1



Packing Seal

Quantity - 1



Propeller

Quantity - 1



Propeller Rods

Quantity - 1



Locking Key

Quantity - 1



Chapter 2: Setup & Operation

2.1 Heated Jacket Set-Up



Figure 1

2.1.1

- Wrap the heated jacket around the pressure vessel. As shown in Figure 1.

Heated Jacket Electrical Specs

Jacket (Tank) Size	Volts	Watts	BTUs
1 Litre	120	275	938.33
1 Gallon	120	315	1074.82
3 Gallon	120	720	2456.74
5 Gallon	120	1100	3753.35
10 Gallon	120	1500	5118.21
Heated Coils	Volts	Watts	BTUs
One Size	120	47	160.37



WARNING

Do NOT use the heated jacket to heat your product. Pre-heat your product prior to pouring it into the pressure vessel.

2.1.2

- Review Figure 2, below, for the electrical connections required on the temperature control box.

1. Thermocouple

(inputs 1 & 2)

2. Power Connection

(Output 1)



Figure 2





2.1.3

- Plug the power cord into the power cord outlet labeled OUTPUT 1. Refer to Figure 3.

Note Temperature controller uses 15 A @ 120 VAC

Figure 3

2.1.4

- Plug the white male dead plug from the power cord into the white female dead plug from the heated jacket. Refer to Figure 4 & 5.



Figure 4 - Female and Male Dead Plug



Figure 5 - Connection of Both

2.1.5

- Plug the single thermocouple into outlet labeled INPUT 1 located on the back of the temperature control box. Refer to Figure 6.

2.1.6

- Ensure to insert the other end of the single thermocouple underneath the heated jacket. This will ensure that the single thermocouple will get an accurate temperature reading. Monitor the single thermocouple and always make sure that it is underneath the heated jacket. Refer to Figure 7 & 8.



Figure 6



Figure 7



Figure 8

2.1.7

- Plug the thermocouple from the heated jacket into the outlet labeled INPUT 2. Refer to Figure 9.



Figure 9

2.1.8

- Turn the temperature control box on by pressing the on switch located on the front of the temperature control box. Once the temperature control box is on heat will start to transfer to the heated jacket.

2.1.9

- Ensure that the heated jacket is on by touching the side of the jacket. Be careful as the heat will start to rise instantly.

2.1.10

- The temperature control box control panels will both illuminate. The temperature control box will load through a few settings before returning to its home screen. This process should take 7-8 seconds.

Refer to Figure 10 & 11.



Figure 10



Figure 11

2.1.11

- Once the control board has returned to the home screen on both CONTROLLER 1 and CONTROLLER 2 you can now set the desired temperature for your heated jacket.

2.1.12

- Use the up and down arrows from the CONTROLLER 1 control panel to adjust the set temperature. The green value is your set value, the red value is your present value. Set your set value to the desired temperature, you will notice that the present value will start to climb up to the set value.

2.1.13

- To ensure that there is no overheating, set the limit control value on CONTROLLER 2 at about 20-30 degrees higher than the temperature setting on CONTROLLER 1. To change the value press the scroll key located on the bottom left-hand side of CONTROLLER 2 control panel and use the up and down arrows to increase or decrease. Refer to Figure 12.

1. Present Value (PV)
2. Set Value (SV)
3. Scroll Key
4. Reset Button
5. Scroll Key
6. Limit Control Value
7. Power Switch



Figure 12

2.2 Heated Coils Set-Up

2.2.1

- Using the Polyimide heat resistant tape, tape the end of the dual thermocouple to the push-in fitting on the dispense nozzle. Run the dual thermocouple along the product tubing all the way to the bottom of the pressure vessel tank. Make sure that the dual thermocouple is intertwined with the product tubing. Start to wrap the stretch coils around the product tubing and dual thermocouple. Make sure you stretch the stretch coil has enough length to wrap around the dispense nozzle tip. Use the Polyimide heat resistant tape to hold the stretch coils around the dispense nozzle. Refer to Figures 1, 2, 3 & 4.



Figure 1



Figure 2



WARNING

Be aware, **DO NOT PULL OR STRAIN THE HEATED LINES.**

The lines are very delicate and can be damaged if they are pulled or twisted hard.





Figure 3



Figure 4

2.2.2

- Place the second temperature control box on top of the first temperature control box. Refer to Figure 5.



Figure 5

2.2.3

- Plug the power cord into the power cord outlet labeled OUTPUT 1. Refer to Figure 6.



Figure 6

2.2.4

- Plug the dual thermocouple that runs along the product tubing, into the outlets on the back of the temperature control box labeled INPUT 1 and INPUT 2. Refer to Figure 7.



Figure 7

2.2.5

- Plug the white male dead plug from the power cord into the white female dead plug from the stretch coils. Refer to Figure 9.

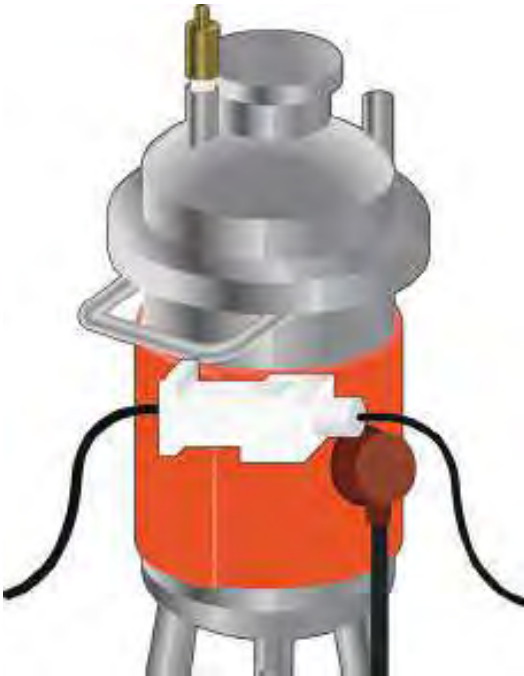


Figure 9

2.2.6

- Refer to steps 2.1.7 – 2.1.12 to set the desired temperature for the stretch coils. It is ideal that the temperature of the stretch coils is set relatively higher than the heated jacket. This may vary with different viscosities of products. You may need to do your own internal testing.

2.3 Product Mixer Set-Up

2.3.1

- Insert the 12' rod into the hole on the bottom of the product mixer. The rod can go all the way through and out the top of the product mixer. You may need to adjust the height of the rod according to the size pressure vessel. Ensure that the rod will not come into contact with the thermometer inside the pressure vessel.



2.3.2

- Once you have found the appropriate height, use the locking key to lock the rod. Insert the locking key into the hole at the base of the rod insert and ensure that the teeth on the locking key line up with the teeth on the base of the rod insert. Turn clockwise. Refer to Figure 1.



Figure 1

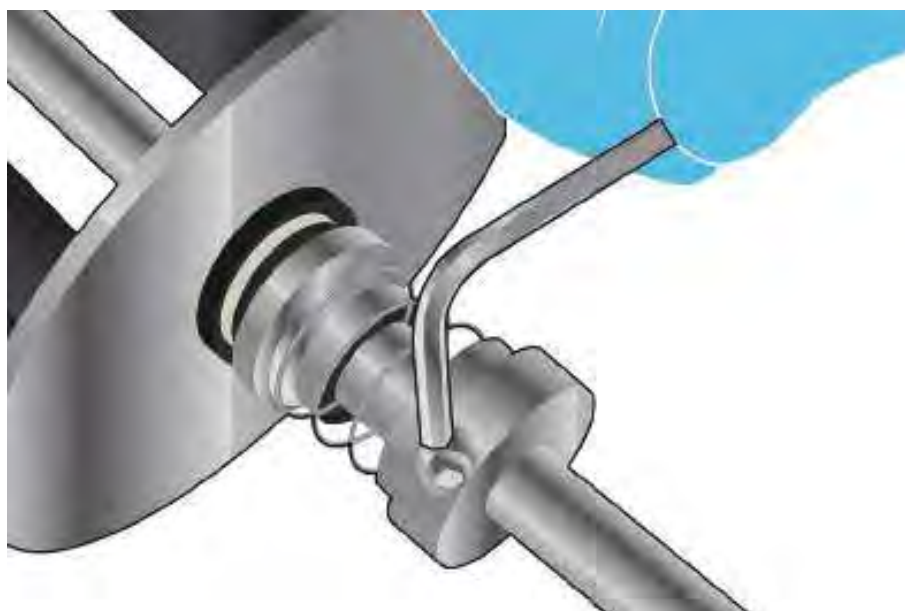
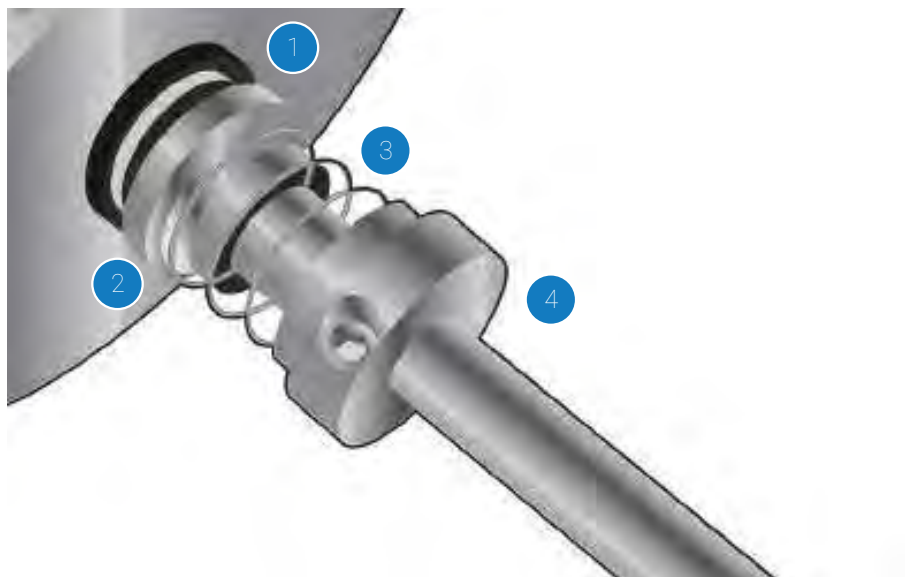
2.3.3

- Once the rod is locked into place, put the packing seal components on the rod. The order of the packing seal is listed below. Once the parts are in this order and have been pushed all the way to the plate, push the locking ring all the way up so that it flattens the spring, then lock the locking ring so it stays. This will ensure that there will be no air leaks when the mixer is on the pressure vessel.

Figure 2

1. Black plug with teflon gasket
2. Black gasket with steel ring
3. Spring
4. Locking Ring

Allen key size is 7/64"



WARNING

Be aware, **DO NOT OVERTIGHTEN THE PAC-SEAL.**

ATG is not responsible for overtightened and damaged Pac-Seals.

2.3.4

- Attach the propeller to the tip of the rod. Ensure that the set screw on the propeller is tightened so that the propeller will not fall off when circulating inside the pressure vessel.

Refer to Figure 3.



Figure 3

2.3.5

- Insert the product mixer into the top of the pressure vessel. Ensure that the rod is long enough so that the propeller can come into contact with the product inside the pressure vessel. You may need to adjust the height of the rod. When you have found the appropriate length attach the tri-clamp around the plate of the product mixer and the rim of the pressure vessel so that the product mixer will not fall off the pressure vessel when moving. Ensure that the white teflon gasket is in between the plate on the product mixer and the rim of the pressure vessel.

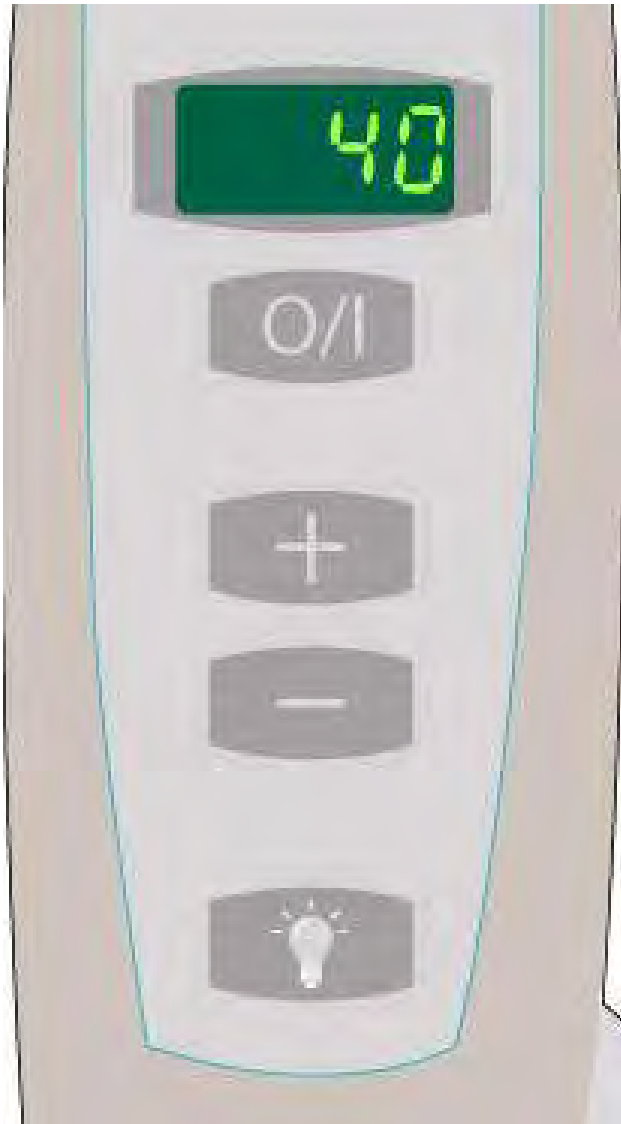


2.4 Operation of the Product Mixer

2.4.1

- Operating Parameters

1. Display Screen
2. Increase RPM
3. Decrease RPM
4. Power Button
5. Light button??



2.4.2

- Once you have secured the product mixer onto the pressure vessel, you can now plug the power cord into a wall outlet.

2.4.3

- Press the power button. The display screen and control panel will illuminate. The display screen will show the value of 17 RPM. This is the slowest value that the mixer will move at. Refer to Figure 1.

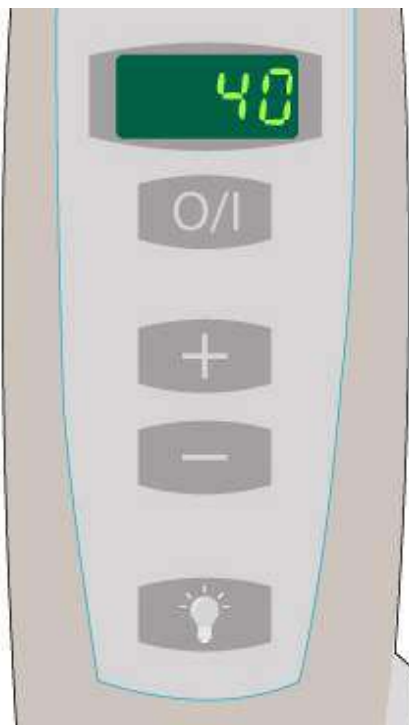


Figure 1

2.4.4

- Press the play/pause button. The product mixer will start to spin.

2.4.5

- To increase the speed of the product mixer press the increase RPM button.

2.4.6

- To decrease the speed of the product mixer press the decrease RPM button.

2.4.7

- Once you have found the appropriate speed make sure to document all parameters.



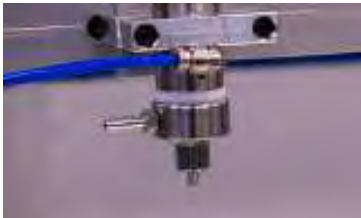
Diaphragm Valve

Chapter 1: Initial Setup

Valve Connections



- Connect the 6mm fluid supply line to the pressurized product vessel to the valve.



- Mount the Diaphragm Valve to the RoboCAP using the v-block clamps. Position the clamps such that they sit above the control air line. Fully tighten the 8-32 hardware to secure the valve in place.

Air Control Connection for the HP Option



- Connect the 4mm air control hose from the push-in fitting on the diaphragm valve to the 4mm air conduit on the air enclosure.
- Connect the power cable to the power receptacle.
- Connect RoboCAP to the air enclosure via the 3-Pin Communication cable.



- Connect the air supply to the filter regulator unit on the side of the air enclosure.
- Ensure the 6mm Air Inlet is connected to the filter regulator on the side of the enclosure.

Air Control Connections for LP



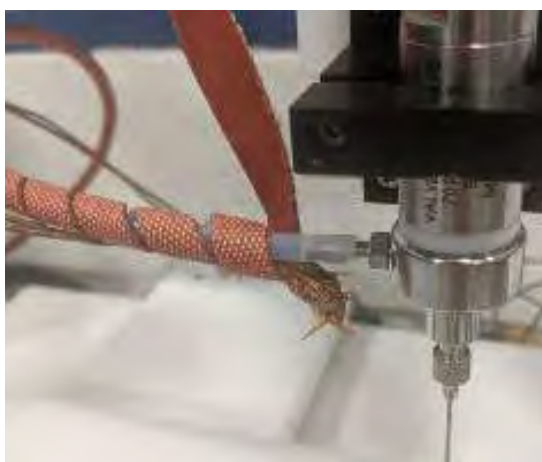
- Connect the 4mm air tubing from the valve to the quick connect air outlet port at the front of the 8000D. Since the air outlet of the 8000D is 6mm, a 4mm to 6mm push-in adapter is required for this connection.
- Connect pressurized supply air to push-in fitting at the back of the 8000D as shown.

Attaching the Dispensing Tip



- Unscrew the retaining nut and press the Luer fit dispensing tip onto the outlet of the diaphragm valve.
- Once attached, slide the retaining nut over the tip and tighten onto the diaphragm valve.

Heating the Diaphragm Valve



- Apply the heated stretch coils around the entire bottom portion of the diaphragm, and the entire length of the product tubing, placing the thermocouple near the fluid inlet as shown.

Chapter 2: Cleaning

2.1 Purpose

Valve wetted parts are made of 316L stainless steel and PTFE, making them suitable for CIP (Clean-In-Place) and SIP (Sterilize-In-Place) processes.

Valve Disassembly



- Remove the two retainer screws.
- Back out stroke control two turns counter clockwise from the closed position.
- Remove fluid body.
- Unscrew diaphragm (counterclockwise) and remove it from the piston rod.
- Unscrew the fluid inlet fitting and carefully remove the PTFE O-ring

Valve Cleaning

Wash all contact parts with an alcohol-based solution or a soft detergent. Ensure the cleaning product does not deteriorate the material being cleaned.

- Use cloth and isopropyl alcohol to remove product from flat parts.
- Remove all parts from solution and rinse with purified water so that all residual product and cleaning solution is removed.
- Wipe with clean lint free cloth and allow to dry.
- You can use alcohol to speed drying on all parts.
- To clean the wetted path of the Fluid Body, use a soft bristle brush and hot water to remove any product, sterilize, then flush with purified water.

Valve Re-assembly

- Thread on the diaphragm and tighten slowly until diaphragm bottoms against piston shaft.
- Align the holes of the diaphragm with the appropriate holes in the air cylinder body by inserting a flat tip screwdriver through the hole in the stroke control and engage piston rod slot.
- Rotate rod, piston and diaphragm assembly clockwise until holes are aligned.
- Reinstall the fluid body, align fluid body holes with diaphragm and air cylinder body holes and reinsert retainer screws. Torque to 1.58 Nm (14 inch pounds).

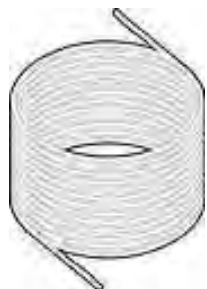


Cleaning of Product Tank and Valve

- Release the air pressure from the tank through the pressure relief valve.
- Disconnect the product line from the tank.
- Place the loose end of the product line in a container and allow to drain.
- Disconnect the product lines from the valves.
- Place the loose end of the product line in a container and allow to drain.
- Disconnect cylinders from the valve and put aside.
- Remove all contact parts from the robot and place aside for cleaning.
- Disassemble the contact parts.
- Follow the weekly cleaning methods as identified on **Page 49**



Chapter 3: Spare Parts



PTFEN Tubing

Product Number #310001

Recommended Quantity - 50 ft



PTFE Diaphragm

Product Number: 200277

Recommended Quantity - 1



Needle Tips

Product Number #410020

Recommended Quantity - 1



PTFE O-Rings

Product Number: 200276

Recommended Quantity - 1

Any extra spare parts can be
purchased online at
atgpharma.com



Chapter 4: Appendix

How to Make a Program

1. Turn the RoboCAP on.
2. Plug in your **teach pendant** unit into the front port labeled "TEACH PENDANT".
3. Ensure the RoboCAP is in **TEACH** mode.
4. Press **HOME** on the **teach pendant**.

5. Address 1: Press **F4**.
 Locate **Point Dispense Set-up** and press **ENTER**.

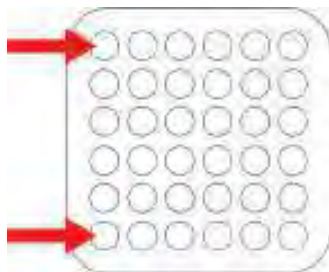
(THIS IS WHAT SHOULD APPEAR)
Dispense Time: *Desired dispense time
Tail Time: ALWAYS 0.05

6. Once complete, Press **ENTER**.
7. **Address 2:** Press **F4**.
 Locate **Z-Clearance** and press **ENTER**.

(THIS IS WHAT SHOULD APPEAR)
 1: ABSOLUTE
 2: RELATIVE
 Select: __

8. Press **2** to choose **RELATIVE**.
 (THIS IS WHAT SHOULD APPEAR)
 Relative: __
 Press: **5**
 Press **ENTER**.

9. **Address 3:** Use the **X,Y** and **Z** keys located at the top of the **teach pendant** to locate the dispense nozzle to the bottom left or top left position on the tray.



10. If you have more than 1 dispense nozzle, ensure that the dispense nozzle that is flush with the left hand side of the T-bar is positioned on the top or bottom left pocket.

11. Once you have positioned the dispense nozzle Press **ENTER**.

12. **Dispense Dot** should be the first option that pops up. Press **ENTER**.

13. **Address 4:** Press **F1**. Use the **white** right arrow keys located at the top of the **teach pendant** to go to page 2. Locate **Step & Repeat** and press **ENTER**.
 (THIS SHOULD APPEAR)

1.X2.Y _ PRESS **1** THEN **ENTER**.
Start Position: PRESS **1** THEN **ENTER**.
Columns (X): Enter in the number of pockets

on the **X** axis divided by the amount of dispense nozzles. Press **ENTER**.
Rows (Y): Enter in the number of pockets on the **Y** axis. Press **ENTER**.

OFFSET
 X: Should be labeled on the front of the tray.
 Press **ENTER**.

Y: Should be labeled on the front of the tray.
 Press **ENTER**.

1. S Path
 2. N Path
 Select: __ (Press **1** for S path).

14. **Address 5:** Press **F1**. Use the **white** left arrow key located at the top of the **teach pendant** to go to page 1. Located **End Program** and press **ENTER**.

15. You have now successfully made a program.



Chapter 5: Routine Operation

NOTE: Read and understand the operation manual prior to operating or servicing this machine. Lockout machine prior to servicing. Failure to follow operating instructions could result in personal injury or damage to the equipment.

Please refer to Section 6.2 for Electrical and Pneumatic connections for the 316L Product Pressure Vessel, 800D Air Controller (LP option only), and Filter/Regulator unit.

LP Diaphragm Valve Setup



- With air pressure applied to the dispense controller turn the Power Switch, which is located at the back of the 8000D dispense controller ON by flipping the switch from the 0 to I position.
- Adjust the Air Pressure Regulator located at the front of the dispense controller between 80psi – 90psi
- Open the valve by inserting the stroke adjustment key into the top of the diaphragm valve. Turn the key 180 degrees counter-clockwise from its closed position.
- Press the purge button, located on the front of the robot controller to cycle the valve open and closed.
- After filling the tank with product, sealing and applying backpressure to the tank, press the purge button on the robotic controller until product flows from the valve
- Repeat steps prior to dispensing on a daily basis.

LP Diaphragm Valve Deposit Calibration

- On the 8000D digital control panel, press the MODE button until the green TIMER lamp is illuminated.
- Press and release the upward SET button until the appropriate value flashes.
- Press the upward or downward SET button until the appropriate value is achieved.
- Press the left pointing SHOT arrow until the next value flashes.
- Repeat steps until the desired dispense time has been set.
 - » Once the correct time value has been determined via iterative shot weights, keep the unit in TIMER mode while operating.
- Press the EXIT / MODE button to exit the TIMER mode.

HP Diaphragm Valve Setup



- With the air pressure turned to 80psi – 90psi, switch the power on at the rear of the air controller
- Open the valve by inserting the stroke adjustment key into the top of the diaphragm valve. Turn the key 180 degrees counter-clockwise from its closed position.
- Press the MODE button to switch dispense mode to PURGE.
- After filling the tank with product, sealing and applying backpressure to the tank, press the purge button until product flows from the valve.
- Press the CYCLE button on the ValveMate Air controller to cycle the valve open and closed.
- Repeat steps prior to dispensing on a daily basis.

HP Diaphragm Valve Deposit Calibration

- On the ValveMate digital control panel, press the MODE button until the SETUP lamp is illuminated.
- Press the upward or downward arrow buttons until the appropriate value is achieved.
- Press the CYCLE button and weigh the deposit mass.
- Repeat steps until the desired dispense time has been set.
- Press the EXIT / MODE button to exit the TIMER mode.

Warranty and Index

Purchase Terms and Conditions

1. Corporate Structure

All orders will be invoiced and paid directly to Advanced Integrated Robotics Inc., which is the sales arm of ATG Pharma Inc. All warranties are issued and covered by ATG Pharma Inc.

2. Payment

50% deposit (Check / Wire Transfer) with Purchase Order.

50% balance due prior to delivery and release shipping documents

*Credit Card Payment Accepted (3% Fees) – MasterCard and Visa ONLY

3. Validity

60 Days from quotation date

4. Set-Up and Training

Option 1: Free on-site training @ ATG Pharma HQ

Option 2: Off-site training - \$800/day, plus travel expenses (travel costs, accommodations, meals, and local transportation)

Average Training: 1-2 days

Option 4: Skype Video Call - \$100/hr

We also offer in-depth training videos provided with every order. This material is sufficient to provide all the information that an off-site training would.

5. Warranty

Valid from date of shipment (See Warranty in pages below)

6. Post-Order Servicing

Any malfunctions or faulty parts that fall within the warranty, will be shipped at the cost of ATG Pharma.

Any malfunctions or issues caused outside of warranty, the client will be required to pay for on-site tech support servicing, and travel expenses required, or for the shipment of equipment back to ATG Pharma, and any additional repair costs required.

7. Returns

Within 30 days from shipment and the machine not being used, the client is subject to a return with a 25% restocking fee. After 30 days, the client will be subject to 35% restocking fee or 25% restocking fee in the form of a credit memo.

*Return shipments will be covered by the client in which is returning the item.

*Returns will also be subject to an evaluation in which ATG will assess the state of the equipment before issuing refund. Based off assessment, the refund amount may change.



RoboCAP Warranty Part 1

Limited Warranty for the ATG Pharma Inc. RoboCAP Systems:

Thank you for your purchase. We are confident that you will appreciate the fine quality of workmanship crafted into each unit. ATG Pharma Inc., stands proudly behind each product sold. We appreciate your purchase and look forward to supplying and servicing all of your equipment needs.

We provide the following limited warranty for all RoboCAP Filling Systems:

We warrant to you, the original purchaser, that all our parts are free of defects in material and workmanship.

"Defects" as used in this warranty, are defined as any imperfection(s), which impair the common use of this product. Our warranty is expressly limited to the replacement of parts or components, for a 36-month period, after the date of shipment.

This limited warranty applies under conditions of normal use. This warranty does not cover:

1. Machine malfunctions caused by improper customer installation, product spillage, or wash down damage.
This is NOT considered wash down grade.
2. Defects occurring after purchase due to customer modification, improper repair, intentional damage, accident, misuse, abuse or negligence.
3. Cosmetic Damage.

All factory repairs are to be made only at locations designated by ATG Pharma Inc. To receive replacement or missing parts under this warranty, call your ATG Pharma Inc., representatives. Please have model number, date of purchase, and name of selling dealer. All warranty replacements are subject to factory approval. Customer may return defective parts for credit to ATG Pharma Inc., along with proof of machine purchase. Warranty replacement parts are shipped out immediately subject to availability.



RoboCAP Warranty Part 2

Limited Warranty for the ATG Pharma Inc. **RoboCAP Equipment:**

Thank you for your purchase. We are confident that you will appreciate the fine quality of workmanship crafted into each unit. ATG Pharma Inc., stands proudly behind each product sold. We appreciate your purchase and look forward to supplying and servicing all of your equipment needs.

We provide the following limited warranty for all Packaging Equipment:

We warrant to you, the original purchaser, that all our parts are free of defects in material and workmanship.

"Defects" as used in this warranty, are defined as any imperfection(s), which impair the common use of this product. Our warranty is expressly limited to the replacement of parts or components, for a 36-month period, after the date of shipment.

This limited warranty applies under conditions of normal use. This warranty does not cover:

1. Machine malfunctions caused by improper customer installation, product spillage, or wash down damage.
This is NOT considered wash down grade.
2. Defects occurring after purchase due to customer modification, improper repair, intentional damage, accident, misuse, abuse or negligence.
3. Cosmetic Damage.

All factory repairs are to be made only at locations designated by ATG Pharma Inc. To receive replacement or missing parts under this warranty, call your ATG Pharma Inc., representatives. Please have model number, date of purchase, and name of selling dealer. All warranty replacements are subject to factory approval. Customer may return defective parts for credit to ATG Pharma Inc., along with proof of machine purchase. Warranty replacement parts are shipped out immediately subject to availability.



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Agilent 1260 Infinity Quaternary LC

System Manual and
Quick Reference



Agilent Technologies

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Manual Part Number

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Hewlett-Packard-Strasse 8
76337 Waldbronn

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In This Book

This book describes the Agilent 1260 Infinity Quaternary LC

1 Introduction

This chapter gives an introduction to the Agilent 1260 Infinity Quaternary LC, the underlying concepts and the features of the Agilent 1260 Infinity Quaternary LC.

2 Specifications

This chapter provides information about specifications for the LC system.

3 Optimization of the Agilent 1260 Infinity Quaternary LC

This chapter considers how to apply the theory and use the features of the LC system to develop optimized separations.

4 System Setup and Installation

This chapter includes information on software installation, stack configurations and preparing the system for operation.

5 Quick Start Guide

This chapter provides information on data acquisition and data analysis with the Agilent 1260 Infinity Quaternary LC.

6 Appendix

This chapter provides additional information on safety, legal, web and the Edit Entire Method.

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This chapter gives an introduction to the Agilent 1260 Infinity Quaternary LC, the underlying concepts and the features of the Agilent 1260 Infinity Quaternary LC.



1 Introduction

Introduction to the Agilent 1260 Infinity Quaternary LC

Introduction to the Agilent 1260 Infinity Quaternary LC**Concept of the Quaternary LC System**

The Agilent 1260 Infinity Quaternary LC offers the most flexibility for solvent selection and automation in HPLC method development, research and all HPLC applications requiring continuous access to a wide range of solvent choices. The availability to rapidly switch between methods using different solvents and the capability of using binary, ternary or quaternary solvent gradients make the Agilent 1260 Infinity Quaternary LC the most flexible system on the market.

System Properties

The Agilent 1260 Infinity Quaternary LC is ideally suited for multi-method, high-throughput workflows. It offers:

- Convenient access to four solvents for isocratic or gradient analysis for rapid method development and speed up preparation of mobile phases and flushing the HPLC system.
- Pressure range up to 600 bar.
- A wide flow range up to 10 mL/min and a delay volume of 800 – 1100 µL supports narrow-bore, standard and semi-preparative applications.
- Easy programming and control through the Instant Pilot G4208A (requires firmware B.02.08 or above) (p/n G4208-67001) or through an Agilent Data System.
- Included micro vacuum degasser offers high degassing efficiency for trouble-free operation and highest performance and completely eliminates the need for helium sparging.
- Direct front access for quick exchange of maintenance parts.
- Fast problem identification by self-diagnostics, built-in log books and preprogrammed test methods.

- Early maintenance feedback (EMF) that continuously tracks long-term instrument usage and user-defined limits with feedback message when limit is exceeded.
- Upgradeability and expandability with the complete range of Agilent 1200 Infinity Series HPLC modules.
- Agilent Data System helps you manage your lab for best chromatographic quality with intuitive diagnostic and monitor capabilities and alert functions to notify you of problems.

1 Introduction

Features of the Agilent 1260 Infinity Quaternary LC

Features of the Agilent 1260 Infinity Quaternary LC

The Agilent 1260 Infinity Quaternary LC is designed to offer the greatest flexibility for performing analytical liquid chromatography using all types of current and emergent column technologies.

The quaternary system as described in this manual offers:

- Gradients of up to 4 different solvents.
- Pressure range up to 600 bar.
- Sophisticated pump control to deliver very low chromatographic noise and very low acoustic noise for better results and better working environment.
- Degasser and automatic purge valve integrated into pump module.
- Variable volume autosampler with reduced delay volume, reduced carryover and the option to operate as a fixed loop autosampler.
- Thermostated column compartment with a pressure range up to 600 bar
- Choice of detectors (a set of different flow cells is available for different detectors to fit application needs regarding flow ranges (nano scale, micro scale, standard and preparative applications) and pressures):
 - Diode-array detector with greatly enhanced sensitivity and baseline stability using cartridge cell system with optofluidic waveguides (data collection rate up to 80 Hz with full spectral information) or
 - Variable wavelength detector.

System Components

Solvent cabinet

The solvent cabinet is a case to keep four bottles with solvent standing framed and stable, so that they can be connected by solvent tubings to the LC System.

Quaternary pump

The quaternary pump generates gradients by low pressure mixing from four individual solvent channels.

Autosampler with/without thermostat

The autosampler is specifically designed for the Agilent 1200 Infinity Series system for increased analysis speed with sensitivity, resolution, and precision.

Thermostatted column compartment

This stackable temperature-controlled column compartment is used for heating and cooling in order to meet extreme requirements of retention time reproducibility.

Diode array or variable wavelength detector

Signals triggered by UV absorption are sampled to be converted to electrical signals in order for display and software handling.

The Agilent 1260 Infinity Quaternary LC are described in more detail in the following sections. All modules are stackable, see [“One Stack Configuration”](#) on page 12 and [“Two Stack Configuration”](#) on page 15.

1 Introduction

Optimizing the Stack Configuration

Optimizing the Stack Configuration

You can ensure optimum performance by installing the system in following configurations. These configurations optimize the system flow path, ensuring minimum delay volume.

One Stack Configuration

Ensure optimum performance by installing the modules of the Agilent 1260 Infinity LC System in the following configuration (see [Figure 1](#) on page 13 and [Figure 2](#) on page 14). This configuration optimizes the flow path for minimum delay volume and minimizes the bench space required.

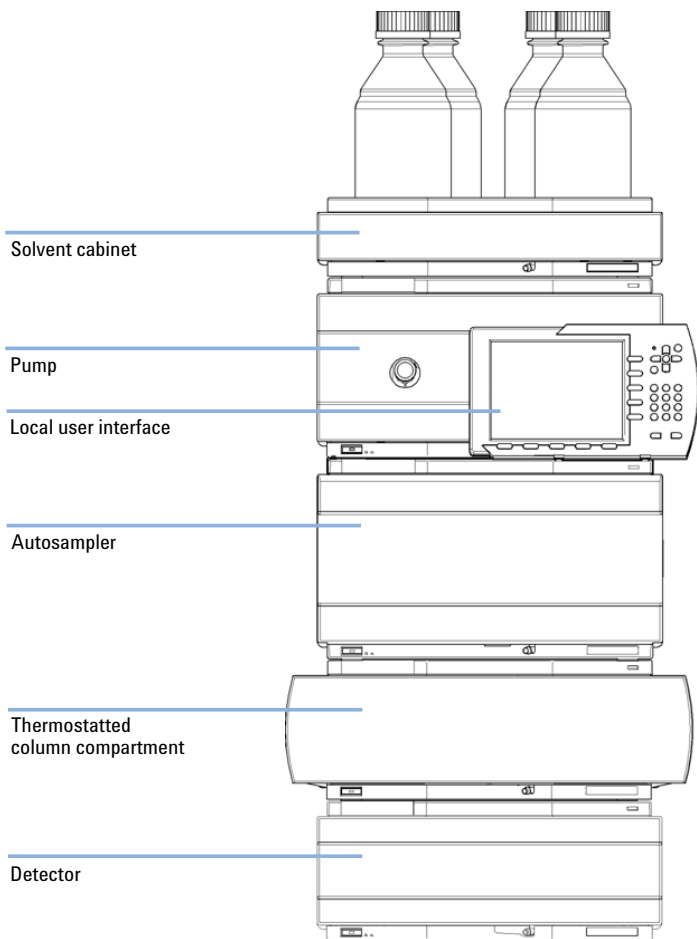


Figure 1 Recommended Stack Configuration (Front View)

1 Introduction
Optimizing the Stack Configuration

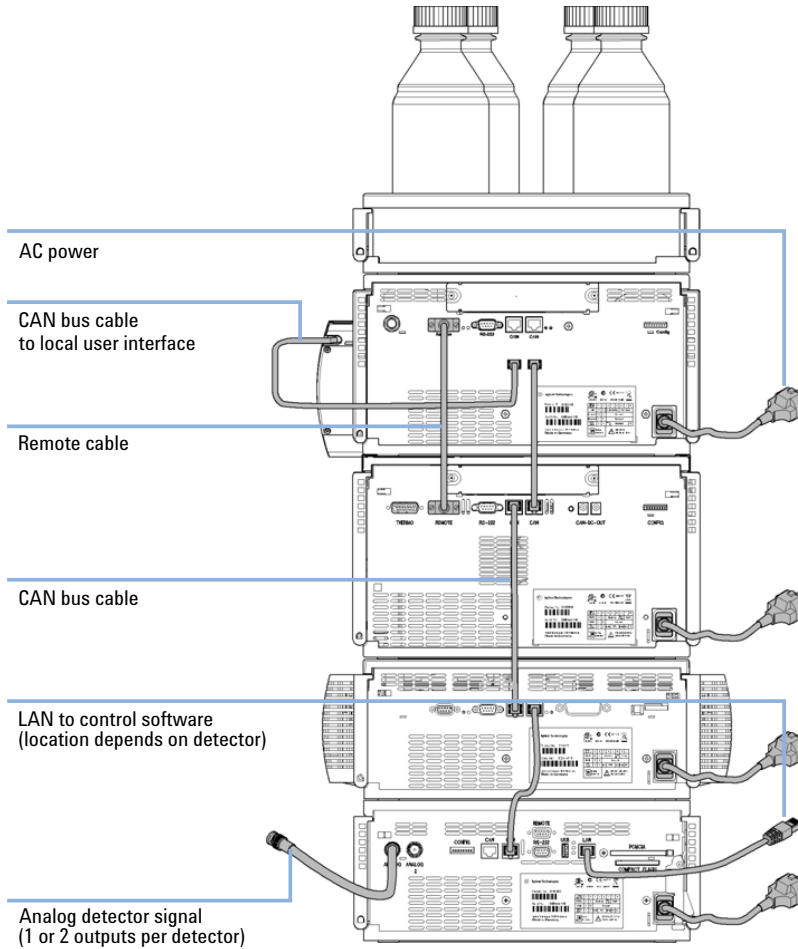


Figure 2 Recommended Stack Configuration (Rear View)

Two Stack Configuration

To avoid excessive height of the stack when the autosampler thermostat is added to the system it is recommended to form two stacks. Some users prefer the lower height of this arrangement even without the autosampler thermostat. A slightly longer capillary is required between the pump and autosampler. See [Figure 3](#) on page 15 and [Figure 4](#) on page 16.

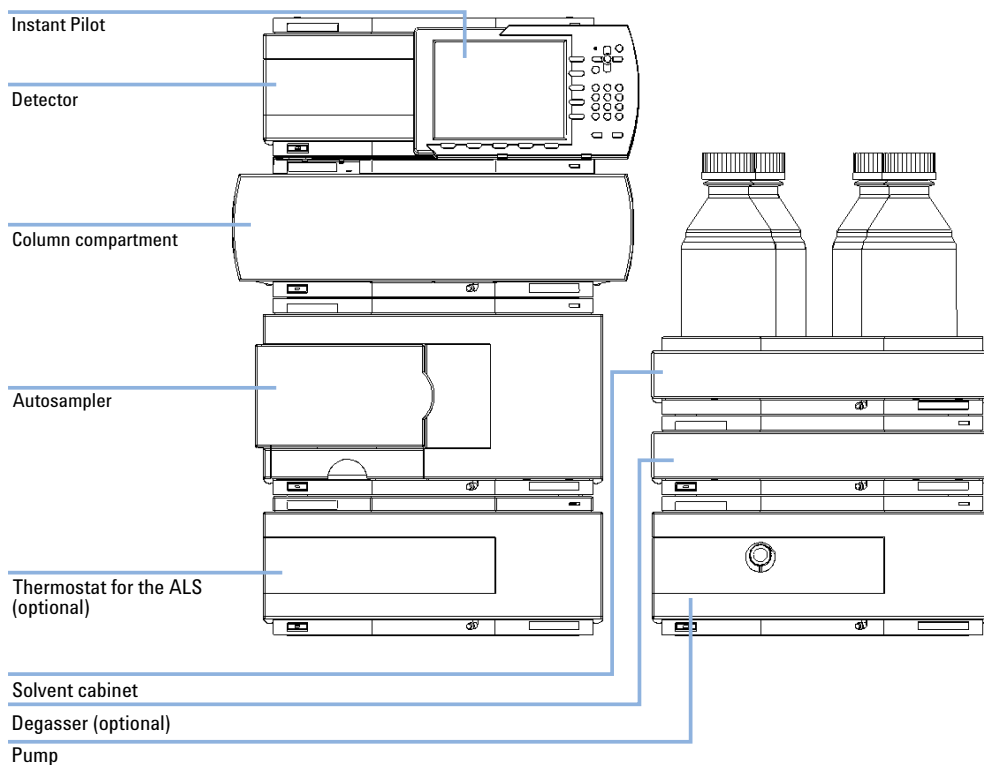


Figure 3 Two stack configuration (front view)

1 Introduction
Optimizing the Stack Configuration

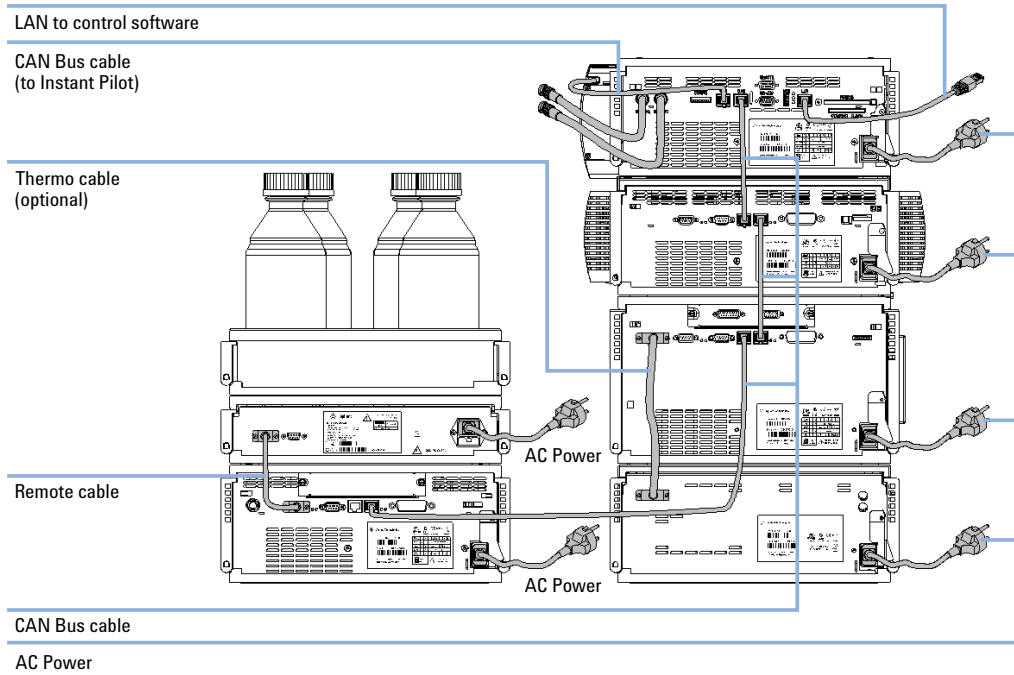


Figure 4 Two stack configuration (rear view)

Quaternary pump

The quaternary pump is based on a two-channel, dual-plunger in-series design which comprises all essential functions that a solvent delivery system has to fulfill. Metering of solvent and delivery to the high-pressure side are performed by one pump assembly which can generate pressure up to 600 bar.

Degassing of the solvents is done in a built-in vacuum degasser. Solvent compositions are generated on the low-pressure side by a high-speed proportioning valve (MCGV).

The pump assembly includes a pump head with a passive inlet valve and an outlet valve. A damping unit is connected between the two plunger chambers. A purge valve including a PTFE frit is fitted at the pump outlet for convenient priming of the pump head.

An active seal wash (optional) is available for applications using concentrated buffers as solvents.

1 Introduction
Quaternary pump

Hydraulic Path

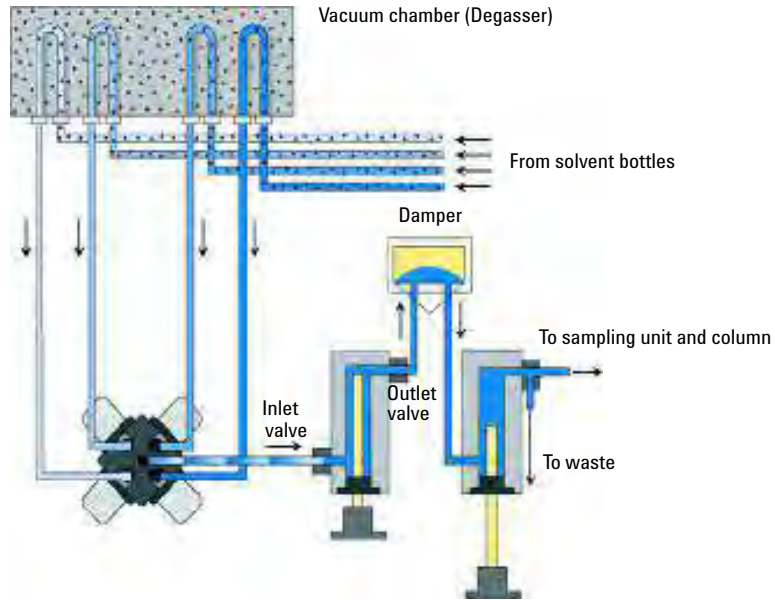


Figure 5 Hydraulic Path of the Quaternary Pump

Autosampler

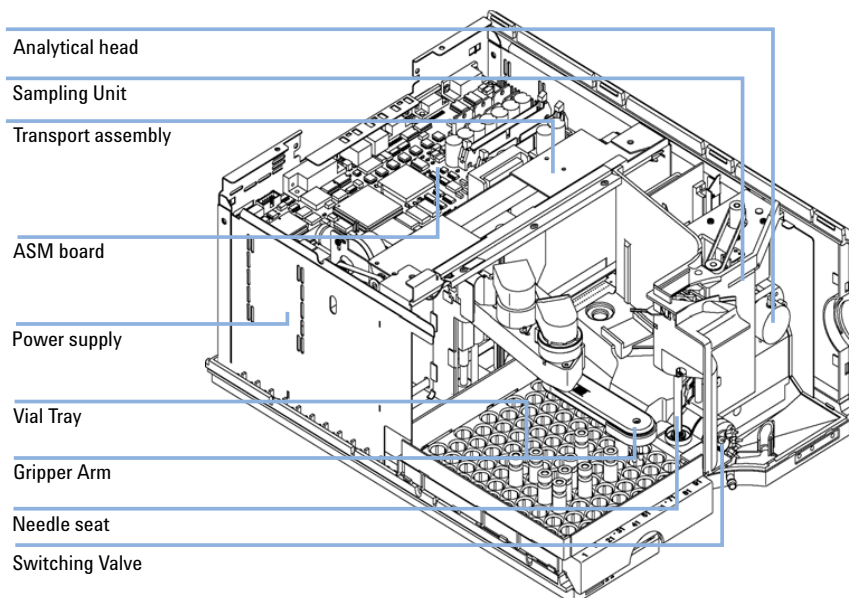


Figure 6 Overview of the Autosampler

The Agilent 1260 Infinity Autosampler is designed to offer the well-established Agilent flow-through design with variable volume injection and to achieve extremely low carryover. The small hydraulic volume of the flow path is suited to fast gradients and the ability to use overlapped injections and automatic delay volume reduction (ADVR) contribute to faster cycle times and even faster gradient delivery to the column. The system draws exactly the set volume of sample solution without waste and achieves high reproducibility across the whole range of possible injection volume. The autosampler is controlled from G4208 A Instant Pilot or from the Agilent Data System.

Three sample-rack sizes are available. The standard full-size rack holds 100 × 1.8 mL vials, while the two half-size racks provide space for 40 × 1.8 mL

1 Introduction

Autosampler

vials and 15 × 6 mL vials respectively. Any two half-size rack trays can be installed in the autosamplers simultaneously. A specially designed sample-rack holding 100 × 1.8 mL vials is available for use with thermostatted autosamplers. The half-size racks trays are not designed for an optimal heat transfer when they are used with a thermostatted autosampler.

The autosamplers transport mechanism uses an X-Z-Theta movement to optimize vial pick-up and return. Vials are picked up by the gripper arm, and positioned below the sampling unit. The gripper transport mechanism and sampling unit are driven by motors. Movement is monitored by optical sensors and optical encoders to ensure correct operation. The metering device is always flushed after injection to ensure minimum carry-over.

The module uses an analytical head providing injection volumes from 0.1 to 100 µL for pressures up to 600 bar.

The six-port injection valve unit (only 5 ports are used) is driven by a high-speed hybrid stepper motor. During the sampling sequence, the valve unit bypasses the autosampler, and directly connects the flow from the pump to the column. During injection and analysis, the valve unit directs the flow through the autosampler which ensures that the sample is injected completely into the column, and that any sample residue is removed from the metering unit and needle from before the next sampling sequence begins. Different valves are available.

Control of the vial temperature in the thermostatted autosampler is achieved using the additional Agilent 1260 Infinity ALS thermostat. Details of this module are given in the Agilent 1260 Infinity Autosampler Thermostat manual.

Sequences

Sampling sequence

The movements of the autosampler components during the sampling sequence are monitored continuously by the autosampler processor. The processor defines specific time windows and mechanical ranges for each movement. If a specific step of the sampling sequence can't be completed successfully, an error message is generated.

Solvent is bypassed from the autosamplers by the injection valve during the sampling sequence. The sample vial is selected by a gripper arm from a static sample rack, or from external vial positions. The gripper arm places the sample vial below the injection needle. The required volume of sample is drawn into the sample loop by the metering device. Sample is applied to the column when the injection valve returns to the mainpass position at the end of the sampling sequence.

The sampling sequence occurs in the following order:

- 1 The injection valve switches to the bypass position.
- 2 The plunger of the metering device moves to the initialization position.
- 3 The gripper arm moves from the home position, and selects the vial. At the same time, the needle lifts out of the seat.
- 4 The gripper arm places the vial below the needle.
- 5 The needle lowers into the vial.
- 6 The metering device draws the defined sample volume.
- 7 The needle lifts out of the vial.
- 8 If the automated needle wash is selected (see [“Using the Automated Needle Wash”](#) on page 54), the gripper arm replaces the sample vial, positions the wash vial below the needle, lowers the needle into the vial, then lifts the needle out of the wash vial.
- 9 The gripper arm checks if the safety flap is in position.
- 10 The gripper arm replaces the vial, and returns to the home position. Simultaneously, the needle lowers into the seat.
- 11 The injection valve switches to the mainpass position.

1 Introduction

Autosampler

Injection sequence

Before the start of the injection sequence, and during an analysis, the injection valve is in the mainpass position (Figure 7 on page 22). In this position, the mobile phase flows through the autosamplers metering device, sample loop, and needle, ensuring all parts in contact with sample are flushed during the run, thus minimizing carry-over.

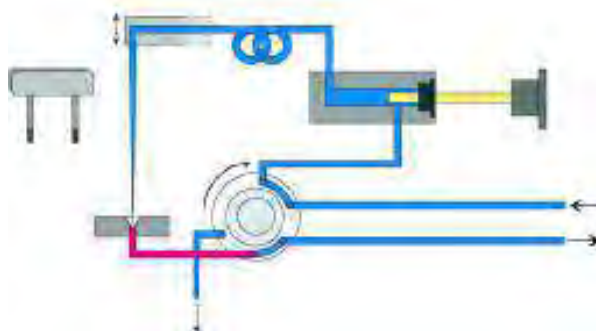


Figure 7 Mainpass Position

When the sample sequence begins, the valve unit switches to the bypass position (Figure 8 on page 22). Solvent from the pump enters the valve unit at port 1, and flows directly to the column through port 6.

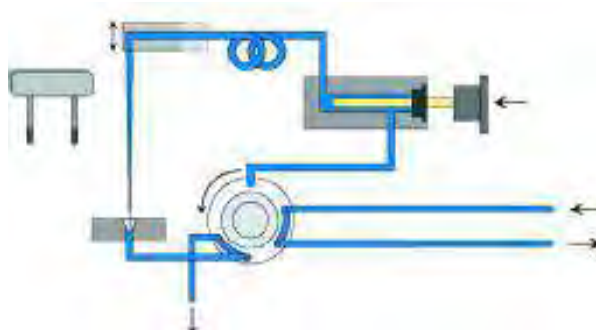


Figure 8 Bypass Position

Next, the needle is raised, and the vial is positioned below the needle. The needle moves down into the vial, and the metering unit draws the sample into the sample loop (Figure 9 on page 23).

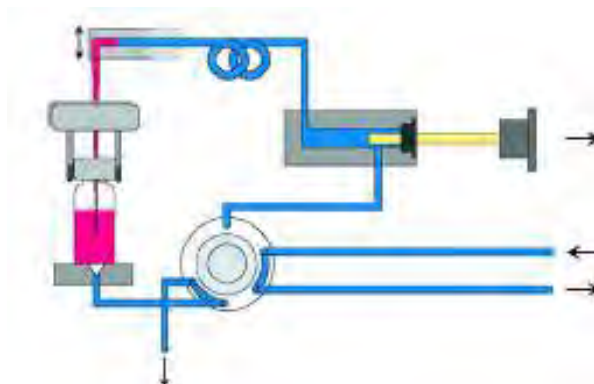


Figure 9 Drawing the Sample

When the metering unit has drawn the required volume of sample into the sample loop, the needle is raised, and the vial is replaced in the sample tray. The needle is lowered into the needle seat, and the injection valve switches back to the mainpass position, flushing the sample onto the column (Figure 10 on page 23).

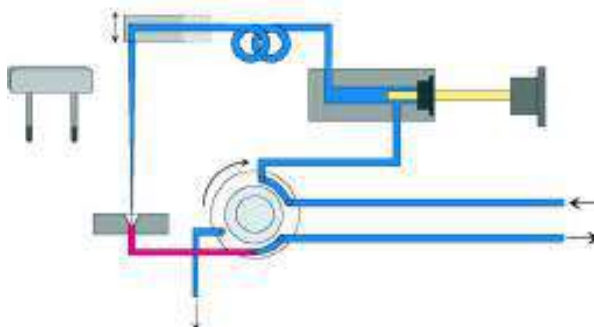


Figure 10 Mainpass Position (Sample Injection)

1 Introduction

Thermostatted column compartment

Thermostatted column compartment

The Agilent 1260 Infinity Thermostatted Column Compartment is a stackable temperature-controlled column compartment for LC. It is used for heating and cooling to meet extreme requirements of retention time reproducibility.

The main features are:

- Peltier heating and cooling from 10 degrees below ambient up to 80 °C with high heating and cooling speeds for maximum application flexibility and stability.
- Holds up to three 30 cm columns and optimized design gives minimum dead volumes and maximum efficiency.
- Two independently programmable heat exchangers contribute volumes of only 3 µL and 6 µL.
- Electronic column-identification module as standard for GLP documentation of column type and major column parameters.
- Optional high-quality Rheodyne® column switching valves with ceramic stator-face assemblies for prolonged lifetime.

For specifications, see “[Performance Specifications \(G1316A\)](#)” on page 41.

Detector

Diode-Array Detector (DAD)

Features (G4212B)

The detector is designed for highest optical performance, GLP compliance and easy maintenance. It includes the following features:

- Maximum of 80 Hz data acquisition rate.
- Higher sensitivity for conventional LC as well as ultra fast applications by using next generation optical design.
- Increased sensitivity with 60 mm Max-Light cartridge flow cell.
- Optimized cell geometry for less peak dispersion for narrow bore applications.
- More reliable and robust peak integration process (automated) due to less baseline noise/drift/refractive index and thermal effects especially under ultra fast gradient conditions.
- RFID tracking technology is used for the UV-lamp and the Max-Light cartridge flow cells.
- Multiple wavelength and full spectral detection at 80 Hz sampling rate, keeping up with the analysis speed of ultra-fast LC.
- Fixed 4 nm slit for rapid optimization of sensitivity, linearity and spectral resolution provides optimum incident light conditions .
- Improved Electronic temperature control (ETC) provides maximum baseline stability and practical sensitivity under fluctuating ambient temperature and humidity conditions.
- Additional diagnostic signals for temperature and lamp voltage monitoring.
- Easy exchange of flow cell by cartridge design.

For specifications, see “[Performance Specifications \(G4212B\)](#)” on page 43.

1 Introduction

Detector

Optical System

The optical system of the detector is shown in [Figure 11](#) on page 26

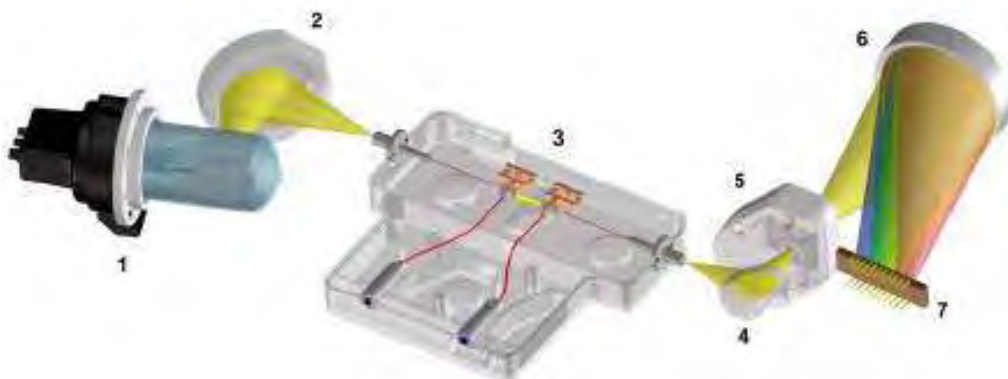


Figure 11 Optical System of the Detector

1	UV-lamp
2	Lamp mirror
3	Flow cell
4	Fold mirror
5	Micro slit
6	Grating
7	Array

The illumination source is a deuterium-arc-discharge lamp [1] for the ultraviolet (UV) wavelength range. Its light is focused by a lamp mirror [2] onto the entrance of the Max-light cartridge flow cell [3] with optofluidic waveguides. The light leaves the Max-light cartridge flow cell at the other side and is focused by the fold mirror [4] through the slit assembly [5] onto a holographic grating [6] light being dispersed onto the diode array [7]. This allows simultaneous access to all wavelength information.

Lamp

The light source for the UV-wavelength range is a long-life UV-lamp with RFID tag. As a result of plasma discharge in low-pressure deuterium gas, the lamp emits light over the 190 nm to approximately 800 nm wavelength range.

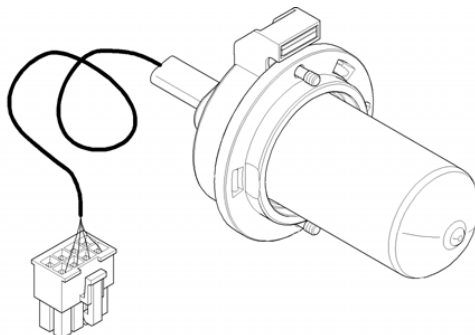


Figure 12 UV-Lamp

1 Introduction

Detector

Max-Light Cartridge Flow Cell

The detector allows easy access to flow cells via a cartridge. A variety of optional flow cells can be inserted using the same quick, simple mounting system. A Max-Light Cartridge Cell (10 mm, $V(\sigma)$ 1.0 μL) and a Max-Light Cartridge Cell (60 mm, $V(\sigma)$ 4 μL) are available. For testing of the detector, a Max-Light Cartridge Test Cell is available.

The optical principle of the Max-Light Cartridge cell is based on opto-fluidic waveguides. Nearly 100 % light transmission is achieved by utilizing total internal reflection in a non-coated silica fiber. Compromising refractive index and thermal effects are almost completely eliminated, resulting in significantly less baseline drift.

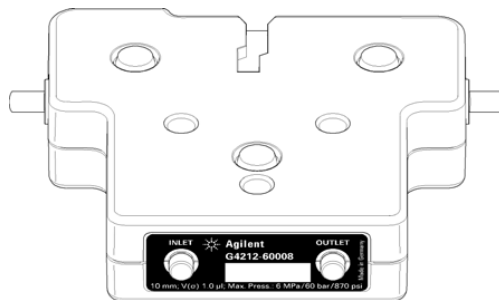


Figure 13 Max-Light Cartridge Flow Cell

Slit

The fixed slit combines the required optical functions - slit and shutter - in a simple and compact component. The slit width is directly controlled by the micro-processor of the instrument and is fixed to 4 nm.

Grating and Diode Array

The combination of dispersion and spectral imaging is accomplished by using a concave holographic grating. The grating separates the light beam into all its component wavelengths and reflects the light onto the photodiode array.

The diode array is a series of 1024 individual photodiodes and control circuits located on a ceramic carrier. It has a wavelength range from 190 – 640 nm and the sampling interval is 0.5 nm.



Figure 14 Grating and diode array

1 Introduction

Detector

Variable Wavelength Detector (VWD)

Features (G1314F)

The Agilent variable wavelength detectors described in this manual is designed for highest optical performance, GLP compliance and easy maintenance with:

- data rate up to 80 Hz for standard-HPLC
- deuterium lamp for highest intensity and lowest detection limit over a wavelength range of 190 to 600 nm,
- optional flow-cell cartridges (standard 10 mm, 14 μ L; high pressure 10 mm, 14 μ L; micro 3 mm, 2 μ L; semi-micro 6 mm, 5 μ L) are available and can be used depending on the application needs (other types may be introduced later),
- easy front access to lamp and flow cell for fast replacement,
- electronic identification of flow cell and lamp with RFID (Radio Frequency Identification) tag for unambiguous identification,
 - lamp information: part number, serial number, production date, ignitions, burn time
 - cell information: part number, serial number, production date, nominal path length, volume, maximum pressure
- built-in electronic temperature control (ETC) for improved baseline stability, and
- built-in holmium oxide filter for fast wavelength accuracy verification.

NOTE

This detectors cannot be operated with a G1323B Control Module. Use the Instant Pilot (G4208A) as local controller.

For specifications refer to “[Performance Specifications \(G1314F\)](#)” on page 44.

Optical System Overview

The optical system of the detector is shown in the figure below. Its radiation source is a deuterium-arc discharge lamp for the ultraviolet (UV) wavelength range from 190 to 600 nm. The light beam from the deuterium lamp passes through a lens, a filter assembly, an entrance slit, a spherical mirror (M1), a grating, a second spherical mirror (M2), a beam splitter, and finally through a flow cell to the sample diode. The beam through the flow cell is absorbed depending on the solutions in the cell, in which UV absorption takes place, and the intensity is converted to an electrical signal by means of the sample photodiode. Part of the light is directed to the reference photodiode by the beam splitter to obtain a reference signal for compensation of intensity fluctuation of the light source. A slit in front of the reference photodiode cuts out light of the sample bandwidth. Wavelength selection is made by rotating the grating, which is driven directly by a stepper motor. This configuration allows fast change of the wavelength. The cutoff filter is moved into the lightpath above 370 nm to reduce higher order light.

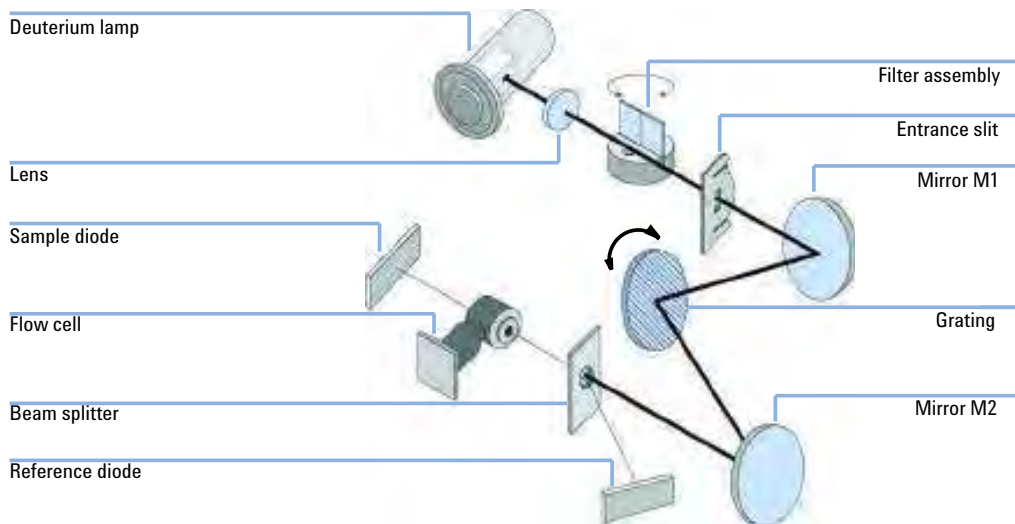


Figure 15 Optical Path of the Variable Wavelength Detector

1 Introduction

Detector

Flow Cell

A variety of flow-cell cartridges can be inserted using the same quick and simple mounting system.

The flow cells have an integrated RFID tag that contains the flow cell specific information (e.g. part number, cell volume, path length, ...). A RFID tag reader reads out this information and transfers it to the user interface.

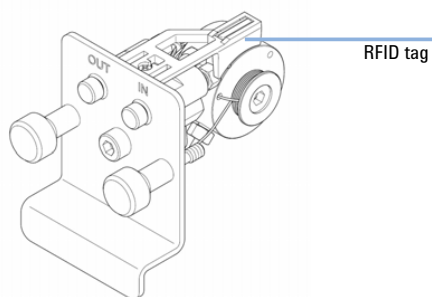


Figure 16 Flow Cell with RFID tag

Table 1 Flow Cell Data

	STD	Semi-micro	Micro	High Pressure	
Maximum pressure	40 (4)	40 (4)	120 (12)	400 (40)	bar
Path length	10 (conical)	6 (conical)	3 (conical)	10 (conical)	mm
Volume	14	5	2	14	μL
Inlet i.d.	0.17	0.17	0.12	0.17	mm
Inlet length	750	750	310	310	mm
Outlet i.d.	0.25	0.25	0.17	0.25	mm
Outlet length	120	120	120	120	mm
Materials in contact with solvent	SST, quartz, PTFE, PEEK	SST, quartz, PTFE	SST, quartz, PTFE	SST, quartz, Kapton	

Lamp

The light source for the UV wavelength range is a deuterium lamp. As a result of plasma discharge in a low pressure deuterium gas, the lamp emits light over the 190 – 600 nm wavelength range.

The lamp has an integrated RFID tag that contains the lamp specific information (e.g. part number, burn time, ...). A RFID tag reader reads out this information and transfers it to the user interface.

Source Lens Assembly

The source lens receives the light from the deuterium lamp and focuses it onto the entrance slit.

Entrance Slit Assembly

The entrance slit assembly has an exchangeable slit. The standard one has a 1-mm slit. For replacement and calibration purposes to optimize the alignment, a slit with a hole is needed.

1 Introduction

Detector

Filter Assembly

The filter assembly is electromechanically actuated. During wavelength calibrations it moves into the light path.

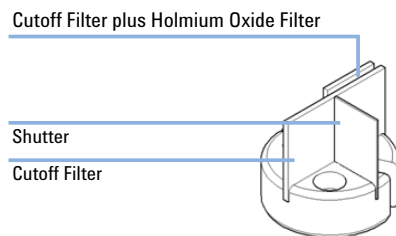


Figure 17 Filter Assembly

The filter assembly has two filters installed and is processor-controlled.

OPEN	nothing in light path at $\lambda < 370$ nm
CUTOFF	cut off filter in light path at $\lambda > 370$ nm
HOLMIUM	holmium oxide filter for wavelength check
SHUTTER	for measurement of dark current of photo diodes

A photo sensor determines the correct position.

Mirror Assemblies M1 and M2

The instrument contains two spherical mirrors (M1 and M2). The beam adjustable is vertically and horizontally. Both mirrors are identical.

Grating Assembly

The grating separates the light beam into all its component wavelengths and reflects the light onto mirror #2.

The stepper motor reference position is determined by a plate fitted onto the motor shaft, interrupting the beam of a photo sensor. The wavelength calibration of the grating is done at the zero order light position and at 656 nm, which is the emission line of the deuterium lamp.

Beam Splitter Assembly

The beam splitter splits the light beam. One part goes directly to the sample diode. The other part of the light beam goes to the reference diode.

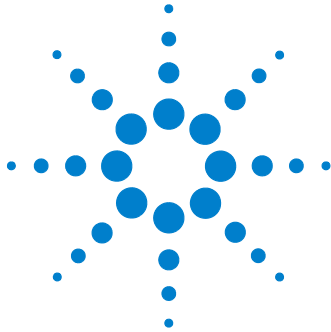
Photo Diodes Assemblies

Two photo diode assemblies are installed in the optical unit. The sample diode assembly is located on the left side of the optical unit. The reference diode assembly is located in the front of the optical unit.

Photo Diode ADC (analog-to-digital converter)

The photo diode current is directly converted to digital data direct photo current digitalization. The data is transferred to the detector main board . The photo diode ADC boards are located close to the photo diodes.

1 **Introduction**
Detector



2 Specifications

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This chapter provides information about specifications for the LC system.



2 Specifications

Physical Specifications

Physical Specifications

Table 2 General physical specifications

Type	Specification	Comments
Line voltage	100 – 240 VAC, $\pm 10\%$	Wide-ranging capability
Line frequency	50 or 60 Hz, $\pm 5\%$	
Ambient operating temperature ¹	4 – 55 °C (32 – 131 °F)	See warning “Hot rear panel” on page 39
Ambient non-operating temperature	-40 – 70 °C (-4 – 158 °F)	
Humidity	< 95 %, at 25 – 40 °C (77 – 104 °F)	Non condensing
Operating altitude	Up to 2000 m (6562 ft)	
Non-operating altitude	Up to 4600 m (15092 ft)	For storing the module
Safety standards: IEC, CSA, UL, EN		For indoor use only.

¹ This temperature range represents the technical specifications for this instrument. The mentioned temperatures may not be suitable for all applications and all types of solvents.

Table 3 Module specific physical specifications

Module	Weight	Dimension (width x depth x height)	Power consumption
G1311B/C Quaternary pump	11 kg (24 lbs)	140 x 345 x 435 mm (5.5 x 13.5 x 17 inches)	180 VA, 55 W / 188 BTU
G1329B Autosampler	14.2 kg (32 lbs)	200 x 345 x 435 mm (8 x 13.5 x 17 inches)	300 VA, 200 W / 683 BTU
G1330B Thermostat	20.7 kg (46 lbs)	140 x 345 x 435 mm (5.5 x 13.5 x 17 inches)	260 VA, 210 W / 717 BTU
G1316B Thermostatted Column Compartment	11.2 kg (25 lbs)	140 x 345 x 435 mm (5.5 x 13.5 x 17 inches)	320 VA, 150 W / 512 BTU
G4212B DAD	11.5 kg (26 lbs)	140 x 345 x 435 mm (5.5 x 13.5 x 17 inches)	160 VA, 130 W / 444 BTU
G1314F VWD	11 kg (24 lbs)	140 x 345 x 435 mm (5.5 x 13.5 x 17 inches)	220 VA, 85 W / 290 BTU

WARNING**Hot rear panel**

Using the autosampler at high environmental temperatures may cause the rear panel to become hot.

→ Do not use the autosampler at environmental temperatures higher than 50 °C (122 °F)

2 Specifications

Performance Specifications

Performance Specifications

Performance Specifications (G1311B)

Table 4 Performance Specification Agilent 1260 Infinity Quaternary Pump (G1311B)

Type	Specification
Hydraulic system	Dual piston in series pump with proprietary servo-controlled variable stroke drive, floating pistons
Settable flow range	0.001 – 10 mL/min, in 0.001 mL/min increments
Flow range	0.2 – 10.0 mL/min
Flow precision	< 0.07 % RSD, or < 0.02 min SD whatever is greater, based on retention time at constant room temperature
Flow accuracy	± 1 % or 10 µL/min whatever is greater, pumping degassed H ₂ O at 10 MPa
Pressure	Operating range 0 – 60 MPa (0 – 600 bar, 0 – 8700 psi) up to 5 mL/min Operating range 0 – 20 MPa (0 – 200 bar, 0 – 2950 psi) up to 10 mL/min
Pressure pulsation	< 2 % amplitude (typically < 1.3 %), or < 3 bar at 1 mL/min isopropanol, at all pressures > 10 bar (147 psi)
Compressibility compensation	User-selectable, based on mobile phase compressibility
Recommended pH range	1.0 – 12.5, solvents with pH < 2.3 should not contain acids which attack stainless steel
Gradient formation	Low pressure quaternary mixing/gradient capability using proprietary high-speed proportioning valve
Delay volume	600 – 800 µL, dependent on back pressure
Composition range	0 – 95 % or 5 – 100 %, user selectable
Composition precision	< 0.2 % RSD, or < 0.04 min SD whatever is greater, at 0.2 and 1 mL/min
Control and data evaluation	Agilent control software

Table 4 Performance Specification Agilent 1260 Infinity Quaternary Pump (G1311B)

Analog output	For pressure monitoring, 1.33 mV/bar, one output
Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN optional

Performance Specifications (G1316A)

Table 5 Performance Specifications Thermostatted Column Compartment

Type	Specification	Comments
Temperature range	10 degrees below ambient to 80 °C up to 80 °C: flow rates up to 5 mL/min	
Temperature stability	± 0.15 °C	
Temperature accuracy	± 0.8 °C ± 0.5 °C	With calibration
Column capacity	Three 30 cm	
Warm-up/cool-down time	5 minutes from ambient to 40 °C 10 minutes from 40 – 20 °C	
Dead volume	3 µL left heat exchanger 6 µL right heat exchanger	
Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN via other 1260 Infinity module	
Safety and maintenance	Extensive diagnostics, error detection and display (through Instant Pilot and Agilent data system), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.	
GLP features	Column-identification module for GLP documentation of column type.	
Housing	All materials recyclable	

2 Specifications

Performance Specifications

Performance Specifications (G1329B)

Table 6 Performance Specifications Agilent 1260 Infinity Standard Autosampler (G1329B)

Type	Specification
Pressure	Operating range 0 - 60 MPa (0 - 600 bar, 0 - 8850 psi)
GLP features	Early maintenance feedback (EMF), electronic records of maintenance and errors
Communications	Controller-area network (CAN), GPIB (IEEE-448), RS232C, APG-remote standard, optional four external contact closures and BCD vial number output
Safety features	Leak detection and safe leak handling, low voltages in maintenance areas, error detection and display
Injection range	0.1 - 100 μ L in 0.1 μ L increments (recommended 1 μ L increments) Up to 1500 μ L with multiple draw (hardware modification required)
Replicate injections	1 – 99 from one vial
Precision	Typically < 0.25 % RSD of peak areas from 5 - 100 μ L, Typically < 1 % RSD of peak areas from 1 - 5 μ L.
Minimum sample volume	1 μ L from 5 μ L sample in 100 μ L microvial, or 1 μ L from 10 μ L sample in 300 μ L microvial
Carryover	Typically < 0.1 %, < 0.05 % with external needle cleaning
Sample viscosity range	0.2 – 50 cp
Sample capacity	100 \times 2 mL vials in 1 tray 40 \times 2 mL vials in ½ tray 15 \times 6 mL vials in ½ tray (Agilent vials only)
Injection cycle time	50 s for draw speed 200 μ L/min, ejection speed 200 μ L/min, injection volume 5 μ L

Performance Specifications (G4212B)

Table 7 Performance Specifications G4212B

Type	Specification	Comments
Detection type	1024-element photodiode array	
Light source	Deuterium lamp	Equipped with RFID tag that holds lamp typical information.
Wavelength range	190 – 640 nm	
Short term noise (ASTM) Single and Multi-Wavelength	$< \pm 3 \times 10^{-6}$ AU at 230 nm/4 nm	see "Specification Conditions" below
Drift	$< 0.5 \times 10^{-3}$ AU/hr at 230 nm	see "Specification Conditions" below
Linear absorbance range	> 2.0 AU (5 %) at 265 nm	see "Specification Conditions" below
Wavelength accuracy	± 1 nm	After recalibration with deuterium lines
Wavelength bunching	2 – 400 nm	Programmable in steps of 1 nm
Slit width	G4212B: 4 nm	Fixed slit
Diode width	~ 0.5 nm	
Signal data rate	80 Hz (G4212B)	
Spectra Data rate	80 Hz (G4212B)	
Flow cells	Max-Light Cartridge Cell (10 mm, V(∅) 1.0 µl), 60 bar (870 psi) pressure maximum Max-Light Cartridge Cell (60 mm), V(∅) 4.0 µL, 60 bar (870 psi) pressure maximum Max-Light Cartridge Test Cell	pH range 1.0 —12.5 (solvent dependent) Cartridge type, equipped with RFID tags that holds cell typical information.
Control and data evaluation	Data System 1 Agilent ChemStation for LC 2 EZChrom Elite 3 MassHunter	For G4212B: 1 B.04.02 DSP3 or above 2 3.3.2 SP2 or above 3 B.04.00 and B.03.01 SP2 or above
Local Control	Agilent Instant Pilot (G4208A)	B.02.11 or above
Test and diagnostic software	Agilent LabAdvisor	B.01.03 SP4 or above
Analog outputs	Recorder/integrator: 100 mV or 1 V, output range 0.001 – 2 AU, one output	

2 Specifications

Performance Specifications

Table 7 Performance Specifications G4212B

Type	Specification	Comments
Communications	Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals, LAN	
Safety and maintenance	Extensive diagnostics, error detection and display (through control module and ChemStation), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.	
GLP features	Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of lamp burn time with user-settable limits and feedback messages. Electronic records of maintenance and errors. Verification of wavelength accuracy with the emission lines of the deuterium lamp.	
Housing	All materials recyclable.	

Performance Specifications (G1314F)

Table 8 Performance Specifications G1314F

Type	Specification	Comments
Detection type	Double-beam photometer	
Light source	Deuterium lamp	
Wavelength range	190 – 600 nm	The UV-lamp is equipped with RFID tag that holds lamp typical information.
Short term noise	$\pm 0.25 \cdot 10^{-5}$ AU at 230 nm (G1314F)	Under specified conditions. See “ Specification Conditions (VWD) ” on page 48 below the table.
Drift	$< 1 \cdot 10^{-4}$ AU/h at 230 nm	Under specified conditions. See “ Specification Conditions (VWD) ” on page 48 below the table.

Table 8 Performance Specifications G1314F

Type	Specification	Comments
Linearity	> 2.5 AU (5 %) at 265 nm	Under specified conditions. See “ Specification Conditions (VWD) ” on page 48 below the table.
Wavelength accuracy	± 1 nm	Self-calibration with deuterium lines, verification with holmium oxide filter
Maximum sampling rate	80 Hz (G1314F)	
Band width	6.5 nm typical	
Flow cells	Standard: 14 µL volume, 10 mm cell path length and 40 bar (588 psi) pressure maximum High pressure: 14 µL volume, cell path length and 400 bar (5880 psi) pressure maximum Micro: 2 µL volume, 3 mm cell path length and 120 bar (1760 psi) pressure maximum Semi-micro: 5 µL volume, 6 mm cell path length and 40 bar (588 psi) pressure maximum	All flow cells have RFID tags for unambiguous identification. Can be repaired on component level
Electronic Temperature Control (ETC)	For improved baseline stability in instable environment.	
Control and data evaluation	Agilent ChemStation B.04.02 SP2 or above (G1314F) Instant Pilot (G4208A) with firmware B.02.11 or above (G1314F)	Control and data evaluation Control only
Time programmable	Wavelength, Reference and Sample scan, balance, steps, lamp on/off	
Spectral tools	Stop-flow wavelength scan	
Analog outputs	Recorder/integrator: 100 mV or 1 V, output range 0.001 – 2 AU, one output	
Communications	LAN card integrated on main board, Controller-area network (CAN), RS-232C, APG Remote: ready, start, stop and shut-down signals	
Safety and maintenance	Extensive diagnostics, error detection and display (through Instant Pilot and Data System), leak detection, safe leak handling, leak output signal for shutdown of pumping system. Low voltages in major maintenance areas.	

2 Specifications

Performance Specifications

Table 8 Performance Specifications G1314F

Type	Specification	Comments
GLP features	<p>Early maintenance feedback (EMF) for continuous tracking of instrument usage in terms of lamp burn time with user-settable limits and feedback messages. Electronic records of maintenance and errors. Verification of wavelength accuracy with built-in holmium oxide filter.</p> <p>RFID for electronics records of flow cell and UV lamp conditions (path length, volume, product number, serial number, test passed, usage)</p>	
Housing	All materials recyclable.	

Specification Conditions

Specification Conditions (DAD)

ASTM: “Standard Practice for Variable Wavelength Photometric Detectors Used in Liquid Chromatography”.

Reference conditions:

- Wavelength: 230 nm/4 nm with Reference Wavelength 360 nm/100 nm, Slitwidth 4 nm, TC 2 s, (or with RT = 2.2 * TC), ASTM
- Max-Light Cartridge Cell (10 mm, V(σ) 1.0 μl) with flow of 0.5 ml/min LC grade water or Max-Light Cartridge Test Cell

Linearity:

Linearity is measured with caffeine at 265 nm/4 nm with slit width 4 nm and TC 1 s (or with RT 2 s) with Max-Light Cartridge Cell (10 mm, V(σ) 1 μl) > 2.0 AU (5 %) [typical 2.5 AU (5 %)] .

NOTE

The specifications are based on the standard RFID tag lamp (5190-0917) and may be not achieved when other lamp types or aged lamps are used.

ASTM drift tests require a temperature change below 2 °C/hour (3.6 F/hour) over one hour period. Our published drift specification is based on these conditions. Larger ambient temperature changes will result in larger drift.

Better drift performance depends on better control of the temperature fluctuations. To realize the highest performance, minimize the frequency and the amplitude of the temperature changes to below 1 °C/hour (1.8 F/hour). Turbulences around one minute or less can be ignored.

Performance tests should be done with a completely warmed up optical unit (> two hours). ASTM measurements require that the detector should be turned on at least 24 h before start of testing.

2 Specifications

Performance Specifications

Specification Conditions (VWD)

ASTM: “Standard Practice for Variable Wavelength Photometric Detectors Used in Liquid Chromatography”.

Reference conditions: Standard flow cell, path length 10 mm, flow 1 mL/min LC-grade methanol.

Noise:

$\pm 0.15 \cdot 10^{-5}$ AU (G1314E/D), $\pm 0.25 \cdot 10^{-5}$ AU (G1314F) at 230 nm, TC 2 s

RT = 2.2 * TC

Linearity:

Linearity is measured with caffeine at 265 nm.

NOTE

The specification are based on the the standard RFID tag lamp (G1314-60101) and may be not achieved when other lamp types or aged lamps are used.

ASTM drift tests require a temperature change below 2°C/hour (3.6°F/hour) over one hour period. Our published drift specification is based on these conditions. Larger ambient temperature changes will result in larger drift.

Better drift performance depends on better control of the temperature fluctuations. To realize the highest performance, minimize the frequency and the amplitude of the temperature changes to below 1°C/hour (1.8°F/hour). Turbulences around one minute or less can be ignored.

Performance tests should be done with a completely warmed up optical unit (> one hour). ASTM measurements require that the detector should be turned on at least 24 hours before start of testing.

Time Constant versus Response Time

According to ASTM E1657-98 „Standard Practice of Testing Variable-Wavelength Photometric Detectors Used in Liquid Chromatography” the time constant is converted to response time by multiplying by the factor 2.2.



3 Optimization of the Agilent 1260 Infinity Quaternary LC

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This chapter considers how to apply the theory and use the features of the LC system to develop optimized separations.



3 Optimization of the Agilent 1260 Infinity Quaternary LC Optimizing the Pump

Optimizing the Pump

Operational Hints for the Vacuum Degasser

Operational Hints for the Vacuum Degasser

If you are using the vacuum degasser for the first time, if the vacuum degasser was switched off for any length of time (for example, overnight), or if the vacuum degasser lines are empty, you should prime the vacuum degasser before running an analysis.

The vacuum degasser can be primed either by drawing solvent through the degasser with a syringe or by pumping with the quaternary pump.

Priming the degasser with a syringe is recommended, when:

- vacuum degasser is used for the first time, or vacuum tubes are empty, or
- changing to solvents that are immiscible with the solvent currently in the vacuum tubes.

Priming the vacuum degasser by using the quaternary pump at high flow rate is recommended, when:

- quaternary pump was turned off for a length of time (for example, during night) and volatile solvent mixtures are used, or
- solvents have been changed.

For more information see the *Service Manual* for the Agilent 1200 Series vacuum degasser.

Operational Hints for the Multi Channel Gradient Valve (MCGV)

In a mixture of salt solutions and organic solvent the salt solution might be well dissolved in the organic solvent without showing precipitations. However in the mixing point of the gradient valve, at the boundary between the two solvents, micro precipitation is possible. Gravity forces the salt particles to fall down. Normally the A channel of the valve is used for the aqueous/salt solution and the B channel of the pump is used for the organic solvent. If used

in this configuration the salt will fall back into the salt solution and will be dissolved. When using the pump in a different configuration (e.g., D - salt solution, A - organic solvent) the salt can fall into the port of the organic solvent and may lead to performance problems.

NOTE

When using salt solutions and organic solvents it is recommended to connect the salt solution to one of the bottom ports of the MCGV and the organic solvent to one of the upper gradient valve ports. It is best to have the organic channel directly above the salt solution channel. Regular flushing with water of all MCGV channels is recommended to remove all possible salt deposits in the valve ports.

When to Use the Seal Wash Option

Highly concentrated buffer solutions will reduce the lifetime of the seals and pistons in your pump. The seal wash option allows to maintain the seal lifetime by flushing the back side of the seal with a wash solvent.

The seal wash option is strongly recommended when buffer concentrations of 0.1 M or higher will be used for long time periods in the pump.

The active seal wash upgrade can be ordered as G1398A.

The seal wash option comprises a support ring, secondary seal, gasket and seal holder for both piston sides. A wash bottle filled with water /isopropanol (90/10) is placed above the pump in the solvent cabinet and the peristaltic pump moves a flow through the pump head removing all possible buffer crystals from the back of the pump seal.

NOTE

Running dry is the worst case for a wash seal and drastically reduces its lifetime.

The seal will build up sticky layers on the surface of the piston. These sticky layers will also reduce the lifetime of the pump seal. Therefore the tubes of the wash option should always be filled with solvent to prolong the lifetime of the wash seal. Always use a mixture of LC grade water (90 %) and isopropanol (10 %) as wash solvent. This mixture prevents growth of algae or bacteria in the wash bottle and reduces the surface tension of the water.

3 Optimization of the Agilent 1260 Infinity Quaternary LC Optimizing the Pump

Choosing the Right Pump Seals

The standard seal for the pump can be used for most applications. However applications that use normal phase solvents (for example, hexane) are not suited for the standard seal and require a different seal when used for a longer time in the pump.

For applications that use normal phase solvents (for example, hexane) we recommend using polyethylene pump seals (PE seals (pack of 2) (p/n 0905-1420)) and Wash Seal PE (p/n 0905-1718). These seals have less abrasion compared to the standard seals.

NOTE

Polyethylene seals have a limited pressure range of 0 – 200 bar. When used above 200 bar their lifetime is reduced significantly. *DO NOT* apply the seal wear-in procedure performed with new standard seals at 600 bar.

Optimize the Compressibility Compensation Setting

The compressibility compensation default setting is 100×10^{-6} /bar for the pump. This setting represents an average value. Under normal conditions the default setting reduces the pressure pulsation to values (below 1% of system pressure) that will be sufficient for most applications and for all gradient analyses. For applications using sensitive detectors, the compressibility settings can be optimized by using the values for the various solvents described in [Table 9](#) on page 53. If the solvent in use is not listed in the compressibility tables, when using isocratic mixtures of solvents and if the default settings are not sufficient for your application the following procedure can be used to optimize the compressibility settings.

NOTE

When using mixtures of solvents it is not possible to calculate the compressibility of the mixture by interpolating the compressibility values of the pure solvents used in that mixture or by applying any other calculation. In these cases the following empirical procedure has to be applied to optimize your compressibility setting.

- 1 Start the pump with the required flow rate.
- 2 Before starting the optimization procedure, the flow must be stable. Check the tightness of the system with the pressure test.

- 3** Your pump must be connected to a data system or Instant Pilot with which the pressure and %-ripple can be monitored, otherwise connect a signal cable between the pressure output of the pump and a recording device (for example, 339X integrator) and set parameters.

Zero 50 %

Att 2^3 Chart

Speed 10 cm/min

- 4** Start the recording device with the plot mode.
- 5** Starting with a compressibility setting of 10×10^{-6} /bar increase the value in steps of 10. Re-zero the integrator as required. The compressibility compensation setting that generates the smallest pressure ripple is the optimum value for your solvent composition.

Table 9 Solvent Compressibility

Solvent (pure)	Compressibility (10 ⁻⁶ /bar)
Acetone	126
Acetonitrile	115
Benzene	95
Carbon tetrachloride	110
Chloroform	100
Cyclohexane	118
Ethanol	114
Ethyl acetate	104
Heptane	120
Hexane	150
Isobutanol	100
Isopropanol	100
Methanol	120
1-Propanol	100
Toluene	87
Water	46

3 Optimization of the Agilent 1260 Infinity Quaternary LC Optimizing the Autosampler

Optimizing the Autosampler

Optimization for Lowest Carry-over

Several parts of an injection system can contribute to carry-over:

- needle outside
- needle inside
- needle seat
- sample loop
- seat capillary
- injection valve

The autosampler continuous flow-through design ensures that sample loop, needle inside, seat capillary, and the mainpass of the injection valve is always in the flow line. These parts are continuously flushed during an isocratic and also during a gradient analysis. The residual amount of sample remaining on the outside of the needle after injection may contribute to carry-over in some instances. When using small injection volumes or when injecting samples of low concentration immediately after samples of high concentration, carry-over may become noticeable. Using the automated needle wash enables the carry-over to be minimized and prevents also contamination of the needle seat.

Using the Automated Needle Wash

The automated needle wash can be programmed either as “injection with needle wash” or the needle wash can be included into the injector program. When the automated needle wash is used, the needle is moved into a wash vial after the sample is drawn. By washing the needle after drawing a sample, the sample is removed from the surface of the needle immediately.

Uncapped Wash Vial

For best results, the wash vial should contain solvent in which the sample components are soluble, and the vial should *not* be capped. If the wash vial is capped, small amounts of sample remain on the surface of the septum, which may be carried on the needle to the next sample.

Injector Program with Needle Wash

The injector program includes the command NEEDLE WASH. When this command is included in the injector program, the needle is lowered once into the specified wash vial before injection.

For example:

```
1 DRAW 5 µl
2 NEEDLE WASH vial 7
3 INJECT
```

Line 1 draws 5 µl from the current sample vial. Line 2 moves the needle to vial 7. Line 3 injects the sample (valve switches to main pass).

Using an Injector Program

The process is based on a program that switches the bypass groove of the injection valve into the flow line for cleaning. This switching event is performed at the end of the equilibration time to ensure that the bypass groove is filled with the start concentration of the mobile phase. Otherwise the separation could be influenced, especially if microbore columns are used.

3 Optimization of the Agilent 1260 Infinity Quaternary LC Optimizing the Autosampler

For example:

Outside wash of needle in vial 7 before injection

Injector program:

Draw x.x (y) µl from sample

NEEDLE WASH vial 7

Inject

Wait (equilibration time - see text above)

Valve bypass

Wait 0.2 min

Valve mainpass

Valve bypass

Valve mainpass

NOTE

Overlapped injection together with additional injection valve switching is not possible.

General Recommendation to Lowest Carry-over

- For samples where needle outside cannot be cleaned sufficiently with water or alcohol use wash vials with an appropriate solvent. Using an injector program and several wash vials can be used for cleaning.

In case the needle seat has got contaminated and carry-over is significantly higher than expected, the following procedure can be used to clean the needle seat:

- Go to **MORE INJECTOR** and set needle to home position.
- Pipette an appropriate solvent on to the needle seat. The solvent should be able to dissolve the contamination. If this is not known use 2 or 3 solvents of different polarity. Use several milliliters to clean the seat.
- Clean the needle seat with a tissue and remove all liquid from it.
- **RESET** the injector.

Fast Injection Cycle and Low Delay Volume

Short injection cycle times for high sample throughput is one of the most important requirements in analytical laboratories. In order to shorten cycle times, you can:

- shorten the column length
- use high flow rates
- apply a steep gradient

Having optimized these parameters, further reduction of cycle times can be obtained using the overlapped injection mode.

Overlapped Injection Mode

In this process, as soon as the sample has reached the column, the injection valve is switched back to bypass and the next injection cycle starts but waits with switching to mainpass until the actual run is finished. You gain the sample preparation time when using this process.

Switching the valve into the bypass position reduces the system delay volume, the mobile phase is directed to the column without passing sample loop, needle and needle seat capillary. This can help to have faster cycle times especially if low flow rates have to be used like it is mandatory in narrow bore and micro bore HPLC.

NOTE

Having the valve in bypass position can increase the carry-over in the system.

The injection cycle times also depend on the injection volume. In identically standard condition, injecting 100 µl instead of 1 µl, increase the injection time by approximately 8 sec. In this case and if the viscosity of the sample allows it, the draw and eject speed of the injection system has to be increased.

NOTE

For the last injection of the sequence with overlapped injections it has to be considered that for this run the injection valve is not switched as for the previous runs and consequently the injector delay volume is not bypassed. This means the retention times are prolonged for the last run. Especially at low flow rates this can lead to retention time changes which are too big for the actual calibration table. To overcome this it is recommended to add an additional "blank" injection as last injection to the sequence.

3 Optimization of the Agilent 1260 Infinity Quaternary LC Optimizing the Autosampler

General Recommendations for Fast Injection Cycle Times

As described in this section, the first step to provide short cycle times are optimizing the chromatographic conditions. If this is done the autosampler parameter should be set to:

- Overlapped injection mode
- Increase of draw and eject speed for large injection volumes
- Add at last run a blank, if overlapped injection is used

To reduce the injection time, the detector balance has to be set to OFF.

Precise Injection Volume

Injection Volumes Less Than 2 μL

When the injection valve switches to the BYPASS position, the mobile phase in the sample loop is depressurized. When the syringe begins drawing sample, the pressure of the mobile phase is decreased further. If the mobile phase is not degassed adequately, small gas bubbles may form in the sample loop during the injection sequence. When using injection volumes $< 2 \mu\text{L}$, these gas bubbles may affect the injection-volume precision. For best injection-volume precision with injection volumes $< 2 \mu\text{L}$, use of an Agilent 1260 Infinity degasser is recommended to ensure the mobile phase is adequately degassed. Also, using the automated needle wash (see “[Optimization for Lowest Carry-over](#)” on page 54) between injections reduces carry-over to a minimum, further improving the injection volume precision.

Draw and Eject Speed

Draw Speed

The speed at which the metering unit draws sample out of the vial may have an influence on the injection volume precision when using viscous samples. If the draw speed is too high, air bubbles may form in the sample plug, affecting precision. The default draw speed is 200 $\mu\text{L}/\text{min}$. This speed is suitable for the majority of applications, however, when using viscous samples, set the draw speed to lower speed for optimum results. A DRAW statement in an injector

program also uses the draw speed setting which is configured for the autosampler.

Eject Speed

The default eject speed setting is 200 $\mu\text{L}/\text{min}$. When using large injection volumes, setting the eject speed to a higher value speeds up the injection cycle by shortening the time the metering unit requires to eject solvent at the beginning of the injection cycle (when the plunger returns to the home position).

An EJECT statement in an injector program also uses the eject speed setting which is configured for the autosampler. A faster eject speed shortens the time required to run the injector program. When using viscous samples, a high eject speed should be avoided.

3 Optimization of the Agilent 1260 Infinity Quaternary LC Optimizing the Autosampler

Choice of Rotor Seal

Vespel™ Seal (for standard valves only)

The standard seal has sealing material made of Vespel. Vespel is suitable for applications using mobile phases within the pH range of 2.3 to 9.5, which is suitable for the majority of applications. However, for applications using mobile phases with pH below 2.3 or above 9.5, the Vespel seal may degrade faster, leading to reduced seal lifetime.

Tefzel™ Seal (for standard valves only)

For mobile phases with pH below 2.3 or above 9.5, or for conditions where the lifetime of the Vespel seal is drastically reduced, a seal made of Tefzel is available. Tefzel is more resistant than Vespel to extremes of pH, however, is a slightly *softer* material. Under normal conditions, the expected lifetime of the Tefzel seal is shorter than the Vespel seal, however, Tefzel may have the longer lifetime under more extreme mobile phase conditions.

PEEK Seal (for preparative injection valve only)

The preparative injection valve has a sealing material made of PEEK. This material has high chemical resistance and versatility. It is suitable for application using mobile phases within a pH between 1 and 14.

NOTE

Strong oxidizing acids such as concentrated nitric and sulfuric acids are not compatible with PEEK.

Optimizing the Thermostatted Column Compartment

For best performance results of the column compartment:

- Use short connection capillaries and place them close to the heat exchanger. This will reduce heat dissipation and external band-broadening.
- Use the left heat exchanger for small volume columns, for example, 2 – 3 mm i.d. columns at flow rates of less than 200 $\mu\text{L}/\text{min}$.
- For even lower band-broadening, the heat exchanger can be by-passed and the column is placed well between the heat exchanger fins.
- Keep the left and right heat exchanger temperature the same unless you do specific applications.
- Assure that the front cover is always closed.

3 Optimization of the Agilent 1260 Infinity Quaternary LC Optimizing the Detector Regarding to the System

Optimizing the Detector Regarding to the System

Delay Volume and Extra-Column Volume

The *delay volume* is defined as the system volume between the point of mixing in the pump and the top of the column.

The *extra-column volume* is defined as the volume between the injection point and the detection point, excluding the volume in the column.

Extra-Column Volume

Extra-column volume is a source of peak dispersion that will reduce the resolution of the separation and so should be minimized. Smaller diameter columns require proportionally smaller extra-column volumes to keep peak dispersion at a minimum.

In a liquid chromatograph the extra-column volume will depend on the connection tubing between the autosampler, column and detector; and on the volume of the flow cell in the detector. The extra-column volume is minimized with the Agilent 1290 Infinity/Agilent 1260 Infinity LC System due to the narrow-bore (0.12 mm i.d.) tubing, the low-volume heat exchangers in the column compartment and the Max-Light cartridge cell in the detector.

Optimizing Detection with DAD

Introduction

The detector has a variety of parameters that can be used to optimize performance. Depending on whether signal or spectral data need to be optimized, different settings are recommended. The following sections describe optimization for:

- signal sensitivity, selectivity and linearity,
- spectral sensitivity and resolution (DAD only), and
- disk space required for storing data.

NOTE

The information in this chapter should be seen as a basic introduction to diode array detector techniques. Some of these techniques may not be available in the instrument software controlling the detector.

How to Get the Best Detector Performance

The information below will guide you on how to get the best detector performance. Follow these rules as a start for new applications. It gives rules-of-thumb for optimizing detector parameters.

3 Optimization of the Agilent 1260 Infinity Quaternary LC Optimizing Detection with DAD

Optimization Overview

Table 10 Optimization Overview

Parameter	Impact
1 Selection of flow cell <ul style="list-style-type: none"> Choose flow cell according to used column, see “Choosing a Flow Cell” on page 65. 	<ul style="list-style-type: none"> peak resolution versus sensitivity
2 Connection of flow cell <ul style="list-style-type: none"> For flow rates from 0.5 ml/min connect column using the zero-dead-volume fittings of the detector. For small column i.d. (e.g 1 mm) the inlet capillary of the micro flow cell can be connected directly to the column. 	<ul style="list-style-type: none"> chromatographic resolution
3 Setting the peak width (response time) <ul style="list-style-type: none"> Use peak width according “Choosing a Flow Cell” on page 65 as starting point. Set the peak-width close to the width of a narrow peak of interest in your chromatogram. 	<ul style="list-style-type: none"> peak resolution versus sensitivity versus disk space
4 Setting wavelength and bandwidth <ul style="list-style-type: none"> Sample wavelength: <ul style="list-style-type: none"> Never miss a peak by the use of a browser wavelength like 250 nm with 100 nm bandwidth. Select specific wavelength with reduced bandwidth if you need selectivity, e.g. 250,10 nm and 360,100 nm as reference wavelength. Set the sample wavelength to a peak or valley in the spectrum to get best linearity for high concentrations. Reference wavelength: <ul style="list-style-type: none"> Select the reference wavelength with broad bandwidth (30...100 nm) wavelength range where your analytes have little or no absorbance (e.g. sample at 254 nm, reference at 320 nm). 	<ul style="list-style-type: none"> sensitivity versus selectivity sensitivity versus linearity baseline drift due to RI effects.

Choosing a Flow Cell

The Max-Light Cartridge Cell with path length 10 mm and volume (σ) 1.0 μL covers a wide range of applications:

- all column diameter down to at least 2.1 mm ID or even less
- applications with peak dispersion (Peakwidth x flow) down to $\sim 2 \mu\text{L}$
 [example: $\text{pw} = 0.04 \text{ min}$ at flow = 0.1 ml/min gives peak dispersion of
 $0.04 \text{ min} \times 0.1 \text{ ml/min} = 0.004 \text{ ml} = 4 \mu\text{L}$]

If higher sensitivity is necessary, the Max-Light Cartridge Cell with path length 60 mm and volume (σ) 4 μL can be used. This cell enhances the detector by lowering the limit of detection (LOD) by a factor of about 3 (depending on the application).

Optimizing for Sensitivity, Selectivity, Linearity and Dispersion

Flow Cell Path Length

Lambert-Beer's law shows a linear relationship between the flow cell path length and absorbance.

$$\text{Absorbance} = -\log T = \log \frac{I_0}{I} = \epsilon \times C \times d$$

where

T is the transmission, defined as the quotient of the intensity of the transmitted light I divided by the intensity of the incident light, I_0 ,

ϵ is the extinction coefficient, which is a characteristic of a given substance under a precisely-defined set of conditions of wavelength, solvent, temperature and other parameters,

C [mol/L] is the concentration of the absorbing species, and

d [cm] is the path length of the cell used for the measurement.

The detector can now output the signal in two forms:

- 1 In Absorbance divide by the path length AU/cm, that is then similar to [$\epsilon \times C$]. Advantage: samples with same concentration have same peak height also at cells with different path lengths.

3 Optimization of the Agilent 1260 Infinity Quaternary LC Optimizing Detection with DAD

The upper limit of concentration: the linearity limit of the detector is then seen at about 2 AU/path length, so for the 6 cm Max-Light Cartridge Cell the linearity limit is 333 mAU/cm].

- 2 In AU that is equal to $\epsilon \times C \times d$ like normal done in the past: now for recalculation to your concentration C the path length must be considered.

Therefore, flow cells with longer path lengths yield higher signals. Although noise usually increases little with increasing path length, there is a gain in signal-to-noise ratio.

When increasing the path length, the cell volume could increase. Depending on the peak volume, this could cause more peak dispersion.

As a rule-of-thumb the flow cell volume should be about 1/3 of the peak volume at half height. To determine the volume of your peaks, take the peak width as reported in the integration results multiply it by the flow rate and divide it by 3).

NOTE

This may result in problems when the used peak width is set to large and all peaks are filtered accordingly.

Traditionally LC analysis with UV detectors is based on comparing measurements with internal or external standards. To check photometric accuracy of the Agilent detector it is necessary to have more precise information on path lengths of the detector flow cells.

Part Number	Path Length	Cell Volume (σ)
G4213-60008	1.0 cm	1.0 μ L
G4213-60007	6.0 cm	4.0 μ L

Peak width (response time)

Response time describes how fast the detector signal follows a sudden change of absorbance in the flow cell. The detector uses digital filters to adapt response time to the width of the peaks in your chromatogram. These filters do not affect peak area nor peak symmetry. When set correctly, such filters reduce baseline noise significantly ([Figure 18](#) on page 67), but reduce peak height only slightly. In addition, these filters reduce the data rate to allow

optimum integration and display of your peaks and to minimize disk space required to store chromatograms and spectra.

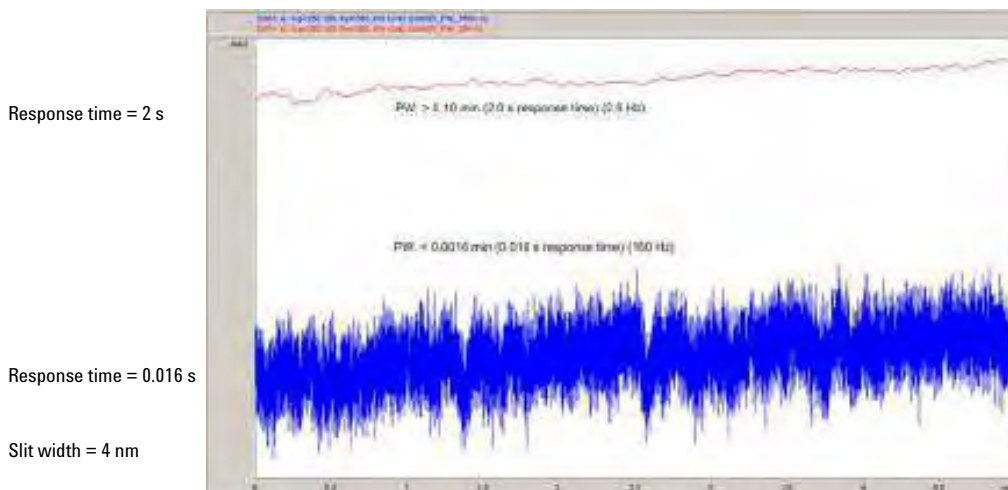


Figure 18 Influence of Response Time on Signal and Noise

Table 11 on page 68 lists the filter choices of the detector. To get optimum results, set peak width as close as possible to a narrow peak of interest in your chromatogram. Response time will be approximately 1/3 of the peak width, resulting in less than 5 % peak-height reduction and less than 5 % additional peak dispersion. Decreasing the peak width setting in the detector will result in less than 5 % gain in peak height but baseline noise will increase by a factor of 1.4 for a factor of 2 response-time reduction. Increasing peak width (response time) by factor of two from the recommended setting (over-filtering) will reduce peak height by about 20 % and reduce baseline noise by a factor of 1.4. This gives you the best possible signal-to-noise ratio, but may affect peak resolution.

3 Optimization of the Agilent 1260 Infinity Quaternary LC Optimizing Detection with DAD

Table 11 Peak Width — Response Time — Data Rate

Peak width at half height [min] ¹	Response [s]	Signal data rate [Hz]	Scan data rate [HZ] ≤126 pts/scan	Scan data rate [HZ] ≤251 pts/scan	Scan data rate [HZ] ≤501 pts/scan	Scan data rate [HZ] >501 pts/scan
< 0.0016	0.016	160 ²	160 ²	80	40	20
> 0.0016	0.03	160 ²	160 ²	80	40	20
> 0.003	0.062	80	80	80	80	40
> 0.006	0.12	40	40	40	40	40
> 0.012	0.25	20	20	20	20	20
> 0.025	0.5	10	10	10	10	10
> 0.05	1.0	5	5	5	5	5
> 0.10	2.0	2.5	2.5	2.5	2.5	2.5
> 0.20	4.0	1.25	1.25	1.25	1.25	1.25
> 0.40	8.0	0.625	0.62	0.625	0.625	0.625
> 0.85	16.0	0.3125	0.31	0.3125	0.3125	0.3125

¹ Values in the User Interface may be rounded.

² G4212A only

NOTE

The maximum spectra scan rate depends on the data points per scan, see [Table 11](#) on page 68. Running at 160 Hz, the spectra scan data rate is reduced automatically if the spectra scan data rate is more than 251 points/scan.

Sample and Reference Wavelength and Bandwidth

The detector measures absorbance simultaneously at wavelengths from 190 to 640 nm. A UV-lamp provides good sensitivity over the whole wavelength range.

If you know little about the analytes in your sample, store all spectra over the full wavelength range. This provides full information but fills up your disk space rather quickly. Spectra can be used to check a peak's purity and identity. Spectral information is also useful to optimize wavelength settings for your chromatographic signal.

The detector can compute and store at run time up to 8 signals with these properties:

- sample wavelength, the center of a wavelength band with the width of sample bandwidth (BW), and optionally
- reference wavelength, the center of a wavelength band with the width of reference bandwidth.

The signals comprises a series of data points over time, with the average absorbance in the sample wavelength band minus the average absorbance of the reference wavelength band.

Signal A in the detector default method is set to sample 254.0/4, reference 360.0/100, that is, the average absorbance from 252 – 256 nm minus the average absorbance from 310 – 410 nm. As all analytes show higher absorbance at 252 – 256 nm than at 310 – 410 nm, this signal will show you virtually every compound which can be detected by UV absorbance.

Many compounds show absorbance bands in the spectrum. [Figure 19](#) on page 70 shows the spectrum of anisic acid as an example. To optimize for lowest possible detectable concentrations of anisic acid, set the sample wavelength to the peak of the absorbance band (that is, 252 nm) and the sample bandwidth to the width of the absorbance band (that is, 30 nm). A reference of 360,100 is adequate. Anisic acid does not absorb in this range.

If you work with high concentrations, you may get better linearity above 1.5 AU by setting the sample wavelength to a valley in the spectrum, like 225 nm for anisic acid.

3 Optimization of the Agilent 1260 Infinity Quaternary LC
 Optimizing Detection with DAD

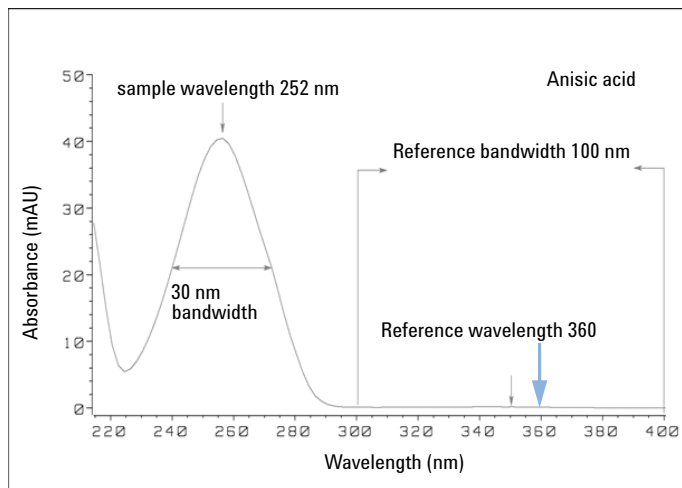


Figure 19 Optimization of Wavelength Setting

A wide bandwidth has the advantage of reducing noise by averaging over a wavelength range – compared to a 4 nm bandwidth, the baseline noise is reduced by a factor of approximately 2.5, whereas the signal is about 75 % of a 4 nm wide band. The signal-to-noise ratio for a 30 nm bandwidth is twice that for a 4 nm bandwidth in our example.

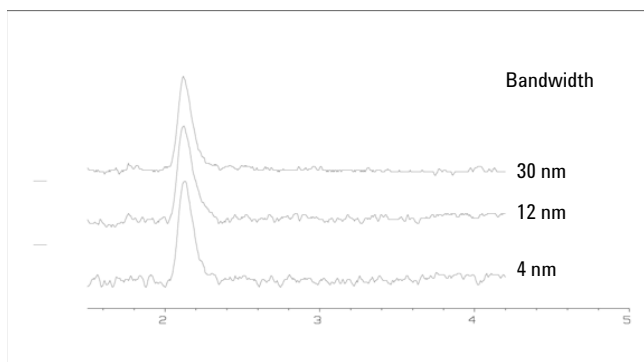


Figure 20 Influence of Bandwidth on Signal and Noise

Because the detector averages absorbance values that are calculated for each wavelength, using a wide bandwidth does not negatively impact linearity.

The use of a reference wavelength is highly recommended to further reduce baseline drift and wander induced by room temperature fluctuations or refractive index changes during a gradient.

An example of the reduction of baseline drifts is shown in [Figure 21](#) on page 71 for PTH-amino acids. Without a reference wavelength, the chromatogram drifts downwards due to refractive index changes induced by the gradient. This is almost completely eliminated by using a reference wavelength. With this technique, PTH-amino acids can be quantified in the low picomole range even in a gradient analysis.

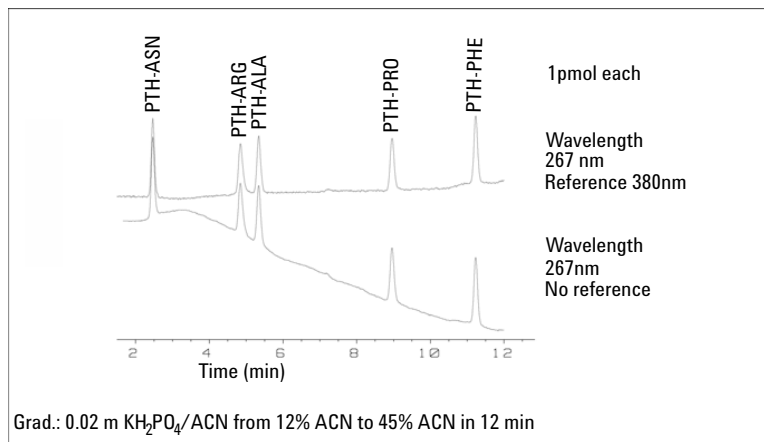


Figure 21 Gradient Analysis of PTH-Amino Acids (1 pmol each), with and without Reference

3 Optimization of the Agilent 1260 Infinity Quaternary LC Optimizing Detection with DAD

Optimizing Spectral Acquisition (DAD only)

Storage of all spectra consumes a lot of disk space. It is very useful to have all spectra available during optimization of a method or when analyzing unique samples. However when running many samples of the same type, the large size of data files with all spectra may become a burden. The detector provides functions to reduce the amount of data, yet retaining the relevant spectral information.

Range

Only the wavelength range where the compounds in your sample absorb contains information that is useful for purity checks and library searches. Reducing the spectrum storage range saves disk space.

Step

Most substances have broad absorbance bands. Display of spectra, peak purity and library search works best if a spectrum contains 5 to 10 data points per width of the absorbance bands. For anisic acid (the example used before) a step of 4 nm would be sufficient. However a step of 2 nm gives a more optimal display of the spectrum.

Threshold

Sets the peak detector. Only spectra from peaks higher than threshold will be stored when a peak-controlled storage mode is selected.

Margin for Negative Absorbance

The detector adjusts its gain during *balance* such that the baseline may drift slightly negative (about -100 mAU). In some special case, for example, when gradient with absorbing solvents are used, the baseline may drift to more negative values.

Only for such cases, increase the margin for negative absorbance to avoid overflow of the analog-to-digital converter.

Optimizing Selectivity

Quantifying Coeluting Peaks by Peak Suppression

In chromatography, two compounds may often elute together. A conventional dual-signal detector can only detect and quantify both compounds independently from each other if their spectra do not overlap. However, in most cases this is highly unlikely.

With a dual-channel detector based on diode-array technology, quantifying two compounds is possible even when both compounds absorb over the whole wavelength range. The procedure is called peak suppression or signal subtraction. As an example, the analysis of hydrochlorothiazide in the presence of caffeine is described. If hydrochlorothiazide is analyzed in biological samples, there is always a risk that caffeine is present which might interfere chromatographically with hydrochlorothiazide. As the spectra in [Figure 22](#) on page 73 shows, hydrochlorothiazide is best detected at 222 nm, where caffeine also shows significant absorbance. It would therefore be impossible, with a conventional variable wavelength detector, to detect hydrochlorothiazide quantitatively when caffeine is present.

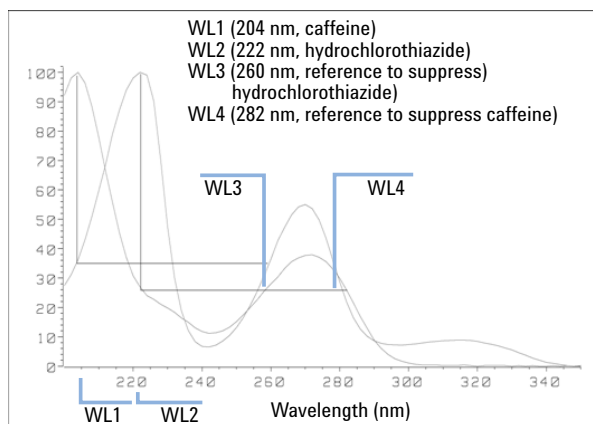


Figure 22 Wavelength Selection for Peak Suppression

With a UV-visible detector based on a diode array and the correct choice of a reference wavelength setting, quantitative detection is possible. To suppress

3 Optimization of the Agilent 1260 Infinity Quaternary LC Optimizing Detection with DAD

caffeine, the reference wavelength must be set to 282 nm. At this wavelength, caffeine shows exactly the same absorbance as at 222 nm. When the absorbance values are subtracted from each another, any indication of the presence of caffeine is eliminated. In the same way, hydrochlorothiazide can be suppressed if caffeine is to be quantified. In this case the wavelength is set to 204 nm and the reference wavelength to 260 nm. [Figure 23](#) on page 74 shows the chromatographic results of the peak suppression technique.

The trade-off for this procedure is a loss in sensitivity. The sample signal decreases by the absorbance at the reference wavelength relative to the signal wavelength. Sensitivity may be decreased by as much as 10–30 %.

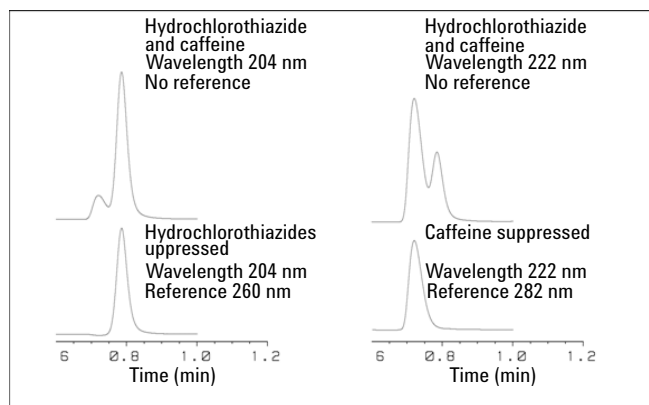


Figure 23 Peak Suppression Using Reference Wavelength

Ratio Qualifiers for Selective Detection of Compound Classes

Ratio qualifiers can be used where, in a complex sample, only one particular class needs to be analyzed – a parent drug and its metabolites in a biological sample, for example. Another example is the selective analysis of derivatives after pre- or post-column derivatization. Specifying a signal ratio that is typical for the sample class is one way of selectively plotting only those peaks that are of interest. The signal output remains at zero so long as the ratio is out of the user-specified ratio range. When the ratio falls within the range, the signal output corresponds to the normal absorbance, giving single, clear peaks on a flat baseline. An example is shown in [Figure 24](#) on page 75 and [Figure 25](#) on page 75.

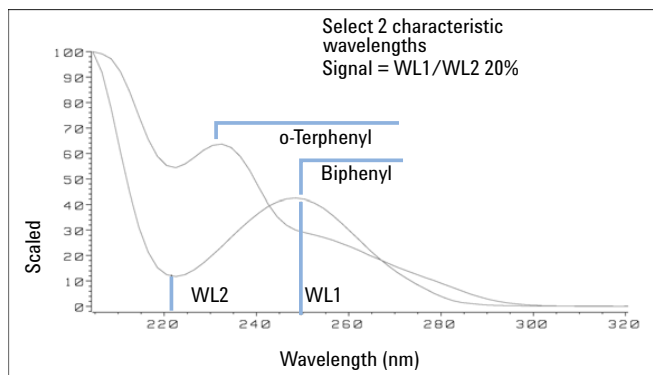


Figure 24 Wavelength Selection for Ratio Qualifiers

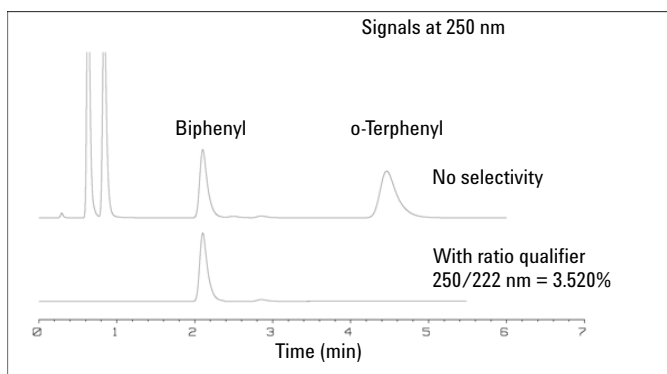


Figure 25 Selectivity by Ratio Qualifiers

In a four-component mixture, only biphenyl was recorded. The other three peaks were suppressed because they did not meet the ratio-qualifier criterion and therefore the output was set to zero. The characteristic wavelengths 249 nm (λ_1) and 224 nm (λ_2) were found from the spectra shown in [Figure 24](#) on page 75. The ratio range was set at 2 – 2.4 ($2.2 \pm 10\%$). Only when the ratio between 249 and 224 nm was within this range, is the signal plotted. Of all four peaks, only the third fulfilled the criterion ([Figure 25](#) on page 75). The others were not plotted.

3 Optimization of the Agilent 1260 Infinity Quaternary LC Optimizing Detection with DAD

Warm up of the Detector

Give the optical unit enough time to warm-up and stabilize (> 60 minutes). The detector is temperature controlled. After turn-on of the detector, it goes through a cycle of different states:

- 0 to 0.5 minutes the heater control is OFF and the heater element runs at 0 % duty cycle.
- 0.5 to 1 minutes the heater control is OFF and the heater element runs at 66% duty cycle. This first minute is used as self-test of the heater functionality.
- 1 to 30 minutes the heater control is OFF and the heater element runs at 40% duty cycle.
- After 30 minutes the heater control is ON and is working with optimized parameters to get the optical unit into the optimal temperature window stabilized.

This cycle starts

- when the detector is turned off/on
- when the lamp is turned off/on

to ensure that the temperature control operates in a defined control range.

NOTE

The times to stabilize the baseline may vary from instrument to instrument and depends on the environment. The example below was done under stable environmental conditions.

The figures below show the first two hours of a detector warm-up phase. The lamp was turned on immediately after turn on of the detector.

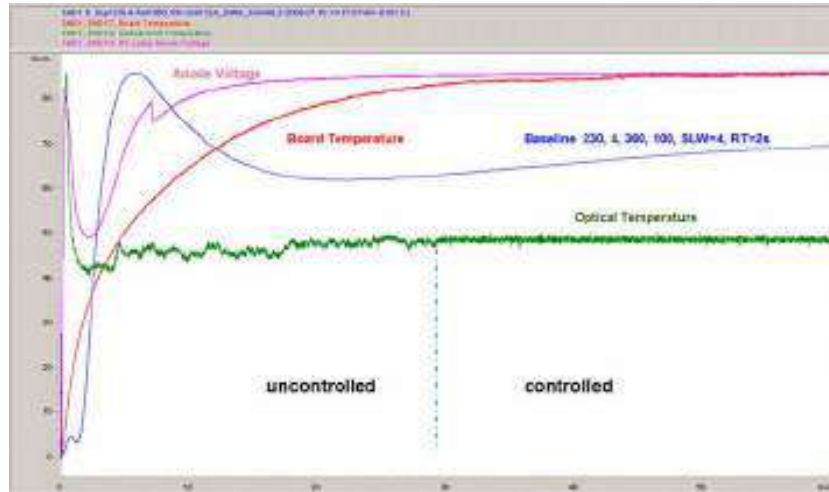


Figure 26 Detector Warm-up – 1st hour

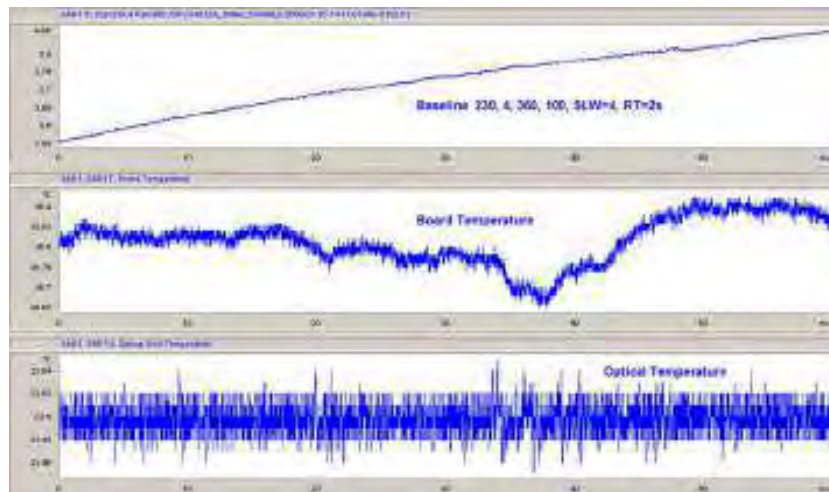


Figure 27 Detector Warm-up – 2nd hour

3 Optimization of the Agilent 1260 Infinity Quaternary LC
 Optimizing Detection with VWD

Optimizing Detection with VWD

Optimizing the Detector Performance

The detector has a variety of parameters that can be used to optimize performance.

The information below will guide you on how to get the best detector performance. Follow these rules as a start for new applications. It gives a rule-of-thumb for optimizing the detector parameters.

Match the Flow Cell to the Column

Standard HPLC Applications

Column length	Typical peak width	Recommended flow cell					
<= 5 cm	0.025 min	Micro flow cell	Semimicro flow cell		Standard flow cell		High Pressure flow cell
10 cm	0.05 min		Standard flow cell		High Pressure flow cell		
20 cm	0.1 min		Standard flow cell		High Pressure flow cell		
>= 40 cm	0.2 min		Standard flow cell		High Pressure flow cell		
	Typical flow rate	0.05-0.2 ml/min	0.2- 0.4 ml/min	0.4- 0.8 ml/min	1-2 ml/min	0.01- 5 ml/min	
	Internal column diameter	1.0 mm	2.1mm	3.0 mm	4.6 mm		

Figure 28 Choosing a Flow Cell (Standard HPLC Applications)

Flow Cell Path Length

Lambert-Beer's law shows a linear relationship between the flow cell path length and absorbance.

$$\text{Absorbance} = -\log T = \log \frac{I_0}{I} = \varepsilon \times C \times d$$

where

T	is the transmission, defined as the quotient of the intensity of the transmitted light I divided by the intensity of the incident light, I ₀ .
e	is the extinction coefficient, which is a characteristic of a given substance under a precisely-defined set of conditions of wavelength, solvent, temperature and other parameters,
C [mol/L]	is the concentration of the absorbing species,
d [cm]	is the path length of the cell used for the measurement.

Therefore, flow cells with longer path lengths yield higher signals. Although noise usually increases little with increasing path length, there is a gain in signal-to-noise ratio. For example, in [Figure 29](#) on page 80 the noise increased by less than 10 % but a 70 % increase in signal intensity was achieved by increasing the path length from 6 mm [Figure 29](#) on page 80 to 10 mm.

When increasing the path length, the cell volume usually increases – in the example from 5 – 13 µL. Typically, this causes more peak dispersion. As demonstrated, this did not affect the resolution in the gradient separation in the example shown below.

As a rule-of-thumb the flow cell volume should be about 1/3 of the peak volume at half height. To determine the volume of your peaks, take the peak width as reported in the integration results multiply it by the flow rate and divide it by 3).

3 Optimization of the Agilent 1260 Infinity Quaternary LC Optimizing Detection with VWD

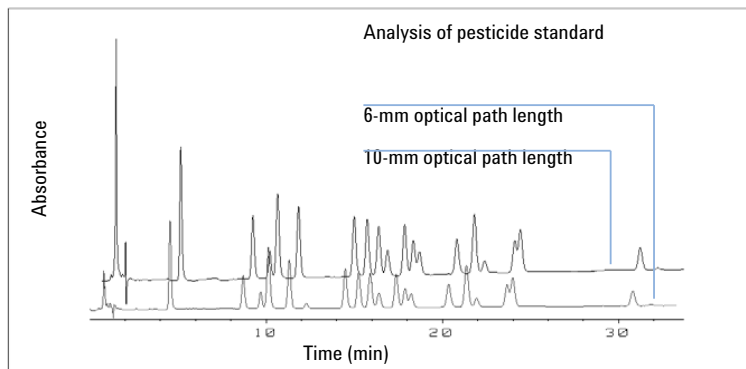


Figure 29 Influence of Cell Path Length on Signal Height

Traditionally LC analysis with UV detectors is based on comparing measurements with internal or external standards. To check photometric accuracy of the Agilent 1200 Series Infinity Variable Wavelength Detector it is necessary to have more precise information on path lengths of the VWD flow cells.

The correct response is:

expected response * correction factor

Please find below the details of the Agilent 1200 Infinity Series Variable Wavelength Detector flow cells:

Table 12 Correction factors for Agilent VWD flow cells

Part number	Path length (actual)	Correction factor
Standard flow cell 10 mm, 14 μ L (p/n G1314-60186)	10.15 \pm 0.19 mm	10/10.15
Semi-micro flow cell 6 mm, 5 μ L (p/n G1314-60183)	6.10 \pm 0.19 mm	6/6.10
Micro flow cell 3 mm, 2 μ L (p/n G1314-60187)	2.80 \pm 0.19 mm	3/2.8
High pressure flow cell 10 mm, 14 μ L (p/n G1314-60182)	10.00 \pm 0.19 mm	6/5.75

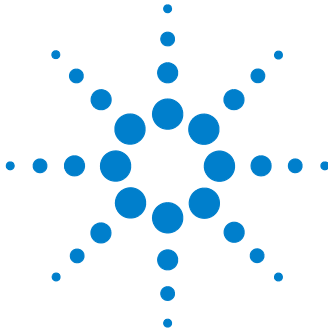
NOTE

However you have to be aware that there are additional tolerance of gasket thickness and its compression ratio which is supposed to be very small in comparison with the machining tolerance.

Set the Detector Parameters (VWD)

- 1 Set peakwidth as close as possible to the width (at half height) of a narrow peak of interest.
- 2 Choose the sample wavelength.
 - at a longer wavelength than the cut-off wavelength of the mobile phase,
 - at a wavelength where the analytes have strong absorptivity if you want to get the lowest possible detection limit,
 - at a wavelength with moderate absorptivity if you work with high concentrations, and
 - preferably where the spectrum is flat for better linearity.
- 3 Consider to use time-programming to further optimization.

3 Optimization of the Agilent 1260 Infinity Quaternary LC
Optimizing Detection with VWD



4 System Setup and Installation

Installing Software	84
Installing the Modules	85
Priming the System	86
Integration Into the Network	90

This chapter includes information on software installation, stack configurations and preparing the system for operation.



4 System Setup and Installation

Installing Software

Installing Software

Installing the Software Controller and Data System

For details of installation procedures for the software, refer to the detector manual and the software manuals.

Installing the Agilent Lab Advisor Software

For details of installation procedures for the Agilent Lab Advisor software, refer to the software documentation on the Lab Advisor DVD.

Agilent Lab Advisor replaces and extends upon the diagnostic functions that were formerly only in the ChemStation software.

Agilent Lab Advisor is a Windows®-based application that continuously monitors instruments in the lab in real time and increases productivity through automatic notification of maintenance and service needs with the use of advanced counters. This allows a problem to be fixed before it impacts results. The software includes an extensive suite of user information and documentation, a set of calculators and tools to help set up, calibrate, and maintain your instrument, and tests and diagnostic routines to verify proper performance. Agilent Lab Advisor also provides feedback and solutions for any instrument errors that may arise. The software will work with or without Agilent data systems.

The software monitors:

- LC module status
- Early Maintenance Feedback (to determine the need for upgrade or replacement)

In addition, the software:

- Automates useful tests,
- Attempts to identify supported LAN-based instruments that are powered on and connected to your PC or lab's network,
- Automatically suggests replacements parts and troubleshooting tasks for some common instrument problems.

Installing the Modules

Installing the System Modules

For details of installation procedures for the modules, refer to the individual module manuals. These manuals also contain information on specifications, maintenance and parts.

Stack Configuration

You can ensure optimum performance by installing the system in one stack and two stack configurations ([“One Stack Configuration”](#) on page 12 and [“Two Stack Configuration”](#) on page 15). These configurations optimize the system flow path, ensuring minimum delay volume.

4 System Setup and Installation

Installing the Modules

Priming the System

Initial Priming

When Before a new degasser or new solvent tubing can be used, it is necessary to prime the system. Isopropanol (IPA) is recommended as priming solvent due to its miscibility with nearly all HPLC solvents and its excellent wetting properties.

Parts required

#	Description
1	Isopropanol

Preparations Connect all modules hydraulically as described in the respective module manuals.
Fill each solvent bottle with 100 mL isopropanol
Switch the system on

WARNING

When opening capillary or tube fittings solvents may leak out.

The handling of toxic and hazardous solvents and reagents can bear health risks.

→ Please observe appropriate safety procedures (for example, goggles, safety gloves and protective clothing) as described in the material handling and safety data sheet supplied by the solvent vendor, especially when toxic or hazardous solvents are used.

NOTE

The purge tool of the LabAdvisor or Instrument Utilities can be used for automatically purging the pump.

NOTE

If the pump is not able to aspirate the solvent from the bottles, a syringe can be used to draw the solvent manually through tubing and degasser.

NOTE

When priming the vacuum degasser with a syringe, the solvent is drawn through the degasser tubes very quickly. The solvent at the degasser outlet will therefore not be fully degassed. Pump for approximately 10 minutes at your desired flow rate before starting an analysis. This will allow the vacuum degasser to properly degas the solvent in the degasser tubes.

- 1 Open the purge valve of the pump
- 2 Set the flow rate to 5 mL/min.
- 3 Select channel A1
- 4 Turn the flow on
- 5 Observe if the solvent in the tubing of channel A1 is advancing towards the pump. If it isn't, disconnect the solvent tubing from the solvent selection valve, attach a syringe with a syringe adapter and pull the liquid through the degasser. Reattach the tubing to the solvent selection valve.
- 6 Pump 30 mL isopropanol to remove residual air bubbles.
- 7 Switch to the next solvent channel and repeat steps 5 and 6 until all channels have been purged.
- 8 Turn the flow off and close the purge valve.

4 System Setup and Installation

Installing the Modules

Regular Priming

When When the pumping system has been turned off for a certain time (for example, overnight) air will rediffuse into the solvent channel between the vacuum degasser and the pump. Solvents containing volatile ingredients will slightly lose these if left in the degasser without flow for a prolonged period of time.

Preparations Switch the system on

NOTE

The purge tool of the LabAdvisor or Instrument Utilities can be used for automatically purging the pump.

- 1 Open the purge valve of your pump by turning it counterclockwise and set the flow rate to 5 mL/min.
- 2 Flush the vacuum degasser and all tubes with at least 10 mL of solvent.
- 3 Repeat step 1 and 2 for the other channel(s) of the pump.
- 4 Set the required composition and flow rate for your application and close the purge valve.
- 5 Pump for approximately 10 minutes before starting your application.

Changing Solvents

When When the solvent of a channel is to be replaced by another solvent that is not compatible (solvents are immiscible or one solvent contains a buffer) it is necessary to follow the procedure below to prevent clogging of the pump by salt precipitation or residual liquid droplets in parts of the system.

Parts required

#	Description
1	Purging solvent(s), see Table 13 on page 90

Preparations Remove the column and replace it by a ZDV fitting.
Prepare bottles with appropriate intermediate solvents (see [Table 13](#) on page 90)

- 1 If the channel is not filled with a buffer, proceed to step 4.
- 2 Place the solvent intake filter into a bottle of water.
- 3 Flush the channel at a flow rate suitable for the installed tubing (typically 3-5 mL/min) for 10 min.
- 4 Modify the flow path of your system as required for your application. For delay volume optimization see the Rapid Resolution System manual.

CAUTION

Buffer salt of aqueous buffers may precipitate in residual isopropanol.

Capillaries and filter may be clogged by precipitating salt.

→ Don't perform steps 5 to 7 for channels run with aqueous buffer as solvent.

-
- 5 Replace the solvent bottle by a bottle of isopropanol.
 - 6 Flush the channel at a flow rate suitable for the installed tubing (typically 3-5 mL/min) for 5 min.
 - 7 Swap the bottle of isopropanol with a bottle of solvent for your application.
 - 8 Repeat steps 1 to 7 for the other channel(s) of the pump.
 - 9 Install the desired column, set the required composition and flow rate for your application and equilibrate the system for approx. 10 minutes prior to starting a run.

4 System Setup and Installation

Installing the Modules

Table 13 Choice of Priming Solvents for Different Purposes

Activity	Solvent	Comments
After an installation When switching between reverse phase and normal phase (both times)	Isopropanol Isopropanol	Best solvent to flush air out of the system Miscible with almost all solvents
After an installation	Ethanol or methanol	Alternative to isopropanol (second choice) if no isopropanol is available
To clean the system when using buffers	HPLC grade water	Best solvent to re-dissolve buffer crystals
After changing aqueous solvents	HPLC grade water	Best solvent to re-dissolve buffer crystals
After the installation of normal phase seals (P/N 0905-1420)	Hexane + 5% isopropanol	Good wetting properties

Integration Into the Network

For network integration of your system refer to user manuals of your modules (chapter *LAN Configuration*).



5 Quick Start Guide

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This chapter provides information on data acquisition and data analysis with the Agilent 1260 Infinity Quaternary LC.



5 Quick Start Guide

Preparing the System

Preparing the System

Turning the System ON

If the system is not already fully on with the software showing Ready status, follow these steps:

- 1 Turn on the computer system and wait for the Windows desktop to appear.
- 2 Turn on the electrical power to the LC modules using the button at the lower left of each module.

A green power on light will be visible in the center of the button.

- 3 Start the control software on the computer by clicking the icon (if configured). Alternatively, you can select **Start > All Programs > Agilent ChemStation > Agilent ChemStation Instrument 1 Online**. As more than one instrument system may be connected to the computer, the number (1, 2, ...) indicates the system number.

The ChemStation software opens in the **Method and Run Control** view. The modules are initially in Standby mode and Not Ready status, except for the autosampler which immediately initializes and becomes Ready.

- 4 To switch on each module individually, right-click the relevant icon and select **Switch [module name] on** from the context menu.


Alternatively, you can turn on all modules simultaneously in the system by clicking the **System On/Off** button in the bottom right of the system diagram. The system status changes from *Not Ready* (yellow indication) to *Ready* (green indication) after a short delay as the setpoints are attained.

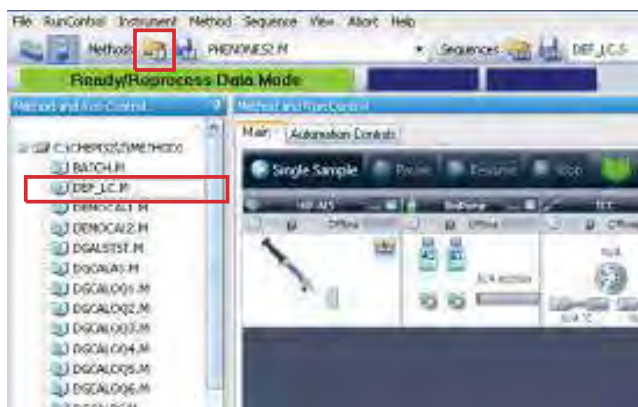
Loading the Default Method

The ChemStation has a default method named **DEF_LC.M** which is loaded at first execution or whenever a new blank method template is required. It contains default settings for all modules.

With this procedure, you load the method **DEF_LC.M**. You can use it to set all parameters to default settings, or to get a blank method template before setting up a new method.

- 1 Go to **Method and Run Control** view of the ChemStation.
- 2 On the menu bar, select **Method > New Method...**, and select **DEF_LC.M** from the context menu.

Alternatively, you can use the **Load Method** icon  under the menu bar, or double-click the method name **DEF_LC.M** in the **Methods** tab of the Navigation Pane.



The default method (**DEF_LC.M**) has a set of default parameters which can then be modified to create a new method. For instance, the flow rate is set to zero, and the **Method Information** and **Method History** are blank.

NOTE

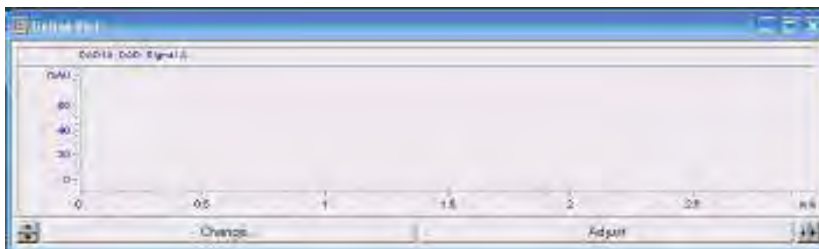
Note that this method can never be overwritten with new parameters. Hence clicking on **Save** will re-direct you into the **Save As...** function, so that you must enter a different method name.

5 Quick Start Guide

Preparing the System

Configuring the Online Plot

- 1 If the **Online Plot** window is not visible: Click **View > Online Signals > Signal Window 1** to display the window.



- 2 To configure the desired signal(s) in the **Online Plot** window, click **Change...** The **Edit Signal Plot** setup page opens.

- 3 In the **Available Signals** box, highlight the required signal(s), and click **Add** to move them to the **Selected Signals** box.

- 4 To configure the individual settings for each signal, highlight the signal in the **Selected Signal** box and set the required values in the lower half of the page.

NOTE

In addition to the detector signals, parameter traces such as temperature and pressure can also be plotted. With **Apply to Method**, the settings in this page can be stored into the method.

The **Online Plot** window behaves like electronic chart paper, continuously recording the output from the detector(s) and other output parameters. The signals are drawn at the right of the window and move away to the left. Up to 90 min of past data is accessible. This is useful for checking the baseline and looking at previous injections. The X and Y-axis scales can be adjusted directly with the up/down buttons on each axis.

The **Adjust** button in the **Online Plot** window moves the current point on the selected signal to the zero line. The selected signal is indicated by the color of the Y-axis labels. A particular signal may be selected by clicking on the signal or by clicking on the relevant signal description at the top of the plot.

The **Balance** button zeroes all detectors when pressed.

NOTE

Changes made in the **Online Plot** page do not in any way affect the data stored into the individual data files.

5 Quick Start Guide
Preparing the System

Purging the Pump

Purge the pump, if ...

- The pump has been primed for the first time.
- The pump is to be purged with fresh solvent before using the system, or when the solvent is to be exchanged for another.
- The pump has been idle for a few hours or more (air may have diffused into the solvent lines and purging is recommended).
- The solvent reservoirs are refilled, and the pump requires purging to fill the system with fresh solvent. If different solvents are to be used, ensure that the new solvent is miscible with the previous solvent and if necessary use an intermediate step with a co-miscible solvent (isopropanol is often a good choice, check with a solvent miscibility table).

For details on the purging procedure, refer to “[Priming the System](#)” on page 86.

Setting Up the Method

This section shows how to quickly set the method conditions for an analysis.

The default method **DEF_LC.M** has been loaded ready to prepare the new method. Now the key parameters can be edited to create the new method.

- 1 To quickly access the **Method** page for each module, right-click in the system diagram for the module and select **Method...** from the context menu.

Each of the modules will be set up in this way.

- 2 Right-click the pump area, and select **Method...** in the context menu.
 - a In the **Method** page for the **1260 Infinity Quaternary Pump**, enter the following parameters:
 - Flow rate: 1.5 ml/min
 - Solvent A: Select **Water** from the compressibility drop-down list.
 - Solvent B: Select the check box to make Solvent B active.
 - %B: Initial value 65 %
 - Stop Time: 6 min
 - Max Pressure Limit: 600 bar
 - b Click the **+** sign to open the **Timetable**.
 - c Add a line, select **Change Solvent Composition**, and set %B to 80 %
 - d Other parameters can remain at default settings. Click **OK** to exit the window.

The changes are sent to the pump module.

- 3 Right-click the autosampler area, and select **Method...** in the context menu.
 - a In the **Method** page for the **1260 Infinity Autosampler**, enter the following parameters:
 - Injection volume: 1.0 µl
 - Injection with Needle Wash
 - Mode Flush Port, Time: 6 s
 - b Other parameters can remain at default settings. Click **OK** to exit the window.

The changes are sent to the autosampler module.

5 Quick Start Guide

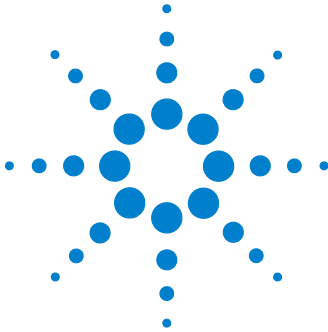
Setting Up the Method

- 4 Right-click the Thermostatted Column Compartment (TCC) area, and select **Method...** in the context menu.
 - a In the **Method** page for the **1260 Infinity TCC**, enter the following parameters:
 - Left Temperature 40 °C
 - Right Temperature Combined
 - b Other parameters can remain at default settings. Click **OK** to exit the window.

The changes are sent to the TCC module.
- 5 Right-click the Diode-Array Detector area, and select **Method...** in the context menu.
 - a In the **Method** page for the **1260 Infinity DAD**, enter the following parameters:
 - **Use Signal:** Turn all signals except **Signal A** off by clearing the check boxes.
 - Signal A: 250 nm, bw 100 nm, ref 360 nm, bw 100 nm
 - Peak width: 0.012 min (0.25 s Response, 20 Hz)
 - b In the **Advanced** section, set **Spectrum Store** to **All**.
 - c Other parameters can remain at default settings. Click **OK** to exit the window.

The changes are sent to the DAD module.
- 6 All the required module parameters have now been entered. Select **Method > Save Method As... ISO-1.M** to save the method with a new name.

The ChemStation will not allow the method to be saved as **DEF_LC.M**, so that the default method template is not altered.
- 7 Allow the system to equilibrate for at least 10 min, and check that the baseline in the **Online Plot** is stable before starting the analysis.



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This chapter provides addition information on safety, legal, web and the Edit Entire Method.








6 Appendix Safety

Safety

Safety Symbols

Table 14 Safety Symbols

Symbol	Description
	The apparatus is marked with this symbol when the user should refer to the instruction manual in order to protect risk of harm to the operator and to protect the apparatus against damage.
	Indicates dangerous voltages.
	Indicates a protected ground terminal.
	Indicates eye damage may result from directly viewing the light produced by the deuterium lamp used in this product.
	The apparatus is marked with this symbol when hot surfaces are available and the user should not touch it when heated up.

WARNING

A WARNING

alerts you to situations that could cause physical injury or death.

- Do not proceed beyond a warning until you have fully understood and met the indicated conditions.

CAUTION

A CAUTION

alerts you to situations that could cause loss of data, or damage of equipment.

- Do not proceed beyond a caution until you have fully understood and met the indicated conditions.

General Safety Information

The following general safety precautions must be observed during all phases of operation, service, and repair of this instrument. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the instrument. Agilent Technologies assumes no liability for the customer's failure to comply with these requirements.

WARNING

Ensure the proper usage of the equipment.

The protection provided by the equipment may be impaired.

→ The operator of this instrument is advised to use the equipment in a manner as specified in this manual.

Safety Standards

This is a Safety Class I instrument (provided with terminal for protective earthing) and has been manufactured and tested according to international safety standards.

Operation

Before applying power, comply with the installation section. Additionally the following must be observed.

Do not remove instrument covers when operating. Before the instrument is switched on, all protective earth terminals, extension cords, auto-transformers, and devices connected to it must be connected to a protective earth via a ground socket. Any interruption of the protective earth grounding will cause a potential shock hazard that could result in serious personal injury. Whenever it is likely that the protection has been impaired, the instrument must be made inoperative and be secured against any intended operation.

Make sure that only fuses with the required rated current and of the specified type (normal blow, time delay, and so on) are used for replacement. The use of repaired fuses and the short-circuiting of fuse holders must be avoided.

6 Appendix
Safety

Some adjustments described in the manual, are made with power supplied to the instrument, and protective covers removed. Energy available at many points may, if contacted, result in personal injury.

Any adjustment, maintenance, and repair of the opened instrument under voltage should be avoided whenever possible. When inevitable, this has to be carried out by a skilled person who is aware of the hazard involved. Do not attempt internal service or adjustment unless another person, capable of rendering first aid and resuscitation, is present. Do not replace components with power cable connected.

Do not operate the instrument in the presence of flammable gases or fumes. Operation of any electrical instrument in such an environment constitutes a definite safety hazard.

Do not install substitute parts or make any unauthorized modification to the instrument.

Capacitors inside the instrument may still be charged, even though the instrument has been disconnected from its source of supply. Dangerous voltages, capable of causing serious personal injury, are present in this instrument. Use extreme caution when handling, testing and adjusting.

When working with solvents please observe appropriate safety procedures (e.g. goggles, safety gloves and protective clothing) as described in the material handling and safety data sheet by the solvent vendor, especially when toxic or hazardous solvents are used.

The Waste Electrical and Electronic Equipment Directive

Abstract

The Waste Electrical and Electronic Equipment (WEEE) Directive (2002/96/EC), adopted by EU Commission on 13 February 2003, is introducing producer responsibility on all electric and electronic appliances starting with 13 August 2005.

NOTE

This product complies with the WEEE Directive (2002/96/EC) marking requirements. The affixed label indicates that you must not discard this electrical/electronic product in domestic household waste.

Product Category:

With reference to the equipment types in the WEEE Directive Annex I, this product is classed as a Monitoring and Control Instrumentation product.



NOTE

Do not dispose off in domestic household waste

To return unwanted products, contact your local Agilent office, or see www.agilent.com for more information.

6 Appendix

Lithium Batteries Information

Lithium Batteries Information

WARNING

Lithium batteries may not be disposed-off into the domestic waste. Transportation of discharged Lithium batteries through carriers regulated by IATA/ICAO, ADR, RID, IMDG is not allowed.

Danger of explosion if battery is incorrectly replaced.

- Discharged Lithium batteries shall be disposed off locally according to national waste disposal regulations for batteries.
 - Replace only with the same or equivalent type recommended by the equipment manufacturer.
-

**WARNING**

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering.

Udskiftning må kun ske med batteri af samme fabrikat og type.

- Lever det brugte batteri tilbage til leverandøren.
-

WARNING

Lithiumbatteri - Eksplosionsfare.

Ved udskiftning benyttes kun batteri som anbefalt av apparatfabrikanten.

- Brukt batteri returneres apparatleverandøren.
-

NOTE

Bij dit apparaat zijn batterijen geleverd. Wanneer deze leeg zijn, moet u ze niet weggooien maar inleveren als KCA.

Radio Interference

Cables supplied by Agilent Technologies are screened to provide optimized protection against radio interference. All cables are in compliance with safety or EMC regulations.

Test and Measurement

If test and measurement equipment is operated with unscreened cables, or used for measurements on open set-ups, the user has to assure that under operating conditions the radio interference limits are still met within the premises.

6 Appendix
Sound Emission

Sound Emission

Manufacturer's Declaration

This statement is provided to comply with the requirements of the German Sound Emission Directive of 18 January 1991.

This product has a sound pressure emission (at the operator position) < 70 dB.

- Sound Pressure $L_p < 70$ dB (A)
- At Operator Position
- Normal Operation
- According to ISO 7779:1988/EN 27779/1991 (Type Test)

Solvent Information

Flow Cell

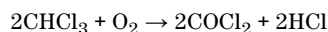
To protect optimal functionality of your flow-cell:

- Avoid the use of alkaline solutions (pH > 9.5) which can attack quartz and thus impair the optical properties of the flow cell.

Use of Solvents

Observe the following recommendations on the use of solvents.

- Brown glass ware can avoid growth of algae.
- Avoid the use of the following steel-corrosive solvents:
 - Solutions of alkali halides and their respective acids (for example, lithium iodide, potassium chloride, and so on),
 - High concentrations of inorganic acids like sulfuric acid and nitric acid, especially at higher temperatures (if your chromatography method allows, replace by phosphoric acid or phosphate buffer which are less corrosive against stainless steel),
 - Halogenated solvents or mixtures which form radicals and/or acids, for example:



This reaction, in which stainless steel probably acts as a catalyst, occurs quickly with dried chloroform if the drying process removes the stabilizing alcohol,

- Chromatographic grade ethers, which can contain peroxides (for example, THF, dioxane, di-isopropylether) such ethers should be filtered through dry aluminium oxide which adsorbs the peroxides,
- Solvents containing strong complexing agents (e.g. EDTA),
- Mixtures of carbon tetrachloride with 2-propanol or THF.

6 Appendix

UV-Radiation

UV-Radiation

Emissions of ultraviolet radiation (200-315 nm) from this product is limited such that radiant exposure incident upon the unprotected skin or eye of operator or service personnel is limited to the following TLVs (Threshold Limit Values) according to the American Conference of Governmental Industrial Hygienists:

Table 15 UV-Radiation Limits

Exposure/day	Effective Irradiance
8 hours	0.1 $\mu\text{W}/\text{cm}^2$
10 minutes	5.0 $\mu\text{W}/\text{cm}^2$

Typically the radiation values are much smaller than these limits:

Table 16 UV-Radiation Typical Values

Position	Effective Irradiance
Lamp installed, 50-cm distance	average 0.016 $\mu\text{W}/\text{cm}^2$
Lamp installed, 50-cm distance	maximum 0.14 $\mu\text{W}/\text{cm}^2$

Declaration of Conformity for HOX2 Filter

Declaration of Conformity																																					
<p>We herewith affirm you that the</p> <p style="font-weight: bold; font-size: 1.2em;">Holmium Oxide Glass Filter</p> <p>used in Agilent absorption detectors listed in the table below meets the requirements of National Institute of Standards and Technology (NIST) to be applied as certified reference standard.</p> <p>According to the publications of NIST in J. Res. Natl. Inst. Stand. Technol., 111, 169-186 (2007) the holmium oxide glass filters are extremely stable with respect to the wavelength calibration needed for certification. The expanded uncertainty of the certified wavelength values is 0.3 nm.</p> <p>Agilent Technologies guarantees, as required by NIST, that the nominal of its filters is holmium oxide glass representing the tabulated certified holmium oxide absorption bands.</p> <p>For more samples:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Product Number</th> <th>Series</th> <th>Measured Wavelength*</th> <th>Wavelength Accuracy</th> <th>Optical Bandwidth</th> </tr> </thead> <tbody> <tr> <td>79885A</td> <td>1090</td> <td>761.0nm</td> <td rowspan="5">± 1nm</td> <td rowspan="5">1nm</td> </tr> <tr> <td>79875A</td> <td>1050</td> <td>495.0nm</td> </tr> <tr> <td>G1406A</td> <td>1080</td> <td>453.7nm</td> </tr> <tr> <td>G1313A, G1395A</td> <td>1100</td> <td>528.7nm</td> </tr> <tr> <td>G1313B/C, G1362B/C, G1406A, G1199A</td> <td>1100, 1200, 1260, CE</td> <td></td> </tr> <tr> <td>79855C</td> <td>1070</td> <td>560.8nm 415.2nm 325.4nm</td> <td>± 2nm</td> <td>3nm</td> </tr> <tr> <td>G1314A, B, C G1314D, E, F G1405 - 960, B/C</td> <td>1100, 1200, 1260 1120, 1220</td> <td>360.8nm 410.5nm 339.4nm</td> <td>± 1nm</td> <td>3nm</td> </tr> </tbody> </table> <p>* The position of Measured Wavelength depends on the different Optical Bandwidth.</p>						Product Number	Series	Measured Wavelength*	Wavelength Accuracy	Optical Bandwidth	79885A	1090	761.0nm	± 1nm	1nm	79875A	1050	495.0nm	G1406A	1080	453.7nm	G1313A, G1395A	1100	528.7nm	G1313B/C, G1362B/C, G1406A, G1199A	1100, 1200, 1260, CE		79855C	1070	560.8nm 415.2nm 325.4nm	± 2nm	3nm	G1314A, B, C G1314D, E, F G1405 - 960, B/C	1100, 1200, 1260 1120, 1220	360.8nm 410.5nm 339.4nm	± 1nm	3nm
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6 **Appendix**
Agilent Technologies on Internet

Agilent Technologies on Internet

For the latest information on products and services visit our worldwide web site on the Internet at:

<http://www.agilent.com>

Select Products/Chemical Analysis

It will provide also the latest firmware of the modules for download.

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In This Book

This manual contains technical reference information about the Agilent 1260 Infinity Quaternary LC.

The manual describes the following:

- introduction,
- product description,
- system optimization,
- setup and installation,
- quick start guide.

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Agilent Technologies



IPS-400 Series Bench Scales User Manual

3116613480 Rev A July 2022



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1.0 SETTING UP AND TURNING ON THE SCALES

There is a pillar which must be attached to the base frame first using the 4 bolts supplied. The pillar is secured to the bracket using 2 sets of screws. Then place the platform in the base. Level the scale by adjusting the four feet. Attach the indicator module to the pillar by sliding it over the bracket with the flanges engaged in the grooves on the base. Attach the cable from the base to the connector on the rear of the indicator. Attach the power to the indicator.

After completion of setting up, press the **[On/Off]** key on the rear of the indicator. The software revision number will be displayed followed by a self-test showing all digits before the zero is displayed along with the unit of weight that was selected last.

NOTE: The IPS can be operated from the rechargeable battery. With a single load cell and backlight disabled the life is approximately 70 hours before needing to be recharged. The battery should be charged for 12 hours for full capacity.

2.0 OPERATION

2.1 ZEROING

You can press the **[Zero]** key at any time to set the zero point from which all other weighing and counting is measured. The scales have an automatic re-zeroing function to account for minor drifting or accumulation of material on a connected platform. However you may need to press **[Zero]** to re-zero the indicator if small amount of weight is still shown when the platform is empty.



2.2 TARING

To determine a weight of sample which is using a container, you need to tare the empty container. IPS scales supply two methods of tare: manual tare and preset tare.

Manual Tare

Zero the indicator by pressing **[Zero]**. The zero indicator will be on. Place a container on the pan.

Press **[Tare]** when the reading is stable. The weight that was displayed is stored as the tare value, leaving zero on the display. The stable and Net indicator will be on.



As a sample is added only the weight of the product will be shown. The indicator could be tared a second time if another type of product was added to the first one.



Press **[Tare]** or **[Zero]** to remove the tare value and display zero. The Net indicator will disappear.

Preset Tare

When the indicator or scale is at zero with no weight on the platform it is possible to enter a preset tare. First zeroing the scale, enter a value using the numeric keys. Press **[Tare]** to tare the indicator. The value that was entered is stored as the tare value and it is subtracted from the display, leaving a negative number on the display.

To change the weighing unit press the **[Unit]** key. The only alternative weighing unit is pounds.

2.3 PARTS COUNTING

The scale can be used to count parts based on the average weight of a sample weighed. If a container is to be used, place this container on the platform before entering parts counting and press **[Tare]**. Press **[Cnt]** to enter the Parts Counting mode.

The display will show the last sample size used. For example, **"10 Pcs"**. To change the sample size, you can press **[CE]** to clear the last values and then enter the value 20 using the numeric keypad.



Place the right number of parts on the platform. Then press **[Cnt]** to determine an average piece weight. After the sample has been weighed the scale will count any other parts added by applying the average piece weight to the weight of the parts to be counted.



During parts counting the display can be changed to show the net weight, unit weight and number of parts by each time pressing the **[Func]** key.



To count a different sample quantity, press the **[Count]** key. And operate as above. To return to weighing, press **[Unit]** when **"XX pcs"** is displayed.

NOTE: If the parts are too light to measure accurately, the count may become faulty. It is suggested that the samples to be weighed should each weigh more than the resolution of the indicator.

2.4 PERCENT WEIGHING

The scale will use a mass on the platform as the 100% reference weight or input a reference weight using the keypad.

Steps:

If using a reference weight (or object) as your 100% reference, add the weight to the platform. Press **[Func]**. The first option is **"Func 1"**, press the **[Func]** key 3 more times to display **"Func 4"**

Press the **[Tare]** key. **"F4 Pct"** will be displayed. Press **[Tare]** again to enter percent weighing. The scale will set the sample mass on the platform as 100% reference weight.

NOTE: If there is no reference weight on the pan and percent weighing function is entered, pressing **[Tare]** again will return the indicator to normal weighing.

Remove the sample weight. Then any other weight placed on the platform will be displayed as a percentage of the original sample.

Users can also input the reference weight using the keypad. Make sure the platform is empty and when "**F4 PCT**" is displayed, enter the weight to be used for the 100% reference, then press **[Tare]** to accept the reference weight. The display will show "0.00 %".

If the indicator shows "**X X . X X %**", which is the last weight used as a reference, press **[CE]** to clear and use the numeric keypad to enter a new value. Press **[Tare]** to accept the new reference weight.

Press **[Unit]** to return to normal weighing.

NOTE: The weight entered must be greater than 50 scale divisions.

The display may jump by large numbers unexpectedly if small weights are used to set as 100% reference. The indicator checks if the weight is too small and will show Error 7.

2.5 ANIMAL (DYNAMIC) WEIGHING

Steps:

Press **[Func]**. The first option is **"Func 1"**, press the **[Func]** key 3 more times to display **"Func 4"**.

Press the **[Tare]** key. **"F4 Pct"** will be displayed. Press the **[Func]** key to advance to the second function, **"F4 Anl"**, Animal weighing. And Press **[Tare]** to enter.

To use the Animal Weighing function it is necessary to set the amount of filtering. More active animals will require a higher level of filtering to give a stable result. The display will show **"Filt x"** where x is a value from 1 to 5. To increment the value shown press the **[Func]** key then press the **[Tare]** key to accept it.

The display will flash **"Ani "** 2 times then show the current weight, 0.00. The scale is now ready to weigh. Place containers or blankets onto the platform and press the **[Tare]** key to zero the display. Place the animal to be weighed on the platform.

When a stable reading is found, the display will show and lock this value, The display will show the **"Hold"** symbol .Remove the animal, the display will hold the weight value.

Press the **[Unit]** key to unlock the display. The display will flash **"Ani"** twice, and be ready for the next animal.

Press **[zero]** key to return to normal weighing.

2.6 ACCUMULATED TOTAL

The indicator can be set to accumulate when a weight is added to the platform automatically or manually by pressing **[Print]**. See menu structure section. The accumulation function is available only during weighing. If at any time the weighing units are changed, the accumulated data will be lost.

Manual Accumulation

When the scale is set to manual accumulation, the weight displayed will be stored in the memory when the **[Print]** key is pressed and the weight is stable.

Steps :

Remove the weight and press **[Print]** when the display is at zero. The display will show "ACC 1" and then the weight in memory for 2 seconds before returning to normal. The weight can be output to a printer or PC using the RS-232 interface.



When the indicator is at zero, place a second weight on the platform. When stable, press **[Print]** to accumulate the weight. The display will show "ACC 2" for 2 seconds and then show the new total.



Continue until all weights have been added. This can continue for up to 99 entries until the capacity of display is exceeded.

To view the total in memory, press the **[Print]** key when the indicator is at zero. The display will show the total number of accumulation "ACC xx" and the total weight before returning to zero.

To print the total, press **[Print]** to recall and then immediately press **[Print]** the second time to print the results. To erase the memory, press **[Print]** to view the total and then immediately press **[CE]** to clear the memory.

Automatic Accumulation

When the indicator has been set to Automatic Accumulation the value will be stored in memory automatically.

Place a weight on the platform. The beeper will sound when the display is stable indicating the value is accepted. Remove the weight. The display will show "ACC 1" and then the total in the memory before it returns to zero. Adding a 2nd weight will repeat the process.

While the weight is on the platform, press the **[Print]** key to view the values- first the accumulation number "ACC x" and then the total will be shown.

3.0 RS-232 SPECIFICATION

The IPS scale is supplied with a bi-directional RS-232 interface. The indicator when connected to a printer or computer outputs the weight with the selected weighing unit through the RS-232 interface.

Default Specifications:

RS-232 output of weighing data
ASCII code
9600 Baud (user selectable)
8 data bits
No Parity

Connector:

9 pin d-sub miniature socket
Pin 3 Output
Pin 2 Input
Pin 5 Signal Ground

4.0 CALIBRATION

The scale can be calibrated using kilogram weights or pound weights depending on the weighing unit selected at the time of calibration.

Steps:

To start the calibration, turn the scale off and switch on again and then press **[Tare]** during the self-test. Enter code number 0000 and press **[Tare]**. This will take you directly to the calibration section or you can get into the calibration section through the Indicator Settings ("FUnC 3"- see menu structure).

The display will show "UnLoAd"

Remove all weight from the platform and then press the **[Tare]** key when the display is stable. After the Zero point is set, the display will show "**Ld xx**". Place the suggested calibration mass on the platform. It is best to use a weight close to the full capacity of the indicator.

If the mass is different from the displayed value, enter the value of the mass in whole numbers. The kg or the lb symbol will be on to show the active unit. Press the **[Tare]** key when the stable indicator is on.

When complete, it will display "**PASS**" and then either display "**S8 CAL**" (if entered the calibration section through the Scale Settings) or return to normal weighing (if entered directly). Remove the calibration mass.

If an error message "**FAIL H**" or "**FAIL L**" is shown, re-check the calibration and repeat. If the error cannot be corrected contact your supplier.

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5.0 SPECIFICATIONS

IPS Models

Model #	IPS-400-30	IPS-400-50	IPS-400-100	IPS-400-150	IPS-400-300
Maximum Capacity	30lb/15kg	50lb/25kg	100lb/50kg	150lb/75kg	300lb/150kg
Readability	0.001lb/0.0005kg	0.002lb/0.001kg	0.005lb/0.002kg	0.01lb/0.005kg	0.02lb/0.01kg
Repeatability (Std Dev)	0.002lb/0.0010kg	0.004lb/0.002kg	0.010lb/0.004kg	0.02lb/0.01kg	0.04lb/0.02kg
Linearity \pm	0.003lb/0.0015kg	0.006lb/0.003kg	0.015lb/0.006kg	0.03lb/0.015kg	0.06lb/0.04kg
Units of Measure	Kilograms and pounds, grams for all except IPS 300 which is kg and lbs only.				
Stabilization Time	2-3 Secs				
Operating Temperature	-10°C to +40°C / +14°F to +104°F				
Power Supply	12vDC 800mA UL/CSA adapter for USA				
Calibration	External				
Calibration Mass	User Selectable				
Display	Backlit Green display 20mm with capacity tracker				
Scale Housing	Welded steel painted base, stainless steel grade 304 Top pan, ABS indicator housing				
Pan Size	300mm x 400mm x 50mm / 11.8" x 15.7" x 2"			400mm x 500mm x 50mm / 15.7" x 19.7" x 2"	
Overall Dimensions (w x d x h)	300mmx 520mm x 660mm / 11.8" x 20.5" x 26"			400mm x 620mm x 660mm / 15.7" x 23.7" x 26"	
Net Weight	7.6kg / 16.8 lb				
Features	Weighing/Counting/ Percentage/Hold function/RS232				

6.0 ERROR MESSAGES

During the initial power-on testing or during operation, the indicator may show an error message. The meaning of the error messages is described below.

If an error message is shown, repeat the step that caused the message. If the error message is still shown then contact your dealer for support.

ERROR CODE	DESCRIPTION	POSSIBLE CAUSES
Err 1	Time input Error	Invalid time entry such as "268970" for the time format "H-m-S".
Err 2	Date input Error	34th day of a month is an invalid entry.
Err 4	Initial Zero is greater than allowed (4% of maximum capacity) when power is turned on or when the [Zero/Enter] key is pressed.	Weight on the platform when turning the indicator on. Excessive weight on the platform when zeroing the indicator. Platform is not installed. Improper calibration of the indicator. Damaged load cell. Damaged electronics.
Err 6	A/D count is not correct when turning the indicator on.	Load cell is damaged. Electronics is damaged.
Err 7	Percent input error	Percent function is entered with no reference mass on the platform.
FAIL H or FAIL L	Calibration error	Improper calibration (should be within +10% of the factory calibration). The old calibration data will be retained until the calibration process is complete.

7.0 MENU STRUCTURE

PARAMETER LAYOUT for IPS SCALES

Press the **[Func]** key to enter Functions mode.

Key functions while in this section

[Tare] enter a parameter or accept the changes

[Func] move to next parameter or option

[Zero] return to previous parameter or return to weighing

FUNC 1 Function 1 is not used
n/A

FUNC 2 RS-232 Parameters	
C1 on Enable RS-232	Prt on Prt off
C2 bd Baud Rate	600 To 19200
C3 Prm Printing Mode	mA StA (Manual Stable) mA AnY (Manual Any) Au StA (Auto Stable) Au End (Auto End) Ct StA (continuous Stable) Ct AnY (Continuous Any)
C4 Aon Enable Accumulation	on off
C5 Ln Language for printing	English French German Spanish
C6 Uid User ID	Enter using numeric keys
C7 Sid Scale ID	Enter using numeric keys
C8 LAb	LAB On LAB Off

FUNC 3 Scale Parameters	
S1 Un Units enable	kg lb
S2 bL Backlight	EL off EL on EL AU (Auto)
S3 AoF Set Auto off time (min.)	SLP 0 SLP 1 SLP 5 SLP 10
S4 dt Set time and date	Set as described in manual
S5 dIS Display mode	All StAb (only when stable)
S6 Fi Set Filter	SLoW nor (normal) FAST
S7 SPS Scale password	Enter using numeric keys
S8 CAL	Perform calibration

FUNC 4 Scale Parameters	
F4 Pct Percent Weighing	Enter 100% reference weight
F4 Ani Animal weighing	FLt 1 Filter setting To FLt 5

8.0 WARRANTY INFORMATION

The scale is covered by a Limited Warranty (Parts and Labor) for any components that fail due to defects in materials or workmanship. Warranty starts from the date of delivery.

During the warranty period, should any repairs be necessary, the purchaser must inform its supplier. The company or its authorized Technician reserves the right to repair or replace the components at any of its workshops at no additional cost, depending on the severity of the problems. However, any freight involved in sending the faulty units or parts to the Service Centre should be borne by the purchaser.

The warranty will cease to operate if the equipment is not returned in the original packaging and with correct documentation for a claim to be processed.

This warranty does not cover equipment where defects or poor performance is due to misuse, accidental damage, exposure to radioactive or corrosive materials, negligence, faulty installation, unauthorized modifications or attempted repair, or failure to observe the requirements and recommendations as given in this User Manual.

This product may include a rechargeable battery that is designed to be removed and replaced by the user. The supplier will provide a replacement battery if the battery manifests a defect in materials or workmanship during the initial period of use of the product in which the battery is installed.

As with all batteries, the maximum capacity of any battery included in the product will decrease with time or use, and battery cycle life will vary depending on product model, configuration, features, use, and power management settings. A decrease in maximum battery capacity or battery cycle life is not a defect in materials or workmanship, and is not covered by this Limited Warranty.

Repairs carried out under the warranty do not extend the warranty period. Components removed during warranty repairs become company property.

The statutory rights of the purchaser are not affected by this warranty.

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FCC COMPLIANCE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. The equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Shielded interconnect cables must be employed with this equipment to insure compliance with the pertinent RF emission limits governing this device.

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

WEEE COMPLIANCE



Any Electrical or Electronic Equipment (EEE) component or assembly of parts intended to be incorporated into EEE devices as defined by European Directive 2002/95/EEC must be recycled or disposed using techniques that do not introduce hazardous substances harmful to our health or the environment as listed in Directive 2002/95/EC or amending legislation. Battery disposal in Landfill Sites is more regulated since July 2002 by regulation 9 of the Landfill (England and Wales) Regulations 2002 and Hazardous Waste Regulations 2005. Battery recycling has become topical and the Waste Electrical and Electronic Equipment (WEEE) Regulations are set to impose targets for recycling.

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Adam Equipment

Cruiser Count (CCT) SERIES

Software rev: V 1.00 & above



Easy Reference:	
Model name of the scale:	
Serial number of the unit:	
Software revision number (Displayed when power is first turned on):	
Date of Purchase:	
Name of the supplier and place:	

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P.N. 3.02.6.6.14037, Revision D5, August 2019

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1.0 INTRODUCTION

- The Cruiser Count (**CCT**) series provides accurate, fast and versatile counting scales.
- There are 3 types of scale within the **CCT** series:
 1. **CCT**: Standard models
 2. **CCT-M**: Trade approved models
 3. **CCT-UH**: High resolution models
- Cruiser counting scales can weigh in pound, gram and kilogram weighing units. NOTE: some units are excluded from certain regions due to restrictions and laws that govern those regions.
- The scales have stainless steel weighing platforms on an ABS base assembly.
- All scales are supplied with a RS-232 bi-directional interface and real time clock (RTC).
- The scales have a sealed keypad with colour coded membrane switches and there are 3 large, easy to read liquid crystal type displays (LCD). The LCD's are supplied with a backlight.
- The scales include automatic zero tracking, audible alarm for pre-set counts, automatic tare, pre-set tare, an accumulation facility that allows the count to be stored and recalled as an accumulated total.



2.0 SPECIFICATIONS

CCT SERIES					
Model #	CCT 4	CCT 8	CCT 16	CCT 32	CCT 48
Maximum Capacity	4000 g	8000 g	16 kg	32 kg	48 kg
Readability	0.1g	0.2g	0.0005kg	0.001kg	0.002kg
Tare Range	-4000 g	-8000 g	-16 kg	-32 kg	-48 kg
Repeatability (Std Dev)	0.2g	0.4g	0.001kg	0.002kg	0.004 kg
Linearity ±	0.3 g	0.6 g	0.0015 kg	0.0003 kg	0.0006 kg
Units of Measure	g		kg		

CCT-M SERIES**Model: CCT 4M**

UNITS OF MEASURE	MAXIMUM CAPACITY	TARE RANGE	READABILITY	REPEATIBILITY	LINEARITY
Grams	4000 g	- 4000 g	1 g	2 g	3 g
Pounds	8lb	-8 lb	0.002 lb	0.004 lb	0.007 lb

Model: CCT 8M

UNITS OF MEASURE	MAXIMUM CAPACITY	TARE RANGE	READABILITY	REPEATIBILITY	LINEARITY
Grams	8000 g	-8000 g	2 g	4 g	6 g
Pounds	16 lb	-16 lb	0.004 lb	0.009 lb	0.013 lb

Model: CCT 20M

UNITS OF MEASURE	MAXIMUM CAPACITY	TARE RANGE	READABILITY	REPEATIBILITY	LINEARITY
Kilograms	20kg	- 20 kg	0.005 kg	0.01 kg	0.015 kg
Pounds	44 lb	- 44 lb	0.011 lb	0.022 lb	0.033 lb

Model: CCT 40M

UNITS OF MEASURE	MAXIMUM CAPACITY	TARE RANGE	READABILITY	REPEATIBILITY	LINEARITY
Kilograms	40kg	- 40 kg	0.01 kg	0.02 kg	0.03 kg
Pounds	88 lb	- 88 lb	0.022 lb	0.044 lb	0.066 lb

CCT-UH SERIES

Model: CCT 8UH

UNITS OF MEASURE	MAXIMUM CAPACITY	TARE RANGE	READABILITY	REPEATIBILITY	LINEARITY
Grams	8000 g	- 8000 g	0.05 g	0.1 g	0.3 g
Pounds	16 lb	- 16 lb	0.0001 lb	0.0002 lb	0.0007 lb

Model: CCT 16UH

UNITS OF MEASURE	MAXIMUM CAPACITY	TARE RANGE	READABILITY	REPEATIBILITY	LINEARITY
Kilograms	16 kg	-16 kg	0.1 g	0.2 g	0.6 g
Pounds	35 lb	- 35 lb	0.0002 lb	0.0004 lb	0.0013 lb

Model: CCT 32UH

UNITS OF MEASURE	MAXIMUM CAPACITY	TARE RANGE	READABILITY	REPEATIBILITY	LINEARITY
Kilograms	32 kg	- 32 kg	0.0002 kg	0.0004 kg	0.0012 kg
Pounds	70 lb	- 70 lb	0.0044 lb	0.0009 lb	0.0026 lb

Model: CCT 48UH



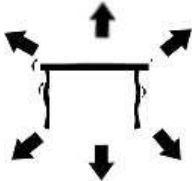
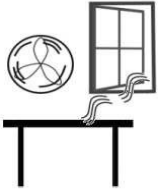
UNITS OF MEASURE	MAXIMUM CAPACITY	TARE RANGE	READABILITY	REPEATIBILITY	LINEARITY
Kilograms	48 kg	- 48 kg	0.0005 kg	0.001 kg	0.003 kg
Pounds	100lb	-100 lb	0.0011 lb	0.0022 lb	0.0066 lb

2.1 COMMON SPECIFICATIONS

Stabilisation Time	2 Seconds typical
Operating Temperature	-10°C - 40°C 14°F - 104°F
Power supply	110 - 240vAC adapter –input 12V 800mA output
Battery	Internal rechargeable battery (~90 hours operation)
Calibration	Automatic External
Display	3 x 7 digits LCD digital displays
Balance Housing	ABS Plastic, Stainless Steel platform
Pan Size	210 x 300mm 8.3" x 11.8"
Overall Dimensions (wxdxh)	315 x 355 x 110mm 12.4" x 14" x 4.3"
Net Weight	4.4 kg / 9.7 lb
Applications	Counting Scales
Functions	Parts counting, checkweighing, accumulating memory, pre-set count with alarm
Interface	RS-232 bi-directional interface English, German, French, Spanish selectable text
Date/Time	Real Time Clock (RTC), To print date and time information (Dates in year/month/day, day/month/year or month/day/year formats- Battery backed)

3.0 INSTALLATION

3.1 LOCATING THE SCALE

	<ul style="list-style-type: none"> • The scales should not be placed in a location that will reduce the accuracy
	<ul style="list-style-type: none"> • Avoid extremes of temperature. Do not place in direct sunlight or near air conditioning vents. • Avoid unsuitable tables. The table or floor must be rigid and not vibrate
	<ul style="list-style-type: none"> • Avoid unstable power sources. Do not use near large users of electricity such as welding equipment or large motors. • Do not place near vibrating machinery.
	<ul style="list-style-type: none"> • Avoid high humidity that might cause condensation. Avoid direct contact with water. Do not spray or immerse the scales in water • Avoid air movement such as from fans or opening doors. Do not place near open windows or air conditioning vents • Keep the scales clean. Do not stack material on the scales when they are not in use

3.2 INSTALLATION OF CCT SCALES

- The **CCT** Series come with a stainless steel platform packed separately.
- Place the platform in the locating holes on the top cover.
- **Do not** press with excessive force as this could damage the load cell inside.
- Level the scale by adjusting the four feet. The scale should be adjusted such that the bubble in the spirit level is in the centre of the level and the scale is supported by all four feet.
- Turn the power ON using the switch located on the left of the weight display.
- The scale will show the current software revision number in the “**Weight**” display window, for example V1.06.
- Next a self-test is performed. At the end of the self-test, it will display “0” in all three displays, if the zero condition has been achieved.



4.0 KEY DESCRIPTIONS



Keys	Functions
[0-9]	Numeric entry keys, used to manually enter a value for tare weights, unit weight, and sample size.
[CE]	Used to clear the unit weight or an erroneous entry.
[Print M+]	Add the current count to the accumulator. Up to 99 values or full capacity of the weight display can be added. Also prints the displayed values when Auto print is switched off.
[MR]	To recall the accumulated memory.
[SETUP]	Used for setting the time and for other setup operations
[SMPL]	Used to input the number of items in a sample.
[U.Wt]	Used to enter the weight of a sample manually.
[Tare]	Tares the scale. Stores the current weight in memory as a tare value, subtracts the tare value from the weight and shows the results. This is the net weight. Entering a value using the keypad will store that as the tare value.
[→0←]	Sets the zero point for all subsequent weighing to show zero.
[PLU]	Used to access any stored PLU weight values
[UNITS]	Used for selecting the weighing unit
[CHECK]	Used to set the Low and High limits for checkweighing
[.]	Places a decimal point on the unit weight value display

5.0 DISPLAYS



The scales have three digital display windows. These are “**Weight**”, “**Unit Weight**” and “**Count pcs**”.


It has 6-digit display to indicate the weight on the scale.


Arrows above symbols will indicate the following:



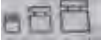
Charge State Indicator,  as above

Net Weight Display, "**Net**" as above

Stability indicator, "**Stable**" or symbol  as above

Zero indicator, "**Zero**" or symbol  as above

5.1 UNIT WEIGHT DISPLAY

- This display will show the unit weight of a sample. This value is either input by the user or computed by the scale. The unit of measurement may be set to grams or pounds depending on region.
- [text deteted]
- If count has been accumulated then the arrow indicator will show below the symbol .

5.2 COUNT DISPLAY

- This display will show the number of items on the scale or the value of the accumulated count. See the next section on OPERATION.
[text deleted]

6.0 OPERATION

SETTING THE WEIGHING UNIT: g or kg

The scale will turn on displaying the last weighing unit selected, either grams or kilograms. To change the weighing unit press the [Units] key.

To change the weighing unit press the [SETUP] key and use the [1] or [6] keys to scroll through the menu until 'units' appears on the display. Press [Tare] ↵ to select.

In the 'count pcs' display the current weighing [word deleted] will be displayed (kg,g or lb) with either 'on' or 'off'. Pressing [Tare] ↵ cycles through the weighing units available. Use the [1] and [6] keys to change between On/Off and use the [Tare] ↵ button to select.

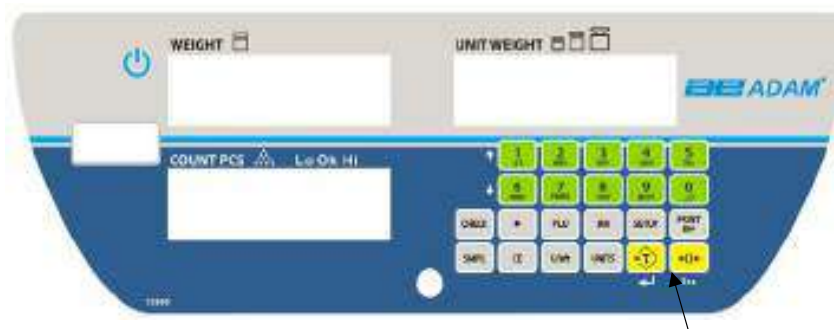
If necessary press the [CE] key to clear the unit weight before changing.

6.1 ZEROING THE DISPLAY



- You can press the **[→0←]** key at any time to set the zero point from which all other weighing and counting is measured. This will usually be necessary only when the platform is empty. When the zero point is obtained the **“Weight”** display will show the indicator for zero.
- The scale has an automatic re-zeroing function to account for minor drifting or accumulation of material on the platform. However you may need to press **[→0←]** to re-zero the scale if small amounts of weight are still shown when the platform is empty.

6.2 TARING



- Zero the scale by pressing the **[→0←]** key if necessary. The indicator **“→0←”** will be ON.
- Place a container on the platform and its weight will be displayed.
- Press **[Tare]** to tare the scale. The weight that was displayed is stored as the tare value which is subtracted from the display, leaving zero on the display. The indicator **“Net”** will be ON.
- As a product is added only the weight of the product will be shown. The scale could be tared a second time if another type of product was to be added to the first one. Again only the weight that is added after taring will be displayed.
- When the container is removed a negative value will be shown. If the scale was tared just before removing the container, this value is the gross weight of the container and any products removed. The indicator above **“→0←”** will also be ON because the platform is back to the same condition as it was when the **[→0←]** key was pressed last.
- If all product is removed leaving only the container on the platform, the indicator **“→0←”** will also be on as the platform is back to the same condition as it was when the **[→0←]** key was pressed last.

6.3 PARTS COUNTING



6.3.1 Setting Unit Weight

In order to do parts counting it is necessary to know the average weight of the items to be counted. This can be done by weighing a known number of the items and letting the scale determine the average unit weight or by manually inputting a known unit weight using the keypad.

A. Weighing a sample to determine the Unit Weight

To determine the average weight of the items to be counted, you will need to place a known quantity of the items on the scale and key in the number of items being weighed. The scale will then divide the total weight by the number of items and display the average unit weight. Press **[CE]** anytime to clear the unit weight.

- Zero the scale by pressing the **[→0←]** key if necessary. If a container is to be used, place the container on the scale and tare by pressing **[Tare]** ↓ as discussed earlier.
- Place a known quantity of items on the scale. After the weight display is stable, enter the quantity of items using the numeric keys and then press the **[Smpl]** key.
- The number of units will be displayed on the "Count" display and the computed average weight will be shown on the "Unit Weight" display.
- As more items are added to the scale, the weight and the quantity will increase.
- If a quantity which is smaller than the sample is placed on the scale, then the scale will automatically enhance the Unit Weight by re-calculating it. To lock the Unit Weight and avoid resampling, press **[U. Wt.]**.

- If the scale is not stable, the calculation will not be completed. If the weight is below zero, the "**Count**" display will show negative count.

B. Entering a known Unit Weight

- If the unit weight is already known then it is possible to enter that value using the keypad.
- Enter the value of the unit weight in grams, using the numeric keys followed by pressing the [**U. Wt.**] key. The "**Unit Weight**" display will show the value as it was entered.
- The sample is then added to the scale and the weight will be displayed as well as the quantity, based on the unit weight.

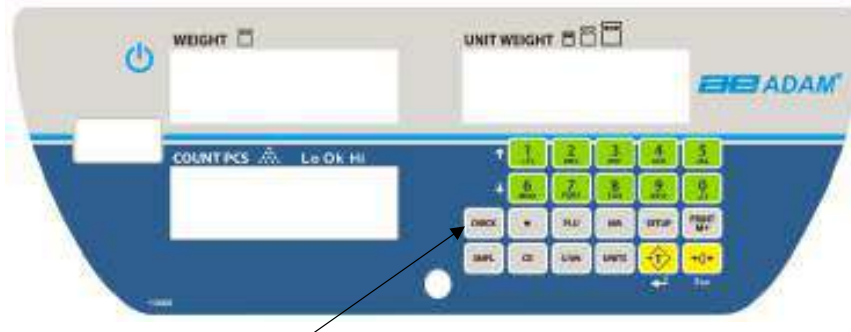
6.3.2 Counting more parts

- After the unit weight has been determined or entered, it is possible to use the scale for parts counting. The scale can be tared to account for the container weight mentioned in section 6.2.
- After the scale is tared the items to be counted are added and the "**Count**" display will show the number of items, computed using the total weight and the unit weight.
- It is possible to increase the accuracy of the unit weight at any time during the counting process by entering the count displayed and then pressing the [**Smpl**] key. You must be certain that the quantity displayed matches the quantity on the scale before pressing the key. The unit weight can be adjusted based upon a larger sample quantity. This will give greater accuracy when counting larger sample sizes.

6.3.3 Automatic part weight updates

- At the time of computing the unit weight (see section 6.3.1A), the scale will automatically update the unit weight when a sample less than the sample already on the platform is added. A beep will be heard when the value is updated. It is wise to check the quantity is correct when the unit weight has been updated automatically.
- This feature is turned off as soon as the number of items added exceeds the count used as a sample.

6.3.4 Checkweighing



- Checkweighing is a procedure to cause an alarm to sound when the number of items counted on the scale meets or exceeds a number stored in the memory by using the **[check]** key.
- Pressing the **[Check]** key will bring up “Lo” in the weight display, enter a numeric value using the numbers on the keypad and pressing the **[Tare]** ↵ enter button to confirm.
- Once the “Lo” value is set, you will be prompted to set the “Hi” value, confirm this by following the same procedure as for the “Lo” value.
- Placing an object on the scale will now bring up an arrow indicator pointing to “Lo, Mid or Hi” value on the display.
- To clear the value from the memory and thereby turn off the checkweighing feature, enter the value "0" and press **[Tare]**↵.

6.3.5 Manually Accumulated Totals



- The values (weight and count) shown on the display can be added to the values in the memory by pressing the **[M+]** key if the accumulated total is set to ON in the Print menu. The "**Weight**" display will show number of times. The values will be displayed for 2 seconds before returning to normal.
- The scale must return to zero or a negative number, before another sample can be added to the memory.
- More products can then be added and the **[M+]** key to be pressed again. This can continue for up to 99 entries or until the capacity of the "**Weight**" display is exceeded.
- To observe the total stored value, press the **[MR]** key. The total will be displayed for 2 seconds. This should be done while the scale is at zero.
- To clear the memory- first press **[MR]** to recall the totals from memory and then press the **[CE]** key to clear all values from the memory.

6.3.6 Automatic Accumulated Totals

- The scale can be set to automatically accumulate totals when a weight is placed on the scale. This eliminates the need to press the **[M+]** key to store values into the memory. However the **[M+]** key is still active and can be pressed to store the values immediately. In this case the values will not be stored when the scale returns to zero.
- See the Section 9.0 on RS-232 Interface for details on how to enable Automatic Accumulation.

6.3.7 Entering Values for The PLU

Product Look-Up (PLU) numbers are used to store information about the most commonly used items. Using CCT, the PLU values can be stored as unit weight, check counting limits or both together.

The individual PLU values should be entered against specific items before the weighing process starts so that the desired PLU's can be recalled during the weighing process.

The user can store and recall up to 140 PLU values (Pos 1 to PoS 140) using the PLU key.

To store values for the [PLU] key into the memory follow the procedure:

- 1) Enter the unit weight value using keypad or perform a count sample. Enter any CHECK counting limits which can also be stored (see section 6.3.4)
- 2) Press PLU key then select "Store" using digits [1] and [6] to change the selection; once selected press [Tare] key. Display will show "PoS xx" on the Count display.

- 3) Enter any number (0 up to 140) for saving the unit weight in the desired position. For example, press [1] and [4] for the position 14. It will show "PoS 14" Press [Tare] key to save it.
- 4) To change to the earlier saved value against a particular PLU, simply repeat the process.

6.3.8 Using a Stored PLU Value for Unit Price

To recall on of these PLU values the following procedures applies:

- 1) To recall a PLU value, press [PLU] key. The display will show "recall" if not press digits [1] or [6] to change the selection and then press [Tare] key.
- 2) Once selected, display will show "PoS XX on the Count display. Enter a number (0 to 140) and press [Tare] key to recall the value against the number selected.

If the item is loaded on the pan, the Count window will show number of pieces. If nothing is loaded, only the unit weight value saved for the location will be displayed in the Unit Weight window and the Count window will display "0"

If only check weight limits are recalled then they will become active when account sample is done.

7.0 CALIBRATION

OIML TYPE APPROVAL: For the CCT-M models, the calibration is locked either by a sealed jumper on the underside of the scale, or by a calibration count on the display. If the seal is broken or tampered with, the scale needs to be re-verified by an authorised certification body and re-sealed, before it is used legally. Contact your local metrology standards office for further assistance.

The CCT scales are calibrated using metric or pound weights depending on the region and unit in use before calibration.

You need to enter a secure menu by entering a passcode when requested.

- Press **[Tare]** ↵ once, during the initial counting of the display after the power is turned on.
- The **“Count”** display will show **“P”** requesting for the passcode number.
- The fixed passcode is **“1000”**
- Press the **[Tare]** ↵ key
- The **“Weight”** display will show **“u-CAL”**
- Press the **[Tare]** ↵ key and the **“weight”** display will show **“noload”** to request all weight be removed from the platform.
- Press the **[Tare]** ↵ key to set the zero point
- The display will then show the calibration weight suggested in the **“Count”** display. If the calibration weight is different from the value shown, Press **[CE]** to clear the current value then enter the correct value as an integer value, it is not possible to have fractions of a kilogram or pound. For Example:

20kg = 

- Press **[Tare]** ↵ to accept the calibration value and the **“Weight”** display will now show **“Load”**.
- Place the calibration weight on the platform and allow the scale to stabilize as indicated by the stable indicator.
- Press **[Tare]** ↵ to Calibrate.
- When calibration is done the scale will restart and return to normal weighing.
- After calibration, the scale should be checked whether the calibration is correct. If Necessary, repeat calibration.

Suggested Calibration weights for CCT Series:

CCT 4	CCT 8	CCT 16	CCT 32	CCT 48
2 kg / 5 lb	5 kg / 10 lb	10 kg / 30 lb	20 kg / 50 lb	30 kg / 100 lb

- After calibration, the scale should be checked whether the calibration and linearity is correct. If necessary, repeat calibration.

NOTE: In certain regions, **CCT** scales will have the lb or kg indicator on, to show the unit of the weight requested. If the scale was in pounds before starting the calibration, the weights requested will be in pound values or if the scale was weighing in kilograms then metric weights will be requested.

8.0 RS-232 INTERFACE

The CCT Series are supplied with a USB and RS-232 bi-directional interface. The scale when connected to a printer or computer through the RS-232 interface, outputs the weight, unit weight and count.

Specifications:

RS-232 output of weighing data
ASCII code
Adjustable Baud rate, 600, 1200, 2400, 4800, 9600 and 19200 baud
8 data bits
No Parity

Connector:

9 pin D-subminiature socket
Pin 3 Output
Pin 2 Input
Pin 5 Signal Ground

The scale can be set to print text in English, French, German or Spanish.

The data will normally output in a label format if parameter Label=On. This format is described below.

Data Format-Normal Output:

Date	12/09/2006
Time	14:56:27
Scale ID	xxx
User ID	xxx
Net Wt.	0.100kg
Tare Wt.	0.000kg
Gross Wt	0.100kg
Total Wt.	0.100kg
Unit Wt.	3.04670g
Pieces	10 pcs
<lf><cr>	Includes 2 line feeds with carriage return
<lf><cr>	

Data Format with Accumulation On:

Date	7/06/2018
Time	14:56:27
Scale ID	xxx
User ID	xxx
Net Wt.	0.100kg
Tare Wt.	0.000kg
Gross Wt	0.100kg
Total Wt.	0.100kg
Unit Wt.	3.04670g
Pieces	10 pcs
<lf><cr>	Includes 2 line feeds with carriage return
<lf><cr>	
Date	7/06/2018
Time	14:56:27
Scale ID	xxx
User ID	xxx
Net Wt.	0.100kg
Tare Wt.	0.000kg
Gross Wt	0.100kg
Total Wt.	0.100kg
Unit Wt.	3.04670g
Pieces	10 pcs
<lf><cr>	Includes 2 line feeds with carriage return
<lf><cr>	
Date	12/09/2006
Time	14:56:27
No.	2
Total Pieces	66pcs

Pressing the **[MR]** key will not send the totals to the RS-232 when the continuous print is turned on. The continuous print will only be for weight and display data that is current.

Data Format with Accumulation Off, with Hi/Lo set:

Date	7/06/2018
Time	14:56:27
Scale ID	xxx
User ID	xxx
Net Wt.	0.97kg
Tare Wt.	0.000kg
Gross Wt	0.97kg
Unit Wt.	3.04670g
Pieces	32 pcs
High Limit	50PCS
Low Limit	20PCS
Accept	
IN	
Date	7/06/2018
Time	14:56:27
Scale ID	xxx
User ID	xxx
Net Wt.	0.100kg
Tare Wt.	0.000kg
Gross Wt	0.100kg
Unit Wt.	3.04670g
Pieces	10 pcs
High limit	50PCS
Low limit	20PCS
BELOW THE LIMIT	
LO	
Date	12/09/2006
Time	14:56:27
Scale ID	xxx
User ID	xxx
Net Wt.	0.100kg
Tare Wt.	0.000kg
Gross Wt	0.100kg
Unit Wt.	3.04670g
Pieces	175 pcs
High limit	50PCS
Low limit	20PCS
ABOVE THE LIMIT	
HI	

Data Format Print 1 Copy, Accumulation Off:

Date	08/6/2018	
Time	12:17:24	
Scale.ID	xxxx	
User ID	xxxx	
Net Wt.	0.054kg	
Tare Wt.	0.000kg	
Gross Wt.	0.054kg	
Unit Wt.	3.04670g	
Pieces	18PCS	
PC -		
ST, GS,	0.052kg,	17
ST,GS,-	0.014kg,-	4
ST,GS,-	0.013kg,-	4
ST,GS,-	0.013kg,-	4
ST,GS,-	0.013kg,-	4
ST,GS,-	0.013kg,-	4
ST,GS,-	0.014kg,-	4
ST,GS,	0.013kg	
ST,GS,	0.013kg	ADAM
ST,GS,	0.014kg	
70		
ST,GS,-	0.014kg,-	4, 3.046
70		
ST,GS,-	0.014kg,-	4, 3.046
70		
ST,GS,-	0.014kg,-	4, 3.046
70		
ST,GS,-	0.014kg,-	4, 3.046
70		UNIT

In other languages the format is the same but the text will be in the language selected.

Description	ENGLISH	FRENCH	GERMAN	SPANISH
Print gross weight	Gross Wt	Pds Brut	Brut-Gew	Pso Brut
Net weight	Net Wt.	Pds Net	Net-Gew	Pso Net
Tare weight	Tare Wt.	Pds Tare	Tare-Gew	Pso Tare
Weight per unit counted	Unit Wt.	Pds unit	Gew/Einh	Pso/Unid
Number of items counted	Pcs	Pcs	Stck.	Piezas
Number of weighings added to subtotals	No.	Nb.	Anzhl	Num.
Total weight and count printed	Total	Total	Gesamt	Total
Print date	Date	Date	Datum	Fecha
Print time	Time	Heure	Zeit	Hora

8.1 INPUT COMMANDS FORMAT

The scale can be controlled with the following commands. The commands must be sent in upper case letters, i.e. "T" not "t". Press the Enter key of the PC after each command.

T<cr><lf>	Tares the scale to display the net weight. This is the same as pressing [Tare] ↵ key.
Z<cr><lf>	Sets the zero point for all subsequent weighing. The display shows zero.
P<cr><lf>	Prints the results to a PC or printer using the RS-232 interface. It also adds the value to the accumulation memory if the accumulation function is not set to automatic. In CCT series, the [Print] key will either print the current items being counted or the results of the accumulation memory if [M+] is pressed first.
R<cr><lf>	Recall and Print- Same as if first the [MR] key and then the [Print] key is pressed. Will display the current accumulated memory and print the total results.
C<cr><lf>	Same as pressing [MR] first and then the [CE] key to erase the current memory.

9.0 USER PARAMETERS

In order to access the user parameters press **[SETUP]** key and use digits **[1]** and **[6]** to scroll through the menu and **[Tare]** ↵ to enter the parameter; then use again digits **[1]** and **[6]** to scroll and select your option.

Parameter	Description	Options	Default setting
Time	Set Time (see chapter 9)	Enter the time manually.	00:00:00
Date	Set date format and settings. (see chapter 9)	Enter the date format and then the numeric value manually. mm:dd:yy dd:mm:yy yy:mm:dd	dd:mm:yy
bl	Set the backlight control	OFF colour brightness on green low AUTO amber mid red) high	AUTO Green mid
Power	Disable or set time increment to turn off scale	1 2 5 10 15 Off	OFF
Key bp	Key beeper settings	On Off	On
Chk bp	Checkweighing beeper settings	In - limits Out – limits Off	In
Unit	Press [Unit] key to change from g (on/off) to kg ON/OFF)	g/ Kg on or lb / lb:oz On g/ Kg off lb / lb:oz oFF	g/Kg on
Filter	Filter setting and sample	Faster from 1 to 6 Fastest Slower Slowest	Faster 4
Auto-Z	Auto zero settings	0.5 1 1.5 2 2.5 3 Off	1.0
Rs232	RS232 menu: • Print • PC	Print options: • 4800 for setting the baud rate – use digits [1] and [6] to choose from the options: 1200/2400/4800/9600/19200/38400/57600/115200. • English – for setting the language (English, French, Spanish, German, Italian, Portuguese)	4800 English

		<ul style="list-style-type: none"> • AC OFF –for selecting the option of accumulating manually or turned off (AC OFF / AC ON) • Manual –selecting by output • ATP – printer type (ATP/LP 50) • Copy 1 : select the number of copies (1-8) • Comp : many lines or Sinp: simple – one line • LF/CR – line feed and carriage return to feed printer paper (0 -9 lines) <p>PC options:</p> <ul style="list-style-type: none"> • 4800 – for setting the baud rate – use digits [1] and [6] to choose from the options: 1200/2400/4800/9600/19200/38400/57600/115200. • Adam – for connecting to Adam DU software (use digits [1] and [6] to select between ‘cbk’ or ‘nbl’ option) • int (interval) – select the interval per second for sending data to a PC (0, 0.5, 1, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6) 	AC OFF Manual ATP Copy 1 Comp 1 LFCr 4800 Int 0
uSB	uSB menu	PC- same as per rs 232 Print – same as per rs232	
S-id	Set Scale ID	To be entered manually	000000
U-id	Set User ID	To be entered manually	000000
rECHAR	Indicates the battery charge	Without adaptor –shows battery voltage With the adaptor shows charging current (mA)	-

10.0 BATTERY

- The scales can be operated from the battery, if desired. The battery life is approximately 90 hours.
- The charge state indicator displays three stages.
- To charge the battery, simply plug the scale into the mains and switch the mains power ON. The scale does not need to be turned on.
- The battery should be charged for at least 12 hours for full capacity.
- If the battery has not been used properly or it is used for a number of years it may eventually fail to hold a full charge. If the battery life becomes unacceptable then contact your supplier.

11.0 ERROR CODES

During the initial power-on testing or during operation, the scale may show an error message. The meaning of the error messages is described below.

If an error message is shown, repeat the step that caused the message, turning the balance on, carry out the calibration or other functions. If the error message is still shown contact your dealer for further support.

ERROR CODE	DESCRIPTION	POSSIBLE CAUSES
Err 1	Time input error.	Tried to set an illegal time, i.e. 26hours
Err 2	Date input error	Tried to set an illegal date, i.e. 36 th day
Tl.zl	Stability error	Zero at power on not stable
Err 4	Initial Zero is greater than allowed (typically 4% of the maximum capacity) when power is turned on or when the [Zero] key is pressed,	Weight is on the pan when turning the scale on. Excessive weight on the pan when zeroing the scale. Improper calibration of the scale. Damaged load cell. Damaged Electronics.
Err 5	Zeroing error	Repower the scale to set zero
Err 6	A/D count is not correct when turning the scale on.	Platform is not installed. Damaged Load cell. Damaged Electronics.
Err 7	Stability error	Can't weight until stable
Err 9	Calibration error	The user calibration is outside allowed tolerances for zero
Err 10	Calibration error	The user calibration is outside allowed tolerances for calibration
Err 18	PLU error	Current weight unit is inconsistent with PLU unit, can't read PLU
Err 19	Incorrect weight limits set	Weight lower limit is bigger than upper limit
Err 20	PLU 140	PLU storage/ reading is more than 140
Err ADC	ADC chip error	System can't find ADC chip
--OL--	Overload error	Weight over range
--LO--	Underweight error	-20 division from zero it is not allowed

12.0 REPLACEMENT PARTS AND ACCESSORIES

If you need to order any spare parts and accessories, contact your supplier or Adam Equipment. A partial list of such items is as follows:

- Mains power cord
- Replacement Battery
- Stainless Steel Pan
- In-use Cover
- Printer, etc.

13.0 SERVICE INFORMATION

This manual covers the details of operation. If you have a problem with the scale that is not directly addressed by this manual then contact your supplier for assistance. In order to provide further assistance, the supplier will need the following information which should be kept ready:

A. Details of your company -
 Name of your company:
 Contact person's name: -
 Contact telephone, e-mail, fax
 or any other methods:

B. Details of the unit purchased
 (This part of information should always be available for any future correspondence. We suggest you to fill in this form as soon as the unit is received and keep a printout in your record for ready reference.)

Model name of the scale:	CCT__
Serial number of the unit:	
Software revision number (Displayed when power is first turned on):	
Date of Purchase:	
Name of the supplier and place:	

C. Brief description of the problem
 Include any recent history of the unit. For example:

- Has it been working since it was delivered
- Has it been in contact with water
- Damaged from a fire
- Electrical Storms in the area
- Dropped on the floor, etc.

WARRANTY INFORMATION

Adam Equipment offers Limited Warranty (Parts and Labour) for the components failed due to defects in materials or workmanship. Warranty starts from the date of delivery.

During the warranty period, should any repairs be necessary, the purchaser must inform its supplier or Adam Equipment Company. The company or its authorised Technician reserves the right to repair or replace the components at any of its workshops depending on the severity of the problems. However, any freight involved in sending the faulty units or parts to the service centre should be borne by the purchaser.

The warranty will cease to operate if the equipment is not returned in the original packaging and with correct documentation for a claim to be processed. All claims are at the sole discretion of Adam Equipment.

This warranty does not cover equipment where defects or poor performance is due to misuse, accidental damage, exposure to radioactive or corrosive materials, negligence, faulty installation, unauthorised modifications or attempted repair or failure to observe the requirements and recommendations as given in this User Manual. Additionally rechargeable batteries (where supplied) are not covered under warranty.

Repairs carried out under the warranty does not extend the warranty period. Components removed during the warranty repairs become the company property.

The statutory right of the purchaser is not affected by this warranty. The terms of this warranty is governed by the UK law. For complete details on Warranty Information, see the terms and conditions of sale available on our website.

WEEE 2012/19/EU



This device may not be disposed of in domestic waste. This also applies to countries outside the EU, per their specific requirements. Disposal of batteries (if fitted) must conform to local laws and restrictions.

Cet appareil ne peut être éliminé avec les déchets ménagers. L'élimination de la batterie doit être effectuée conformément aux lois et restrictions locales. Dieses Gerät nicht mit dem Hausmüll entsorgt. Dispositivo no puede ser desechado junto con los residuos domésticos Dispositivo non può essere smaltito nei rifiuti domestici.

FCC / IC CLASS A DIGITAL DEVICE EMC VERIFICATION STATEMENT

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules and Canadian ICES-003/NMB-003 regulation. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CALIFORNIA PROPOSITION 65 - MANDATORY STATEMENT

WARNING: This product includes a sealed lead-acid battery which contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.



Adam Equipment products have been tested with, and are always supplied with mains power adaptors which meet all legal requirements for the intended country or region of operation, including electrical safety, interference and energy efficiency. As we often update adaptor products to meet changing legislation it is not possible to refer to the exact model in this manual. Please contact us if you need specifications or safety information for your particular item. Do not attempt to connect or use an adaptor not supplied by us.

ADAM EQUIPMENT is an ISO 9001:2015 certified global company with more than 40 years' experience in the production and sale of electronic weighing equipment.

Adam products are predominantly designed for the Laboratory, Educational, Health and Fitness, Retail and Industrial Segments. The product range can be described as follows:

- Analytical and Precision Laboratory Balances
- Compact and Portable Balances
- High Capacity Balances
- Moisture analysers / balances
- Mechanical Scales
- Counting Scales
- Digital Weighing/Check-weighing Scales
- High performance Platform Scales
- Crane scales
- Mechanical and Digital Electronic Health and Fitness Scales
- Retail Scales for Price computing

For a complete listing of all Adam products visit our website at

www.adamequipment.com

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Instruction Manual
Hotplates, Stirrers, Hotplate-Stirrers

Standard Series

Advanced Series

The image shows a page from an instruction manual. At the top left is the VWR logo. To the right of the logo, the title 'Instruction Manual' is written in a large, bold font, with 'Hotplates, Stirrers, Hotplate-Stirrers' below it in a slightly smaller bold font. On the left side of the page, there are two rounded rectangular buttons, one for 'Standard Series' and one for 'Advanced Series'. The background of the page is a light gray color with a white curved shape on the left side.

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PACKAGE CONTENTS

Hotplate, Stirrer or Hotplate-Stirrer
92" (234cm) detachable power cord
Spin bar (stirring models only)
Instruction manual

WARRANTY

Manufacturer warrants this product to be free from defects in material and workmanship when used under normal conditions for two (2) years. Register your equipment or instrument online at www.vwrsp.com/warranty for US residents or www.vwrcanlab.com/warranty for Canadian residents. For your reference, make a note of the serial number, date of purchase and supplier here.

Serial No.: _____ Date of Purchase: _____

Supplier: _____

License Type: Processor

INSTALLATION

Upon receiving the VWR Hotplate/Stirrer/Hotplate-Stirrer, check to ensure that no damage has occurred in shipment. It is important that any damage that occurred in transport is detected at the time of unpacking. If you do find such damage the carrier must be notified immediately.

After unpacking, place the Hotplate/Stirrer/Hotplate-Stirrer on a level bench or table, away from explosive vapors. Ensure that the surface on which the unit is placed will withstand typical heat produced by the unit and place the unit a minimum of six (6) inches (15.2cm) from vertical surfaces. Always place the unit on a sturdy work surface.

The Hotplate/Stirrer/Hotplate-Stirrer is supplied with a power cord that is inserted into the IEC connector on the back of the unit first, then it can be plugged into a properly grounded outlet. The 120V unit plugs into a 120 volt, 50/60 Hz source. The 230V unit plugs into a 230 volt, 50/60 Hz source.

MAINTENANCE & SERVICING

The Hotplate/Stirrer/Hotplate-Stirrer is built for long, trouble-free, dependable service. It needs no user maintenance beyond keeping the surfaces clean. The unit should be given the care normally required for any electrical appliance. Avoid wetting or unnecessary exposure to fumes. Spills should be removed promptly after the unit has cooled down. Do not use a cleaning agent or solvent on the front panel or top plate which is abrasive or harmful to plastics, nor one which is flammable. Always ensure the power is disconnected from the unit prior to any cleaning. If the unit ever requires service, contact your VWR representative.

CLEANING CERAMIC TOPS:

First remove any burnt-on deposits or spills from the top plate with a scraper (similar to scraping paint off of windowpanes in your home). For your safety, please wear an insulated mitt when using a metal scraper. When the top plate has cooled, apply a few dabs of a non-abrasive cleaner over the surface with a damp paper towel. As a final step, clean with water and wipe surface with a clean, dry paper towel.

CLEANING ALUMINUM TOPS:

For simple dust and dirt, clean the aluminum top by using a damp cloth with soap and water. For more stubborn deposits, try using a flat edge wooden spatula to scrape off as much as possible. For more stubborn stains, try using a couple of tablespoons of white vinegar to two pints of water and mix well. Dip a clean cloth into the mixture and gently rub the exterior of the aluminum sur-

face. Generally, it is not a good idea to use abrasive pads or cleaners on aluminum, as the metal will scratch easily. If you must use some type of abrasive, try applying baking soda to the surface and then rubbing with a moist cloth. This will work as well as most scouring pads and is less likely to create deep scratches in the surface. Be careful not to use steel wool or scouring pads as they can leave the aluminum riddled with little scratches that make it harder to clean in the future. If you feel you must use steel wool, use the finest grade you can find and use as sparingly as possible with as little pressure as possible. Go with the grain rather than using circular motions.

INTENDED USE

These Hotplates/Stirrers/Hotplate-Stirrers are intended for general laboratory use.

ENVIRONMENTAL CONDITIONS

Operating Conditions: Indoor use only.

Temperature: 5 to 40°C (41 to 104°F)

Humidity: 20% to 80% relative humidity, non-condensing

Altitude: 0 to 6,562 ft (2000 M) above sea level

Non-Operating Storage:

Temperature: -20 to 65°C (-4 to 149°F)

Humidity: 20% to 80% relative humidity, non-condensing

Installation Category II and Pollution Degree 2 in accordance with IEC 664.

SAFETY INSTRUCTIONS

Please read the entire instruction manual before operating the Hotplate/Stirrer/Hotplate-Stirrer.

⚠ WARNING! DO NOT use the Hotplate/Stirrer/Hotplate-Stirrer in a hazardous atmosphere or with hazardous materials for which the unit was not designed. Also, the user should be aware that the protection provided by the equipment may be impaired if used with accessories not provided or recommended by the manufacturer, or used in a manner not specified by the manufacturer.

Always operate unit on a level surface for best performance and maximum safety.

DO NOT lift unit by the top plate.

⚠ CAUTION! To avoid electrical shock, completely cut off power to the unit by disconnecting the power cord from the unit or unplug from the wall outlet. Disconnect unit from the power supply prior to maintenance and servicing.

⚠ CAUTION! Spills should be removed promptly after the unit has cooled down. **DO NOT** immerse the unit for cleaning. Alkalis spills, hydrofluoric acid or phosphoric acid spills may damage the unit and lead to thermal failure.

CAUTION! The top plate can reach 500°C, **DO NOT** touch the heated surface. Use caution at all times. Keep the unit away from explosive vapors and clear of papers, drapery and other flammable materials. Keep the power cord away from the heater plate.

DO NOT operate the unit at high temperatures without a vessel/sample on the top plate.

WARNING! Units are **NOT** explosion proof. Use caution when heating volatile materials.

Replace the ceramic top immediately if damaged. A damaged top can break in use.

DO NOT operate the unit if it shows signs of electrical or mechanical damage.



Earth Ground - Protective Conductor Terminal



Alternating Current

STANDARDS & REGULATIONS

Henry Troemner LLC hereby declares under it's sole responsibility that the construction of this product conforms in accordance with the following standards:

Safety standards:

- IEC 61010-1 Safety requirements for electrical equipment for measurement, control and laboratory use. Part: General Requirements.
- IEC 61010-2-010 Part II: Particular requirements for laboratory equipment for the heating of materials.
- IEC 61010-2-051 Part II: Particular requirements for laboratory equipment for mixing and stirring.
- UL Std. No. 61010-1

EMC standards:

- EN61326-1 Class A EN61000-3-3/3-2
- EN6100-4-5 EN61000-4-4
- EN55022-B EN61000-4-3
- EN61000-4-11 EN61000-4-6

Associated EU guidelines:

- EMC directive 2004/108/EC
- LVD directive 2006/95/EC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This Class A digital apparatus complies with Canadian ICES-003.

License Type: Processor
STANDARD SERIES 4 X 4

4 x 4 HOTPLATE/STIRRER/HOTPLATE-STIRRER SPECIFICATIONS

Dimensions (L x W x H): 10.80 x 6.58 x 4.27" (27.4 x 16.7 x 10.8cm)

Top plate dimensions (L x W): 4 x 4" (10.2 x 10.2cm)

Electrical (50/60 Hz):

	Hotplate	Stirrer	Hotplate-Stirrer
120V:	2.9 amps/350 watts	0.4 amps/50 watts	3.3 amps/400 watts
230V:	1.5 amps/350 watts	0.2 amps/50 watts	1.7 amps/400 watts

Fuses: 5mm x 20mm, 5 amp quick acting

Temperature range: ceramic: ambient +5°C to 500°C
aluminum: ambient +5°C to 400°C

Temperature stability: ceramic*: +/-3%
aluminum*: +/-2%

Speed range: 60 to 1600rpm

Speed stability: +/-2%

Capacity: 600mL, gross weight should not exceed 20lbs

Controls: see diagrams

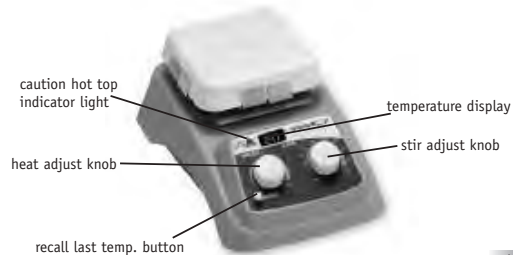
Ship weight: 6.2lbs (2.8kg)

* Below 100°C +/-2°C. Environmental and sample conditions permitting.

NOTE: On all Standard and Advanced units, the Max. temperature setting on the display is 500°C for a ceramic top and 400°C for an aluminum top.



ADVANCED SERIES 4 X 4



STANDARD SERIES 7 X 7



7 x 7 HOTPLATE/STIRRER/HOTPLATE-STIRRER SPECIFICATIONS

Dimensions (L x W x H): 14.77 x 9.85 x 4.27" (37.5 x 25 x 10.8cm)

Top plate dimensions (L x W): 7 x 7" (17.8 x 17.8cm)

Electrical (50/60 Hz):

	Hotplate	Stirrer	Hotplate-Stirrer
120V:	7.9 amps/950 watts	0.4 amps/50 watts	8.3 amps/1000 watts
230V:	4.4 amps/1000 watts	0.2 amps/50 watts	4.6 amps/1050 watts

Fuses:	HP / HPS	Stirrer	Hotplate-Stirrer
	5mm x 20mm, 10 amp slow blow	5mm x 20mm, 5 quick acting	

Temperature range:	ceramic:	aluminum:
	ambient +5°C to 500°C	ambient +5°C to 400°C

Temperature stability:	ceramic*:	aluminum*:
	+/-3%	+/-2%

Speed range: 60 to 1600rpm

Speed stability: +/-2%

Capacity: 2500mL, gross weight should not exceed 40lbs

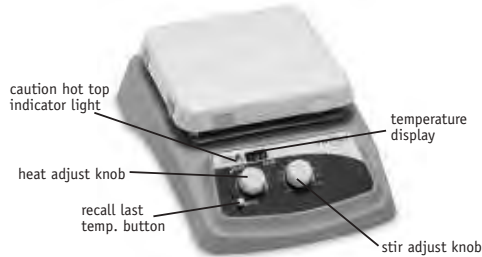
Controls: see diagrams

Ship weight: 10.5lbs (4.8kg)

* Below 100°C +/-2°C. Environmental and sample conditions permitting.

NOTE: On all Standard and Advanced units, the Max. temperature setting on the display is 500°C for a ceramic top and 400°C for an aluminum top.

ADVANCED SERIES 7 X 7



License Type: Processor

10 x 10 HOTPLATE/STIRRER/HOTPLATE-STIRRER SPECIFICATIONS

Dimensions (L x W x H): 17.90 x 13.00 x 4.27" (45.5 x 33.0 x 10.8cm)

Top plate dimensions (L x W): 10 x 10" (25.4 x 25.4cm)

Electrical (50/60 Hz):

	Hotplate	Stirrer	Hotplate-Stirrer
120V:	12.5 amps/1500 watts	0.4 amps/50 watts	12.9 amps/1550 watts
230V:	6.7 amps/1550 watts	0.2 amps/50 watts	7.0 amps/1600 watts

Fuses:	HP / HPS	Stirrer	Hotplate-Stirrer
	5mm x 20mm, 16 amp slow blow	5mm x 20mm, 5 quick acting	

Temperature range:	ceramic:	aluminum:
	ambient +5°C to 500°C	ambient +5°C to 400°C

Temperature stability:	ceramic*:	aluminum*:
	+/-3%	+/-2%

Speed range: 60 to 1600rpm

Speed stability: +/-2%

Capacity: 6000mL, gross weight should not exceed 50lbs

Controls: see diagrams

Ship weight: 15.9lbs (7.2kg)

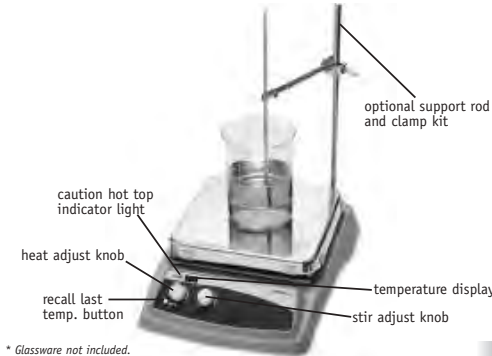
* Below 100°C +/-2°C. Environmental and sample conditions permitting.

NOTE: On all Standard and Advanced units, the Max. temperature setting on the display is 500°C for a ceramic top and 400°C for an aluminum top.

STANDARD SERIES 10 X 10



ADVANCED SERIES 10 X 10



* Glassware not included.

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HEATING OPERATING INSTRUCTIONS

The Hotplates and Hotplate-Stirrers have a micro-processor controlled heater that is designed to bring samples to temperature quickly and accurately.

1. Getting ready:

- a. Turn the heat knob to the off position. Plug power cord into a properly grounded 3-prong outlet.
- b. Place a vessel with solution and the appropriate accessories in the center of the top plate. This is important because the vessel should be over the hottest part of the top plate.

2. Setting temperature for Standard Series:

- a. Turn the heat knob clockwise until the pointer reaches the desired heat setting. The indicator light above the heat knob will illuminate to indicate the heating feature is in use. The unit will beep 5 (five) times when the set temperature is reached.
- b. Temperature adjustments can be made without interrupting heating by turning the indicator knob clockwise to increase heat and counter-clockwise to decrease heat.
- c. To stop heating, turn the heat knob to the off position. Your vessel can then be removed.

3. Setting temperature for Advanced Series:

- a. Turn the heat knob clockwise until the display reaches the desired heat setting. The display will flash the set-point temperature until the temperature is reached, at which time the display will stop flashing and beep 5 (five) times. When the heat is turned on the indicator light above the heat knob is illuminated. Removing or adding more to a sample content could cause the temperature to fluctuate. If this occurs, the display will again start to flash until the set-point value is stabilized.
- b. Temperature adjustments can be made without interrupting heating by turning the heat knob clockwise to increase heat or counter-clockwise to decrease heat.
- c. To stop heating, turn the heat knob to the off position. Your vessel can then be removed.

Caution hot top indicator:

The caution hot top indicator light warns that the top plate is too hot to touch. The caution hot top indicator light will illuminate when the heat is turned on and remain on until the top plate cools down.

**Recall last temperature button:**

Advanced Series Hotplate/Hotplate-Stirrers have a built-in memory that allows users to recall the last set temperature, even after the unit has been turned off. (The temperature in memory is the last temperature that ran for more than 5 minutes.)

Max Temperature:

If the unit has an aluminum top, the max temperature setting is 400°C. If the unit has a ceramic top, the max temperature setting is 500°C.

OPERATING TIPS

The unit may overshoot the temperature up to 10°C before stabilizing at the set-point. The two methods suggested to minimize overshoot are:

1. Metal containers minimize overshoot. **CAUTION:** When heating metal containers on a ceramic top it is recommended to use the lowest temperature setting possible to limit thermal stress to the ceramic top.
2. If a glass vessel is used, anticipate overshoot. Start with a setting 5-10°C below the desired temperature. When the temperature stabilizes at this lower setting, turn the heat knob to the final temperature. Overshoot is then reduced to about 1°C.

The temperature display on the Advanced units show the actual temperature of the heater not the top plate or sample. The vessel contents being heated may be at a lower temperature depending on the size and insulating qualities of the vessel. It may be beneficial to monitor the temperature of the vessel contents and adjust the set-point temperature accordingly.

TYPICAL TIME TO BOIL WATER

The chart below is an example of an approximate time to boil for the specified amount of water in a specific vessel.
These values are only approximate and can vary from unit to unit. Values are based on 23°C water in an ambient environment of 23°C.

CERAMIC TOP			ALUMINUM TOP		
Size of Top Plate	Volume of Water	Time	Size of Top Plate	Volume of Water	Time
4 x 4	500ml in 600ml beaker	40	4 x 4	500ml in 600ml beaker	40
7 x 7	1500ml in 2,000ml beaker	45	7 x 7	1500ml in 2000ml beaker	60
10 x 10	5000ml in 6000ml Erlenmeyer Flask	60	10 x 10	5000ml in 6000ml Erlenmeyer Flask	70

TEMPERATURE CALIBRATION PROCEDURE (SINGLE POINT CALIBRATION, ADVANCED SERIES)

This method can be used for calibrating the top plate surface of the Advanced Series unit.

To set a Single Point Calibration (SPC) adjustment:

- a. Turn the heat knob clockwise until the display reaches the desired heat setting, and let the unit stabilize to the user input temperature. The heater temperature has stabilized when the temperature display is no longer blinking and the unit will beep five times.
- b. Wait ten minutes for the surface temperature to stabilize. Measure the top plate with a traceable surface temperature measuring device.
- c. Press and hold the Last Temperature button. The display will start to scroll through the available SPC options ("UP", "dn", "SEt" and "dEL") as long as the Last Temperature button is held down. Once you select "UP" or "dn" mode and release the Last Temperature button the unit will beep two times and the display will begin to blink quickly. This lets you know you are programming in SPC mode.

NOTE: There is a thirty second time out (Last Temperature button must be pressed at least once in thirty seconds, or unit will exit SPC mode). **Do not touch the heat knob while in SPC mode.** If the heat knob is adjusted during this procedure you will exit SPC mode.

- d. Once the desired option is displayed, release the Last Temperature button. Please see the explanation below for each option.
- e. Selecting the "SEt" option saves the Single Point Calibration adjustment for that temperature set point and allows you to exit this SPC mode (see Section c). When the "SEt" option is selected "SEt" will be displayed. To save the current SPC point and exit the SPC programming mode, release the Last Temperature button when "SEt" is on the display. The display will now show your set point temperature with a decimal point for that setting.
- f. Select the "UP" option if your externally measured temperature of the top plate is **higher** than the set point on the display. When the "UP" option is selected the current SPC adjusted temperature is displayed and blink-

ing quickly. **To increase the SPC, press and release the Last Temperature button multiple times (do not touch heat knob)** until the display reads the value you recorded as the measured temperature of the top plate. Changes are not saved until the "SEt" option is selected (and the Last Temperature button is pressed and released), if the temperature is adjusted too high, delete the SPC adjustment and repeat procedure.

- g. Select the "dn" option if your externally measured temperature of the top plate is **lower** than the set point on the display. When the "dn" option is selected the current SPC adjusted temperature will be displayed and blinking quickly. **To decrease the SPC, press and release the Last Temperature button multiple times (do not touch the heat knob)** until the display reads the value you recorded as the measured temperature of the top plate. Changes are not saved until the "SEt" option is selected (and the Last Temperature button is pressed and released), if the temperature is adjusted too low, delete the SPC adjustment and repeat procedure.
- h. Selecting the "dEL" option will delete **all** Single Point Calibration points and allow you to exit this SPC mode (see Section c). When the "dEL" option is selected "dEL" will be displayed. To delete **all** SPC points and exit the SPC mode release the Last Temperature button when "dEL" is on the display.
 - i. For set point temperatures with a SPC adjustment, there will be a decimal point in the display. Once the SPC adjustment is set, the display will blink while the unit's temperature is settling. When the SPC set point is reached, the display will stop blinking and the unit will beep five times.
 - j. This process may be repeated for up to **three separate** set points. If a fourth SPC set point is entered, the first set point will be overwritten. To readjust an existing SPC set point, you must delete the current settings (all SPC points will be deleted, and the decimal points will no longer be displayed at those temperatures) and repeat the SPC procedure. If SPC adjustments are **not deleted** prior to resetting SPC for a set point then the temperature adjustment will not be accurate
- k. The SPC adjustments are limited to the maximum and minimum temperatures and limits allowed by the particular unit.

STIRRING OPERATING INSTRUCTIONS

The micro-processor controlled ramping feature slowly increases speed until the set-point is reached. This feature helps to avoid splashing, improves magnetic coupling and provides excellent low end control. The micro-processor also monitors and regulates the stirring speed, sensing your requirements whether you're stirring an aqueous, viscous or semi-solid solution.

Initial stirring speed may exceed set speed if the following conditions exist:

1. The stirrer is set at a low speed and the stirrer has not been operated for an extended period of time.
2. The stirrer is set at a low speed and it is the stirrer's initial use.

1. Getting ready:

- a. Turn stir knob to the off position. Plug power cord into a properly grounded outlet.
- b. Place a vessel with solution and the appropriate spin bar in the center of the top plate.

2. Setting speed:

- a. Turn the stir knob clockwise until the pointer reaches the desired speed setting. The stir indicator light above the stir knob will illuminate to indicate the stirring feature is in use. The stir indicator light will blink while reaching the set-point. Once the set-point is reached the light will remain lit.
- b. Speed adjustments can be made without interrupting stirring by turning the stir knob clockwise to increase speed, or counter-clockwise to decrease speed.
- c. To stop stirring, turn the stir knob to the off position. Your vessel can then be removed.

Stir protection for Hotplate-Stirrers:

If stirrer motor stops or fails, the unit will automatically shut down the heater.

OPERATING TIPS

The stirrer increases speed at a steady rate until the set-point is reached, if the stir bar is too large or the liquid is too viscous, the stirrer may not reach its set-point. The set-point speed needs to be reduced. The magnetic strength of stir bars reduce over time and may need to be replaced.

Stirring vessels in oil baths:

When heating and stirring a reaction vessel within an oil bath or similar set-up, the stirring function will stir up to approximately one (1) inch (2.54cm) from the top plate. The stirring speed will vary according to liquid viscosity, stir bar length and distance from the top plate. Adjust one or all of these to achieve the desired stirring speed.

EXAMPLE: The closer the reaction vessel is to the top plate the stronger the magnetic connection.

TECHNICAL SERVICE

For information or technical assistance contact your local VWR representative or visit vwr.com.

TROUBLESHOOTING (STANDARD)

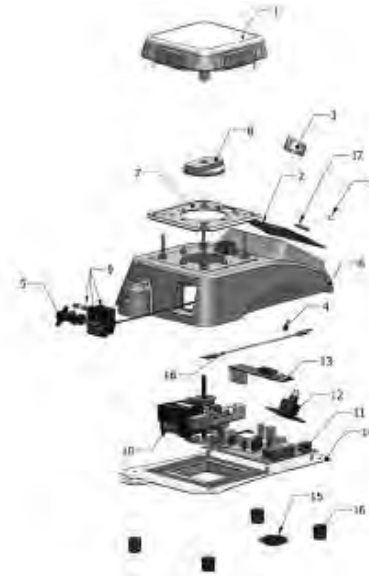
The Standard Series units do not have LED displays. In the event of a malfunction, the unit will beep 10 (ten) times. To clear the error, turn the control knobs to the off position and cycle the power by disconnecting the power cord from the source. Reconnect power cord and resume operations. If the error persists, turn the unit off and contact your VWR representative for repair.

TROUBLESHOOTING (ADVANCED)

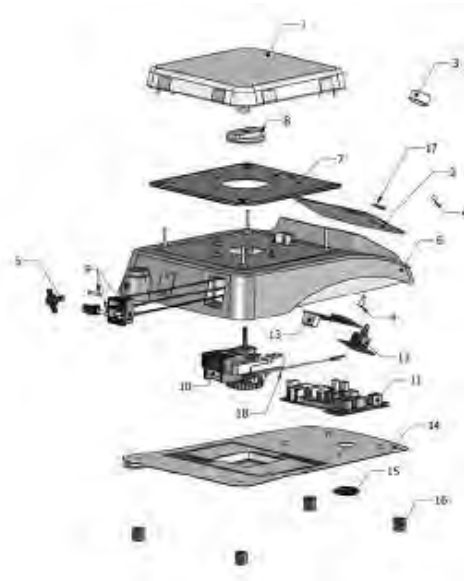
If the unit gives an error code, immediately switch the unit off. See error table below for proper corrective action. If the error cannot be cleared, please contact your VWR representative for repairs.

Error	Cause of Error	How to Fix
E1	An "E1" error means the heater sensor is open or malfunctioned.	This error cannot be fixed by the end user. Please contact your VWR representative for repair.
E2	An "E2" error means the heater sensor shorted or malfunctioned.	This error cannot be fixed by the end user. Please contact your VWR representative for repair.
E3	An "E3" error means there is either no motion on the motor or the motor is not working properly.	Reset the unit by rotating the knobs for speed and heat to the off positions until they click then turn them back on. If it still doesn't work, please contact your VWR representative for repair.
E6	An "E6" error means there is an internal electronics system error.	This error cannot be fixed by the end user. Please contact your VWR representative for repair.
E8	An "E8" error means the unit had a catastrophic over temperature condition or temperature runaway condition (temperature greater than 600°C) and therefore automatically shut down to prevent damage.	This error cannot be fixed by the end user. Please contact your VWR representative for repair.
E9	An "E9" error means the heater failed. This might occur if heater temperature fails to rise when asked to, or there is a sudden drop in heater temperature for no apparent reason.	This error cannot be fixed by the end user. Please contact your VWR representative for repair.

DESCRIPTION	PART NUMBER
1. Top plate assembly: 120V, ceramic, Hotplate, Hotplate-Stirrer	886310-00
230V, ceramic, Hotplate, Hotplate-Stirrer	886311-00
120V/230V, ceramic, Stirrer	886312-00
120V, aluminum, Hotplate, Hotplate-Stirrer	886313-00
230V, aluminum, Hotplate, Hotplate-Stirrer	886314-00
120V/230V, aluminum, Stirrer	886315-00
2. Front panel overlay: Standard Series, Hotplate	386258-00
Standard Series, Hotplate-Stirrer	386259-00
Standard Series, Stirrer	386257-00
Advanced Series, Hotplate	386260-00
Advanced Series, Hotplate-Stirrer	386261-00
3. Control knobs	286116-00
4. Last temperature (Advanced Heating Units only): switch	386104-00
button	386101-00
5. Support stand thumb knob	186208-00
6. Housing	286613-00
7. Heat Shield	286607-00
8. Magnet assembly: Stirrer, Hotplate-Stirrer	286616-00
9. IEC module	386680-00
Fuse 5 amp	380238-00
10. Motor:	286627-00
11. Main PCB:	386660-00
12. Pot PCB/Assy:	386661-00
13. Display PCB: Hotplate, Hotplate-Stirrer	386663-00
Stirrer	386662-00
14. Bottom Plate	286610-00
15. Bottom Plate plug	186201-00
16. Feet	186200-00
17. Internal Lock Washer	130015-00
18. Ground Jumper Wire: aluminum top units	386678-00
Detachable 92" (234cm) power cord: 120V	330100-00
EURO	330101-00



7 x 7 REPLACEMENT PARTS



DESCRIPTION	PART NUMBER
1. Top plate assembly:	
120V, ceramic, Hotplate, Hotplate-Stirrer	886316-00
230V, ceramic, Hotplate, Hotplate-Stirrer	886317-00
120V/230V, ceramic, Stirrer	886318-00
120V, aluminum, Hotplate, Hotplate-Stirrer	886319-00
230V, aluminum, Hotplate, Hotplate-Stirrer	886320-00
120V/230V, aluminum, Stirrer	886321-00
2. Front panel overlay:	
Standard Series, Hotplate	386263-00
Standard Series, Hotplate-Stirrer	386264-00
Standard Series, Stirrer	386262-00
Advanced Series, Hotplate	386265-00
Advanced Series, Hotplate-Stirrer	386266-00
3. Control knobs	286116-00
4. Last temperature (Advanced Heating Units only):	
switch	386104-00
button	386101-00
5. Support stand thumb knob	186208-00
6. Housing	286614-00
7. Heat Shield	286608-00
8. Magnet assembly:	Stirrer, Hotplate-Stirrer
286616-00	
9. IEC module	386681-00
Fuse 10 Amp	Hotplate, Hotplate-Stirrer
386005-00	
Fuse 5 Amp	Stirrer
380238-00	
10. Motor:	286627-00
11. Main PCB:	Hotplate
386660-00	
12. Pot PCB/Assy:	386661-00
13. Display PCB	Hotplate, Hotplate-Stirrer
386663-00	
386662-00	Stirrer
14. Bottom Plate	386611-00
15. Bottom Plate plug	186201-00
16. Feet	186200-00
17. Internal Lock Washer	130015-00
18. Ground Jumper Wire	aluminum top units
386678-00	
Detachable 92" (234cm) power cord:	
120V	330100-00
EURO	330101-00

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10 x 10 REPLACEMENT PARTS

DESCRIPTION	PART NUMBER
1. Top plate assembly: 120V, ceramic, Hotplate, Hotplate-Stirrer	886322-00
230V, ceramic, Hotplate, Hotplate-Stirrer	886323-00
120V/230V, ceramic, Stirrer	886324-00
120V, aluminum, Hotplate, Hotplate-Stirrer	886325-00
230V, aluminum, Hotplate, Hotplate-Stirrer	886326-00
120V/230V, aluminum, Stirrer	886327-00
2. Front panel overlay:	
Standard Series, Hotplate	386271-00
Standard Series, Hotplate-Stirrer	386272-00
Standard Series, Stirrer	386270-00
Advanced Series, Hotplate	386273-00
Advanced Series, Hotplate-Stirrer	386274-00
3. Control knobs	286116-00
4. Last temperature (Heating Units only):	
switch	386100-00
button	386101-00
5. Support stand thumb knob	186208-00
6. Housing	286615-00
7. Heat Shield	286609-00
8. Magnet assembly:	Stirrer, Hotplate-Stirrer
286616-00	
9. IEC module	386681-00
Fuse 16 Amp	Hotplate, Hotplate-Stirrer
386033-00	
Fuse 5 Amp	Stirrer
380238-00	
10. Motor:	286627-00
11. Main PCB:	Hotplate
386660-00	
12. Pot PCB/Assy:	386661-00
13. Display PCB	Hotplate, Hotplate-Stirrer
386663-00	
Stirrer	386662-00
14. Bottom Plate	286612-00
15. Bottom Plate plug	186201-00
16. Feet	186200-00
17. Internal Lock Washer	130015-00
18. Ground Jumper Wire	aluminum top units
386678-00	
Detachable 92" (234cm) power cord:	
120V	330100-00
EURO	330101-00



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MANUFACTURED BY:

HENRY TROEMNER LLC

201 Wolf Drive • PO Box 87 • Thorofare, NJ 08086-0087
Phone: 856-686-1600 • Fax: 856-686-1601 • E-mail: troemner@troemner.com
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586057-00 (REV 4 - 3/11)



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NO.181 Gangfeng Road, Wuxing District, Huzhou City,
Zhejiang Province, China

WATER BATH USER'S MANUAL



www.joanlab.com

Digital Display Thermostat Water Bath

HIGH QUALITY SPECIAL FOR YOU



1. Introduction

Thermostat water bath is widely used for dryness, concentration, distillation and impregnation chemical reagents, impregnated medical products and biological products. In addition, thermostat water bath is also used in water-bath thermostat and other temperature tests. Therefore, thermostat water bath is an indispensable tool in the fields of biology, heritance, aquaculture, environmental protection, medical care, hygiene, biochemistry laboratory, analysis room, education and scientific research.



Digital Display Thermostat Water Bath

Notes and Main Points

Safety Guide

- Warning:** The symbol reminds the user that the current operation is dangerous or harmful to person body.
- Note:** The symbol reminds the user that the current operation is an importance operation or maintenance instruction.

- Do not attempt to disassemble the product without authorization.
- Do not attempt to replace the power cord without authorization.
- Without our company's explicit permission, any changes or modifications to the product are likely to inconvenient and harmful to the user.
- When any unusual circumstance occurs in the process of work, immediately turn off the instrument and disconnect the power. If necessary, appoint the qualified service personnel for maintenance.
- Before cleaning or moving the water bath, turn off the power and pull out the plug.
- The product does not apply to culture the toxic substances and articles containing volatile chemical solvents, low-concentration explosive gases and low-ignition-point gases.
- In order to make the product work normally and prevent unnecessary accidents, pay attention to storage condition, avoid tilting and maintain balance; and try to avoid using the product in a cold environment.

WWW.JOANLAB.COM



V. Common faults and Solutions

	Problems	Solutions
1	The unit shows it is normal but not heating up	Setting temperature is lower than testing temperature
2	Heating light is on but temperature doesn't go up.	1. Output connection is fault. 2. The connected between the control board and the power supply board is fault.
3	The unit always shows 0.0	Thermistor is short circuit or temperature is over lower
4	The unit always shows 99.9	Thermistor is open circuit, no good connection, or temperature over limitation
5	The temperature overshoot is large.	1. P value is too large, need to set down. 2. The temperature probe is near closer to the heat source device.
6	Temperature heats up slowly.	1. P data is too large, need to set higher. 2. Heating device power is small, or temperature probe is too far.
7	The temperature fluctuation is unstable.	P value is too big or C value is too small.
8	Temperature feedback is insensitive.	C value is too big please turn down
9	The temperature error tolerance is big.	The temperature probe is in faultly or the probe is in incorrect position.
10	Slight error of displayed temperature.	The system has errors, please adjust the SC value.

VI. After-sales service

1. Our company is responsible for providing warranty for any problems caused by the product quality within one year after the date of purchasing the product. However, our company will not assume any and related maintenance costs incurred by any product defaults caused by improper use or man-made damage by the user.
2. The product must accept the warranty service by depending on the warranty sheet.
3. Once the product's internal structure or the parts that is indicated for prohibiting disassembly in the User's Manual is disassembled, it shall be deemed as man-made damage.
4. The user shall pay maintenance costs incurred beyond the warranty period.

II. Features

1. Temperature controller is covered with protection frames with male and female faces to prevent boiling water overflowing from the controller during the heating and resulting in damage or destroy temperature controller. Control panel has an inclined angle to increase the comfort of operator. Double-row blue LED display screens shows bright and soft digitals.



2. The liner of thermostat water bath is made by using one-step forming technology to keep the entire liner free from any joints or welds, so as to eliminate the problems of rust, corrosion and water leakage from the welds on the former water bath. Four corners of this water bath is arc-shaped and without dead ends, so that it is easy to clean and extend service life.

3. The liner and cover plate of thermostat water bath are made of imported high-quality 304 stainless steel. The surface is featured with anti-corrosion and rust-free after accepting re-treatment. The size of beaker hole can be arbitrarily changed to meet the users' needs.



4. The drain valve at the outlet is easy for use and beautiful in appearance.



III Technical Parameters

WB100-1F series are anti-dry series

Picture	Specification & Model	Temperature Control Range	Power	Distinguishability	Dimensions of Working Chamber
	WB100-1 WB100-1F	Room temperature -99.9℃	300W	0.1℃	160X160X130mm
	WB100-2 WB100-2F	Room temperature -99.9℃	600W	0.1℃	300X150X140mm
	WB100-4 WB100-4F	Room temperature -99.9℃	800W	0.1℃	300X300X140mm
	WB100-6 WB100-6F	Room temperature -99.9℃	1200W	0.1℃	450X300X130mm

Power supply: 110V / 220V; Control temperature: ambient temperature + 10℃ - 99.9℃

IV. User Manual

1. Set the temperature

Press the SET button to set the temperature. Press the digitors under the SET button to make data flash (normal temperature measurement above the SET button) in this moment, make the instrument to enter the state of setting temperature. Press the Δ button to increase the set value, press the ▽ button to reduce the set value and then press the SET button to make the instrument back to normal operation state and complete temperature setting process.

2. Correct sensor errors

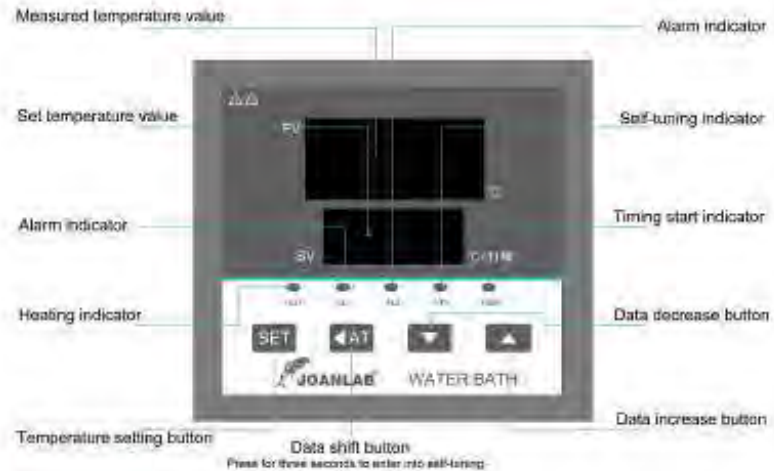
Press the SET button for three seconds to enter in the instrument menu, select the parameter SC and then press Δ button or ▽ button to correct the error. For the sensor with display resolution of 0.1°, keep the sensor error correction range as ±19.9°; and for the sensor with display resolution of 1°, keep the sensor error correction range as ±50°. Complete the correction and then press the SET button again to exit. The correction value is 0 when the instrument out of the factory.

3. Start self-tuning

This product can match with majority control systems. Self-tuning can be started only when control effect is particularly unsatisfactory.

- Method 1:** Supply the power to the instrument and then press SHIFT button for three seconds to start self-tuning.
- Method 2:** Press the SET button for three seconds to enter the instrument menu, select the parameter At and press the Δ button to regulate the lower row into 1 and then press SET button for three seconds to start self-tuning. When self-tuning is activated, Atu indicator keeps flashing. The process shows that the instrument's heating control system fluctuates twice in the vicinity of the set point.

When Atu indicator turns off, self-tuning is completed and new PID parameters are latched and saved in the chip.



- HEAT light:** the left one is heating light, Light is on meaning heating up, Off meaning stopping heating.
- TIME light:** Timer light is in the middle, Off means Timer is switched off, flashing means timer is turned on. If the timer is always on which means timer is on and the time is up, instrument is in the stop output state.
- ALM light:** High temperature alarm light, On means temperature is over high limitation, Off means the temperature is not over.

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Müller

RapidTherm
**PORTABLE
INDUCTION COOKTOP**

Model No: IC-711



INSTRUCTION MANUAL

Your satisfaction is guaranteed. If you are not completely satisfied with our RapidTherm Portable Induction Cooktop, please let us know. We'll help make it work for you, or we'll refund your money.

IMPORTANT SAFEGUARDS

When using electrical appliances, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and/or injury to persons, including the following:

- Read all instructions.
- Make sure that your outlet voltage corresponds to the voltage stated on the rating label of the induction cooktop.
- Do not share the power outlet with electrical appliances with high power ratings such as air conditioners or electric stoves, to avoid overheating the outlet and the risk of fire.
- To avoid accidents, do not let the cord hang over the edge of a table or counter or touch hot surfaces.
- To protect against fire, electric shock, and injury to persons, do not immerse cord, plugs, or the cooktop in water or other liquid.
- When using the cooktop, place it horizontally and allow at least 4.7 inches (12 cm) of free space between the sides and back of the cooktop and the wall. Do not use the cooktop in narrow or enclosed spaces.
- When using the cooktop, do not put it on any metal platform (such as iron, stainless steel, or aluminum).
- Do not use the cooktop near a gas stove, kerosene stove, gas cooker, or in any space with an open fire or an environment with high temperatures.
- Unplug from outlet when not in use and before cleaning.
- Do not cook on a broken cooktop. If the cooktop should break, cleaning solutions and spills may penetrate the broken cooktop and create a risk of electric shock. Contact the Mueller Customer Service.
- Metallic objects such as knives, forks, spoons, and lids should not be placed on the hot surface since they can get hot.
- The total weight of the cookware (including food contents) must not exceed 44 lbs (20 kg).
- Do not block the Exhaust vent. Blocking may overheat the unit.
- Do not place the cooktop on carpet, fabrics, thin paper or similar as during use these materials may block the air inlet and air outlet openings, which could result in overheating.
- Do not heat an empty pot.

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- People with pacemakers or similar medical devices should use care when standing near this induction cooktop while it is powered on. The electromagnetic field may affect pacemakers or similar devices. Consult your doctor or the manufacturer of the pacemaker or similar medical device for additional information regarding the possible effects of electromagnetic fields emitted by induction cookers.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge unless they have been given supervision or instruction concerning the use of the appliances by a person responsible for their safety.
- This appliance is intended for household use only.
- **WARNING: The appliance and its accessible parts become hot during use. During and after use, do not touch or let clothing or other flammable materials contact surface units or areas near the cooking surface until it has had sufficient time to cool.**

INTRODUCTION

How does it work?

Induction cooking is based on an electromagnetic field, creating energy that heats the base of a pan positioned on the cooktop. The electromagnetic field is activated when material containing iron (ferrous material) comes within the range of the inductors beneath the cooktop surface. Induction cooking is generally about twice as fast as traditional gas cooking and ideal for fast cooking, such as stir-frying. On the other end of the spectrum, induction is also very slow and gentle and ideal for melting chocolate or making a bearnaise sauce. The induction cooktop is also easy to clean. Since there are no elements heating the cooking surface, spill-overs are less likely to get baked onto the surface. Finally, because the cooktop is not heated directly, induction cooking is much safer to use.

What types of cookware can be used?

Induction cooktops will only operate with specific cookware. As explained in the paragraph above, induction cooking works by electromagnetic energy. Therefore, the outside bottom surface of the cookware must be made of a

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ferrous magnetic material such as cast iron, enameled steel, or magnetic stainless steel. The interior of the cooking surface of the cookware can be aluminum or other non-ferrous material with or without a non-stick coating as long as the bottom is ferrous. If not indicated at the base of your cookware, it is easy to check whether or not your cookware will work by using a fridge magnet or any other permanent magnet. If the magnet sticks to the bottom of the pot/pan, the cookware will work on an induction cooktop. Additionally, any pots or pans used with this cooktop must have a flat bottom and measure between 4.7" – 10.2" (12-26 cm) in diameter.

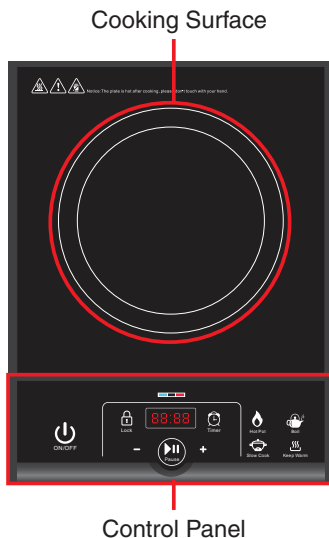
What can I cook on an induction cooker?

What you can cook on an induction cooker is no different than what you can cook with a gas or electric cooker, or any other form of heat. There are no special recipes or cookbooks.

PRODUCT OVERVIEW

Rated Voltage: 120V~60Hz

Rated Power: 1800W



OPERATING INSTRUCTIONS

1. Place the induction cooker on a dry, stable, and level surface. Make sure there is at least 4.7 inches (12 cm) of free space around the appliance to prevent overheating.
2. Fill your pot or pan with liquid or food to be cooked and place it on the cooking surface. The total weight of the cookware (including food contents) must not exceed 44 lbs (20 kg).

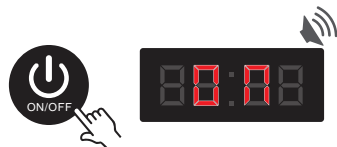
! • The external base surface of the cookware must be made of a ferrous magnetic material such as cast iron, enameled steel, or magnetic stainless steel. Check the base of your cookware for induction symbol functionality, or test with a magnet as mentioned in IMPORTANT SAFEGUARDS.

• **NEVER heat empty cookware.** This will cause the unit to overheat, damage the cookware and/or cause the unit to shut off.

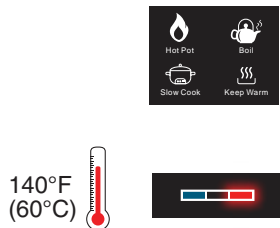
3. Plug the unit into a power outlet. The unit will beep, the indicators on the LED display will illuminate, and the blue indicator light will turn on. The cooktop is now in standby mode.



4. Push the ON/OFF button to turn the unit on. The message "ON" appears on display, and a beep is heard.



5. Push one of the cooking mode buttons to select a cooking mode and start cooking (refer to the "COOKING MODES" section of this manual for more information on cooking modes). When the cooking surface temperature reaches 140°F (60°C) and above, the red indicator light on the LED display will turn on.



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- As a safety measure, if you don't select a cooking mode within 30 seconds after the cooktop has been turned on, the cooktop will switch back to standby mode.



Standby mode



- If the cookware is removed from the cooktop at any time during the cooking cycle, the unit will beep continuously for 1 minute, error code "E0" will appear on display, and then the unit will switch back to standby mode. To reactivate the cooktop within that 1 minute, cooktop.



NOTE: E0 error can also appear if you are using cookware with a non-magnetic bottom.

6. Push the ON/OFF button when finished cooking to set the unit in standby mode.



7. The cooling fan inside the cooktop will continue to run for approximately 1 minute to cool off the cooktop. Unplug the cooker **after** the fan stops working.







WARNING: To avoid getting burnt, do not touch the cooking surface during use or immediately after the cooker has been turned off.



COOKING MODES

RapidTherm Portable Induction Cooktop is equipped with 4 preset cooking modes:

Cooking mode	Default cooking temperature	Default cooking time (if no button is pressed)
 Hot Pot	460°F	2h
 Boil	460°F	18 min
 Slow Cook	260°F	2h
 Keep Warm	140°F	1h

- You can **SET THE COOKING TEMPERATURE** for all cooking modes to a value between 140°F and 460°F in 8 levels by pushing the “+” or the “-” button, respectively.

Note: You can also change the temperature during cooking.

- DEFAULT COOKING TIME** resets each time you press any button.

- After you select a cooking mode, for example the Hot Pot mode, and you don't press any other button anymore, the unit will turn off after 2h. However, if you change the temperature during cooking by pressing +/- buttons, the default cooking time will reset, and the unit will turn off 2h after the last button was pressed.

- If you press the PAUSE button, the **time will not reset** as the PAUSE function pauses the current cooking mode. You can always turn off the unit manually.

- **To override the default cooking time**, use the Timer button (for more information, refer to the “TIMER FUNCTION” section of this manual).

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• You can **SWITCH BETWEEN THE COOKING MODES** while cooking by pushing the desired cooking mode button.

• Each temperature level has its corresponding **POWER LEVEL** (amount of wattage the cooktop uses):

Temperature level	Power level
140°F	200W
212°F	500W
260°F	800W
300°F	1000W
350°F	1200W
390°F	1400W
425°F	1600W
460°F	1800W

TIMER FUNCTION

You can use the “Timer” button to program the induction cooktop to turn off after a certain amount of time.



1. Once you have chosen the desired cooking mode, press the Timer Button.
2. Press the “+/-” buttons to adjust the cooking time from 1 minute up to 4 hours in increments of 1 minute. If you press and hold the “+” or “-” button continuously, the cooking time will change in increments of 10 minutes.
3. Once you have selected the desired shut-off time, the screen will blink 5 times to confirm your selection.
4. When the programmed time has elapsed, the induction cooker will beep once and automatically go into the standby mode.

NOTE: If at any time during the cooking cycle you want to **cancel the programmed shut-off time**, simply press the Timer button.

! WARNING: To avoid getting burnt, do not touch the cooking surface during use or immediately after the cooker has been turned off.

LOCK FUNCTION

This function allows you to set the desired mode and then lock the control panel to avoid changing the setting by accident.

- **To use the “Lock” function**, push and hold the “Lock” button (for approx. 3 seconds) until the message “LOC” appears on display, and a beep is heard. All the buttons except the ON/OFF button will be locked.

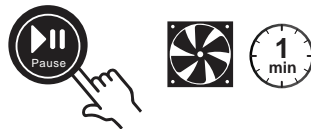


- **To cancel the “Lock” function**, push and hold the “Lock” button (for approx. 3 seconds) until the message “LOC” disappears from the display, and a beep is heard. This will unlock all the buttons.



PAUSE FUNCTION

- If you want to **pause the cooking mode during cooking**, press the PAUSE button once. The unit will stop heating, all the buttons except the ON/OFF button will be locked, and the fan will automatically shut down after 1 minute.



- **To continue cooking**, press the PAUSE button again.



CLEANING AND MAINTAINANCE

Always switch off and unplug the unit before cleaning.



• Clean the glass surface with a soft, damp cloth or sponge. For greasy deposits, moisten the cloth with warm water and add a small amount of neutral detergent.



• Wipe the glass surface dry with a soft, dry cloth.



• Do not use any abrasive or harsh cleaning agents that may scratch the surface of the cooktop.



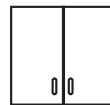
• Clean the Exhaust vent using a soft brush or a cotton stick.










• Do not immerse the unit in water!



• When not in regular use, it is important to store your cooktop in a safe, dry location.



TROUBLESHOOTING

Error code	Possible reason	Solution
	The cookware has been removed from the cooktop during the cooking cycle / Cookware does not have a magnetic bottom	Place the cooktop back on the cooktop.
	Low voltage sensor	Make sure the outlet used is 120V AC.
	High voltage sensor	Make sure the outlet used is 120V AC.
	Internal Circuit Error - parts are either overheating or have an open or short circuit.	Ensure that the room temperature is not high and that the unit is not in direct sunlight. Ensure that the fan is operating and that the fan openings are not blocked. Alternatively, contact Mueller Customer Service.
	Top plate sensor stopped working.	Contact Mueller Customer Service.
	IGBT sensor is overheated or short-circuited.	Contact Mueller Customer Service.
	IGBT sensor stopped working.	Contact Mueller Customer Service.

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Müller



Your purchase comes with a 100% satisfaction guarantee from Müller

If you are not happy with the product for any reason, please contact us at support@muellerdirect.com or **888-632-9981** with your feedback or questions, and we will do our best to make things right for you!

Müller USA

168 Mason Way Unit #4A,

City of Industry, CA 91746

Telephone: (888) 632-9981

E-mail: support@muellerdirect.com

Web: www.muellerhome.us

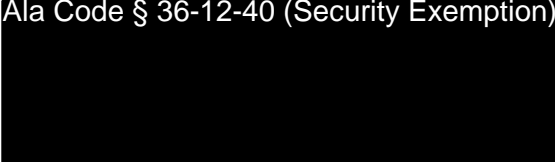
Application Number 1632

Exhibit 15 – Receiving and Shipping

Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

Jason Cobb

Printed Name of Verifying Individual
Ala Code § 36-12-40 (Security Exemption)


CEO

Title of Verifying Individual


12/30/2022

Verification Date

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15.1 – Individual batches of cannabis being received for storage and/or processing were appropriately prepared, tagged or otherwise identified, and inserted in containers at the time of receipt.

Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Processor Procedures for Receiving Batches of Cannabis

Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



License Type: Processor

Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

15.2 – Batches and containers arriving from another licensee’s facility or another of the Applicant’s own facilities have been QR coded or otherwise digitally coded to identify, at a minimum, the Cultivator, facility, plant tag or harvest batch number, date of harvest, expiration date (or, if no expiration date, a notation that the expiration date does not 28 apply), the date of the cultivator’s State Laboratory testing approval, and the Alabama Poison Control contact information as provided on the AMCC website.

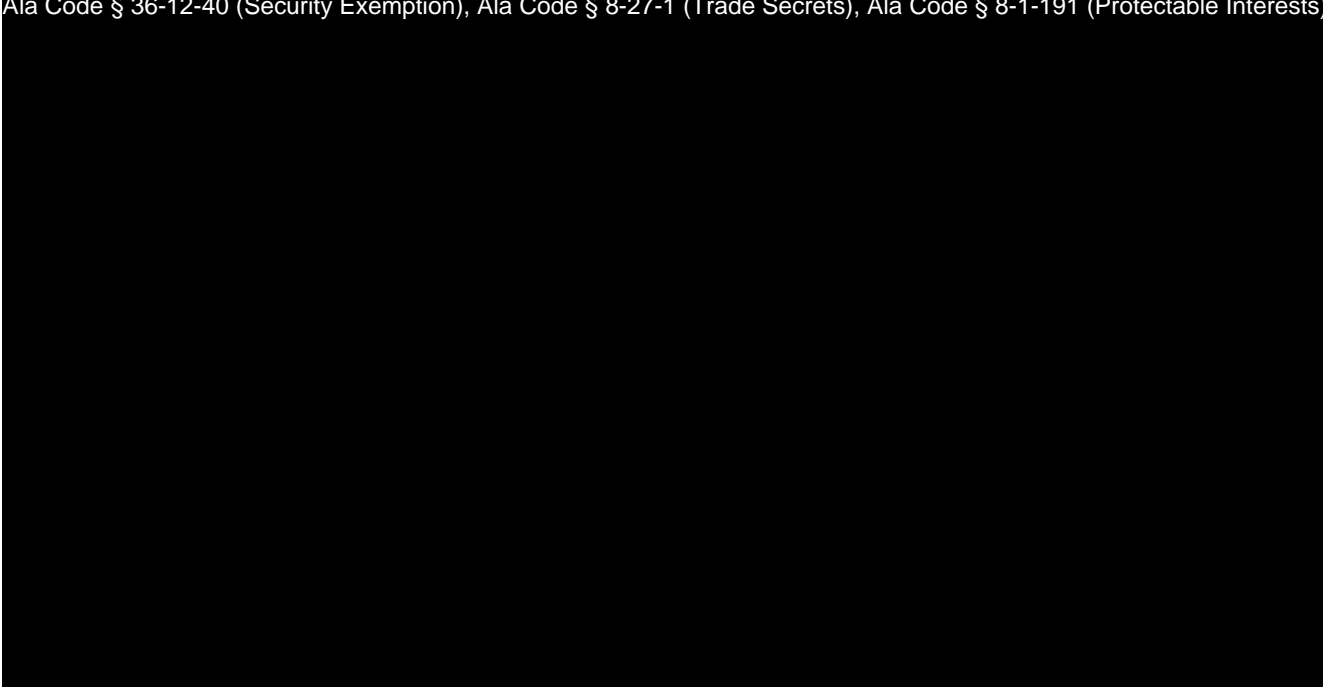
Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

15.3 – Incoming cannabis is accompanied by the Secure Transporter’s manifest and other appropriate documentation; the information thereon is accurate and has been duly executed by all appropriate parties.

Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

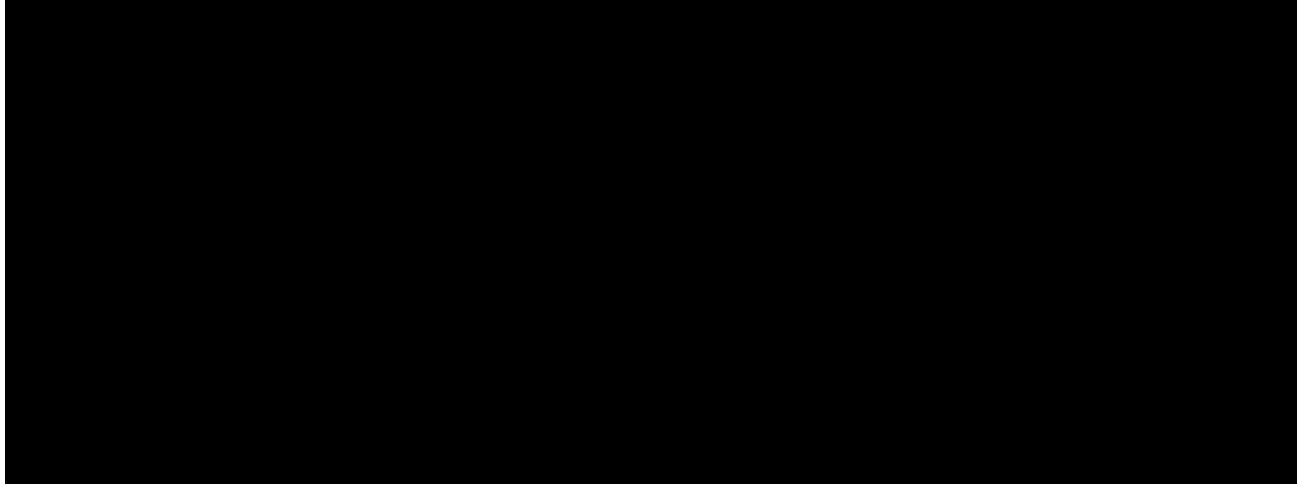
License Type: Processor

Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

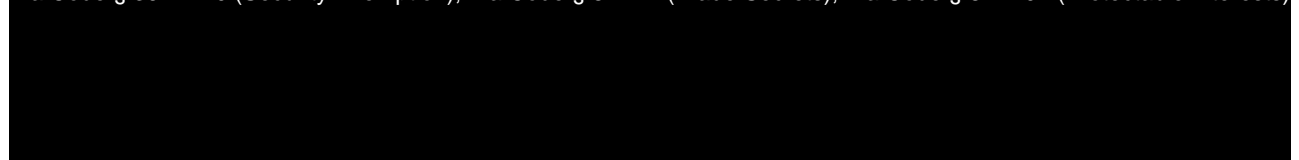


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Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

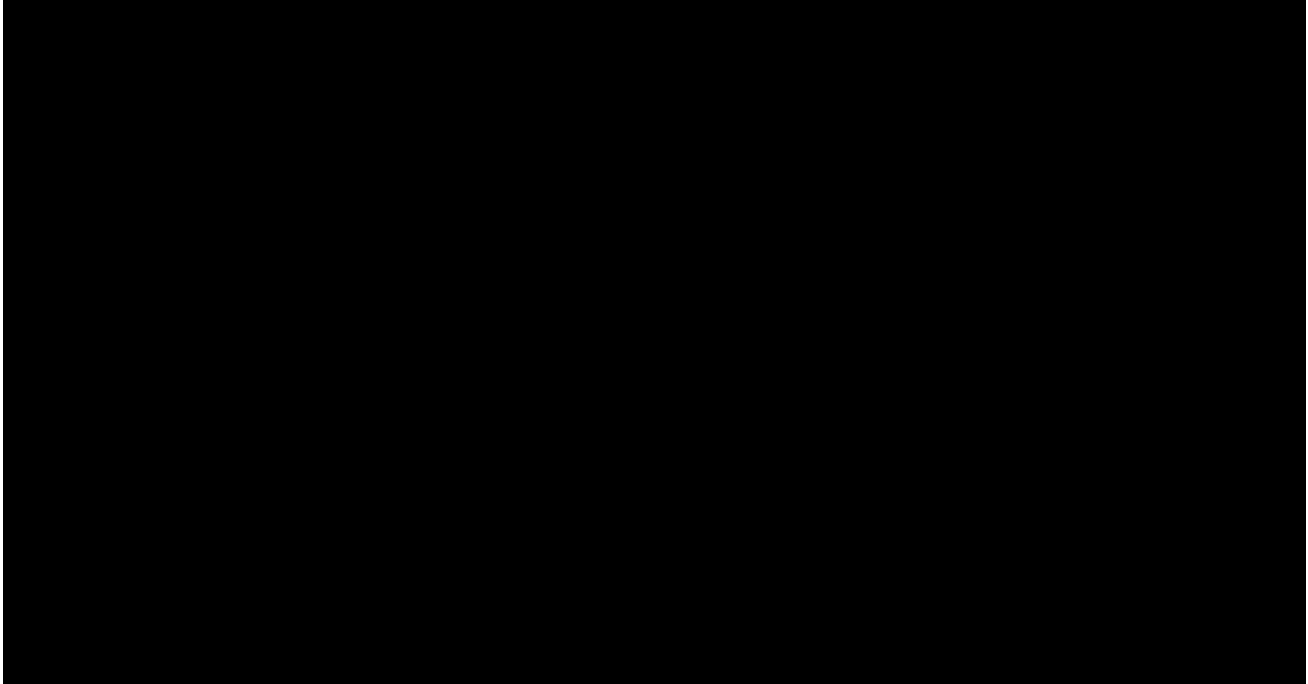


Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



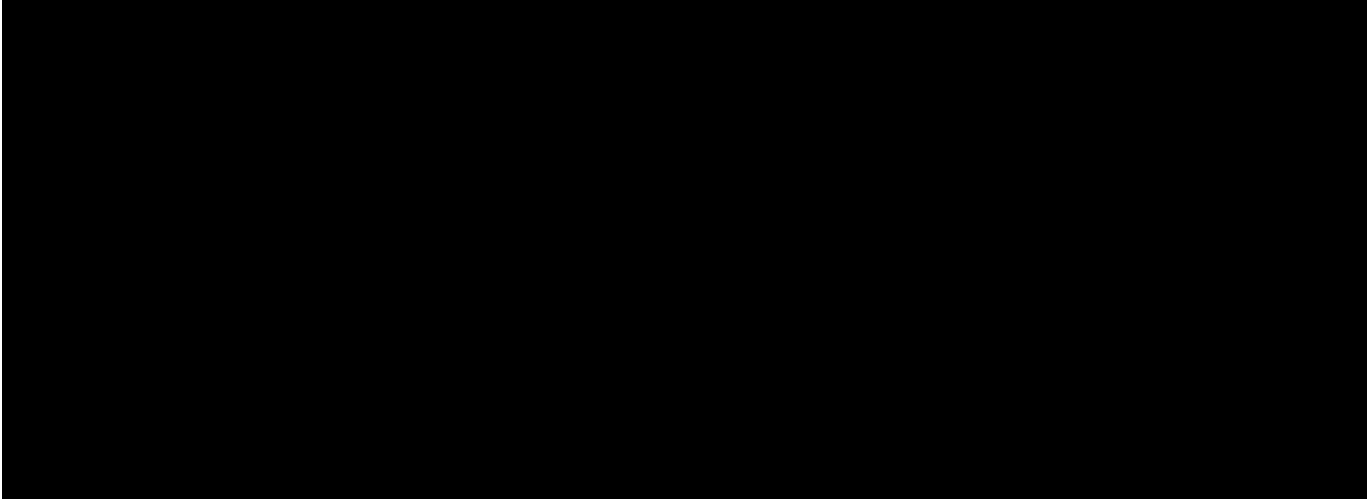
15.4 – All information from the QR code relating to the incoming cannabis, as well as the date and time of arrival, has been logged into the Statewide-Seed-to-Sale Tracking System.

Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

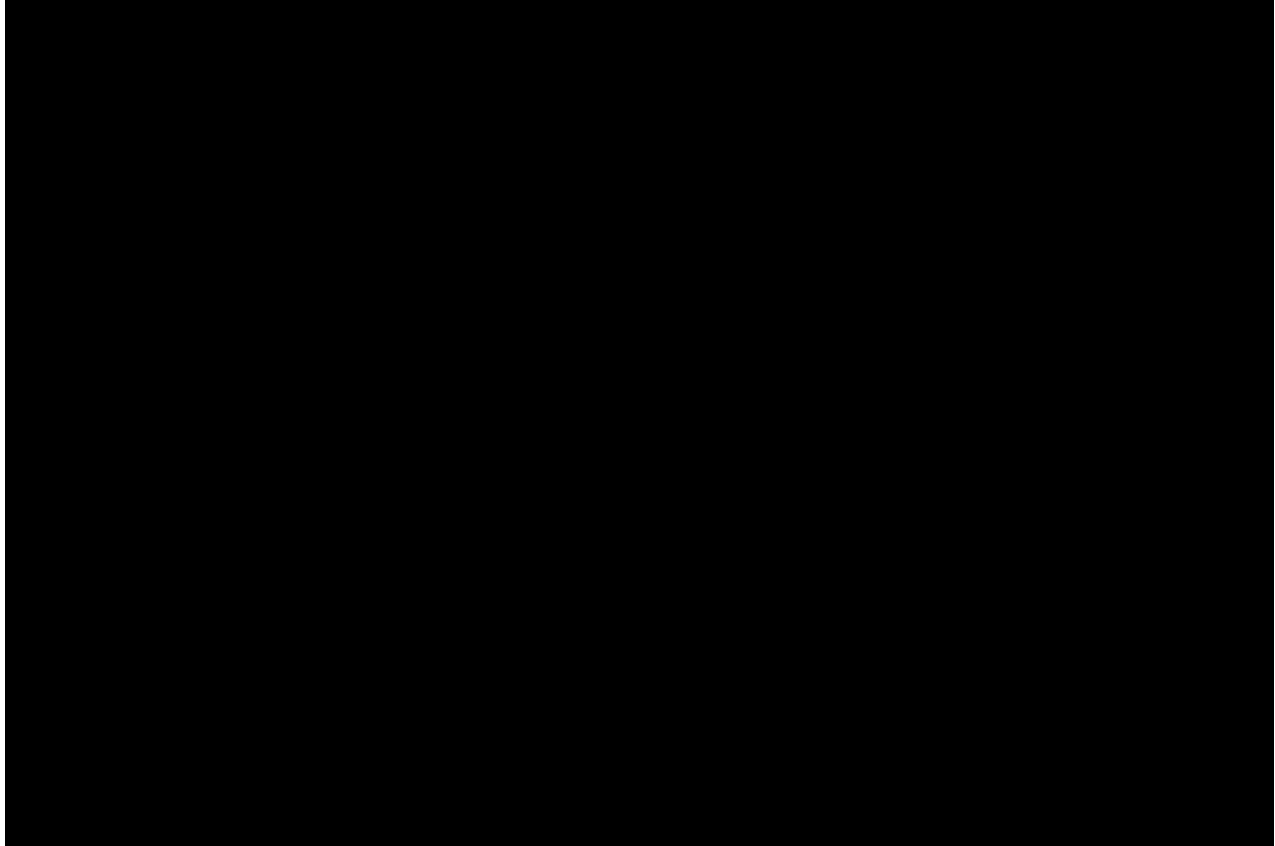


15.5 – Individual batches of medical cannabis products being shipped from the Applicant’s facility to a Dispensary or Cultivator by means of a Secure Transporter must be appropriately packaged, labeled, and inserted in containers prior to transport.

Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

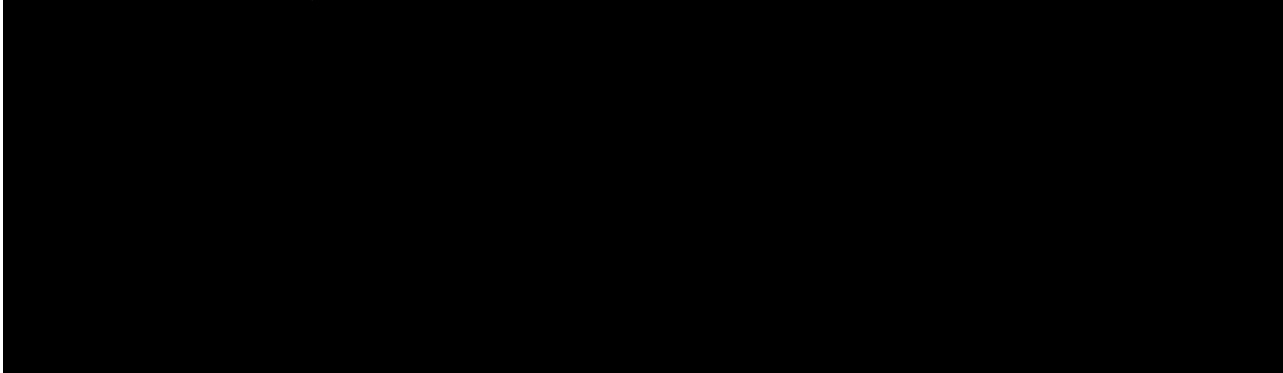


Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)




15.6 – Batches and containers being shipped from the Applicant’s facility to another licensee’s facility or another of the Applicant’s own facilities must be QR coded or otherwise digitally coded to identify, at a minimum, the Processor, facility, type of product, date of processing and packaging, expiration date (or, if no expiration date, a notation that the expiration date does not apply), the date of the Processor’s State Laboratory testing approval, and the Alabama Poison Control contact information as provided on the AMCC website.

Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

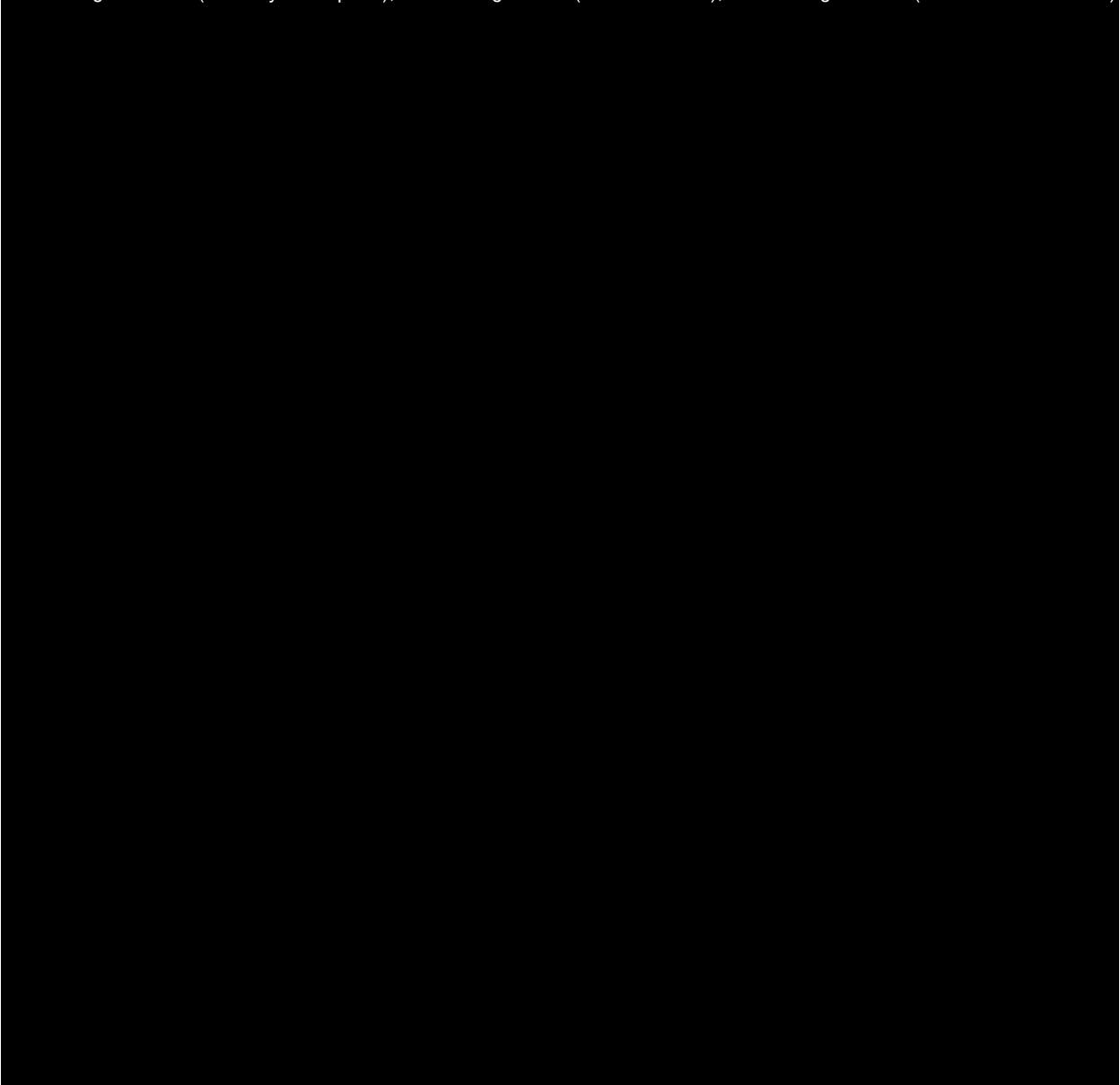


Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



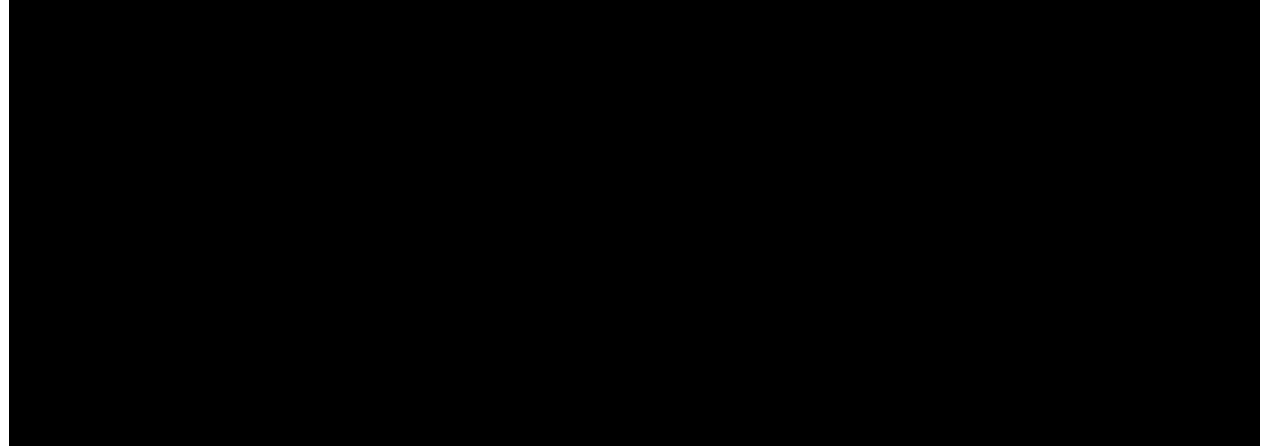
15.7 – Outgoing medical cannabis is accompanied by the Secure Transporter’s manifest and other appropriate documentation; the information thereon is accurate and has been duly executed by all appropriate parties.

Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



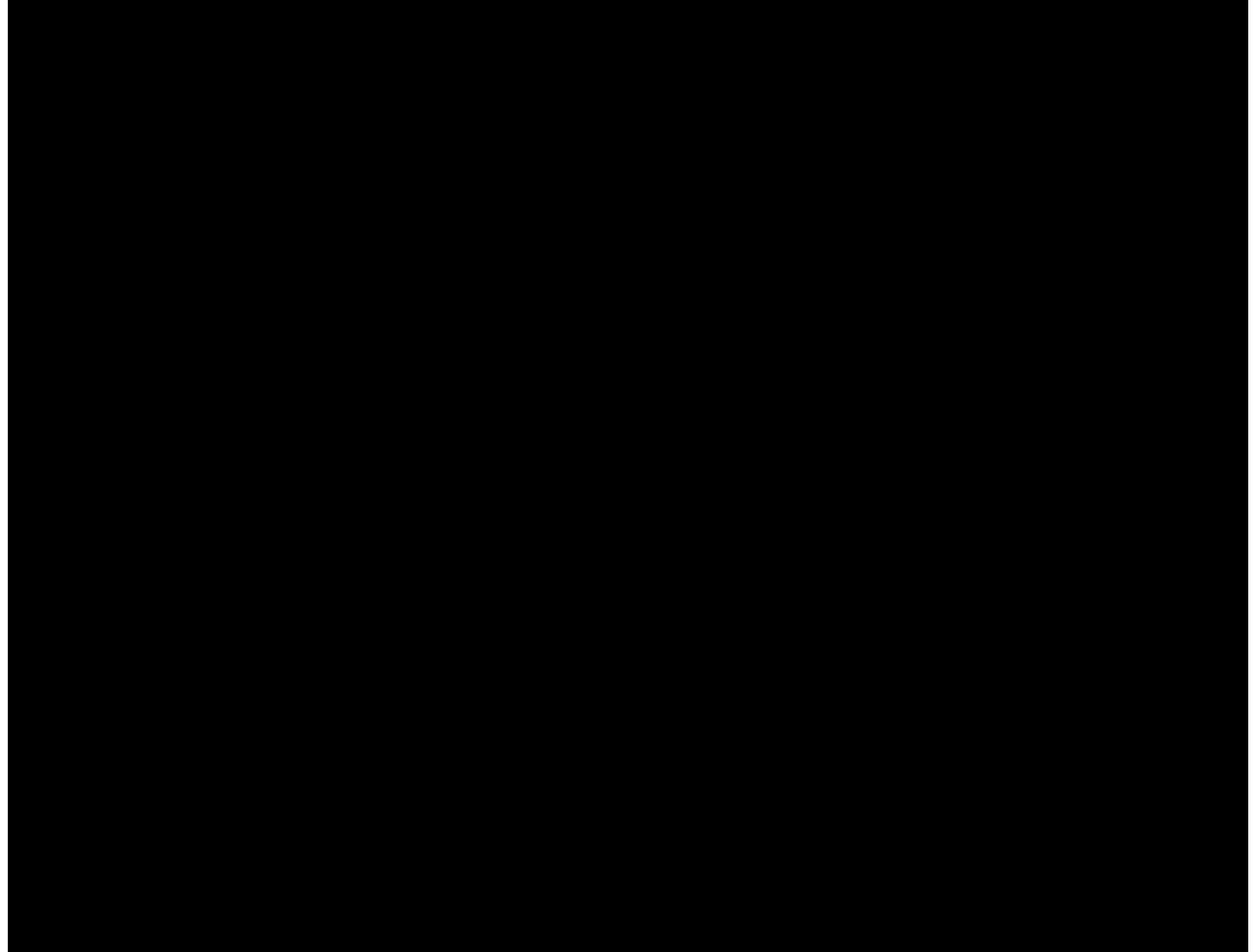
License Type: Processor

Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)




15.8 – All information from the QR code relating to the outgoing medical cannabis, as well as the date and time of shipment, has been logged into the Statewide-Seed-to-Sale Tracking System.

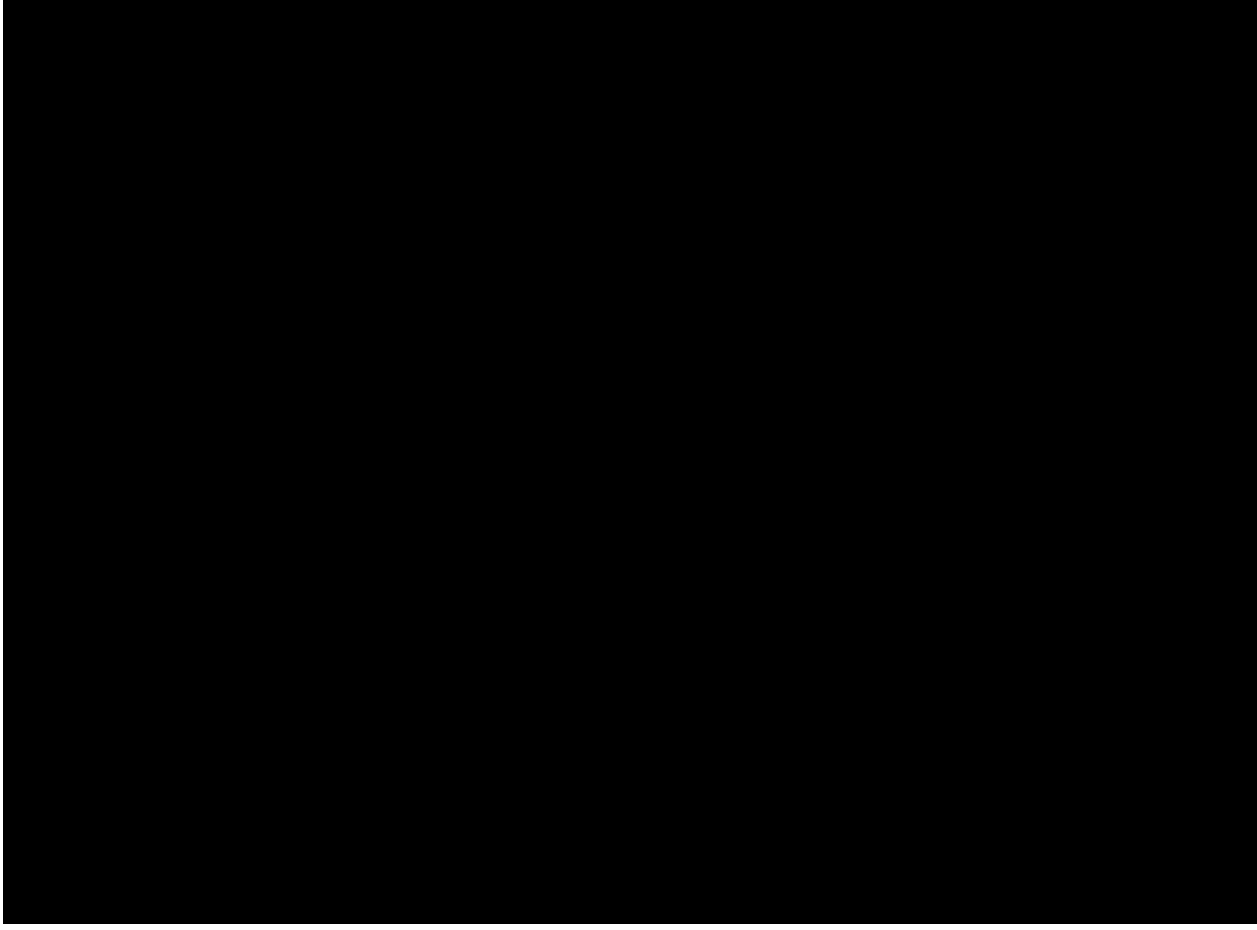
Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



REDACTION INDEX

Ala Code § 36-12-40 (Security Exemption) – The verifying signatures and initials have been redacted pursuant to the “security or safety of persons” exemption contained in the Alabama Public Records statute. Signatures and initials, if left unredacted, may be forged and used for innumerable illicit purposes.

Furthermore, this exhibit contains diagrams and detailed maps of the applicant’s proposed facility. As well as confidential information related to the transport of medical cannabis and cannabis products. Disclosure of such information would be against public policy and place the applicant’s facility at a significant risk. As such, the information contained in this exhibit should be exempt from disclosure.

Ala Code § 8-27-1 (Trade Secrets)/Ala. Code § 8-1-191 (Protectable Interests) – This exhibit contains confidential information including, but not limited to, management and marketing plans, business strategy and methodology, business models and data, and company provided files and software. As such, certain portions of this exhibit have been designated as “Protectable Interests” exempt from disclosure. Further, this exhibit contains information that is used or intended for use in a trade or business, included or embodied in a formula, pattern, compilation, computer software, drawing, device, method, technique, or process, and is not publicly known or generally known in the trade or business. The information contained in this exhibit cannot be readily ascertained or derived from publicly available information and has significant economic value to the applicant. As such, certain portions of this exhibit have been designated as “Trade Secrets” exempt from disclosure.

Protectable Interests and Trade Secrets are redacted as the disclosure to any third party would give an unfair advantage to competitors and would result in the loss of rights and cause harm to the owner of this information. In the normal course of business, the owner of this information requires all individuals who view such information to be bound by confidentiality agreements and access to any of this material is extremely limited and on a need-to-know basis only. The owner of this information will take all steps to enforce such confidentiality agreements and will ensure that employees surrender such information upon termination of employment. If such information is disclosed, competitors of the owner of this information in Alabama and in other states will take such information to better compete against the owner of this information in the regulated commercial market.

Furthermore, the applicant believes the identified information to be confidential and if disclosed would give advantage to competitors because the material is related to the applicant’s planning, site location, expansion, operations, product development and marketing. Because this information can be used to recruit appropriate personnel, locate a site, finance and undertake the operation and go to market, the disclosure of this information would allow new competitors to enter the market to compete against the Company. In addition, the disclosure of this information would also allow existing competitors to potentially optimize the manufacture of their products and/or create similar products to the applicant causing grave economic harm to the owners of this information.

Finally, the applicant claims the marked material marked is exempt from disclosure as the mere formulation of the words and descriptions of processes could prove successful in competitive,

REDACTION INDEX

multi-million-dollar merit-based medical marijuana application processes similar to Alabama. Permitting any of this marked application language to be publicly released would substantially reduce the intrinsic value of the applicant's business – allowing anyone in the public to appropriate the processes, methods, and standard operating procedures that the applicant employs or will employ.

Application Number 1632

Exhibit 16 - Facilities

Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

Jason Cobb

Printed Name of Verifying Individual

Ala Code § 36-12-40 (Security Exemption)



CEO

Title of Verifying Individual

12/30/2022

Verification Date

16.1: Facility Name: Organic Harvest Lab, LLC; Facility Type: Processor

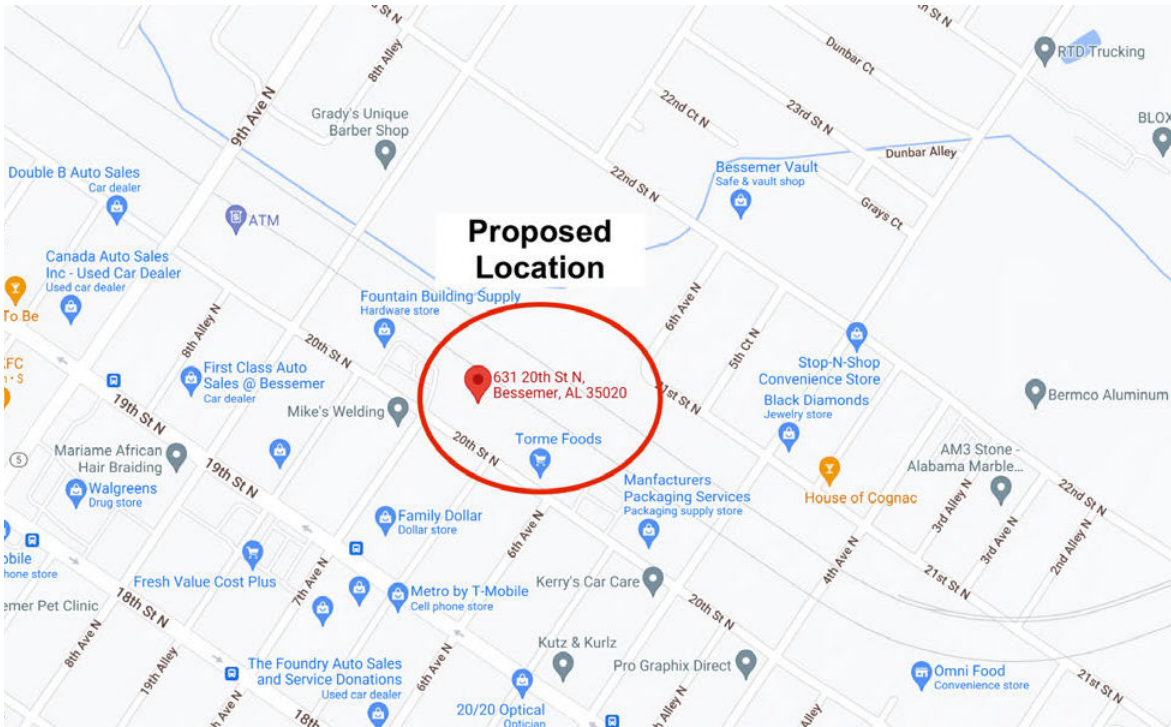
16.2: The proposed facility will be located at GPS coordinates 33.40542221069336” N -86.95561218261719” E, at the following address: 631 20th St N; Bessemer, AL, 35020.

16.3: Aerial photograph depicts the following facility site boundaries:

- Aerial Photograph of the Proposed Processor Location from Satellite Perspective



- Aerial Photograph of the Proposed Processor Location from Traffic Perspective



16.4: Applicant leases the property identified in 16.2 above. See attached lease agreement (identified as “Executed Lease Agreement – Attachment to Exhibit 16, Section 16.4”).

16.5: Attached to the end of this Exhibit the Bessemer, AL Ordinance No. 3653 showcasing the city's approval of medical cannabis facilities (identified as “Bessemer Ordinance No. 3653 — Attachment to Exhibit 16, Section 16.5”). A certified copy of the zoning approval from the Building & Inspection Services Department demonstrates that Applicant is permitted to perform processor activities at the proposed location (identified as “Zoning Approval Letter – Attachment to Exhibit 16, Section 16.5”). The Mayor of Bessemer, AL has also provided a letter of support for medical cannabis Processor Facility operations in Bessemer (identified as “Bessemer - Organic Harvest Support Letter — Attachment to Exhibit 16, Section 16.5”)

16.6: General Functions of Area in Structure

Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



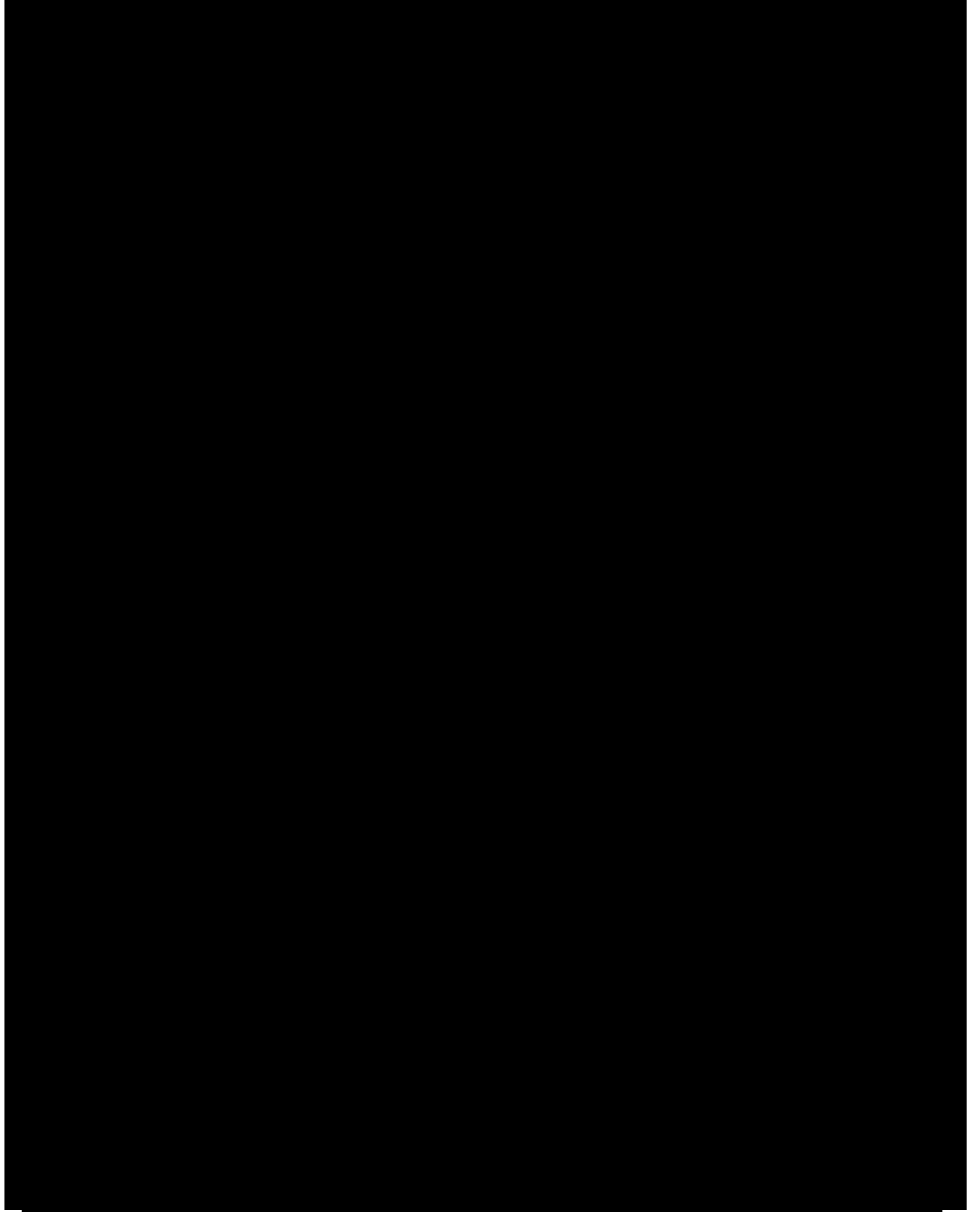
- **Restroom 1 + 2 (35.13 Sq. ft each):** Two ADA equipped bathrooms will be available to employees and visitors, each equipped with a handwashing station. Applicant's lavatories and hand washing stations will be kept in sanitary condition and stocked with the necessary supplies on a daily basis. Running water will be at a suitable temperature in each lavatory, and each hand washing station and will be supplied with a hand cleaning detergent dispenser and either individual disposable towels or a hand drying device providing heated air; extra supplies will be provided for when the original supply is exhausted. Signs will be posted at each hand washing station to reinforce frequent and adequate hand washing protocol.
- **Kitchen (37.26 Sq. ft):** An area located within the facility adjoining the Employee Break Room. The Kitchen is a designated area designed for employees to prep their food, and sanitize/cook during designated breaks.
- **Employee Break Room (143.00 Sq. ft):** Employee Break Room is a designated area designed comfortably with tables and chairs for employees to conduct their breaks. Applicant will provide a communal refrigerator for employees to store food meant for consumption during predetermined breaks.

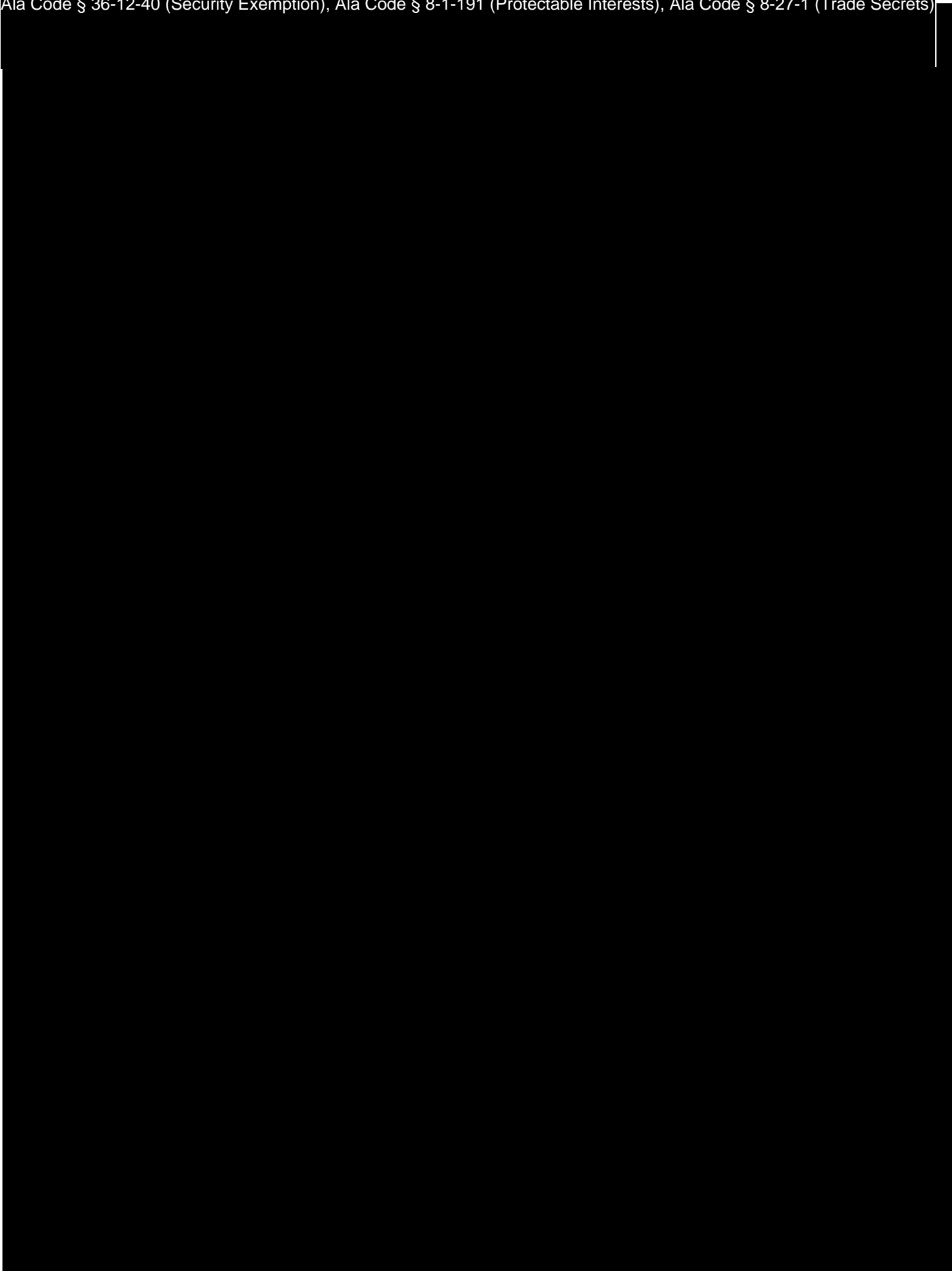


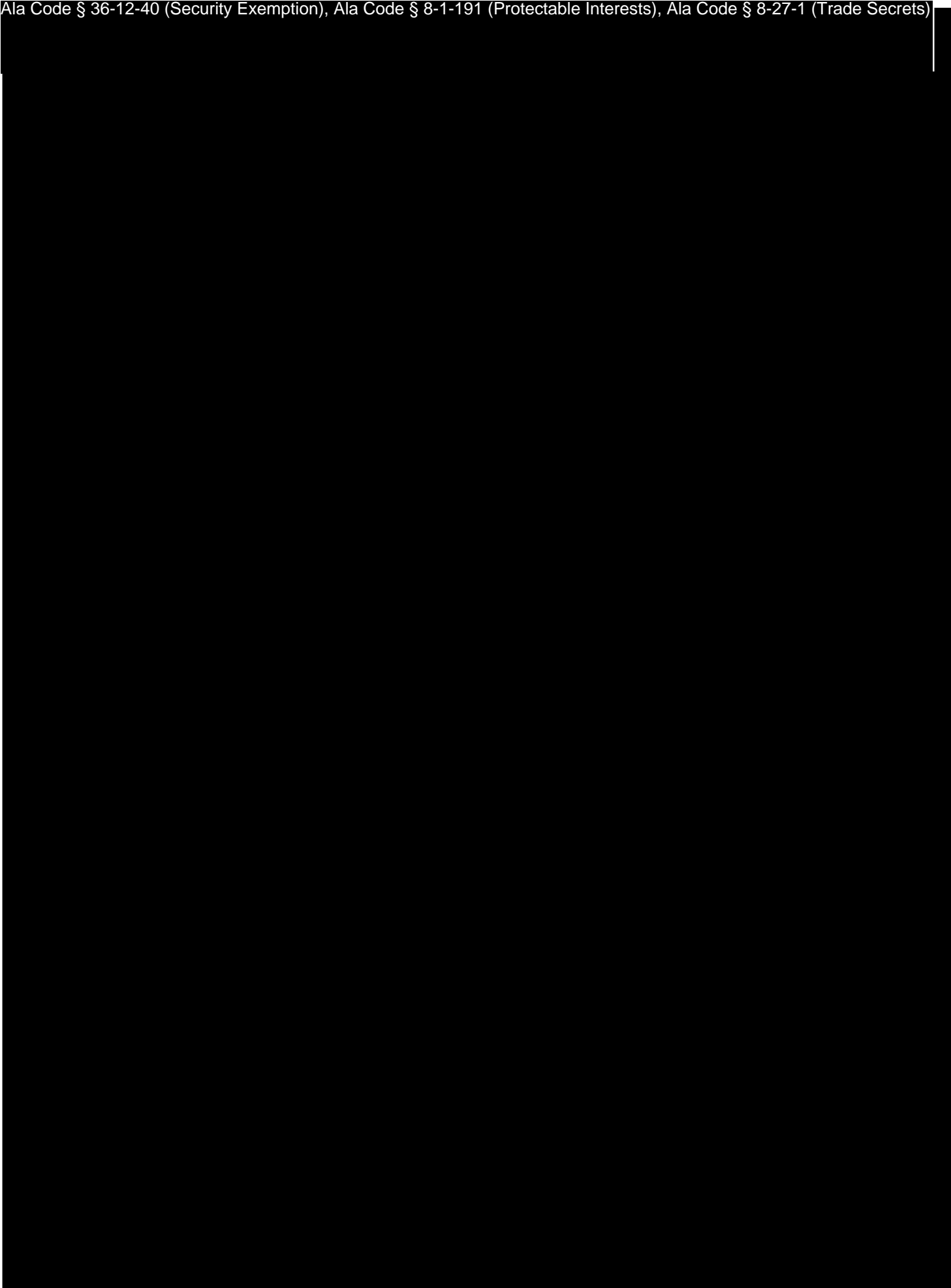
Blueprint

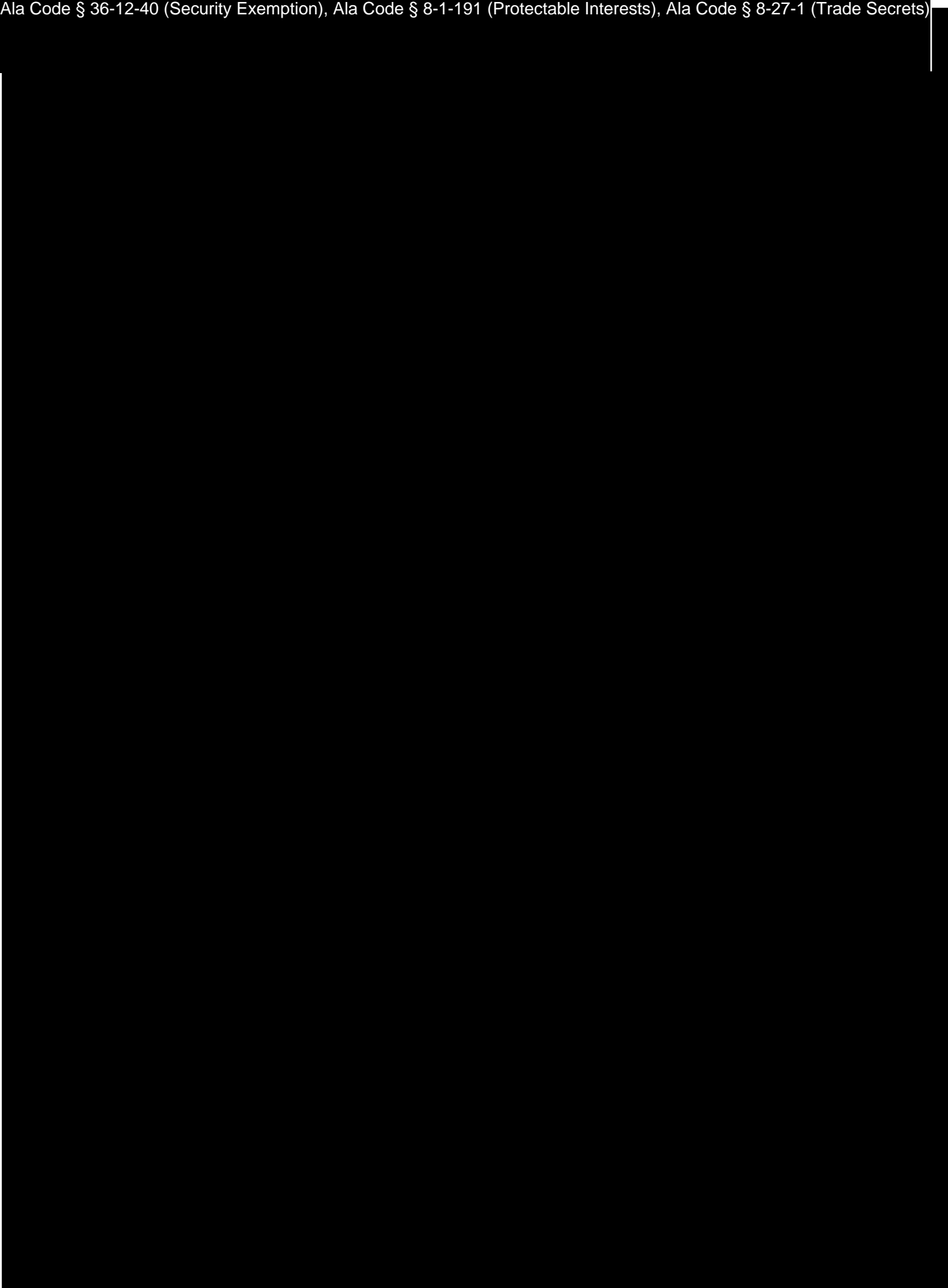
The facility blueprint identified in 16.1 is attached hereto and identified as “Blueprint – Organic Harvest Lab, LLC Processor Facility – Attachment to Exhibit 16, Section 16.6”.

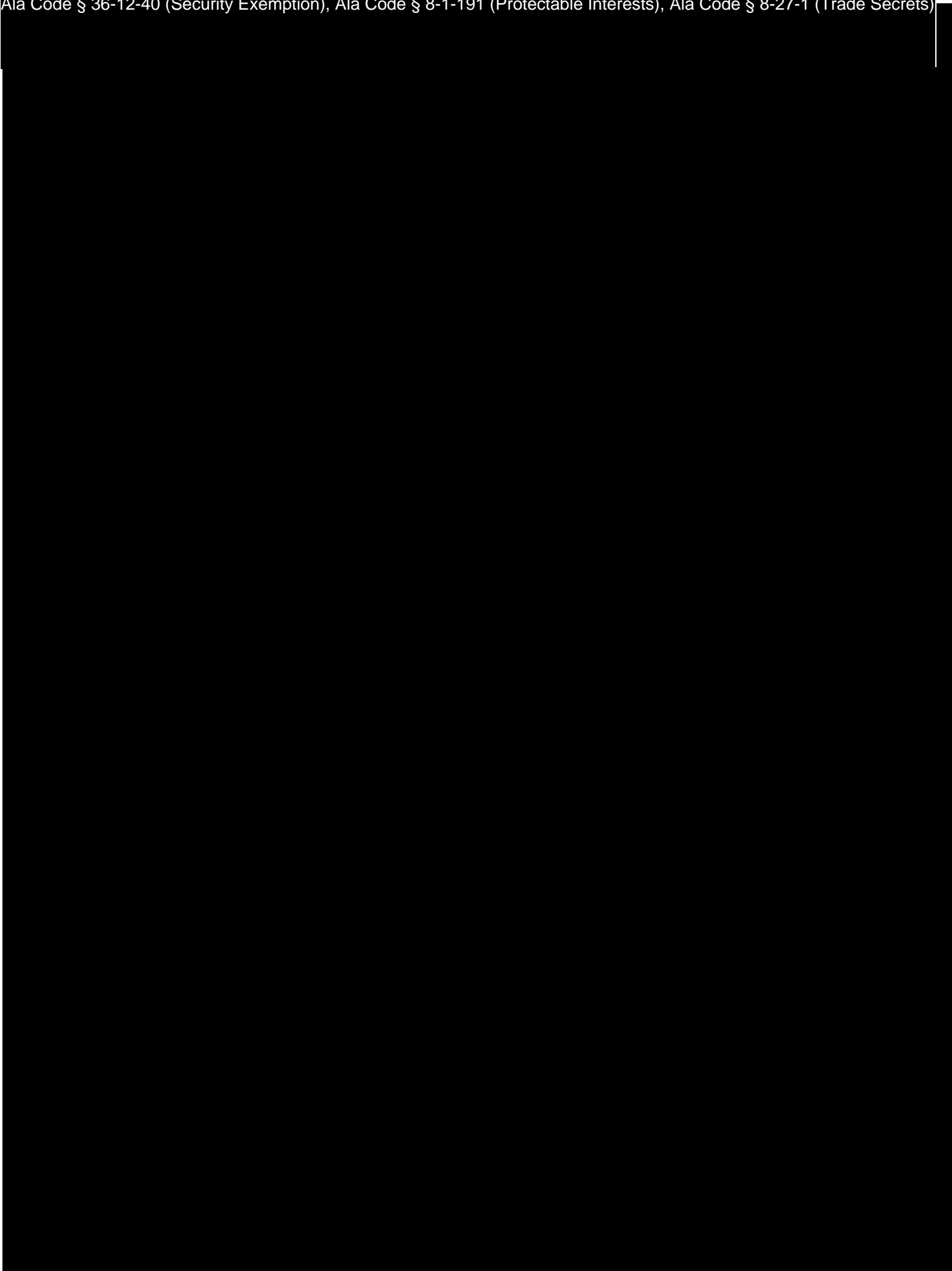
Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



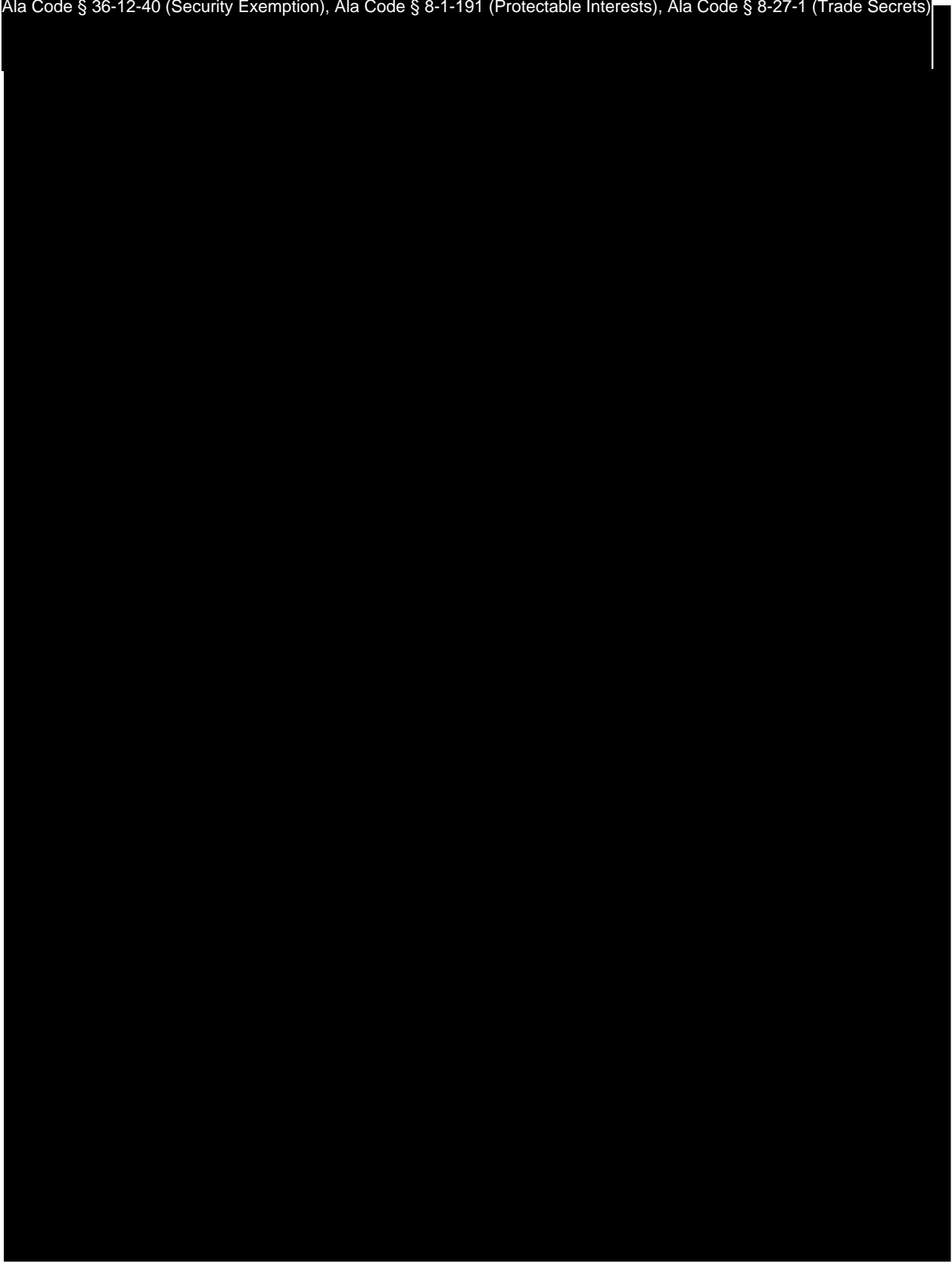




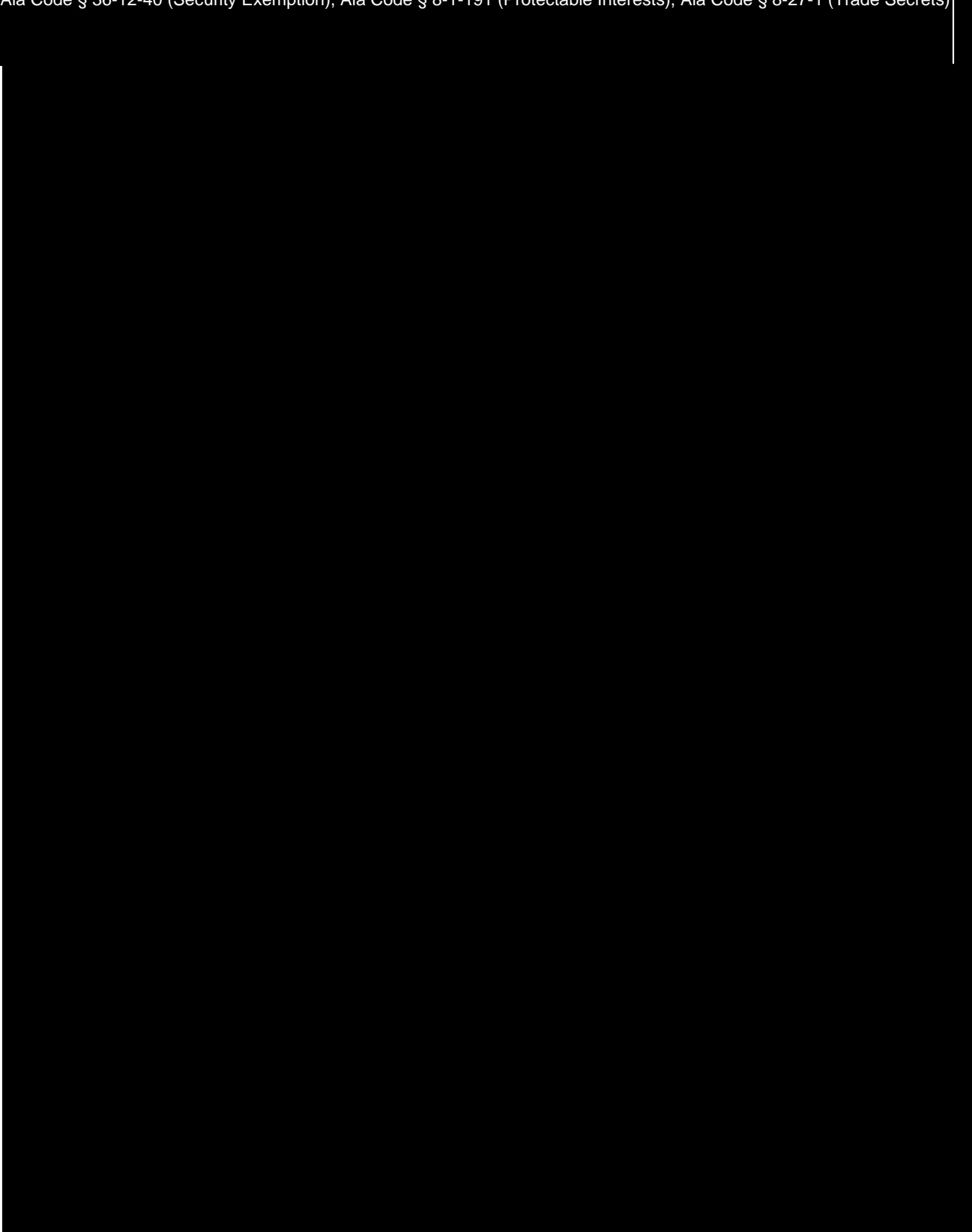




Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)





16.8:

Applicant's Processor Facility will not be open to the public.

16.9:

EMPLOYEE Hours of Operation: Processor Site

Applicant anticipates that the Processor Facility will be occupied by employees during the following hours:

DAY OF THE WEEK	HOURS OF OPERATION
MONDAY - FRIDAY	8:00 AM - 5:00 PM CT
SATURDAY	CLOSED
SUNDAY	CLOSED

After Hours Management Contact

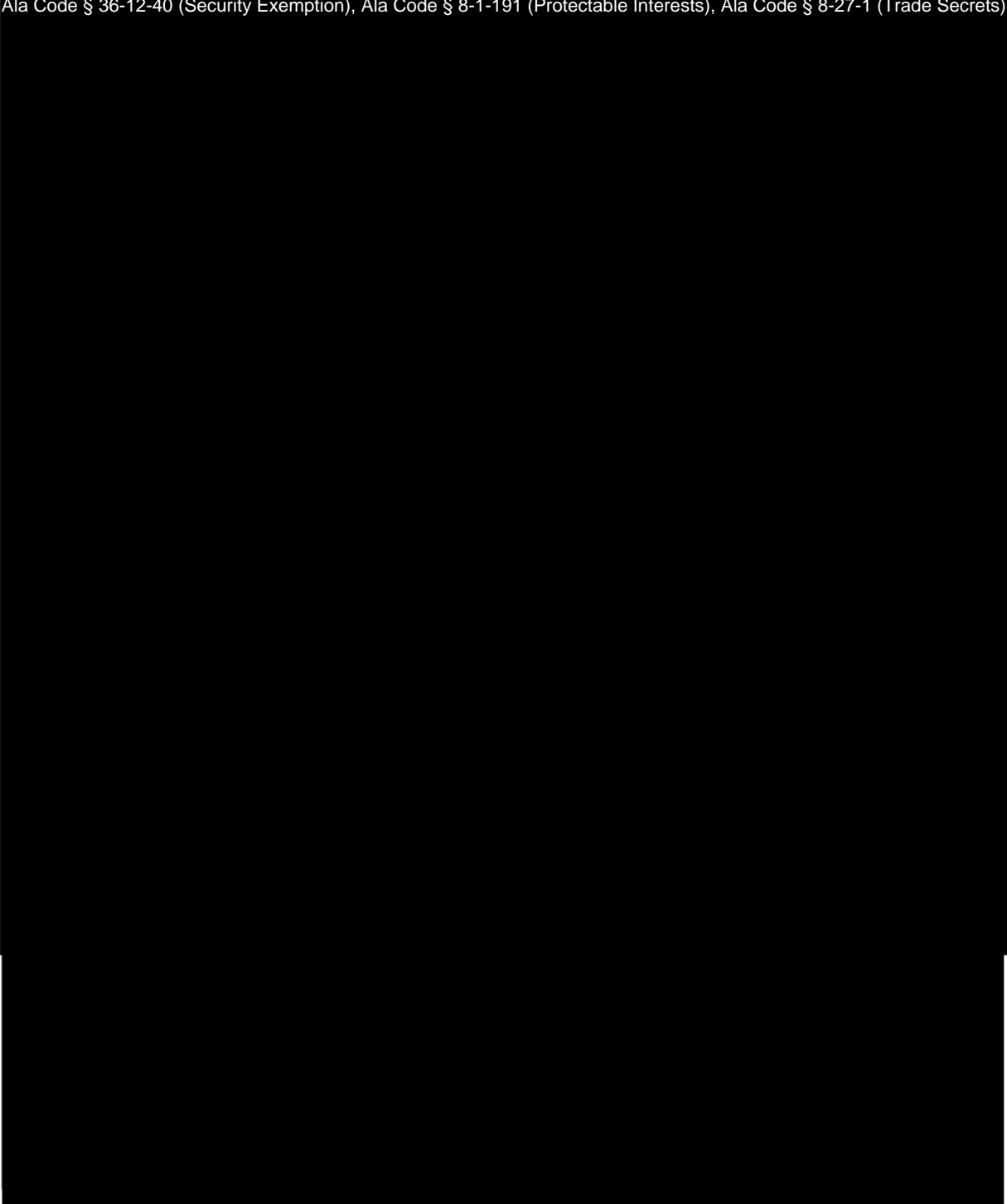
Jason Cobbs,

Chief Executive Officer

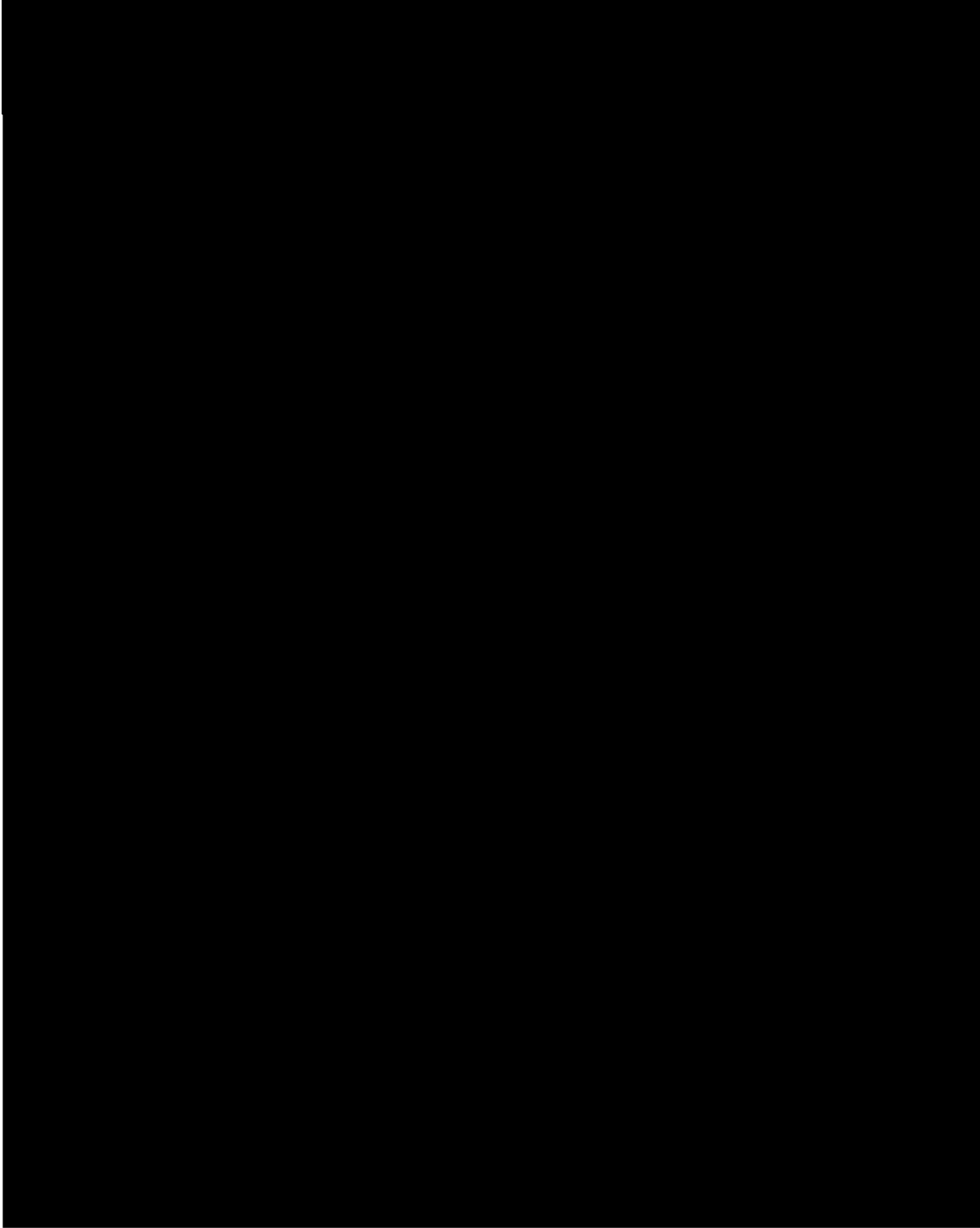
Op. Att'y Gen. Ala. No. 2006-134

Executed Lease Agreement – Attachment to Exhibit 16, Section 16.4

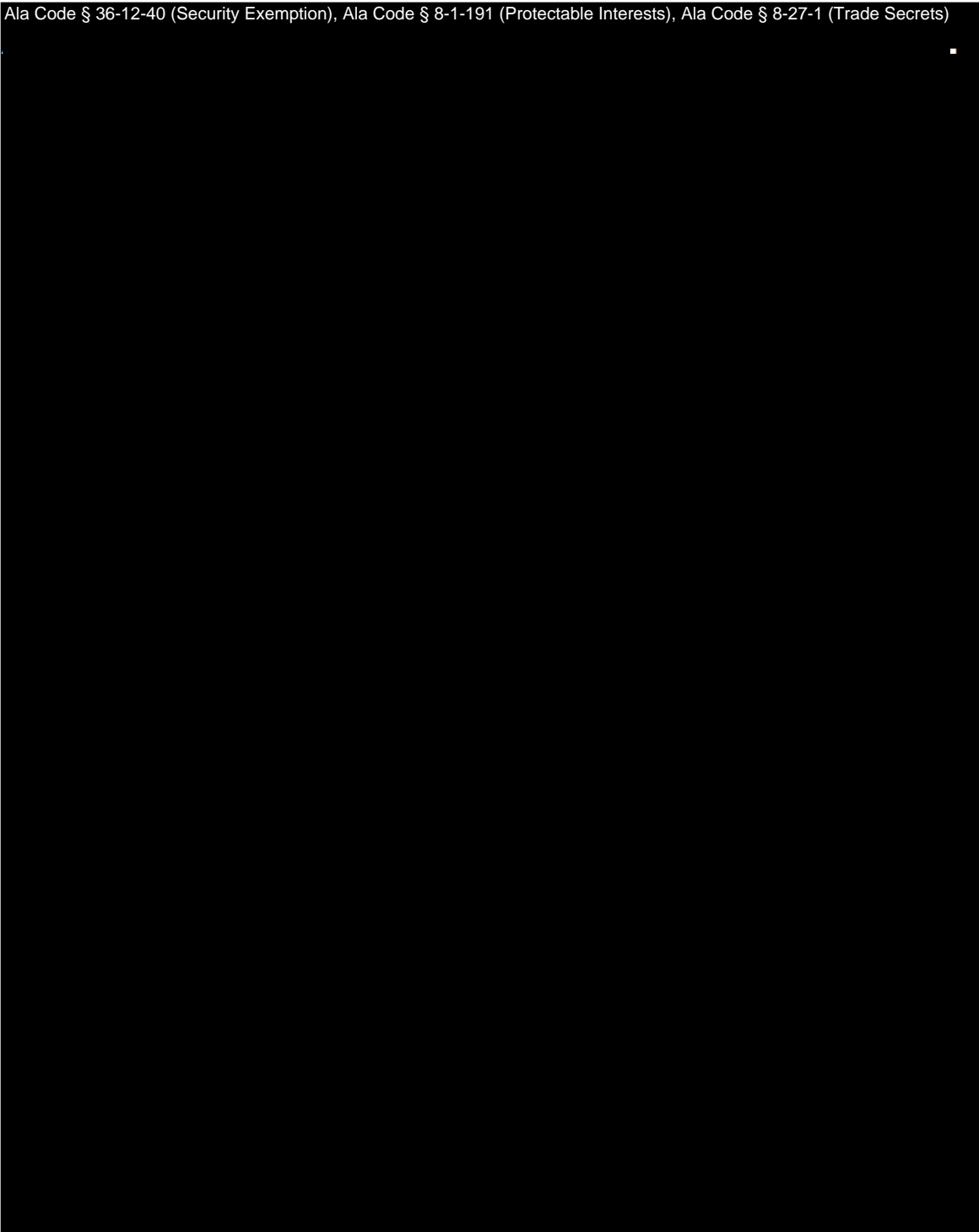
Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



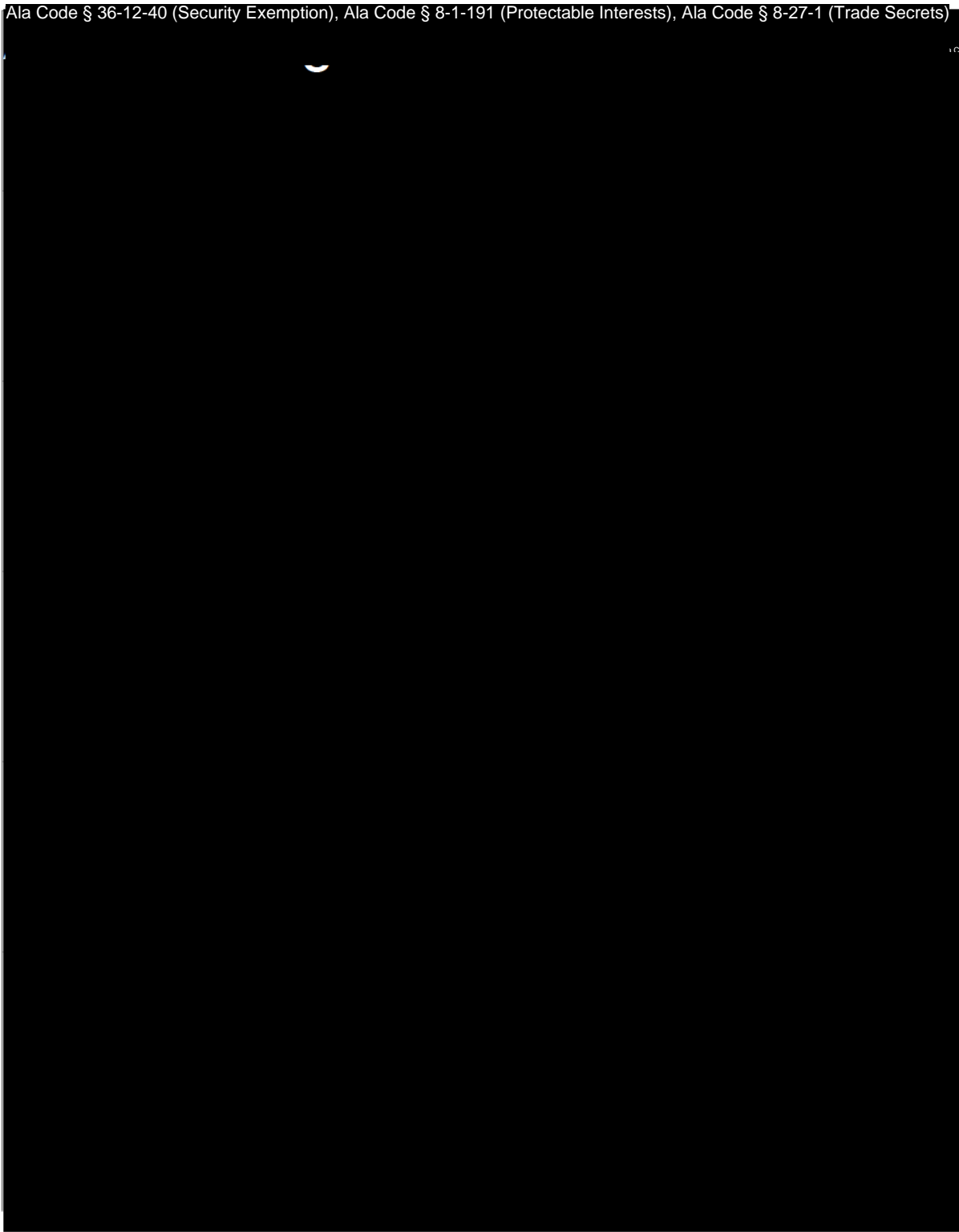
Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



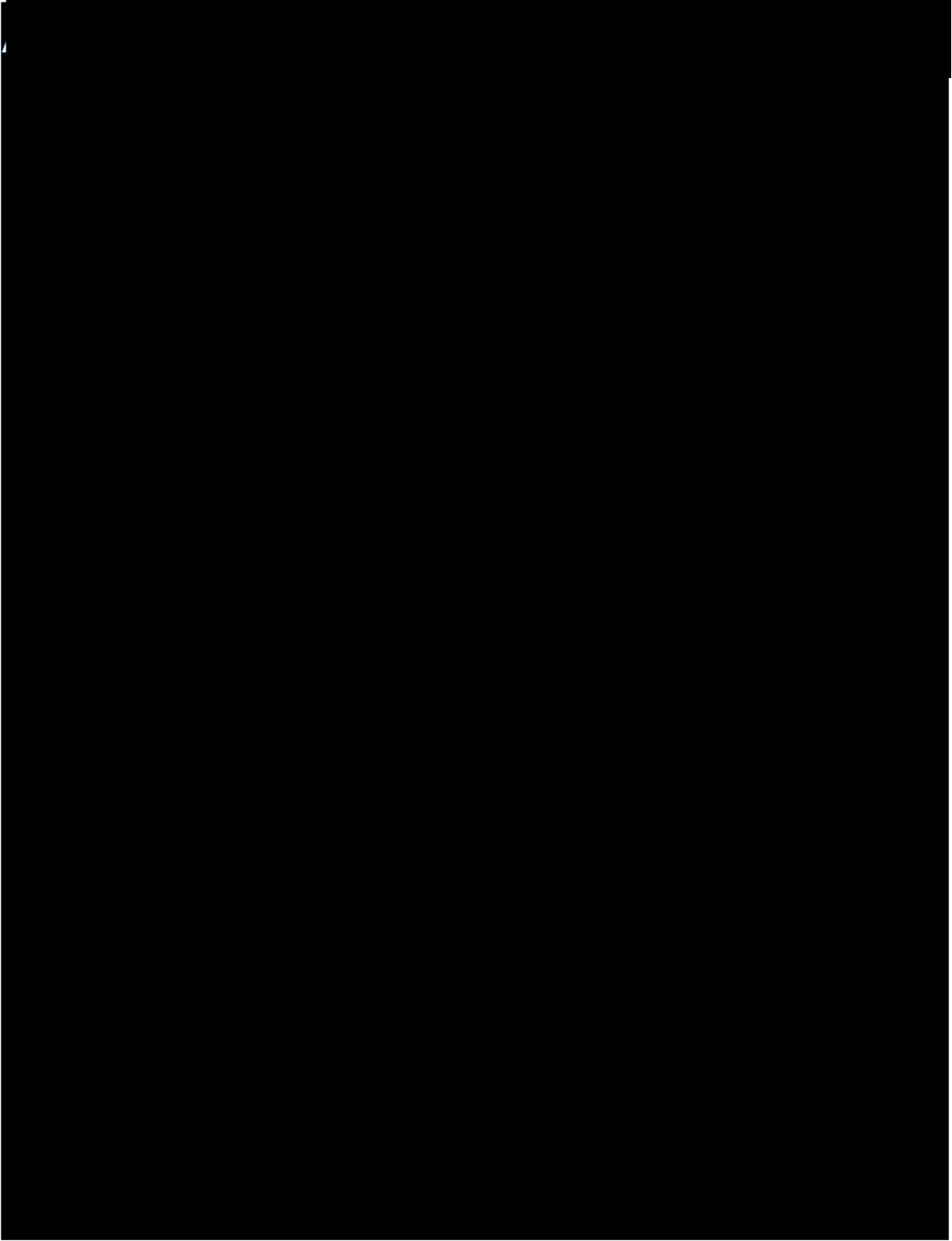
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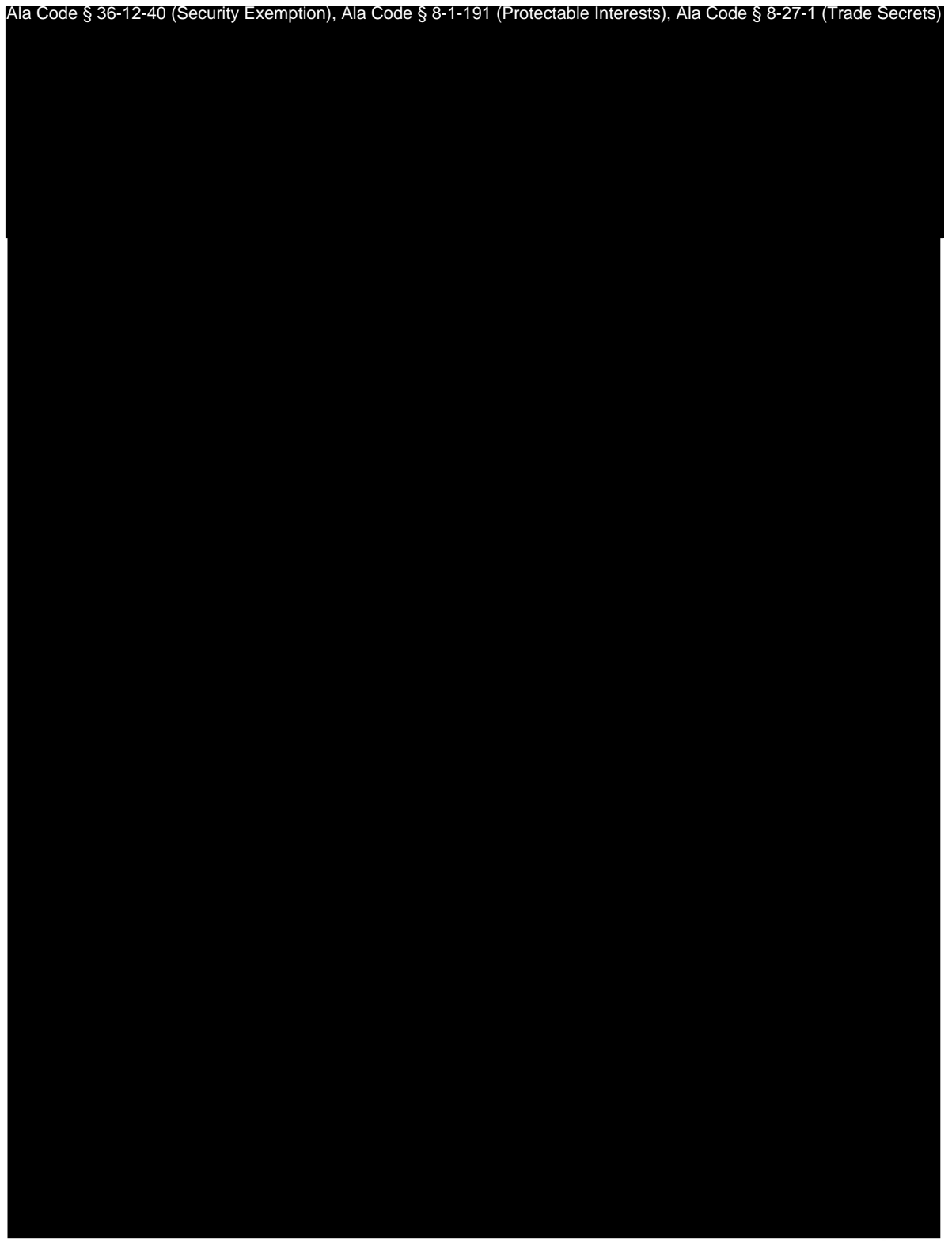
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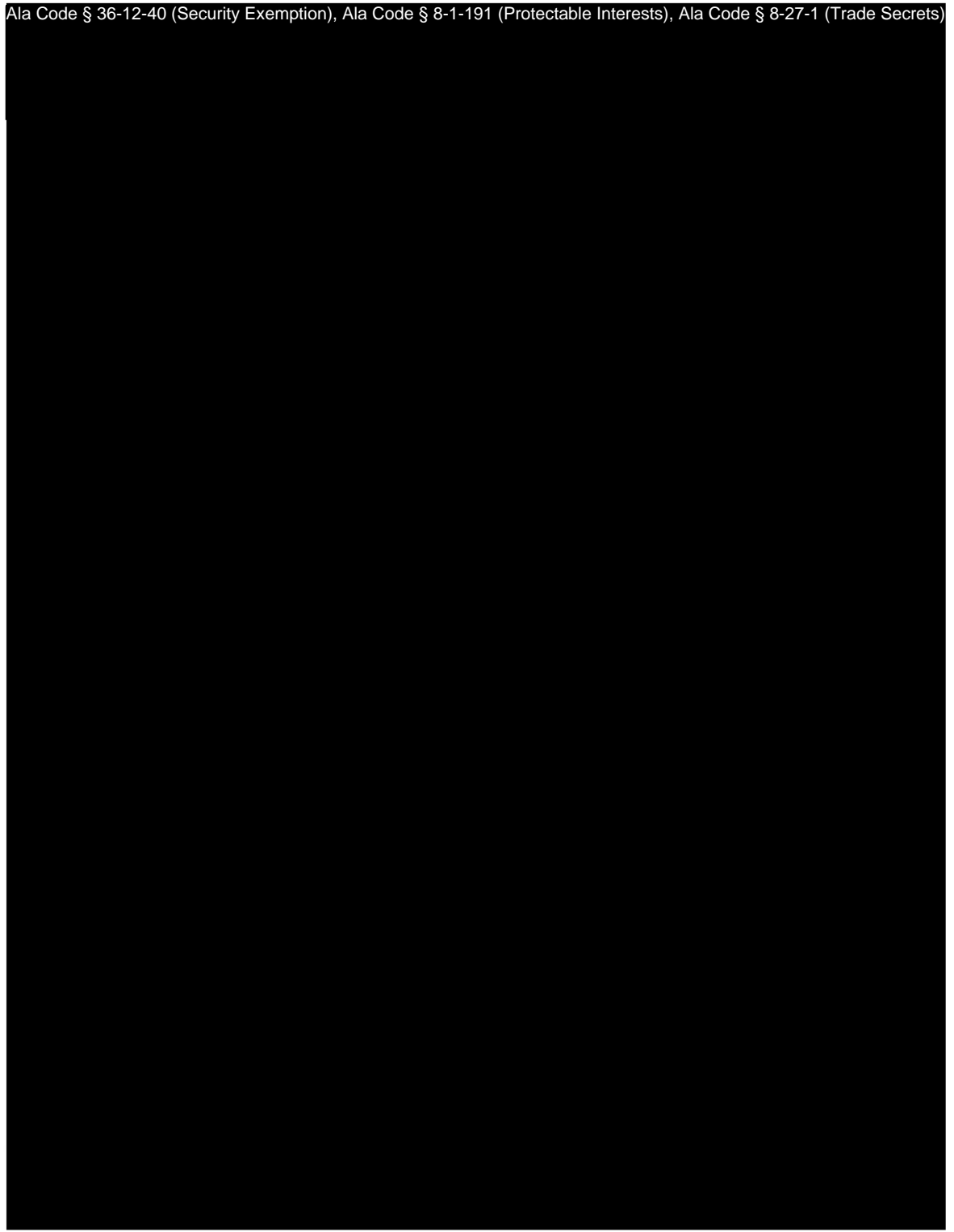
Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



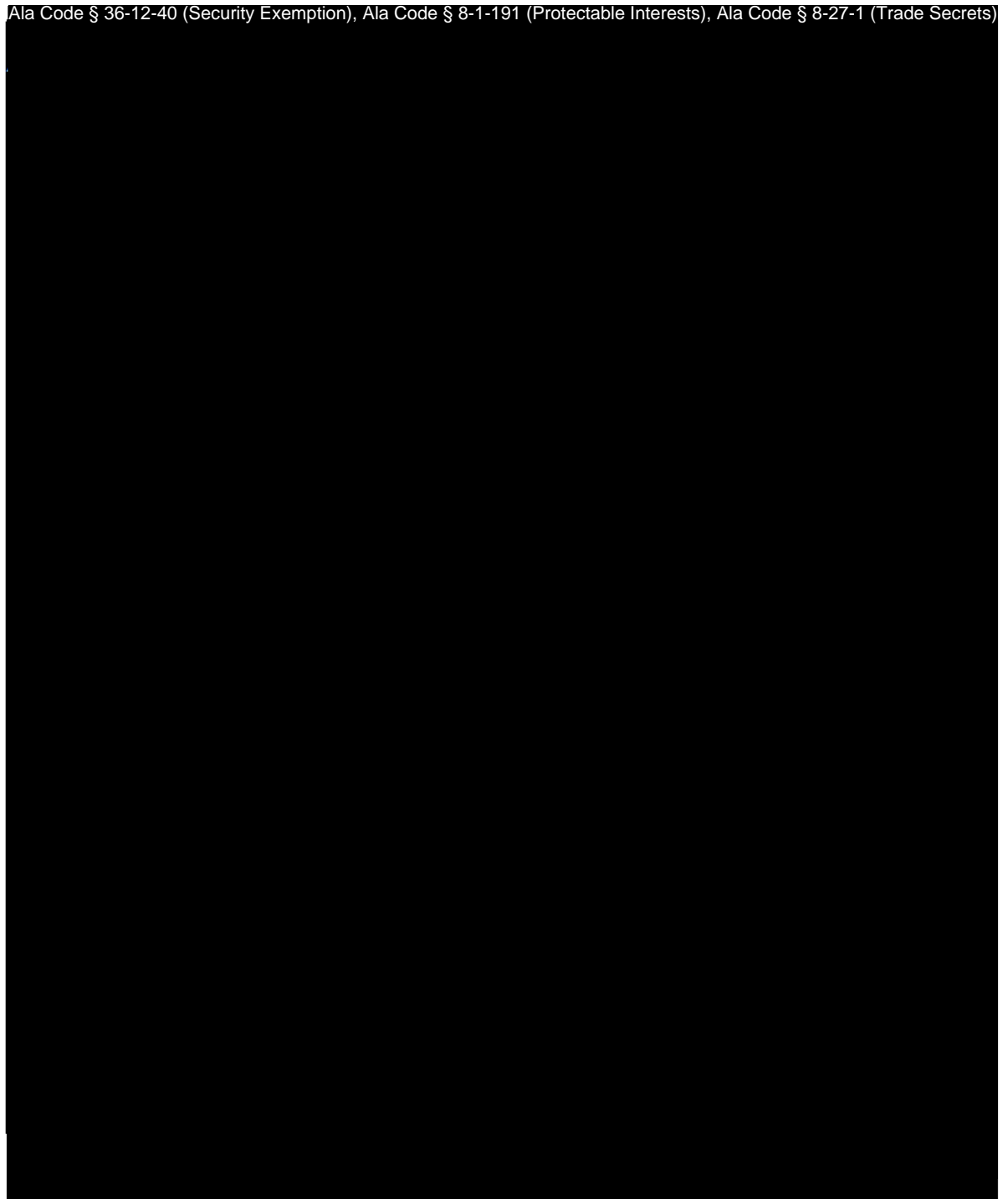
Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Bessemer Ordinance No. 3653 — Attachment to Exhibit 16, Section 16.5

ORDINANCE NO. 3653

**AN ORDINANCE TO AUTHORIZE THE OPERATION OF DISPENSING SITES
WITHIN THE CORPORATE LIMITS OF THE CITY OF BESSEMER**

WHEREAS, on May 17, 2021, the Governor for the State of Alabama signed the Darren Wesley 'Ato' Hall Compassion Act (the "Act") into law; and

WHEREAS, the Act provides for the medical use of marijuana for patients with a qualifying medical condition and a valid medical cannabis card and regulates the cultivation, processing, transporting, testing, and dispensing of medical cannabis products; and

WHEREAS, a dispensary may only be operated in a municipality if the municipality has passed an ordinance authorizing the operation of dispensaries within the municipality's corporate limits; and

WHEREAS, the Act authorizes and requires the Alabama Medical Cannabis Commission to regulate all aspects of medical cannabis under the Act, excluding cultivation, which is authorized and required to be regulated by the Department of Agriculture and Industries, thus addressing any health, safety or welfare concerns for the City of Bessemer; and

WHEREAS, the location of a dispensary within the corporate limits of the City of Bessemer will bring the potential of new employment opportunities for the citizens of the City of Bessemer; and

WHEREAS, a dispensary would be required to purchase a business license and pay sales tax to the City of Bessemer, thus increasing revenue.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF BESSEMER, ALABAMA, that the operation of dispensing sites within the corporate limits of the City of Bessemer, subject to any applicable zoning restrictions the City of Bessemer may adopt pursuant to §20-2A-51(c)(3) of the Act, be, and it hereby is, authorized.

ADOPTED this the 22nd day of November 2022.




RON MARSHALL
President, City Council

ATTEST


WANDA D. TAYLOR
City Clerk

APPROVED this the 22nd day of November 2022.



KENNETH E. GULLEY
Mayor, City of Bessemer

Zoning Approval Letter – Attachment to Exhibit 16, Section 16.5



City of Bessemer

BUILDING & INSPECTION SERVICES

1700 THIRD AVENUE NORTH
BESSEMER, ALABAMA 35020-4060
TELEPHONE 205-424-4060

KENNETH E. GULLEY
MAYOR

THOMAS E. HARMON, JR.
DIRECTOR

Organic Harvest Lab, LLC
631 20th Street North
Bessemer, AL 35020

November 8, 2022

Re: Records Request
631 20th Street North
Bessemer, AL 35020

To All Concerned Parties,

This letter is to inform you that the above referenced property lies within the city limits of Bessemer, AL and carries the zoning designation of I-1, Light Industrial District. This district provides for light industrial facilities, distribution, warehousing, and etc.

Currently, there are no open permits or any known Building Code or Zoning Ordinance violations associated with this address.

Should you have any questions, please contact the office of Building and Inspection Services @ 205-424-4060.

Regards,

Vonda Jones
Administrative Assistant
Building & Inspection Services Dept.
1700 3rd Avenue North
Bessemer, AL 35020
vjones@bessemeral.org

Bessemer - Organic Harvest Support Letter — Attachment to Exhibit 16, Section 16.5



The Office of
Kenneth E. Gulley
Mayor

City of Bessemer

1700 Third Avenue, Bessemer, AL 35020
(205) 424-4060 FAX: (205) 424-4372
Email: mayorsoffice@bessemeral.org

October 12, 2022

Alabama Medical Cannabis Commission
Attn: John McMillan
P.O. Box 309585
Montgomery, Alabama 36130

Re: Approval and Support of Organic Harvest Lab, LLC for Medical Cannabis Processing within the City of Bessemer at 631 20th Street North.

Dear John McMillan:

The Mayor supports Organic Harvest Lab, LLC operations within the City of Bessemer for the Processing and Manufacturing of Medical Cannabis, pursuant to the Code of Alabama, Section 20-2A-63, 1975, as amended. The business location is zoned I-1, or Light Industrial District, which would allow the processing of Medical Cannabis if licensed by the Commission.

The location of the facility is located within the Bessemer Opportunity Zone that was nominated by Gov. Kay Ivey and certified in 2018 by the Alabama Department of Economic and Community Affairs. The City of Bessemer welcomes Organic Harvest Lab for the important benefits to the area with potential job creation, STEM-related industry, local business activity, diversified economy, and increased community development.

This approval and support are conditional to the extent the State of Alabama Legislature may modify or alter the Intent of this Act by some future amendment(s). Should you have any questions, please do not hesitate to contact me. Thank you for your attention to this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Kenneth E. Gulley".

Kenneth E. Gulley,
Mayor of Bessemer

Cc: Jason Cobb
Organic Harvest Lab, LLC
631 20th Street North,
Bessemer, AL 35020

REDACTION INDEX

Ala Code § 36-12-40 (Security Exemption) – The verifying signatures and initials have been redacted pursuant to the “security or safety of persons” exemption contained in the Alabama Public Records statute. Signatures and initials, if left unredacted, may be forged and used for innumerable illicit purposes.

Furthermore, this exhibit contains diagrams and detailed maps of the applicant’s proposed facility. Disclosure of such plans would be against public policy and place the applicant’s facility at a significant risk. As such, the information contained in this exhibit should be exempt from disclosure.

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REDACTION INDEX

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License Type: Processor

Application Number 1632

Exhibit 17 - Security Plan

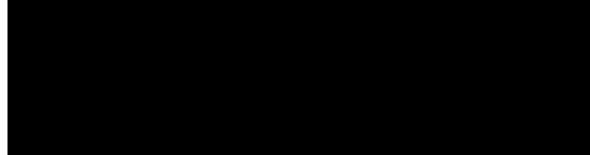
Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

Jason Cobb

Printed Name of Verifying Individual

Ala Code § 36-12-40 (Security Exemption)



CEO

Title of Verifying Individual

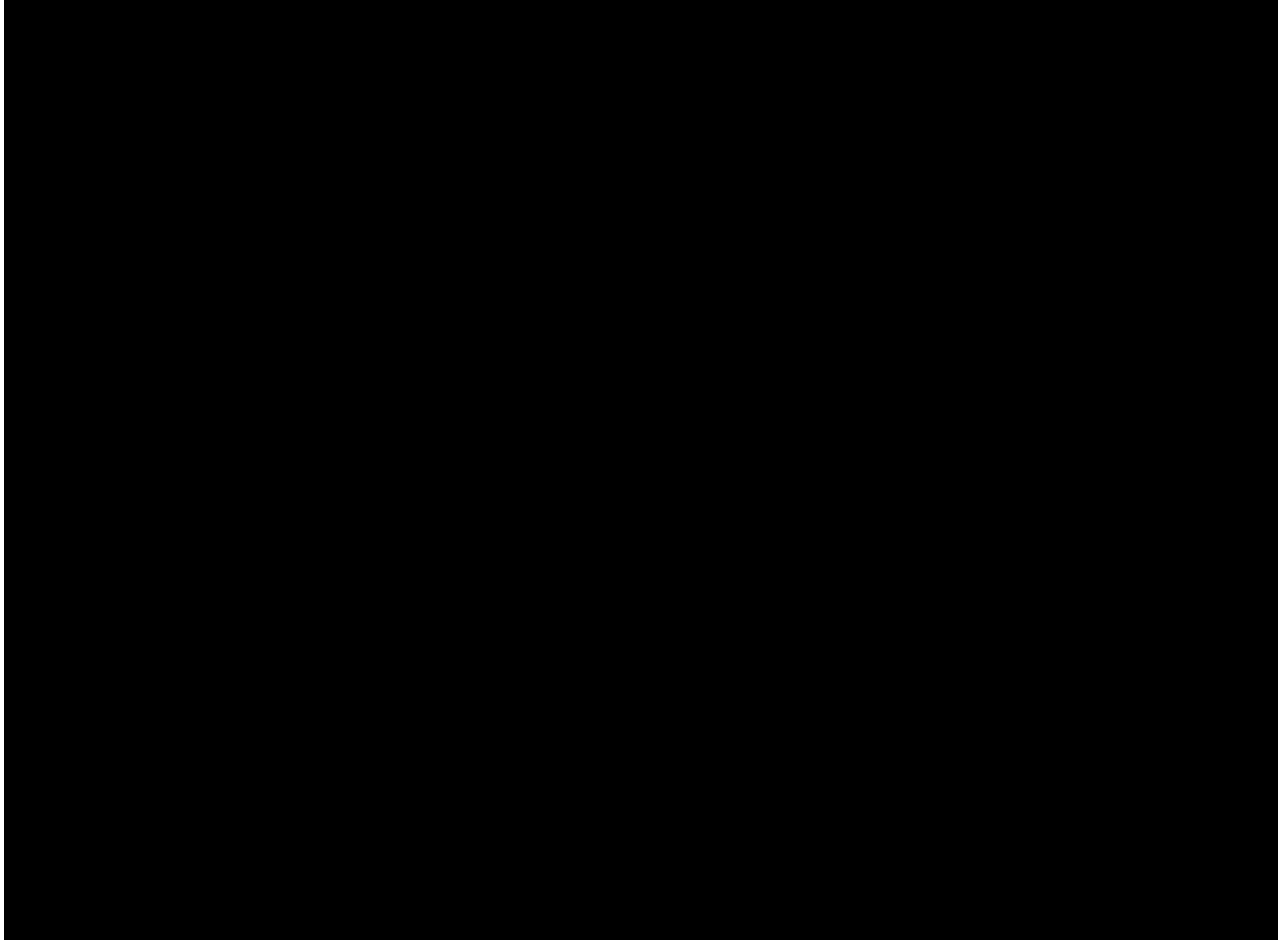
12/30/2022

Verification Date

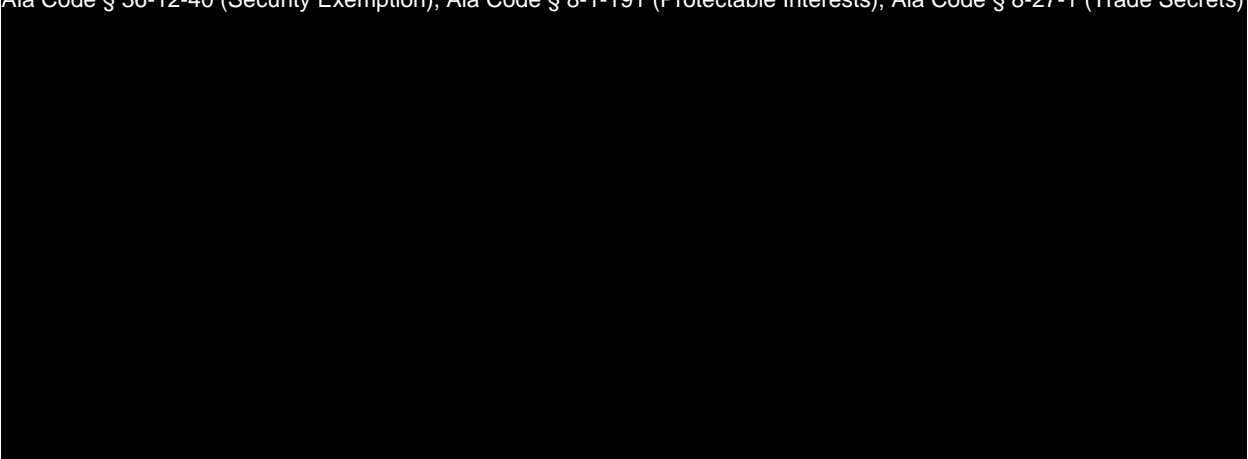
Security Mission

The mission of Applicant is to process medical cannabis with the highest regards to public safety and ensure that the use of cannabis is not detrimental to the health, safety, and welfare of the community. Every aspect of the operation will have a strong emphasis on security and preventing the theft or diversion of cannabis. Applicant aims to have their Security Plan meet all the requirements set forth by all federal, state, and local laws, including those of the Alabama Medical Cannabis Commission (“AMCC” or “Commission”), in order to obtain a cannabis license for Processor Facilities. Applicant will work in tandem with local law enforcement through collaborative training and exercises, observation patrols, responses to incidents, and proactive meetings to support the security of the business. Applicant will continually monitor changes in the laws, rules, and regulations, especially the Alabama Administrative Code (“AAC”), to ensure regulatory compliance with the Security Plan, while also seeking to remain current with industry best practices.

Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)




Ala Code § 36-12-40 (Security Exemption), Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)

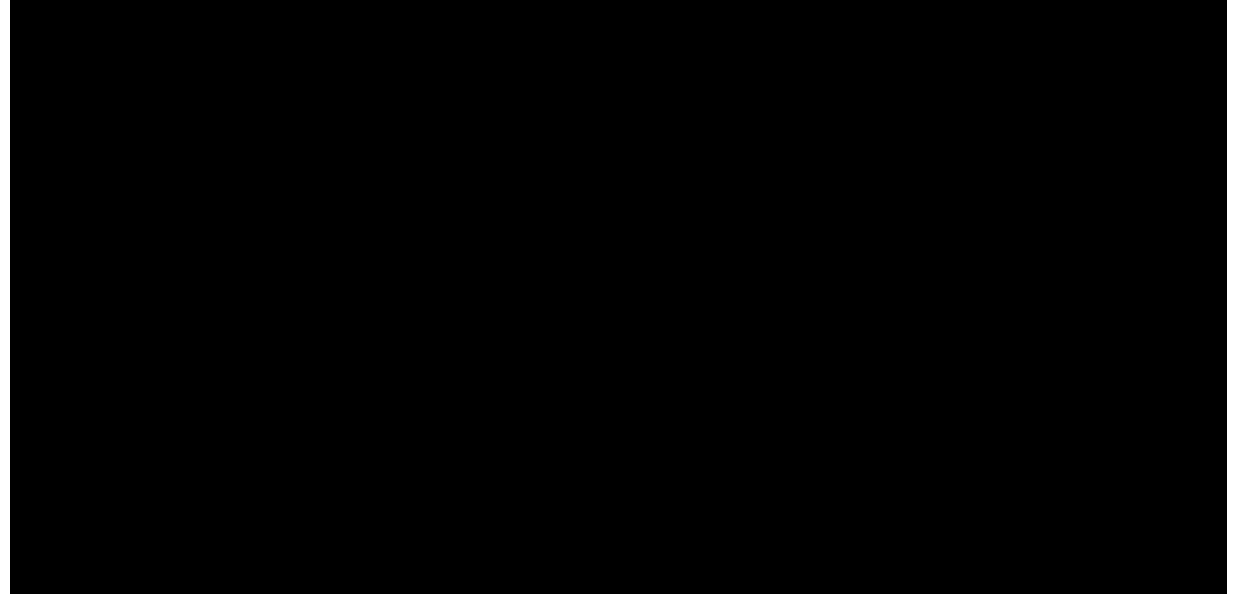


17.1 Alarms

Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility

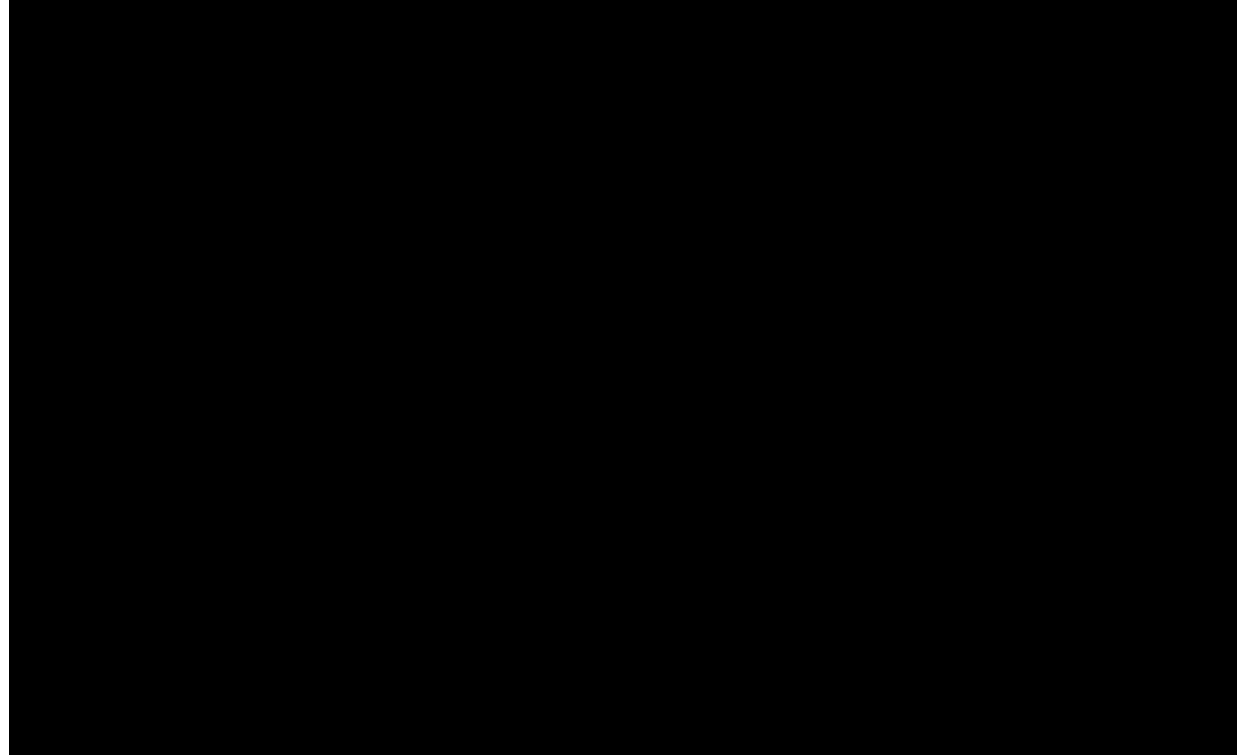


Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility



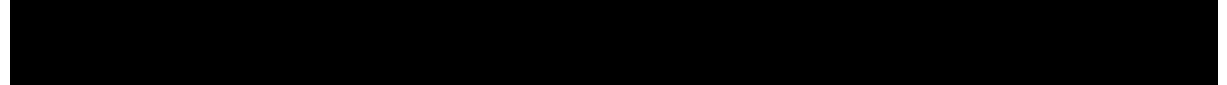
17.2 Duress/Hold Up Alarms

Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility




17.3 Communication Devices/Radio

Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility

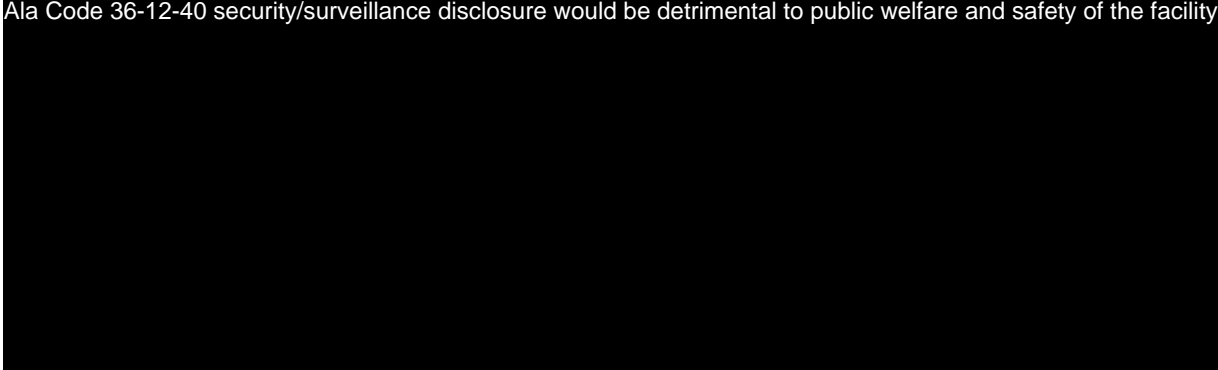


Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility

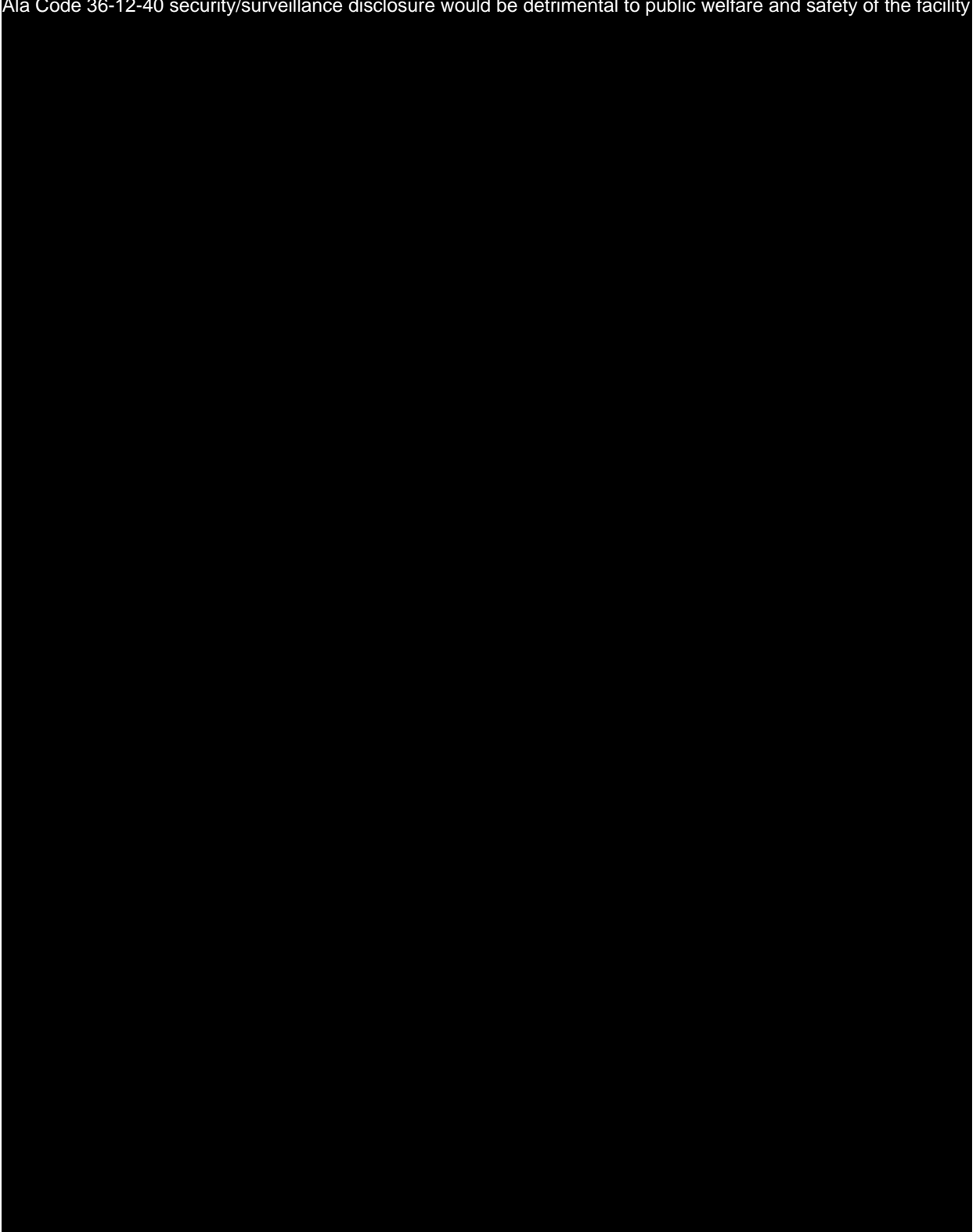


17.4 Audio/Video Surveillance System

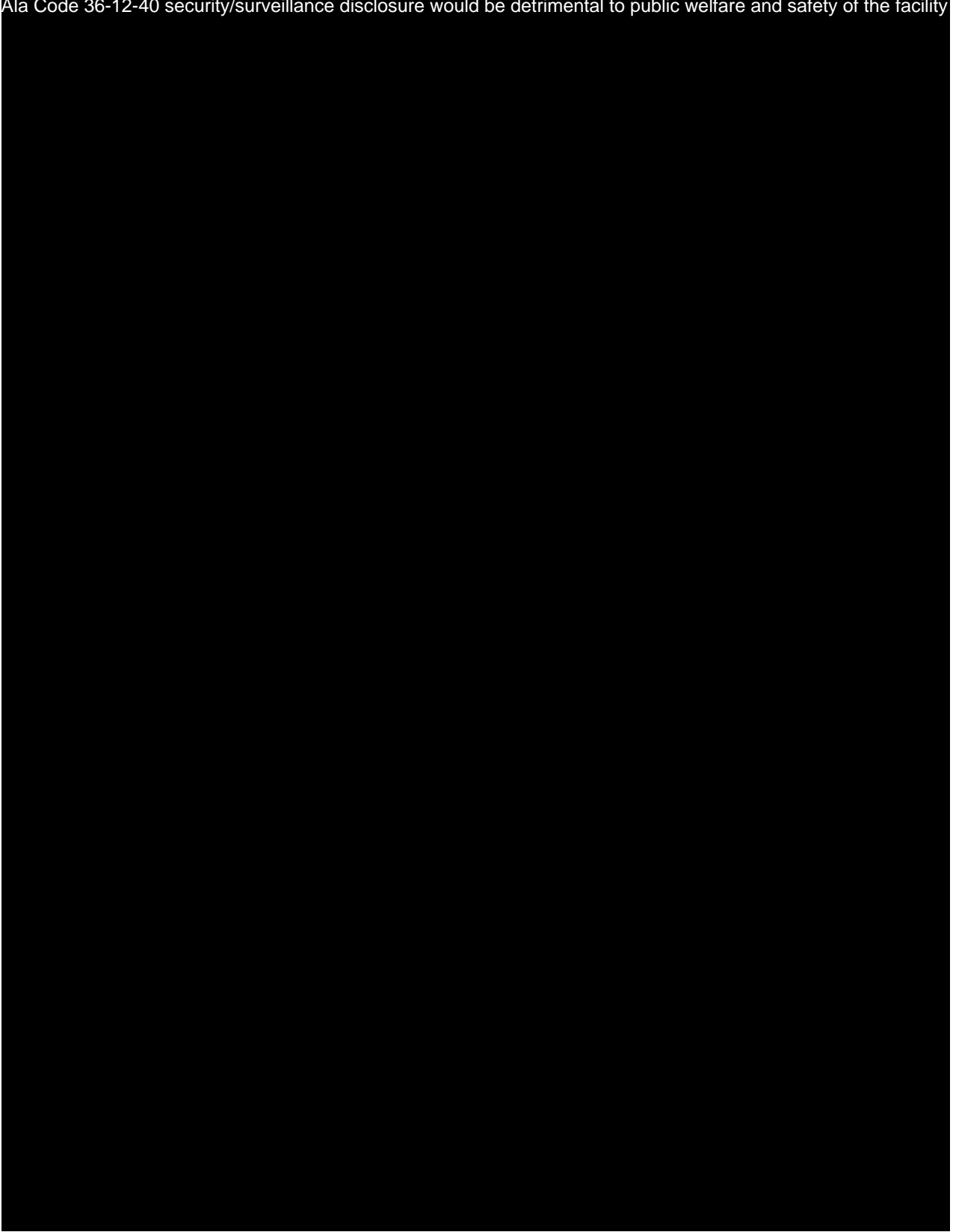
Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility



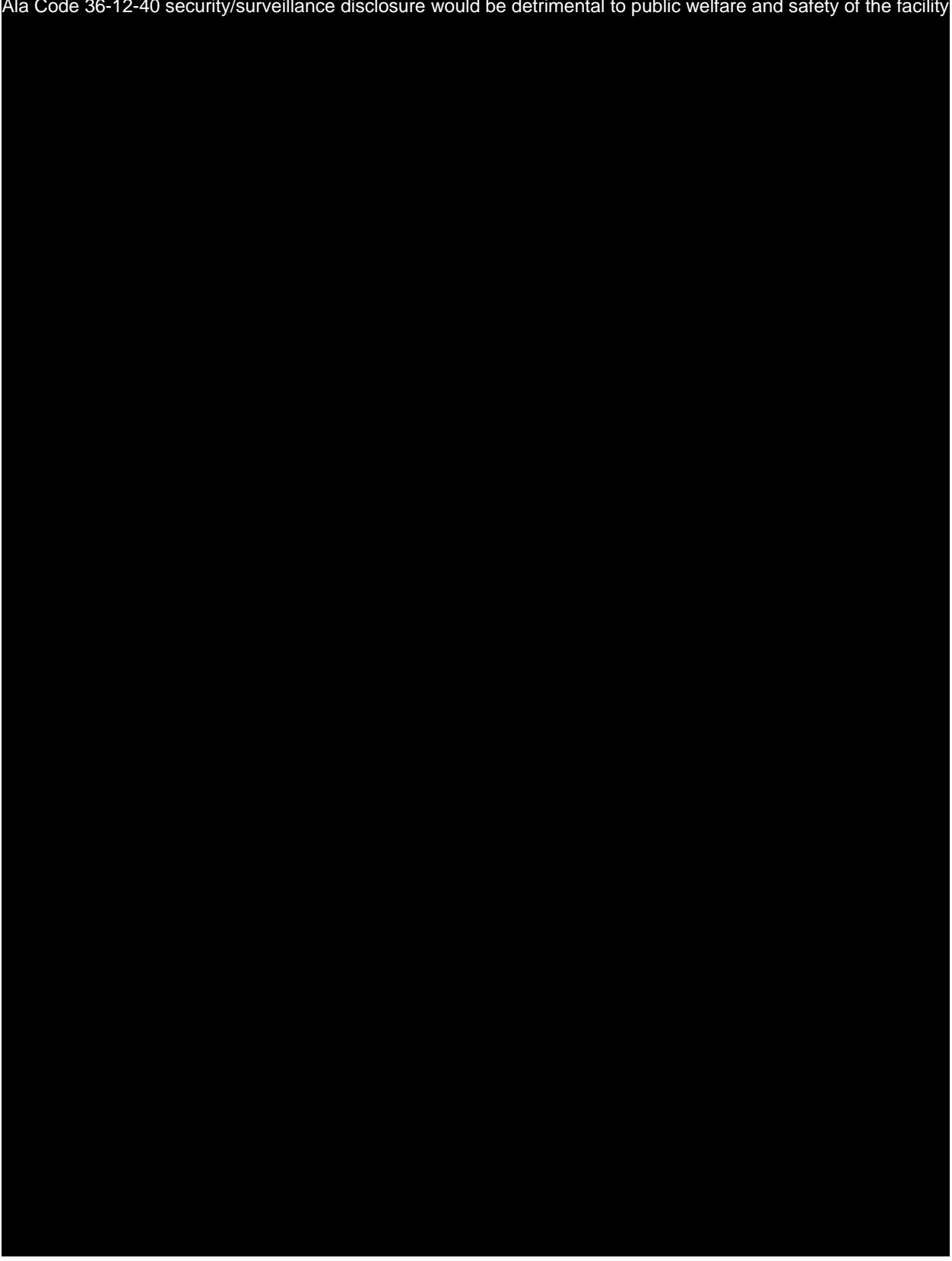
Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility



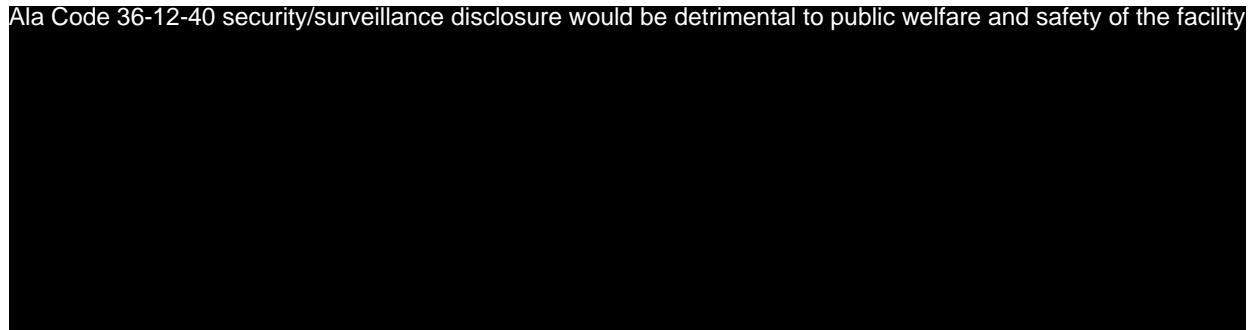
Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility



Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility

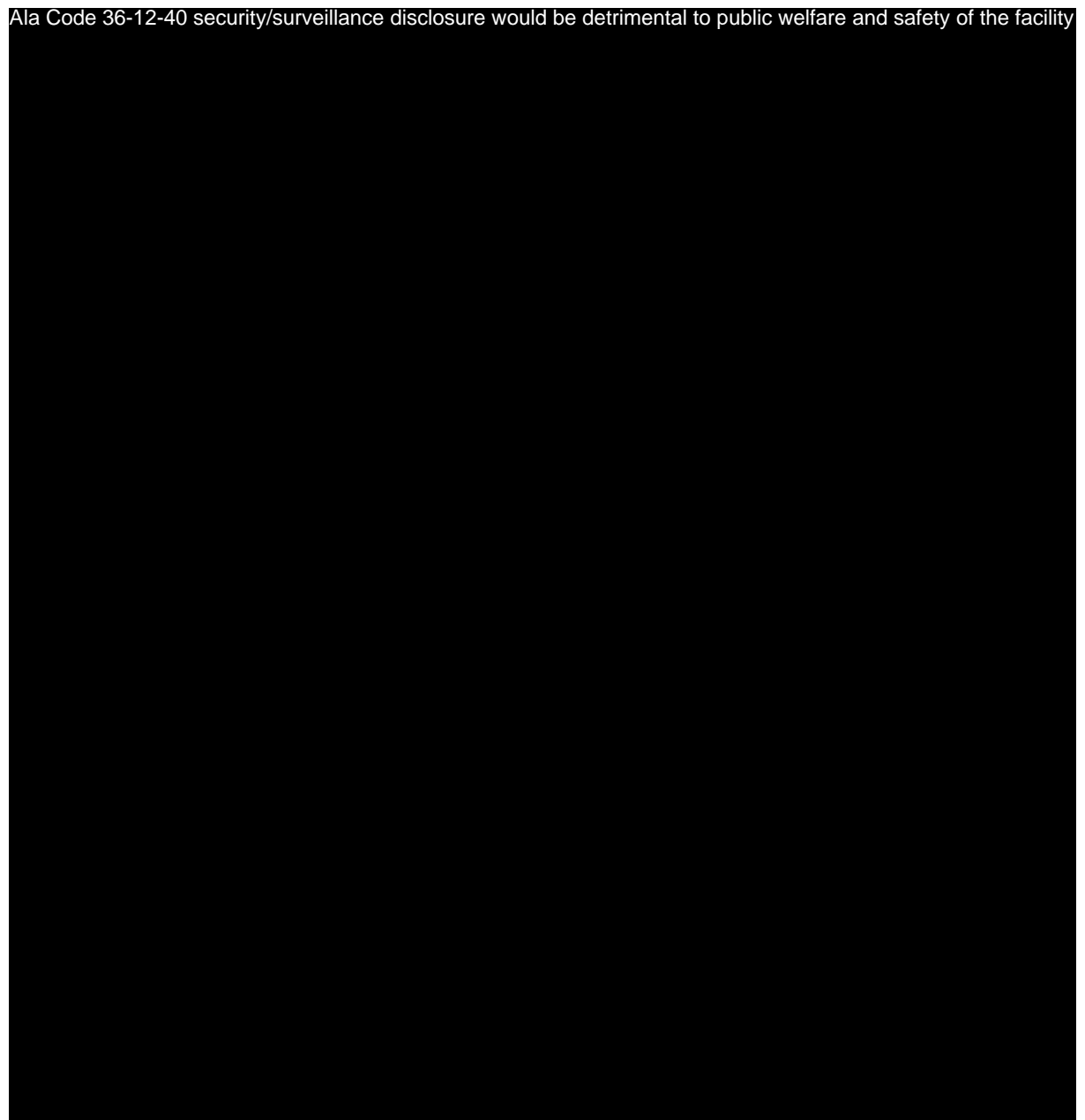


Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility



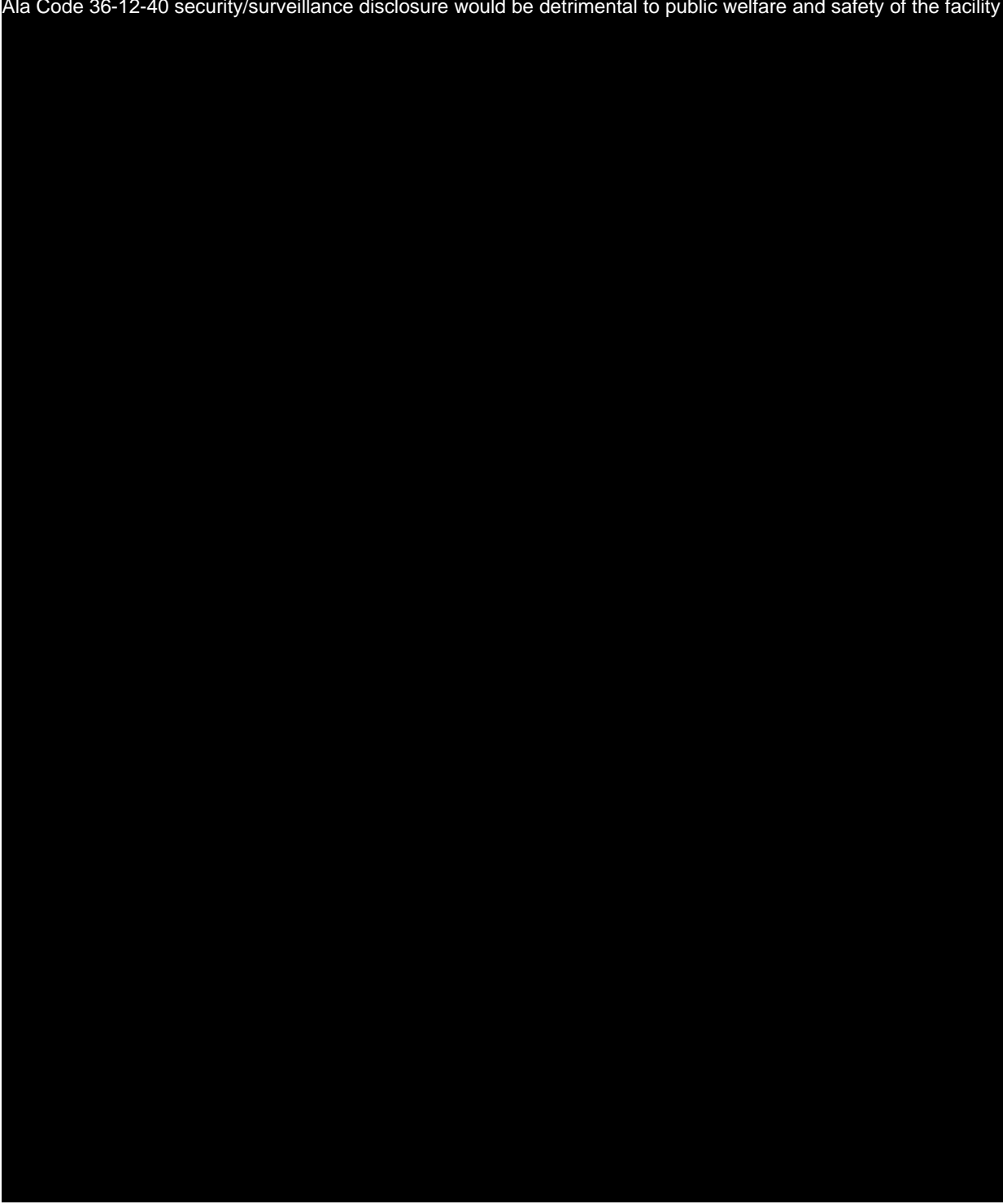
17.5 Perimeter Security

Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility




17.6 Exterior Doors

Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility



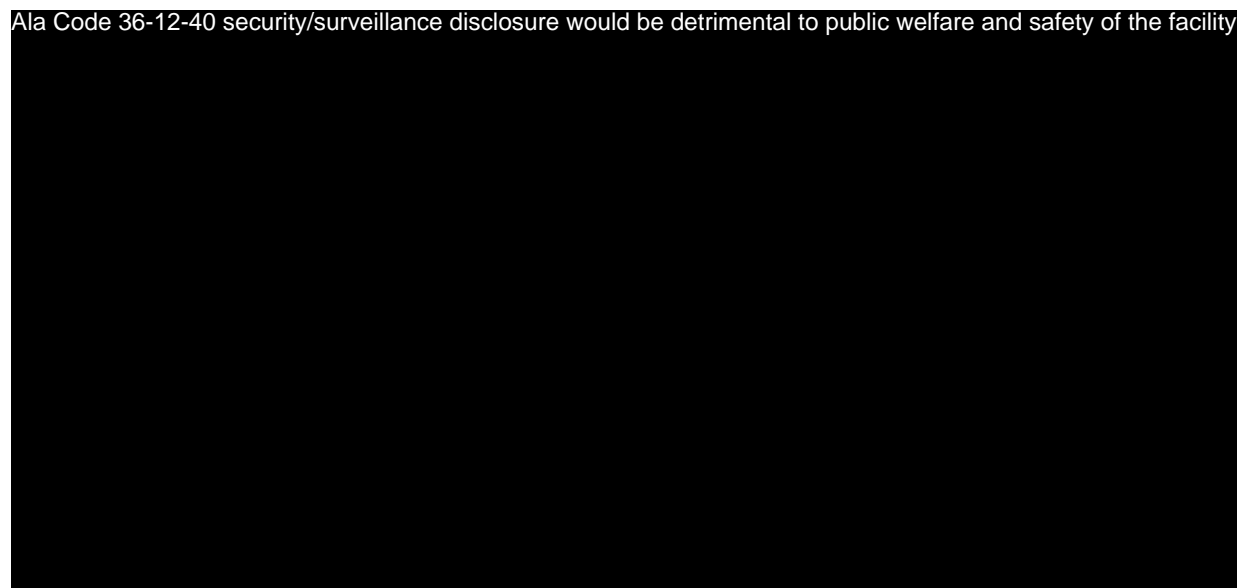
17.7 Exterior Walls and Windows

Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility

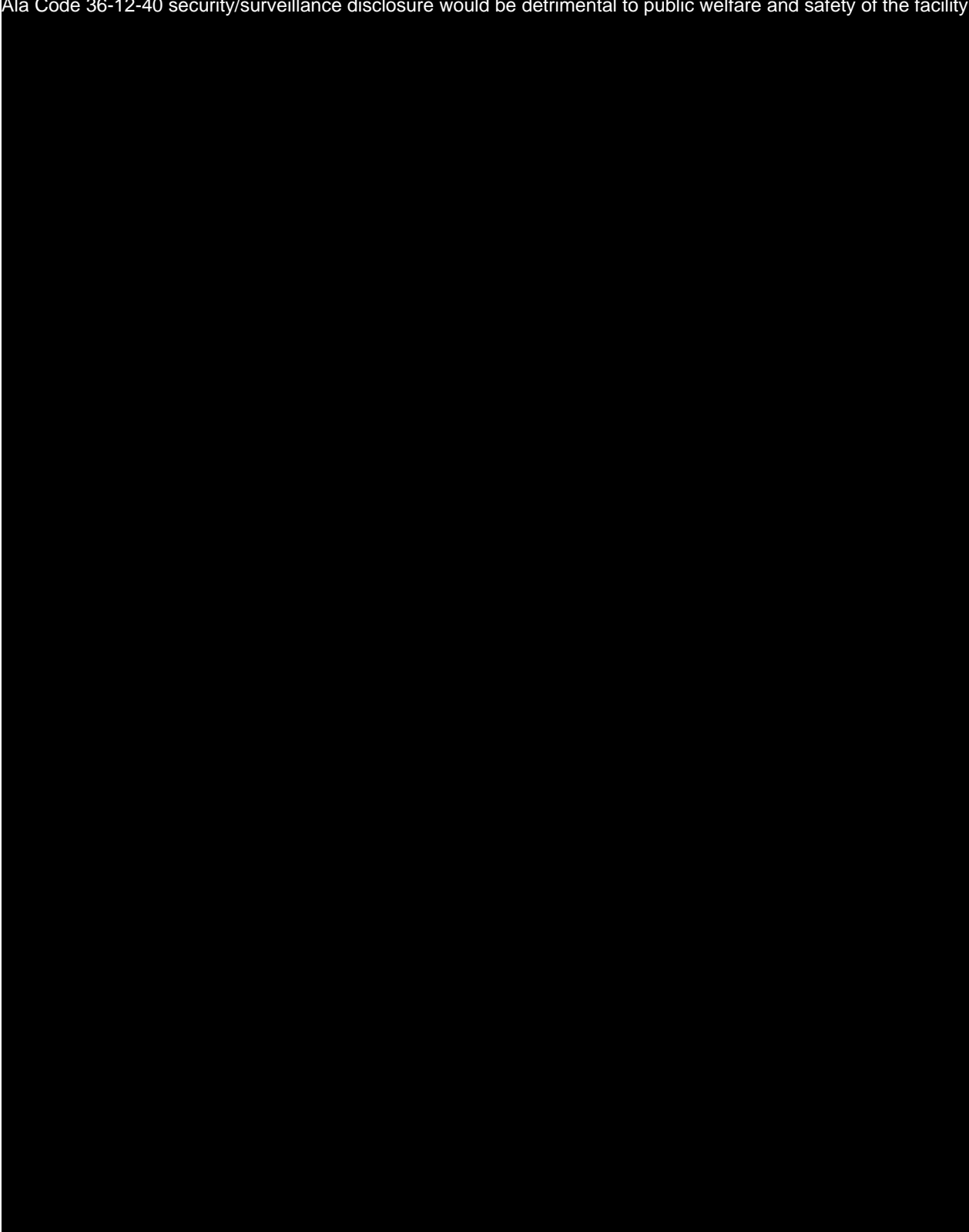


17.8 Guards

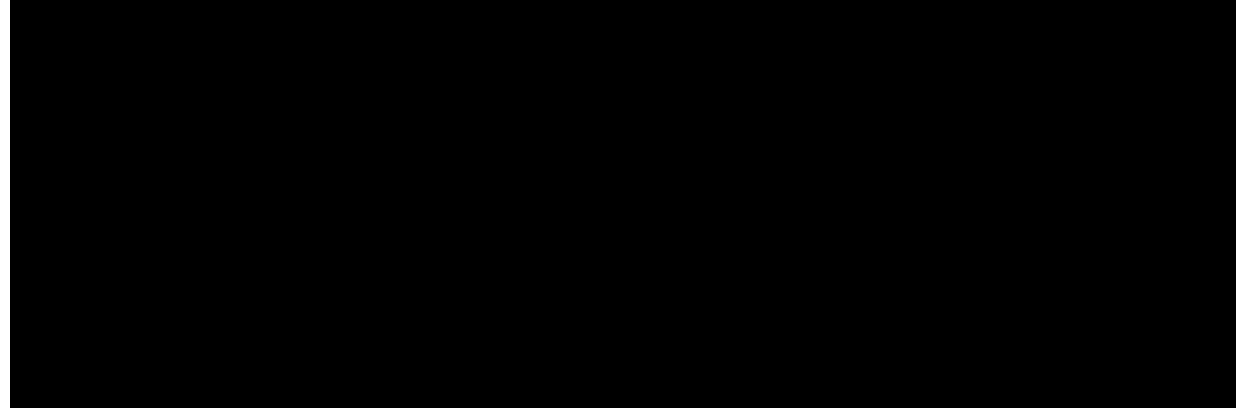
Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility



Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility

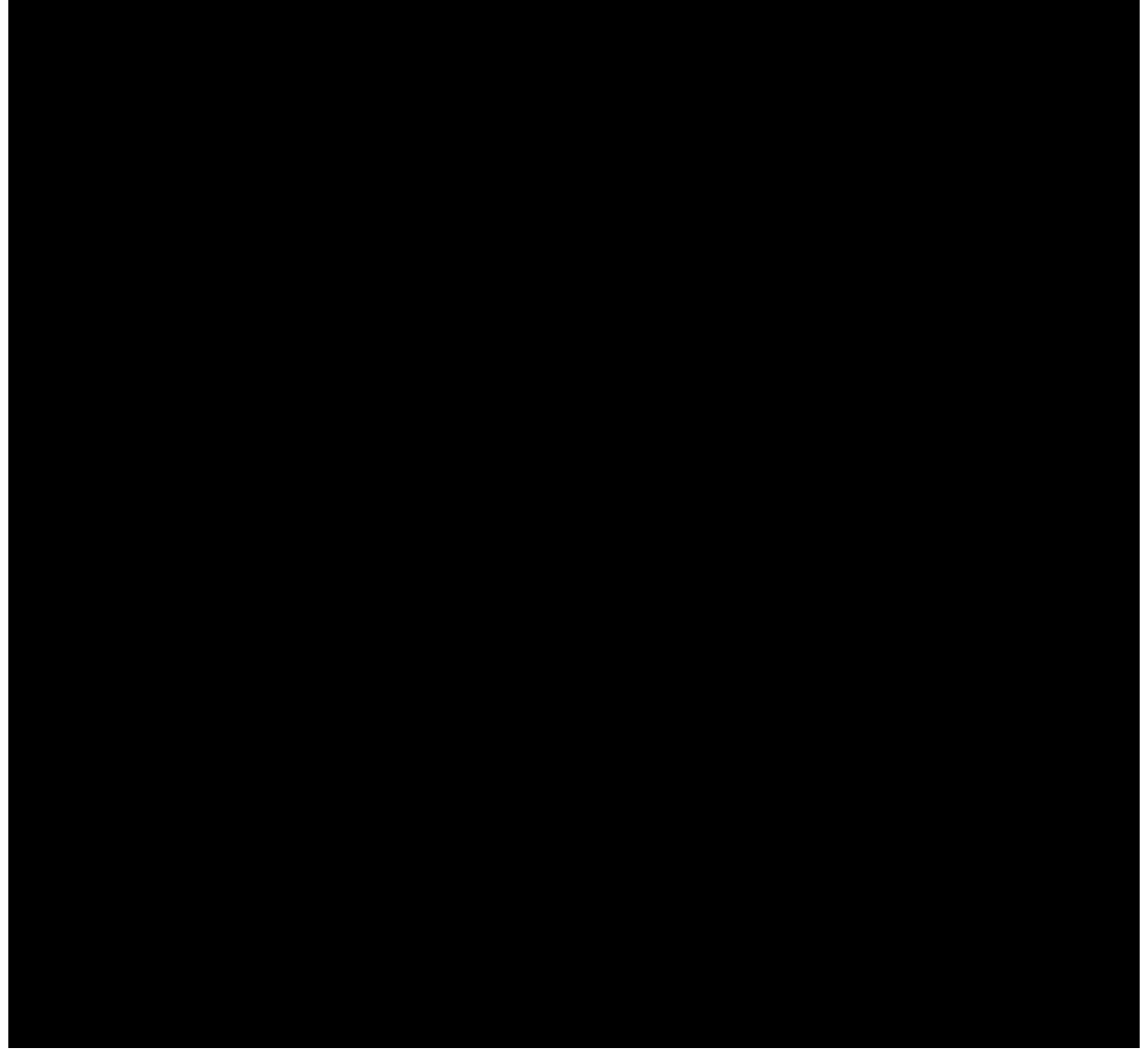


Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility

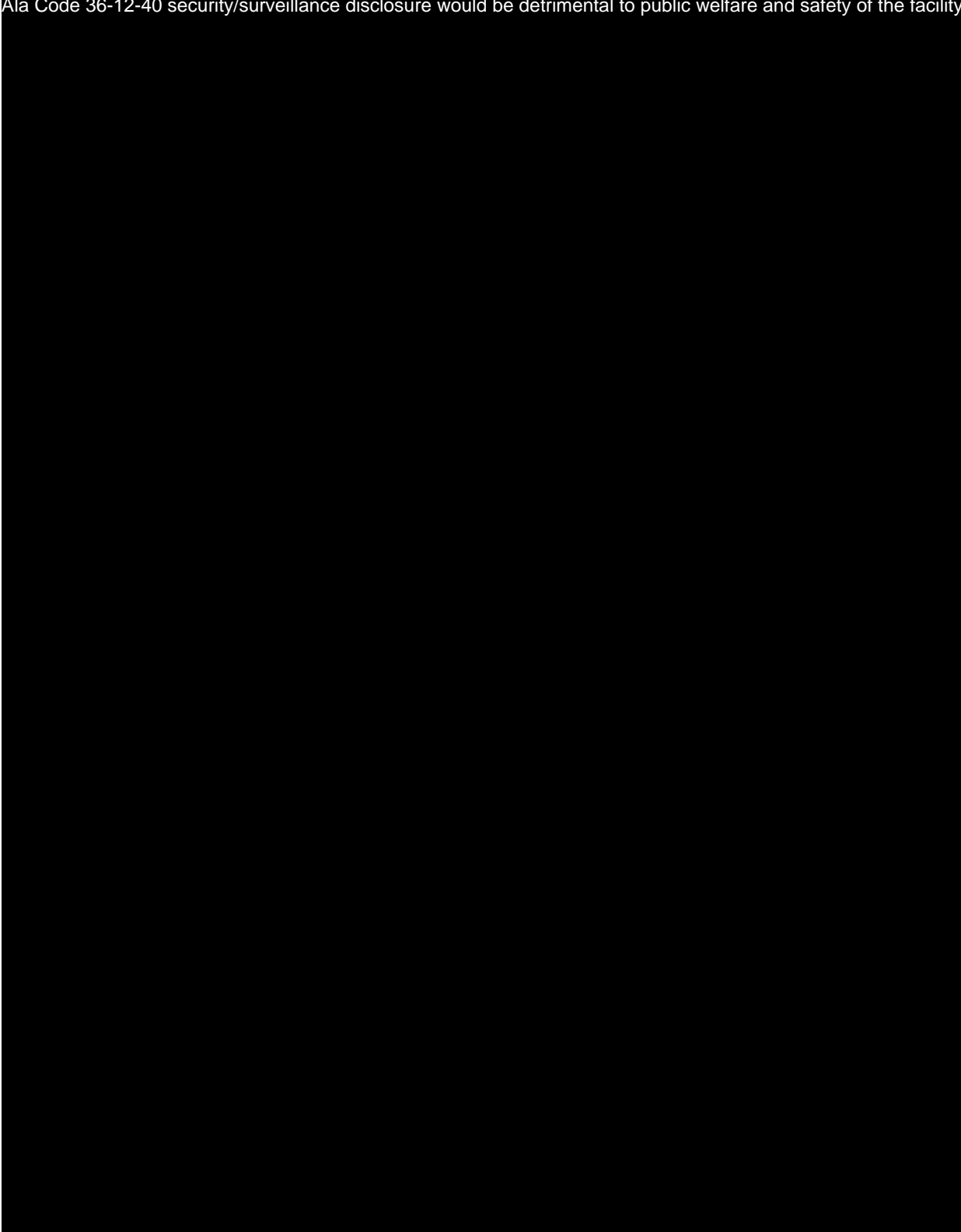


17.9 Access Control and Key Cards

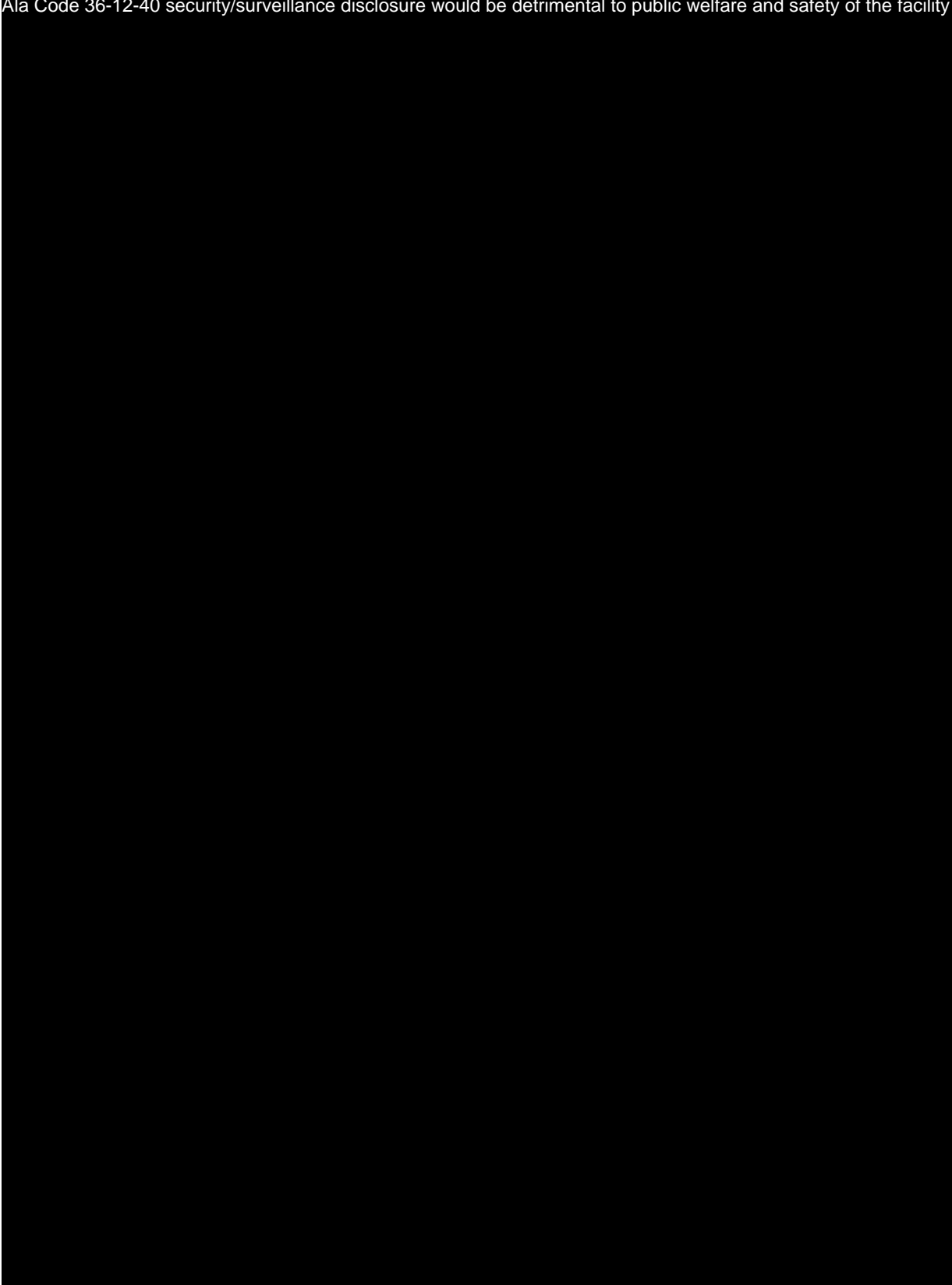
Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility



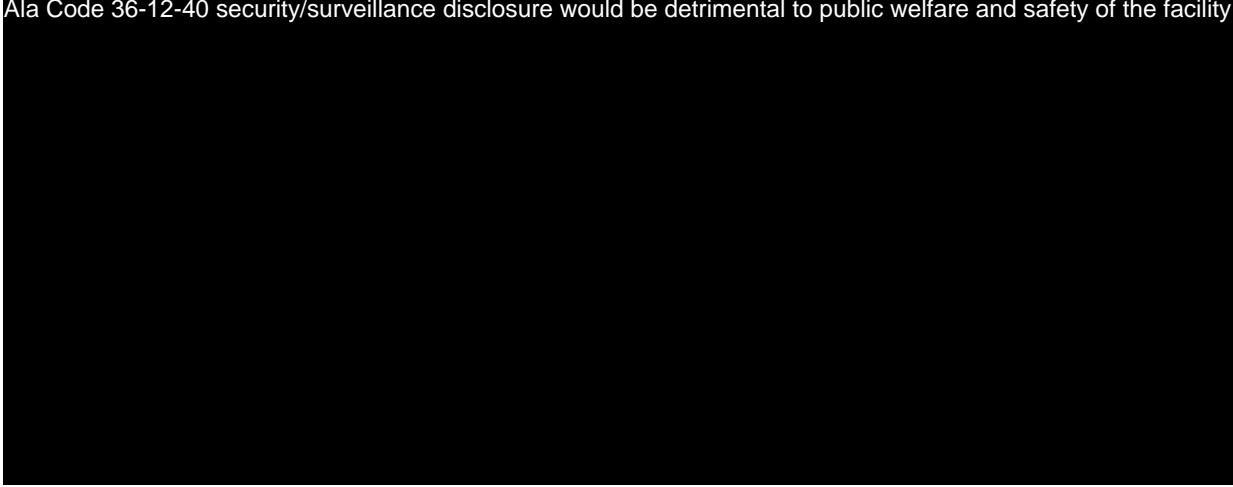
Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility



Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility

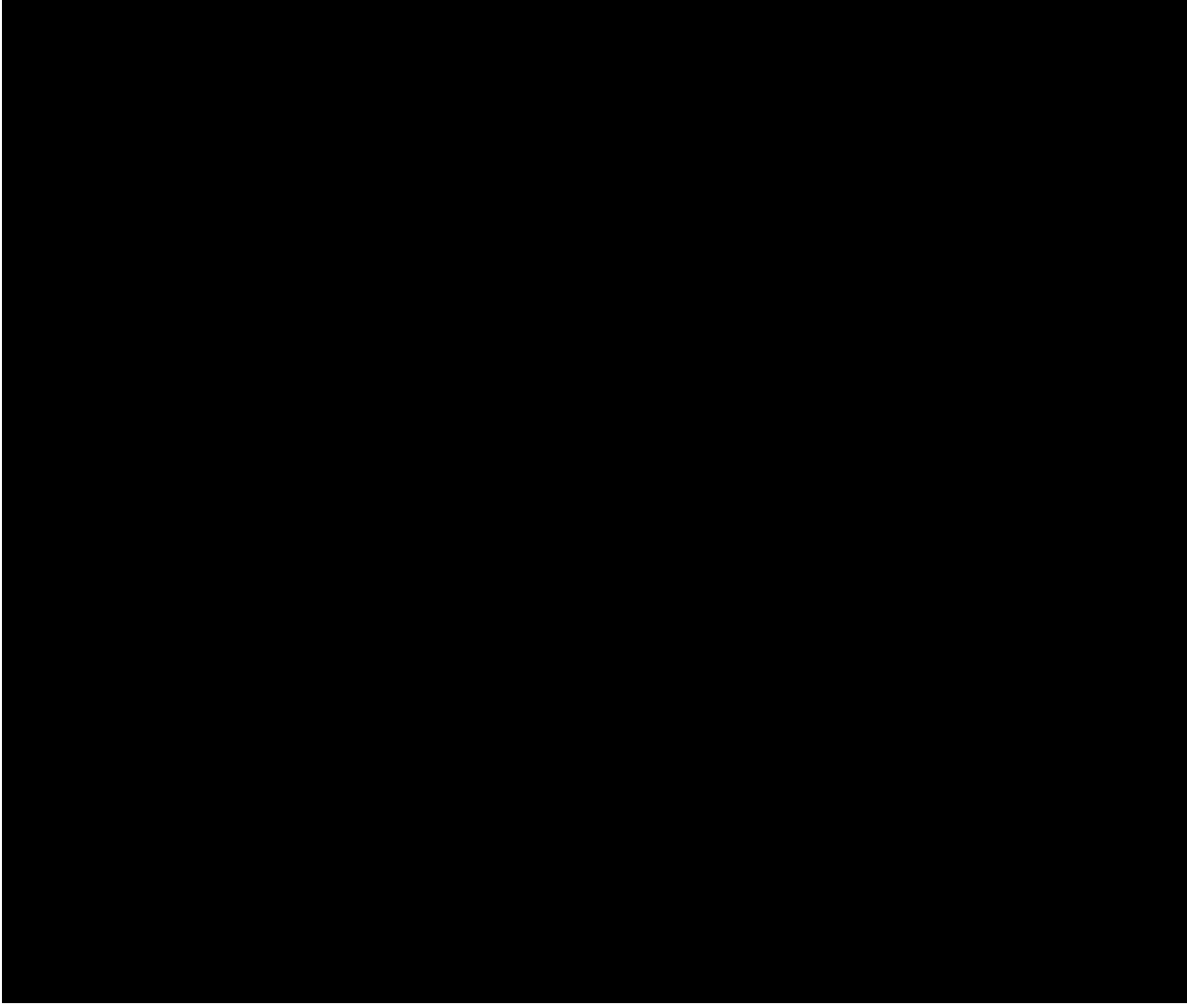


Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility




17.10 Records

Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility

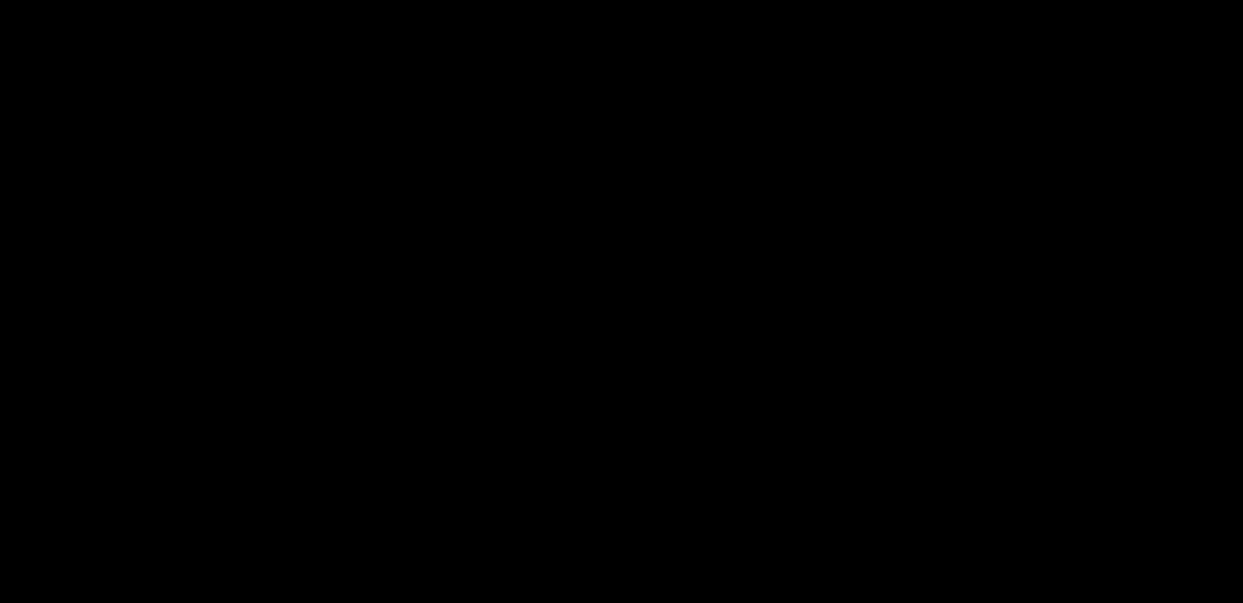


Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility

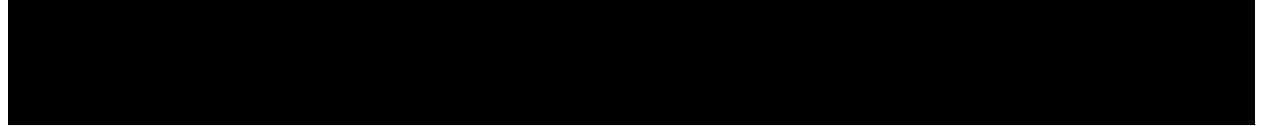


17.11 Employee Badges

Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility

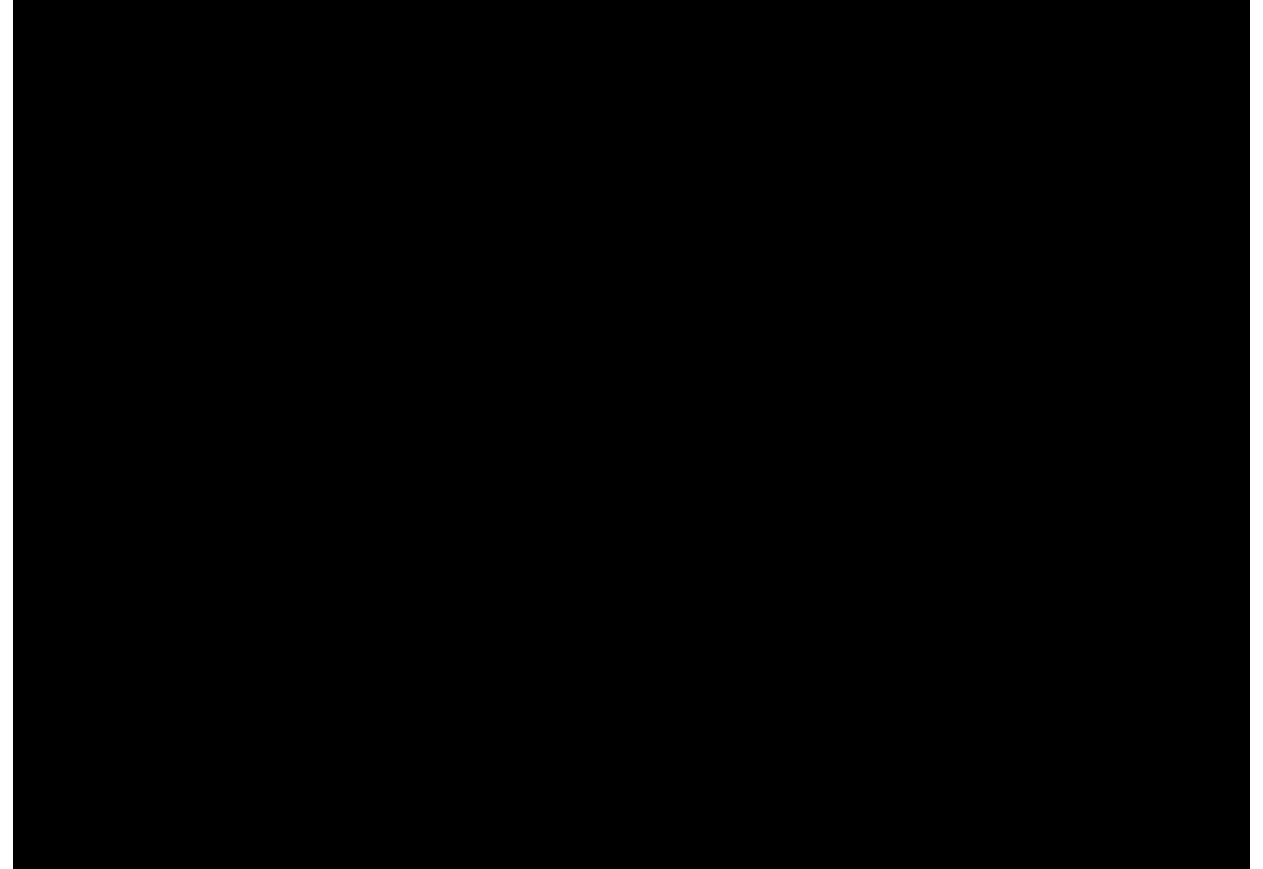


Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility



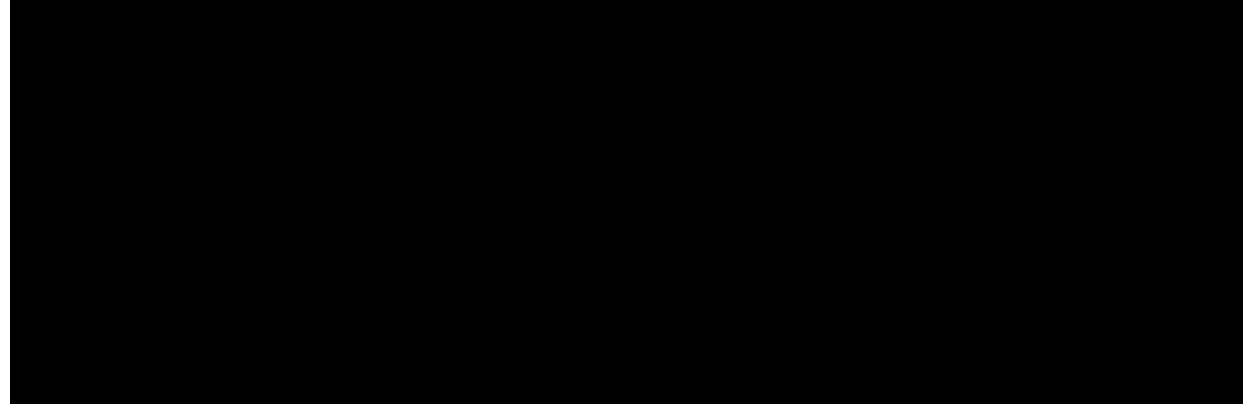
17.12 Visitor and Commission Official Pass

Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility

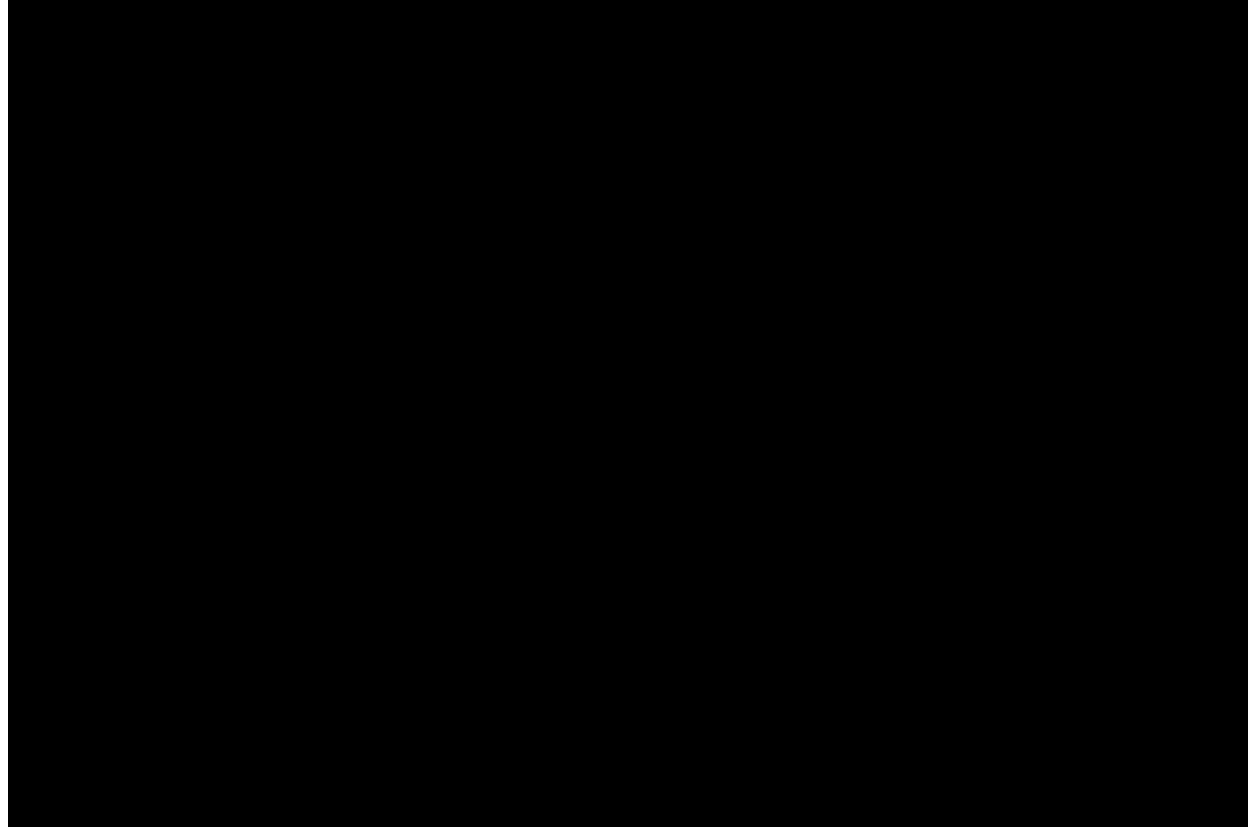


17.13 Reporting

Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility

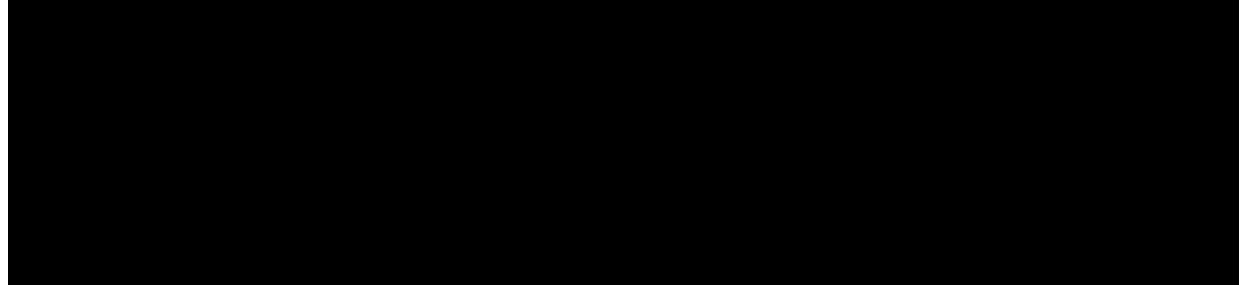


Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility



17.14 Transparency

Ala Code 36-12-40 security/surveillance disclosure would be detrimental to public welfare and safety of the facility



Security

Overlay

Applicant has proved the below security overlay to highlight where each security feature will be placed throughout the facility.























Overlay Legend

LEGEND

CAMERA FIELD OF VIEW

	Identification	76 ppf
	Recognition	38 ppf
	Observation	19 ppf
	Detection	8 ppf

*Pixels per foot

	4MP Indoor Fixed IP Camera
	5MP Outdoor Weatherproof IP Camera
	5MP Panoramic 180-degree IP Camera
	5MP Panoramic 360-degree IP Camera
	Video Surveillance Camera Monitor
	Alarm Arming Keypad with Duress Code
	Alarm Magnetic Door Contacts
	Alarm Motion Sensor
	Door Buzzer for Remote Entry
	Emergency Hold-Up/Panic Alarm Button
	Alarm Control Panel
	Audio Surveillance
	Intercom
	100 Decibels Audible Siren
	Access Control Device (Keycard and/or PIN)
	Burglary- and Fire-Resistant Vault Walls
	Burglary- and Fire-Resistant Vault Door
	UL Rated TL-30 Safe
	Digital Audio/Video Recorders
	Exit Only Door Hardware
	Outdoor LED Security Lighting
	Security Guard Stationary Position

REDACTION INDEX

Ala Code § 36-12-40 (Security Exemption) – The verifying signatures and initials have been redacted pursuant to the “security or safety of persons” exemption contained in the Alabama Public Records statute. Signatures and initials, if left unredacted, may be forged and used for innumerable illicit purposes.

Furthermore, this exhibit contains diagrams and detailed maps of the applicant’s proposed facility and security plans. Disclosure of such plans would be against public policy and place the applicant’s facility at a significant risk. As such, the information contained in this exhibit should be exempt from disclosure.

Ala Code § 8-27-1 (Trade Secrets)/Ala. Code § 8-1-191 (Protectable Interests) – This exhibit contains confidential information including, but not limited to, management and marketing plans, business strategy and methodology, business models and data, and company provided files and software. As such, certain portions of this exhibit have been designated as “Protectable Interests” exempt from disclosure. Further, this exhibit contains information that is used or intended for use in a trade or business, included or embodied in a formula, pattern, compilation, computer software, drawing, device, method, technique, or process, and is not publicly known or generally known in the trade or business. The information contained in this exhibit cannot be readily ascertained or derived from publicly available information and has significant economic value to the applicant. As such, certain portions of this exhibit have been designated as “Trade Secrets” exempt from disclosure.

Protectable Interests and Trade Secrets are redacted as the disclosure to any third party would give an unfair advantage to competitors and would result in the loss of rights and cause harm to the owner of this information. In the normal course of business, the owner of this information requires all individuals who view such information to be bound by confidentiality agreements and access to any of this material is extremely limited and on a need-to-know basis only. The owner of this information will take all steps to enforce such confidentiality agreements and will ensure that employees surrender such information upon termination of employment. If such information is disclosed, competitors of the owner of this information in Alabama and in other states will take such information to better compete against the owner of this information in the regulated commercial market.

Furthermore, the applicant believes the identified information to be confidential and if disclosed would give advantage to competitors because the material is related to the applicant’s planning, site location, expansion, operations, product development and marketing. Because this information can be used to recruit appropriate personnel, locate a site, finance and undertake the operation and go to market, the disclosure of this information would allow new competitors to enter the market to compete against the Company. In addition, the disclosure of this information would also allow existing competitors to potentially optimize the manufacture of their products and/or create similar products to the applicant causing grave economic harm to the owners of this information.

Finally, the applicant claims the marked material marked is exempt from disclosure as the mere formulation of the words and descriptions of processes could prove successful in competitive, multi-million-dollar merit-based medical marijuana application processes similar to Alabama.

REDACTION INDEX

Permitting any of this marked application language to be publicly released would substantially reduce the intrinsic value of the applicant's business – allowing anyone in the public to appropriate the processes, methods, and standard operating procedures that the applicant employs or will employ.

Application Number 1632
Exhibit 18 - Personnel

Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

JASON COBB

CEO

Printed Name of Verifying Individual
Ala Code § 36-12-40 (Security Exemption)

Title of Verifying Individual

3/3/2023

Signature of Verifying Individual

Verification Date

FORM G: PERSONNEL ROSTER & VERIFICATION

Organic Harvest Labs, LLC	PROCESSOR
Business License Applicant Name	License Type

Complete the following information, current to within thirty (30) days prior to the date of application, for all personnel (each leader and employee) affiliated with the Applicant. Attach additional forms if necessary.

William Rusty Sutterlin	CHIEF SCIENCE OFFICER - OWNER
-------------------------	-------------------------------

Leader/Employee Name	Title/Position
----------------------	----------------

Ala Code § 41-13-6	Ala Code § 36-12-40 (Security Exemption)
--------------------	--

SSN	Telephone	Email
Ala Code § 36-12-40 (Security Exemption)		

Street Address		
Hoover	AL	35244
City	State	Zip

DAVID FRANK HEWITT	CONTROLLER - OWNER
--------------------	--------------------

Leader/Employee Name	Title/Position
----------------------	----------------

Ala Code § 41-13-6	Ala Code § 36-12-40 (Security Exemption)
--------------------	--

SSN	Telephone	Email
Ala Code § 36-12-40 (Security Exemption)		

Street Address		
GRAHAM	AL	36263
City	State	Zip

JASON COLLINS COBB	CEO - OWNER
--------------------	-------------

Leader/Employee Name	Title/Position
----------------------	----------------

Ala Code § 41-13-6	Ala Code § 36-12-40 (Security Exemption)
--------------------	--

SSN	Telephone	Email
Ala Code § 36-12-40 (Security Exemption)		

Street Address		
HOMEWOOD	AL	35209
City	State	Zip

License Type: Processor

MARK TEGEN

PROCESSING ENGINEER

Leader/Employee Name

Title/Position

Ala Code § 41-13-6

Ala Code § 36-12-40 (Security Exemption)

SSN

Telephone

Email

Ala Code § 36-12-40 (Security Exemption)

Street Address

Ala Code § 36-12-40 (Security Exemption)

City

State

Zip

SAMUEL BLANTON HARRIS

HR MANAGER

Leader/Employee Name

Title/Position

Ala Code § 41-13-6

Ala Code § 36-12-40 (Security Exemption)

SSN

Telephone

Email

Ala Code § 36-12-40 (Security Exemption)

Street Address

Ala Code § 36-12-40 (Security Exemption)

City

State

Zip

SCOTT P SEDER

MANAGER OF COMPLIANCE

Leader/Employee Name

Title/Position

Ala Code § 41-13-6

Ala Code § 36-12-40 (Security Exemption)

SSN

Telephone

Email

Ala Code § 36-12-40 (Security Exemption)

Street Address

Ala Code § 36-12-40 (Security Exemption)

City

State

Zip

DANIEL FARMER

MANAGER OF INFORMATION
TECHNOLOGY AND MARKETING

Leader/Employee Name

Title/Position

Ala Code § 41-13-6

Ala Code § 36-12-40 (Security Exemption)

SSN

Telephone

Email

Ala Code § 36-12-40 (Security Exemption)

Street Address

Ala Code § 36-12-40 (Security Exemption)

City

State

Zip

License Type: Processor

ROBERTO LAPOSSE

QUALITY ASSURANCE AND
QUALITY CONTROL MANAGER

Leader/Employee Name

Title/Position

Ala Code § 41-13-6

Ala Code § 36-12-40 (Security Exemption)

SSN

Telephone

Email

Ala Code § 36-12-40 (Security Exemption)

Street Address

Ala Code § 36-12-40 (Security Exemption)

City

State

Zip

JEREMY BASHA

MANAGER OF PRODUCTION

Leader/Employee Name

Ala Code § 41-13-6

Ala Code § 36-12-40 (Security Exemption)

SSN

Telephone

Email

Ala Code § 36-12-40 (Security Exemption)

Street Address

Ala Code § 36-12-40 (Security Exemption)

City

State

Zip

MICHAEL O'BRIEN

MANAGER OF PROCESSING

Leader/Employee Name

Title/Position

Ala Code § 41-13-6

Ala Code § 36-12-40 (Security Exemption)

SSN

Telephone

Email

Ala Code § 36-12-40 (Security Exemption)

Street Address

Ala Code § 36-12-40 (Security Exemption)

City

State

Zip

Applicant Verification: The undersigned hereby verifies that the information provided hereinabove (and attached, as necessary) constitutes a complete and accurate roster of personnel of the Applicant. The undersigned further verifies that, if the Applicant is issued a business license, each individual listed hereinabove (and attached, as necessary) will be registered to the AMCC website and will undergo appropriate pre-employment background checks.

JASON COLLINS COBB

CEO - OWNER

Printed Name of Verifying Individual

Title of Verifying Individual

Ala Code § 36-12-40 (Security Exemption)

12 / 30 / 2022

Verification Date

Application Number 1632

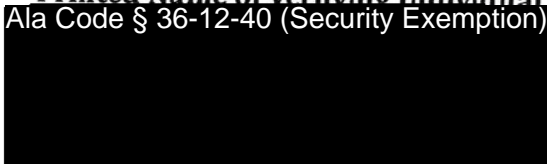
Exhibit 19 - Business Leadership Credentials

Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

Jason Cobb

Printed Name of Verifying Individual
Ala Code § 36-12-40 (Security Exemption)



CEO

Title of Verifying Individual

12/30/2022

Verification Date

19.1

Organic Harvest Lab LLC (“OHL”), a grassroots company located in a designated HUBZone in the Bessemer Opportunity Zone certified in 2018 by the Alabama Department of Economic and Community Affairs, is 100% owned by dedicated Alabama entrepreneurs whose vision is to produce safe, efficacious medical cannabis with pharmaceutical-grade quality. Dr. Rusty Sutterlin of the Ownership Team (“OT”) holds years of expert knowledge in the efficient methods and state-of-the-art equipment required to produce exceptionally pure, pharmaceutical-grade cannabis oil for medical use. Owner Dr. Sutterlin is an expert in plant oil extraction and purification. He worked for Avanti Polar Lipid, Alabaster, AL, the world’s largest pharmaceutical extraction and purification of plant oils/lipids company. His PhD dissertation and postdoctoral studies concerned plant oil purifications and plant oil derivatives. In Tuscaloosa, AL, Dr. Sutterlin and Mr. Mark Tegen collaborated to patent and develop the world’s largest natural vitamin E plant built in China, and they have been involved in numerous other initiatives bringing plant oil technologies from the laboratory to commercialization. Dr. Sutterlin and Mr. Tegen each have 25 years of experience in plant oil extraction and purification and have collaborated on several award-winning research projects, receiving numerous awards and accolades for their collaborative research including the 2016 West Alabama Entrepreneur of the Year Award, and the 2018 Alabama EDPA Imerge Small Business Innovator of the Year. In 2006, Dr. Sutterlin was a recipient of the Presidential Green Chemistry Award (President George W. Bush) for his work on plant oil processing and was recipient of the American Oil Chemical Society’s “Novel Uses” Award for plant oil derivatives. In 2018 Dr. Sutterlin and Mr. Tegen co-founded Socati Technologies Inc, a leading organic hemp oil provider between 2018 and 2021. They have been involved in improving and enhancing cannabis extraction and purification facilities in Arizona, Illinois, Washington, and in Q1 2023 Massachusetts. Dr. Sutterlin and Mr. Tegen were awarded five cannabis patents and have 12 pending cannabis patents, all relative to cannabis oil processing.

Education, Experience & Credentials of Ownership & Leadership Team

Applicant’s dynamic OT and Leadership Team, consisting of Alabama natives Mr. Jason Cobb, Dr. Rusty Sutterlin, Mr. David Hewitt, and Mr. Mark Tegen. Dr. Sutterlin and Mr.

Tegen have decades of combined experience in hemp and cannabis extraction; processing and engineering; and commercial development and financing. The team has extensive entrepreneurial knowledge and expertise in business building and executive management; comprehensive understanding of the medicinal benefits of cannabis; and is renowned for its research, inventions, and expertise in the processing of cannabinoids. All owners have been publicly honored and celebrated as inventors, innovators, and entrepreneurs in their respective fields.

JASON COBB, CHIEF EXECUTIVE OFFICER: Mr. Jason Cobb is a passionate entrepreneur and developer who over the last 25 years has guided revenue and financing structures, and business development and expansion for small to medium sized companies throughout Alabama. Mr. Cobb led the business lending department for America's First Federal Credit Union, a \$2.2B organization, and became an officer in 2019. During the Covid-19 crisis, Mr. Cobb facilitated the Small Business Association Paycheck Protection Program loans through AFFCU for hundreds of qualified small business owners. He has participated in numerous economic community development forums and programs, including Your Town Alabama, Main Street Alabama, and Auburn Intensive Economic Development. As an active Board Member of the Jefferson County Economic and Industrial Development Authority, he has contributed to recruiting new and expanding companies into Alabama, including a \$1.1B negotiation with J.M. Smucker Co. for the largest capital investment in Jefferson County's history and a considerable investment for the State of Alabama. Mr. Cobb is a Past President of the Hoover Area Chamber of Commerce, and is a member of the Vestavia Hills Civitan Club, Homewood Citizen's Police Academy, and Leadership Hoover. He supports the League of Southern Credit Unions, United Way of Central Alabama VAT, Urban League, and College Choice Foundation. Mr. Cobb was born in Birmingham, Alabama, and received a B.S. degree from the University of Alabama at Birmingham.

DR. RUSTY SUTTERLIN CHIEF SCIENCE OFFICER: Since 2018, he has been involved in the processing of hemp in Alabama, Oregon, Montana, Washington, Arizona, and Illinois. Raised in Gardendale, Alabama, Dr. Sutterlin earned a B.S. degree from Troy State University, and a Doctorate in Chemistry and postdoctoral studies in Chemical Engineering

from the University of Missouri. In 2012, Dr. Sutterlin was the first graduate of the University of Alabama's Business Incubator Center to find a startup business. Dr. Sutterlin has extensive, pertinent experience in chemical production, analysis and planning, and is highly adept in trouble shooting, interpretation and method development with analytical instruments and process development. He has received organizational, local, state and federal recognition for his work, including recipient of the prestigious U.S. Presidential Green Chemistry Challenge Award. His research includes conversion of agriculturally based plant oils and other biomass materials into higher value-added chemicals, and he is a member of the U.S. and Brazil research collaboration in biomass conversion. He has developed patents and technology for the extraction of cannabinoids with a focus on pharmaceutical benefits. He has over 100 patents and received numerous awards and accolades for his research and discoveries, including the Alabama Small Business Innovator of the Year, Alabama Entrepreneur of the Year, and Alabama Launchpad Business Plan Competition Award. He is currently involved with projects funded by Southern Company, the USDA, and the University of Alabama.

MARK TEGEN, PROCESSING ENGINEER: Mr. Mark Tegen holds over 25 years of experience as a chemical industry inventor, executive, and entrepreneur. His extensive expertise and knowledge in cannabis extraction, processing, engineering, product fulfillment, and innovations will provide OHL a deep understanding of cannabinoids for quality patient care. Mr. Tegen has served as COO of Socati Corp., a leading producer of organic hemp extract and seller of CBD products, and was founder and CEO of Inventure Renewables, an Alabama chemical innovation and discovery company that develops and licenses process technologies for rapid, low-cost, high yield extraction of valuable materials from agribusiness waste into oleochemicals and biodiesel. He raised \$24 million in investor capital; secured multiple grants; and was instrumental in the deployment of Inventure's "invented in Alabama" super critical, alcohol esterification of lipids for the isolation of natural vitamins. Mr. Tegen was founder and president of Senergy Chemical, LLC, a chemical manufacturing firm using patented technology to convert waste glycerol into renewable propylene glycol, and VP of Lilyblad Petroleum. Mr. Tegen has developed, or co-developed 50 patents and patent applications, and sits on the Board of Directors of several

chemical and renewables organizations. He was named one of Seattle's Top 25 Innovators & Entrepreneurs by Seattle Business Monthly.

DAVID HEWITT, CONTROLLER: Mr. David Hewitt, a 51-year resident of Rudolf County, Alabama, received a B.S. degree from West Georgia College. He was raised working in his family's cattle farming and timber land businesses and a local country store. He is a real estate investor with a portfolio of strategic investments and considerable income-producing commercial, residential, farmland, and large tracts of merchantable timberland throughout Southeast Alabama. Through his holding company Sunbelt Development, Mr. Hewitt's real estate projects include farm land property investment, leaseholds, construction, and build to lease. He is a passionate conservationist and has provided over \$2M of conservation easements in Alabama, Georgia, and Tennessee to halt future development, and provide perpetual natural resources for future generations.

SCOTT P. SEDER, MANAGER OF COMPLIANCE: Mr. Scott Seder is an attorney and consultant primarily working in the legal hemp and cannabis industry. He is a former county prosecutor, government regulator, and policy maker. Mr. Seder's practice concentrates on regulatory, licensing, ethics and compliance matters. In his practice, Mr. Seder has represented multi-state cannabis operators, small cannabis businesses, seed-to-sale software companies and a cannabis industry association on regulatory, licensing and compliance matters among other matters. Mr. Seder is the former General Counsel to the Illinois Department of Financial and Professional Regulation. In that capacity, he managed legal matters related to the regulation of licensed professionals spanning over 70 professions and 1.2 million licensees, including pharmacies, banks and financial institutions. Between 2019 and 2022, Mr. Seder served as SVP of Regulatory Affairs for Socati Corp. and was responsible for overseeing the company's interaction with local, state and federal regulatory bodies. In that capacity, he gained vast experience with regulatory issues involving the USDA, the FDA and many state and local regulations that govern the manufacturing, testing, labeling, packaging and transferring of hemp and products made from hemp. Mr. Seder holds a B.A. degree from Vanderbilt University, and a J.D. from Chicago-Kent College of Law, IIT.

SAMUEL B. HARRIS, MANAGER OF HUMAN RESOURCES: Mr. Samuel Harris, a resident of Homewood, Alabama, is a business leader adept in creating and executing strategic business plans, which provide high value outcomes. In his current role at Everett Advisory Partners Mr. Harris has advised medical companies on methods to improve employee engagement and performance; analyzed, built, and implemented compensation and performance evaluation structures; and created a sales incentive pay program for a Birmingham agricultural startup company. At BBVA, Mr. Harris instituted strategies to improve employees' growth, reduce attrition, and maximize capability. At Honda Manufacturing of Alabama, he planned and executed initiatives to improve union relations throughout a 4,500+ employee facility. Mr. Harris earned a B.A. degree and a Master's degree from Mississippi State University and sits on the Board of Our Home.

DANIEL FARMER, MANAGER OF INFORMATION TECHNOLOGY AND MARKETING: Mr. Daniel Farmer is a seasoned executive in technology and business leadership with over 27 years of experience in information systems, business operations, infrastructures, cloud computing, and operational technical project management. In his role at Southern Company, he is responsible for implementing technology strategies, and directing multiple cross-functional teams within high-complex environments in regulatory compliance. He manages disaster recovery modeling and replication for incidents due to security threats, breaches, failures, and natural disasters, and technology initiative budgets exceeding \$100M. Mr. Farmer managed the deployment of an enterprise-wide Oracle Financials and human resources system change impacting over 27,000 users; 100+ application roadmaps for SNC nuclear plants systems; 15 proprietary technology application product launches. Mr. Farmer earned a B.S. degree from Auburn University, and numerous Microsoft Certified Professional certifications.

MICHAEL O'BRIAN, MANAGER OF PROCESSING: Mr. Michael O'Brien is an experienced legal professional in the Arizona cannabis industry serving on the Board of Sonoran Roots, which oversees three cannabis companies, and a portfolio of cannabis entitled real estate properties. As CEO of Sonoran Roots Craft Cannabis, he is responsible for execution of the


business plan; operational oversight; legal matters; personnel management; financial reports; industry and market trend analyses; and investor relationships. At AZ Crown Investments, he is responsible for managing a complex organizational structure among a portfolio of 60+ subsidiaries in various industries. His experience includes providing legal advice and guiding companies in corporate governance drafting mergers, acquisitions, and corporate finance agreements. Mr. O'Brien earned a B.S. degree from Arizona State University, and a J.D. from New York University School of Law. He sits on the Arizona Dispensaries Association Board; and is a member of the State Bar of Arizona, Arizona Cannabis Bar, and Marijuana Industry Trade Association.

JEREMY BASHA, PRODUCTION MANAGER: Mr. Jeremy Basha is a dynamic entrepreneur who owns and operates three cannabis businesses and serves as Chief Revenue Officer for Pitchfork Partners dba Sonoran Roots, a cannabis cultivation and extraction company. At Sonoran Roots, he is responsible for management of production standards; strategic partnerships; sales; market penetration; marketing; permit applications and compliance. He is owner of Oleander dba Raspberry Roots, responsible for operations; land licensing; pricing and promotions; new product development; and market analyses for two Alaskan adult-use retail dispensaries, and cultivation and manufacturing facilities. As founder of Greenwave Consulting, LLC, Mr. Basha handles regulatory compliance; materials sourcing; finances; and marketing. The Greenwave Canamo Concentrates brand has grown into one of the largest concentrate processors and distributors in Arizona, and Mr. Basha manages sales, customer service, personnel, inventory control, audits, and third-party extraction service agreements with state licensed dispensary groups. As owner of Ponderosa Botanical Care dba Ponderosa Dispensary, he manages business development, marketing, and strategic partnerships with third-party vendors and distributors. Mr. Basha earned a B.A. degree from the University of California, San Diego.

ROBERTO LAPOSSE, QUALITY ASSURANCE AND QUALITY CONTROL MANAGER: Mr. Roberto Laposse was raised in a 100-year family legacy of candy making. He is cofounder and is CEO of RR Brothers, a licensed edibles company producing cannabis-infused gummies, specifically hand crafted for consistent dosage and efficacy. Mr. Laposse oversees

the executive management team who direct the production of over 325 cannabis gummy products; worldwide ingredient procurement; pricing structures; inventory management; and personnel training. Previously, Mr. Laposse oversaw the import and placement of Hispanic confectionery products in the U.S., working with the FDA to meet complex regulatory compliance. At Dulceria Italiana, he rose through the ranks to become CEO, overseeing operations, management and personnel; and negotiating employee union contracts. Mr. Laposse holds a B.A. degree from the University of Houston, Texas.

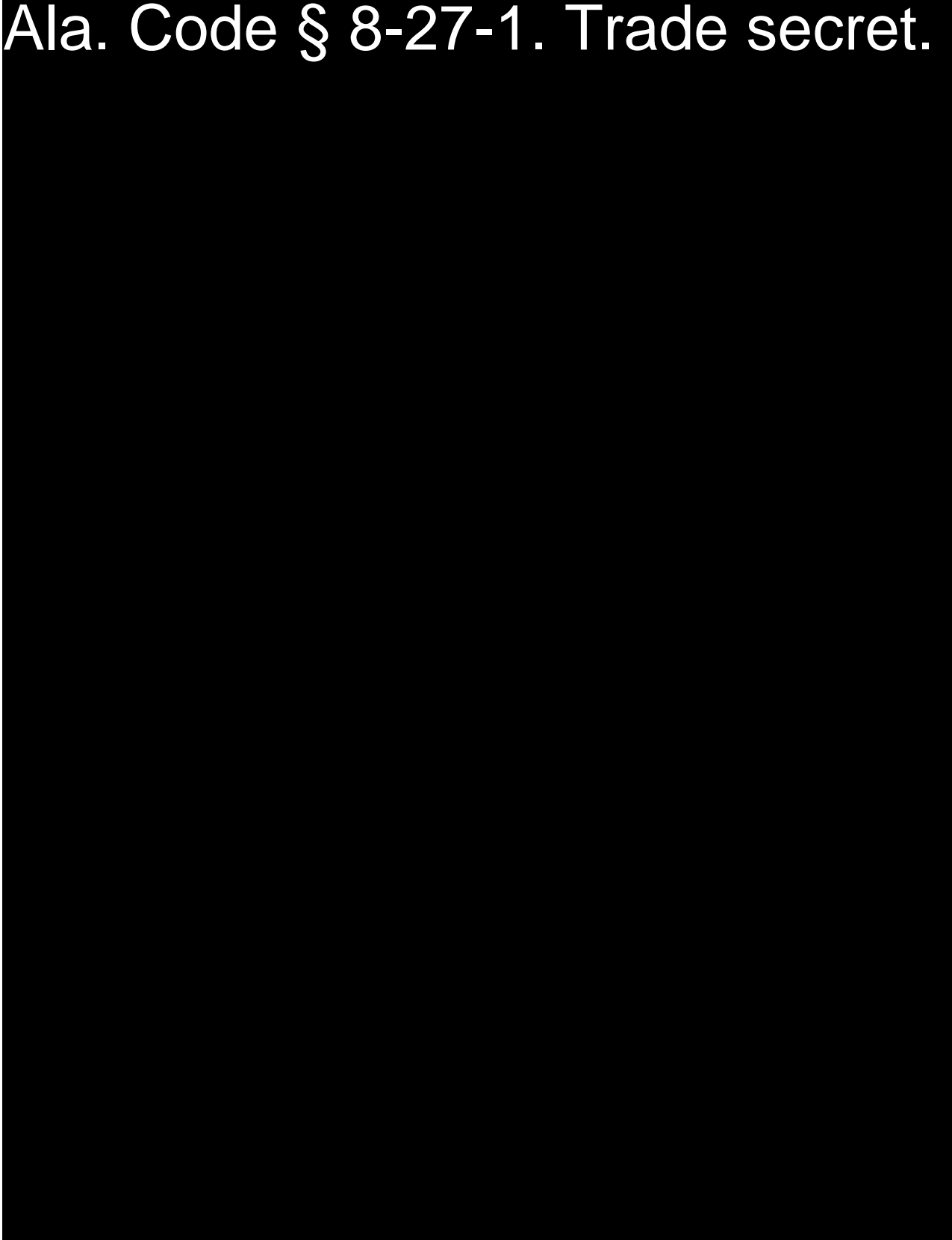
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REDACTION INDEX

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Ala Code § 8-27-1 (Trade Secrets)/Ala. Code § 8-1-191 (Protectable Interests) – This exhibit contains confidential information including, but not limited to, management and marketing plans, business strategy and methodology, business models and data, and company provided files and software. As such, certain portions of this exhibit have been designated as “Protectable Interests” exempt from disclosure. Further, this exhibit contains information that is used or intended for use in a trade or business, included or embodied in a formula, pattern, compilation, computer software, drawing, device, method, technique, or process, and is not publicly known or generally known in the trade or business. The information contained in this exhibit cannot be readily ascertained or derived from publicly available information and has significant economic value to the applicant. As such, certain portions of this exhibit have been designated as “Trade Secrets” exempt from disclosure.

Protectable Interests and Trade Secrets are redacted as the disclosure to any third party would give an unfair advantage to competitors and would result in the loss of rights and cause harm to the owner of this information. In the normal course of business, the owner of this information requires all individuals who view such information to be bound by confidentiality agreements and access to any of this material is extremely limited and on a need-to-know basis only. The owner of this information will take all steps to enforce such confidentiality agreements and will ensure that employees surrender such information upon termination of employment. If such information is disclosed, competitors of the owner of this information in Alabama and in other states will take such information to better compete against the owner of this information in the regulated commercial market.

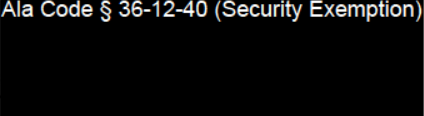
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Application Number 1632
Exhibit 20 - Employee Handbook

Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

Jason Cobb
Printed Name of Verifying Individual
Ala Code § 36-12-40 (Security Exemption)

Signature of Verifying Individual

CEO
Title of Verifying Individual
12/30/2022
Verification Date

Employee Handbook

SUMMARY

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



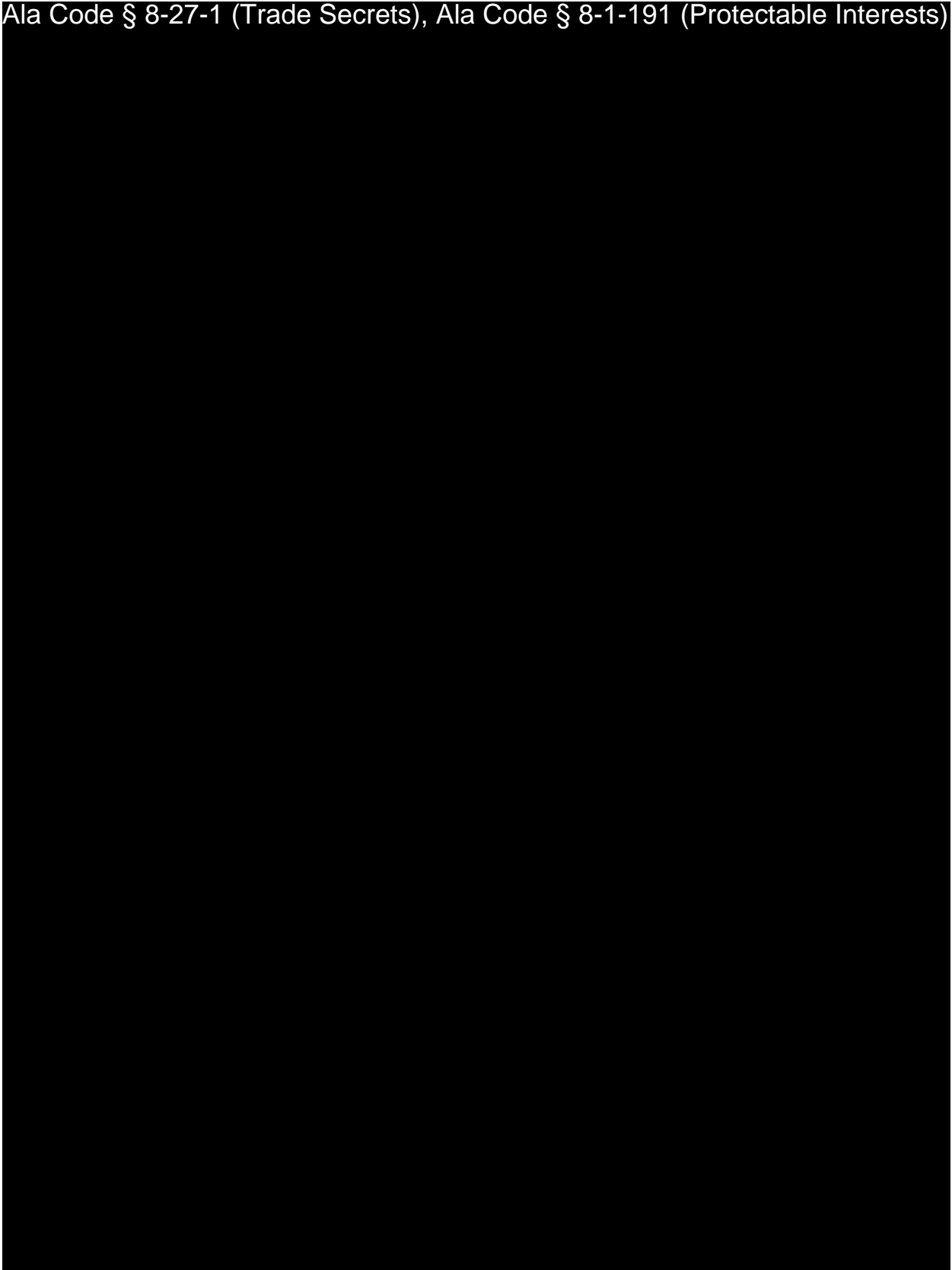
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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



END OF EMPLOYEE HANDBOOK SUMMARY

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Section I: Introduction

Company History

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



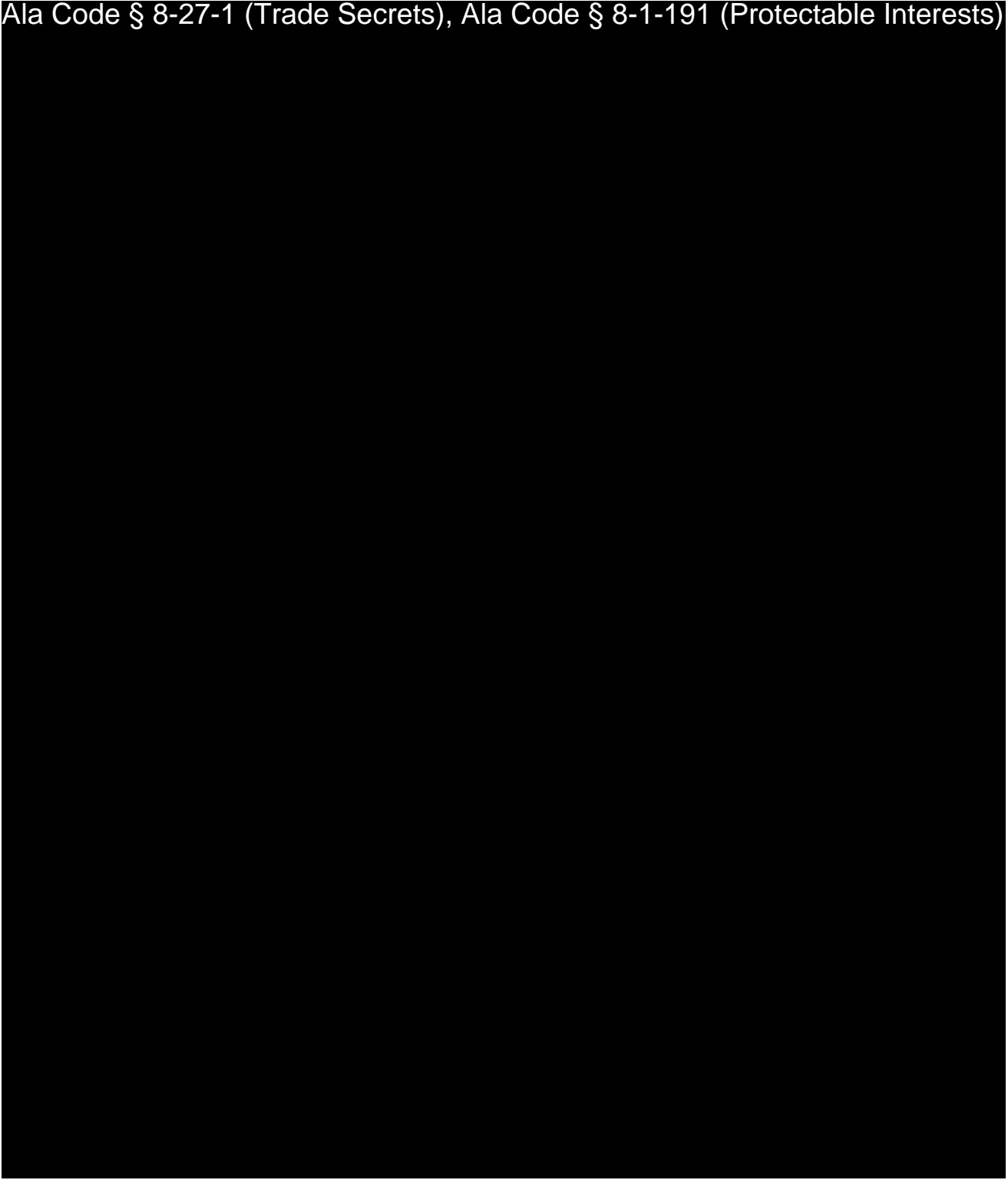
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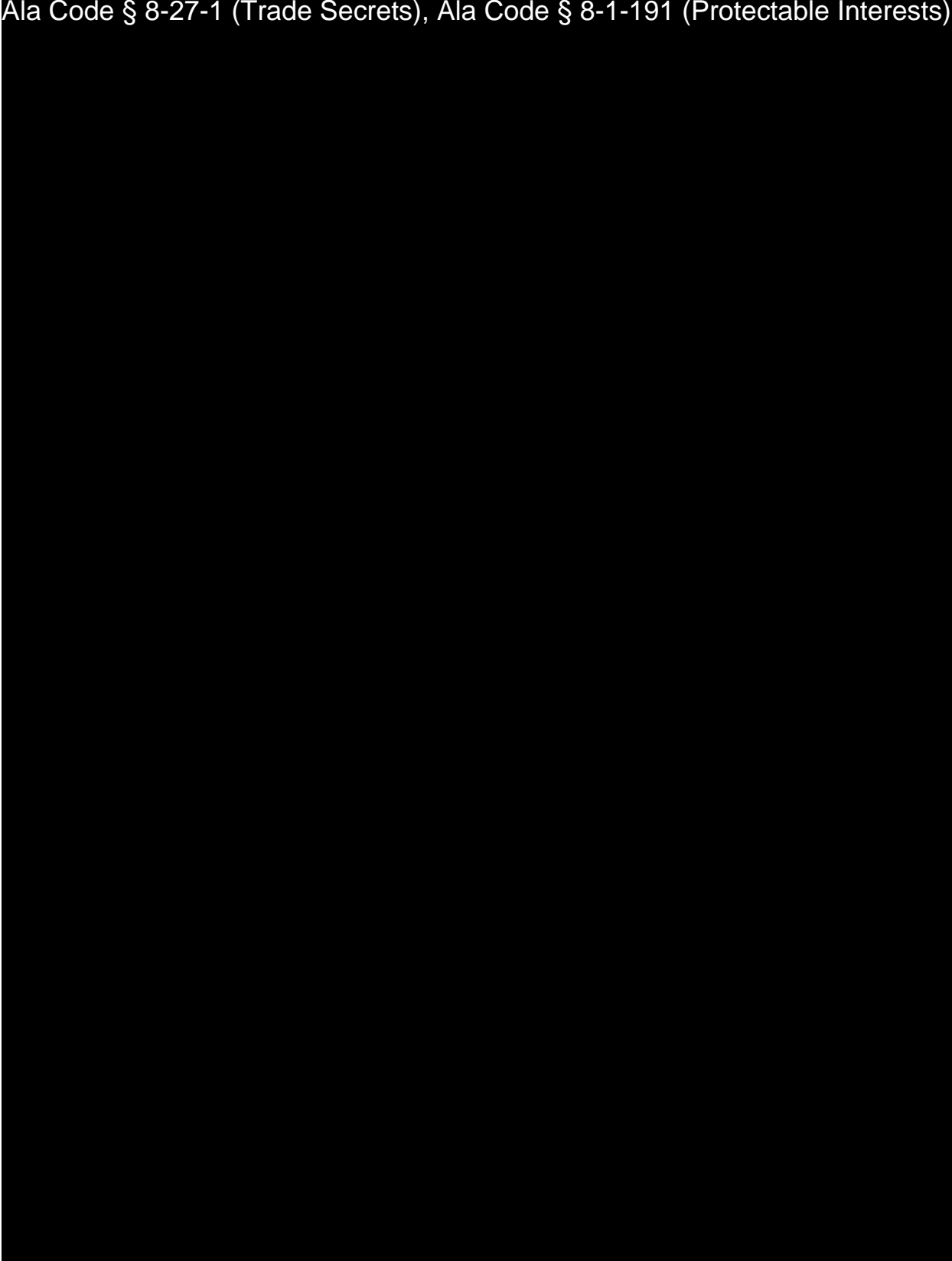
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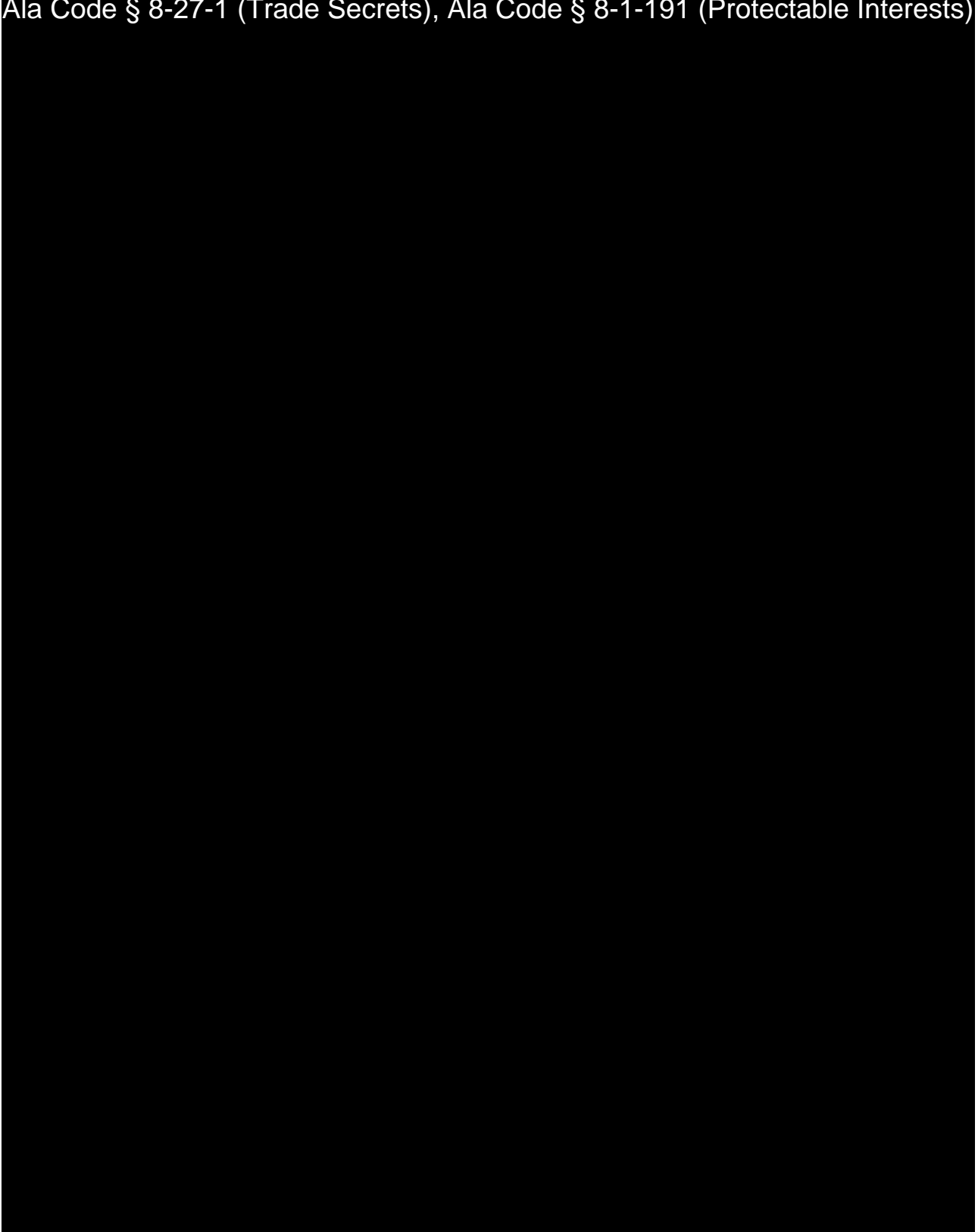
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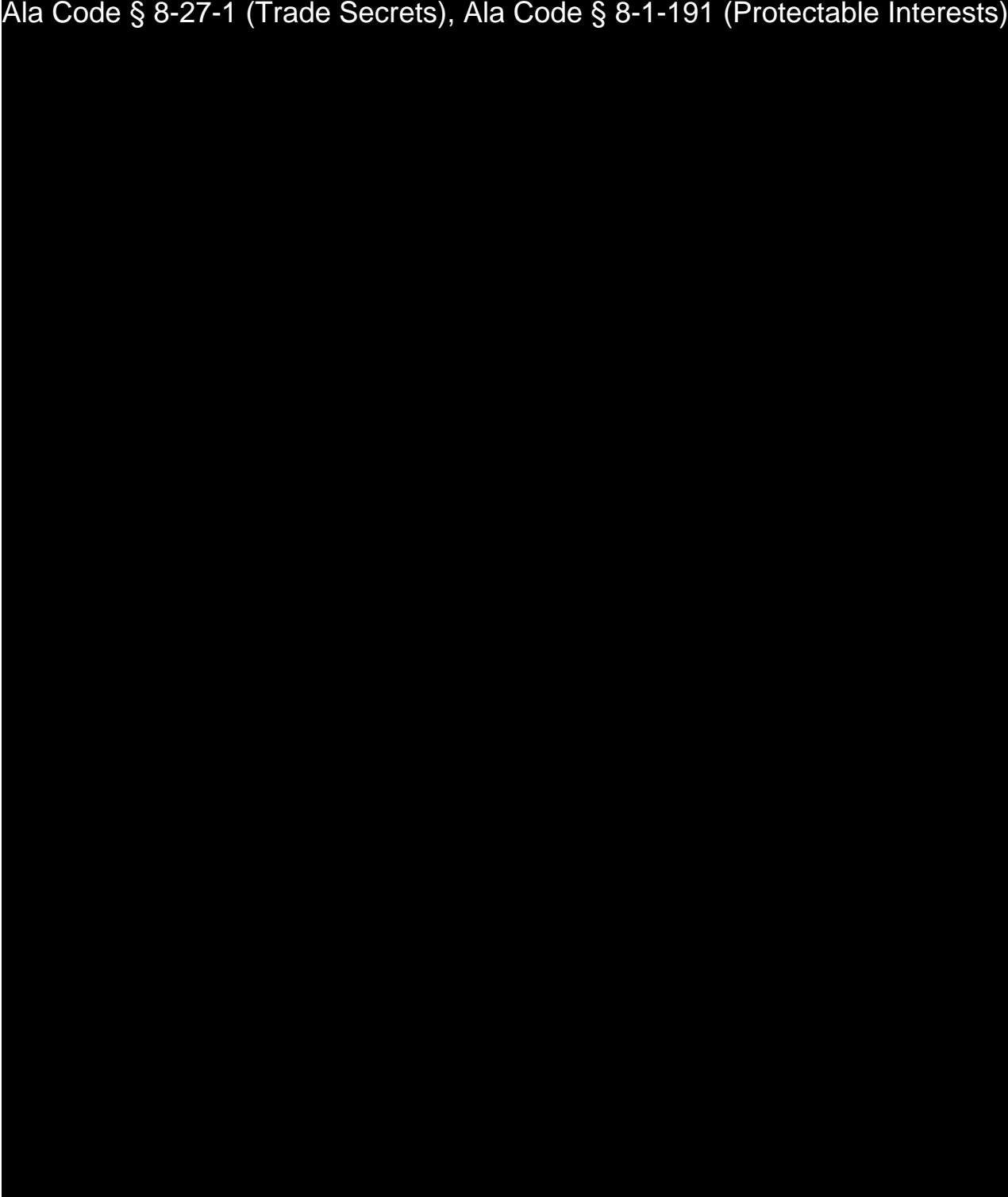
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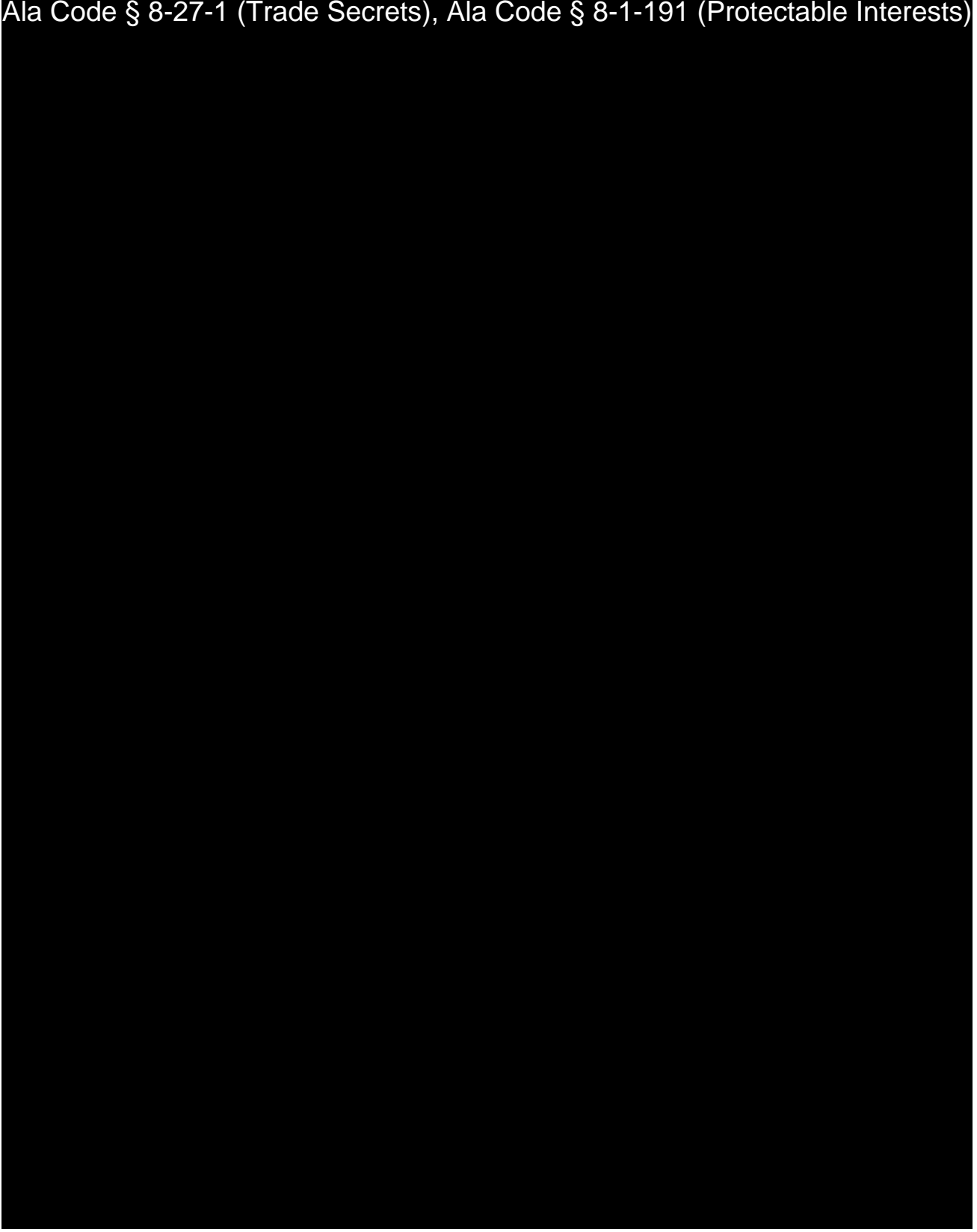
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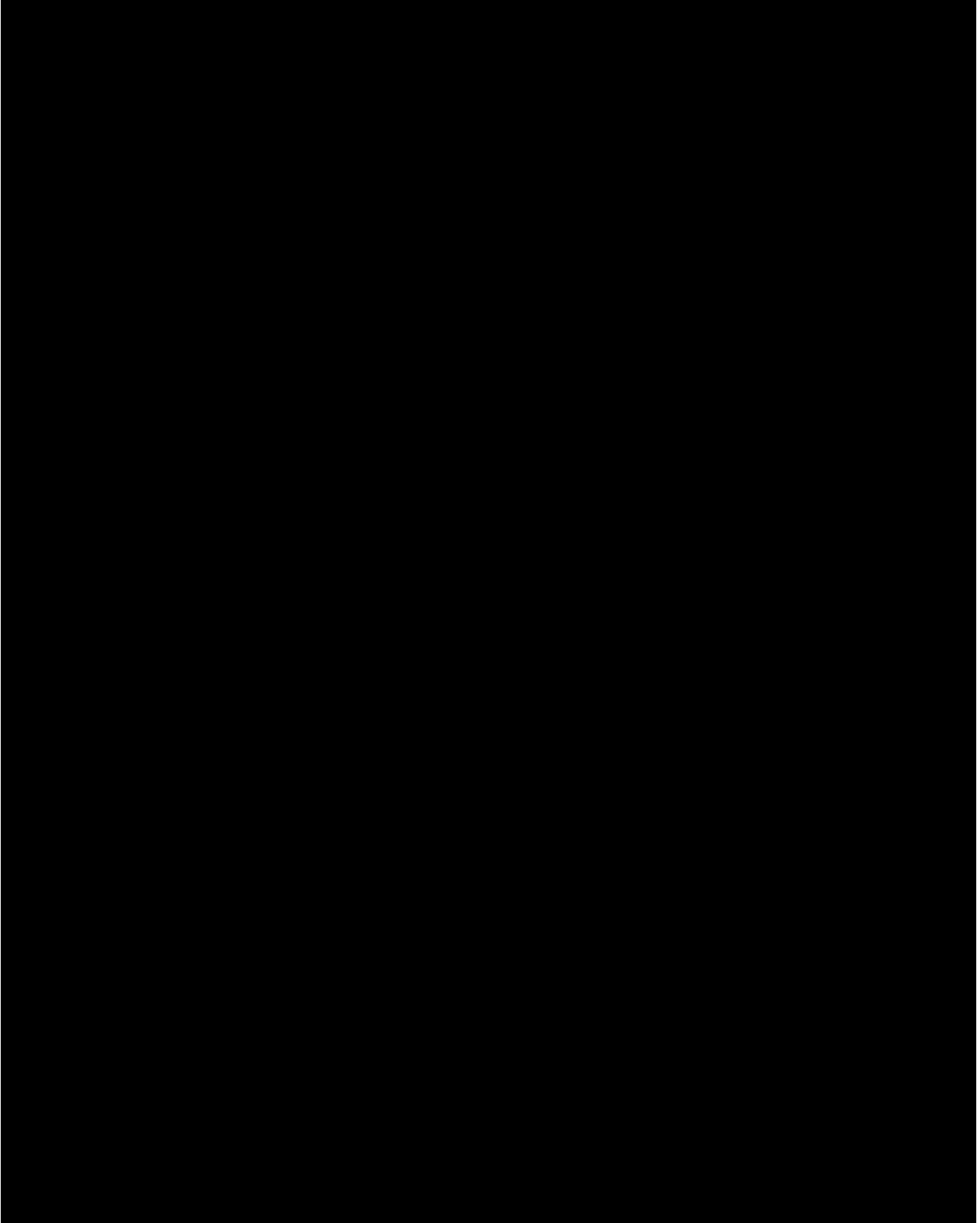
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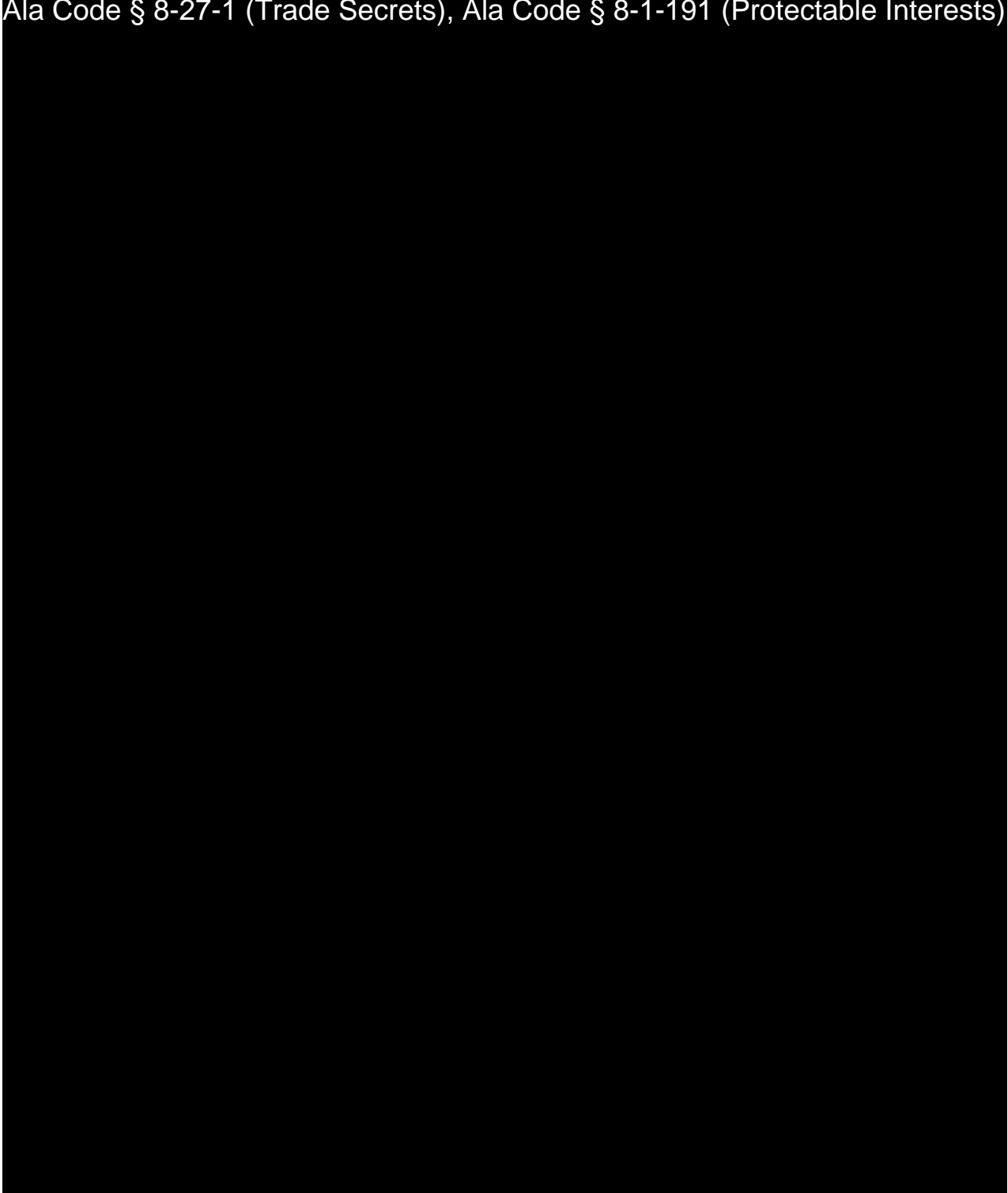
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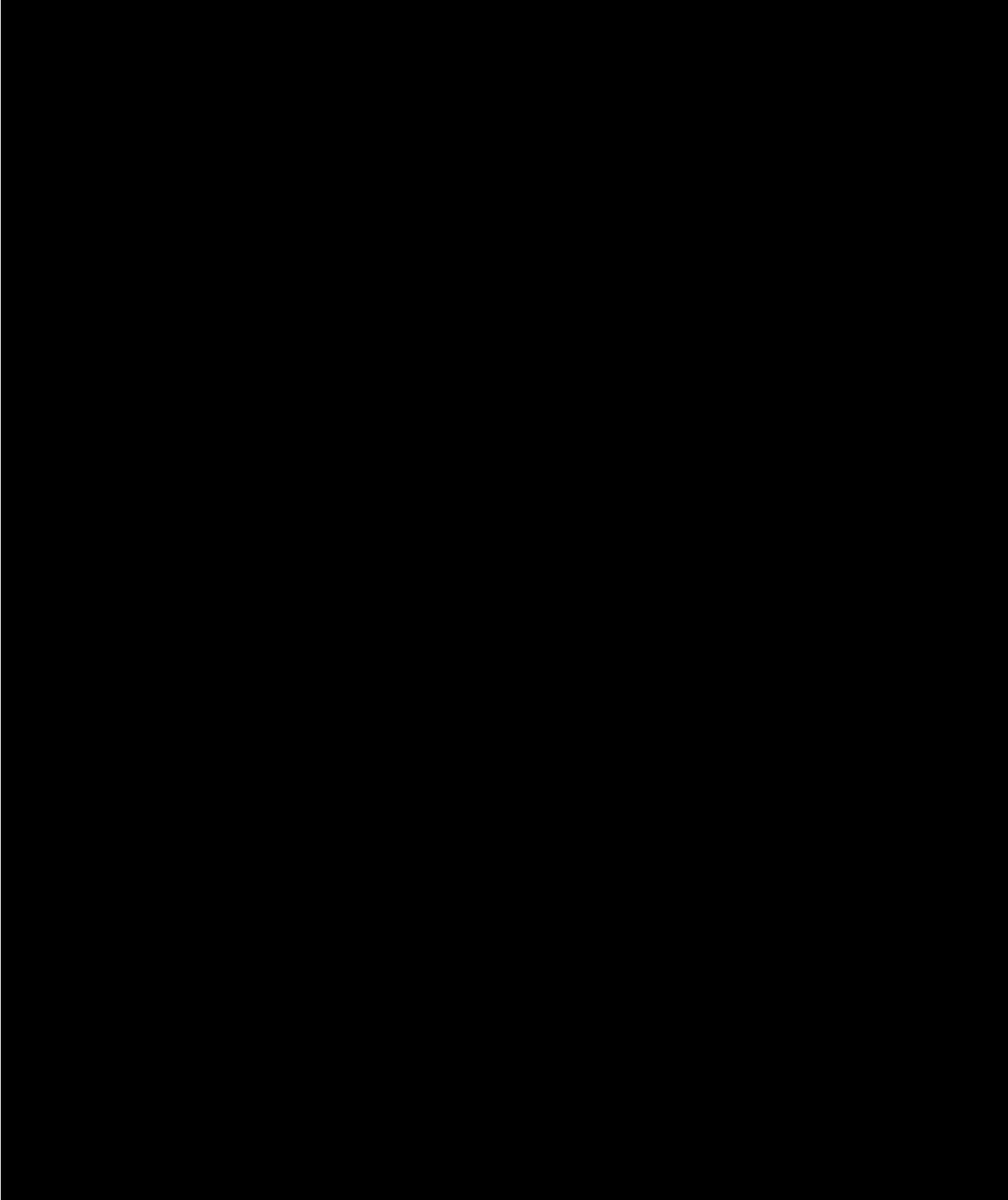
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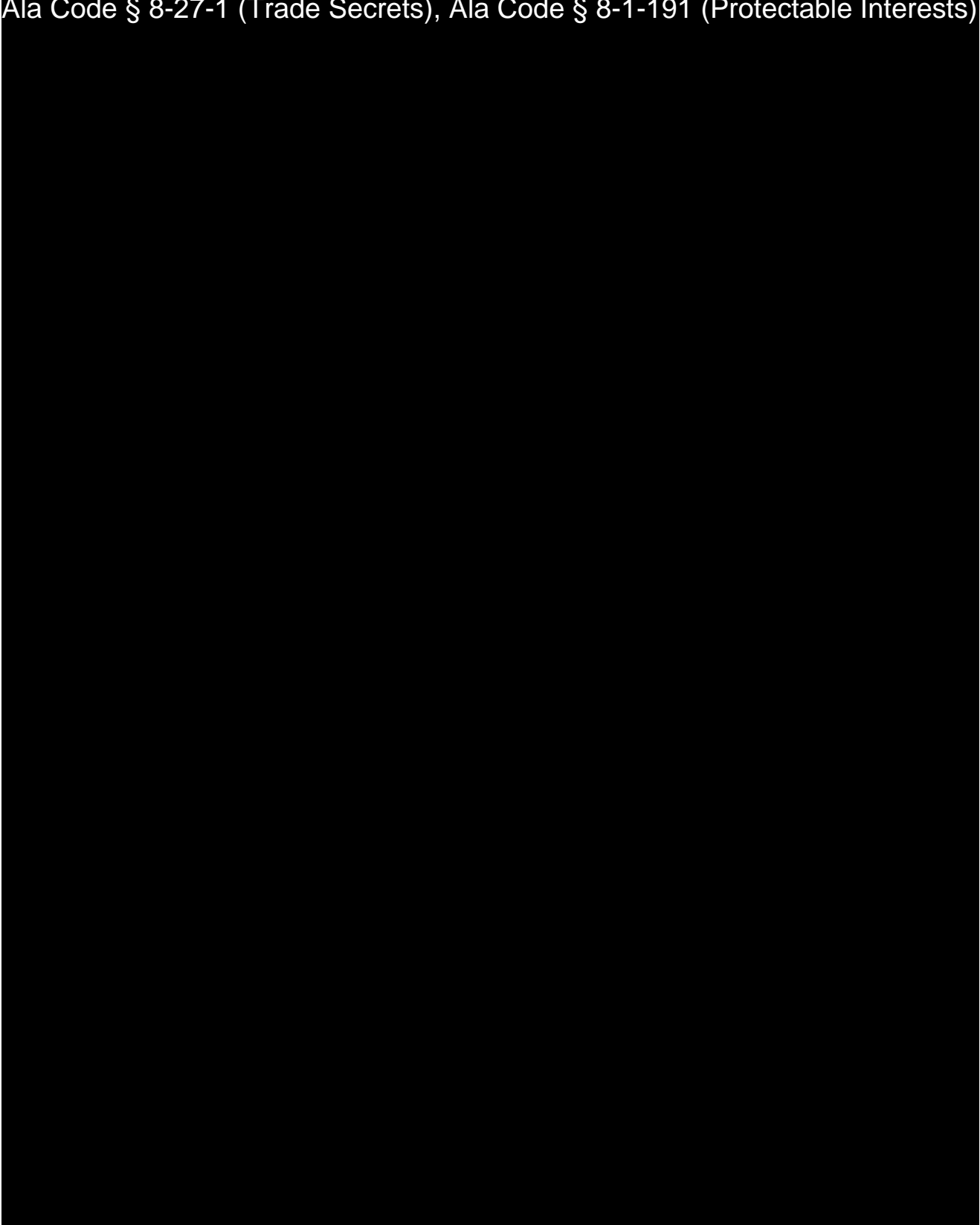
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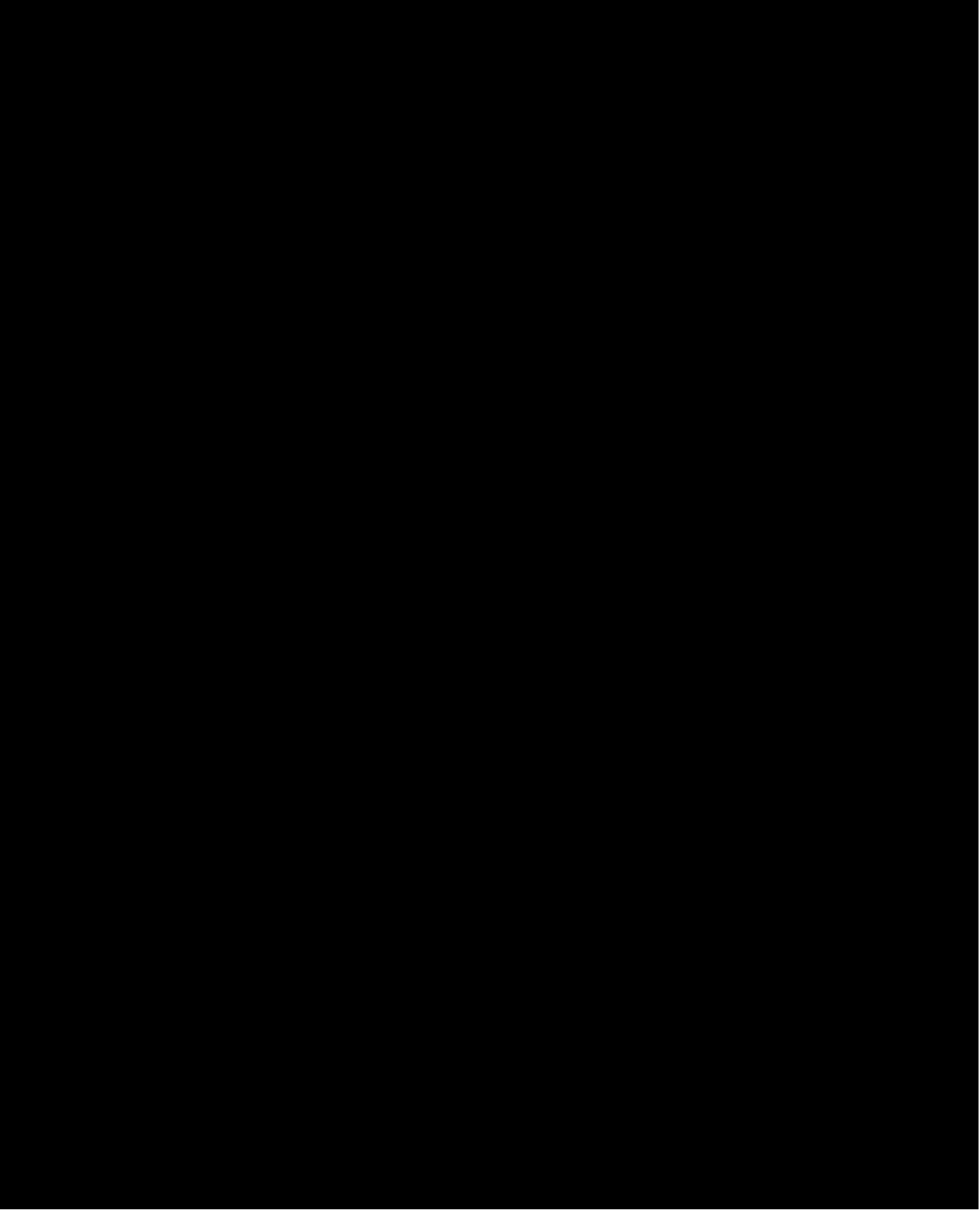
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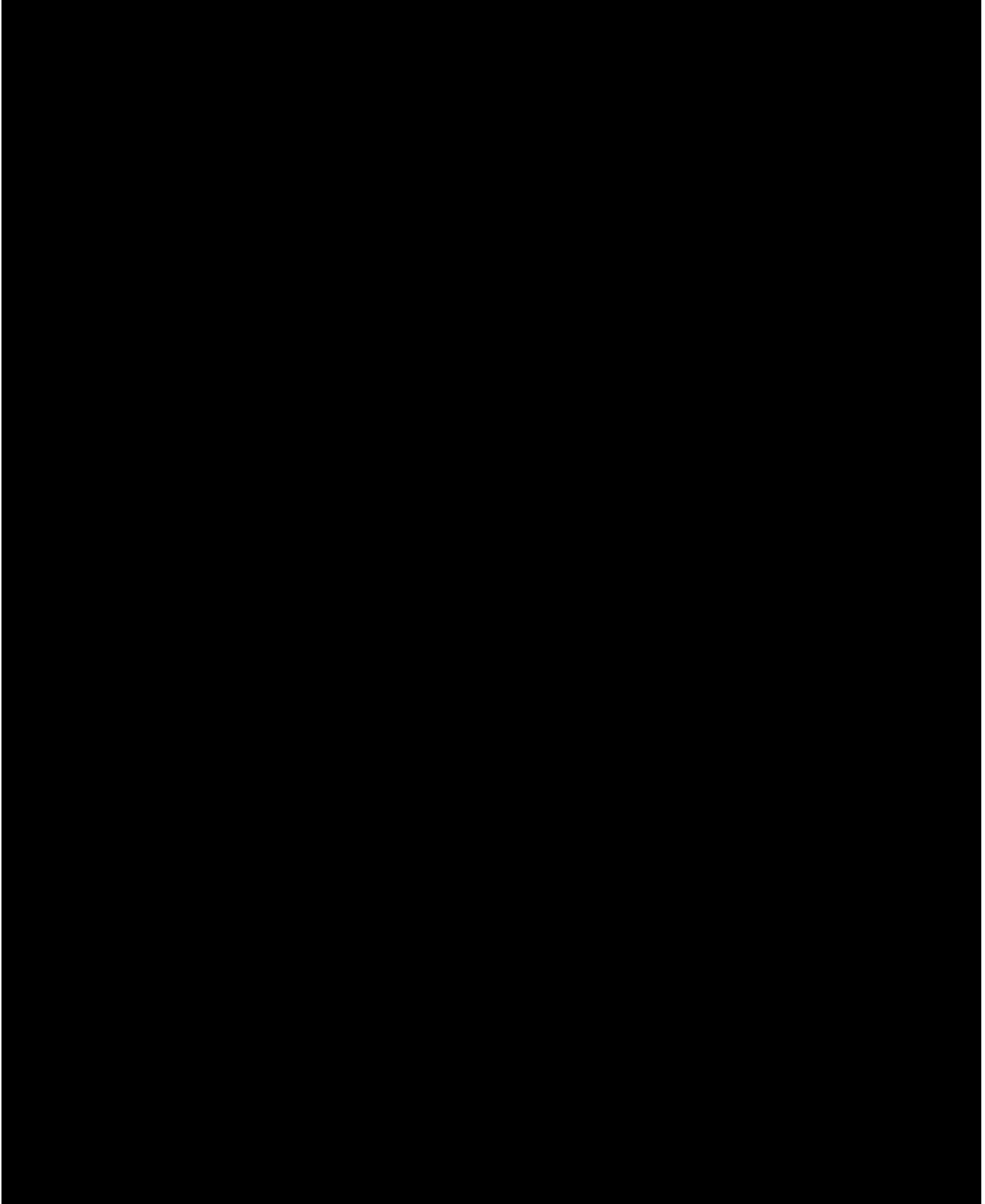
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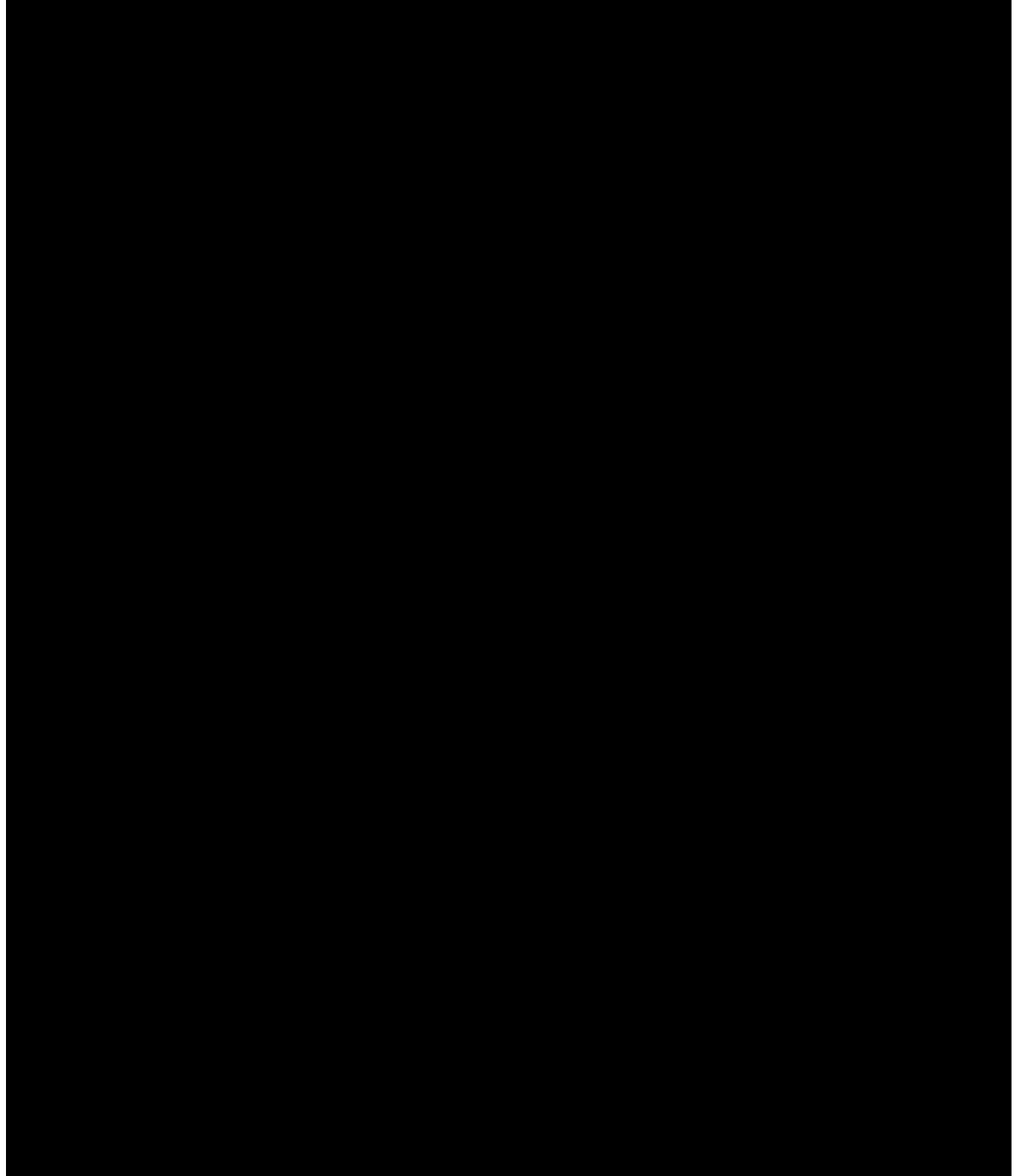
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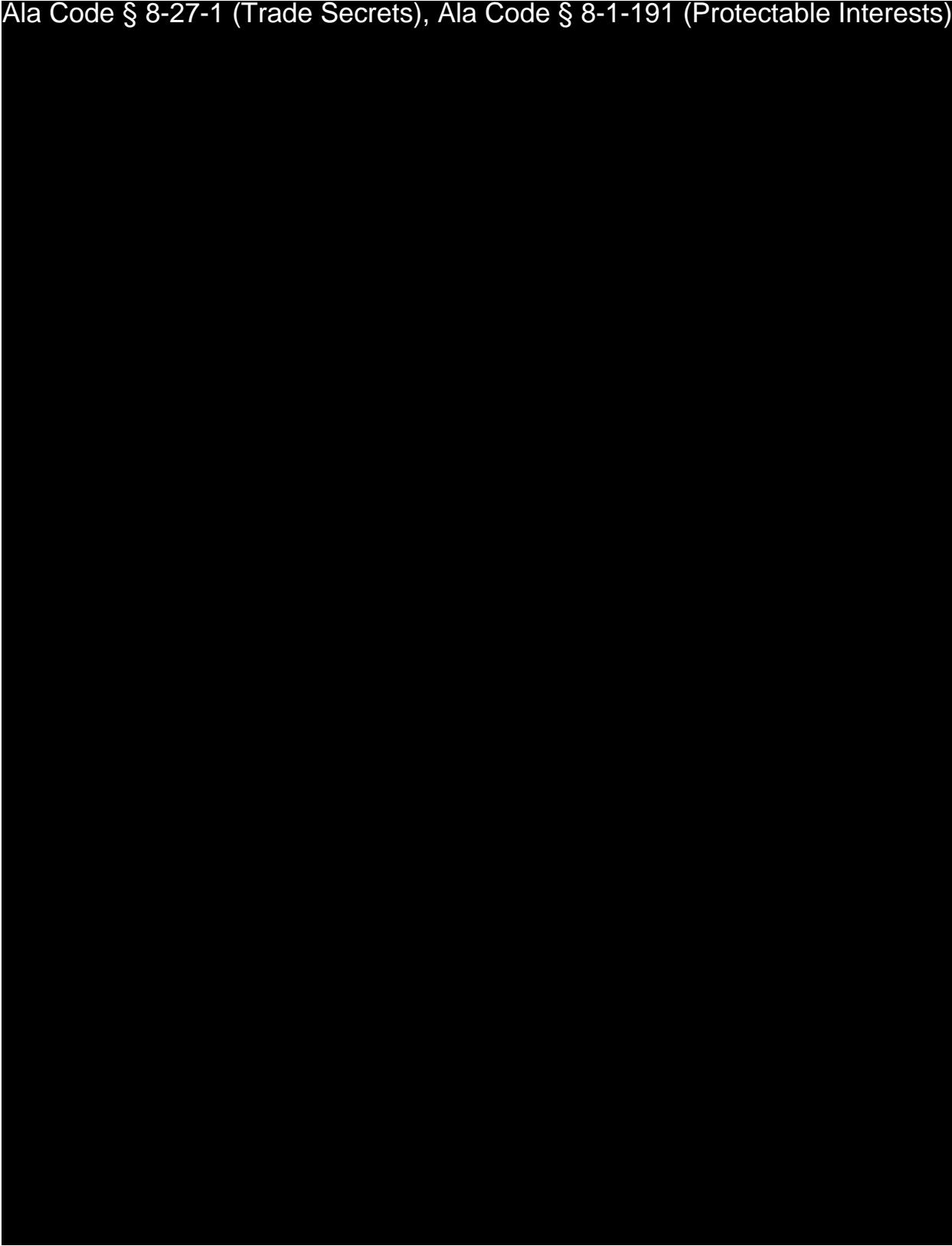
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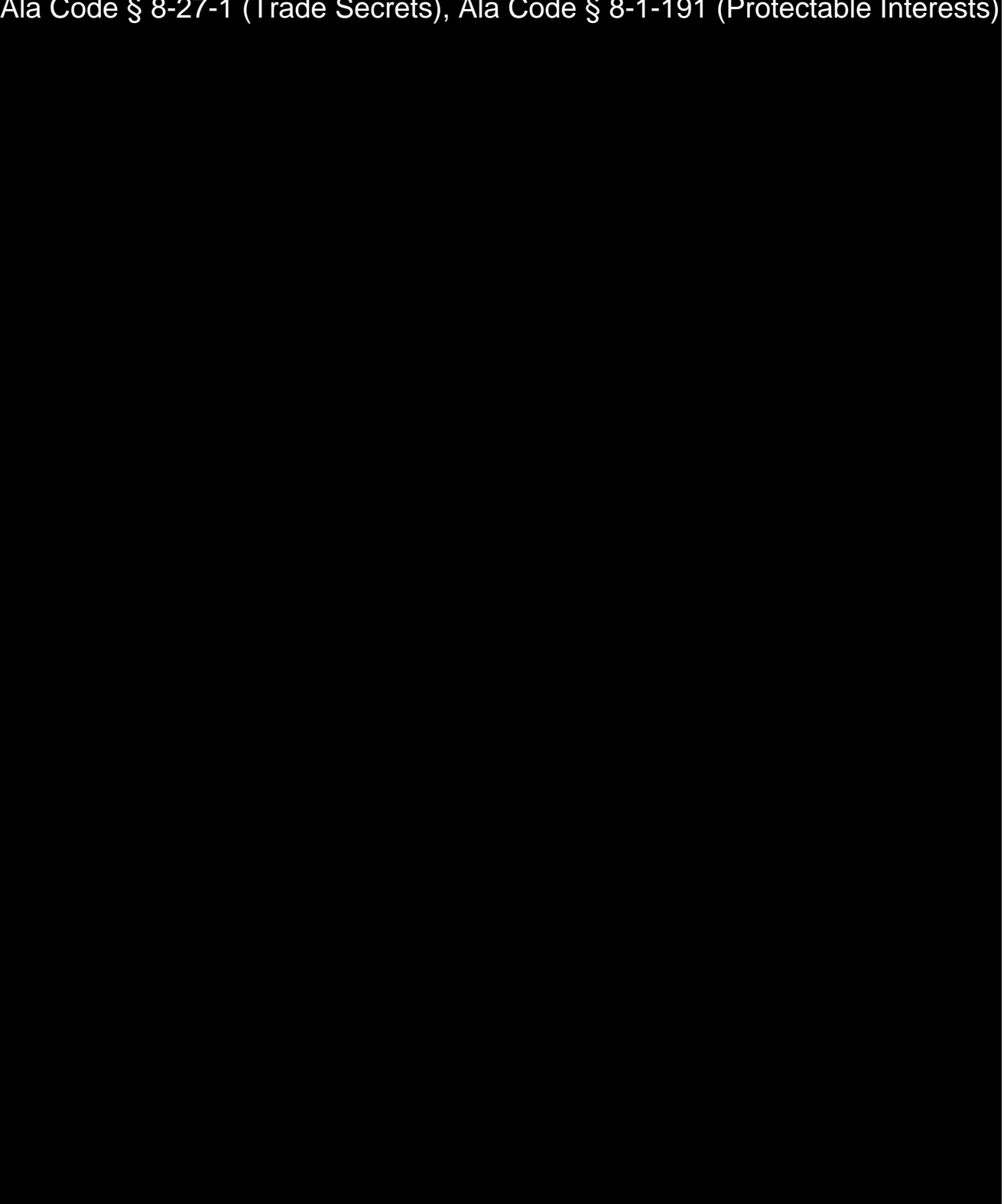
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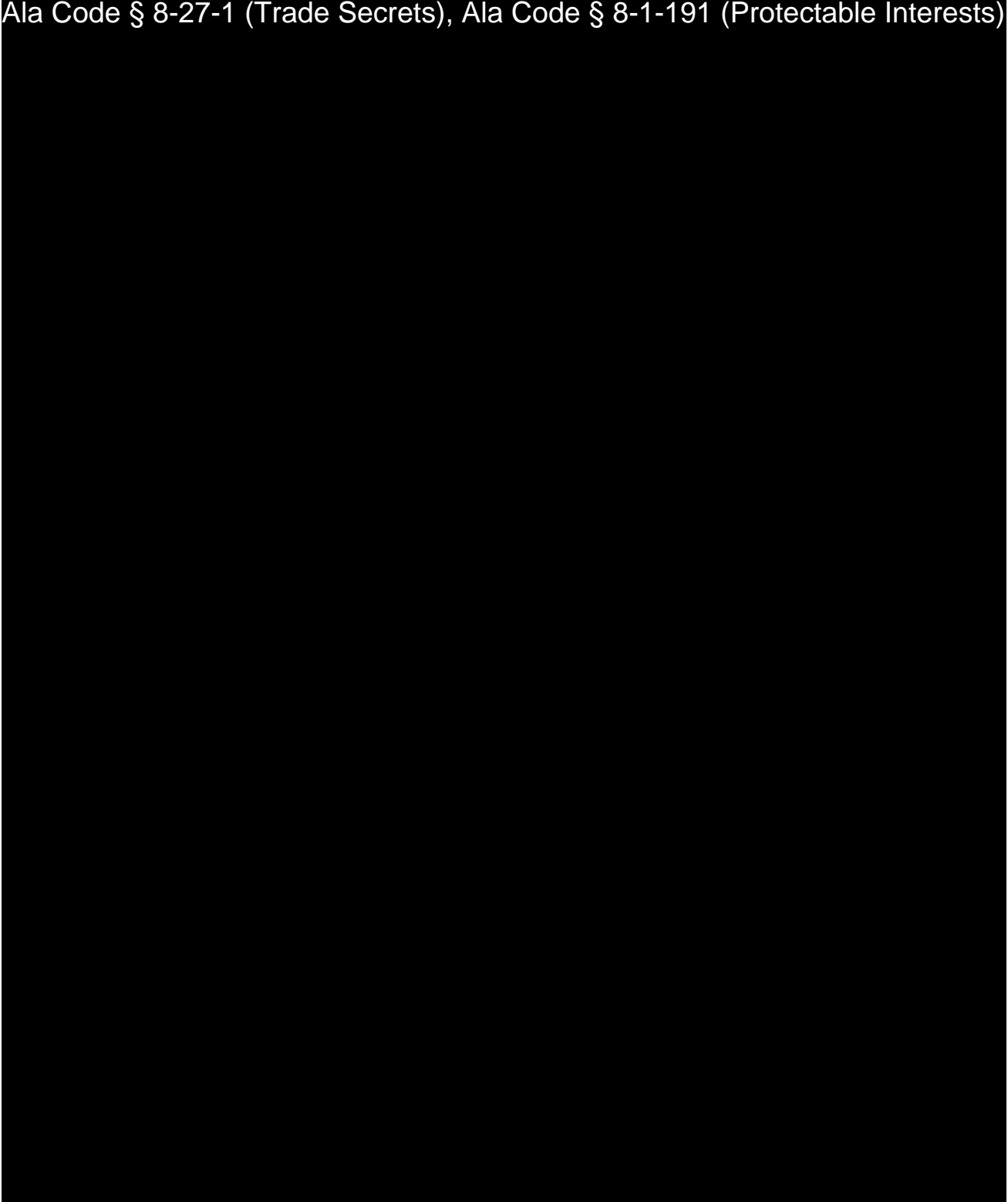
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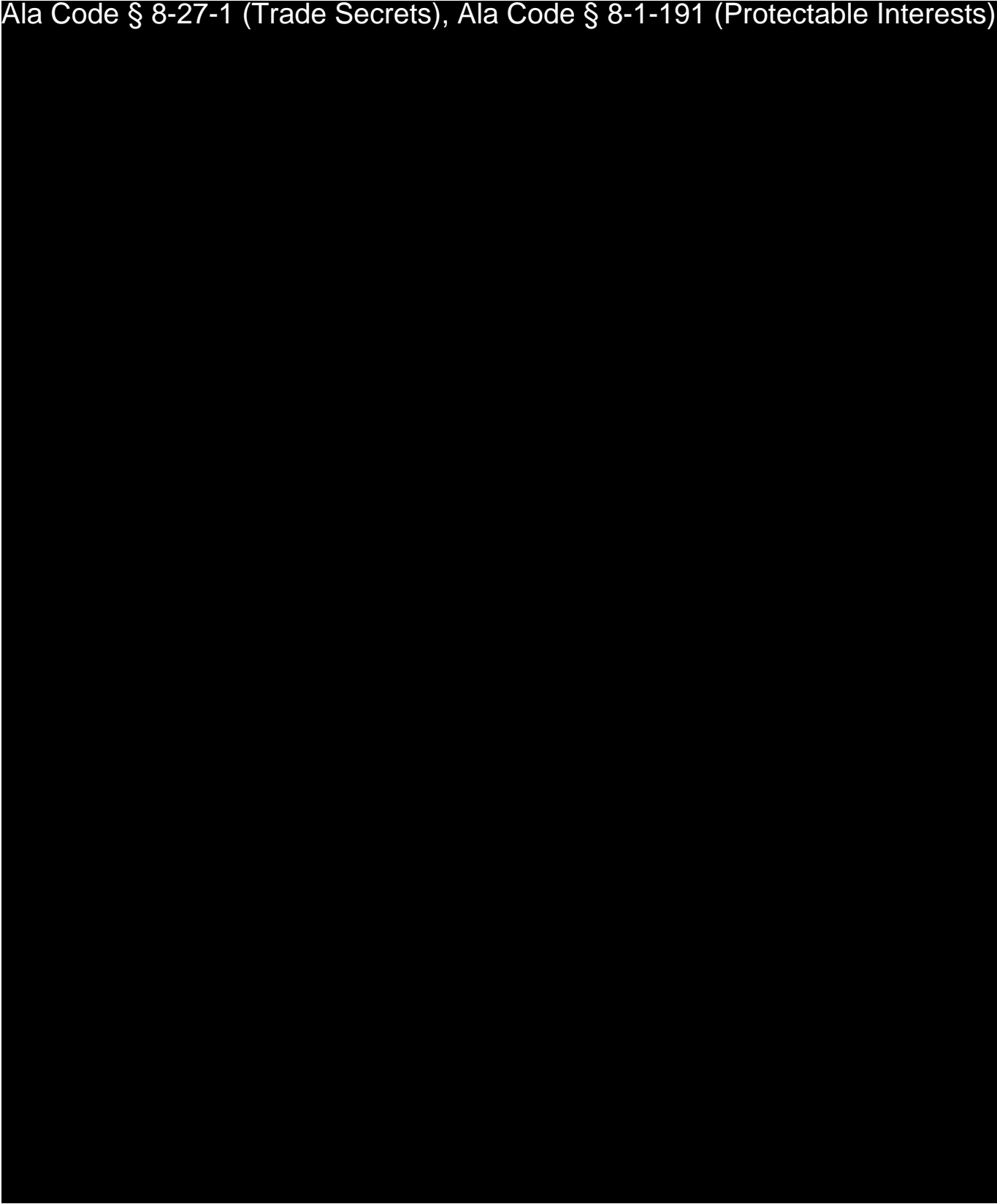
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Application Number 1632

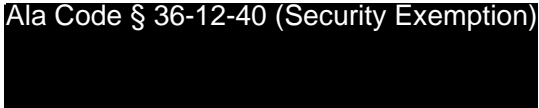
Exhibit 21 - Quality Control and Quality Assurance Plan

Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

Jason Cobb

Printed Name of Verifying Individual
Ala Code § 36-12-40 (Security Exemption)



Signature of Verifying Individual

CEO

Title of Verifying Individual

12/30/2022

Verification Date

21.1 Quality Assurance and Quality Control (“QA/QC”) Best Practices

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Good Manufacturing Practices and Good Quality Practices (“GMP/GQP”)

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Good Agricultural Practices and Good Handling Practices (GAP/GHP)

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)

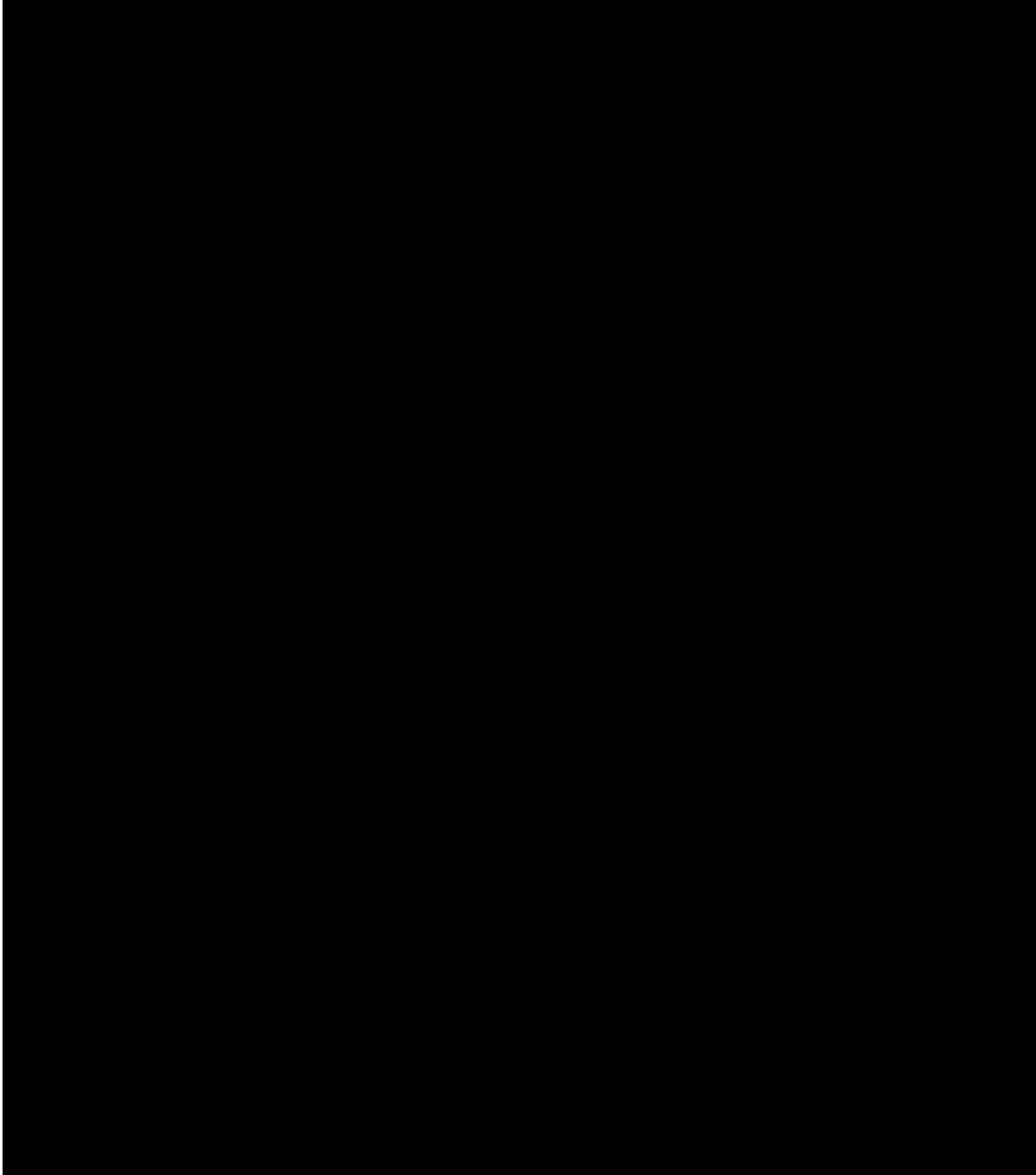


License Type: Processor

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)

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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Employee Sanitation, PPE & Hygiene

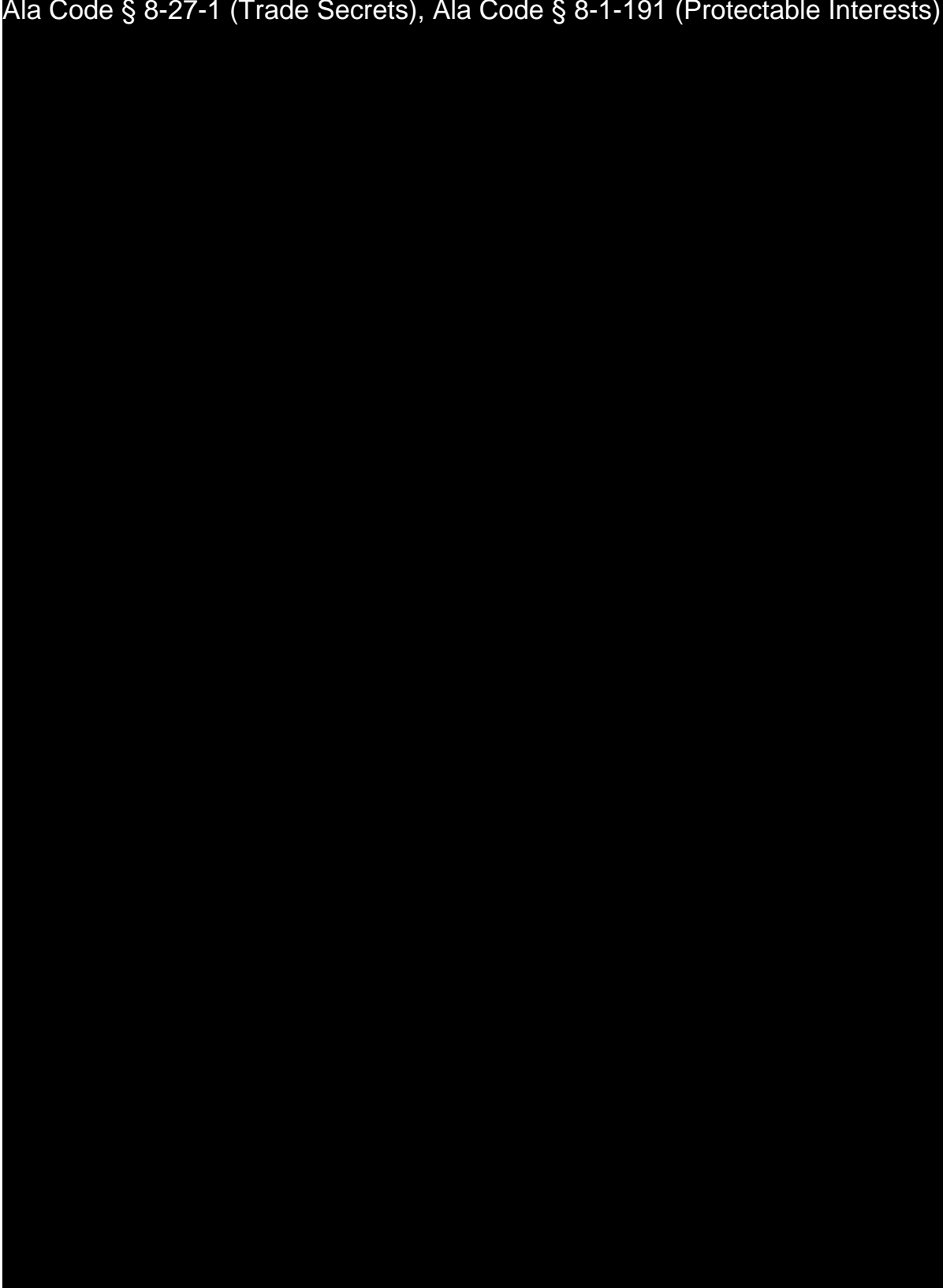
Employees will be required to uphold strict disease control practices, and will not be permitted to perform any manufacturing operations while experiencing an illness that has the capability to be transmitted through food or open lesions, including boils, sores, or infected wounds. Employees must maintain adequate personal hygiene practices and will be required to wear the appropriate PPE. Employees must wash hands before starting work, after each absence from duties, and whenever hands have become soiled or contaminated. Handwashing stations will be located in each area of the facility where medical cannabis is being handled to support frequent handwashing. Employees must maintain personal cleanliness, keep nitrile gloves in a sanitary condition, and discard and replace gloves if soiled or contaminated. They must also avoid eating food, chewing gum, drinking beverages, or using tobacco in any area where medical cannabis is manufactured; avoid hand contact with hair or eyes; and not wear loose jewelry, or other objects that may fall into manufactured products. Employees must wear company-issued scrubs, safety glasses/goggles, respirators/masks, hairnets and beard cover at all times during the processing of medical cannabis.

Facility Sanitation & Maintenance

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



21.2

In alignment with *Chapter 10 Regulations of State Testing Laboratories*, all products will be tested publicly by a licensed State Testing Laboratory (“STL”) in addition to in-house testing performed by Applicant for each stage of production, including testing on excipients used in formulations, extracted cannabis materials, and finished medical cannabis prior to packaging of the final product. Applicant will ensure that all excipients and dispensed medical cannabis is reliably high-grade, maintains consistent potency, and is free of contaminants among batches as required by § 538-x-10-.04(5).

Laboratories Selected at Time of Application Submission

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Reviewing Scientific Director Qualifications: In accordance with § 538-x-10-.04(11), Applicant will ensure selected STLs have employed at least one person to oversee and be responsible for STL testing who has a relevant advanced degree in medical or laboratory science, analytical chemistry, or an equivalent degree from an accredited secondary educational institution paired with significant experience in analytical testing of cannabis and medical cannabis. While evaluating and selecting STLs, Applicant has and will continue to verify the credentials of each STLs Scientific Director and vet each Scientific Director to ensure their credentials and values align with those of Applicant's facility.

Touring Compliant Laboratory Space: Applicant will visit the STL to ensure that it has sufficient, secured laboratory space and is operating compliantly in accordance with § 538-x-10-.04(10).

Confirmation of Laboratory Testing Capabilities: In alignment with § 538-x-10-.04(6), each STL selected to perform required testing on behalf of Applicant's facility will be capable of performing the following tests pursuant to the protocols and corresponding tolerance limits for each applicable stage of testing: 1) Cannabinoid content and potency, including, but not limited to, all of the following: total THC (THC + THCA); total CBD (CBD + CBDA); THC/CBD ratio, if applicable; and percent of THC relative to original plant material (w/w), as well as any minor cannabinoids present in the sample, if applicable; 2) Terpene Profiles; 3) Heavy Metals; 4) Chemical contamination, such as residual solvents remaining after extraction and concentration; 5) Microbials, including pathogenic microbials; 6) Mycotoxins;

License Type: Processor

7) Residual pesticides (insecticides, fungicides, herbicides, and growth inhibitors/regulators) used during cultivation; and 8) Any testing protocols required by the current minimum standards established by the AMCC, made available on the AMCC website.

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

Testing Required for In-Process Medical Cannabis & Crude Resins

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

- Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

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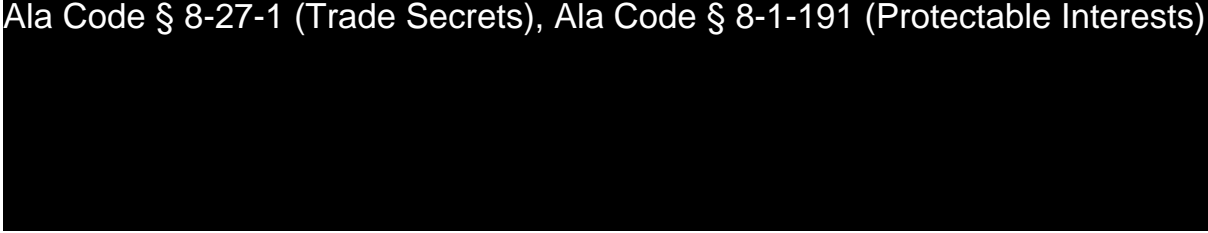
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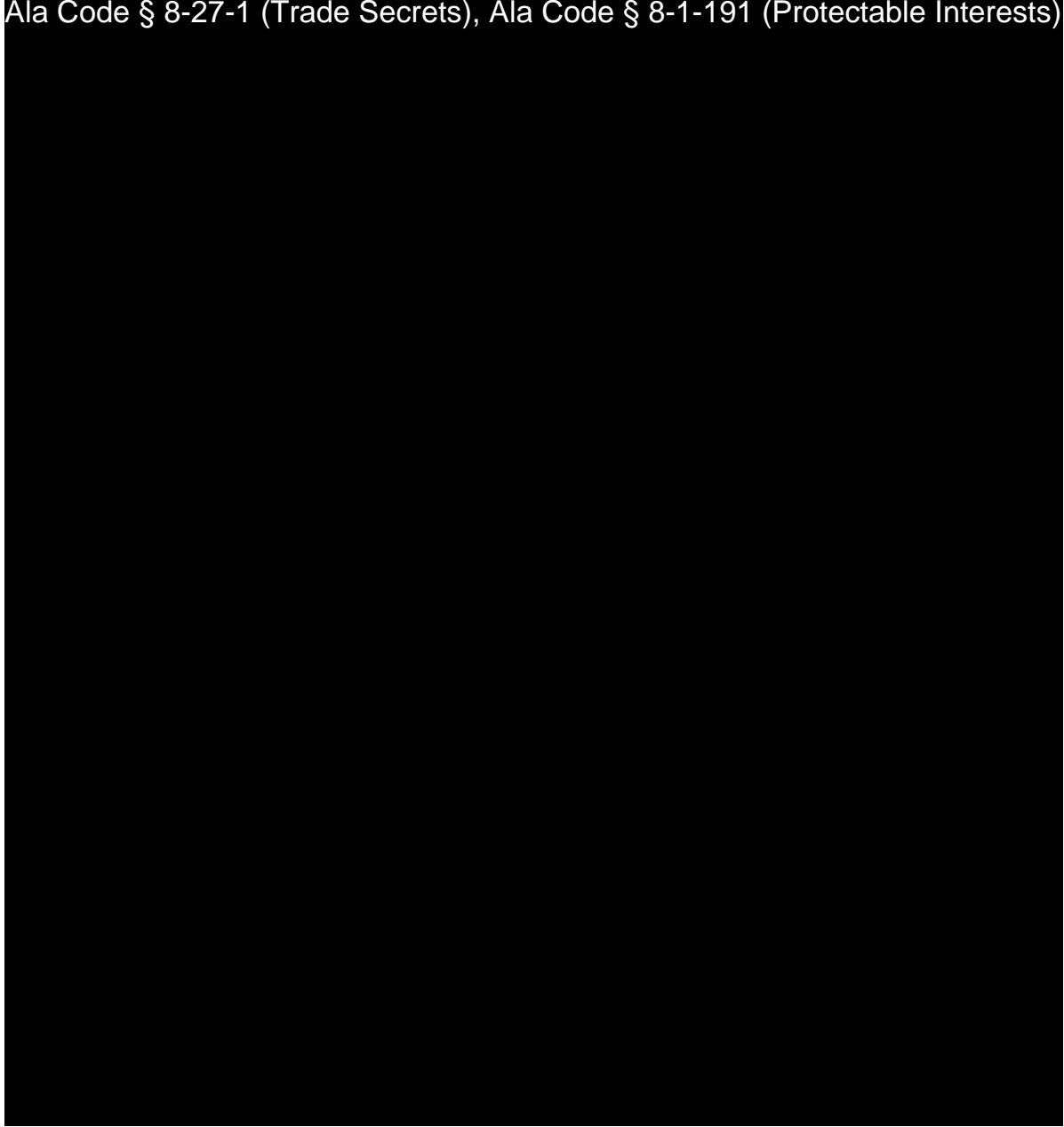
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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)


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In-House Material Testing and Sampling

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Tests to be Conducted at each Stage of Production

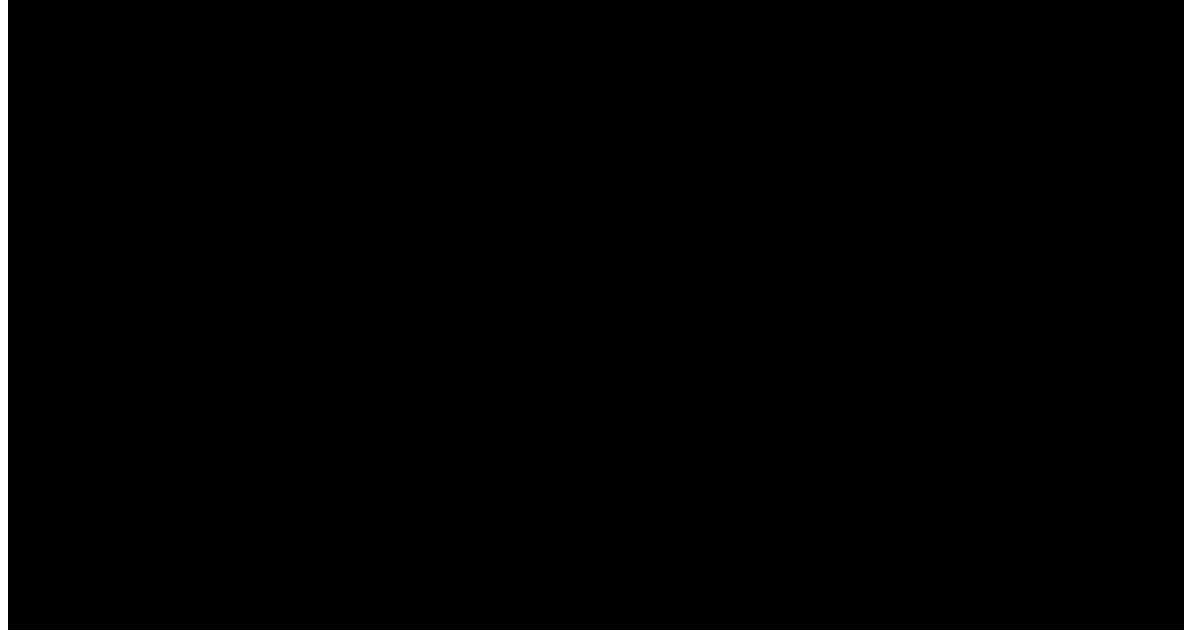
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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Samples, Testing Protocols and Training

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



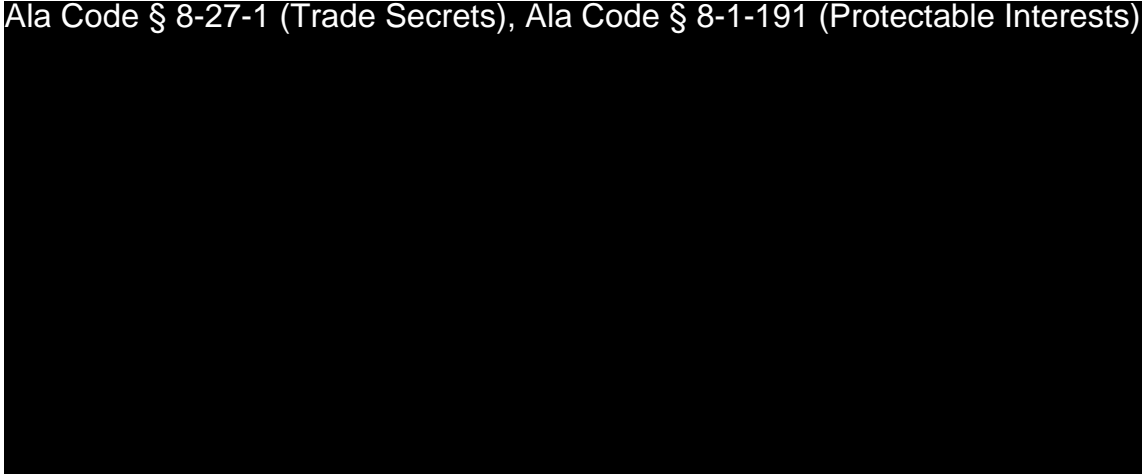
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

1. Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

2.

3.

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

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4. Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

5.

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- i. Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



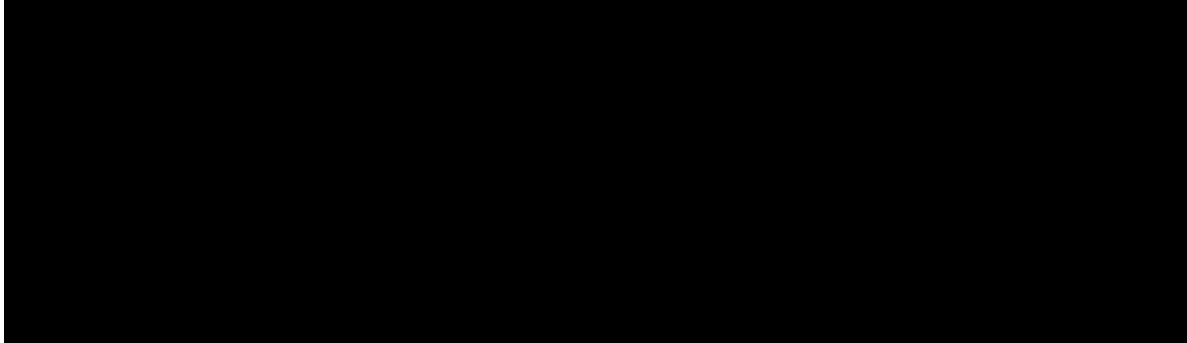
Storage of Samples Batches and Quarantining During Testing Period

- Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



- 1. Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

- 2.



3. Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

4.

Applicant acknowledges that the facility may request a retest as often as it likes, but will not challenge the STL's test results more than three times in a one-year period, pursuant to § 538-x-10-.08(7), unless the challenge is successful, in which it will not count toward the three times. Pursuant to § 538-x-10-.08(8), Applicant also understands that the cost of requesting a retest or challenge, or seeking new testing following remediation will be the responsibility of the Applicant.

Return of any Failed Test Samples

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Remediation of any Failed Test Samples

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Remediation Process For Raw Cannabis Oil

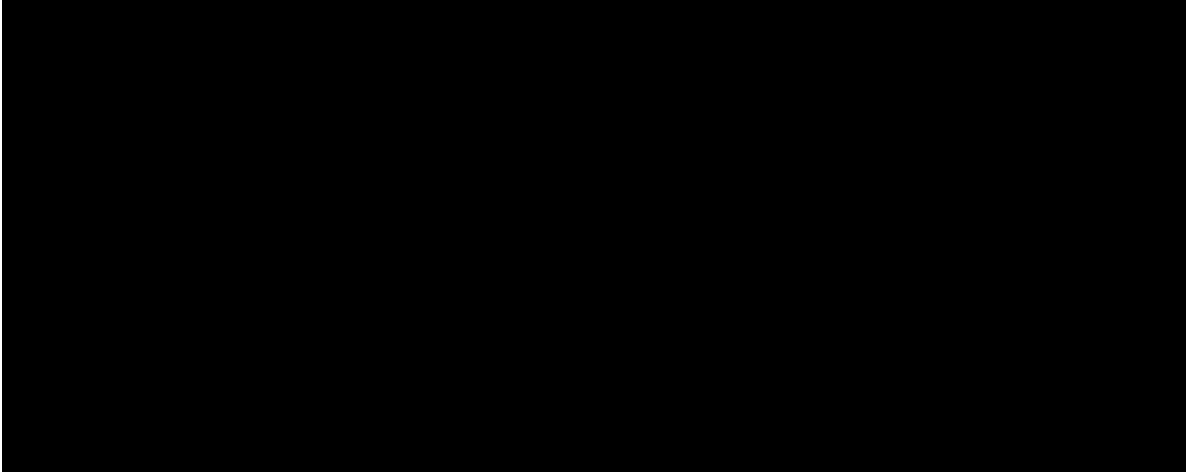
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)




Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



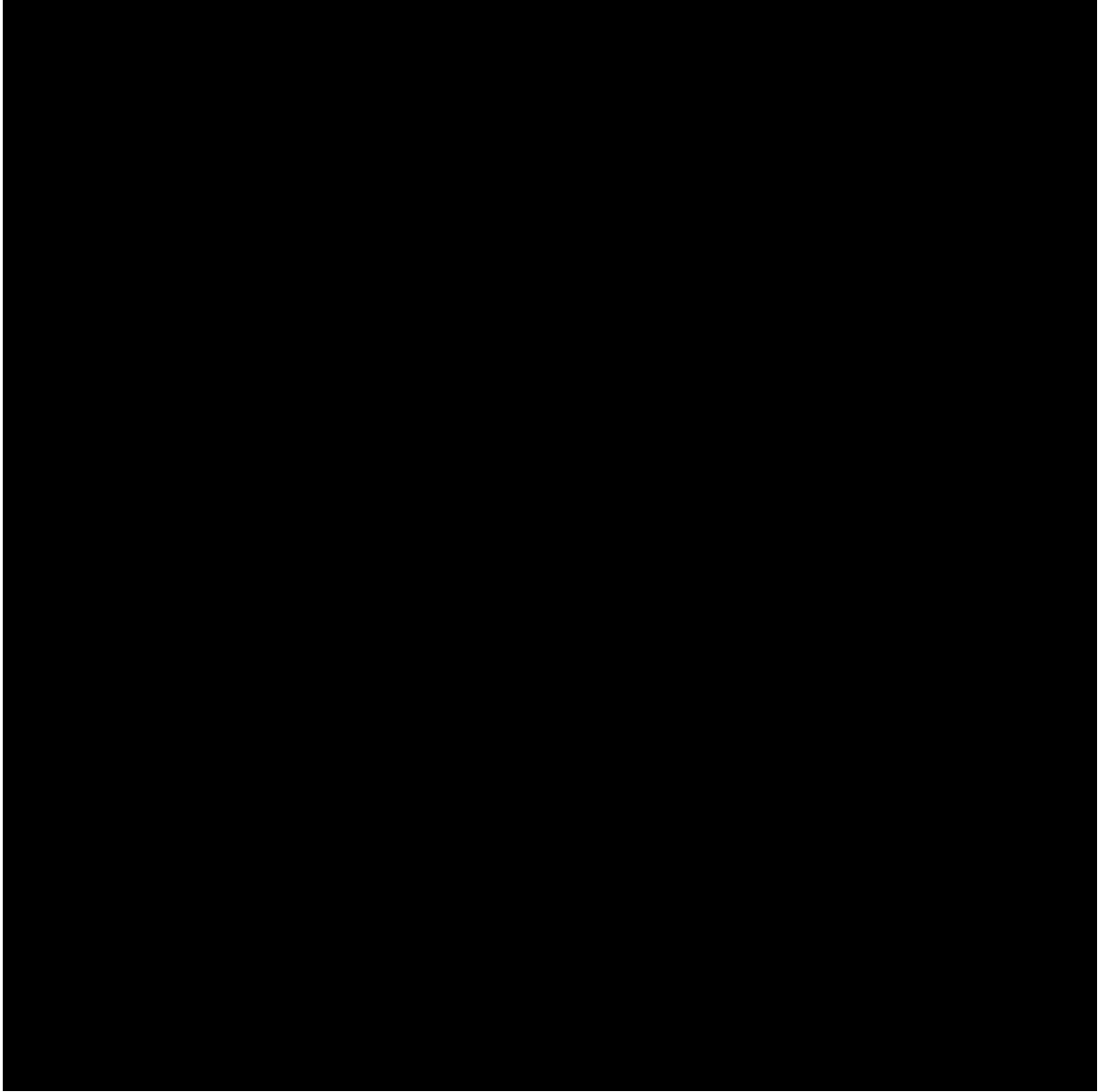
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Destruction of any Failed Test Samples

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Entry on Statewide Seed-to-Sale Tracking System

In accordance with § 538-x-10-.04(14), Applicant will require the STL to file an electronic copy of the test results with the AMCC for any batch that does or does not pass the required testing at the same time that it transmits those results to Applicant. Applicant will maintain test results for a minimum of two years, keeping these records electronically for up to six years, in accordance with § 538-x-4-.05(1).

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



REDACTION INDEX

Ala Code § 36-12-40 (Security Exemption) – The verifying signature has been redacted pursuant to the “security or safety of persons” exemption contained in the Alabama Public Records statute. Signatures, if left unredacted, may be forged and used for innumerable illicit purposes.

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Furthermore, the applicant believes the identified information to be confidential and if disclosed would give advantage to competitors because the material is related to the applicant’s planning, site location, expansion, operations, product development and marketing. Because this information can be used to recruit appropriate personnel, locate a site, finance and undertake the operation and go to market, the disclosure of this information would allow new competitors to enter the market to compete against the Company. In addition, the disclosure of this information would also allow existing competitors to potentially optimize the manufacture of their products and/or create similar products to the applicant causing grave economic harm to the owners of this information.

Finally, the applicant claims the marked material marked is exempt from disclosure as the mere formulation of the words and descriptions of processes could prove successful in competitive, multi-million-dollar merit-based medical marijuana application processes similar to Alabama. Permitting any of this marked application language to be publicly released would substantially reduce the intrinsic value of the applicant’s business – allowing anyone in the public to appropriate the processes, methods, and standard operating procedures that the applicant employs or will employ.

Application Number 1632

Exhibit 22 - Contamination and Recall Plan

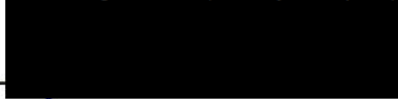
Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

Jason Cobb

Printed Name of Verifying Individual

Ala Code § 36-12-40 (Security Exemption)



Signature of Verifying Individual

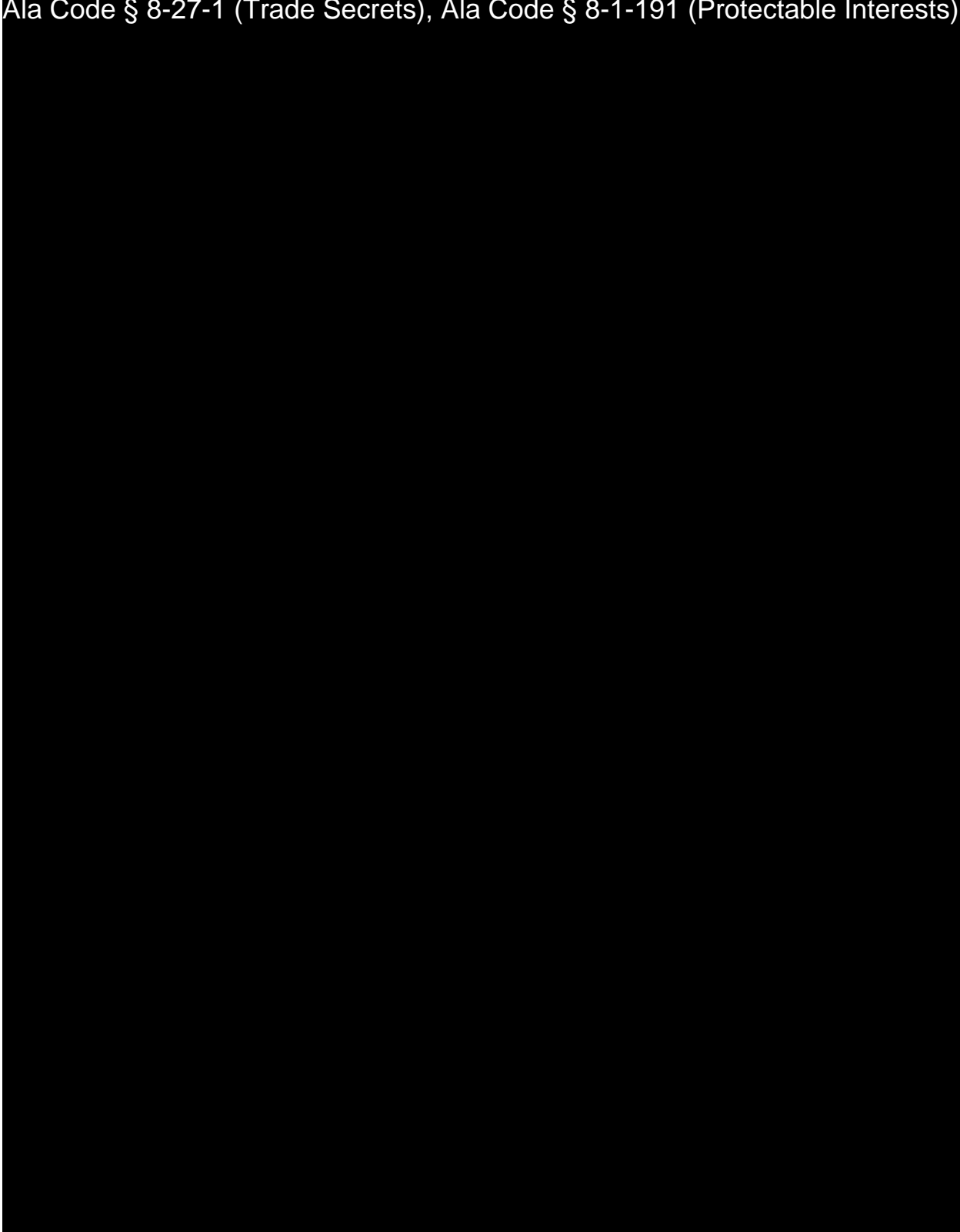
CEO

Title of Verifying Individual

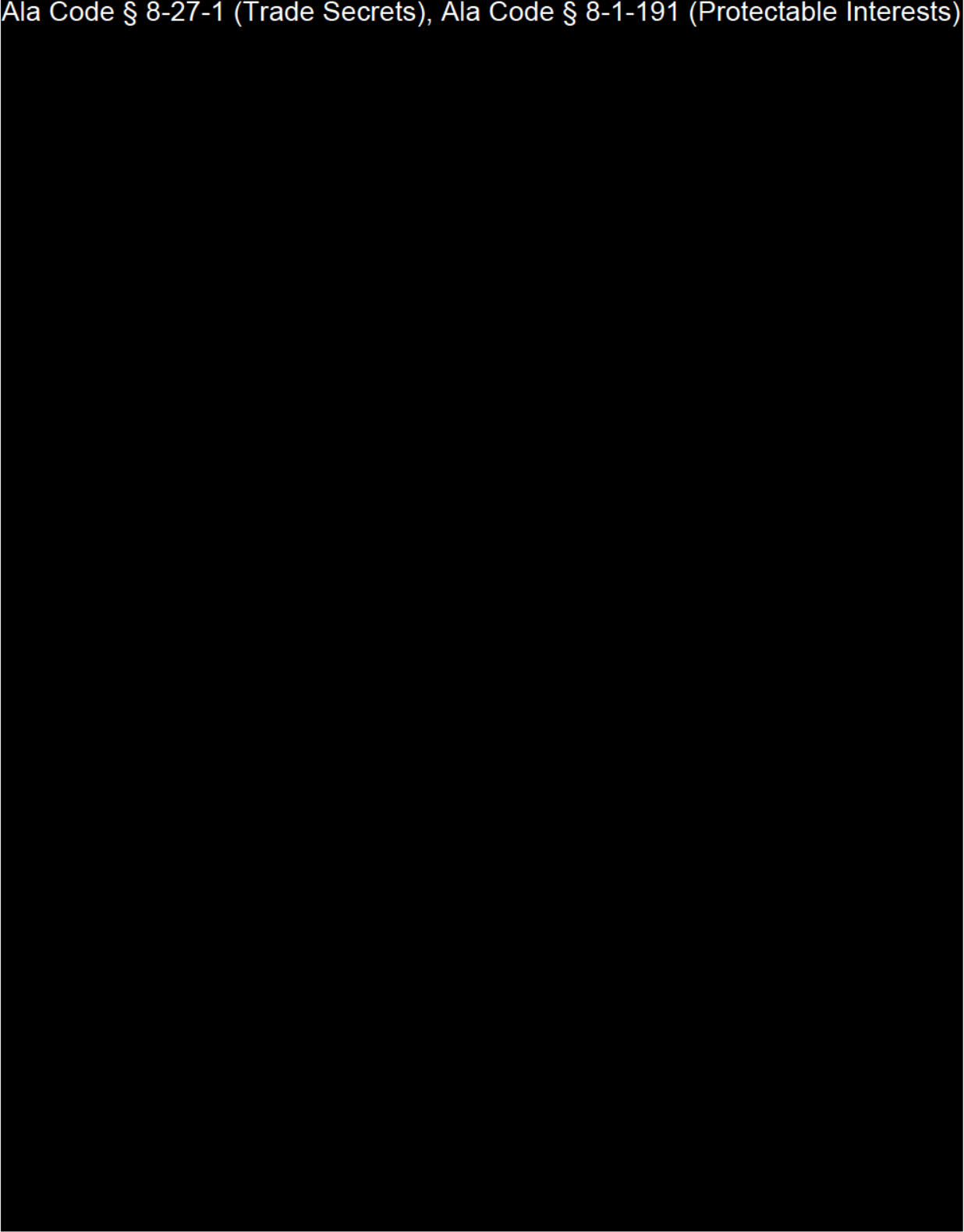
12/30/2022

Verification Date

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



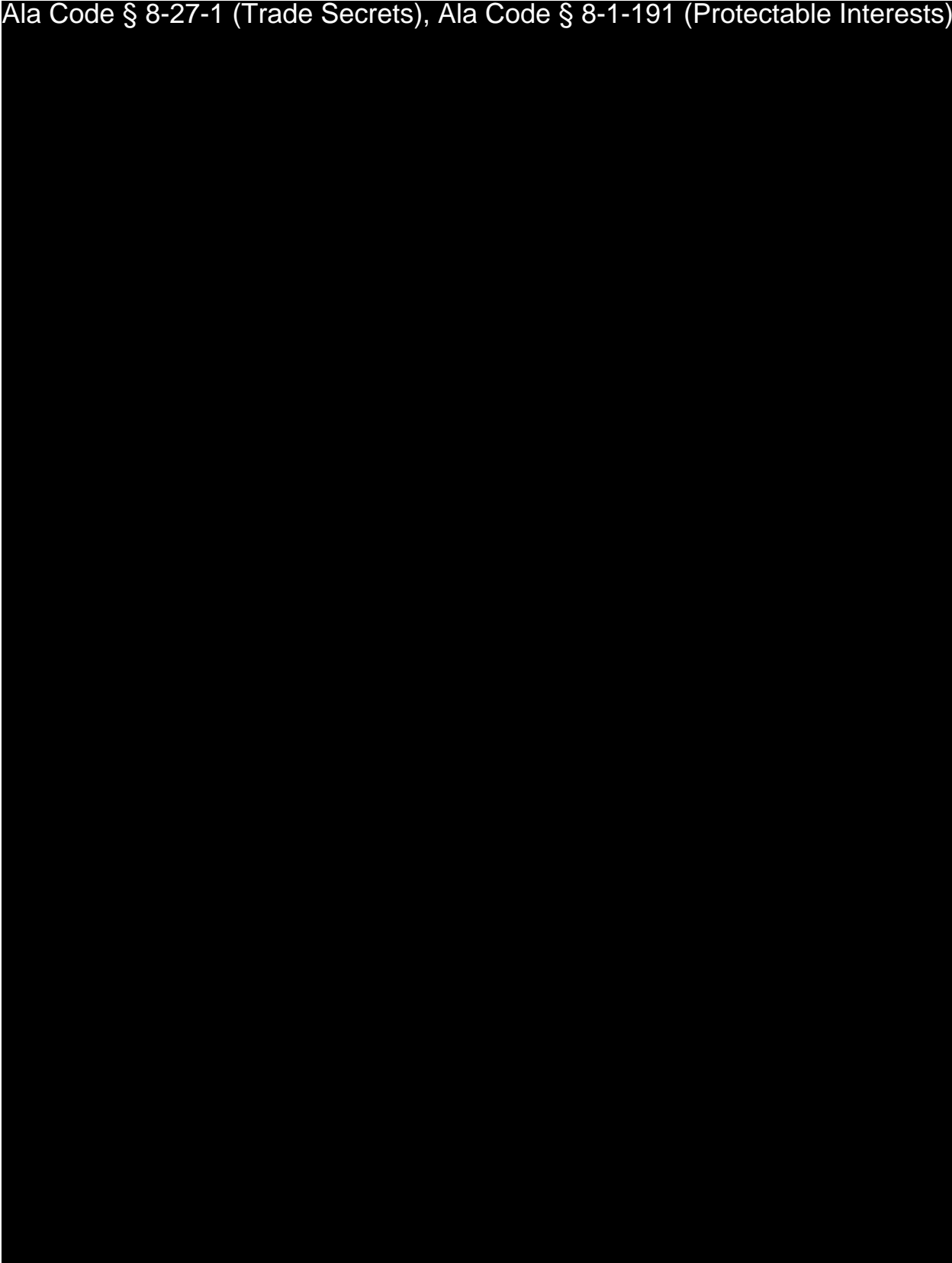
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



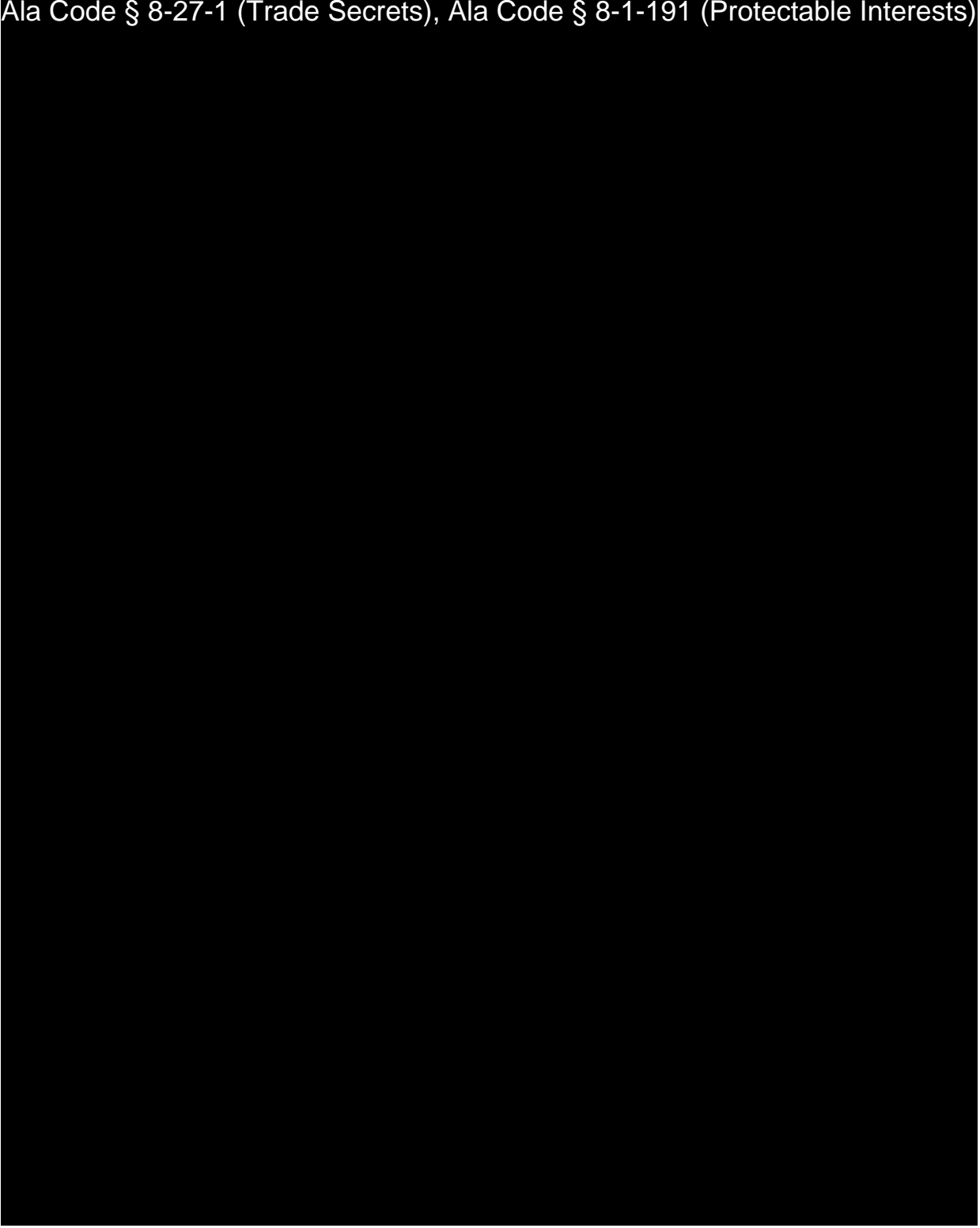
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



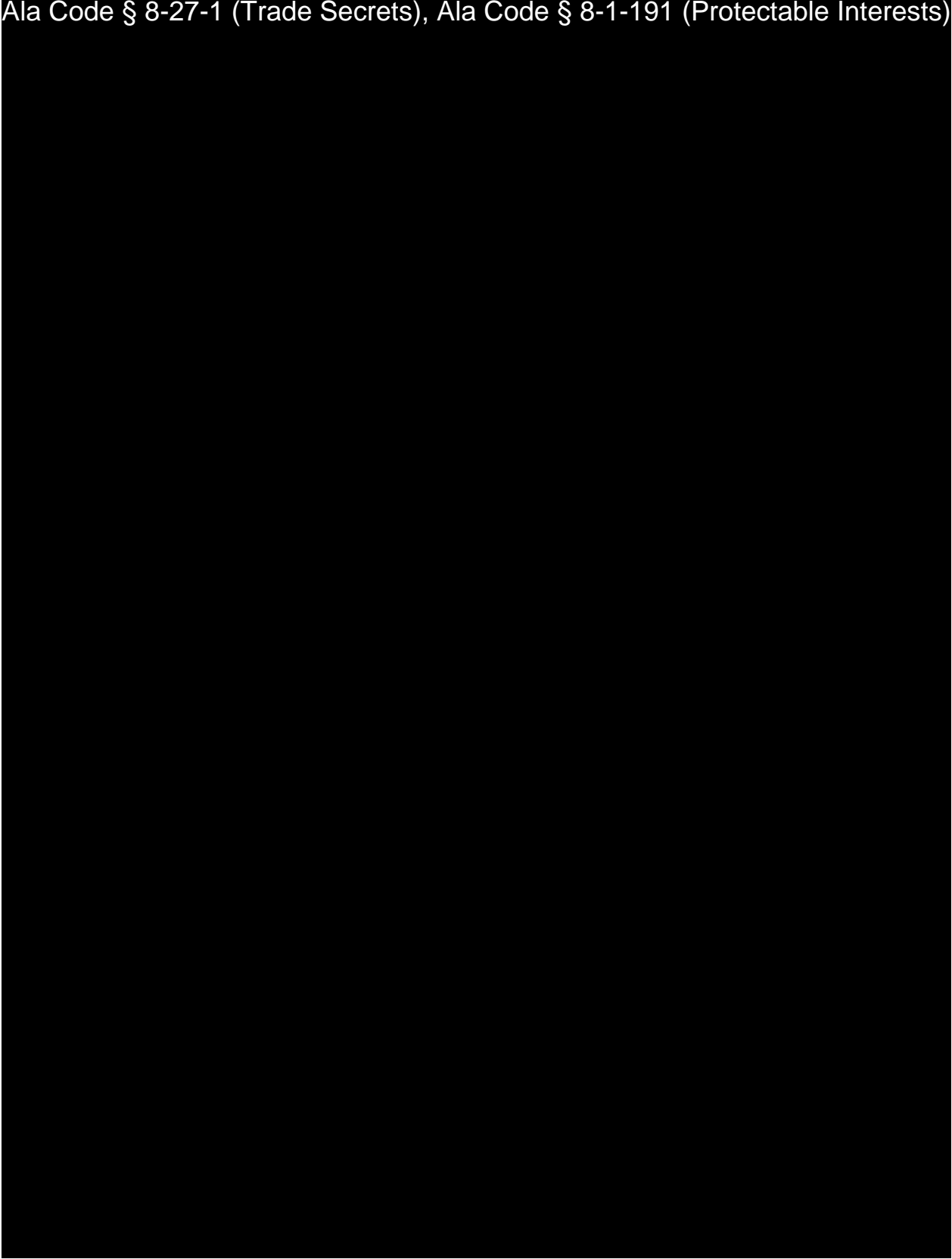
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



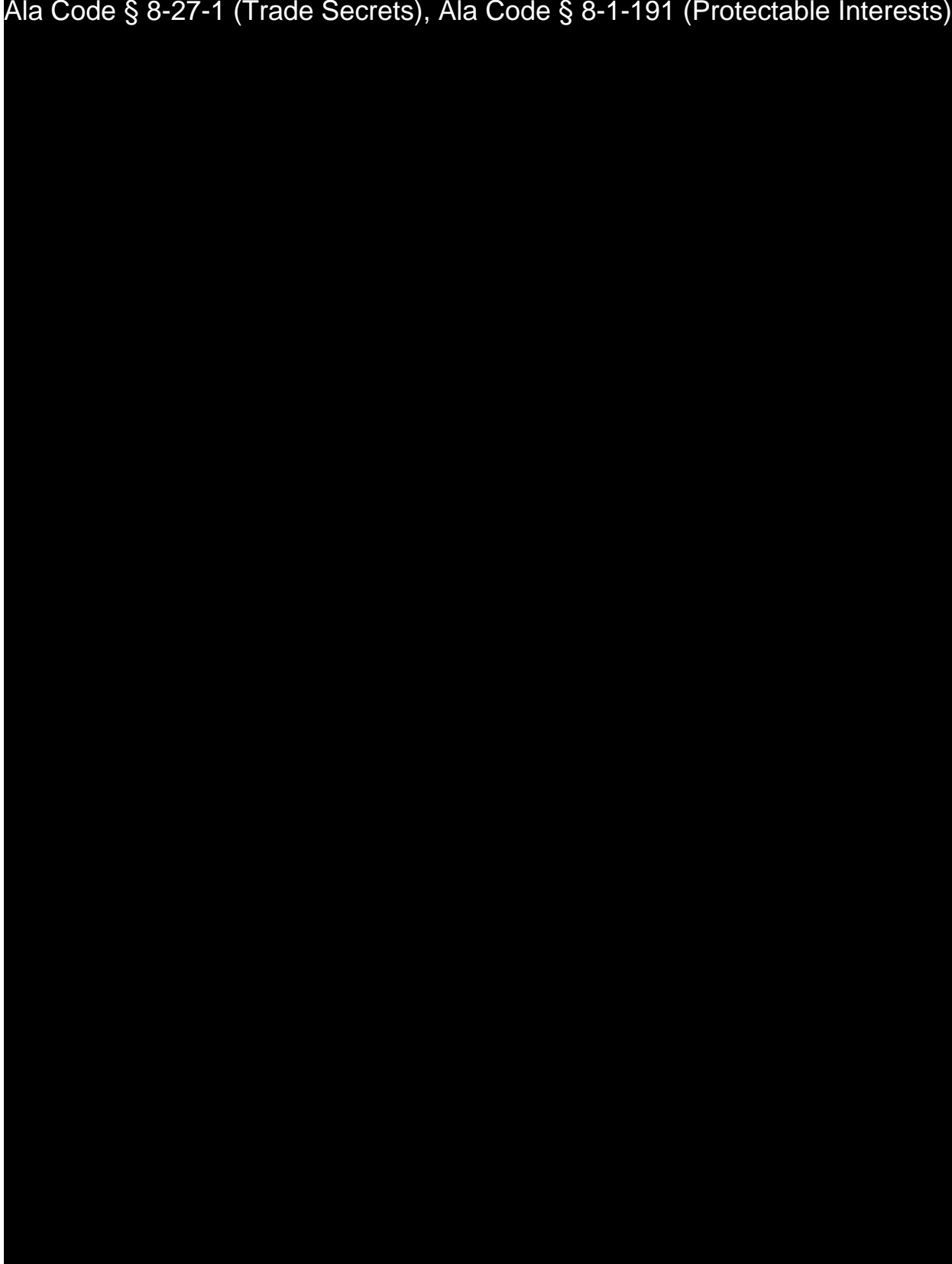
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



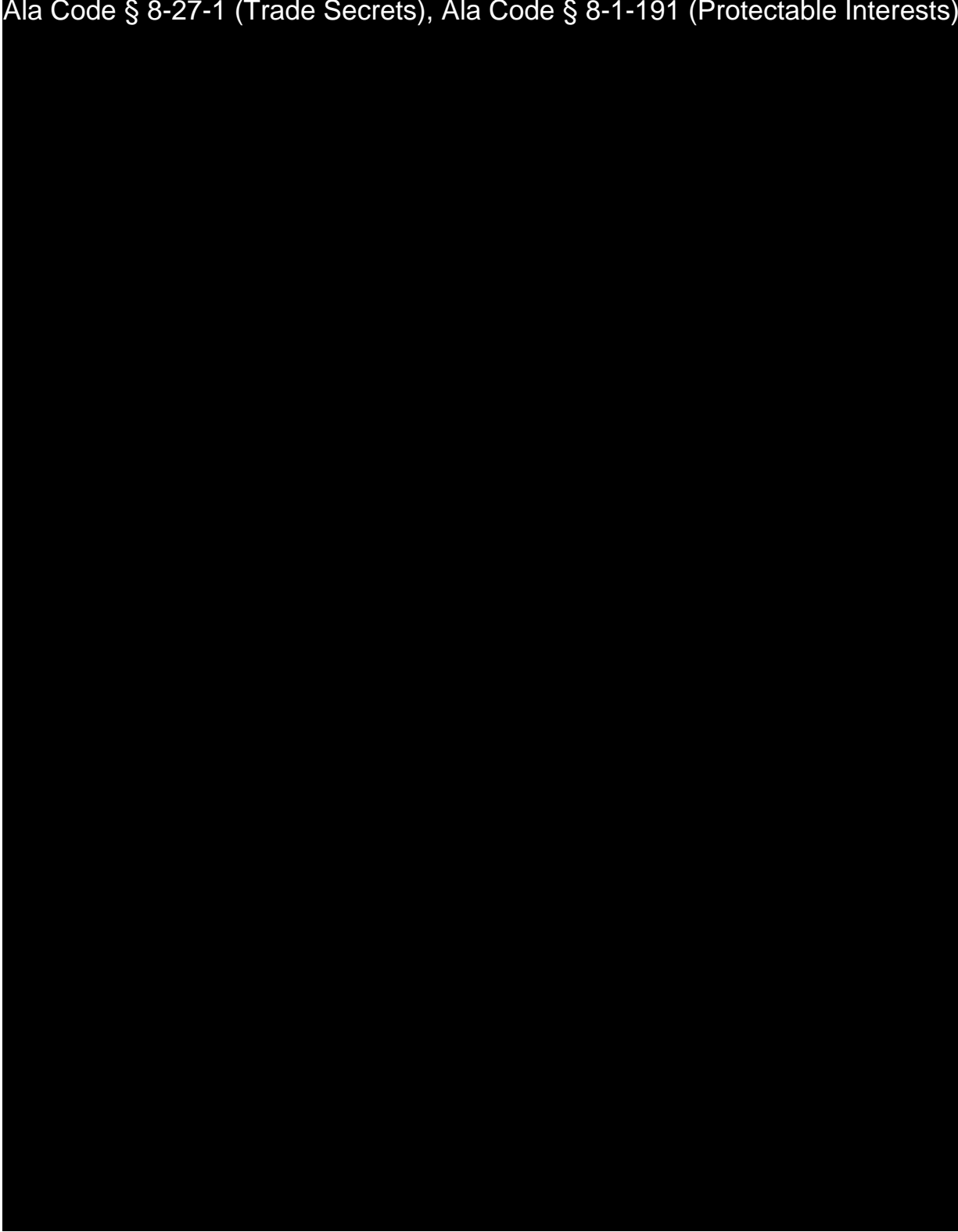
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



REDACTION INDEX

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License Type: Processor

Application Number 1632
Exhibit 23 – Marketing and Advertising Plan

Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

Jason Cobb

Printed Name of Verifying Individual

Ala Code § 36-12-40 (Security Exemption)

Signature of Verifying Individual

CEO

Title of Verifying Individual

12/30/2022

Verification Date

Introduction

Applicant shares the Alabama Medical Cannabis Commission’s (“AMCC”) interest in ensuring that its marketing and advertising efforts do not encourage, promote, or otherwise create any impression that cannabis is legal, therapeutic, or beneficial, except as specifically authorized by the AMCC and the Act, in alignment

Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interests)

Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interests)

Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interests)

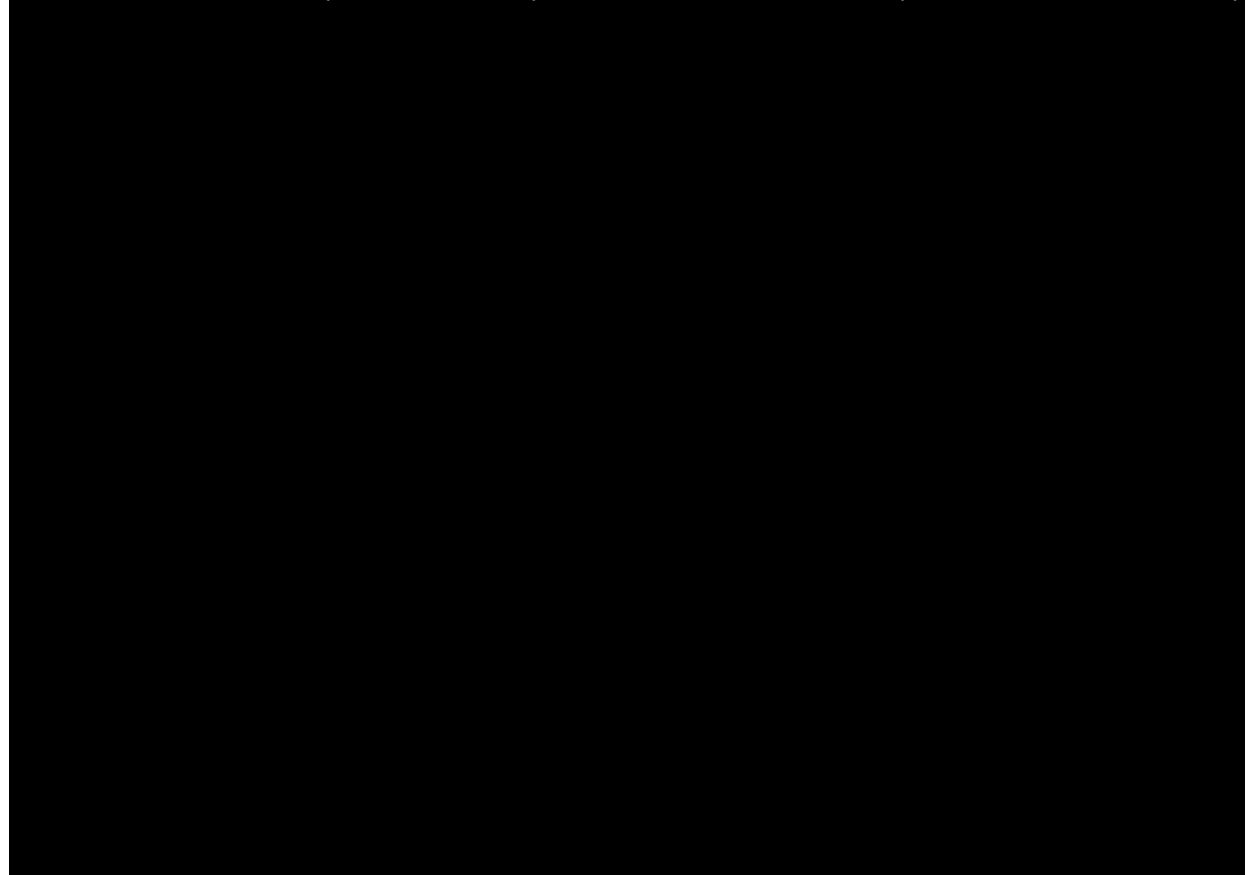
the Alabama Medical Cannabis Commission (“AMCC”).

23.1:

Applicant understands that the AMCC has developed a formal process for obtaining proposed marketing and advertising materials from Applicant. Further, Applicant acknowledges that the AMCC will require 14 days to review submitted names, logos, signs, advertisements and/or other marketing campaigns or programs, pursuant to § 538-x-4-.17(4). In alignment with § 538-x-4-.17(3),

Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interests)

Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interests)



materials are subsequently determined to have violated any provision of the AMCC regulations, Applicant will rescind the advertising/marketing materials and resubmit revised materials to the AMCC for further approval. All artwork, advertisements, and communications described herein will be free of the following, in compliance with § 538-x-4-.17(6)(h): 1) False or misleading statements; 2) Names other than Applicant's business name, an approved dba or the registered name of the medical cannabis or related products; 3) Illustrations and depictions of cannabis plants, with the exception of images located on Applicant's website (for website visitors 19 years of age or older) or for use in patient education materials inside a dispensing site; 4) Slang terms and similar references, including words or depictions directly or indirectly referring to, unlicensed uses of cannabis; 5) Disparagement of a competitor's products; 6) Obscene, indecent, or profane statements or depictions; and 7) Statements as to the health benefits or therapeutic benefits of cannabis or medical cannabis, and statements as to the safety or efficacy of cannabis or medical cannabis unless supported by substantial clinical data.

Proposed Logo, Artwork and Branding

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

A large black rectangular redaction box covering the content of the proposed logo, artwork, and branding.

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

A large black rectangular redaction box covering the content of the proposed logo, artwork, and branding.

1. References to, or any images, bearing a resemblance to a cartoon character or of any individual (actual or fictional) more than fifteen percent (15%) of whose audience is, or should be reasonably anticipated to be, composed of minors;
2. Direct or indirect suggestions or references to relationships with edibles (including candy, cookies, brownies, cakes, and the like) or beverages
3. Suggestions or indications that the product or entity in the advertisement has been approved or endorsed by the Commission, the State of Alabama or any person, entity or agency associated with the State of Alabama;
4. Materials that market, distribute, offer, sell, license, or cause to be marketed, distributed, offered, sold, or licensed, any apparel or other merchandise related to the sale of medical cannabis;
5. Designs or other presentational effects that are commonly used to target minors;
6. Advertisements that are inconsistent with the medicinal and approved use of medical cannabis; and
7. Suggestions for the use of medical cannabis for a condition other than a qualifying medical condition.

Ala Code § 8-1-191 (Protectable Interests), Ala Code § 8-27-1 (Trade Secrets)



Proposed Marketing Communication and Messaging

Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interests)



License Type: Processor

Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interests) This may include, but is not limited to brochures, promotional and other marketing materials. Applicant will ensure that any advertisement created for the facility's products will not appeal to minors.

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

Proposed Digital Advertising: Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interests)

Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interests)

Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interests) Advertising to be included on Applicant's website will comply with § 538-x-4.17(2) and 538-x-4.17(6) and will be subject to review by the AMCC upon licensure.

23.2

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



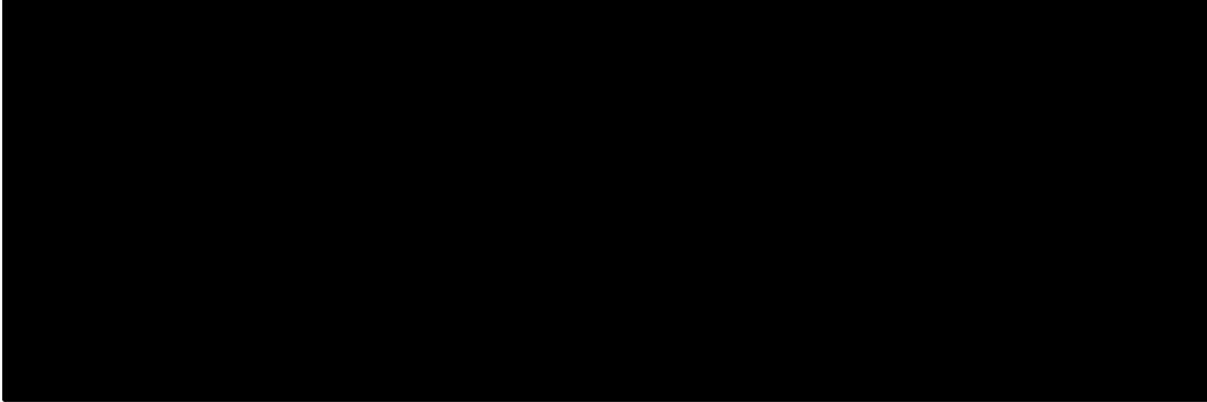
23.3 – The identity of any media outlet or third-party individual or entity who is projected to play any role in the Applicant’s marketing or advertising efforts, and copies of all contracts or contract forms proposed for use, if any, between itself and such media outlet or third-party individual or entity.

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

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Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

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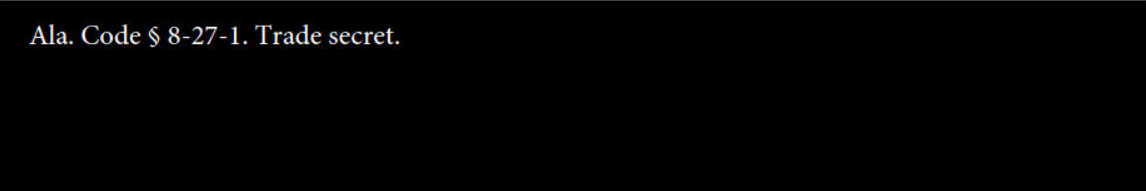
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



23.4 - Virtual renderings of all packaging to be provided by the Applicant, demonstrating the size, color, logo, artwork, or statements appearing on the packaging, as well as all 34 child-resistant, tamper-evident, or other safety features, demonstrating conformity with the Act and the AMCC Rules.

In accordance with § 538-x-6.06(3)(g)(4), Applicant designed all proposed packaging in compliance with § 538-x-6.05(1).

Description of Packaging Vendor



Ala. Code § 8-27-1. Trade secret.

Ala. Code § 8-27-1. Trade secret.

Renderings

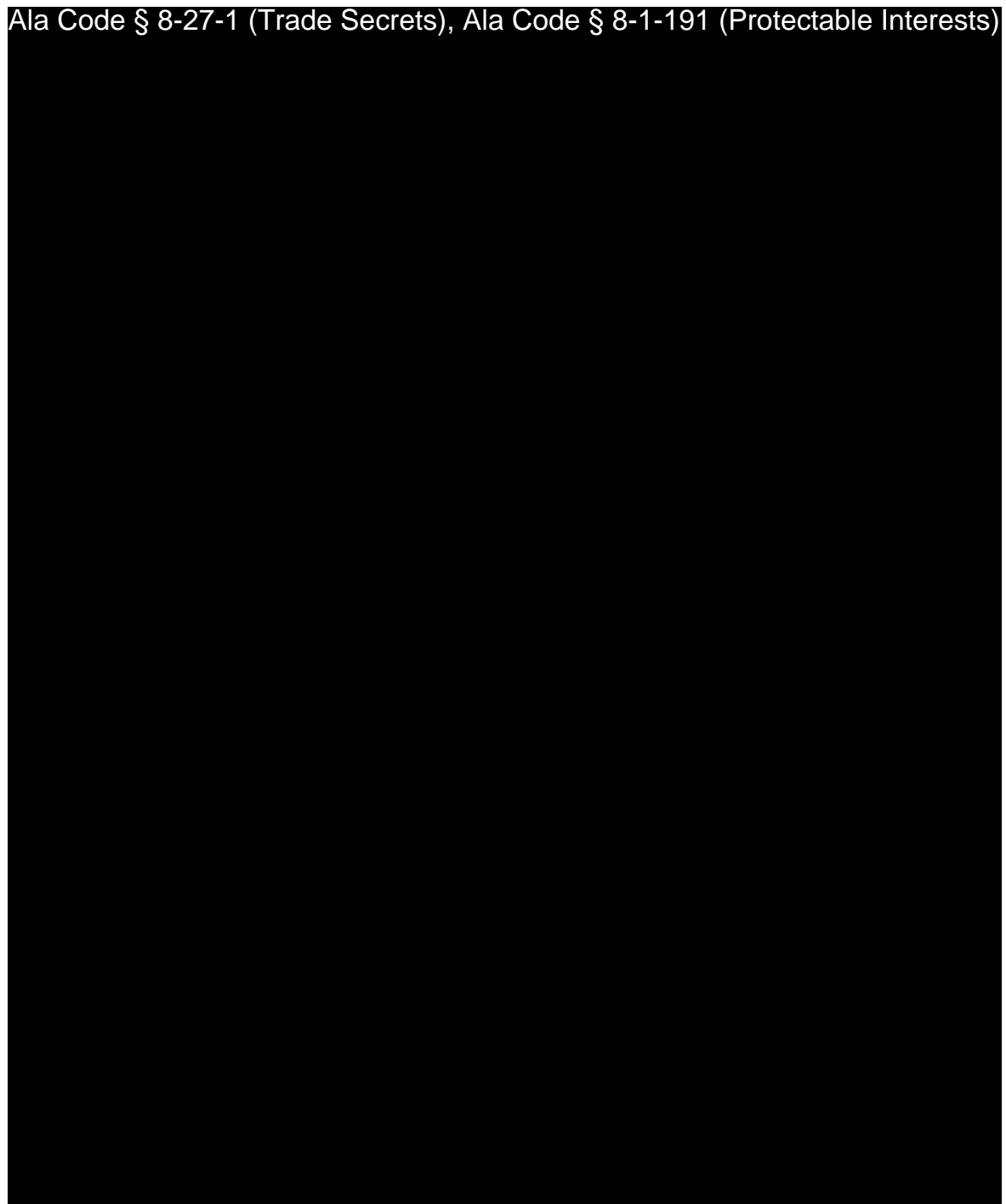
The following packaging renderings demonstrate the size, color, logo, artwork and required statements to appear on the packaging.

Packaging Rendering Examples

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



23.5 - Exemplars of all proposed labeling, including labels on packaging, on containers and any inserts to be included in any packages, demonstrating conformity with the Act and the AMCC Rules.

Pursuant to § 538-x-6.06(3)(g)(5), Applicant developed the following proposed label samples, including labels to appear on packaging and containers as well as inserts to be included in packages. Packaging and all associated inserts to be included in packages will

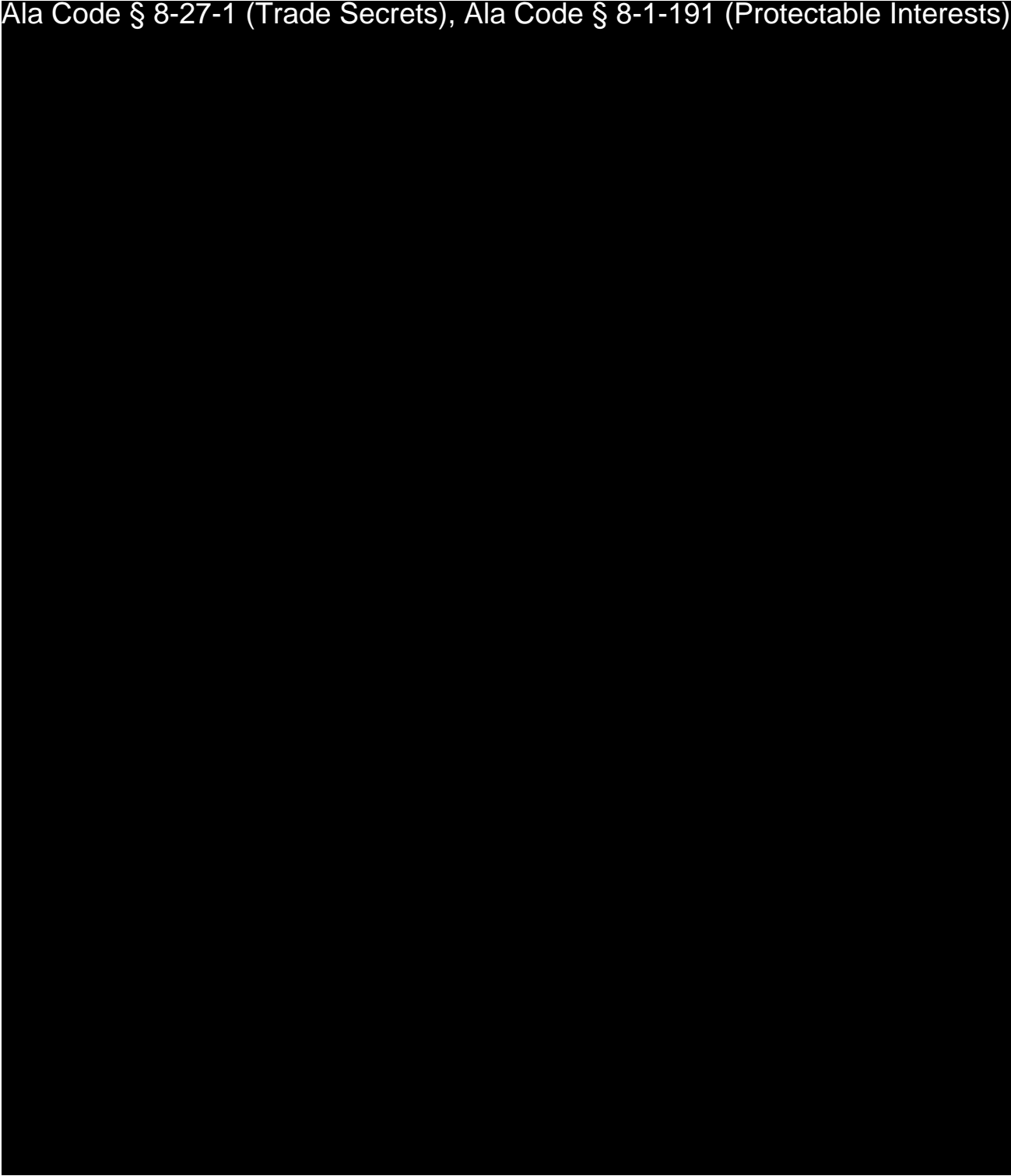
be free of statements, designs, representations, illustrations, or any other form of communication that depicts a cannabis plant or any part of a cannabis plant, in compliance with § 538-x-4-.17(6)(h)(3). All proposed labels included herein have been developed in alignment with the Act and AMCC Rules, specifically § 538-x-6-.05(2)(a), which states labels must be securely attached to or imprinted on the accompanying packaging and clear and contain print of a size and quality so as to be legible to the average patient or caregiver with a sixth-grade education. Each label will have required components of the label described in § 538-x-6-.05(2) including, but not limited to, all warning statements, cannabis testing information, identification of originating facilities, state tracking information, and the universal symbol for Alabama. Finally, Applicant will ensure packaging and labels are not attractive to minors, and that all artwork and logos used throughout the packaging and labeling designs will not be printed for use until approved by the AMCC for use, pursuant to § 538-x-4.17(3).

Product-Specific Container Labels

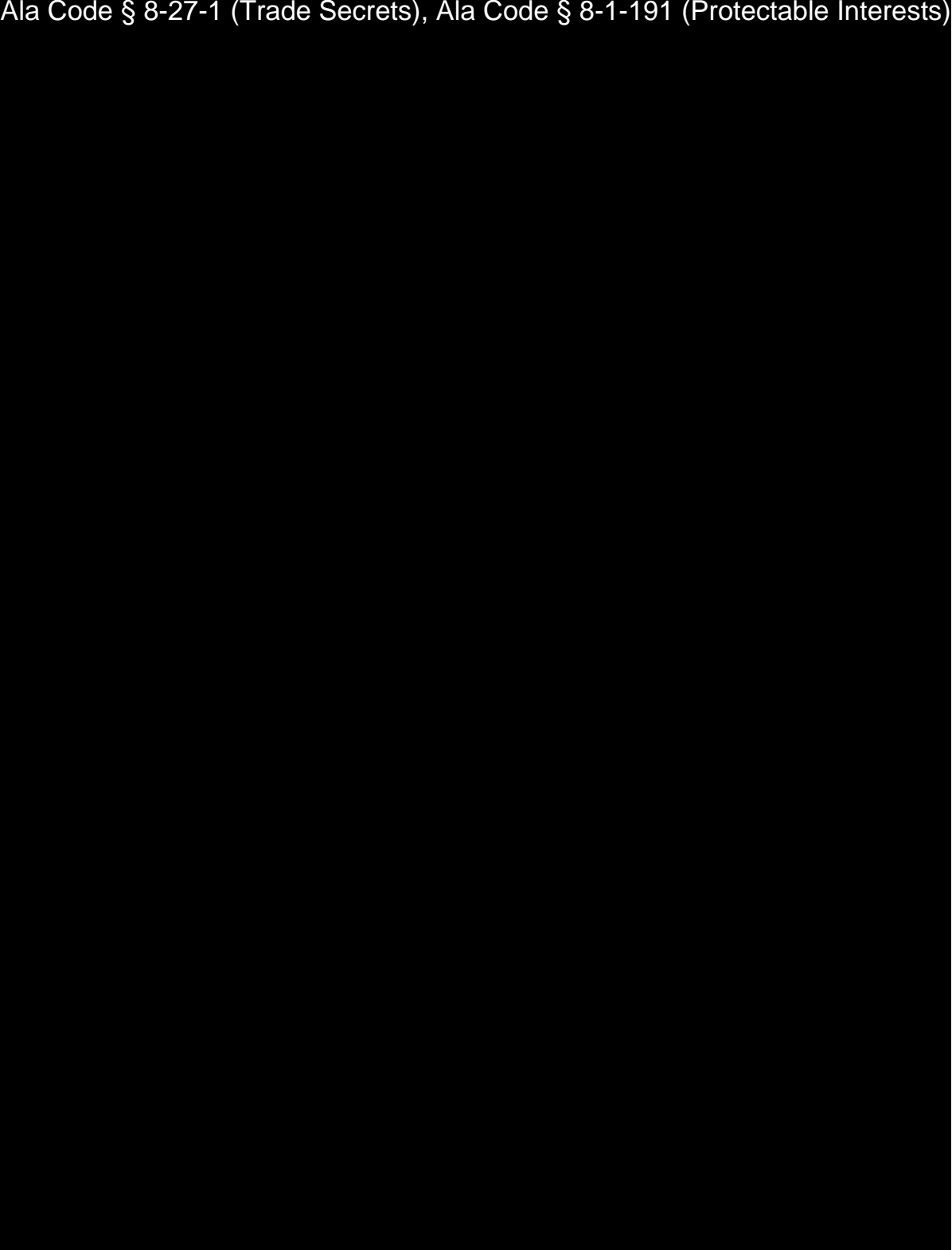
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



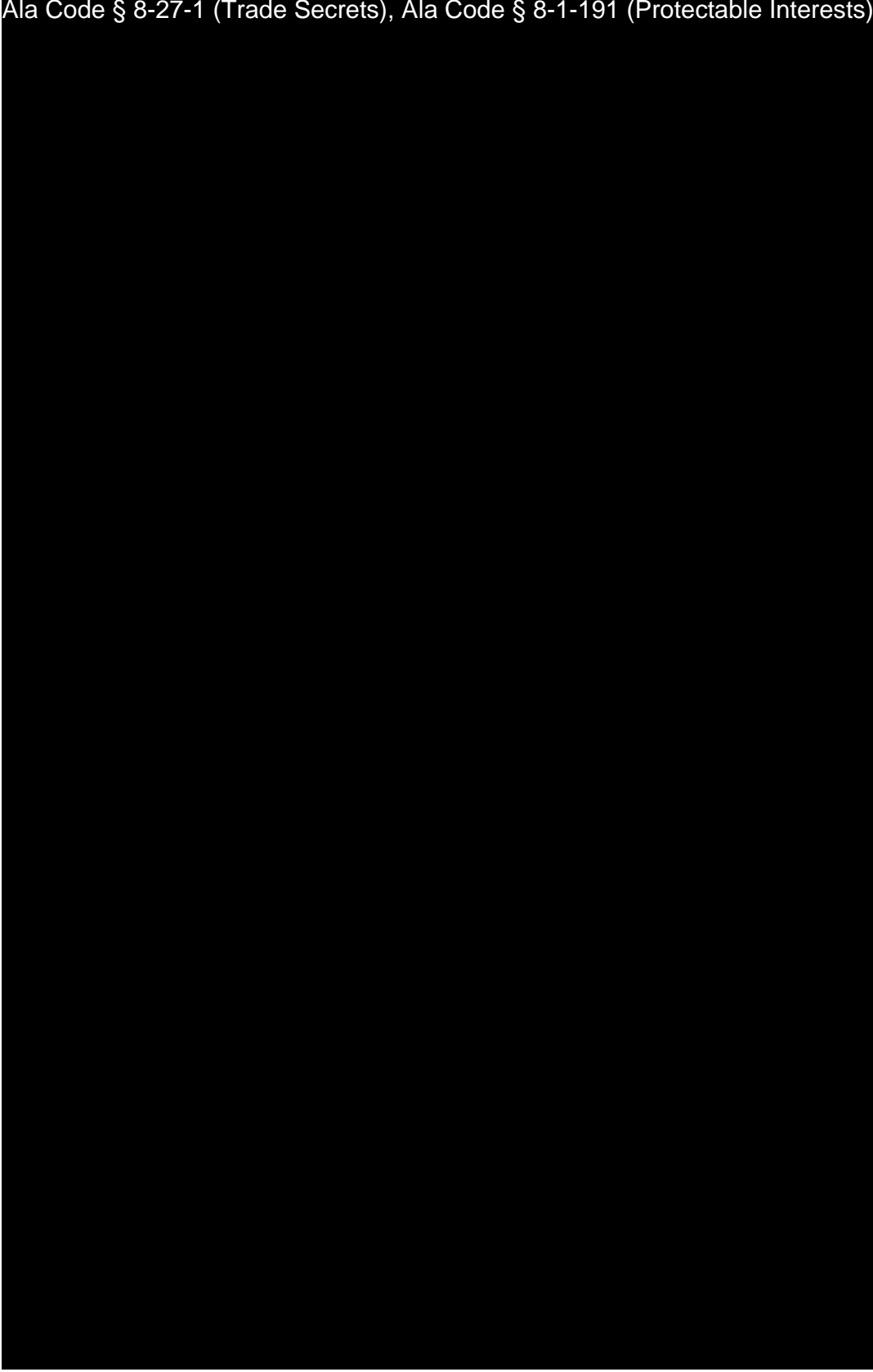
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



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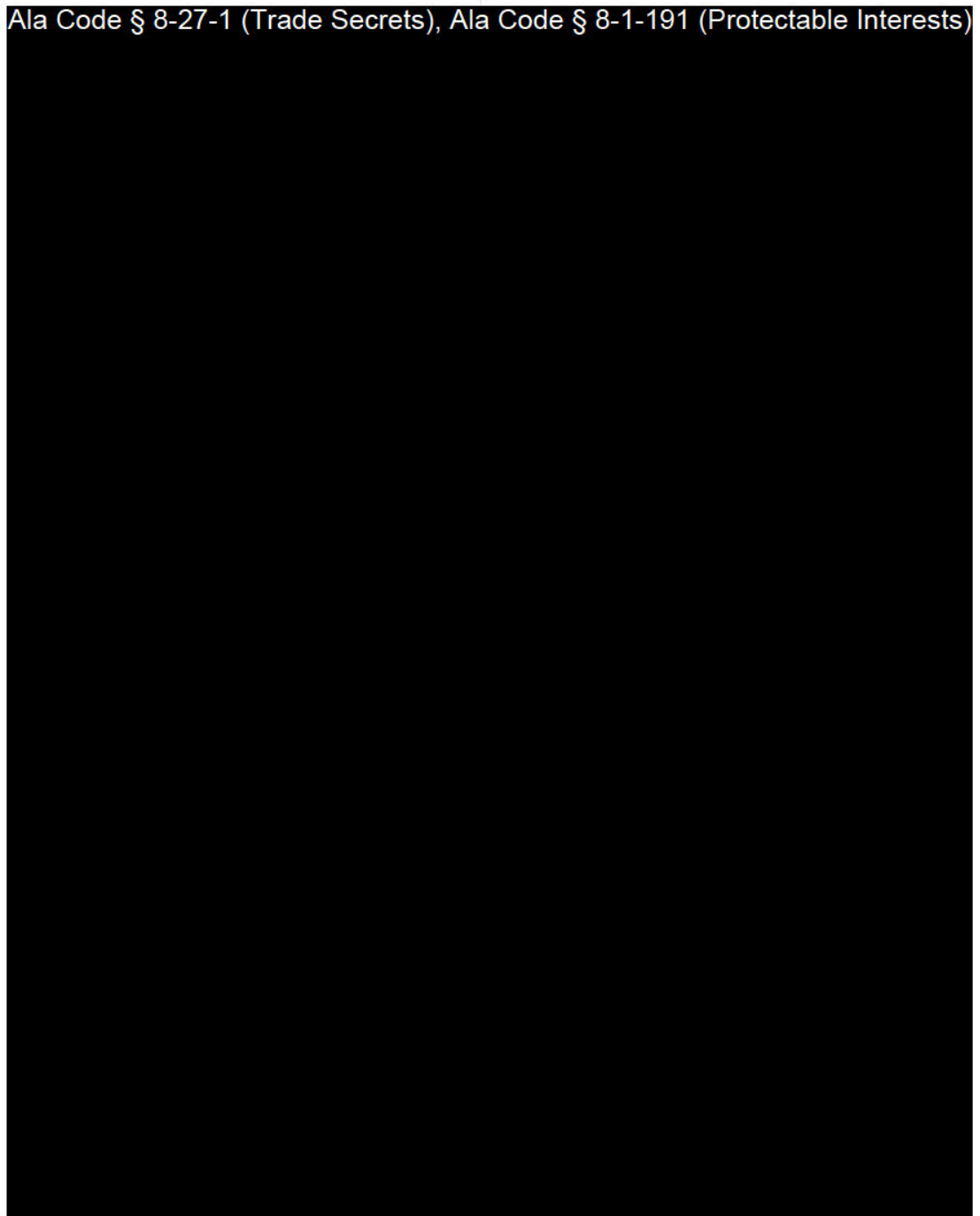


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



License Type: Processor

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



REDACTION INDEX

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Application Number 1632
Exhibit 24 - Website and Social Media

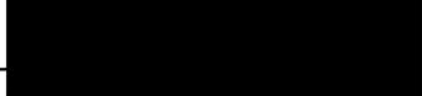
Verification

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Jason Cobb

Printed Name of Verifying Individual

Ala Code § 36-12-40 (Security Exemption)



Signature of Verifying Individual

CEO

Title of Verifying Individual

12/30/2022

Verification Date

24.1 – A complete site map of each website owned or operated by the Applicant.**Web Address**

Applicant has secured the domain www.organicharvestlab.com for the proposed cannabis business. The domain was purchased on 11/29/2021 on GoDaddy.com and Applicant owns the domain for 1 year.

Description and Purpose of Website

Applicant will create a user-friendly, age-restricted website that informs Alabama patients about the proposed Processing Facility and its focused mission in the industry. In accordance with § 538-x-4-.17(4) and 538-x-4-.17(7)(d), all content created for Alabama patients that is displayed on Applicant's website will first be submitted to the AMCC for review. The website will include recent information regarding medical cannabis and its efficacy to relieve symptoms of specific medical conditions. Pursuant to § 538-x-4-.17(7), the website will be designed to educate patients about the location of the facility, the quality products offered by the facility and will provide the following information:

- Name and business address of the Processing Facility;
- Contact information for the facility, contact@organicharvest.com; and
- Services provided by the licensee.

The website will be enabled for mobile use as well, allowing visitors to view hours of operation or the address of the location. The website will shed light on Applicant's professional personnel, state-of-the-art facility, product selection, and availability. Pursuant to § 538-x-4-.17(7)(a), Applicant's website will not allow for direct engagement between or among consumers or consumer-generated content including but not limited to consumer reviews or testimonials. The website will not be used to transact business or facilitate sales of medical cannabis or any other materials to consumers or other businesses. Applicant understands that the medical cannabis industry is an evolving area of governance which is why the website will be reviewed at least weekly to ensure compliance with the Act and AMCC rules. Applicant acknowledges that it may seek or obtain direct patient feedback and may share unsolicited comments made by consumers to the Applicant, so long as the content of the statement does not violate any prohibitions of this Rule.

Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Visual Site Map

Applicant has developed the following site map illustrating the pages Applicant will have active in the Company's, at a minimum, within one month of license award:

Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interests)



Age Verification

License Type: Processor

Applicant acknowledges the importance of understanding and adhering to § 538-x-4-.17, pertaining to cannabis product marketing, advertising and website presence. Applicant will hold an online presence through a Company website and social media platforms. In order to maintain full compliance with age-restriction requirements, Applicant will require the individual to confirm age verification of 19 or older on the Company website prior to entry to or viewing of any landing page.

Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interests)



Visitors to the website must confirm they are over the age of 19 by entering their date of birth before being permitted to enter the website. From there, visitors can visit web pages to learn more about the facility and its service offerings. Social media presence will prominently display “Age-restricted 19+ Content Only” and will not be publicly available for anyone to engage with. Any internet listings that Applicant engages with will also be required to have an adequate age verification landing page wall comparable to the Applicant’s website. In accordance with § 538-x-4-.17(7), the website presence will not provide a medium for website users to transmit content to minors, nor will the website target a consumer group with a high likelihood of reaching or appealing to minors.

24.2 – The web address of each webpage, social media page, or other online site owned or operated by the Applicant.

Company Website

The web address of each webpage described within 24.1 are as follows:

Page Title	URL
Home Page	www.organicharvestlab.com/homepage
About	www.organicharvestlab.com/about
Our Story	www.organicharvestlab.com/ourstory
Method of Extraction	www.organicharvestlab.com/methodofextraction
Products	www.organicharvestlab.com/products
Menu	www.organicharvestlab.com/menu
Dispensary Finder	www.organicharvestlab.com/dispensaryfinder
Team	www.organicharvestlab.com/team
Leadership Team	www.organicharvestlab.com/leadershipteam
Careers	www.organicharvestlab.com/careers
Contact	www.organicharvestlab.com/contact
Get in Touch Form	www.organicharvestlab.com/getintouchform

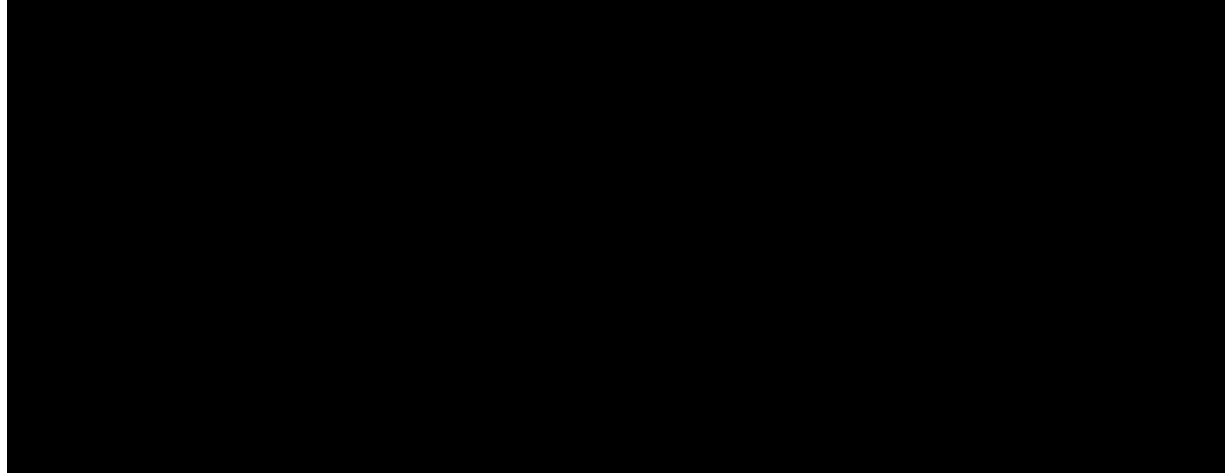
Selected Social Media Pages

Applicant will utilize social media for patient outreach and education, aiming to increase awareness and understanding of Alabama's medical cannabis program. In accordance with § 538-x-4-.17(5)(c), social media outlets and platforms will not be used to advertise medical cannabis or any related products. Applicant will provide the AMCC with a copy of the proposed Social Media Advertising Plan, in alignment with § 538-x-4-.17(4), to ensure

License Type: Processor

compliance in its digital strategy. Applicant has selected the following social media platforms for business purposes:

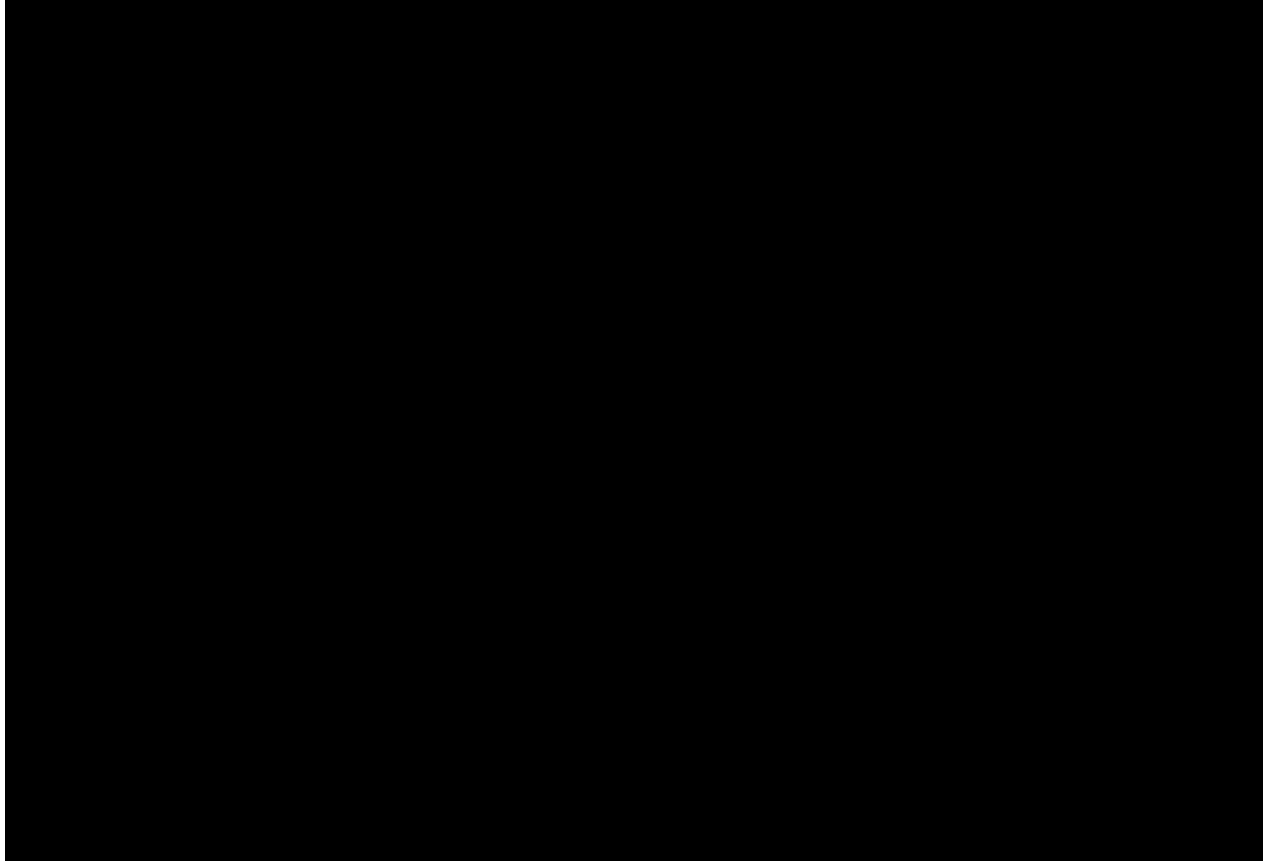
Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interests)



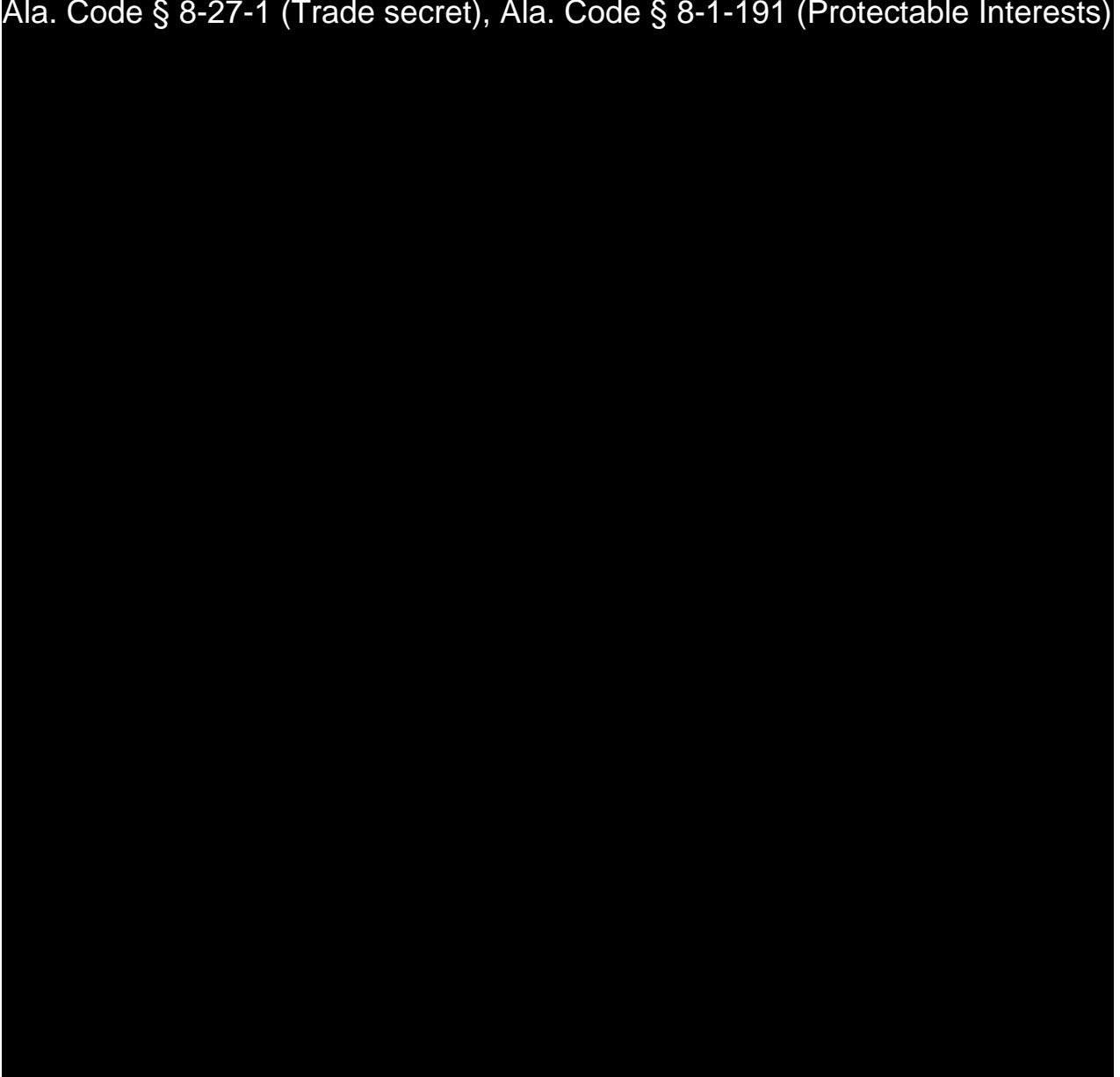
Social Media Page Images

The following images illustrate Applicant's intended social media presence as of time of Application submission:

Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interests)



Ala. Code § 8-27-1 (Trade secret), Ala. Code § 8-1-191 (Protectable Interests)



REDACTION INDEX

Ala Code § 36-12-40 (Security Exemption) – The verifying signature has been redacted pursuant to the “security or safety of persons” exemption contained in the Alabama Public Records statute. Signatures, if left unredacted, may be forged and used for innumerable illicit purposes.

Ala Code § 8-27-1 (Trade Secrets)/Ala. Code § 8-1-191 (Protectable Interests) – This exhibit contains confidential information including, but not limited to, management and marketing plans, business strategy and methodology, business models and data, and company provided files and software. As such, certain portions of this exhibit have been designated as “Protectable Interests” exempt from disclosure. Further, this exhibit contains information that is used or intended for use in a trade or business, included or embodied in a formula, pattern, compilation, computer software, drawing, device, method, technique, or process, and is not publicly known or generally known in the trade or business. The information contained in this exhibit cannot be readily ascertained or derived from publicly available information and has significant economic value to the applicant. As such, certain portions of this exhibit have been designated as “Trade Secrets” exempt from disclosure.

Protectable Interests and Trade Secrets are redacted as the disclosure to any third party would give an unfair advantage to competitors and would result in the loss of rights and cause harm to the owner of this information. In the normal course of business, the owner of this information requires all individuals who view such information to be bound by confidentiality agreements and access to any of this material is extremely limited and on a need-to-know basis only. The owner of this information will take all steps to enforce such confidentiality agreements and will ensure that employees surrender such information upon termination of employment. If such information is disclosed, competitors of the owner of this information in Alabama and in other states will take such information to better compete against the owner of this information in the regulated commercial market.

Furthermore, the applicant believes the identified information to be confidential and if disclosed would give advantage to competitors because the material is related to the applicant’s planning, site location, expansion, operations, product development and marketing. Because this information can be used to recruit appropriate personnel, locate a site, finance and undertake the operation and go to market, the disclosure of this information would allow new competitors to enter the market to compete against the Company. In addition, the disclosure of this information would also allow existing competitors to potentially optimize the manufacture of their products and/or create similar products to the applicant causing grave economic harm to the owners of this information.

Finally, the applicant claims the marked material marked is exempt from disclosure as the mere formulation of the words and descriptions of processes could prove successful in competitive, multi-million-dollar merit-based medical marijuana application processes similar to Alabama. Permitting any of this marked application language to be publicly released would substantially reduce the intrinsic value of the applicant’s business – allowing anyone in the public to appropriate the processes, methods, and standard operating procedures that the applicant employs or will employ.

Application Number 1632

Exhibit FORM I – Ownership Entity Individuals

Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

JASON COBB

CEO

Printed Name of Verifying Individual

Title of Verifying Individual

Ala Code § 36-12-40 (Security Exemption)

3/9/2023

Signature of Verifying Individual

Verification Date

FORM I: OWNERSHIP ENTITY INDIVIDUALS License Type: Processor

"Ownership Entity" – An entity that has any ownership interest in the Applicant.

Complete a separate form for each ownership entity, providing information and verification as to each individual having an indirect or direct ownership interest in the ownership entity. Attach additional forms if necessary.

For purposes of this form, if the ownership entity is a trust, disclose the names and addresses of all trustees and beneficiaries; if a privately held corporation, the names and addresses of all shareholders, officers, and directors; if a publicly held corporation, the names and addresses of all shareholders holding a direct or indirect interest of greater than five percent, officers, and directors; if a partnership or limited liability partnership, the names and addresses of all partners; if a limited partnership or limited liability limited partnership, the names of all partners, both general and limited; or if a limited liability company, the names and addresses of all members and managers.

ORGANIC HARVEST LAB, LLC
Business License Applicant Name

PROCESSOR
License Type

Ownership Entity Information

DAVID FRANK HEWITT
Ownership Entity Name

Ala Code § 8-1-191 (Protectable Interests)
Ownership Entity % Ownership in Applicant

Ownership Entity Type: Trust Privately Held Corporation Publicly Held Corporation
 Partnership Limited Liability Partnership Limited Partnership
 Limited Liability Limited Partnership Limited Liability Company
 Other (specify): INDIVIDUAL

Ownership Entity Owners

DAVID FRANK HEWITT
Owner Name

CONTROLLER
Role

Ala Code § 8-1-191 (Protectable Interests)
% Ownership in Entity

Ala Code § 36-12-40 (Security Exemption)

GRAHAM AL 36263
City State Zip

Owner Name Role % Ownership in Entity

Street Address

City State Zip

FORM I: OWNERSHIP ENTITY INDIVIDUALS License Type: Processor

"Ownership Entity" – An entity that has any ownership interest in the Applicant.

Complete a separate form for each ownership entity, providing information and verification as to each individual having an indirect or direct ownership interest in the ownership entity. Attach additional forms if necessary.

For purposes of this form, if the ownership entity is a trust, disclose the names and addresses of all trustees and beneficiaries; if a privately held corporation, the names and addresses of all shareholders, officers, and directors; if a publicly held corporation, the names and addresses of all shareholders holding a direct or indirect interest of greater than five percent, officers, and directors; if a partnership or limited liability partnership, the names and addresses of all partners; if a limited partnership or limited liability limited partnership, the names of all partners, both general and limited; or if a limited liability company, the names and addresses of all members and managers.

ORGANIC HARVEST LAB, LLC

PROCESSOR

Business License Applicant Name

License Type

Ownership Entity Information

JASON COLLINS COBB

Ala Code § 8-1-191 (Protectable Interests)

Ownership Entity Name

Ownership Entity % Ownership in Applicant

Ownership Entity Type:

- Trust
- Privately Held Corporation
- Publicly Held Corporation
- Partnership
- Limited Liability Partnership
- Limited Partnership
- Limited Liability Limited Partnership
- Limited Liability Company
- Other (specify): INDIVIDUAL

Ownership Entity Owners

JASON COLLINS COBB

CEO

Ala Code § 8-1-191 (Protectable Interests)

Owner Name

Role

% Ownership in Entity

Ala Code § 36-12-40 (Security Exemption)

Street Address

HOMEWOOD

AL

35209

City

State

Zip

Owner Name

Role

% Ownership in Entity

Street Address

City

State

Zip

FORM I: OWNERSHIP ENTITY INDIVIDUALS

"Ownership Entity" - An entity that has any ownership interest in the Applicant.

Complete a separate form for each ownership entity, providing information and verification as to each individual having an indirect or direct ownership interest in the ownership entity. Attach additional forms if necessary.

For purposes of this form, if the ownership entity is a trust, disclose the names and addresses of all trustees and beneficiaries; if a privately held corporation, the names and addresses of all shareholders, officers, and directors; if a publicly held corporation, the names and addresses of all shareholders holding a direct or indirect interest of greater than five percent, officers, and directors; if a partnership or limited liability partnership, the names and addresses of all partners; if a limited partnership or limited liability limited partnership, the names of all partners, both general and limited; or if a limited liability company, the names and addresses of all members and managers.

Organic Harvest Lab, LLC Processor
Business License Applicant Name License Type

Ownership Entity Information

William Rusty Sutterlin Ala Code § 8-1-191 (Protectable Interests)
Ownership Entity Name Ownership Entity % Ownership in Applicant

- Ownership Entity Type:
Trust
Privately Held Corporation
Publicly Held Corporation
Partnership
Limited Liability Partnership
Limited Partnership
Limited Liability Limited Partnership
Limited Liability Company
Other (specify): Individual

Ownership Entity Owners

William Rusty Sutterlin Chief Scientist Ala Code § 8-1-191 (Protectable Interests)
Owner Name Role % Ownership in Entity

Ala Code § 36-12-40 (Security Exemption)

Street Address Hoover AI 35244
City State Zip

Owner Name Role % Ownership in Entity

Street Address
City State Zip

_____ Owner Name	_____ Role	_____ % Ownership in Entity
_____ Street Address		
_____ City	_____ State	_____ Zip

_____ Owner Name	_____ Role	_____ % Ownership in Entity
_____ Street Address		
_____ City	_____ State	_____ Zip

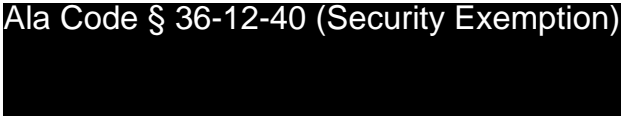
_____ Owner Name	_____ Role	_____ % Ownership in Entity
_____ Street Address		
_____ City	_____ State	_____ Zip

_____ Owner Name	_____ Role	_____ % Ownership in Entity
_____ Street Address		
_____ City	_____ State	_____ Zip

Applicant Verification: The undersigned hereby verifies that the information provided hereinabove (and attached, as necessary) constitutes a complete and accurate list of all individuals with an applicable ownership interest in an ownership entity with an ownership interest in the Applicant.

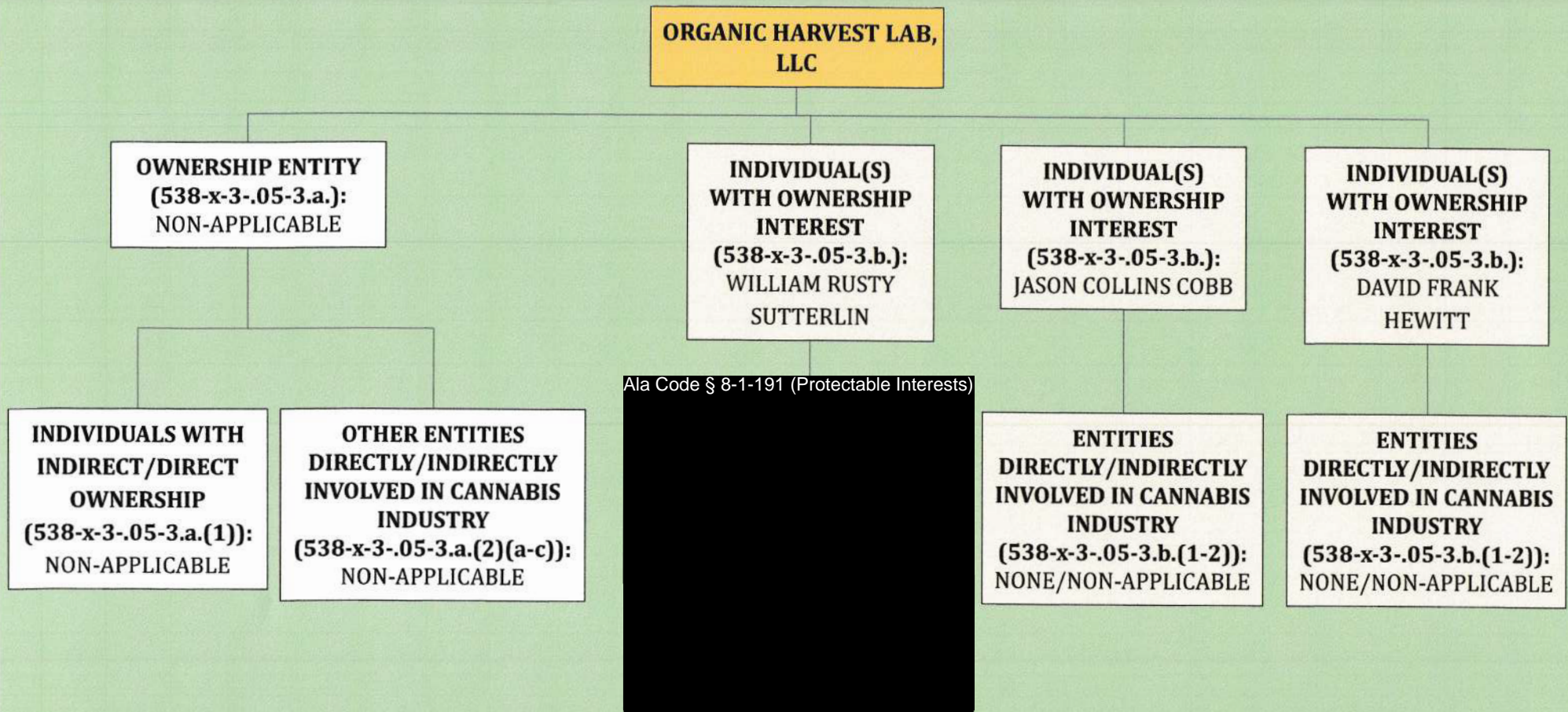
William Rusty Sutterlin
Printed Name of Verifying Individual

Chief Scientific Officer
Title of Verifying Individual

Ala Code § 36-12-40 (Security Exemption)


12/8/2022
Verification Date

OWNERSHIP FLOWCHART — PROCESSOR FACILITY



FORM I: OWNERSHIP ENTITY INDIVIDUALS License Type: Processor

"Ownership Entity" - An entity that has any ownership interest in the Applicant.

Complete a separate form for each ownership entity, providing information and verification as to each individual having an indirect or direct ownership interest in the ownership entity. Attach additional forms if necessary.

For purposes of this form, if the ownership entity is a trust, disclose the names and addresses of all trustees and beneficiaries; if a privately held corporation, the names and addresses of all shareholders, officers, and directors; if a publicly held corporation, the names and addresses of all shareholders holding a direct or indirect interest of greater than five percent, officers, and directors; if a partnership or limited liability partnership, the names and addresses of all partners; if a limited partnership or limited liability limited partnership, the names of all partners, both general and limited; or if a limited liability company, the names and addresses of all members and managers.

ORGANIC HARVEST LAB, LLC	PROCESSOR
Business License Applicant Name	License Type

Ownership Entity Information

ORGANIC HARVEST LAB, LLC	Ala Code § 8-1-191 (Protectable Interests)
Ownership Entity Name	Ownership Entity % Ownership in Applicant

Ownership Entity Type: Trust Privately Held Corporation Publicly Held Corporation
 Partnership Limited Liability Partnership Limited Partnership
 Limited Liability Limited Partnership Limited Liability Company
 Other (specify): _____

Ownership Entity Owners

JASON COLLINS COBB	MANAGING MEMBER	Ala Code § 8-1-191 (Protectable Interests)
Owner Name	Role	% Ownership in Entity
Ala Code § 36-12-40 (Security Exemption)	_____	_____
Street Address		
HOMEWOOD	AL	35209
City	State	Zip

2156 BLACKRIDGE RD	MEMBER	Ala Code § 8-1-191 (Protectable Interests)
Owner Name	Role	% Ownership in Entity
Street Address		
HOOVER	AL	35224
City	State	Zip

License Type: Processor

Ala Code § 8-1-191 (Protectable Interests)

DAVID FRANK HEWITT

MEMBER

Owner Name

Role

% Ownership in Entity

Ala Code § 36-12-40 (Security Exemption)

GRAHAM

AL

36263

City

State

Zip

Owner Name

Role

% Ownership in Entity

Street Address

City

State

Zip

Owner Name

Role

% Ownership in Entity

Street Address

City

State

Zip

Owner Name

Role

% Ownership in Entity

Street Address

City

State

Zip

Applicant Verification: The undersigned hereby verifies that the information provided hereinabove (and attached, as necessary) constitutes a complete and accurate list of all individuals with an applicable ownership interest in an ownership entity with an ownership interest in the Applicant.

JASON COLLIN COBB

CEO - MANAGING MEMBER

Ala Code § 36-12-40 (Security Exemption)

Title of Verifying Individual

12 / 30 / 2022

Verification Date



PRITCHETT-MOORE, INC.

Insurance Program

Organic Harvest Lab, LLC

01/01/2023 – 01/01/2024

ABOUT US

Your business represents a considerable investment of time, effort and money. It warrants the service of a company that can provide a comprehensive analysis of all your risk exposures, offer programs that are competitively priced and extend full protection, safeguarding you from liability exposure.

Our firm affords the kind of quality, attention, and protection your business deserves. Strong relationships with our partners, who specialize in every type of insurance coverage, give us the ability to assume the responsibility of creatively solving the risk issues that are faced in your industry.

Our recommendations are based on a careful analysis of the exposures unique to you and your company. To this end, we have prepared a sound, competitively priced, insurance proposal that addresses your risk and asset management needs.

LOSS CONTROL/RISK MANAGEMENT

A successful Loss Control/Risk Management Program is based on a successful partnership between Pritchett-Moore, you, and your insurance carrier. As a team, we work together to protect you, your business, your assets and to prevent future loss.

We will provide you with technical advice, resources, and assistance in developing, improving and monitoring an effective Loss Control/Risk Management program by:

- Reviewing your current Loss Control/Risk Management program;
- Analyzing loss data to identify specific areas which generate the greatest claim frequency;
- Reviewing your current environment and operations, including your physical assets, personnel practices, and organization of management;
- Conducting visits to all locations to develop a risk profile and to define management and insurance carrier responsibilities;
- Developing, improving, and implementing a Loss Control/Risk Management program with a written plan of expectations. (This program will be consistent with your management style and easily implemented);
- Establishing a meeting schedule to review and discuss safety and loss analysis reports with management and/or staff as required by your insurance carrier.

EMPLOYEE BENEFITS

Pritchett-Moore offers a full range of Employee Benefits that may be tailored to fit the needs of your company. With access to virtually all the major benefit companies in the US, we have the resources, knowledge and experience to help customize your benefits program to include any or all the following:

Group Health Care

Group Life Insurance, Keyman Life, Buy-Sell Agreements

Long and Short-Term Disability

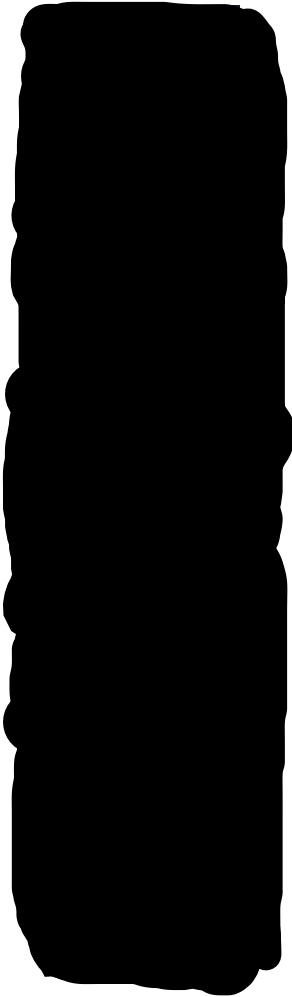
Group Retirement Plans



MEET OUR TEAM

ACCOUNT SERVICE

It is important to us that you receive service that is expected. When billing information, policy changes, certificates of insurance, or any other issues or needs arise, your designated account manager is available at all times to work closely with your team.



Brandon LaBresh

Account Executive

(205)349-6543

blabresh@pritchett-moore.com

Christine Willis

Account Manager

(205)349-6559

cwillis@pritchett-moore.com

Jan Morrison

Claims Manager

(205)349-6565

jmorrison@pritchett-moore.com

CLAIMS MANAGEMENT

At Pritchett-Moore, we take an active role in the management of your claims. Our Service Team is committed to assuring you receive prompt and fair treatment for any claim involving coverage extended by our agency, to you or your company.

Redacted Copy



Pritchett-Moore Insurance, Inc.

To: Alabama Medical Cannabis Commission

Re: Organic Harvest Lab, LLC – Proposal for Insurance Coverage

Please find enclosed a comprehensive insurance program designed for Organic Harvest Lab LLC. The proposed lines of coverage will allow Organic Harvest Lab LLC to transfer the majority of their risk to various A-rated Insurance Companies, most of them specifically created to serve the commercial insurance Cannabis market. The carriers have concluded the underwriting on each quote. The quotes are all bindable with an effective date to be determined, should Organic Harvest Lab LLC be awarded a license by the Alabama Medical Cannabis Commission.

Additional limits of liability are available if the Commission produces more specific insurance requirements.

Regards,

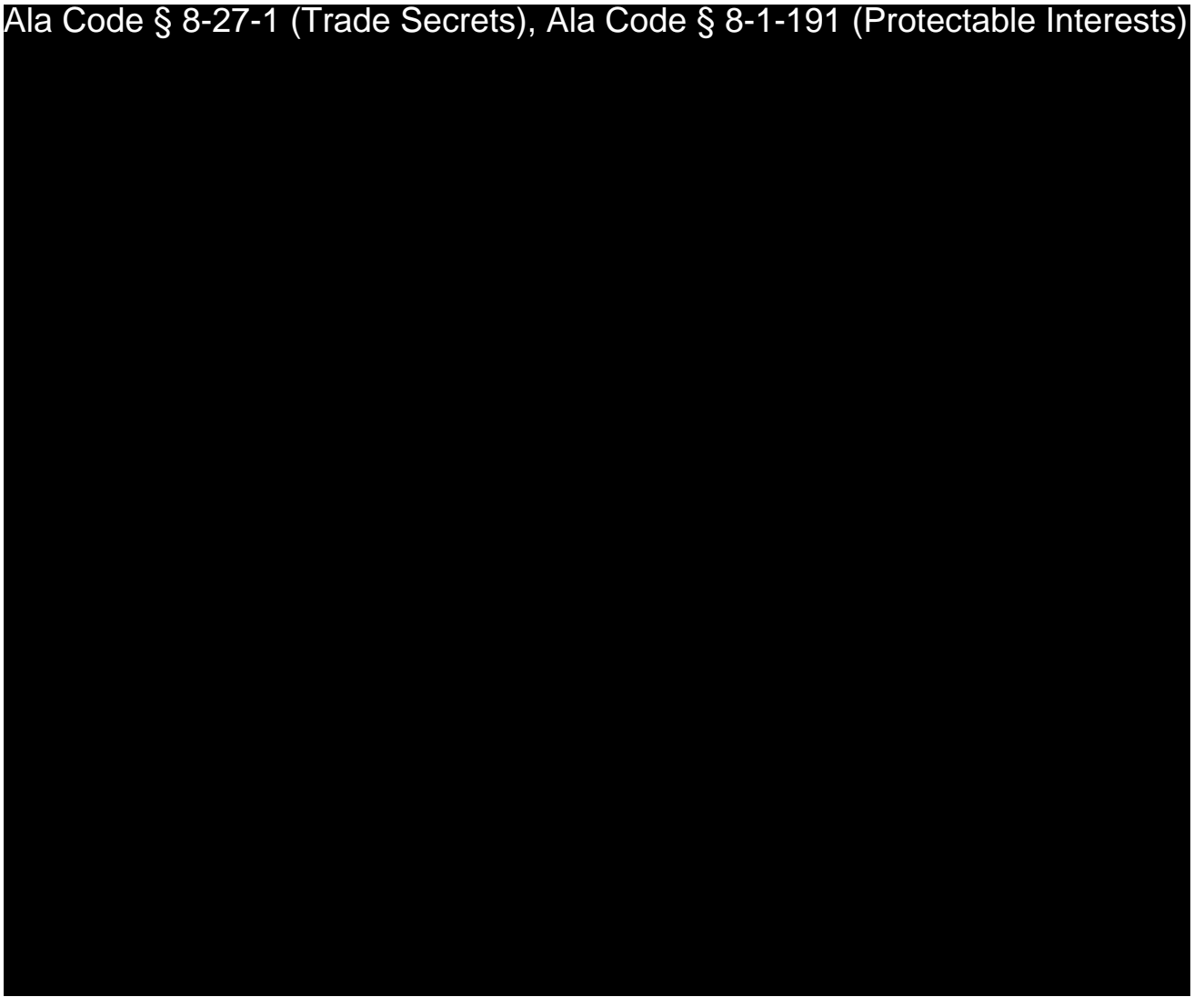
Brandon LaBresh, CIC CPIA
Vice President – Agent
Pritchett-Moore Insurance Inc.

Redacted Copy



Pritchett-Moore Insurance, Inc.

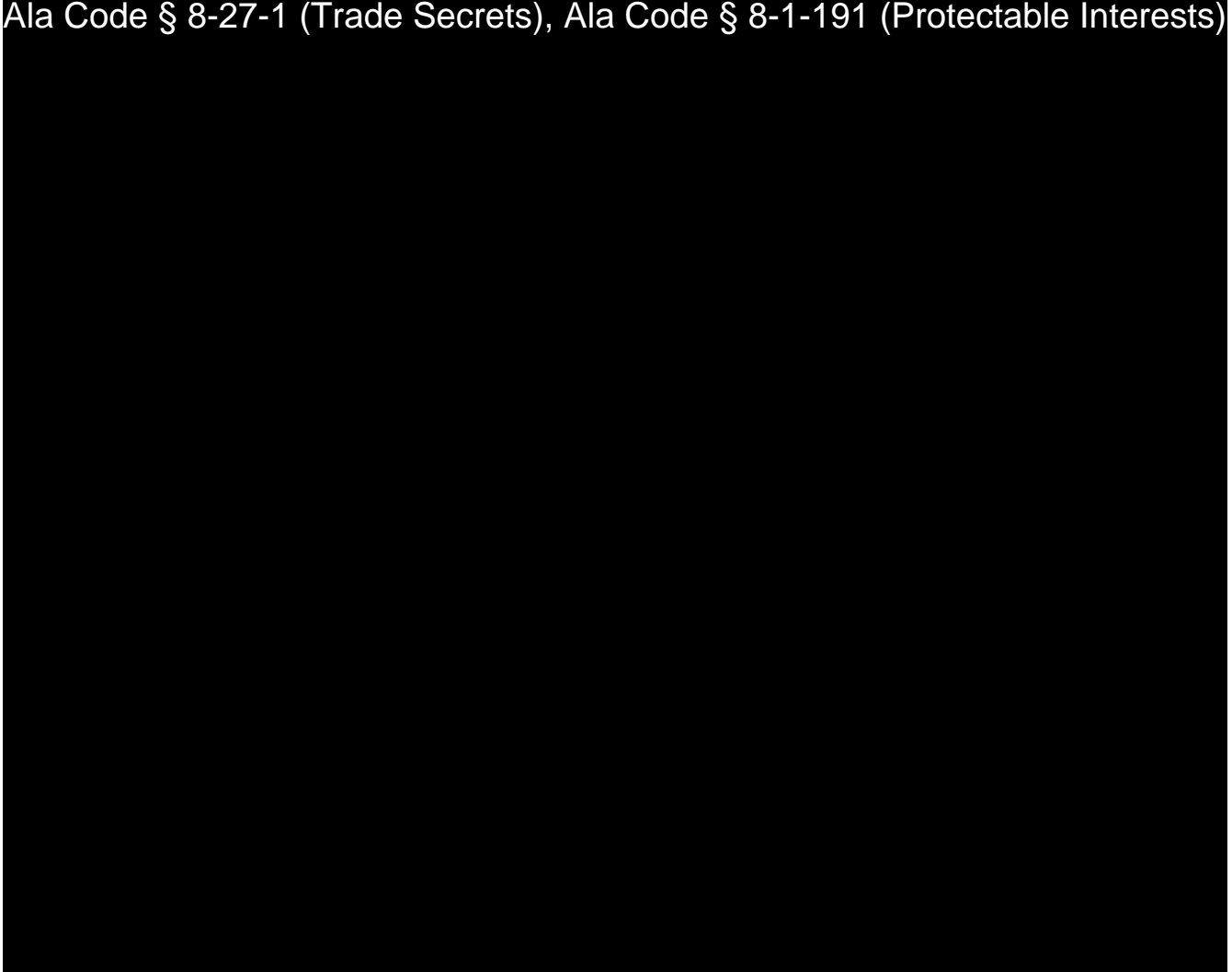
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



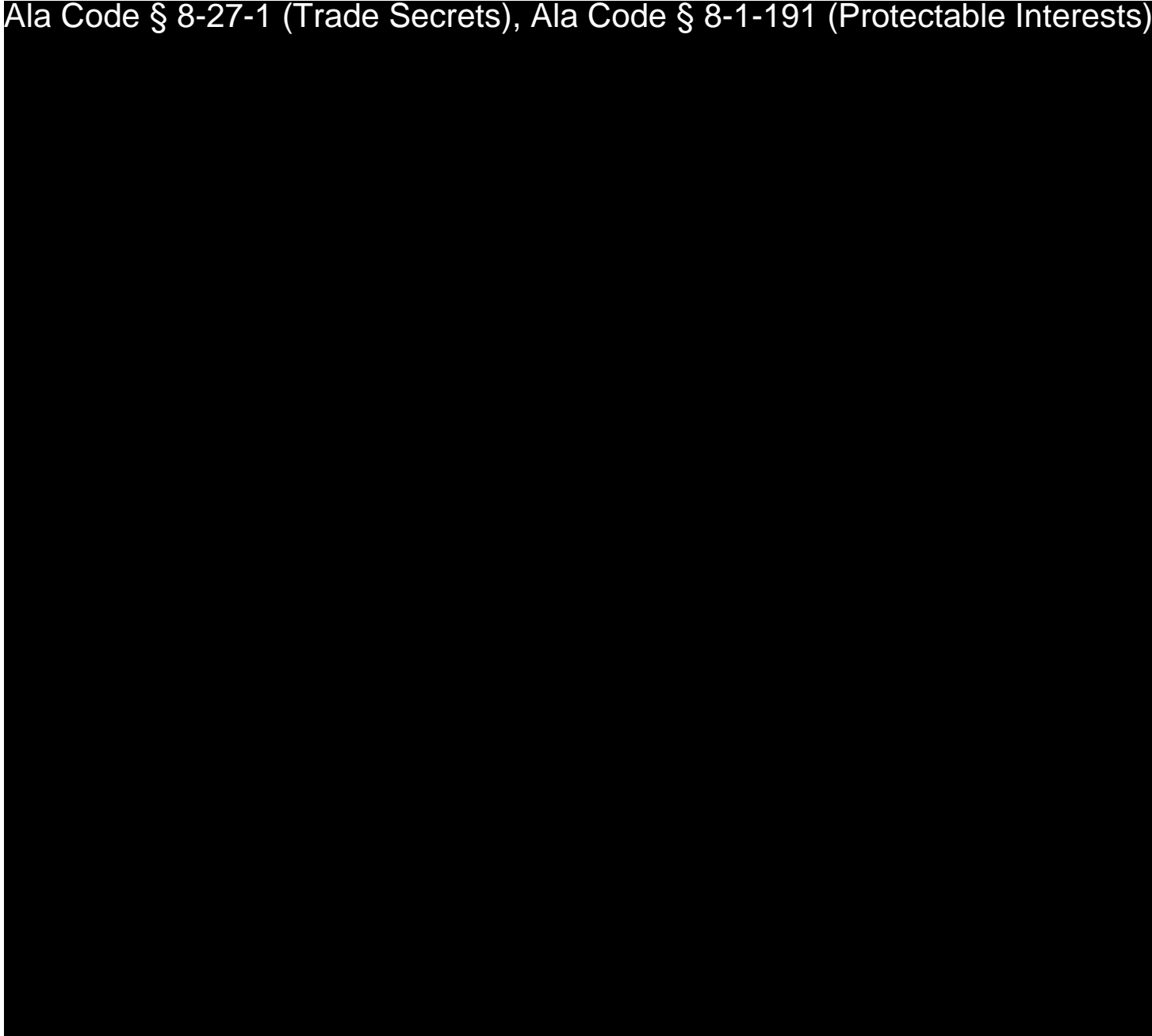
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

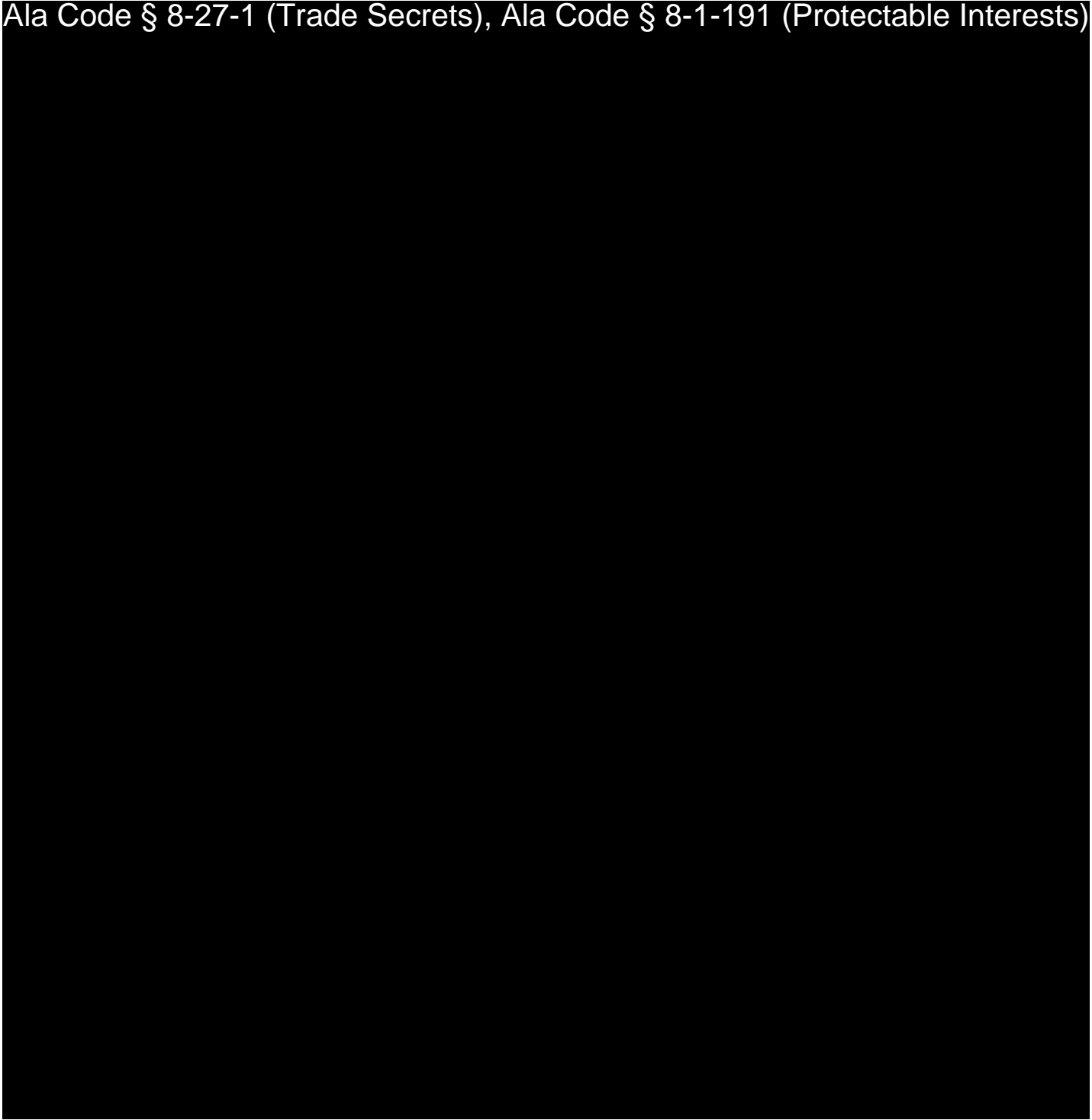


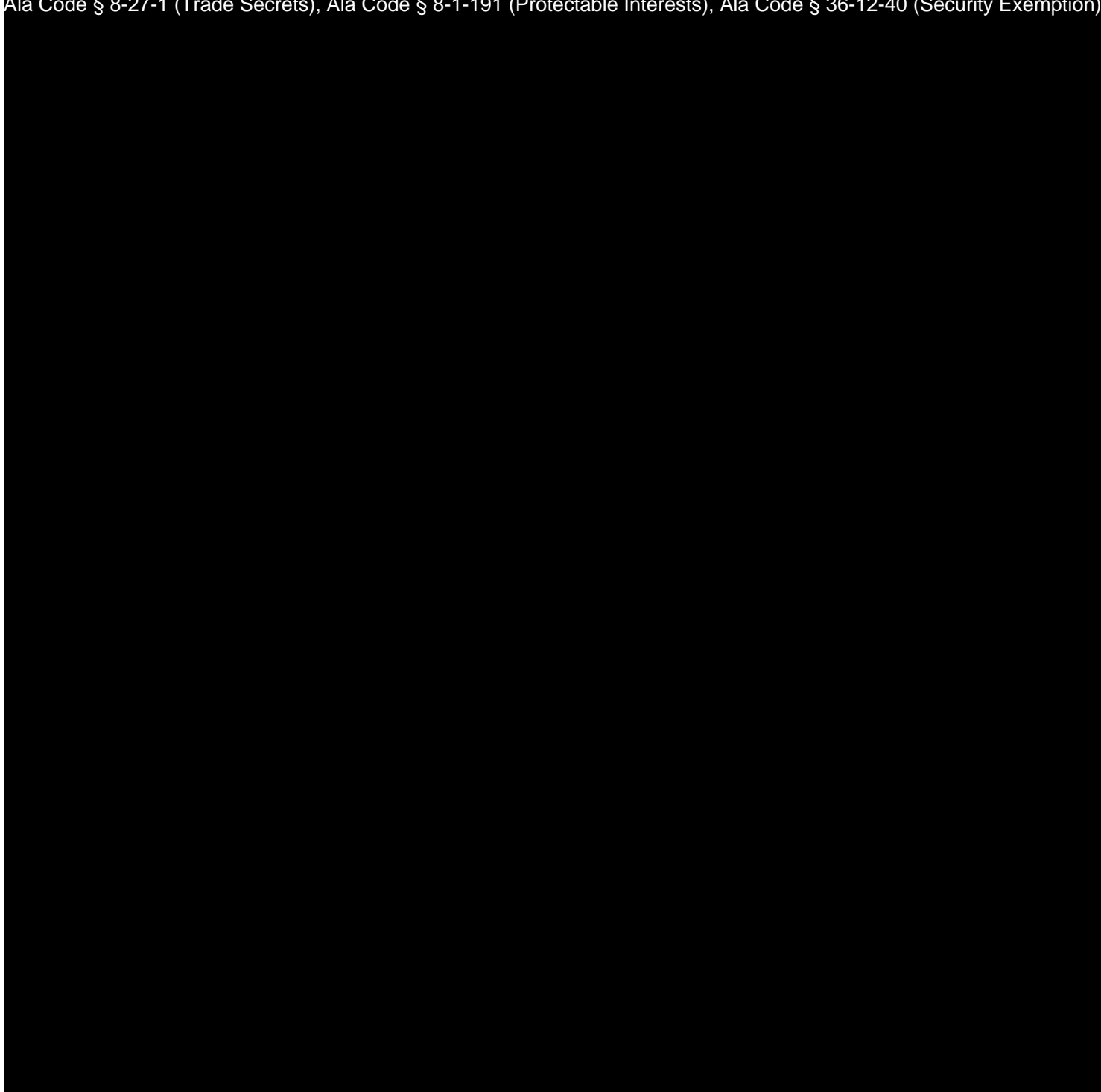
Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

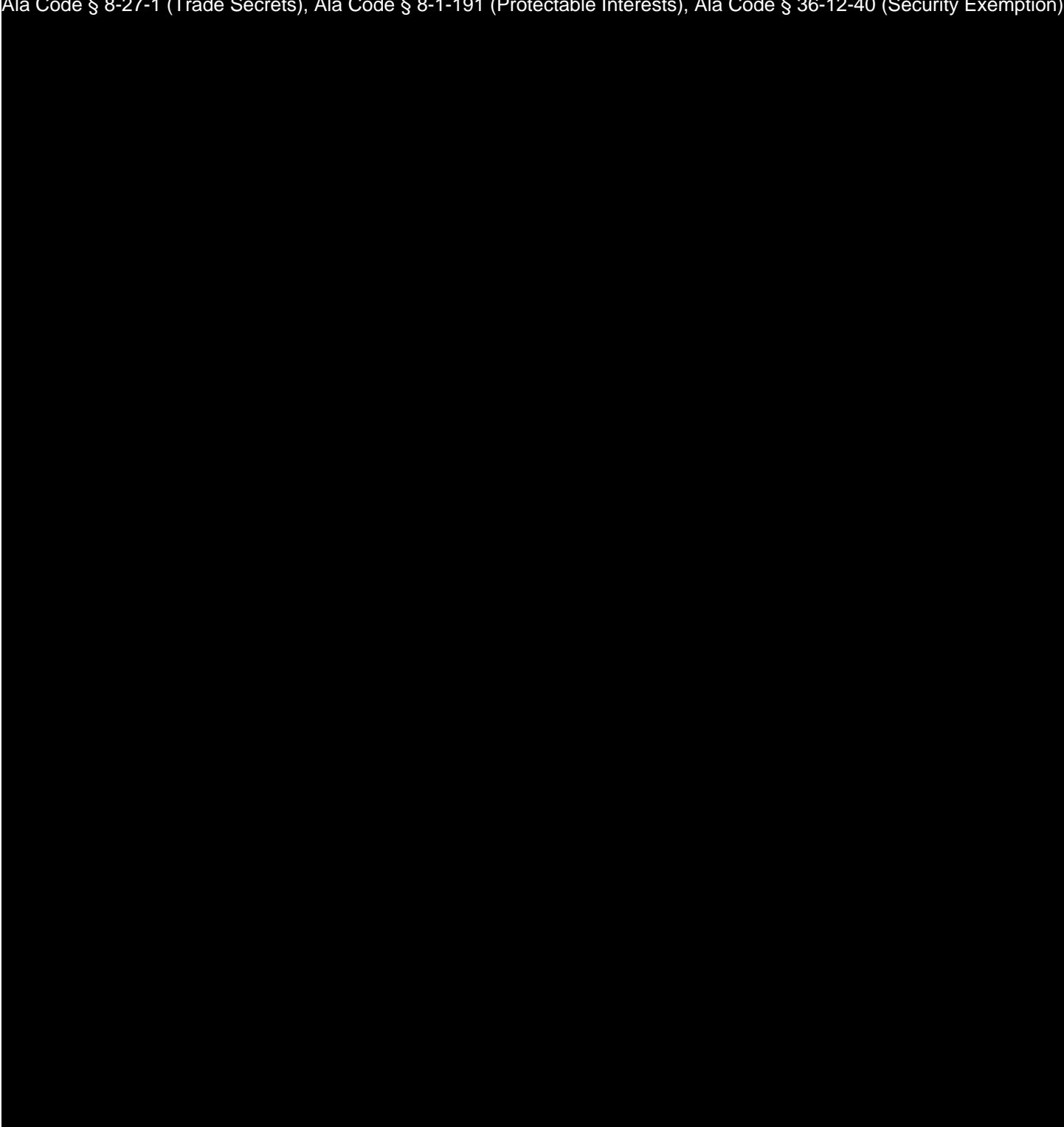


Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)

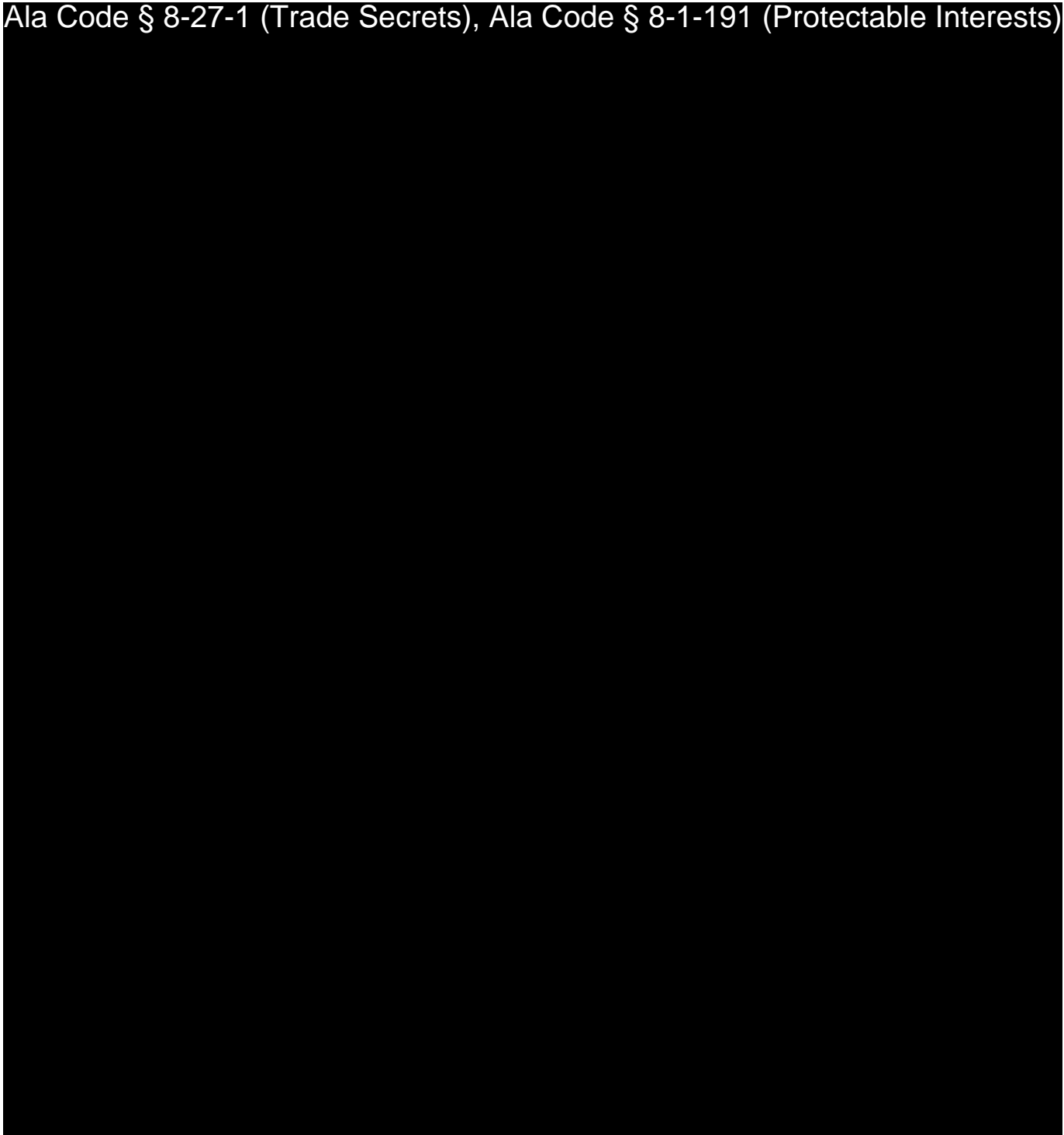









Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



Ala Code § 8-27-1 (Trade Secrets), Ala Code § 8-1-191 (Protectable Interests)



REDACTION INDEX

Ala Code § 36-12-40 (Security Exemption) – This exhibit contains certain information about the location and internal layout of the applicant facility that should be exempt from disclosure under Ala. Code § 36-12-40’s security exemption. If such information were made available to the public it would place the applicant facility at higher risk of burglary, terrorism, and/or other harmful acts. This information has been treated as confidential by the applicant and is subject to an NDA.

Ala Code § 8-27-1 (Trade Secrets)/Ala. Code § 8-1-191 (Protectable Interests) – This exhibit contains confidential information including, but not limited to, management and marketing plans, business strategy and methodology, business models and data, and company provided files and software. As such, certain portions of this exhibit have been designated as “Protectable Interests” exempt from disclosure. Further, this exhibit contains information that is used or intended for use in a trade or business, included or embodied in a formula, pattern, compilation, computer software, drawing, device, method, technique, or process, and is not publicly known or generally known in the trade or business. The information contained in this exhibit cannot be readily ascertained or derived from publicly available information and has significant economic value to the applicant. As such, certain portions of this exhibit have been designated as “Trade Secrets” exempt from disclosure.

Protectable Interests and Trade Secrets are redacted as the disclosure to any third party would give an unfair advantage to competitors and would result in the loss of rights and cause harm to the owner of this information. In the normal course of business, the owner of this information requires all individuals who view such information to be bound by confidentiality agreements and access to any of this material is extremely limited and on a need-to-know basis only. The owner of this information will take all steps to enforce such confidentiality agreements and will ensure that employees surrender such information upon termination of employment. If such information is disclosed, competitors of the owner of this information in Alabama and in other states will take such information to better compete against the owner of this information in the regulated commercial market.

Furthermore, the applicant believes the identified information to be confidential and if disclosed would give advantage to competitors because the material is related to the applicant’s planning, site location, expansion, operations, product development and marketing. Because this information can be used to recruit appropriate personnel, locate a site, finance and undertake the operation and go to market, the disclosure of this information would allow new competitors to enter the market to compete against the Company. In addition, the disclosure of this information would also allow existing competitors to potentially optimize the manufacture of their products and/or create similar products to the applicant causing grave economic harm to the owners of this information.

Finally, the applicant claims the marked material marked is exempt from disclosure as the mere formulation of the words and descriptions of processes could prove successful in competitive, multi-million-dollar merit-based medical marijuana application processes similar to Alabama. Permitting any of this marked application language to be publicly released would substantially reduce the intrinsic value of the applicant’s business – allowing anyone in the public to appropriate the processes, methods, and standard operating procedures that the applicant employs or will employ.

Application Number 1632

Exhibit FORM K – Affidavit of Entity Applicant for Alabama Medical Cannabis License

Verification

The undersigned verifies that the information contained in this Exhibit, including any attachments thereto, is accurate and complete, based on the best available information at the date of verification.

JASON COBB

CEO

Printed Name of Verifying Individual

Title of Verifying Individual

Ala Code § 36-12-40 (Security Exemption)

3/9/2023



Signature of Verifying Individual

Verification Date

**FORM K: Affidavit of Entity Applicant for
Alabama Medical Cannabis License**

STATE OF ALABAMA)
)
JEFFERSON COUNTY)

Before me, the undersigned notary, did appear the Affiant, who after being by me first duly sworn, did state under oath as follows (please type or print legibly):

1. NAME OF ENTITY APPLYING FOR LICENSE: ORGANIC HARVEST LAB, LLC

2. NAME OF AFFIANT: WILLIAM RUSTY SUTTERLIN

3. AFFIANT'S POSITION WITH APPLICANT: CHIEF SCIENCE OFFICER

4. AFFIANT IS THE APPLICANT'S (Check One): Responsible Party Contact Person
(The affidavit of BOTH individuals is required)

5. TYPE OF LICENSE BEING SOUGHT BY APPLICANT (Check One):

- Cultivator Processor Secure Transporter
- Dispensary Integrated Facility State Testing Laboratory

6. On behalf of the Applicant, I do hereby affirm under oath as follows:

a. I, the undersigned Affiant named in paragraph 2 above, am an adult, over the age of 19 years and competent to provide this Affidavit.
Ala Code § 36-12-40 (Security Exemption)

b. In my position stated in paragraph 3 above, I have been duly authorized by the Applicant identified in paragraph 1 above (hereinafter, "Applicant") to provide this Affidavit.

(Attach a copy of the entity applicant's written authorization to this Affidavit.)
Ala Code § 36-12-40 (Security Exemption)

c. I understand and acknowledge that this Affidavit and the statements, information and documents or other exhibits accompanying it, are for the purpose of seeking one (1) license of the type specified in paragraph 5 above, on behalf of the Applicant. Neither I nor the Applicant are seeking a different Alabama Medical Cannabis license on behalf of [redacted] entity.
Ala Code § 36-12-40 (Security Exemption)

d. That all statements, information, documents and other exhibits provided in the Application are true and correct, based on my own personal knowledge and a diligent investigation by me. To the extent any information provided therein was heretofore outside my personal knowledge or ability to affirm, I have personally communicated with those within the Applicant's business who have such personal knowledge, whose duties

include knowledge of the facts stated and/or the integrity of the documents or other exhibits, and I am able, based on such communications, to attest to their currentness and accuracy. This I and the Applicant affirm under penalty of perjury and other applicable sanctions under the AMCC Rules and Alabama law.

Ala Code § 36-12-40 (Security Exemption)

RE

e. Applicant understands and acknowledges that the license being applied for is a revocable privilege granted by this state and is not a property right, and that this Application likewise does not convey to, or otherwise entitle unto, the Applicant any rights to a license.

Ala Code § 36-12-40 (Security Exemption)

AL HERE

f. Applicant understands, acknowledges, and will continue to respect and comply with AMCC Rules regarding limited communication during the Application process.

Ala Code § 36-12-40 (Security Exemption)

IAL HERE

g. Applicant consents to all background checks, examinations, inspections, and search and seizure by AMCC and law enforcement personnel during this Application process and afterward to the extent a license is awarded.

Ala Code § 36-12-40 (Security Exemption)

INITIAL HERE

h. Applicant has no economic interest, as defined in the AMCC Rules, in any other license or Application for license under the Darren Wesley "Ato" Hall Compassion Act, § 20-2A-1, et seq. Code of Alabama 1975.

Ala Code § 36-12-40 (Security Exemption)

INITIAL HERE

i. I and the Applicant will at all times, to the best of our ability, comply with the AMCC Rules, and cooperate and maintain transparency with the AMCC, its staff and other agents.

Ala Code § 36-12-40 (Security Exemption)

INITIAL HERE

j. Any verification provided in the Application is hereby affirmed under oath to be true and correct as of the date of the Application's submission.

Ala Code § 36-12-40 (Security Exemption)

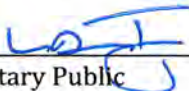
INITIAL HERE

Ala Code § 36-12-40 (Security Exemption)

Signature of Affiant
Acting for and on behalf of:

ORGANIC HARVEST LAB, LLC
Applicant

Sworn to and subscribed before me on this 20th day of December 2022.


Notary Public

LAM TONG
Notary Public
Alabama State at Large

My Commission Expires
August 26, 2026

My Commission Expires: _____

[SEAL]

LIMITED LIABILITY COMPANY RESOLUTION

Organic Harvest Lab, LLC (TIN:88-3468094)
631 20th St N
Bessemer, AL 35020

I, THE UNDERSIGNED, DO HEREBY CERTIFY THAT:

THE COMPANY’S EXISTENCE. The complete and correct name of the Company is ORGANIC HARVEST LAB, LLC ("Company"). The Company is a limited liability company which is, and at all times shall be, duly organized, validly existing, and in good standing under and by virtue of the laws of the Company's state of organization. The Company has the full power and authority to own its properties and to transact the business in which it is presently engaged or presently proposes to engage. The Company maintains an office at 631 20TH ST N, BESSEMER, AL 35020. Unless the Company has designated otherwise in writing, the principal office is the office at which the Company keeps its books and records. The Company shall do all things necessary to preserve and to keep in full force and effect its existence, rights, and privileges, and shall comply with all regulations, rules, ordinances, statutes, orders, and decrees of any governmental or quasi-governmental authority or court applicable to the Company and the Company's business activities.

RESOLUTION ADOPTED. At a meeting of the members of the Company, duly called and held on December 6, 2022, at which a quorum was present and voting, or by other duly authorized action in lieu of a meeting, the resolutions set forth in this Resolution were adopted. RESPONSIBLE PERSON. The following named person is a Responsible Person of ORGANIC HARVEST LAB, LLC:

WILLIAM RUSTY SUTTERLIN
Responsible Person – Chief Science Officer

Ala Code § 36-12-40 (Security Exemption)

LEVELS OF AUTHORITY.

To grant signing and authority to conduct business to any one of the following but not limited to, the execution of powers of authority, transfers, assignments, contracts, obligations, certificates, and other instruments of whatever nature entered into by this corporation.

To provide Affidavits to the Alabama Medical Cannabis Commission for application and regulatory purposes.

To provide written authorization to the Alabama Medical Commission for application and regulatory purposes

To represent as the AFFIANT and act on behalf of the corporation with all aspects of the Alabama Medical Cannabis Commission for submission of application, affidavits, and other required documentation.

CERTIFICATION CONCERNING MANAGERS AND RESOLUTIONS. The manager named above is duly elected, appointed, or employed by or for the Company, as the case may be, and occupies the position set opposite his or her respective name. This Resolution now stands of record on the books of the Company, is in full force and effect, and has not been modified or revoked in any manner whatsoever. CONTINUING VALIDITY. Any and all acts authorized pursuant to this Resolution and performed prior to the passage of this Resolution are hereby ratified and approved. This Resolution shall be continuing, shall remain in full force and effect and Lender may rely on it until written notice of its revocation shall have been delivered to and received by Lender at Lender's address shown above (or such addresses as Lender may designate from time to time). Any such notice shall not affect any of the Company's agreements or commitments in effect at the time notice is given. IN TESTIMONY WHEREOF, I have hereunto set my hand and attest that the signature set opposite the name listed above is his or her genuine signature. I have read all the provisions of this Resolution, and I personally and on behalf of the Company certify that all statements and representations made in this Resolution are true and correct. This Limited Liability Company Resolution to Borrow / Grant Collateral is dated December 6, 2022.

Ala Code § 36-12-40 (Security Exemption)

JASON COLLINS COBB,
Manager - CEO of
ORGANIC HARVEST LAB, LLC

Ala Code § 36-12-40 (Security Exemption)

DAVID FRANK HEWITT
Member -CONTROLLER
ORGANIC HARVEST LAB, LLC

Ala Code § 36-12-40 (Security Exemption)

WILLIAM RUSTY SUTTERLIN
Member – CHIEF SCIENCE OFFICER
ORGANIC HARVEST LAB, LLC

**FORM K: Affidavit of Entity Applicant for
Alabama Medical Cannabis License**

STATE OF ALABAMA)
)
JEFFERSON COUNTY)

Before me, the undersigned notary, did appear the Affiant, who after being by me first duly sworn, did state under oath as follows (please type or print legibly):

1. NAME OF ENTITY APPLYING FOR LICENSE: ORGANIC HARVEST LAB, LLC

2. NAME OF AFFIANT: JASON COLLINS COBB

3. AFFIANT'S POSITION WITH APPLICANT: CEO - MANAGING MEMBER

4. AFFIANT IS THE APPLICANT'S (Check One): Responsible Party Contact Person
(The affidavit of BOTH individuals is required)

5. TYPE OF LICENSE BEING SOUGHT BY APPLICANT (Check One):

- Cultivator Processor Secure Transporter
- Dispensary Integrated Facility State Testing Laboratory

6. On behalf of the Applicant, I do hereby affirm under oath as follows:

a. I, the undersigned Affiant named in paragraph 2 above, am an adult, over the age of 19 years and competent to provide this Affidavit.
Ala Code § 36-12-40 (Security Exemption)
[REDACTED] INITIAL HERE

b. In my position stated in paragraph 3 above, I have been duly authorized by the Applicant identified in paragraph 1 above (hereinafter, "Applicant") to provide this Affidavit.
Ala Code § 36-12-40 (Security Exemption)
[REDACTED] **copy of the entity applicant's written authorization to this Affidavit.**
[REDACTED] INITIAL HERE

c. I understand and acknowledge that this Affidavit and the statements, information and documents or other exhibits accompanying it, are for the purpose of seeking one (1) license of the type specified in paragraph 5 above, on behalf of the Applicant. Neither I nor the Applicant are seeking a different Alabama Medical Cannabis license on behalf of [REDACTED] or any other entity.
Ala Code § 36-12-40 (Security Exemption)
[REDACTED] INITIAL HERE

d. That all statements, information, documents and other exhibits provided in the Application are true and correct, based on my own personal knowledge and a diligent investigation by me. To the extent any information provided therein was heretofore outside my personal knowledge or ability to affirm, I have personally communicated with those within the Applicant's business who have such personal knowledge, whose duties

Form K: Affidavit of Entity Applicant for Alabama Medical Cannabis License
Page 2

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j. Any verification provided in the Application is hereby affirmed under oath to be true and correct as of the date of the Application.

Ala Code § 36-12-40 (Security Exemption)

INITIAL HERE

Ala Code § 36-12-40 (Security Exemption)

ORGAINC HARVEST LAB, LLC

Applicant

Sworn to and subscribed before me on this 14th day of December, 2022.



Jessica Grissett
Notary Public

My Commission Expires: 7/29/26

[SEAL]

LIMITED LIABILITY COMPANY RESOLUTION

Organic Harvest Lab, LLC (TIN:88-3468094)
631 20th St N
Bessemer, AL 35020

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JASON COLLINS COBB Manager – CEO

LEVELS OF AUTHORITY.

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CERTIFIED TO AND ATTESTED BY:

Ala Code § 36-12-40 (Security Exemption)

JASON COLLINS COBB,
Manager - CEO of
ORGANIC HARVEST LAB, LLC

Ala Code § 36-12-40 (Security Exemption)

DAVID FRANK HEWITT
Member -CONTROLLER
ORGANIC HARVEST LAB, LLC

Ala Code § 36-12-40 (Security Exemption)

WILLIAM RUSTY SUTTERLIN
Member – CHIEF SCIENCE OFFICER
ORGANIC HARVEST LAB, LLC