APPLICATION FOR MEDICAL WASTE REGISTRATION

Prepared for:

NATURE ENVIRONMENTAL & MARINE SERVICES, LLC
8713 ROOT STREET
CORPUS CHRISTI, NUECES COUNTY, TEXAS

TCEQ MSW REGISTRATION NO. PENDING

Prepared by:

ARDURRA
COLLABORATE. INNOVATE. CREATE.

TBPELS FIRM NO. 10053
801 Navigation, Suite 300
Corpus Christi, TX 78408
(361) 883-1984

Initial Application Submittal Date: 06/30/2022

Texas Commission on Environmental Quality

Application for a Medical Waste Registration

Nature Environmental & Marine Services LLC

Registration [number pending]

Corpus Christi, Nueces County, Texas

June 2022

Prepared for:

Nature Environmental & Marine Services LLC

8713 Root Street

Corpus Christi, TX 78409

Prepared by:

Amy Hesseltine, P.E., Environmental Group Leader

Ardurra Group, Inc.

TBPELS Firm #10053

801 Navigation, Suite 300

Corpus Christi, Texas 78408

Table of Contents

6/30/22

Amy R Hesseltine

Section 1—General Information

1.1 Facility Information (must match regulated entity information on Core Data Form)

Facility Name: Nature Environmental & Marine Services LLC

Regulated Entity Reference No. (if issued): RN105939763

Physical or Street Address (if available): 8713 Root Street

City: Corpus Christi County: Nueces State: TX Zip Code: 78409

(Area Code) Telephone Number: 361-654-3088

Email Address: ryan.freeman@natureenviro.com

Latitude (Degrees, Minutes, Seconds, or Decimal Degrees): 27.790394°

Longitude (Degree, Minutes, Seconds, or Decimal Degrees): -97.534302°

Activities Conducted at the Facility (check all that apply)

☒ Storage ☒ Treatment ☒ Transfer ☐ Other: _____

Describe the location of the facility with respect to known or easily identifiable landmarks:

Facility is located three miles west-northwest of the Corpus Christi International Airport in the southwest quadrant of the intersection of Root Street and Gilliam Street.

Detail access routes from the nearest United States or state highway to the facility:
Due west on TX-44, exit Agnes Street towards Manning Rd, turn right on Agnes St, turn right onto North Clarkwood Road, turn right onto Root Street, location in on right side

1.2 Applicant Information

The owner of a facility is the applicant, to whom the registration would be issued.

Owner of Facility (must match customer information on Core Data Form)

Owner Name: Nature Envrionmental & Marine Services LLC

Contact Person's Name: Ryan L Freeman Title: Controller

Customer Reference No. (if issued): CN604652479

Mailing Address: 18511 Beaumont Highway

City: Houston County: Harris State: TX Zip Code: 77049

(Area Code) Telephone Number: (936) 900-2293

Email Address: ryan.freeman@natureenviro.com

Operator of Facility (if not the same as Owner of Facility)

Operator Name: Same as Owner

Contact Person's Name: Title:

Customer Reference No. (if issued): CN

Mailing Address:

City: County: State: Zip Code:

(Area Code) Telephone Number: Email Address:

Consultant (if applicable)

Firm Name: Ardurra Group, Inc.

Texas Board of Professional Engineers Firm Registration Number: 10053

Contact Person's Name: Amy Hesseltine, P.E. Title: Environmental Group Leader

Texas Board of Professional Engineers License Number (if applicable): 93578

Mailing Address: 801 Navigation, Suite 300

City: Corpus Christi County: Nueces State: TX Zip Code: 78408

(Area Code) Telephone Number: (361) 883-1984

Email Address: ahesseltine@ardurra.com

1.3 Governmental Entities Information

Texas Department of Transportation

District: Corpus Christi

District Engineer's Name: Valente Olivarez Jr., P.E.

Street Address or P.O. Box: 1701 S. Padre Island Dr.

City: Corpus Christi County: Nueces State: TX Zip Code: 78469

(Area Code) Telephone Number: (361) 808-2275

Email Address: Valente.Olivarez@txdot.gov

Local Government Authority Responsible for Road Maintenance (if applicable)

Agency Name: City of Corpus Christi

Contact Person's Name: Rolando Mata, Consultant Interim Director of Public Works

Street Address or P.O. Box: 2525 Hygeia Street

City: Corpus Christi County: Nueces State: TX Zip Code: 78415

(Area Code) Telephone Number: (361) 826-1677

City Mayor

City Name: Corpus Christi

City Mayor's Name: Paulette M. Guajardo

Mailing Address: 1201 Leopard Street

City: Corpus Christi County: Nueces State: TX Zip Code: 78401

(Area Code) Telephone Number: (361) 826-3100

Email Address: paulette.guajardo@cctexas.com

Council of Governments (COG)

COG Name: Coastal Bend Council of Governments

COG Representative's Name: Theresa Finch, P.G.

COG Representative's Title: Director of Environmental Planning

Street Address or P.O. Box: 2910 Leopard Street

City: Corpus Christi County: Nueces State: TX Zip Code: 78408

(Area Code) Telephone Number: (361) 883-5743

Email Address: theresa@cbcog98.org

Local Government Jurisdiction

Is the facility located outside the territorial limits or extraterritorial jurisdiction of a city or town? (30 TAC §326.67(a)) Yes ☐ No ☒

If yes, and county requires a license, you must obtain a license from the county, and the county must send a copy of the license to the appropriate TCEQ regional office.

City Health Authority (if applicable)

Agency Name: Corpus Christi - Nueces County Public Health District

Contact Person's Name: Dr. Srikanth Ramachandruni, MD, Local Health Authority

Street Address or P.O. Box: 1702 Horne Road

City: Corpus Christi County: Nueces State: TX Zip Code: 78416

(Area Code) Telephone Number: (361) 826-7200

Email Address: drram@cctexas.com

County Judge Information

County Judge's Name: Barbara Canales

Street Address or P.O. Box: 901 Leopard Street

City: Corpus Christi County: Nueces State: TX Zip Code: 78401

(Area Code) Telephone Number: (361) 888-0444

Email Address: barbara.canales@nuecesco.com

County Health Authority (if applicable)

Agency Name: Corpus Christi - Nueces County Public Health District

Contact Person's Name: Dr. Srikanth Ramachandruni, MD, Local Health Authority

Street Address or P.O. Box: 1702 Horne Road

City: Corpus Christi County: Nueces State: TX Zip Code: 78416

(Area Code) Telephone Number: (361) 826-7200

Email Address: drram@cctexas.com

State Representative

House District Number: 34

Representative's Name: Abel Herrero

District Office Address: 101 East Main Avenue

City: Robstown County: Nueces State: TX Zip Code: 78380

(Area Code) Telephone Number: (361) 387-0457

State Senator

Senate District Number: 20

State Senator's Name: Juan 'Chuy' Hinojosa

District Office Address: 602 N. Staples Street, Suite 200

City: Corpus Christi County: Nueces State: TX Zip Code: 78401

(Area Code) Telephone Number: (361) 882-0900

Email Address: Juan.Hinojosa@senate.texas.gov

1.4 Posting of Application on Website [30 TAC §326.69(e)]

Provide the web address (URL) of the publicly accessible internet website where the application and all revisions will be posted:

https://natureenviro.com/crpmedapp.html

1.5 Copy of Application for Public Viewing

Name of the Public Place: Owen R. Hopkins Library

Physical Address: 3202 McKinzie Rd.

City: Corpus Christi County: Nueces State: TX Zip Code: 78410

(Area Code) Telephone Number: (361) 826-2350

1.6 Notice of Opportunity to Request Public Meeting

Notice Requirement

The owner or operator is required by 30 TAC §326.73 to provide notice of the opportunity to request a public meeting, and to post notice signs.

Indicate the party responsible for publishing notice:

☐ Applicant (Owner or Operator) ☒ Consultant

1.7 Application Fee [30 TAC §330.59(h)(2)]

The application fee for a registration is $150.

Indicate how the application fee was paid. Attach a photocopy of the check or a copy of the electronic payment receipt.

Check ☐ Online ☒

If paid online, e-Pay confirmation number: 582EA000497447

1.8 Facility Supervisor's License [30 TAC §326.71(c)]

Indicate the type of license that the Solid Waste Facility Supervisor (as defined in 30 TAC Chapter 30), will obtain prior to commencing facility operations:

Class A ☐ Class B ☒

Section 2—Facility Design Information

2.1 Impact on Surrounding Area [30 TAC §326.71(a)(5)(A) & (B)]

This section addresses the facility's impacts on cities, communities, groups of property owners, or individuals (attach additional pages to answer the following questions, if necessary):

Describe the character of the surrounding area land uses within one mile of the facility:
Based on the land use map obtained from the City of Corpus Christi GIS map website (https://corpus.maps.arcgis.com/apps/webappviewer/index.html?id=364701d35747432683 9d4099aa526473), the area most directly encompassing the facility is zoned as light industrial to the east, west, and north; with a drainage corridor to the west and southwest. Approximately 0.27 miles to the southwest, there is a cluster of land parcels zoned for low density residential and commercial use. Development within 5 miles of the facility is generally along major roads such as IH-37 and Leopard Street to the north and SH-358 to the east. Most of the land to the south and west of the facility is agricultural.

Identify growth trends within five miles of the facility with directions of major development:

The area within 5 miles has been stagnant in growth in the past years. The area to the north is currently industrial and port usage, being bordered by Nueces Bay. To the south and southeast the majority of land ownership is held by the Corpus Christi Airport. These two items have stunted growth and development in the area.

Indicate the approximate number of residences and other uses (e.g. schools, churches, cemeteries, historic structures and commercial sites, etc.) within one mile of the facility:

Approximately 39 residences and 16 commercial sites within one mile of the facility. No schools, day cares, parks/recreational areas, churches, cemeteries, or historic sites were noted within one mile of the facility.

Indicate the distance to the nearest residence(s): 0.42 ☐ feet ☒ miles

Provide directions to the nearest residence(s): Southwest

Exiting the north gate of the facility, turn left onto Root Street, turn left onto N Clarkwood Drive (.6 miles), turn right onto Agnes Street, turn left onto Commerce Street, the residence is 200 feet on the right.

Indicate the distance to the nearest commercial establishment(s): 377 ☒ ft ☐ miles

Provide directions to the nearest commercial establishment(s):

Exit the east gate of the facility, turn right onto Gilliam Street. The commercial site is 377 feet on the left.

2.2 Transportation [30 TAC §326.71(e)]

Access Roads

Complete Table 1 regarding the roads that will be used to access the site.

Table 1. Roads That Will be Used to Access the Site.

Name of Road	Surface Type and Number of Lanes
Root Street	Asphalt, two lanes
Gilliam Street	Asphalt, two lanes
N. Clarkwood Rd	Asphalt, two lanes
Agnes Street	Asphalt, four lanes
Highway 44	Asphalt, divided highway, two lanes each direction

Daily Traffic Volume

Complete Table 2 regarding existing and expected volume of vehicular traffic on access roads within one mile of the facility, and the projected volume of traffic expected to be generated by the facility on access roads within one mile of the facility.

Table 2. Traffic Volume.

Vehicle Traffic	Volume (vehicles per day)
Existing Vehicle Traffic	51,890 (2020)
Expected Vehicle Traffic	86,744 (2040)
Projected Vehicle Traffic Generated by Facility	15

Describe the source of or method used to obtain the volumes (attach additional pages to answer this question if necessary):

Existing (2020) Annual Average Daily Traffic (AADT) counts were obtained from Texas Department of Transportation's (TxDOT) Statewide Planning Map. Expected (2040) traffic was also obtained from TxDOT's Statewide Planning Map.

If traffic volume was determined by counts in the field, indicate the locations where the counts were conducted (attach additional pages to answer this question if necessary):

Not Applicable

2.3 Floodplain and Wetlands [30 TAC §326.71(f)]

Will the facility be located within a 100-year floodplain?

No ☒ Yes ☐ Identify the floodplain zone Zone X – Areas determined to be outside the 0.2% (500 yr) annual change floodplain.

Attach a copy of the Federal Emergency Management Administration administrator (FEMA) flood map for the area. See Attachment 9 for FEMA Map (Map Number 48355C0300G, Effective Date: Preliminary October 23, 2015). Map obtained from the City of Corpus Christi website (www.cctexas.com/floodplainmanagement/floodmaps).

Zone X is not in the 100-year floodplain. Therefore, additional documentation is not required. The facility will be constructed, maintained, and operated to manage run-on and run-off during the peak discharge of a 25-year rainfall event and will prevent the off-site discharge of waste. Surface water drainage in and around the facility will be controlled to minimize surface water running onto, into, and off the storage and transfer areas.

The facility has an active authorization (TXR05CS14) under the 2021 Multi-Sector General Permit (MSGP) to discharge storm water.

If the facility will be within a 100-year floodplain, attach documentation demonstrating that the facility is designed and will be operated in a manner to prevent washout of waste during a 100-year storm event, or that the facility has obtained a conditional letter of map amendment from the FEMA.

Will the facility be located in wetlands?

Yes ☐ No ☒

If yes, attach documentation to the extent required under Clean Water Act, §404 or applicable state wetlands laws.

2.4 Buffer Zones and Easement Protection [30 TAC §326.71(h)(3)]

Is the buffer zone in any location at the facility less than 25 feet wide?

Yes ☒ No ☐

If yes, describe your alternative buffer zone and how it will allow access for emergency response and maintenance (attach additional pages to answer this question if necessary):

It is not practicable to maintain a 25 ft buffer due to the location of existing structures, as well as tanks and storage areas for active operations at the facility associated with maritime waste, USDA/APHIS waste, used oil (Registration No. A86098), and industrial and hazardous waste (SWR No. 88576).

Where buildings are located, the alternative buffer will coincide with the distance between the boundary and building walls which is approximately 5 to 10 ft on the west and 15 ft on the north. The portion of the northern boundary where the building is not located and along the eastern boundary, an alternative buffer of 10 ft will be maintained. An alternative buffer of 5 ft will be maintained along the southern boundary. Refer to Attachment 2, Facility Access and Layout Plan, for locations and widths of alternative buffers.

The alterative buffers do not impose additional limitations to access for emergency response. Unimpeded access to the building is provided on the north side via Root Street and on the west side via an unobstructed easement. Sliding gates on the north and east property boundaries provide access into the fenced area. Buildings, tanks, and storage

areas are along the perimeter of the facility leaving open access through the center of the facility. Access to the inside of the waste processing building for emergency response is provided by roll up doors on the east side of the structure and a standard door on the north side. The alterative buffers do not impose additional limitations to access for maintenance. Maintenance may include grading of the gravel yard, repairs to fences, and repairs to building. These maintenance activities can be completed regardless of the buffer zones. Vehicles and dumpsters can be relocated as needed to allow maintenance activities to be completed.

No loading/unloading, transfer, or storage of medical waste will occur within any easement, buffer zone or right-of-way crossing the registration boundary.

2.5 Waste Management Unit Designs [30 TAC §326.71(i)]

Waste Management Unit Details

List each waste management unit in Table 3. Include attachments documenting manufacturer specifications. **The type of units listed below are manufactured by an array of companies to meet industry standards. No specific manufacturer specifications are provided with this application.**

Table 3. Design Details and Manufacturer Specifications for Waste Management Units.

Unit Type	Minimum Number of Units	Design Details	Approximate Dimensions	Approximate Capacity per Unit
Gravity Autoclave	1	See Attachment 17	271" x 79" x 74"	202.5 cubic feet
Boiler	1	See Attachment 17	165" x 68" x 80"	150 hp
Cart Dumper	1	See Attachment 17	91" x 75" x 76"	Up to 5,000 lbs
Cart Tipper	1	See Attachment 17	48" x 75" x 40"	Up to 5,000 lbs
Floor Scale	1	See Attachment 17	48"x 75" x 40"	2,500 lbs
Compactor	1	See Attachment 17	48" x 300" x 104"	Up to 40 cubic yards

Foundations and Supports

Provide a generalized description of construction materials for slab and subsurface supports of all storage and processing components (attach additional pages to answer this question if necessary):

Medical waste processing, transfer, and storage will be conducted inside an existing building supported on a concrete, slab-on-grade foundation capable of supporting the building and the waste processing and storage units. Waste processing equipment will be installed on the existing building foundation. No additional foundation reinforcement will be required to support the equipment.

Contaminated Water Management

Describe how storage and processing areas will be designed to control and contain spills and prevent contaminated water from leaving the facility. For unenclosed containment areas, also account for precipitation from a 25-year, 24-hour storm (attach additional pages to answer this question if necessary):

Waste processing units will be located in the enclosed waste processing building. Untreated waste will be stored inside the enclosed waste processing building or inside fully enclosed transportation unit(s). Treated waste will be stored in covered compactor(s) and/or roll-off(s). Since waste is under cover, contaminated water resulting from precipitation in contact with untreated medical waste, if any, will be minimal. The building and the transportation units are capable of controlling and containing worst case spills or releases and prevent contaminated water from leaving the facility.

Liquids generated during waste processing, container washing, and routine cleaning will be controlled and contained to prevent spills and to prevent contaminated water from leaving the facility. Any spills will be immediately contained, collected, and placed into the processing unit or discharged to the onsite 500-gallon storage container. This liquid waste is then transported to Delta Water Processing LLC (TCEQ RN110477700). Tools that may be used to contain and collect spills include absorbent materials, mop, bucket, and/or broom.

Storage of medical waste will be in a secure manner and location that affords protection from theft, vandalism, inadvertent human or animal exposure, rain, water, and wind. The waste will be managed so as not to provide a breeding place or food for insects or rodents, and not generate noxious odors.

An Operations Plan and Spill Containment is provided in Attachment 19.

2.6 Treatment Requirements [30 TAC §326.71(j)]

Attach a written procedure for the operation and testing of any equipment used, and for thepreparation of any chemicals used in treatment.

See Attachment 7.

Section 3—Facility Closure

3.1 Closure Plan [30 TAC §326.71(k)]

The operator must comply with the closure requirements listed in 30 TAC §326.71(k).

List other activities that the facility will conduct during closure, if any (attach additional pages to answer this question if necessary):

Upon closure, the owner or operator will remove all waste, waste residue, and any recovered materials. The owner or operator will transport all untreated medical waste to a TCEQ authorized facility. Final disposition of treated medical waste will be at an authorized facility. All waste management units will be disinfected and removed off-site. Waste

receiving and storage areas will be disinfected. Closure of the facility must be completed within 180 days following last acceptance of processed or unprocessed materials unless otherwise directed or approved in writing by the executive director.

No later than 90 days prior to the initiation of final facility closure, the owner or operator will, through a public notice in the newspaper(s) of largest circulation in the vicinity of the facility, provide public notice for final facility closure. This notice will provide the name, address, and physical location of the facility; the registration number; and the last date of intended receipt of waste. The owner or operator will also make available an adequate number of copies of the approved final closure plan for public access and review. The owner or operator will also provide written notification to the executive director of the intent to close the facility and place the notice of intent in the site operating record.

Upon notification to the executive director of the intent to close the site, the owner or operator will post a minimum of one sign at the main entrance and all other frequently used points of access for the facility notifying all persons who may utilize the facility or site of the date of closing for the entire facility or site and the prohibition against further receipt of waste materials after the stated date. Further, suitable barriers will be installed at all gates or access points to adequately prevent the unauthorized dumping of solid waste at the closed facility.

Within 10 days after completion of final closure activities of the facility, the owner or operator shall submit to the executive director by registered mail a certification, signed by an independent licensed professional engineer, verifying final closure has been completed in accordance with the approved closure plan. The submittal to the executive director will include all applicable documentation necessary for the certification of final facility closure. Upon closure of the facility, the owner or operator will request a voluntary revocation of the registration.

3.2 Closure Cost Estimate [30 TAC §326.71(m)]

Provide itemized closure cost estimates in Table 4. The cost estimates must meet the requirements listed in 30 TAC §326.71(m).

Attach documents detailing any additional unit closure costs not itemized. Enter the total of those additional unit closure costs on line 13 of the closure cost worksheet in Table 4.

An increase in the closure cost estimate and the amount of financial assurance provided must be made if changes to the facility conditions increase the maximum cost of closure at any time during the active life of the facility. A reduction in the cost estimate and the financial assurance must be considered a modification and the owner or operator shall provide a detailed justification for the reduction of the closure cost estimate and the amount of financial assurance.

A reduction in the closure cost estimate and the amount of financial assurance may be approved if the cost estimate exceeds the maximum cost of closure during any time during the operation of the facility.

6/30/22 Amy R Hesseltine

Table 4. Closure Cost Estimates Worksheet.

Item No.	Item Description	Unit of Measure-ment	Quantity	Unit Cost	Total Cost
1	Site Evaluation and Engineering Review	NA	1	$3600	$3600
2	Bid Document and Procurement	NA	1	$3600	$3600
3	Contract Award and Administration	NA	1	$1250	$1250
4	Clean-Up, Removal and Transport ofWaste Stored On-Site	NA	4 trucks	$2000	$8000
5	Disposal of Waste at an AuthorizedFacility	Tons	50	$35	$1750
6	Waste Treatment	Pound	100,000	$0.4	$40,000
7	Process Units Dismantling	NA	1	$4000	$4000
8	Wash Down and Disinfection of Facilityand Processing Units	NA	1	$2500	$2500
9	Vector Control	NA	1	$300	$300
10	Site Security	NA	1	$300	$300
11	Signs, Newspaper Notice and TCEQNotice	NA	1	$2500	$2500
12	Facility Inspection and Closure Certification by Licensed Engineer	NA	1	$5000	$5000
13	Additional Storage and Processing UnitClosure Cost Items (describe in attachments)	NA	NA	NA	NA
14	Storage and Processing Unit ClosureCosts Subtotal	NA	NA	NA	$72,800
15	Contingency Cost 10%	NA	NA	NA	$7,280
16	Total Closure Cost Estimate	NA	NA	NA	**$80,080**

Section 4—Site Operating Plan

4.1 General [30 TAC §326.75(a)]

Provide the function and minimum qualifications for each category of key personnel to be employed at the facility including supervisory personnel in the chain of command (attach additional pages to answer this question if necessary):

The facility will be under the overall direction of the management and/or operations supervisor or other such person as may be appointed. Daily operations will be under the supervision of the Site Operations Manager. Below are descriptions of functions and minimum qualifications for each category of key personnel to be employed at the facility.

Site Operations Manager – Functions: managing employees and facility operations, maintaining compliance with the facility's registration and all applicable regulations, maintaining the operating record in accordance with the registration, and employee training. Minimum qualifications: knowledge of applicable regulations, knowledge of facility's registration and site operating plan, knowledge of the processing unit, and management experience. Operations Supervisor reports to management/operator.

Waste Handler – Functions: inspection of incoming loads and accompanying documentation, supervision of the receiving floor and the loading/unloading of transport vehicles, operation of the processing unit(s), completion of all necessary logging and reporting documents, and disinfection of reusable carts/containers. Minimum qualifications: knowledge of facility's site operating plan, and knowledge of processing unit. Waste handler(s) report to the operations supervisor.

Driver – Functions: collecting and transporting waste to the facility, maintaining required documentation, loading/unloading transport vehicle and assisting the equipment operator as needed. Minimum qualifications: knowledge of regulations relating to transportation of medical waste, and have a valid Driver's License or a Commercial Driver's License (CDL), if applicable. Drivers who may or may not be stationed at the facility will report to the operations supervisor and/or waste handler when on-site.

All new employees receive training containing Bloodborne Pathogen (BBP) training before being allowed to work in the portion of the facility that contains medical waste. All employees receive annual refresher training that includes but is not limited to the above topics. A training course will be provided to all employees involved in the handling and tracking of medical waste. Training sessions are documented using sign in sheets and the data is stored in the company computer system. Site specific training is also conducted that includes location of emergency equipment, what to do in case of a spill, and storage locations of medical waste at the facility. All Class B licensed supervisors have gone through a TCEQ recognized or approved medical waste specialized training course. As noted above Class B certified supervisors are on site as required.

Describe the procedures that the operating personnel will follow for the detection and prevention regarding the receipt of prohibited wastes, including random inspections of packaging of incoming loads, records, and training (attach additional pages to answer this question if necessary):

Nature Environmental & Marine Services has in place the following measures to prevent and ensure that unauthorized waste is not received at the facility. The ultimate responsibility for the prevention of unauthorized waste being stored or treated at the facility rests on the generators. Generators have designated waste as biohazardous, sharps, pathological, chemotherapy or pharmaceutical waste and therefore it is handles as such.

Note that regulations prohibit opening bags or containers of medical waste. However, the facility will employ random visual inspection of packaging when the transport containers are opened to make sure they are properly labeled, identified as to contents and with the corresponding required paperwork.

The contract with the customer (generator) contains a clause pertaining to unauthorized disposal of waste considered non-conforming or outside the scope of regulated medical waste. The generator must sign this contract. A Waste Acceptance Protocol that outlines the laws and regulations concerning the identification, packaging, transportation, treatment, and disposal of regulated medical waste is provided to each customer (generator). In the event any non-conforming waste is received from the generator Nature Environmental & Maines Services, LLC will contact the generator immediately so the unauthorized material can be returned to generator or other approved site on approval of generator for proper disposal. Unauthorized waste will be stored in a designated area until appropriate arrangements are authorized by the generator.

Ongoing training, along with a review of customer records, is provided to customers on an as needed basis to ensure compliance with all applicable laws and regulations to ensure proper management of medical waste and protect against unauthorized disposal.

4.2 Waste Acceptance [30 TAC §326.75(b)]

Describe all sources and characteristics of medical wastes to be received for storage and processing or disposal (attach additional pages to answer this question if necessary):

Sources of waste streams include hospitals, clinics, nursing homes, other health care related facilities, cruise lines, and/or any generator of regulated medical waste. Regulated medical waste will be received in approved Federal and State required packaging accompanied by a manifest.

The following medical wastes will be received for storage, treatment and/or transfer at this location: "Biohazardous red bags waste" includes disposable items such as dressings, bandages, gauze, PPE and other items that have been saturated with blood or body fluids. “Sharps waste” means a device that has acute rigid corners, edges, or protuberances capable of cutting or piercing, including, but not limited to, hypodermic needles, hypodermic needles with syringes, blades, needles with attached tubing, acupuncture needles, root canal files, broken glass items used in health care such as Pasteur pipettes and blood vials contaminated with biohazardous waste, and any item capable of cutting or piercing from trauma scene waste. Pathology waste includes both of the following: (A) Human body parts, except for teeth, removed at surgery and surgery specimens or tissues removed at surgery or autopsy that are suspected by the health care professional of being contaminated with infectious agents known to be contagious to humans or having been fixed in formaldehyde or another fixative. (B) Animal parts, tissues, fluids, or carcasses suspected by the attending veterinarian of being contaminated with infectious agents known to be contagious to humans.

Although not considered medical waste in Texas, “Pharmaceutical” means a prescription or over-the-counter human or veterinary drug, including, but not limited to, a drug as defined in Section 109925 of the Federal Food, Drug, and Cosmetic Act, as amended, (21 U.S.C.A. Sec. 321(g)(1)). For purposes of this part, “pharmaceutical” does not include any pharmaceutical that is regulated pursuant to either of the following: The federal Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C.A. Sec. 6901 et seq.). “Trace chemotherapeutic waste” means waste that is contaminated through contact with, or having previously contained, chemotherapeutic agents, including, but not limited to, gloves, disposable gowns, towels, and intravenous solution bags and attached tubing that are empty. These non medical waste items may be received from time to time and transferred.

The medical waste operations for Nature Environmental & Marines Services, LLC will be co-located at Nature's existing facility in Corpus Christi. The existing facility accepts waste for active operations associated with maritime waste, USDA/APHIS waste, used oil (Registration No. A86098), and industrial and hazardous waste (SWR No. 88576). Medical waste will be stored and managed separately from the other waste streams.

Describe the sources and characteristics of recyclable materials, if applicable, to be received for storage and processing (attach additional pages to answer this question if necessary):

No recycling operations are employed at this location for regulated medical waste. The facility may wash empty plastic containers to be returned to generators for reuse.

Maximum amount of waste to be received daily: 50,000 ☒ pounds/day ☐ tons /day

Maximum amount of waste to be stored at any point in time: 100,000 ☒ pounds

Maximum length of time waste is to remain at the facility: 30 ☐ hours ☒ days

Specify the maximum time that unprocessed and processed wastes will be allowed to remain on-site:

Processed: 10 days

Unprocessed: 30 ☐ hours ☒ days

Identify the intended disposition of processed and unprocessed waste received at the facility(attach additional pages to answer this question if necessary):

Untreated medical waste will be managed in accordance with 25 TAC Subchapter K and 30 TAC Chapter 326. Untreated medical waste may be temporarily stored at the facility unrefrigerated for up to 72 hours after receipt at the facility. Putrescible or biohazardous untreated medical waste held longer than 72 hours after receipt at the facility will be stored at a temperature of 45 degrees Fahrenheit or less.

Once treated in the autoclave unit(s), the steam sterilized waste will be placed in covered compactor/roll-off container(s) for transport and disposal at an approved landfill in accordance with 25 TAC §1.136 and 30 TAC §326.75(r).

4.3 Generated Waste [30 TAC §326.75(c)]

Describe how all liquids and solid waste resulting from the facility operations will be disposed of in a manner that will not cause surface water and groundwater pollution (attach additional pages to answer this question if necessary):

All liquids resulting from the facility operations will be generated inside the waste processing building with impervious concrete flooring and will be disposed of in a manner that will not cause surface water or groundwater pollution. Liquids generated during waste processing, washing, and routine cleaning will be controlled, collected, and channeled directly to the onsite 500-gallon holding tank. Liquids in the tank are then transported to Delta Water Processing LLC (TCEQ RN110477700).

No contaminated water will be discharged off-site without specific written authorization under the Texas Pollutant Discharge Elimination System (TPDES) authority. All necessary authorizations and approvals will be obtained and retained within the operating record at the site. If applicable, the owner/operator will provide a copy of the authorization to discharge wastewater to a treatment facility permitted under Texas Water Code, Chapter 26.

Solid wastes generated by the facility are characterized as municipal solid waste. Municipal solid wastes generated by the facility can be adequately managed by MSW landfills permitted by the TCEQ. MSW will be stored in covered roll-off prior to transport to the landfill for disposal. Since waste will be stored under cover, contaminated water resulting from contact with waste is not anticipated.

4.4 Access Control [30 TAC §326.75(g)]

Describe how public access to the facility will be controlled (attach additional pages to answer this question if necessary):

The facility surrounded by barbed wire topped chain-link perimeter fencing and an electronic entrance gate controlled with a keypad/remote. The entrance gate is closed 24 hours per day.

Access to the facility is controlled by a six-foot-high chain-link fence topped with barbed wire along the north, east, and south sides of the facility. Access along the west side of the facility is controlled by a six-foot-high chain-link fence and the building. Building walls and lockable doors control access to the waste processing building where waste processing and storage occurs. Untreated waste may also be stored in enclosed, lockable transport vehicles.

Visitors are required to sign-in with identification and have an escort at all times.

Describe how access roads and parking areas will be maintained to control dust and prevent mud from being track off-site (attach additional pages to answer this question if necessary):

Public roads used by transport vehicles to access the facility are paved; no dust or mud is anticipated from paved roads.

Any loose gravel at the facility can be sprayed down to eliminate dust at the time transport vehicles are arriving or exiting the facility. Within the facility, a standard garden hose connected to an on-site water source may be sufficient to apply water.

The facility has a concrete paved two-lane entrance, designed for the expected traffic flow. Adequate turning radii for transport vehicles that will utilize the facility is available to avoid disruption of normal traffic patterns. Parking for transport vehicles is provided within the fenced area of the facility. Employee and visitor parking is provided on the north side of the building. Incoming waste will be off loaded directly into the building or into another transfer vehicle/trailer. Safety bumpers will be provided at hoppers, if used at that facility.

Access to the facility will be controlled by a perimeter fence, with lockable gates. Identify or describe the type of fence that will be installed at the facility:

☐ A four-foot-high barbed wire fence;

☒ A six-foot-high chain-link fence; or

☐ Other:

4.5 Operating Hours [(30 TAC §326.75(i)]

Provide the operating hours of the facility; ***include justification for hours outside of 7:00 a.m. to 7:00 p.m., Monday through Friday***:

Waste acceptance and transfer hours for waste transportation vehicles is 24 hours a day, seven days a week. Waste processing hours is 24 hours per day, seven days per week. The facility may conduct operations for maintenance and housekeeping, as needed, 24 hours per day, seven days per week. Additional operating hours outside of 7 am to 7 pm, Monday through Friday are necessary to accommodate customer and business needs.

In addition to meeting the needs of medical waste needs, Nature Environmental & Marine Services specializes in the collection and disposal of maritime waste. We process liquid waste such engine room sludge, bilge, and gray water. In addition, we collect and dispose of solid waste. This is done through various recycling partners and through sterilization of USDA and APHIS materials. Currently we are expanding into the removal, transportation, and recycling of industrial waste in and around the Texas Gulf Coast. Due to the workload of the core business, operating hours are 24 hours per day, 7 days per week.

List the alternative operating hours, if any, of up to five days in a calendar-year period:

The need for alterative operating hours for special occasions, special purpose events, holidays, or other special occurrences is not anticipated.

Section 5—Other Site Operating Plan, Financial Assurance, and Closure Requirements

Attach additional pages describing how the facility will comply with the following requirements.

- 30 TAC §326.75(d), Storage
- 30 TAC §326.75(e), Recordkeeping and Reporting
- 30 TAC §326.75(f), Fire protection Plan
- 30 TAC §326.75(g)(2), Access Roads, Vehicle Parking, and Safety Measures
- 30 TAC §326.75(g), Access Control
- 30 TAC §326.75(h), Unloading of Waste
- 30 TAC §326.75(i)(3), Recording of Applicable Alternative Hours (if used)
- 30 TAC §326.75(j), Signs at Facility Entrances
- 30 TAC §326.75(k), Control of Windblown Material and Litter
- 30 TAC §326.75(l), Facility Access Roads
- 30 TAC §326.75(m), Noise Pollution and Visual Screening
- 30 TAC §326.75(n), Overloading and Breakdown
- 30 TAC §326.75(o), Sanitation
- 30 TAC §326.75(p), Ventilation and Air Pollution Control
- 30 TAC §326.75(q), Health and Safety

- 30 TAC 326.75(r), Disposal of Treated Medical Waste (if applicable)
- 30 TAC §326.71(n); Financial Assurance
- 30 TAC §326.71(l)(1); provide notice for final facility closure and information for the public andexecutive director no later than 90 days prior to initiating final closure.
- 30 TAC §326.71(l)(2); install signs and barriers upon notification of final closure to the executive director.
- 30 TAC §326.71(l)(3); provide certification of closure, and a request for voluntary revocation of facility registration within 10 days after completion of final closure of the facility.

See sections 5.1 to 5.17 on pages 20 to 24 for Other Site Operating Plan, Financial Assurance, and Closure Requirements.

5.1 Storage (30 TAC §326.75(d))

All regulated medical waste arriving at the facility will be off loaded and placed into the building as shown on the facility drawings so as not to create a nuisance, and to prevent putrefaction.

All medical waste will be stored separate from all other waste materials or other processes. The medical waste operations for Nature Environmental & Marines Services, LLC will be co-located at Nature's existing facility in Corpus Christi. The existing facility has equipment, tanks and storage areas for active operations associated with maritime waste, USDA/APHIS waste, used oil (Registration No. A86098), and industrial and hazardous waste (SWR No. 88576).

Storage will be in a manner that does not constitute fire, safety, or health hazard or provide food or harborage for animals and disease vectors and shall be contained in such a way as to not result in litter. This facility has existing protocols to control odors, vectors, and windblown waste. All medical waste containers are located either in the building or on the vehicle. Medical waste is by and large not putrescible and is transferred to other locations or treated promptly. The company maintains a robust vector control program covering the entire property.

All containers coming onto the property are promptly and subsequently staged for processing as described later in this section or if applicable, transferred to other locations. Medical waste containers will be transferred or treated within 72 hours of receipt. The majority of the waste will be staged in the building as described later in this section for treatment by sterilization at this location. The handling of the containers is maintained in such a way as to protect the integrity of each container during storage, handling, and transport. Containers will be maintained in a clean condition so that they do not constitute a nuisance.

Stationary compactor(s) will be operated and maintained in such a way to not create a public nuisance through material loss or spillage, odor, vector breeding or other conditions.

5.2 Recordkeeping and Reporting (30 TAC §326.75(e))

All records shall be maintained by the facility as required by applicable regulations.

A copy of the registration, the approved registration application, and any other required plan or other related document, will be maintained at all times. These documents will be available for inspection by authorized personnel from applicable authorities. agency representatives;

All information contained in the operating record will be furnished upon request to the Executive Director and shall be made available at all reasonable times for inspection by the

Executive Director. Nature Environmental & Marine Services, LLC will retain all information contained within the operating record and the various plans required for the facility for the life of the operation. The following will be promptly recorded and retained in the operating record: 1) Any and all applicable location-restriction demonstrations, 2) Inspection records and training procedures, 3) Closure plans, cost estimates and financial assurance documentation relating to financial assurance for closure, 4) Copies of all correspondence and responses relating to the operation of the facility, modifications to the registration, approvals, and other matters pertaining to technical assistance, and 5) All documents, manifests, shipping documents, and any other document(s) as specified by the approved authorization or by the executive director.

When accepting delivery of untreated medical waste for which a shipping document is required for processing, the owner or operator will ensure each of the following requirements is met:

1. The shipment is accompanied by a shipping document, which designates the facility to receive the waste;
2. The shipping document is signed by the owner or operator and at least one copy of the signed shipping document is immediately given to the transporter;
3. One copy of the shipping document is retained by the owner or operator; and
4. Within 45 days after delivery, the treatment facility owner or operator sends a written or electronic copy of the shipping document to the generator that includes the total weight of waste received and a statement that the medical waste was treated in accordance with 25 TAC §1.136 (relating to Approved Methods of Treatment and Disposition).

5.3 Fire Protection Plan (30 TAC §326.75(f))

There is a comprehensive fire protection plan (see Attachment 17) at the facility that addresses all of the following:

1. There is always an adequate supply of water for firefighting purposes supplied under normal conditions by the water company.
2. Fire extinguishers that comply with all requirements are strategically placed to be readily available as needed. Fire extinguishers are located at each exit door in the facility building. Extinguishers are typically 20-lb ABC Type.
3. All employees are trained in the fire protection program including contact information, training and safety procedures. The Fire Protection Plan includes measures for fire protection, procedures for using fire protection measures, employee training and safety procedures, notification protocols and other appropriate items. The Fire Protection Plan is in compliance with all local fire codes.

5.4 Access Control (30 TAC §326.75(g))

Public access control is maintained through several means. The facility is locked and secured during non-operational hours and equipped with an alarm system monitored offsite.

The access roads to the facility are all paved roadways. All operations are maintained inside the building shown on the site plan. Access to the facility is controlled via a fence that surrounds the perimeter along with security gates that are accessed via a code or key card.

Public access to this facility is restricted and limited to employees, invited visitors or contractors, and authorized regulatory agency personnel. Visitors and others enter the

office, and authorized access is granted after signing in and revealing the purpose of the visit. No visitors are unaccompanied at any time.

The facility access is designed for the traffic flow via a multi-lane paved road. Safe on-site access for all vehicles is provided, including adequate turning radii and does not disrupt normal traffic patterns. Parking is provided for equipment, employees, and visitors. All interior driving and parking surfaces are paved to minimize dust and mud.

A 6-foot perimeter fence topped with 3-stranded barbed wire surrounds the facility and includes lockable and monitored pedestrian and vehicle gates for access. Monitoring is conducted via closed circuit cameras with recording devices. The property is always occupied during normal business hours.

5.5 Unloading of Waste (30 TAC §326.75(h))

The unloading of waste will be confined to as small an area as practical. Waste is unloaded in the specific designated area shown on the site and floor plans. From there it is placed either into a refrigerated trailer or the specified medical waste storage area within the building. Waste will be stored in the building both for treatment onsite or for transfer to another location as described. A trained employee will monitor all incoming loads of waste to help prevent the receipt of unauthorized waste and to direct the unloading of waste. The unloading of prohibited waste will not be allowed. Any non-conforming waste is returned to the generator or transporter within 72 hours.

Appropriate signs will be used to indicate where vehicles are to unload. Any waste deposited in an unauthorized area will be removed promptly and managed of properly. Once unloaded the waste is staged for treatment onsite in the autoclave or for transfer to another location for treatment by incineration or transfer to an appropriate treatment facility. The process flow diagram and narrative in this section describes the process in detail.

5.6 Operating Hours (30 TAC §326.75(i)(3))

Operating hours of the facility are as follows:

24 hours per day, 7 days per week (operations)

8:00 am to 4:00 pm Monday through Friday (office)

Weekend and holiday hours vary by the work conditions.

Since the facility is authorized to operate 24 hours per day, seven days per week, alternative hours are not applicable.

5.7 Facility Sign (30 TAC §326.75(j))

Signs measuring four feet by four feet with letters at least 3” high will be prominently displayed at the vehicle entrance locations. The signs will include the following information: facility name, type of facility, days and hours of operation, authorization number of the facility, and access rules.

5.8 Control of Windblown Material and Litter (30 TAC §326.75(k))

The entire location is maintained in a clean, healthy, and safe manner, through in part controlling windblown material and litter being promptly collected and disposed of. Routine inspection of the building and grounds are done to ensure any material and litter does not escape the property and cause a nuisance.

5.9 Facility Access Roads (30 TAC §326.75(l))

Vehicle and personnel safety is of primary concern, so all interior roads are maintained to minimize depressions, ruts, and potholes.

Public access roads to the facility are paved, all weather roads. Mud and dust are not an issue from vehicles entering the facility as there are no unpaved roadways used to access the site. Onsite roads are all-weather gravel and may be dampened upon arrival and departure to reduce the potential of dust and mud from transportation vehicles.

On-site roads/parking areas are maintained by Nature Environmental & Marine Services, LLC. Off-site access roads are paved and maintained by the proper authority (City of Corpus Christi, Nueces County and/or Texas Department of Transportation).

5.10 Noise Pollution and Visual Screening (30 TAC §326.75(m))

The only noise arising from the operation is that of vehicles entering or exiting the property. Equipment in the building includes that which is associated with treatment of the waste and that is identified and explained in this document. All noise levels are below the limits from all applicable agencies. Visual screening is maintained due to the location of the operation which is around behind the buildings or within them.

5.11 Overloading and Breakdown (30 TAC §326.75(n))

The waste treatment design capacity of the facility unit is 25 tons per day (50,000 pounds per day) of medical waste and this rate will not be exceeded. The facility may store up to 50 tons (100,000 pounds) of medical waste at any one time. The facility will not accumulate waste in quantities that cannot be processed within such time that would allow for the creation of odors, insect breeding, or harborage of other vectors. There will be several measures employed by Nature Environmental & Marine Services, LLC to ensure waste is stored properly and repackaged in a timely manner:

The facility has sufficient storage capacity for incoming wastes and can store in the building and vehicles. Incoming wastes stored longer than 72 hours are refrigerated. As needed, incoming waste shipments can be delayed, or sent to an alternative permitted treatment facility if necessary.

If significant work stoppage should occur due to unexpected circumstances, the facility will restrict the receipt of waste accordingly. Under such circumstances, incoming deliveries will be delayed or diverted to an approved backup facility. If the stoppage lasts long enough to create a nuisance, odor or vectors, waste will be transferred off-site to an alternate approved facility.

In such an event that the facility becomes inoperable for periods longer than 24 hours, waste will be transported via approved transportation vehicles to an alternative processing facility approved by the TCEQ.

5.12 Sanitation (30 TAC §326.75(o))

Sanitary facilities and potable water are available at all times for employees and visitors.

All working surfaces that come into contact with wastes are washed down regularly. The building will be swept daily, and washing and cleaning activities are conducted as needed in the building, at least twice weekly. Processing facilities that operate continuously must be swept daily. All working areas will be swept daily. Moisture is not allowed to accumulate on site in order to prevent the creation of odors or attraction of vectors. Mopping is conducted for floor cleaning. Spills are cleaned with a 10% sodium hypochlorite solution or similar disinfection material. Spilled material is disinfected, containerized, and treated in the onsite autoclave.

5.13 Ventilation and Air Pollution Control (30 TAC §326.75(p))

The area is well ventilated at all times. Air emissions from this facility will not cause or contribute to air pollution as defined in the Texas Clean Air Act. This Facility will comply with all applicable regulations regarding air emissions and will obtain any required authorizations from the TCEQ Air Permits Division. All liquid waste and solid waste shall be stored in odor-retaining containers and vessels. No odors are expected to occur in the facility since the medical waste is kept in sealed containers unless being repackaged. The facility is designed to provide adequate ventilation for odor control and employee safety. In the event of odors passing the facility boundary, actions will be taken to prevent nuisance odors from leaving the facility. Control of potential odors is accomplished through a number of measures including use of the routine cleanup, sealed containerized and refrigerated storage, and conducting operations within the enclosed indoor structure.

Treatment and storage is conducted within the facility structure. Medical waste exposure to the air is limited and minimal. Waste is received and stored in enclosed containers.

5.14 Health and Safety (30 TAC §326.75(q))

All employees are trained in appropriate sections of the Company's health and safety plan, the details of which are included in the Attachment 18.

5.15 Disposal of Treated Waste (30 TAC §326.75(r))

All treated waste is placed in stationary compactors and when full transferred to the designated landfill which at the present time is El Centro Landfill. All approvals are in place for waste to be accepted at that location.

5.16 Financial Assurance (30 TAC §326.71(n))

Financial Assurance is provided by insurance procured by the applicant.

Continuous financial assurance coverage for closure will be provided until all requirements of the closure plan have been completed and the facility is determined to be closed in writing by the executive director. A copy of the documentation required to demonstrate financial assurance will be submitted 60 days prior to the initial receipt of waste.

5.17 Certification of Final Closure (30 TAC §326.71(l))

No later than 90 days prior to the initiation of final facility closure, the owner or operator will, through a published notice in the newspaper(s) of largest circulation in the vicinity of the facility, provide public notice for final facility closure. This notice will provide the name, address, and physical location of the facility; the registration number; and the last date of intended receipt of waste. The owner or operator will also make available an adequate number of copies of the approved final closure plan for public access and review.

The owner or operator will also provide written notification to the executive director of the intent to close the facility and place the notice of intent in the facility's operating record.

Upon notification to the executive director of the intent to close the site, the owner or operator will post a minimum of one sign at the main entrance and all other frequently used points of access for the facility notifying all persons who may utilize the facility or site of the date of closing for the entire facility and the prohibition against further receipt of waste materials after the stated date. Suitable barriers will be installed at all gates or access points to adequately prevent the unauthorized dumping of solid waste at the closed facility.

Within ten days after completion of final closure activities of the facility, the owner or operator shall submit to the executive director by registered mail a certification, signed by an independent licensed professional engineer, verifying final closure has been completed in accordance with the approved closure plan. and a request for voluntary revocation of the facility registration.

Section 6—Applicant Certification and Signature

The applicant is the person or entity who would be the owner of the facility and in whose name the registration would be issued. If the application is signed by an authorized representative for the applicant, the applicant must complete the delegation of signature authority.

Certification by Applicant or Authorized Signatory [30 TAC §305.44]

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name of applicant, or other person authorized to sign: SUDHAKARA YENUMALA

Title of person signing: DIRECTOR

Signature: Y. S. Reddy Date: 7/1/2022

Notarization

SUBSCRIBED AND SWORN to before me by the said Yenumala, Sudhakara

On this 1st day of July, 2022.

My commission expires on the 01 day of January, 2022.

JALLIME DOMINGUEZ
Notary Public, State of Texas
Comm. Expires 01-21-2025
Notary ID 132882567

Notary Public in and for

Galveston County, Texas

Applicant's Delegation of Signature Authority [30 TAC §305.43]

I hereby delegate the person named below as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and appear for me at any hearing or before the Commission in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative in support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

Name of applicant's representative: _____

Name of person who is the applicant, or officer or official representing corporation or public agency that is the applicant: _____

Signature: _____ Date: _____

Notarization

SUBSCRIBED AND SWORN to before me by the said _____

On this _____ day of _____, _____.

My commission expires on the _____ day of _____, _____.

_____

Notary Public in and for

_____ County, Texas

Section 7—Property Owner Affidavit

Affidavit [30 TAC §326.71(b)]

This section must be completed by the owner of the property on which the facility would be located.

I am the owner of the land on which the proposed facility would be located. I acknowledge that the State of Texas may hold me either jointly or severally responsible for the operation, maintenance, and closure of the facility. I further acknowledge that the facility owner or operator and the State of Texas shall have access to the property during the active life and after closure for the purpose of inspection and maintenance.

Property owner name: Nature Environmental & Marine Services LLC

Signature: Y. S. Reddy Date: 7/1/2022

Notarization

SUBSCRIBED AND SWORN to before me by the said Venumala Sudhakara

On this 1st day of July, 2022.

My commission expires on the 01 day of January, 2025.

Notary Public in and for

Galveston County, Texas

JALLIME DOMINGUEZ
Notary Public, State of Texas
Comm. Expires 01-21-2025
Notary ID 132882567

Attachments

Table Att-1. Required Attachments

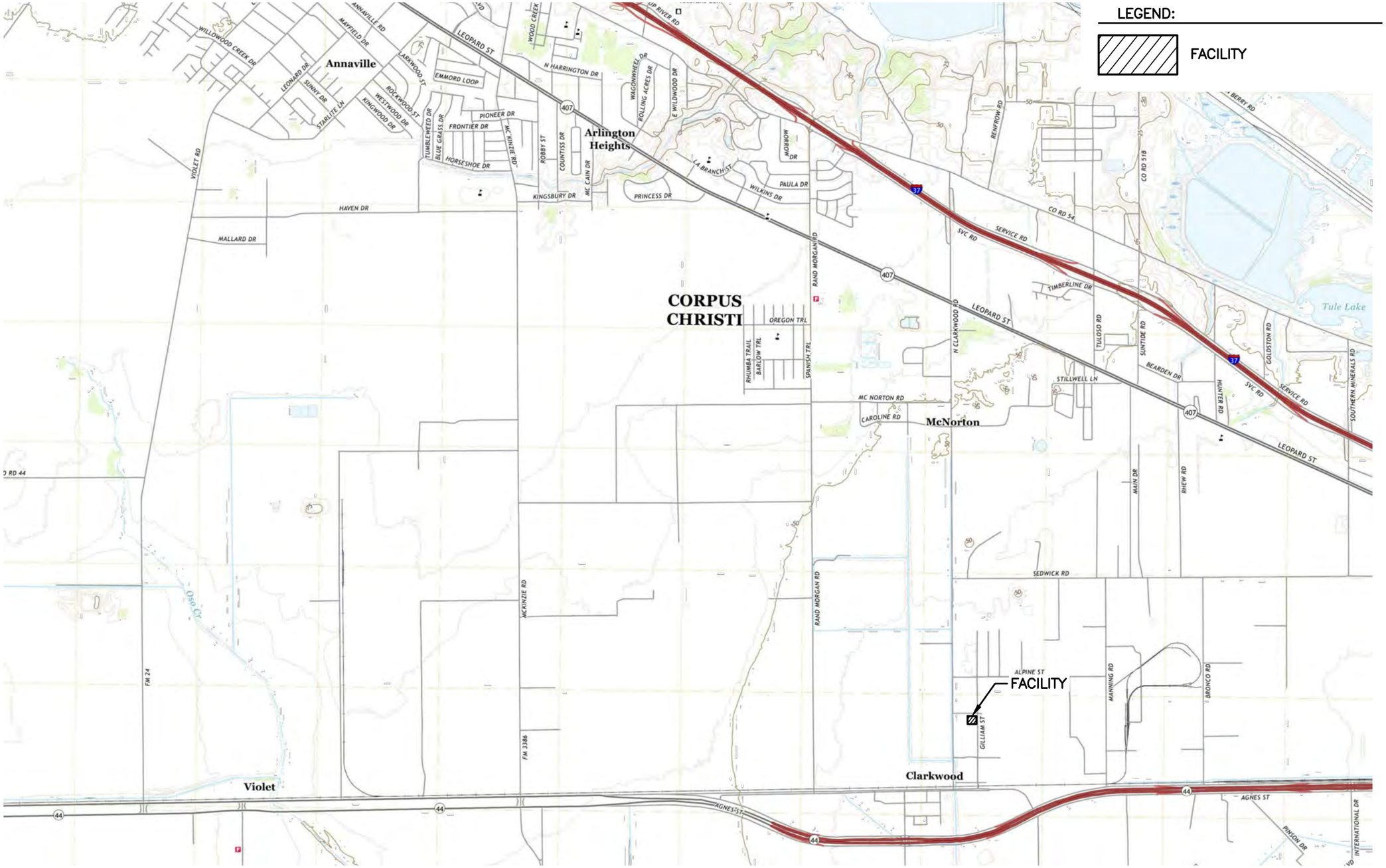
Attachments	Attachment No.
General Location Map	1
Facility Access Map	2
Facility Layout Map	2
Land Use Map	3
Land Ownership Map	4
Land Ownership List	4
Land Ownership Hard Copy and Electronic Mailing List or Mailing Labels	4
Metes and Bounds Drawing and Description	5
Copy of Authorization to Discharge Wastewater to a Treatment Facility	N/A
Process Flow Diagrams and Narrative	6
Procedures for Operation and Testing of Treatment Equipment, if applicable	7
Procedures for Preparation of any Chemical used in Treatment, if applicable	N/A
Verification of Legal Status	8
Texas Department of Transportation Coordination Letters	9
Entity Exercising Maintenance Responsibility of Public Roadway, if applicable	N/A
FEMA Map	10
☐Facility Design Demonstration for Flood Management ☐	N/A
Wetland Documentation, if applicable	N/A
Council of Governments Review Request Coordination Letters	11

Table Att-2. Additional Attachments; check all that apply.

Attachments	Attachment No.
☐ TCEQ Core Data Form(s)	12
☐ Fee Receipt or copy of check	13
☐ Published Zoning Map	14
☐ Signatory Authority	15
☐ Manufacturer Specifications for Waste Management Units	16
☐ Additional Storage and Processing Unit Closure Cost Items	N/A
☐ Confidential Documents	N/A
Fire Protection Plan	17
Health and Safety Plan	18
Operations Plan and Spill Containment	19

ATTACHMENT 1

GENERAL LOCATION MAP



GENERAL LOCATION MAP

SCALE: 1"=2000'

0 2000'

N

NOTES:

MAP PREPARED FROM:
USGS 7.5 MINUTE SERIES
TOPOGRAPHIC MAP
ANNAVILLE QUADRANGLE
CORPUS CHRISTI, TEXAS – 2019
MAP SCALE 1:24,000 (1"=2000')

STATE OF TEXAS
AMY REIN HESSELTINE
93578
LICENSED PROFESSIONAL ENGINEER
6/30/22

NATURE ENVIRONMENTAL & MARINE SERVICES
8713 ROOT STREET
CORPUS CHRISTI, TEXAS

GENERAL LOCATION MAP
ATTACHMENT 1

ARDURRA
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801 Navigation Suite 300
Corpus Christi, Texas 78408
Phone: (361) 883-1984
www.Ardurra.com

Engineering License #F-10053

Ardurra Group, Inc.
Surveying Firm 10194688
Architectural Firm BR4160

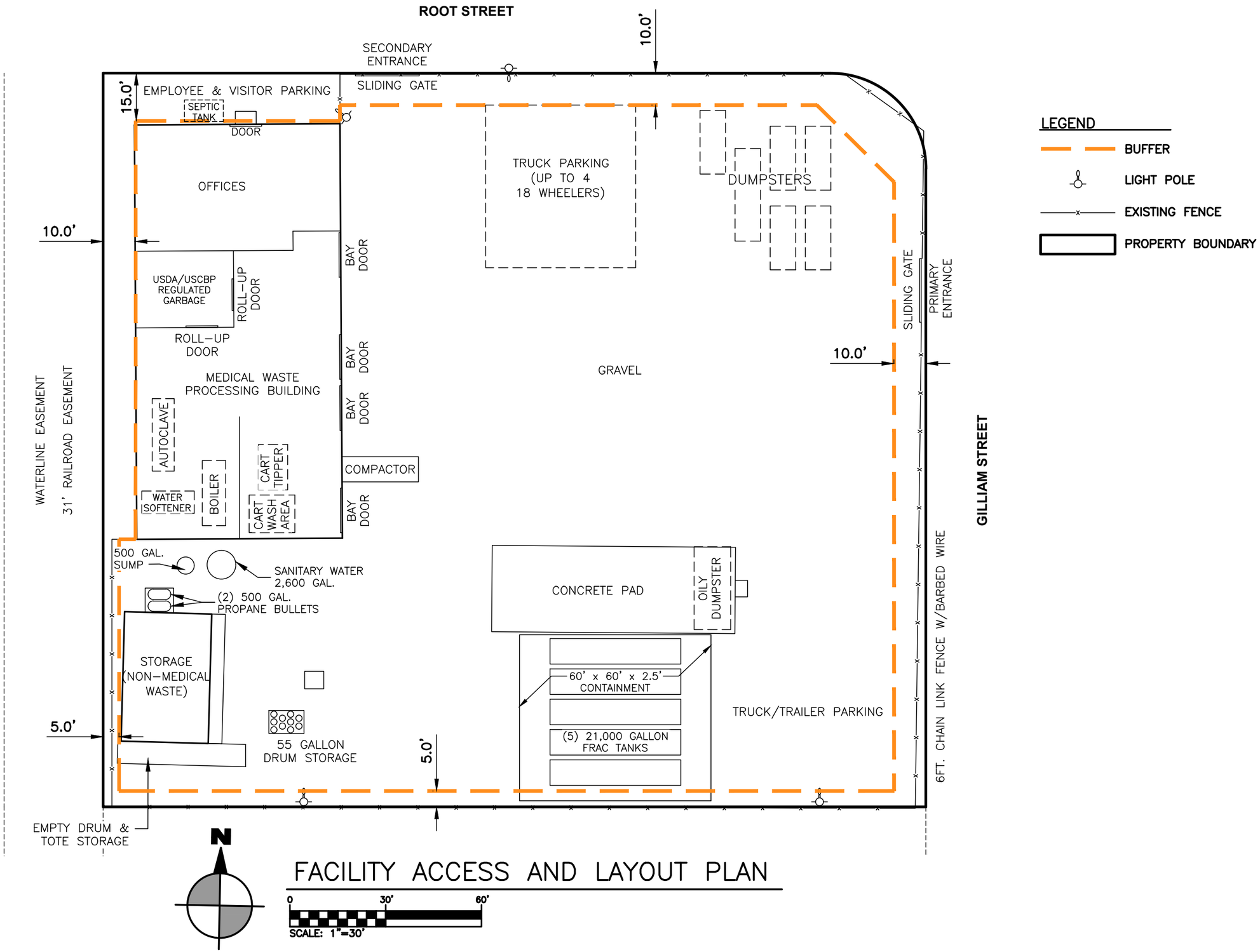
DATE:	6/30/22
DRAWN BY:	SCG
CHECKED BY:	AH
APPROVED BY:	AH
JOB NO:	220101

REVISIONS		
-	-	-
DATE	NO.	DESCRIPTION

U:\Nature Environmental and Marine Services\220101 Medical Waste Registration Application\000\20-Drawings\Exhibits-Imagery\220101 – Exhibit General Location Map.dwg
Friday July 01, 2022, 8:46am

ATTACHMENT 2

FACILTY ACCESS AND LAYOUT MAP



FACILITY ACCESS AND LAYOUT PLAN

LEGEND

- BUFFER
- LIGHT POLE
- EXISTING FENCE
- PROPERTY BOUNDARY

STATE OF TEXAS
AMY REIN HESSELTINE
93578
LICENSED PROFESSIONAL ENGINEER

06/30/2022

Amy R Hesseltine

NATURE ENVIRONMENTAL AND MARINE SERVICES
8713 ROOT STREET
CORPUS CHRISTI, TEXAS

ATTACHMENT 2
FACILITY ACCESS AND LAYOUT PLAN

ARDURRA
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Corpus Christi, Texas 78408
Phone: (361) 883-1984
www.Ardurra.com

Engineering License #F-10053

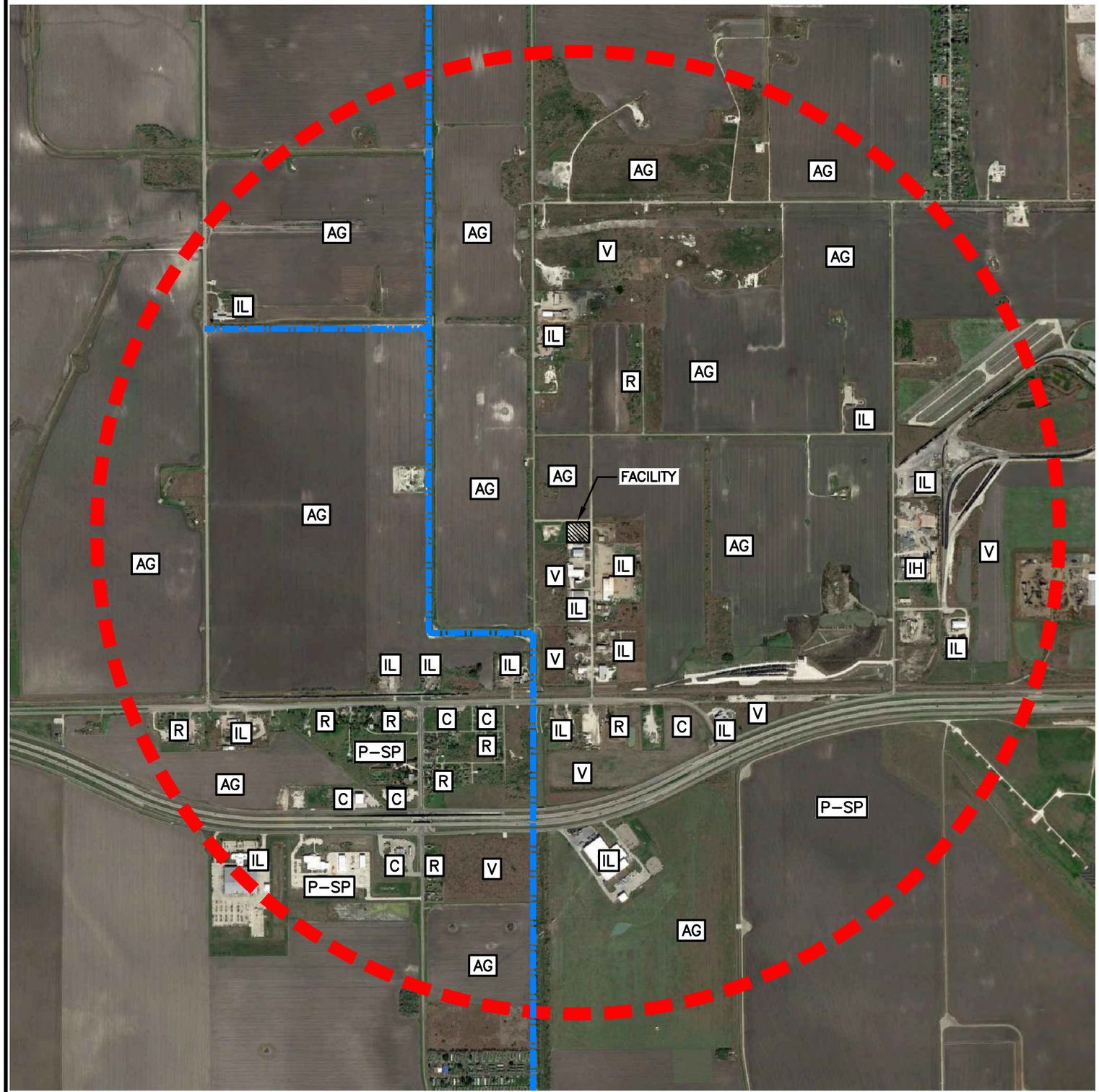
Ardurra Group, Inc.
Surveying Firm 10194688
Architectural Firm BR4160

DATE:	06/30/2022
DRAWN BY:	SCG
CHECKED BY:	AH
APPROVED BY:	AH
JOB NO:	220101.000.2

REVISIONS		
-	-	-
DATE	NO.	DESCRIPTION

ATTACHMENT 3

LAND USE MAP



LEGEND:

- 1 MILE RADIUS FROM FACILITY
- DRAINAGE CORRIDOR
- FACILITY
- IL = LIGHT INDUSTRIAL
- IH = HEAVY INDUSTRIAL
- AG = AGRICULTURAL
- R = RESIDENTIAL
- C = COMMERCIAL
- P–SP = PUBLIC/SEMI–PUBLIC
- V = VACANT

NOTES:

1. MAP DERIVED FROM GOOGLE EARTH (IMAGERY DATE: 1/31/2020)
2. LAND USES BASED ON CORPUS CHRISTI VIEWER (CORPUS.MAPS.ARCGIS.COM/APPS/WEBAPPVIEWER/INDEX.HTML?ID=364701d357474326839d4099aa526473)

N

LAND USE MAP

SCALE: 1"=1200'

0 1200' 2400'

STATE OF TEXAS
AMY REIN HESSELTINE
93578
LICENSED PROFESSIONAL ENGINEER
6/30/22

NATURE ENVIRONMENTAL & MARINE SERVICES
8713 ROOT STREET
CORPUS CHRISTI, TEXAS

LAND USE MAP
ATTACHMENT 3

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Ardurra Group, Inc.
Surveying Firm 10194688
Architectural Firm BR4160

DATE:	6/30/22
DRAWN BY:	SCG
CHECKED BY:	AH
APPROVED BY:	AH
JOB NO:	220101

REVISIONS		
DATE	NO.	DESCRIPTION

ATTACHMENT 4

LAND OWNERSHIP MAP AND

LAND OWNERSHIP LIST

LEGEND:

1/4–MILE RADIUS FROM FACILITY

FACILITY

100 PROPERTY IDENTIFICATION

LAND OWNERSHIP MAP

SCALE: 1"=600'

0 600'

N

NOTES:

1. PROPERTY IDENTIFICATION NUMBERS CORRESPOND TO LANDOWNERS AS DESIGNATED ON LAND OWNERSHIP LIST.
2. MAP DERIVED FROM NUECES COUNTY APPRAISAL DISTRICT GIS MAPS https://corpus.maps.arcgis.com/apps/webappviewer/index.html?id=364701d357474326839d4099aa526473

STATE OF TEXAS
AMY REIN HESSELTINE
93578
LICENSED PROFESSIONAL ENGINEER
6/30/22

NATURE ENVIRONMENTAL & MARINE SERVICES
8713 ROOT STREET
CORPUS CHRISTI, TEXAS

LAND OWNERSHIP MAP
ATTACHMENT 4

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801 Navigation Suite 300
Corpus Christi, Texas 78408
Phone: (361) 883-1984
www.Ardurra.com

Engineering License #F-10053

Ardurra Group, Inc.
Surveying Firm 10194688
Architectural Firm BR4160

DATE:	6/30/22
DRAWN BY:	TSH
CHECKED BY:	AH
APPROVED BY:	AH
JOB NO:	220101

REVISIONS		
DATE	NO.	DESCRIPTION

LAND OWNERSHIP LIST

1. NATURE ENVIRONMENTAL & MARINE SERVICES LLC
   2002 TIMBERLOCH PL STE 200
   SPRING, TX 77380-1182

   No mineral right's owners identified on the Nueces County Appraisal District

2. RELATED INVESTORS LTD
   P O BOX 8229
   CORPUS CHRISTI, TX 78468-8229

3. VASQUEZ ELIZABETH A F
   3829 MACARTHUR ST
   CORPUS CHRISTI, TX 78416

4. GONZALES RICHARD JOSEPH
   534 EVERGREEN DR
   CORPUS CHRISTI, TX 78412-3140

5. SMITH JAMES S
   638 RANGER DR
   SANDIA, TX 78383

6. MILLER FLOYD TYSON III
   P O BOX 9063
   CORPUS CHRISTI, TX 78469

7. MOBLEY OFFICES LP
   PO BOX 176
   DEER PARK, TX 77536-0176

8. CETCO ENERGY SERVICES CO LLC
   2870 FORBS AVE
   HOFFMAN ESTATES, IL 60192-3702

9. FLOWSERVE US INC
   5215 N O CONNOR BLVD
   STE 2300
   IRVING, TX 75039-3726

10. RODRIGUEZ RODOLFO R AND
    SALLY A RODRIGUEZ
    PO BOX 506
    CORPUS CHRISTI, TX 78403

11. RANGELAND PRODUCTS TERMINALS LLC
    ATTN: ROBERT F SINGLETON
    2150 TOWN SQUARE PL STE 700
    SUGAR LAND, TX 77479-1465

12. HERNANDEZ MARIA T
2305 S GOODWIN RD
MISSION, TX 78572-2161

13. HOELSCHER KATHRYN TTEE OF THE HOELSCHER REV LIV TR
17003 ELLINGTON WAY
SAN ANTONIO, TX 78247-5948

14. ARANSAS DRILLING AND WORKOVER INC
130 GILLIAM RD
CORPUS CHRISTI, TX 78409

15. ISENSEE HUGO HENRY
C/O LUKE ISENSEE
506 E WILDWOOD DR
CORPUS CHRISTI, TX 78410-1729

ISENSEE LUKE OMAR
506 E WILDWOOD DR
CORPUS CHRISTI, TX 78410-1729

16. FERNANDEZ JULIO
3302 SHALLOW CREEK DR
CORPUS CHRISTI, TX 78410-5780

17. H L HINES OF ALL PRO TANK SERVICES INC
PO BOX 1050
REFUGIO, TX 78377-1050

18. ISENSEE GRADY M
746 PRINCESS
CORPUS CHRISTI, TX 78410

ISENSEE HUGO HENRY
C/O LUKE ISENSEE
506 E WILDWOOD DR
CORPUS CHRISTI, TX 78410-1729

ISENSEE LUKE OMAR
506 E WILDWOOD DR
CORPUS CHRISTI, TX 78410-1729

KILGORE CAROL ISENSEE & CHRISTOPHER HUGO ISENSEE
9025 AGNES ST UNIT A
CORPUS CHRISTI, TX 78406-1538

19. CITY OF CORPUS CHRISTI
PO BOX 9277
CORPUS CHRISTI, TX 78469-9277

20. SC VALLE SERVICE DBA ARC DEMOLITION
PO BOX 12396
ODESSA, TX 79768-2396

21. R ROBERTS CONSTRUCTION LTD
PO BOX 2770
PORT ARANSAS, TX 78373-2770

22. ISENSEE GRADY M
746 PRINCESS
CORPUS CHRISTI, TX 78410

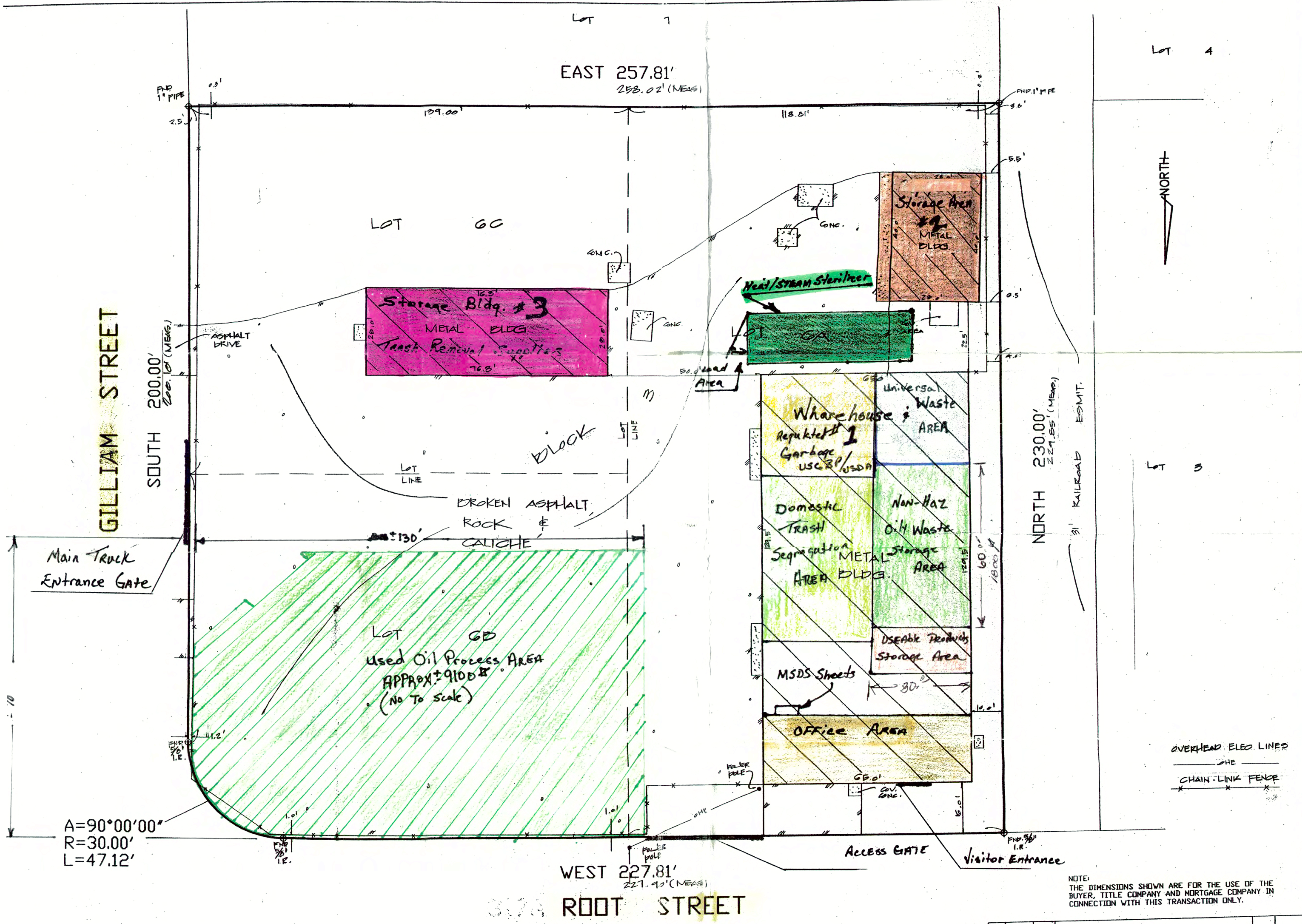
23. SHEETS WILLIAM MICHAEL
PO BOX 9272
CORPUS CHRISTI, TX 78469-9272

24. PAVELKA DOROTHY TRUST
JOYCE DANYSH & WYLMA AVANT TRUSTEES
2578 COUNTY ROAD 36
ROBSTOWN, TX 78380-5746

25. POLK DENNIS LEE
726 N CLARKWOOD RD
CORPUS CHRISTI, TX 78409-3304

ATTACHMENT 5

METES AND BOUNDS DRAWING AND DESCRIPTION



NOTE:
THE DIMENSIONS SHOWN ARE FOR THE USE OF THE BUYER, TITLE COMPANY AND MORTGAGE COMPANY IN CONNECTION WITH THIS TRANSACTION ONLY.

I, THE UNDERSIGNED IN MY PROFESSIONAL OPINION, HEREBY STATES THAT; THIS SURVEY PLAT HEREON IS TRUE AND CORRECT AND WAS PREPARED FROM AN ACTUAL ON THE GROUND SURVEY UNDER MY DIRECTION; ALL MONUMENTS WERE FOUND OR SET AS REFLECTED ON THE SURVEY PLAT; THAT THERE ARE NO ENCROACHMENTS AND BOUNDARY CONFLICTS EXCEPT AS SHOWN ON THE SURVEY PLAT.

SURVEYOR REGISTRATION NO. 4486

AGE: 31 DATED: 6/28/1965
CURL
TY TITLE Co. GF NO. 06488 6564
THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP COMMUNITY NUMBER
MBER 0295C, DATE 3/18/85 AND FOUND THAT THE PROPERTY IS IN ZONE C. THE ZONE IS BASED
ATION OF SAID SURVEY ON THE FLOOD INSURANCE RATE MAP.

NO.	DATE	BY	REVISION	CKD	APPD

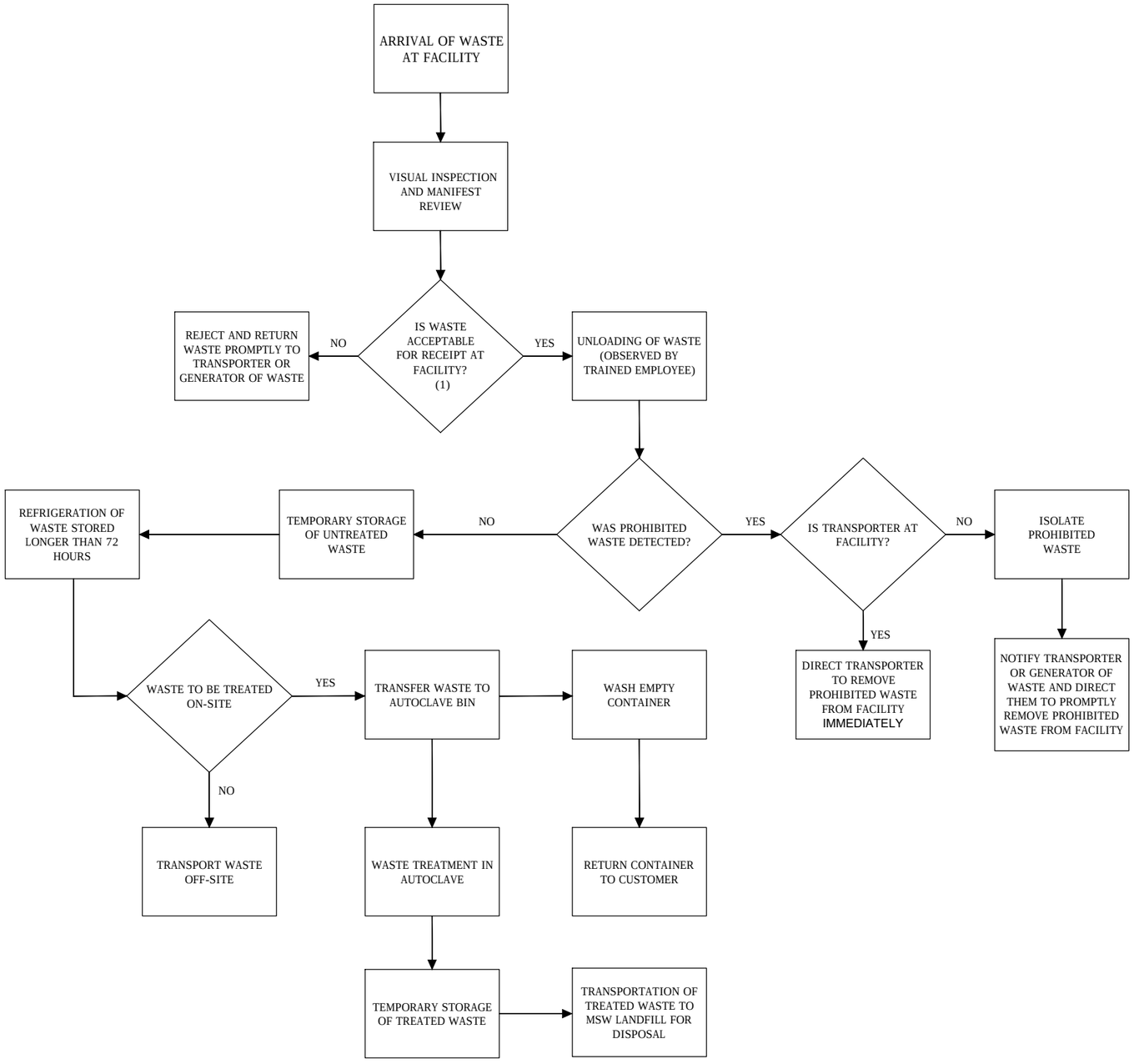
Hayden Surveying, incorporated
5866 S. STAPLES SUITE 342
CORPUS CHRISTI, TEXAS 78413
PHONE 991-8088

SURVEY OF
LOTS GA, GB, & GC
BLOCK 5
CLARK LAND TRACT
SUBDIVISION
NUECES COUNTY, TEXAS

DRAWN BY: DGG	CHKD. BY: J.P.	APPROVED BY: F.C.H.
SCALE: 1"=20'	DATE: 4-29-2008	SHEET 1 OF 1
REV. NO.	JOB NO. 080233	

ATTACHMENT 6

PROCESS FLOW DIAGRAM AND NARRATIVE



STATE OF TEXAS
AMY REIN HESSELTINE
93578
LICENSED PROFESSIONAL ENGINEER

06/30/22

FOR PERMITTING ONLY,
NOT FOR BID OR CONSTRUCTION

NATURE ENVIRONMENTAL & MARINE SERVICES
8713 ROOT STREET
CORPUS CHRISTI, TEXAS

PROCESS FLOW DIAGRAM
ATTACHMENT 6

ARDURRA
COLLABORATE. INNOVATE. CREATE.

801 Navigation Suite 300
Corpus Christi, Texas 78408
Phone: (361) 883-1984
www.Ardurra.com

Engineering License #F-10053

Ardurra Group, Inc.
Surveying Firm 10194688
Architectural Firm BR4160

DATE:	06/30/2022
DRAWN BY:	TSH
CHECKED BY:	AH
APPROVED BY:	AH
JOB NO:	220101

REVISIONS		
DATE	NO.	DESCRIPTION

PROCESS FLOW DIAGRAM AND NARRATIVE

§326.71(h)(4) Flow Diagram and Narrative

A flow diagram indicating the receipt, storage, and transfer sequences for the various types of wastes received is provided in this Attachment 6 of the application. A narrative of each phase is provided below.

Arrival of Waste at Facility: Medial waste is delivered by a TCEQ registered medical waste transporter to the medical waste management facility. Only those waste streams specified in this registration application will be unloaded. The unloading of prohibited wastes will not be allowed.

Visual Inspection and Manifest Review: Incoming waste and accompanying manifests/shipping documents will be visually inspected by employees trained to identify prohibited waste. Random visual inspections of packaging for incoming waste containers will be conducted a minimum of once per week to verify proper markings have been placed on all containers of waste.

Waste Accepted: The facility will accept medical waste as defined in §326.3(23), non-hazardous pharmaceuticals, trace chemotherapeutic waste, and confidential documents. §326.3(23) defines medical waste as treated and untreated special waste from health care-related facilities that is comprised of animal waste, bulk blood, bulk human blood, bulk human body fluids, microbiological waste, pathological waste, and sharps as those terms are defined in 25 TAC §1.132 (relating to Definitions).

Reject / Return to Transporter: Any prohibited waste discovered prior to unloading will be rejected and returned promptly to the transporter or generator of the waste. In the event unauthorized materials are unloaded at the site, the material will be rejected, and the transporter will be required to immediately remove the waste along with any contaminated materials from the facility. Any undisclosed prohibited waste discovered after unloading will be isolated until the material can be adequately identified.

Waste Transfer: Waste may be transferred to another appropriately permitted/registered facility for treatment. Transfer of waste will occur at the loading/unloading docks or from truck to truck. In the event the waste generator specifically requests a waste to be incinerated, the facility will accept, segregate for temporary storage, and transfer the waste off-site to an appropriately permitted facility.

Temporary Storage of Untreated Waste: Untreated medical waste may be temporarily stored at the site unrefrigerated for up to 72 hours. Putrescible or biohazardous untreated medical waste held longer than 72 hours after being received at the facility will be stored at a temperature of 45 degrees Fahrenheit or less. Stand-alone refrigeration units or transport trucks/trailers with refrigeration units will be used to store untreated medical waste held longer than 72 hours after receipt at the facility.

Transfer Waste to Autoclave Bin: A cart tipper will transfer untreated waste from containers into autoclave bins for processing.

Waste Processing by Autoclave: Waste received at the facility (expect non-hazardous trace chemotherapeutic waste and pathological waste) will be treated by steam sterilization disinfection using autoclave unit(s) with associated boiler(s). This treatment technology is a Texas Department of State Health Services approved treatment technology. The process consists of placing the untreated waste in a pressure vessel/autoclave unit and forcing steam into the chamber and through the waste. When the waste is exposed to the proper temperatures for the approved time, the waste will be rendered sterilized. The parameters of time, temperature and pressure of the autoclave(s) used at this facility will meet or exceed those required by the Department of State Health Services requirements for steam disinfection found in 25 TAC §1.133(b)(4)(B). 25 TAC §1.133(b)(4)(B) states that when subjecting waste to steam under pressure, the temperature in the chamber of the autoclave must reach at least 121 degrees Celsius and there must be at least 15 pounds per square inch gauge pressure for at least 30 minutes. Autoclave bins loaded with untreated waste are rolled into the autoclave unit for treatment.

Temporary Storage of Treated Waste: Autoclave bins containing treated waste will be emptied into waste compactor. Treated waste will be temporarily stored on-site and then transported off-site for disposal at a TCEQ approved municipal solid waste landfill.

Transport of Treated Waste to MSW Landfill: Treated waste will be transported to a TCEQ permitted landfill for disposal.

Empty Container Washing: The empty waste containers will be washed with pressurized water and detergent. Clean containers will be returned to generators for reuse.

ATTACHMENT 7

PROCEDURES FOR OPERATION AND TESTING OF TREATMENT EQUIPMENT

ATTACHMENT 7

PROCEDURES FOR OPERATION AND TESTING OF TREATMENT EQUIPMENT

Medical waste will be treated in accordance with the provisions of 25 TAC §1.136 (relating to Approved Methods of Treatment and Disposition).

The facility will use an autoclave unit to treat waste. The parameters of time, temperature and pressure of the steam sterilization system used at this facility will meet or exceed those required by the Department of State Health Services requirements for steam sterilization found in 25 TAC §1.133(b)(4). The temperature of the autoclave unit must reach at least 121 degrees Celsius (250 degrees Fahrenheit) and there must be at least 15 pounds per square inch gauge pressure for at least 30 minutes.

The autoclave temperature and pressure are continuously monitored and recorded during the entire length of each cycle. For autoclave units with continuous readout and record of operating parameters, the operator may substitute routine parameter monitoring for biological monitoring. All required records and documentation regarding operating parameters will be initiated and maintained for three years.

Backflow preventers will be used at potable water connections to prevent contamination of potable water supplies.

ATTACHMENT 8

VERIFICATION OF LEGAL STATUS

State of Delaware
Secretary of State
Division of Corporations
Delivered 04:16 PM 01/13/2014
FILED 04:14 PM 01/13/2014
SRV 140041380 - 5464649 FILE

CERTIFICATE OF FORMATION

OF

NATURE ENVIRONMENTAL & MARINE SERVICES, LLC

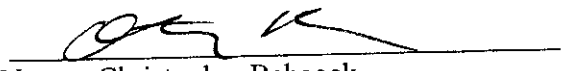
This Certificate of Formation of Nature Environmental & Marine Services, LLC, dated as of January 13, 2014, is being duly executed and filed by Christopher Babcock, as an authorized person, to form a limited liability company under the Delaware Limited Liability Company Act (6 Del C. § 18-101, *et seq.*).

FIRST: The name of the limited liability company formed hereby is Nature Environmental & Marine Services, LLC (the "Company").

SECOND: The address of the registered office of the Company in the State of Delaware is c/o Capitol Services, Inc., 1675 South State Street, Suite B, Dover, DE 19901.

THIRD: The name and address of the registered agent of the Company for service of process in the State of Delaware is Capitol Services, Inc., 1675 South State Street, Suite B, Dover, DE 19901.

IN WITNESS WHEREOF, the undersigned has executed this Certificate of Formation as of the date first above written.



Name: Christopher Babcock
Authorized Person

Delaware

The First State

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF FORMATION OF "NATURE ENVIRONMENTAL & MARINE SERVICES, LLC", FILED IN THIS OFFICE ON THE THIRTEENTH DAY OF JANUARY, A.D. 2014, AT 4:14 O'CLOCK P.M.

Jeffrey W. Bullock, Secretary of State

5464649 8100

AUTHENTICATION: 1055686

140041380

DATE: 01-13-14

You may verify this certificate online at corp.delaware.gov/authver.shtml

ATTACHMENT 9

TEXAS DEPARTMENT OF TRANSPORTATION COORDINATION LETTERS

ARDURRA
COLLABORATE. INNOVATE. CREATE.

May 2, 2022

Valente Olivarez, Jr., P.E.
District Engineer
Texas Department of Transportation
1701 S. Padre Island Drive
Corpus Christi, Texas 78416

Re: Request for Coordination Letter
Nature Environmental and Marine Services
Proposed Medical Waste Management Facility
8713 Root Street, Corpus Christi, Nueces County, Texas

Dear Mr. Olivarez:

The purpose of this letter is to request documentation of coordination with the Texas Department of Transportation for traffic and location restrictions in accordance with requirements set forth in the Texas Commission on Environmental Quality (TCEQ) Regulations regarding medical waste management, specifically 30 TAC §326.71(e)(4).

Ardurra Group, Inc. is preparing a TCEQ application for a new medical waste facility to transfer and store medical waste from health-care related facilities. The location for the proposed facility is 8713 Root Street in Corpus Christi, Texas.

The medical waste operation will serve as an incremental use to the existing core business currently operated by Nature Environmental and Marine Services. The added use is projected to add only 10 to 15 additional vehicles per day over and above the current use. The additional vehicles will be box trucks and some tractor trailers with a maximum trailer length of 28 feet. This additional volume will be distributed throughout the day and will not cause disruption of normal traffic patterns. Interstate 37, Highway 44, N. Clarkwood Rd, Root Street and Gilliam St. are the main roadways that will normally provide access to the facility. No public roadway improvements such as turning lanes are proposed for this facility.

Please provide a response letter providing traffic and/or location restrictions, if any, on roadways within 1 mile of the facility. If there are no restrictions, please provide a response letter stating so. The information provided will be used to document coordination with your agency, to show adequate road service for the facility and to show that added traffic will not adversely affect the roadways.

Thank you for your assistance. If you have any questions, please feel free to contact me at (361) 883-1984 or ahesseltine@ardurra.com.

Sincerely,

Amy R. Hesseltine

Amy R. Hesseltine, P.E.
Project Manager

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Valente Olivarez, Jr., P.E.
District engineer
Texas Department of Transportation
1701 S. Padre Island Drive
Corpus Christi, Texas 78416

9590 9402 7004 1225 2420 25

2. Article Number (Transfer from service label)
7018 3090 0002 0057 4327

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by (Printed Name) C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☐ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ured Mail
- ured Mail Restricted Delivery
- er $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2020 PSN 7530-02-000-9053 Domestic Return Receipt

USPS TRACKING #

9590 9402 7004 1225 2420 25

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

5/3/22

ARDURRA
801 Navigation, Suite 300
Corpus Christi, TX 78408

Amy H. B.G

#220161 /

ATTACHMENT 10

FEMA MAP

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

The **projection** used in the preparation of this map was Texas State Plane, South Zone (FIPS 4205). The **horizontal datum** was NAD83, GRS80 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey, SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit their website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was derived from multiple sources. This information was compiled from the National Geodetic Survey, 2004, U.S. Census Bureau, 2010, U.S. Geological Survey, 1989 and 2004, National Agriculture Imagery Program (NAIP), 2014, Texas Natural Resources Information System (TNRIS), 1995 and 2010.

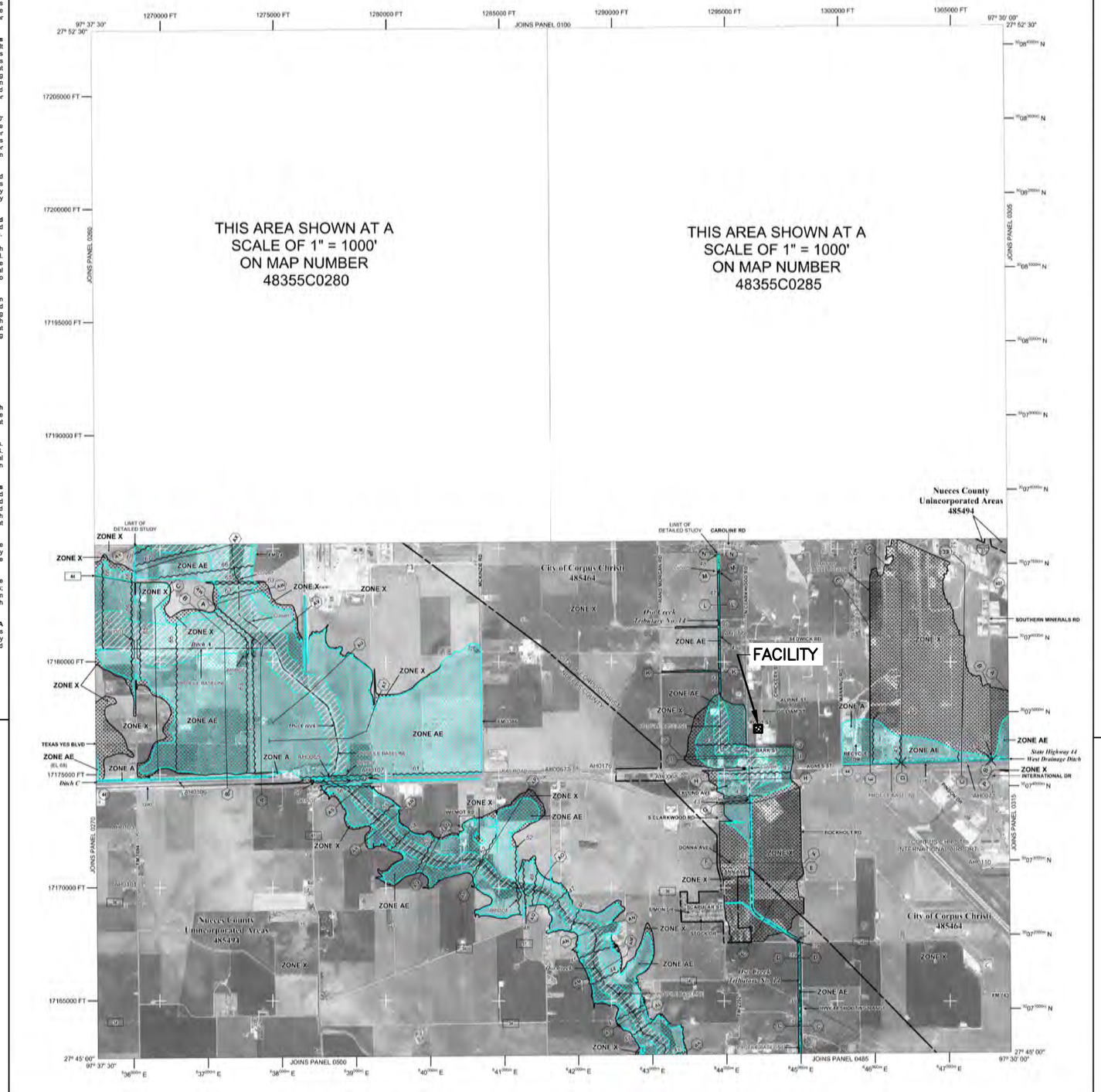
This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the **FEMA Map Service Center** (MSC) website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map**, how to order products or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/national-flood-insurance-program



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- **ZONE A** — No Base Flood Elevations determined.
- **ZONE AE** — Base Flood Elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE AR** — Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- **ZONE A99** — Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- **ZONE VE** — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- **ZONE X** — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside the 0.2% annual chance floodplain.
- **ZONE D** — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D Boundary
- CBRS and OPA Boundary
- Limit of Moderate Wave Action
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 (EL 987) — Base Flood Elevation line and value; elevation in feet*
- Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

- A — A — Cross section line
- 23 — 23 — Transect line
- 97° 07' 30", 32° 22' 30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 4 276 000 mE — 1000-meter Universal Transverse Mercator grid values, zone 14
- 600000 FT — 5000-foot grid ticks: Texas State Plane coordinate system, South zone (FIPSZONE 4205), Transverse Mercator
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index.

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP PANEL

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 2000'

1000 0 2000 4000 FEET
600 0 600 1200 METERS

NFIP — NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0300G

FIRM
FLOOD INSURANCE RATE MAP
NUECES COUNTY, TEXAS AND INCORPORATED AREAS
PANEL 300 OF 775

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CORPUS CHRISTI, CITY OF	485494	0300	G
NUECES COUNTY, (UNINCORPORATED AREAS)	485494	0300	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
48355C0300G

EFFECTIVE DATE
Preliminary
October 23, 2015
Federal Emergency Management Agency

STATE OF TEXAS
AMY REIN HESSELTINE
93578
LICENSED PROFESSIONAL ENGINEER

06/30/22

FOR PERMITTING ONLY,
NOT FOR BID OR CONSTRUCTION

NATURE ENVIRONMENTAL & MARINE SERVICES
8713 ROOT STREET
CORPUS CHRISTI, TEXAS

FEMA MAP
ATTACHMENT 10

ARDURRA
COLLABORATE. INNOVATE. CREATE.
801 Navigation Suite 300
Corpus Christi, Texas 78408
Phone: (361) 883-1984
www.Ardurra.com
Engineering License #F-10053
Ardurra Group, Inc.
Surveying Firm 10194688
Architectural Firm BR4160

DATE:	06/30/2022
DRAWN BY:	TSH
CHECKED BY:	AH
APPROVED BY:	AH
JOB NO:	220101

REVISIONS		
DATE	NO.	DESCRIPTION

U:\Nature Environmental and Marine Services\220101 Medical Waste Registration Application\000\20-Drawings\Exhibits-Imagery\220101 - Exhibit FEMA Map.dwg
Friday July 01, 2022, 8:54am

ATTACHMENT 11

COUNCIL OF GOVERNMENTS AND LOCAL GOVERNMENT REVIEW REQUEST COORDINATION LETTERS

ARDURRA
COLLABORATE. INNOVATE. CREATE.

June 30, 2022

Ms. Theresa Finch
Director of Environmental Planning
Coastal Bend Council of Governments
2910 Leopard Street
Corpus Christi, TX 78408

Re: Municipal Solid Waste – Nueces County
Application for Medical Waste Registration
Nature Environmental & Marine Services, LLC
8713 Root St, Corpus Christi, Texas

Dear Ms. Finch:

Nature Environmental & Marine Services, LLC has applied to the Texas Commission on Environmental Quality (TCEQ) for a registration to operate a medical waste management facility at 8713 Root St. in Corpus Christi, Texas.

To comply with Chapter 326 regarding medical waste management, specifically §326.71(g), a copy of the application is hereby submitted for the CBCOG's review for conformance with the regional solid waste plan.

If you have any questions concerning this application submittal, please feel free to contact me at (361) 883-1984 or via email at ahesseltine@ardurra.com.

Sincerely,

Amy R. Hesseltine, P.E.
Environmental Group Leader

Enclosure: Application for Medical Waste Registration

ARDURRA
COLLABORATE. INNOVATE. CREATE.

June 30, 2022

Mr. David Lehfeldt
Director of Solid Waste Services
City of Corpus Christi
Solid Waste Department
2525 Hygeia Street
Corpus Christi, TX 78415

Re: Municipal Solid Waste – Corpus Christi
Application for Medical Waste Registration
Nature Environmental & Marine Services, LLC
8713 Root Street, Corpus Christi, Texas

Dear Mr. Lehfeldt:

Nature Environmental & Marine Services, LLC has applied to the Texas Commission on Environmental Quality (TCEQ) for a registration to operate a medical waste management facility at 8713 Root Street in Corpus Christi, Texas.

To comply with Chapter 326 regarding medical waste management, specifically §326.71(g), a copy of the application is hereby submitted for the City of Corpus Christi's Solid Waste Department review for conformance with local solid waste plans.

If you have any questions concerning this application submittal, please feel free to contact me at (361) 883-1984 or via email at ahesseltine@ardurra.com.

Sincerely,

Amy R. Hesseltine, P.E.
Environmental Group Leader

Enclosure: Application for Medical Waste Registration

ATTACHMENT 12

CORE DATA FORM

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions regarding completion of this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission *(If other is checked please describe in space provided.)*

☒ New Permit, Registration or Authorization *(Core Data Form should be submitted with the program application.)*

☐ Renewal *(Core Data Form should be submitted with the renewal form)* ☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN 604652479		RN 105939763

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy)

☐ New Customer ☒ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)* — *If new Customer, enter previous Customer below:*

Nature Environmental & Marine Services LLC

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*
0801923933	14646072364	46-4607236	

11. Type of Customer: ☒ Corporation ☐ Individual Partnership: ☐ General ☒ Limited
Government: ☐ City ☐ County ☐ Federal ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees
☐ 0-20 ☒ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated?
☒ Yes ☐ No

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☐ Owner ☐ Operator ☒ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other:

15. Mailing Address:

18511 Beaumont Highway
Building C

City	Houston	State	TX	ZIP	77049	ZIP + 4	

16. Country Mailing Information *(if outside USA)* | **17. E-Mail Address** *(if applicable)*

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(936) 900-2293		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected below this form should be accompanied by a permit application)*

☐ New Regulated Entity ☒ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name *(Enter name of the site where the regulated action is taking place.)*

Nature Environmental & Marine Services

23. Street Address of the Regulated Entity: *(No PO Boxes)*	8713 Root St.							
	City	Corpus Christi	**State**	TX	**ZIP**	78409	**ZIP + 4**	
24. County	Nueces							

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:					
26. Nearest City			**State**		**Nearest ZIP Code**
Corpus Christi			TX		78409
27. Latitude (N) In Decimal:	27.790394°		**28. Longitude (W) In Decimal:**	-97.534302°	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
4213	5093	484110	423930

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

Medical Waste Treatment

34. Mailing Address:	**8713 Root St.**							
	City	**Corpus Chrsiti**	**State**	**TX**	**ZIP**	**78409**	**ZIP + 4**	
35. E-Mail Address:	**ryan.freeman@natureenviro.com**							

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(361) 654-3088		**( ) -**

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☒ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
TBD				
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Amy Hesseltine	**41. Title:**	Consultant

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(361) 883-1984		( ) -	ahesseltine@ardurra.com

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	Nature Environmental & Marine Services, LLC	**Job Title:**	DIRECTOR		
Name *(In Print)*:	SUDHAKARA YENUMALA			**Phone:**	(361)654 3088
Signature:	Y.S.Reddy			**Date:**	7/1/2022

ATTACHMENT 13

FEE RECEIPT

TCEQ ePay Receipt

Transaction Information

Trace Number:	582EA000497447
Date:	07/05/2022 11:37 AM
Payment Method:	CC - Authorization 000001644G
ePay Actor:	SUDHAKARA YENUMALA
TCEQ Amount:	$150.00
Texas.gov Price::	$153.63*

* This service is provided by Texas.gov, the official website of Texas. The price of this service includes funds that support the ongoing operations and enhancements of Texas.gov, which is provided by a third party in partnership with the State.

Payment Contact Information

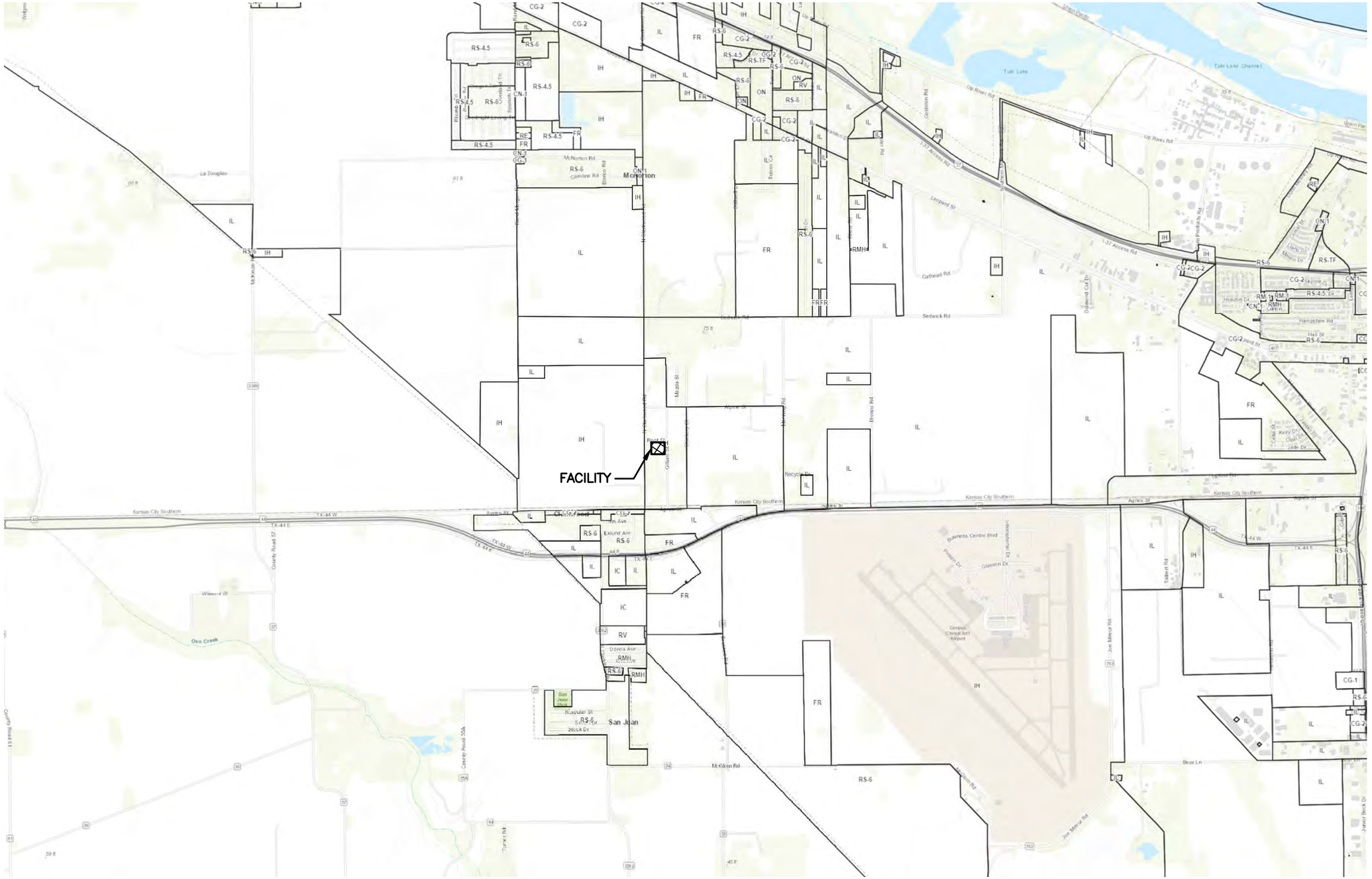
Name:	SUDHAKARA YENUMALA
Company:	NATURE ENVIRONMENTAL & MARINE SERVI
Address:	18511 BEAUMONT HWY BLD C, HOUSTON, TX 77049
Phone:	434-825-4858

Cart Items

Voucher	Fee Description	AR Number	Amount
583793	MSW PERMIT/REGISTRATION/AMEND/MOD/TEMP AUTHORIZATIONS APPLICATION FEE		$100.00
583794	30 TAC 305.53B MWP NOTIFICATION FEE		$50.00
		TCEQ Amount:	**$150.00**

ATTACHMENT 14

PUBLISHED ZONING MAP



NOTES:

1. EXHIBIT GENERATED FROM CORPUS CHRISTI VIEWER (ArcGis WEB APPLICATION) AVAILABLE ON THE CITY OF CORPUS CHRISTI WEBSITE.

2. ZONING ABBREVIATIONS ARE EXPLAINED IN UNIFIED DEVELOPMENT CODE, ARTICLE 1, CHAPTER 1.11. A COPY IS PROVIDED IN ATTACHMENT 13.

N

PUBLISHED ZONING MAP

SCALE: 1"=3000'

0 3000' 6000'

STATE OF TEXAS
AMY REIN HESSELTINE
93578
LICENSED PROFESSIONAL ENGINEER
06/30/22

NATURE ENVIRONMENTAL & MARINE SERVICES
8713 ROOT STREET
CORPUS CHRISTI, TEXAS

PUBLISHED ZONING MAP
ATTACHMENT 14

ARDURRA
COLLABORATE. INNOVATE. CREATE.

801 Navigation Suite 300
Corpus Christi, Texas 78408
Phone: (361) 883-1984
www.Ardurra.com

Engineering License #F-10053

Ardurra Group, Inc.
Surveying Firm 10194688
Architectural Firm BR4160

DATE:	06/30/2022
DRAWN BY:	SCG
CHECKED BY:	AH
APPROVED BY:	AH
JOB NO:	220101

REVISIONS		
DATE	NO.	DESCRIPTION

§ 1.11. Definitions

1.11.1 General

Undefined words in this UDC shall have their normal dictionary definition. Other terms shall be defined as set forth below, except where the context clearly indicates a different meaning.

1.11.2 Abbreviations

Abbreviation	Term
AASHTO	American Association of State Highway Transportation Officials (Ordinance 029765, 03/19/2013)
ANSI	American National Standards Institute
BP	Business Park District
CBD	Downtown Commercial District
CC	Commercial Compatible District
CG-1	General Commercial District
CG-2	General Commercial District
CI	Intensive Commercial District
CN-1	Neighborhood Commercial District
CN-2	Neighborhood Commercial District
CR-1	Resort Commercial District - Bayfront Business
CR-2	Resort Commercial District - Barrier Island Business
CR-3	Resort Commercial District - Corpus Christi Beach
EIA	Electronics Industries Association
ETJ	Extraterritorial Jurisdiction
GFA	Gross floor area
FR	Farm-Rural District
Ft.	Feet
-H	Historic Overlay District
HCM	Highway Capacity Manual (Ordinance 030023, 12/10/2013)
HUD	Department of Housing and Urban Development
IC	Industrial Compatible District
IDM	Infrastructure Design Manual (Ordinance 030023, 12/10/2013)
IL	Light Industrial
IH	Heavy Industrial
-IO	Island Overlay District
L	Use Permitted Subject to Limitations
Max.	Maximum
MHP	Manufactured home park
MHS	Manufactured home subdivision
Min.	Minimum
MUTCD	Manual of Uniform Traffic Control Devices, latest edition (Ordinance 029765, 03/19/2013)
ON	Office District (Ordinance 029376, 02/21/12)
P	Use Permitted By Right
PIIC	Padre Island Investment Corporation

Abbreviation	Term
PUD	Planned Unit Development
-PUD	Planned Unit Development Overlay District
ROW	Right-of-way
RE	Residential Estate District
RM-1	Multifamily 1
RM-2	Multifamily 2
RM-3	Multifamily 3
RM-AT	Multifamily Apartment Tourist
R-MH	Manufactured Home District
RS-22	Single-Family 22 District (Ordinance 029929, 08/27/13)
RS-15	Single-Family 15 District
RS-10	Single-Family 10 District
RS-6	Single-Family 6 District
RS-4.5	Single-Family 4.5 District
RS-TH	Townhouse District
RS-TF	Two-Family District
RV	Recreational Vehicle Park District
SUE	Special Use Exception
SP	Special Permit
1 ft.	Square Feet
TAC	Texas Administrative Code

(Ordinance 031540, 09/18/2018)

1.11.3 Defined Terms

(Ordinance 031540, 09/18/2018)

AASHTO: The American Association of State Highway Transportation Officials

AASHTO Design Guide: The American Association of State Highway Transportation Officials (AASHTO) Guide for Design of Pavement Structures

Abutting: Having a common border with, or being separated from such a common border by a right-of-way or easement.

Accessory Structure: A structure devoted to an accessory use that is separate from the principal structure and located on the same lot.

Accessory Use: A use that is clearly incidental, subordinate to or customarily found in connection with, the principal use of the premises.

Acreage Fee: The fee required to be paid by the applicant based on the acreage in the development, including parks, streets, and drainage dedications. The current acreage fee is published in the Development Services fee schedule contained in Chapter 14, Municipal Code.

Adult Day Care Facility: A nonresidential, state-licensed facility that provides care or supervision for five or more persons 18 years of age or older who are not related by blood, marriage, or adoption to the owner or operator of the facility, whether or not the facility is operated for profit or charges for the services it offers.

Airport, Helipad, Heliport or Landing Field: Any area of land or water used for the landing and take-off of aircraft, including all necessary facilities for the housing and maintenance of aircraft.

Alley: A public or private way which is to be used only as a secondary means of access to or solid waste collection from abutting property.

Tree: A self-supporting woody plant having at least one well-defined trunk and normally attaining a mature height and spread of at least 12 feet and having a trunk that may, at maturity, be kept clear of leaves and branches to at least 7 feet above grade.

Tree, Canopy: ~~A~~ Also reffered to as a shade tree, is a tree species designated as such in the Tree List is found in ~~in the Appendix to Section 7.3~~ 7.3, Appenix A of this UDC.

Tree, Understory: May also be referred to as an ornamental tree, is a tree species designated as such in the Tree List found in 7.3 Appendix A of this UDC.

Truck Stop With Overnight Accommodations: Any premise used for fueling, servicing, repairs, and storage of heavy load vehicles such as tractor-trailers, commercial dump trucks, and transit vehicles which may include facilities such as restaurants, restrooms, coffee and gift shops, weighing facilities, and overnight accommodations.

Trunk Force Main: A wastewater line that is at least 8-inch diameter which conveys wastewater under pressure.

Trunk Height: For measuring palms, the distance from ground level to the beginning of the leaf stalk.

Trunk Line: A wastewater line of 15" or greater diameter and larger which conveys wastewater. (Ordinance 032357, 02/23/2021)

Trust Fund: Funds held in trust by the City for developers to provide for a fair and equitable expansion of water, wastewater, and storm water infrastructure for new development.

Utility: See subparagraph 5.1.3.I and Subsection 5.2.6.

Utility Master Plan: An element of the Comprehensive Plan that addresses a specific service or City system, including but not limited to the water system, wastewater system or the Airport. Master Plans address the technical planning issues associated with service delivery.

Variance: A grant of relief to a person from the requirement of this Code when specific enforcement would result in unnecessary hardship. A variance, therefore, permits construction or development in a manner otherwise prohibited by this Code.

Vehicle Service, Limited: Minor repair or replacement of parts, tires, tubes, or batteries, diagnostic services; minor motor services such as grease, oil, spark plug, or filter changing; tune-ups; emergency road services; replacement of starters, alternators, hoses, belts, and points; brake or muffler repair, wheel alignment, automobile washing, automobile upholstery, window-tinting, state inspections and associated minor repairs; routine servicing of air-conditioning systems, or other similar minor repair services. Minor repairs do not include uses listed under “vehicle service, heavy.”

Vehicle Service, Heavy: General repair or overhaul of engines, air-conditioning systems, transmissions, or radiators for motor vehicles; Repair of bodies, frames, or fenders, painting, undercoating, or rust-proofing; repair of heavy load vehicles such as, tractor trailers, commercial dump trucks, or transit vehicles; customizing; vehicle steam cleaning; and other similar uses. Major repairs do not include uses listed under “vehicle service, limited.”

Vehicular Use Area: All areas, regardless of surfacing, in which vehicles are parked, serviced, stored or through which they are driven, including drives, paved pads for vehicular or equipment storage, used and new car display areas, and service drives for gas stations.

Vertical Axis Wind Energy Unit: A wind energy unit that utilizes a generator and shaft that is positioned vertical (perpendicular) to the ground.

Violation: The failure of a structure or other development to be fully compliant with this Code, including the City's floodplain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in section 60.3(b)(5), (c)(4), (c)(10), (d)(3), (e)(2), or (e)(5) of the National Flood Insurance Program regulations is presumed to be in violation until such time as that documentation is provided.

Visibility Obstruction: An object which blocks the view of a motorist either at a private driveway with an intersecting street or at two intersecting streets. (Ordinance 032357, 02/23/2021)

Visibility Triangle: An imaginary triangle located at the intersection of two public streets or at the intersection of a street and private driveway. (Ordinance 032357, 02/23/2021)

Wastewater Trunk System Construction and Reimbursement Agreement: A trunk line construction and reimbursement agreement, trunk force main construction and reimbursement agreement or lift station construction and reimbursement agreement.

Wastewater Surcharge: A fee to be charged in addition to sanitary sewer tap fees to be paid when the sanitary sewer tap fee is paid. The current surcharge is published in the Development Services fee schedule, Article XII, Chapter 14, Code of Ordinances.

(Ordinance 029376, 02/21/2012)

Water Surcharge: A fee to be charged in addition to tap fees for single-family or duplex utility connections to be paid when the tap fee is paid. The current surcharge is published in the Development Services fee schedule, Article XII, Chapter 14, Code of Ordinances.

(Ordinance 029376, 02/21/2012)

Water Surface Elevation: The height, in relation to the National Geodetic Vertical Datum (NGVD) of 1929 (or other datum, where specified), of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.

Watercraft: A boat, hydrofoil, hovercraft, jet ski or similar vessel.

Wind Energy System: A wind energy conversion system or similar product consisting of a wind turbine, tower, and associated control or conversion electronics which will be used primarily to reduce on-site consumption of utility power.

Wind Energy Unit: A shaft, gearing belt, or coupling utilized to convert a rotating force into a form suitable for driving a generator, alternator, or other electricity-producing device, and the associated tower, pylon, or other supporting structure, and rotor blades or other devices. Wind energy units may consist of several units forming a wind energy system.

Wireless Telecommunications Facility: A telecommunication tower, antennas, and related equipment buildings, but the term also includes antennas and related equipment installed on roof tops.

Xeriscape: The conservation of water through common sense and creative landscaping including good design, soil improvements, limiting lawn areas, use of mulch, use of low- water use drought-tolerant plants, efficient use of water, and good maintenance techniques. More detailed information of Xeriscape techniques and recommended plant material shall be included in the **7.3 Appendix A of the UDC**.

Yard: An open space, other than a court, on a lot, unoccupied and unobstructed from the ground upward, except as otherwise provided in this Code.

Yard, Rear: A yard extending the full width of the lot between a principal building and the rear lot line, and measured perpendicular from the building to the closest point of the rear lot line. Where an alley exists, the depth of the rear yard may be considered to extend to the centerline of the alley.

Yard, Side: A yard extending from the street yard line to the rear yard line and measured from the principal structure to the closest point of the adjacent side lot line.

Yard, Street: A yard located between the front lot line and the existing or proposed building façade extending by imaginary lines from the outer corners of the building and parallel to the front lot line.

Zoning District: Any section of the City within which the zoning regulations are uniform.

Zoning District Buffer Yard: A specified land area, located parallel to and within the outer perimeter of a lot and extending to the lot line, together with the planting and landscaping required on the land. A zoning district buffer yard may also contain a barrier such as a berm or wall where additional screening is necessary to achieve the desired level of buffering between land use activities as identified in Section 7.9. A zoning district buffer yard is not intended to be identical to with the term "yard" or “setback” however a buffer yard and setback may overlap.

ATTACHMENT 15

SIGNATORY AUTHORITY

Public Information Report

Public Information Report
NATURE ENVIRONMENTAL & MARINE SERVICES, LLC
Report Year :2021

Information on this site is obtained from the most recent Public Information Report (PIR) processed by the Secretary of State (SOS). PIRs filed with annual franchise tax reports are forwarded to the SOS. After processing, the SOS sends the Comptroller an electronic copy of the information, which is displayed on this web site. The information will be updated as changes are received from the SOS.

You may order a copy of a Public Information Report from open.records@cpa.texas.gov or Comptroller of Public Accounts, Open Records Section, PO Box 13528, Austin, Texas 78711.

Title	Name and Address
DIRECTOR	**SUDHAKAR YENUMALA** 2022 TIMBERLOCH PL SPRING, TX 77380
MANAGER	**SUDHAKAR YENUMALA** 2022 TIMBERLOCH PL SPRING, TX 77380

Franchise Tax Account Status

As of : 06/30/2022 14:44:20

This page is valid for most business transactions but is not sufficient for filings with the Secretary of State

NATURE ENVIRONMENTAL & MARINE SERVICES, LLC	
Texas Taxpayer Number	14646072364
Mailing Address	18511 BEAUMONT HWY BLDG C HOUSTON, TX 77049-1220
Right to Transact Business in Texas	ACTIVE
State of Formation	DE
Effective SOS Registration Date	01/29/2014
Texas SOS File Number	0801923933
Registered Agent Name	CAPITOL CORPORATE SERVICES, INC.
Registered Office Street Address	206 E. 9TH STREET, SUITE 1300 AUSTIN, TX 78701

ATTACHMENT 16

MANUFACTURER SPECIFICATIONS FOR WASTE MANAGEMENT UNITS

DSB Series

Floor Scale

- **Rugged Construction–** Thick safety tread top plate with heavy duty welded wide channel supports
- **Legal for Trade–** NTEP certified at 5,000 divisions, Class lll
- **Finish–** Powder coat paint
- **Load Cells–** Four alloy steel potted load cells
- **Versatile**
- **Mild Steel**

VALUE IN WEIGHING

DSB Series Floor Scale

DSB Specifications

Accuracy: NTEP at 5000 divisions, Class III

Floor Scale Material:
Mild steel with 5 mm / 0.19″ deck with safety tread

Capacity: 1250 kg x 0.2 kg/ 2500 lb x 0.5 lb
2500 kg x 0.5 kg / 5000 lb x 1 lb
5000 kg x 1 kg / 10,000 lb x 2 lb

Platform Dimension: 914 mm x 914 mm / 36” x 36”
1219 mm x 1219 mm / 48” x 48”
1524 mm x 1524 mm / 59” x 59”

Height Dimension: min 102 mm / 4.0″; max 118 mm / 4.6″

Finish: Powder coat paint

Load Cell Rated: NTEP, IP65

J-Box Construction: Mild steel

Load Cell Material: Alloy tool steel potted

Load Cell Rated Output: 3 mv/V

Load Cell Output Resistance: 350 ohm

Interface Cable Length: 4.6 m / 15´

J-Box Access: Top access for easy installation and service

Swivel Leveling Feet: Four top access holes for quick installation

Threaded Eye Bolts: Four threaded top access eye-bolt holes for easy mobility and pit service

Corner Protection: Closed corners to prevent damage to leveling feet while installing the scale

Overload Protection: 150% of rated capacity

End Loading: 100% of rated capacity

Operating Temperature: -10° C to 40° C / 14° F to 104° F

Certifications: NTEP CC #11-081

Product Code:

Decks

816965006335: DSB3636-02.5
816965006328: DSB4848-05
816965006342: DSB5959-05
816965006359: DSB4848-10
816965006366: DSB5959-10

Ramps (Brackets attached)

816965005437: 36 x 36 ramp
816965005468: 48 x 48; 5/10K ramp
816965005451: 59 x 48; 5/10K ramp

a division of Avery Weigh-Tronix, LLC

Brecknell
1000 Armstrong Dr., Fairmont, MN 56031
Toll free: 800-637-0529, Tel: 507-238-8702
Fax: 507-238-8271
e-mail: sales@brecknellscales.com
www.brecknellscales.com

Brecknell
Foundry Lane, Smethwick
West Midlands B66 2LP UK
Tel: +44 (0) 845 246 6717
Fax: +44 (0) 845 246 6718
Email: sales@brecknellscales.co.uk
www.brecknellscales.co.uk

1/16 DSB_L_501328.indd AWT35-501328 (web 6/16)

DSB System (Platform with Indicator)

Quick User Guide

Connect Platform to Indicator

The DSB system includes a platform and scale indicator. Securely connect the cable from the platform to the indicator by tightening the quick disconnect fittings together.

Power up the Indicator

1. The indicator is powered by an A/C adapter that plugs directly into the DC pin at the bottom of the indicator.

2. Press ON OFF for 2 seconds to turn the indicator on or off. After a self test, the weighing mode will be accessed.

Zero Operation

Initial zero setting

During power up if the weight on the scale is within the initial zero tolerance, indicator will show zero automatically.

Manual zero

When the scale is stable and the weight is not negative, you can zero the weight within tolerance by briefly pressing the Zero key.

Tare Operation

Perform a tare to remove the weight of a container and just weigh the contents. During tare operation, when the gross weight is tared, the indicator display will show the Net weight. The Net annunciator will also be lit.

From the TARE mode, press the Tare key to clear the tare weight. The indicator display will return to the gross weight.

Accumulation Operation

1. With **0** on the display, add the weight to the scale. Briefly press the Total key to enter the accumulation mode. The *Total* annunciator turns on and the display shows ***n 001*** briefly and returns to the loaded weight.

2. Unload the weight. The display shows **0**.

3. Load the second weight and press the Total key. ***n 002*** is displayed then the display goes back to the loaded weight.

4. Repeat it for a maximum 999 times.

Viewing the Accumulation

1. Press and hold Total and press ON OFF. ***nnn*** is displayed and then the total accumulated weight is displayed. ***nnn*** is the number of accumulations included in the total weight.

2. If the total weight is beyond the display capability, it will show the first 4 digits then the last 4 digits. For example, the first four digits are ***0012*** and the last 4 digits are ***34.56*** It means the actual weight is ***1234.56***.

Clearing the Accumulated Weight

Follow these steps to exit the accumulation function:

1. While the display shows the last 4 digits of the accumulated weight, press and hold Total. ***clr n*** is displayed. This means *Clear the accumulated weight? - No*.

2. Press Zero or Tare to toggle between ***clr n*** and ***clr y*** which means *Clear accumulated weight? - Yes*.

3. When the choice you want is displayed, press **Print** to accept that choice. If you choose ***clr n***, the indicator exits the accumulation mode without clearing the total weight. If you choose ***clr y***, the total weight is cleared and the indicator exits accumulation mode.

Print

If the communication parameter is enabled and the weight is stable, briefly press Print to print the weight to a connected printer.

Brecknell
1000 Armstrong Dr., Fairmont, MN 56031
Toll free: 800-637-0529, Tel: 507-238-8702
Fax: 507-238-8271
Email: sales@brecknellscales.com
www.brecknellscales.com

Brecknell
Foundry Lane
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Système DSB (plateau avec indicateur)
Manuel d'instructions abrégé

Connecter le plateau à l'indicateur

Le système DSB comprend un plateau et un indicateur de balance. Brancher fermement le câble reliant le plateau à l'indicateur en serrant les raccords à déconnexion rapide ensemble.

Mettre l'indicateur sous tension

1. L'indicateur est alimenté par un adaptateur c.a. qui se branche directement dans la prise c.c. située dans le bas de l'indicateur.

2. Appuyer sur ON OFF pendant 2 secondes pour allumer ou éteindre l'indicateur. Après un autodiagnostic, le mode de pesée devient accessible.

Fonctionnement à zéro

Paramètre initial à zéro

Pendant la mise sous tension, si le poids sur la balance est à l'intérieur de la tolérance initiale à zéro, l'indicateur affichera automatiquement zéro.

Zéro manuel

Lorsque la balance est stable et n'affiche pas un poids négatif, vous pouvez placer le poids à zéro, à l'intérieur de la tolérance, en appuyant sur la touche Zero.

Fonctionnement du tarage

Lors du tarage du poids brut, l'écran de l'indicateur affiche le poids Net. Le voyant Net s'allume également.

Dans le mode TARE, appuyer sur la touche Tare pour effacer la tare. L'afficheur de l'indicateur retourne au poids brut.

Fonction d'accumulation

1. Avec le **0** affiché, ajouter le poids à la balance. Appuyer sur la touche Total pour entrer en mode d'accumulation. Le voyant *Total* s'allume et l'afficheur indique brièvement ***n 001***, et retourne au poids chargé.

2. Retirer le poids. L'afficheur indique **0**.

3. Charger le deuxième poids et appuyer sur la touche Total. ***n 002*** est affiché, puis l'afficheur retourne au poids chargé.

4. Répéter jusqu'à un maximum de 999 fois.

Visualiser l'accumulation

1. Appuyer sur la touche Total et la maintenir enfoncée, puis appuyer sur ON OFF. ***nnn*** est affiché et ensuite le poids accumulé total est affiché. ***nnn*** est le nombre d'accumulations inclus dans le poids total.

2. Si le poids total est au-delà de la capacité d'affichage, l'afficheur indiquera les 4 premiers chiffres et ensuite les 4 derniers chiffres. Par exemple, les 4 premiers chiffres sont ***0012*** et les 4 derniers chiffres sont ***34,56*** Ceci signifie que le poids actuel est ***1 234,56***.

Supprimer le poids accumulé

Suivre ces étapes pour sortir de la fonction accumulation.

1. Pendant que l'afficheur indique les 4 derniers chiffres du poids accumulé, appuyer sur la touche Total et maintenir enfoncée. ***clr n*** est affiché. Ceci signifie *Annuler le poids accumulé? - Non*.

2. Appuyer sur la touche Zero ou Tare pour basculer entre ***clr n*** et ***clr y*** qui signifie *Effacerle poids accumulé? - Oui*.

3. Lorsque votre choix est affiché, appuyer sur la touche **Print** (Imprimer) pour accepter ce choix. Si vous choisissez ***clr n***, l'indicateur sortira du mode accumulation sans annuler le poids total.
   Si vous choisissez ***clr y***, le poids total sera annulé et l'indicateur sortira du mode accumulation.

Print (Imprimer)

Si le poids est stable, appuyer sur la touche Print pour imprimer le poids avec l'imprimante connectée.

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THE MARK-COSTELLO CO. STEAM STERILIZER SPECIFICATIONS:

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract. including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

A. This Section includes sterilizers, component fittings, and accessories.

1.3 SUBMITTALS

A. Product Data: For each waste sterilizer specified, include the following:

1. Unit dimensions.
2. Installed and operating weights.
3. Furnished specialties and accessories.
4. ASME rating and normal and maximum system steam pressures.
5. Wiring Diagrams: Detail wiring for power and control systems. Differentiate between manufacturer-installed and field-installed wiring.
6. Equipment Manual(s)

B. Coordination Drawings: Drawn to scale and coordinating sterilizer installation. Show the following:

1. Roughing-in dimensions and service connection details.
2. Required clearances for equipment service and operation.
3. Equipment installation drawings, including equipment anchorage.

C. Maintenance Data: For waste sterilizer to include maintenance manuals to include the following:

1. Operating and maintenance instructions.
2. Parts inventory list.
3. Purchase source for operating and maintenance materials.
4. Emergency information.
5. Name, address, and telephone number of manufacturer's service representative whose location is nearest to Project site.

1.4 QUALTIY ASSURANCE

A. The autoclave vessel is designed, fabricated, tested and certified in accordance with the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, for Unfired Pressure Vessels.

1.5 WARRANTY

A. Furnish written warranty agreeing to replace sterilizer parts that fail in materials or workmanship within one year from the date of Substantial Completion.

PART 2 – PRODUCTS

2.1 MANUFACTURER

A. Available Manufacturer: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturer: Subject to compliance with requirements, provide products by the following:

1. The Mark-Costello Co.
   15351 Texaco Ave.
   Paramount, Ca. 90723
   (562) 630-7950
   www.mark-costello.com

2.2 BIOMEDICAL (RMW AND OR INTERNATIONAL FLIGHT/SHIP WASTE) STERILIZER

A. **AUTOCLAVE/STERILIZER DIMENSIONS AND CAPACITY**

AS515 (5' Dia x 15' length): 3 bin load – 7.5 cu yd (approx.)

Bin Dimensions:	36" H X 48" W X 60" L
Bin Volume:	67.5 cu ft (2.50 cu yd-with bin heaped/mounded when loaded)
Cycle time:	45-85 minutes (load to load)

B. **AUTOCLAVE/STERILIZER VESSEL SPECIFICATIONS**

Working Pressure:	35 psig
Safety Relief Set Point:	75 psig
Working Temperature:	275-280 degrees Fahrenheit
Opening Assembly:	Quick opening doors/quadruple safety interlock
Loading Arrangement:	Horizontal (cart(s) via internal track)

C. **INSULATION**

The exterior of the autoclave cylindrical shell will be insulated with 1.5" of rigidized fiberglass insulation with integral vapor barrier, which will be covered with a embossed aluminum cladding jacket to protect the insulation**,** and to make sure the equipment can be easily cleaned and maintained.

The front & rear heads (ends) will be insulated with a 2" fiberglass blanket, which will be covered with external steel heads to protect the insulation from damage and abuse**,** and to make sure the equipment can be easily cleaned and maintained.

D. **PROCESS VALVES**

The Sterilizer will be complete with required process valves including:

- Electric actuated valves for steam inlet supply, pressure vent, and chamber evacuation.
- A high capacity thermostatic steam trap to efficiently remove condensate and retained air from the Autoclave chamber. Stainless steel bellows actuator for maximum corrosion resistance, and thermal and hydraulic shock resistance. Equipped with SLR orifice to prevent flash steam locking, and provide greater sensitivity to allow condensate evacuation at or near saturated conditions. The steam trap is renewable in-line, and is freeze-proof.
- A large capacity Basket Strainer located upstream of the Stem Trap, to filter and collect debris, to protect the Steam Trap, Condenser, and Vacuum Pump. Serviceable inline
- An ASME UV stamped Pressure Safety Valve, with 75 psig set pressure, to provide over-pressure protection relief for the Autoclave vessel.

The steam inlet valve will provide smooth accurate control of steam pressure. For safety, the steam inlet valve is a normally closed valve that closes in the event of any power loss. The pressure vent valve is a normally open valve that opens to release vessel pressure in the event of power loss or emergency.

E. AUTOCLAVE VESSEL DESIGN

The autoclave vessel is designed, fabricated, tested and certified in accordance with the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, for Unfired Pressure Vessels. The sterilization unit is formed and welded into a horizontal cylindrical pressure vessel with a quick opening door. The vessel includes two rigid support saddles to facilitate a simple installation. The front face of the vessel has a machine groove for the self-energizing high temperature **silicon** door(s) seal gasket.

F. DOOR OPERATION, SEALING AND LOCKING MECHANISM

Breech-Locking Quick Opening Door, hinged mounted on the autoclave. While all Breech-Locking QOD's are similar, Mark-Costello has a superior advantage supplied by no other manufacturer: helical alloy tapered wedges, that provide higher reliability and safety, smoother operation (less friction), significantly longer operating lift, with less operating force required to lock and unlock door(s).

QOD door(s) mounting arrangements to provide full movement to a full open position. Mark-Costello hinges are equipped with rugged, high capacity, sealed flanged pillow block ball bearings, which results in door swing with negligible effort. Preferred sealing system to utilize one-piece self-energizing silicon lip seal. The door has a positive lock type safety design per the ASME requirements. The locking mechanism is interlocked with the control system to prevent opening the door while under pressure, and to prevent pressurization when the door is unlocked. The door is designed with a quadruple safety interlock system-employing several safety features that include electric and mechanical interlock switches: Controller interlock, Micro switch interlock, Humphrey safety cylinder, Jergens door safety handle, Jamesbury Ball Valve with visual and audible warning.

G. SYSTEM PIPING.

The autoclave system will consist of three fully assembled and factory piped components, for simple installation: the Autoclave Vessel with Controller, process valves and instrumentation.

Provided installation drawings to clearly identify all customer installed/required piping and electrical requirements. Minimal field (customer) piping and electrical required, including: steam supply piping; Autoclave drain and vent piping for simple and cost effective installation

H. CONTROLLER/CONTROL PANEL SPECIFICATIONS

Partlow MRC 5000

OVERVIEW

ONE AND TWO PEN CIRCULAR CHART RECORDING CONTROLLER
The autoclave control panel is packaged in a NEMA rated panel. This instrument records process trend lines, one or two pens, on a 10 inch circular chart. As an option, up to two alarm points are provided for each of the two pens. This recorder will accept J, K, T, R, and S Thermocouples and RTD inputs, as well as typical Millivolt, Milliamp (4-20mA) and Volt inputs, (up to 5 volts).

DISPLAY

Process values for each pen can be displayed on the .56" LED display, or the display can be blanked. In the latter case, the
display is used only for programming and setting alarm points.

CONTROL

The instrument can be provided with relay control outputs which can be programmed for on-off control capability.

ALARMS

Two optional alarm output relays, with SPDT contacts, are available for each pen. Each alarm is also configurable as a
latching, limit device. In this case, a manual reset button is required and included when the High/Low Limit option is ordered.

POWER INPUT

The standard recorder will operate on input power over the range of 90-264 VAC, 50-60 Hz, without any modifications. A low
power voltage option (20-50 VAC or 22-65 VDC) is also available. All Low Voltage option recorders are clearly identified as such by a label near the power wiring terminal block.

Normal Operation

Assuming that the MODE switch is in the RUN position, on power up, the recorder will display the software revision, in the format rX.XX, while the pens move to the home position (toward the center of the chart). Then the instrument will display the model number. Only the first 8 digits will be displayed, 4 digits at a time, for two seconds each. Then the display will blank while the recorder is measuring the input(s). Then the pen(s) will go to their proper positions on the chart and the display will show the process value for pen 1 (time and temperature) and will alternately show the pen 2 value (optional pressure-process/if it is present and if configured to display it), indicated by the green, PEN 2 LED. If any output is active, the appropriate LED will be lit.

Note: Each time power is applied, the pen(s) will move to the home position (toward the center of the chart) and then position themselves at the proper place on the chart.
The recorder will operate using the Program Parameters that were last stored in memory. The recorder is shipped from the factory set up for a Type J thermocouple input, range code 1 (0-1400°F) on all pens. To modify the input types and ranges, see Section 4 for detailed instructions. Located on the backside of the access door (inside the recorder) is a Short Form Programming Card that summarizes the Run and Program mode information.

SENSOR FAULT DETECTION

The recorder will display, record, and act upon normal measured values. If an input is above or below the advertised span, the display will indicate a **Hi** or **Lo** condition, respectively. If the input is disconnected (sensor break) or excessively out of range, **SnSr** will be displayed.
Relays, output LED, and pens will react normally when in a **Hi** or **Lo** condition, as if the value was high or low, relative to the set point. In a **SnSr** condition, relays will be de-energized, output LEDs will not be lit, and pens will go upscale.
NOTE: A sensor break can not be detected on zero based Volt and Milliamp inputs (0-5 volts and 0-20mA), as the divider or shunt resistor, coupled with no input connection, produce a valid input signal of zero. NOTE: A "Lo" condition can not be detected on zero based Volt, Milliamp, and Millivolt inputs, due to the nature of the hardware. The instrument will handle slightly negative signals, but more negative inputs will result in the display indicating a "Hi" condition. Refer to the Specifications section for more details.

Specifications

INPUTS

Input Types/Range Type Range
Thermocouple J 0°C to 760°C 0°F to 1400°F
K 0°C to 1360°C 0°F to 2500°F
T -200°C to 400°C -330°F to 750°F
R 200°C to 1650°C 400°F to 3000°F
S 200°C to 1650°C 400°F to 3000°F
RTD 100 ohm Platinum -140°C to 400°C -220°F to 750°F
.00385 ohms/ohm/°C
Current DC 0 to 20mA, 4 to 20mA
Internal 4.7 ohm Shunt Resistor
Voltage DC 0 to 25mV, 0 to 50mV, 10 to 50mV, 0 to 5 V, 1 to 5 V
Impedance > 100M ohm for TC and mV inputs
100K ohms for 5V inputs
4.7 ohms for mA inputs
RTD Excitation Current 150 micro amps, typical
Input Scan Rate 1 scan per second for non-RTD inputs
1 scan per 1.2 seconds for RTD inputs
Input Correction Offset Adjustment, -999 to 999 units
Sensor Fault Detection Display goes to "SnSr" and pen goes upscale if a sensor break is detected
No sensor break can be detected for zero based Volt and Milliamp ranges
Display goes to "Hi" 10% above span.
Display goes "Lo" 10% below span or zero, whichever is higher.

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INPUT PERFORMANCE

Performance Under Reference Condition:
Measurement Error Type J, K, T, R, S, and RTD: ±0.25% of span ±1 degree
mA, mV, and VDC: ±0.25% of scaled span plus 1 least significant digit
Cold Junction Compensation Error ±0.2°C @ 25°C
Cold Junction Compensation Rejection 0.04°/°C deviation from 25°C
Linearization Error TCs: ±0.25°C typical, ±0.5°C worst case with expectations
RTDs: ±0.1°C typical, ±0.3°C worst case
Ambient Temperature Error ±0.01% of span per°C deviation from 25°C
Common Mode Rejection >120 dB at 50/60 Hz, 260 VAC max.
Normal Mode Rejection 85 dB minimum @60Hz or greater
Isolation Universal input isolated from all outputs at 240VAC
Inputs share a common signal ground
Reference Conditions
Ambient Temperature 25°C
Relative Humidity 60 - 70%
Supply Voltage 115 VAC, 60 Hz
Source Resistance < 10 ohms for TC input
Lead Resistance < 0.1 ohm/lead balanced (Pt100)

RECORDING

Pen Type Disposable fiber tip
Pen Color Pen 1 - Red
Pen 2 - Green
Chart Size 10 inch
Chart Drive Stepper motor
Chart Rotation User configurable: 8 hours, 12 hours, 24 hours, 48 hours, or 7 days
Chart Span Bottom and top of span, -9999 to 9999 units

RECORDING PERFORMANCE

Chart Recording Accuracy 0.5% of chart span reference accuracy
Chart Rotation Accuracy ± 0.5% of rotation time, assuming all backlash removed

OPERATOR INTERFACE

Display Four digit, 0.56" high, red, seven segment, LED display
Status Indicators Four red LED alarm status indicators, One green LED Pen 2 indicator
Keypad Three keys for programming and unit operation
Display Modes Normal: Process value(s) or blank

CONTROL OUTPUTS

Number Up to two control outputs for each of two inputs
Type On/Off, Reverse or Direct Acting
Hysteresis Fully adjustable, 0 to 200 units, First output straddles setpoint, second output setpoint plus or minus 1/2 hysteresis and setpoint plus or minus 11/2 hysteresis

ALARMS

Number Up to two process alarms for each of two inputs
Type Process high or low
Limit Device Optional high/low limits for each input with latching output
Normally open output latches open
Red reset button included to the right of the display
Hysteresis Fully adjustable, 0 to 200 units, single sided
Security Alarm setpoint changes can be prohibited

Sensor Fault Action Alarms work normally in "Hi" and "Lo" conditions
Alarm relays are deenergized in a "SnSr" sensor break condition

RELAY OUTPUTS

Relays SPDT, contacts rated 5 amps resistive at 115 VAC,
2.5 amps resistive at 230 VAC, 1/8 HP at 230 VAC (single phase),
250 VA at 115/230

POWER REQUIREMENTS

Line Voltage 90-264 VAC, 50/60 Hz
Optional: 20-50 VAC, 50/60 Hz or 22-65 VDC
Power Consumption: 18 VA Maximum

TRANSMITTER POWER SUPPLY

Transmitter Power Supply Provides up to 40mA of current at 24VDC

CONSTRUCTION

Enclosure Injection molded Noryl case and cover with acrylic window
NEMA Rating NEMA 3 standard, NEMA 4X future option
Conduit Openings Three openings on the right side
Mounting Panel or wall
Overall Dimensions 14" wide X 14" high X 3.8" deep.
(355.6mm X 355.6mm X 96.5mm)
Panel Cutout 12.7" wide X 12.7" high
(322.58mm X 322.58mm)
Panel Depth 2.5" (63.5mm)
Panel Protrusion 1.3" (33.0mm)
Weight 7 lbs maximum
Retrofit With adaptor plate, will fit Partlow MRC 7000/ARC 4100 cutout

EVIRONMENTAL AND OPERATING CONDITIONS

Operating Temperature 0°C to 55°C (32°F to 122°F)
Storage Temperature -40°C to 65°C (-4°F to 149°F)
Humidity 10 to 90% RH, non-condensing
Vibration 0.3 to 100 Hz @ 0.2g
Mounting Position Up to 30° forward or backward tilt from vertical
Up to 10° side tilt from vertical

GENERAL REFERENCE DATA

Data Backup EEPROM for configuration parameters and calibration data
EEPROM for alarm setpoints

APPROVALS AND COMPLIANCE

Safety UL Approved for USA - UL 1092, UL 916, and QUXY - File E67237
UL Certified for Canada - CSA Spec 142 - File E67237
CE - Complies with EN 61010-1:1993: Pending
Immunity/Susceptability CE - Complies with EN50082-1992: Pending
Emissions CE - Complies with

2.3 FABRICATION

A. Fabricate waste sterilizer with smooth, eased exposed edges.

B. Fabricate bins, hoppers, chutes, lifts, and similar ancillary components of steel plate with welded joints. Reinforce with structural-steel members sized and spaced to withstand impacts and pressures of normal operations and to prevent excessive long-term development of waves and valleys.

C. Fabricate equipment with replaceable parts at points of normal wear.

D. Provide electrical devices, controls, and materials of type and quality recommended by NEMA for applications indicated.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine spaces to receive waste sterilizers. Verify that dimensions of spaces are compatible with critical dimensions and clearance requirements of waste sterilizers. Verify service rough-ins.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION (By Others)

A. Set waste sterilizer level, plumb, properly aligned, and securely and accurately in place. Anchor as specified for secure operation.

B. Complete field assembly with installation of field piping and electrical connections as specified by manufacturer.

3.3 DEMONSTRATION

A. Startup Services: The Mark-Costello Company will provide startup service, equipment demonstration, and training of Owner's maintenance personnel by a factory-authorized service representative.

END OF STERILIZER SPECIFICATION

Installation, Operating and Maintenance Instructions

For

The Mark-Costello Company
Biomedical Waste Steam Sterilizer
AS – Series Gravity Displacement Units

MANUFACTURER:
The Mark-Costello Company
15351 Texaco Ave.
Paramount, CA, USA 90723
Phone 562-630-7950 Fax 562-630-7950

I. TABLE OF CONTENTS

Section & Title **Page**

I. TABLE OF CONTENTS (continued)

1. INTRODUCTION

THANK YOU FOR PURCHASING A MARK-COSTELLO STERILIZER.

This product is designed and constructed to give you many years of reliable service and superior performance. To guarantee top performance and the safest operation of the Sterilizer, the employer(s) and each person involved in the installation, setup, operation, and maintenance of the Sterilizer should read and thoroughly understand the instructions in this manual and follow all warnings.

IF YOU SHOULD NEED FURTHER ASSISTANCE, HAVE ANY SAFETY CONCERNS WITH THE EQUIPMENT, OR NEED FURTHER INFORMATION, PLEASE CONTACT US AT THE PHONE NUMBER LISTED ON THE COVER PAGE OF THIS INSTRUCTIONAL MANUAL. YOU WILL NEED TO PROVIDE THE STERILIZER “LAAT” SERIAL NUMBER LISTED ON THE EQUIPMENT NAMEPLATE.

2. GENERAL

Please read this operating instruction carefully in order to guarantee a safe operation of this pressure equipment. Follow all warnings and instructions described in this manual, and marked on the equipment. Save this operating instruction for later use.

2.1 Description of the symbols and signs used in these operating instructions

Special attention shall be paid at this section of the Instruction

2.2 Description of the signs / warnings attached to the pressure equipment / assembly

DANGER: Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING: Indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury. Hazards identified by the signal word WARNING present a lesser degree of risk of injury or death than those identified by the signal word DANGER.

CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

3. USE OF THE EQUIPMENT

3.1 Intended Use

This pressure equipment must be used for the intended use only.
Operating apart from the intended use is not permitted.

The Sterilizer's intended use is for the sterilization of Regulated Medical / Clinical Wastes (RMW), originating from hospitals, clinics, or other medical or veterinary healthcare facilities, or similar regulated waste materials from other sources such as international flight kitchens or carriers.

RMW is not considered to be hazardous, or lethal, for PED classification.

Though the Sterilizer is used to sterilize RMW, it is not considered to be medical equipment.

The sterilized RMW removed from the Sterilizer chamber is considered safe for transport, and disposal, in the same manner used for ordinary municipal solid waste (trash).

3.2 Use Restrictions

NEVER put the following materials into the Sterilizer:
- Solvents, or volatile or corrosive chemicals (e.g., phenol, ethanol, methanol, ether, chloroform, trichloroacetic or other acids, bases, etc.).
- Radioactive materials
- Hazardous wastes
- Cytotoxic wastes
- Liquids in sealed containers. Large bottles with narrow necks can simulate sealed containers if filled with too much liquid.

Treatment of anatomical body parts and animal carcasses are not appropriate uses, because of their density, which prevents adequate steam penetration unless processed for an extended period of time.

Make sure seals on containers of liquids are loose so vapor expanding during heating will not cause an explosion.

Never autoclave any flammable or volatile liquids because the resultant vapor formed when heated could explode when mixed with fresh air entering the Sterilizer when venting, or opening the Sterilizer door(s).

4. STERILIZER DESCRIPTION AND SPECIFICATIONS

4.1 General Equipment Description

The equipment is as shown on the furnished factory assembly drawings.

These equipment pressure components are built in conformity with the Manufacturing Licensing System. This furnished over-pressure safety relief valve (SRV) is also built in compliance.

The Sterilizer is a registered pressure vessel, equipped with the requisite piping, valves, safety and pressure accessories, instrumentation, controls, hydraulic systems, and external thermal insulation, required for the safe operation, control, and protection of the equipment and operating personnel.

Also supplied with the Sterilizer are:
- Aluminium material handling carts (or aluminium pull out drawer).
- A hydraulically activated door lock/unlock (OPTIONAL EQUIPMENT).
- Electronic Controller

RMW is placed into the furnished carts, which are then loaded into the Sterilizer chamber where the RMW is heated to an elevated temperature by direct contact with saturated steam. The RMW is rendered sterile by maintaining it at a prescribed elevated temperature for a prescribed period of time. The Sterilizer's electronic Controller automatically controls all operating parameters.

4.2 Equipment Life

The operating life of the Sterilizer vessel is limited only by the specified corrosion allowance. The vessel may be operated up until the time that the corrosion on any pressure boundary surface equals the corrosion allowance listed on the nameplate.

Corroded components can be repaired, or replaced, to allow continued operation of the pressure equipment. Such repairs, or replacement, shall conform with the original design Code, and all legal jurisdictional requirements.

The Sterilizer vessel is not subject to cyclic fatigue when used within normal operating parameters.

The furnished pressure accessories, instrumentation, gauges, and optional hydraulic components, must be routinely inspected, tested, recalibrated, and serviced when needed. Failed component(s) shall be replaced with identical, or equal, component(s) obtained from The Mark-Costello Co.

The furnished safety accessories must be routinely inspected, tested, and recalibrated when needed. Failed component(s) shall be replaced with identical, or equal, component(s) obtained from The Mark-Costello Co.

4.3 Authorized Replacement Parts

All replacement parts shall be obtained from The Mark-Costello Company. The installation and use of replacement parts obtained from suppliers other than The Mark-Costello Company is prohibited, and will void the equipment warranty, unless such use is approved in writing by The Mark-Costello Company. The user/operator of the equipment will assume all legal and financial liability for equipment failures resulting from the use of unauthorized components.

5. SPECIAL STERILIZER FEATURES (Applies only to Vacuum Units)

5.1 Sterilizer Operating Controller (vacuum units only)

The Sterilizer is equipped with an electronic PLC Controller that automatically controls all Sterilizer operating functions. See the separate Sterilizer Controller Manual for the complete details of the Controller, and instructions on its operation and use.

5.2 Special Operating Modes (vacuum units only)

This Sterilizer is configured to operate in the “Full Condensing Mode.”
All condensable gases and vapors discharged from the Sterilizer during the cycles are externally condensed and cooled in the separate Condenser/Vacuum Pump Skid, prior to final discharge. The Condenser/Vacuum Pump Skid also cools all liquids, prior to their discharge to the sanitary sewer.

5.3 Condenser/Vacuum Pump Skid (vacuum units only)

The Condenser is a water-cooled heat exchanger located upstream of the Vacuum Pump inlet. It condenses and cools all condensable vapors, and cools all non-condensable gases, discharged from the Sterilizer during the process cycle.

The Vacuum Pump is a liquid-ring type, and is used to evacuate the Sterilizer chamber during the Pre-Vac, Post-Vac, and Drying phases of the operating cycle. The liquid-ring pump service water provides supplemental condensing and cooling capacity.

See the Condenser/Vacuum Pump Skid Manual for the complete detailed instructions for the installation, operation, and maintenance of this equipment.

6. TRANSPORTATION, UNLOADING, AND STORAGE

6.1 Equipment Transport

The Sterilizer assembly is as shown on furnished factory assembly drawing.

After assembly and testing at Mark-Costello's manufacturing facility, the Sterilizer is prepared for shipping by removing those external components required for shipping clearance, or protection during shipping.

Referring to the furnished Assembly drawing, the components removed for shipping will generally include the following:

- The main control panel (at the front elevation of the vessel).
- All external valves, gauges, and piping (excluding hydraulics) at the first pipe union, or threaded joint, nearest the vessel.
- Other components, which may include hydraulic pumps and valves, that may be required for shipping clearance or protection.

All disassembled Sterilizer components are tagged for easy identification, and are packaged for shipment, usually inside the Sterilizer.

The Sterilizer will be secured to, and shipped on, an open intermodal shipping container. Shipped inside the Sterilizer vessel are, one set of material handling carts, the disassembled Sterilizer components discussed above, and possibly other components or accessories. All parts shipped inside the vessel will be secured for shipping.

All other furnished equipment, accessories, and components will be packed (as required for protection), and be shipped inside the Sterilizer, on the Sterilizer shipping container, or in a separate enclosed intermodal shipping container.

During transport, unloading and installation excessive shocks must be avoided.

6.2 Offloading The Sterilizer at The Installation Site

6.2.1 Offloading Personnel Qualifications

All personnel involved with the offloading, movement, and placement of the Sterilizer and other components shall be trained and experienced riggers.

6.2.2 Offloading The Sterilizer From The Shipping Container and or Flatbed Truck

Mobile, or overhead crane(s), shall be used to lift the Sterilizer off of its shipping container, and for subsequent handling and placement.

All crane(s), lifting equipment and rigging used for the lift, including slings and shackles, shall be of sufficient certified capacity to safely lift and place the load.

Typically two (2) lifting lugs are provided on the top of the Sterilizer vessel: one near each end.

All lifting lugs shall be employed when lifting the Sterilizer vessel.
All lifting slings shall remain in a veritical plane during the lift.

If a single cranes is used to lift the Sterilizer, a certified spreader beam of sufficient length shall be employed. The distance between spreader beam attachment points for the load slings shall be approximately equal to the longitudinal distance between Sterillizer lifting lugs.

If two cranes are used to lift the Sterilizer vessel, the movement of the cranes shall be coordinated to insure that the Steriizer load slings remain in a veritical plane throughout the lift.

Lifting Procedure (miniumum requirements):
- Secure the crane rigging to the Sterilizer lifting lugs
- With the Sterilizer vessel still secured on its transporter, test and inspect the crane(s), all rigging, and the ground supporting the crane(s), by assuming (hoisting) a portion of the full Sterilizer vessel load on the crane(s).
- When safe to proceed, reduce the load on the crane(s) sufficiently to keep the rigging taunt, but allow the shipping restraints to be removed.
- Release and remove the shipping restraints that secure the Sterilizer vessel to its shipping container.
- Hoist the the load up until it is lifted just clear of its transport container, and stop.
- Inspect the crane(s), all rigging, and the ground supporting the crane(s).
- When safe to proceed, continue wiith lifting and placing the vessel.
- The lifting and handling shall proceed in a slow and safe manner with minimum dynamic load impact.
- The load shall be kept level at all times.

Alternate lifting and rigging plans shall be approved by The Mark-Costello Company.

Once offloaded, subsequent movement of of the Sterilizer vessel may be by use of crane(s). Alternatively, the vessel may be rolled by using dollies (or machinery rollers) placed under the two Sterilizer support saddles.

6.2.3 Offloading The Other Equipment and Components

Use a crane, fork lift, pallet jack, or man power, as appropriate, to offload the other equipment and components from the shipping container/flatbed).

6.2.4 Unloading Components Shipped Within The Sterilizer Vessel

The components shipped inside the Sterilizer may be unloaded prior to, or after, the Sterilizer has been secured to its supporting operating foundation.
The Sterilizer Quick-Opening Door (QOD), or Door(s), must be opened to gain access to these components.

During normal operation, the (each) Sterilizer QOD is hydraulically actuated: for both door unlocking, and door swing. However, the QOD can be manually unlocked and opened. To manually open a QOD:

- Set the Sterilizer on a stable and level hard surface.
- Rotate the handle of the Sterilizer door safety devices 90 degrees to its open position.
- Use the steel manual lever bar (furnished with the equipment), or a long tapered pinch bar, to incrementally rotate the Sterilizer door lock-ring until it is in the fully unlocked position. Block, or otherwise restrict, the door from swinging open during this step.
- Slowly swing the door open to access the interior of the Sterilizer. Use precaution when opening the door, as internal contents may have become loose during shipping, and could fall out as the door is opened.

- Remove the shipping restraints that secure the contents in the vessel. Before removing the restraints, install wedges or wheel stops to block the wheels of the carts inside the Sterilizer, to keep them from accidentally rolling out of the vessel.
- The contents are heavy. Use a forklift or other mechanical lifting device(s) to remove the contents shipped inside the Sterilizer vessel.
- After emptying the contents from the Sterilizer, swing the door(s) shut, lock the door(s) by manually rotating the lock-ring(s), and rotate the handle on the door safety device(s) 90 degrees to the locked position.

The Sterilizer door(s) must be locked in the closed position when lifting, or moving, the Sterilizer.

6.3 Equipment Storage Prior To Installation

Once offloaded from their intermodel tranport container, all components shall be placed in in a safe and secure storage area until installed.

The Sterilizer can be stored outside for a short duration. If stored in an unsecured area, the Sterilizer Quick-Opening Door(s) shall be secured against opening by installing a cable or pad lock on the manual door opener bracket.

All other furnished components and equipment shall be stored indoors.

7. EQUIPMENT INSTALLATION

7.1 Placing and Setting The Sterilizer Vessel On Its Foundation

The Sterilizer vessel shall be installed on its foundation piers, as shown and specified on the furnished installation drawings.

All personnel involved with the movement, and placement of the Sterilizer and other components shall be trained and experienced riggers.
If using a crane (or cranes) to set the Sterilizer vessel, follow the requirements and applicable precedures previously specified for offloading the vessel.

Alternatively, the Sterilizer vessel may be rolled into its installed position, using dollies or machinery rollers placed under the two Sterilizer support saddles. The procedure for their use shall be as follows:

- Roll the vessel into position over its foundation pedestals located in the Sterilizer pit. Use blocked and leveled steel beams in the pit, located under the roller path of each set of dollies.
- Use hydraulic jacks to lift each end of the vessel up, and remove the rollers and beams. Jack one end of the vessel at a time, with the other support saddle founded on its roller beam, or cribbing blocks.
- With the roller beams removed, use jacks to incrementally lower the vessel onto its support pedestals. Always keep cribbing under the vessel support saddles on the end(s) being jacked, to support the vessel in the event of jack failure.
- Use multiple jacks under each vessel support saddle when jacking.
- Lower the vessel as close to its support pedestals as the jacks will allow. We strongly recommend the use of toe type jacks for this operation.
- Jacks may be placed under the inboard end of the door lock-rings for the final increments of jacking.

Anchor the Sterilizer to its supporting foundations in accordance with the installation drawings. Pay special attention to the requirements specified for the expansion saddle, including lubrication of the slide plate, and tighting of the anchor bolts.

7.2 Equipment Installation

All installation personnel shall be qualified pipe fitters, electricians, and technicians.

Place the Sterilizer and all ancillary equipment in their operating positions, and secure them to their foundations.

Install all Sterilizer components that were removed for shipping in accordance with the furnished assembly and PID drawings. The Sterilizer connections, and all loose shipped components, are tagged for easy indentification.

Install and connect all user furnished piping, components, thermal insulation, and electric conduit and devices, needed to complete the systems.

The installed Sterilizer piping shall be in accordance with the furnished assembly and PID drawings.

7.3 User Furnished Pipe & Conduit Supports

The user shall furnish and install adequate supports for all external piping and conduits.

The pipe and conduit supports shall allow for thermal expansion and contraction of the Sterilizer, and the supported piping and conduit, while minimizing piping loads on the Sterilizer, piping and conduit, and operating equipment connections.

7.4 User Furnished Thermal Insulation

The Sterilized vessel is factory insulated.

The user shall furnish and install all required thermal insulation for the installed piping, for both process requirements and personnel protection.

All user installed steam lines shall be insulated unless otherwise noted.

The following factory furnished Sterilizer piping shall be field Insulated:
- Steam supply lines to the Sterilizer control valve, & pipe between control valve & Sterilizer.

Do not insulate
1. The valve bodies, or valve acutators, of the actuated valves furnished with the Sterilizer.

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7.5 Safety Distances

The vessel shall be installed in a way that it can be safely operated and maintained

7.6 Warning of Freeze Protection

The purchaser/user of the Sterilizer is responsible for providing freeze protection for the equipment if the installation is subject to freezing.

Contact The Mark-Costello Company for recommended freeze protection requirements and practices for the Sterilizer, and other auxiliary equipment and components supplied by The Mark-Costello Company, and for advice on the protection of the user furnished/installed piping and components.

8. PRE-OPERATION SETUP AND STARTUP

A factory technician will be on site to perform the pre-operation set-up and start-up of the Sterilizer and Condenser/Vacuum Pump Skid, after the user has completed the equipment installation. The technician will also train the users responsible personnel on the proper operation, use, and maintenance of the furnished equipment.

9. PRE-OPERATION INSTRUCTIONS AND CAUTIONS

THE EMPLOYER SHOULD ALLOW ONLY AUTHORIZED AND TRAINED PERSONNEL TO OPERATE THIS STERILIZER.
The Sterilizer is equipped with a key operated locking system.
The key(s) should be in the possession of only authorized personnel.

ONLY AUTHORIZED PERSONNEL SHOULD BE ALLOWED INSIDE THE FRONT PANEL OF THE STERILIZER CONTROLLER ENCLOSURE, OR INSIDE THE ENCLOSURE THAT CONTAINS THE VALVE ACTUATOR ELECTRO-PNEUMATIC SOLENOID VALVES. These enclosures contain high voltage components.
See Lock-Out & Tag-Out Instructions in the Maintenance section of this Manual.

ONLY AUTHORIZED PERSONNEL SHOULD BE ALLOWED INSIDE THE STERILIZER CHAMBER.
Minimum safe practice for entering the Sterilizer chamber

1. Do not enter the Sterilizer chamber unless it is safe to do so.
2. Lock-Out and Tag-Out all attached energy sources before entering the Sterilizer chamber. This includes electric power, steam pipes, compressed air, pipes and hydraulic line pressure.
3. When entering the Sterilizer chamber, always have a second person acting as a safety watch.
4. The safety watch must be positioned to have a clear view of the personnel entering and within the Sterilizer/ Sterilizer operating controls and other activity in the area.
5. Avoid entering the Sterilizer when it is hot.
6. Before entering the Sterilizer, visually inspect the Sterilizer chamber temperature gauge(s) to assure that the Sterilizer is cool enough to enter.
7. When entering the Sterilizer proceed slowly, and withdraw immediately if the ambient temperature inside the Sterilizer is deemed uncomfortable, or too hot for safe entry.

NEVER CLOSE THE STERILIZER DOOR(S) WHEN PERSONNEL ARE INSIDE THE STERILIZER.

Safe practice for opening the Sterilizer door(s)

Never attempt to open the Sterilizer door(s) until:

The display on the Control Panel instructs that it is safe to open the door(s).

1. The pressure gauges indicate that there is no pressure or vacuum in the chamber.
2. The door safety device is opened, and there are no visible or audible signs of gas or vapor flowing out of (discharging) the door safety device ball valve.
3. Do not attempt to force the door safety device open.

Stand away from, and to the side of, the Sterilizer door(s) when unlocking, opening, and closing the door(s).

Safe practice for unlocking the Sterilizer door(s)

1. Proceed cautiously when rotating the door lock-ring.
2. Slowly rotate the door lock-ring when unlocking.
3. As the door lock-ring rotates, beware of any steam exiting the door, which indicates that there is still pressure in the chamber. Immediately stop rotating the door lock-ring if steam or vapor is seen, or heard, exiting the door.
4. Do not continue to rotate the door lock-ring until the steam (or vapor) flow has ceased, and you are sure it is safe to proceed.

DO NOT ALTER, OR OTHERWISE ATTEMPT TO DEFEAT, THE STERILIZER DOOR SAFETY DEVICES.
DO NOT OPERATE THE STERILIZER UNLESS THE DOOR SAFETY DEVICES ARE IN PROPER WORKING ORDER.

The hydraulics power unit(s) and valves that unlock and lock the Sterilizer door(s), and swing the door(s) open and close have been factory set to perform these functions in a safe manner. **NEVER ALTER THIS EQUIPMENT IN ANY WAY, OR CHANGE THE FACTORY SET PRESSURE AND RATE OF FLOW SETTINGS, WITHOUT FIRST CONSULTING THE FACTORY**

Electric power to the Sterilizer door hydraulic power unit(s) is interlocked with the door safety device(s) and the Sterilizer control panel, and prevents the power unit(s) from being energized to unlock the door(s) until it is safe to do so. **NEVER ALTER THIS EQUIPMENT IN ANY WAY, OR DEFEAT THE FACTORY INTERLOCKS.**

ALL OPERATING PERSONNEL SHALL WEAR PROPER PERSONAL PROTECTIVE EQUIPMENT WHEN OPERATING THE STERILIZER, OPENING AND CLOSING THE STERILIZER DOOR(S), LOADING AND UNLOADING THE STERILIZER, AND HANDLING THE STERILIZER CARTS.
Proper personal protective equipment includes heat insulating and cut resistant gloves, eye protection, safety toe shoes, and heat protective clothing with long pants and long sleeves.

10. IMPORTANT SAFETY PRACTICES

In addition to the cautions listed in the previous section, there are other important safe practices that will minimize the chance of an accident, or injury, occurring, and also increase the functionality of the autoclave. These important safe practices are listed below.

1. Read and follow all instructions, precautions, and recommendations contained in this Manual, and the Controller.
2. Never exceed the Manufacturer's recommended operating pressures and temperatures.
3. Ensure that regular maintenance inspections of the Sterilizer and ancillary equipment are performed in accordance with this Manual and Manuals for the ancillary equipment.
4. Report all malfunctions to the supervisor. Lock-Out and Tag-Out the equipment electrical disconnects, and conspicuously tag the equipment as "Out-of-Service." Do not operate the equipment until the malfunctions are addressed, and it is safe to resume operation.
5. Do not place or store combustible, flammable, or volatile, materials or liquids on or adjacent to the Sterilizer.
6. Do not operate the Sterilizer unless you have received specific operation instructions or are working under the direct supervision of an experienced autoclave worker.
7. Do not enter the Sterilizer chamber unless authorized to do so. See the "Safe practice for entering the Sterilizer chamber" Manual section before attempting to enter the Sterilizer.
8. Before using the Sterilizer, check to make sure no items were left inside by the previous user that could pose a hazard.
9. Clean the chamber internal sump drain strainer(s) each day before running the first cycle.
10. Make sure the Sterilizer door(s) is (are) fully closed and locked, the door safety device(s) is (are) latched closed, and the correct cycle is selected, before starting the cycle.
11. All operating personnel shall wear proper personal protective equipment, including protective gloves, eye protection, safety toe shoes, and heat protective clothing.
12. Stand clear when lowering and raising the cart bridge(s).
13. The Sterilizer is steam heated, and operates at high temperature. Burns can result from unprotected physical contact with the Sterilizer, external appurtenances & piping, & carts.
14. When operating the Sterilizer door(s), always follow the instructions in the "Safe practice for opening the Sterilizer door(s)" section in this manual.
15. When unlocking and opening the Sterilizer door(s), stand away from and to the side of the door(s). Beware of a rush of steam exiting the door(s).
16. Take extra precaution when unloading hot Sterilizer carts at the completion of a cycle. Keep faces and body clear of the carts. Liquids in containers within the carts can potentially flash to vapor when the carts are moved, or jostled. Explosive breakage of glass vessels during opening and unloading as a result of temperature stresses can lead to mechanical injury, cuts, and burns.
17. Always wear heat-insulating gloves when handling the Sterilizer carts/pull out drawer, even when empty. The best practice is to ALWAYS assume that all carts are hot.
18. Do not attempt to open the Sterilizer door(s) until the display on the pressure gauge above the sterilizer door reads/displays "0" depicting the vessel is no longer pressurized.
19. Do not open the Sterilizer door(s) if a cycle is terminated prematurely by operator action, or electric power failure. Restart the Sterilizer cycle and allow it to run to its completion, or wait until the Sterilizer has cooled before opening the door(s).

11. DESCRIPTION OF THE STERILIZER OPERATING CYCLE

The Sterilizer operating cycle is automatic and fully controlled by its Electronic Controller.

The Sterilizer operating cycle consists of five sequential phases, which are:

- **1.** Saturated steam flows into the Sterilizer chamber, heating the vessel & the RMW within the chamber, while raising the chamber internal pressure and temperature.
- **2.** Steam continues to flow into the Sterilizer chamber to continue heating the vessel and RMW to the programmed sterilizing temperature. Normal programmed sterilizing temperature is 135 ^{o}C. (275^{o}F).
- **3.** Steam flow to the chamber is regulated to maintain the Sterilizer chamber at sterilizing temperature for a programmed period time to achieve sterilization of the RMW. Typical sterilization time is 45-60 minutes, or as validated by testing, or as otherwise prescribed by regulatory authorities.
- **4.** Cycle time is complete-steam flow to the Sterilizer chamber is shut off, and the chamber is depressurized by venting steam to atmosphere until the pressure within the chamber drops to near atmospheric pressure conditions.
- **5.** The Sterilizer door is opened (after visual check of pressure gauge above sterilizer door displays “0”). Treated RMW is moved to trash compactor for disposal.

12. STERILIZER OPERATION

12.1 Loading the Sterilizer

All materials to be processed in the Sterilizer shall be loaded into the carts or pull out drawer furnished with the Sterilizer. Never place materials directly on the Sterilizer bottom.

Disposable cart liners should be used to contain loose materials within the carts, and prevent melted plastics and materials from building up on the cart walls. The liners must be perforated to prevent steam condensate from collecting in the carts during the process cycles.

The typical red plastic trash bags used by hospitals for RMW, and other non-autoclavable bags, will disintegrate during sterilization, spilling their contents within the cart, or autoclavable container into which they are packaged.

Materials in autoclave bags, and corrugated cardboard boxes, can be loaded directly into the lined Sterilizer carts. It is recommended that all autoclavable bags be loosely closed, and all boxes be open or partially open, to allow for steam penetration. If this practice is not followed, the normal programmed processing time may not be adequate to insure sterilization, and it becomes the user’s responsibility to establish, and validate, the appropriate programed time required to attain & assure sterilization.

NEVER put the following materials into the Sterilizer:

- Solvents, or volatile or corrosive chemicals (e.g., phenol, ethanol, methanol, ether, chloroform, trichloroacetic or other acids, bases, etc.).
- Radioactive materials
- Hazardous wastes
- Cytotoxic wastes
- Liquids in sealed containers.

If loaded into the Sterilizer, liquids may boil and turn to gases when heated. If flammable, or combustible, these gases could ingnite, or explode, when the Sterilizer door is opened. Other gases may pose potential health hazards for the operators if directly exposed. The post-evacuation phase of the normal operating cycle should mitagate, or reduce, these potential hazards, but the operators should always be aware of their possiblity and treat every load with the same caution.

Before loading containers of liquids into the Sterilizer carts or drawer, the caps must be loosened to vent the containers, to avoid having the container shatter during pressurization. Large bottles with narrow necks can simulate sealed containers if filled with too much liquid.

12.2 Unloading the Sterilizer

The following procedures and precautions should be followed when unloading carts/drawer from the Sterilizer:

- When opening the Sterilizer door(s) to unload the carts, follow all the procedures in the “Safe practice for opening the Sterilizer door(s)” section of this manual.
- Take extra precaution when unloading hot Sterilizer carts at the completion of a cycle. We recommend that you wait several minutes after opening the door(s) before removing the carts.
- Follow all applicable procedures in the “Important Safety Practices” section of this Manual..
- Keep face and body clear of the carts. Liquids in containers within the carts can be superheated, and can flash to vapor when the carts are moved, or jostled.
- Always wear heat insulating gloves, and other required personnel safety equipment when handling the Sterilizer carts, even when empty.
- The best practice is to always assume that the carts are hot.
- Do not enter the Sterilizer to pull carts out, The Sterilizer will still be very hot, and unsafe to enter. Use a reach rod, hooked pole, winch line, or other non-entry means to retrieve the carts from within the Sterilizer.
- For Sterilizers equipped with two QODs, the best way of discharging carts from the Sterilizer is by sequentially pushing carts loaded for the next cycle into one end of the
- Sterilizer, while pulling carts from the just completed cycle out of the opposite end of the Sterilizer.

After autoclaving, the sterilized waste can be disposed of as other non-hazardous solid wastes.

12.3 Running A Cycle

See the Partlow Sterilizer Controller Manual for cycle operating instructions.

13. STERILIZATION VALIDATION

13.1 Successful Components of Sterilization

Successful sterilization should include validation of sterilization effectiveness. Validation of effectiveness includes monitoring temperature, pressure, and cycle duration time, for each cycle and providing periodic decontamination challenges (quality assurance), i.e. use of biological indicators.

The frequency and methods used for validation shall be in accord with the relevant legal regulatory entities.

A logbook should be maintained to record autoclave use and be available for inspection.

13.2 Validation Indicators

These are tools used to validate the sterilization process.

Chemical indicators change color after being exposed to their prescribed temperature, but they have no time factor.

Tape indicators can only be used to verify that the Sterilizer has reached normal operating temperatures for sterilization.

Biological indicators are designed to demonstrate that the Sterilizer is capable of killing microorganisms. A load test using Bacillus stearothermophilus should be performed at least monthly, or as prescribed by local or national ordinances or regulatory entities.

14. RECORD KEEPING

Records of maintenance logs, cycle print strips, calibration results, operator training, and validation load tests should be maintained, and kept for a minimum of three years, or as prescribed by local or national ordinances or regulatory entities.

15. TRAINING OF STERILIZER OPERATORS

Principal supervisors must train and qualify their staff for operation of the steam Sterilizer and associated equipment, the safe handling of materials to be processed in the Sterilizer, and safe handling and disposal of the sterilized materials.

Qualified personnel should understand the time, temperature, pressure relationships required for proper materials sterilization.

Supervisors should maintain a permanent record of training provided to their staff.

16. EQUIPMENT MAINTENANCE

16.1 Routine Maintenance

Regularly inspect the Sterilizer, its components, and all auxiliary equipment for proper operation. Follow the required and recommended inspections and service specified in the manuals.

16.2 Maintenance of Measurement and Control Devices

The pressure and temperature gauges, and instrumentation provided as part of the Sterilizer and its Controller should rarely require maintenance, or recalibration.

Digital instruments are provided, as part of the Sterilizer Controller, for monitoring and controlling the temperature and pressure within the Sterilizer chamber. Sensing elements include Thermocouples (TC) for temperature, and Pressure Transducers/Transmitters for pressure.

Analog (dial) temperature and pressure gauges are also provided for the Operators to visually monitor temperature and pressure within the Sterilizer chamber. Operators shall routinely compare the digital pressure and temperature readings on the Sterilizer Controller with the analog pressure and temperature gauges. If a discrepancy is noted between digital and analog readings, the Operators shall promptly notify their area supervisor, who will call for maintenance.

Do not operate the Sterilizer until the problem has been corrected, which may involve component calibration, repair, or replacement.

If a discrepancy is noted between digital and analog readings, always verify the accuracy and calibration of the analog device first, and then the digital measuring sensors (TC or PT), before attempting any adjustments to the Sterilizer Controller.

Analog gauges and digital sensors must be removed to test for accuracy, or to recalibrate.

1. Test and calibrate the TC's and analog bimetal temperature gauges using both water ice bath and boiling water and comparing the gauge reading to the freezing and boiling point temperatures for water, adjusted for site altitude.
2. PT's and analog pressure gauges shall be tested and calibrated using of a calibrated dead weight tester, or by comparison to a calibrated master gauge.

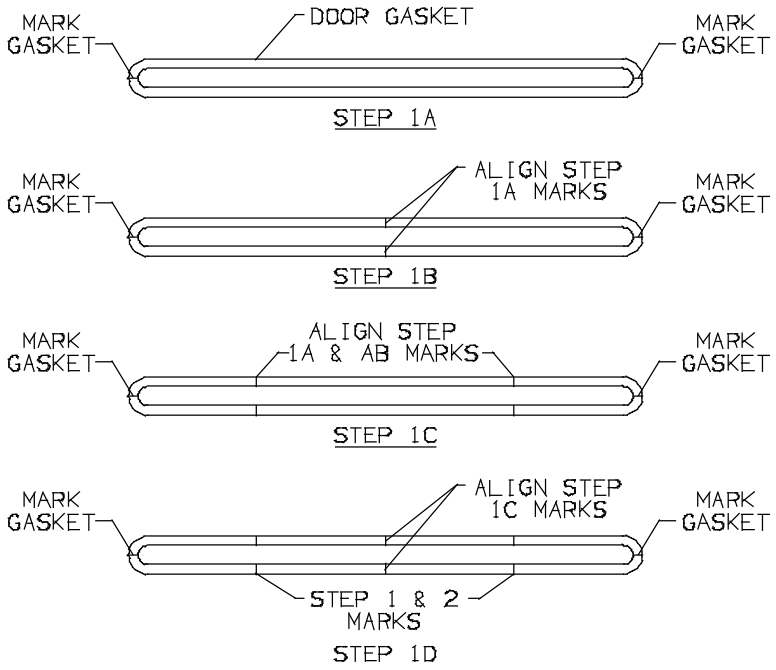
16.3 Sterilizer Door Gasket Replacement

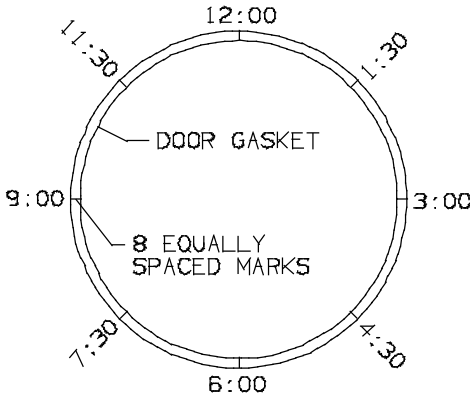
The Sterilizer door pressure seal is a proprietary self-energizing silicon elastomer lip-seal gasket. The lip-seal gasket only needs replacement when they can no longer seal the door. Gasket life depends upon frequency of use, and quality of care and maintenance of the gasket and gasket mating surfaces on the Sterilizer door, and protection of the surfaces of the Door at, and adjacent to, the gasket groove.

Try to replace the gasket when the vessel is cold, if possible. If it is not convenient to immediately replace the gasket, you can try smearing grease on the door gasket-mating surface to seal it: this may enable you to finish a cycle or two.

Follow the procedures listed in this section when installing a gasket. Initially, gasket replacement may seem difficult, but becomes routine with practice, and adherence to the listed instructions. Remove the gasket to be replaced before proceeding with the steps listed below.

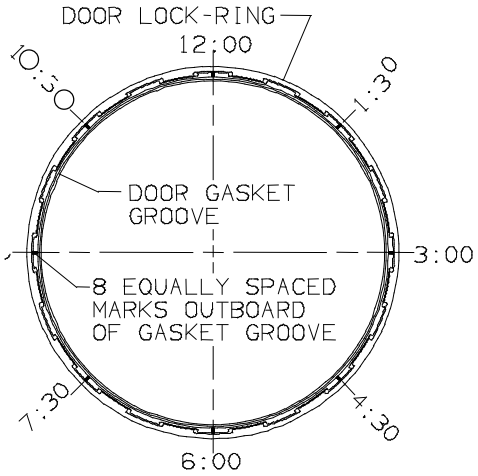
Step 1: Place eight (8) equally spaced marks on the gasket following the procedures shown in the graphics below.





STEP 1 MARKED DOOR GASKET

Step 2: Place eight (8) equally spaced marks adjacent to, & outboard of, the gasket groove, which is located in the steel flange at the end of the vessel shell. Like the numbers on a clock face, these marks shall be made at 12:00, 1:30, 3:00, 4:30, 6:00, 7:30, 9:00, and 10:30, as shown in the graphic on the right.

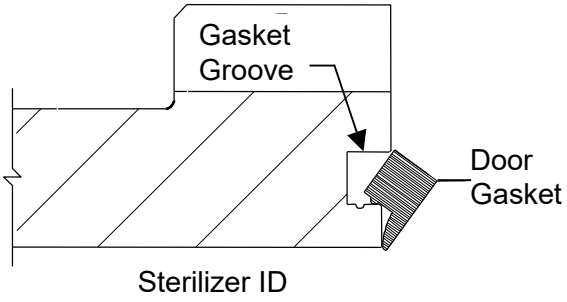


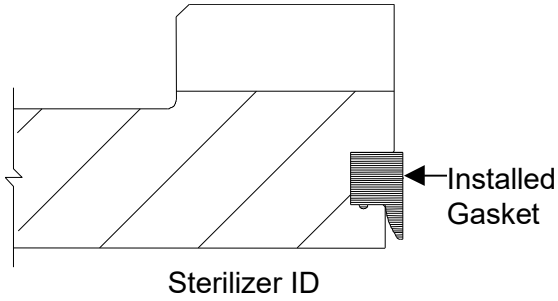
STEP 2 MARKED DOOR GASKET GROOVE

Step 3: Lightly lubricate the gasket and gasket groove with a gentle variety of hand or dish soap, or a gasket assembly fluid compatible with silicon elastomers. Do not use petroleum-based compounds, or other compounds that are not recommended for use with, or are incompatible with, silicon elastomers.

Step 4: Line up a mark on the gasket with the mark adjacent to the gasket groove at 12:00. Press a short segment of the gasket into the gasket groove on each side of the mark.

The lip of the gasket must face inward, towards the center of the vessel, as shown in the graphic below right. The best technique is to roll the gasket into the groove, by twisting the gasket slightly so that the bottom inside corner of the gasket enters the groove first, as shown in the graphic below left.





Step 5: Sequentially repeat the Step 4 procedure at the 6:00, 3:00, 9:00, 1:30, 7:30, 4:30 and 10:30 marks at the gasket groove, making sure to align the appropriate marks on the gasket with the corresponding marks at the gasket groove.

Step 6: Take one of the eight loops of uninstalled gasket remaining after Step 5 and repeat the Step 4 procedure, aligning the mid point of the gasket loop up with the mid point of the empty gasket groove. Sequentially repeat this step for the each of the loops of uninstalled gasket remaining after Step 5.

Step 7: Repeat the process of dividing each uninstalled gasket loop in half, and pressing a short length into the groove, until the entire gasket length is installed.

Step 8: Knead the surface of the gasket to work out any lumps that may exist.

Step 9: Clean and lubricate the machined gasket mating face on the hinged door. This is the surface that presses against the gasket when the door is swung closed. If using an aerosol lubricant, allow any lubricant propellant to evaporate before proceeding. Never spray an aerosol directly on the door gasket.

Step 10: Swing the door closed and rotate the door locking-ring to lock the door. Unlock and open the door. Repeat the close/lock, unlock/open, process several times more, as needed, to flatten out any remaining gasket lumps, or high spots.

Though the written gasket replacement procedure may seem long & complicated, the actual gasket installation process is simple and straightforward.

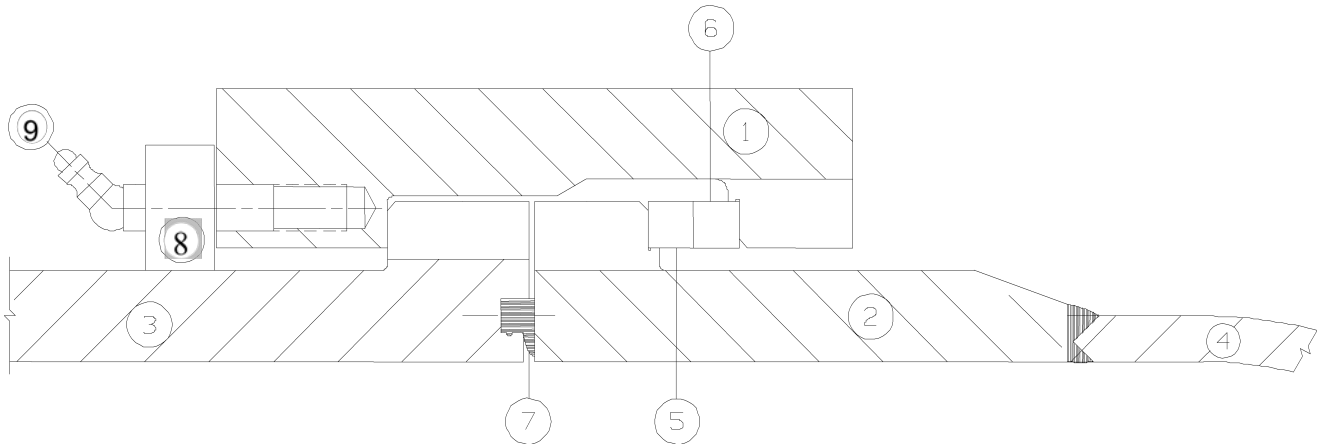
If you attempt to install the gasket in the groove by pressing in the gasket at one position and continuing around the gasket groove until you end up back at the starting position, you will end up with a groove filled with gasket, but also a excess loop of gasket that can not be installed.

Be gentle when handling the uninstalled gasket, or pulling on the gasket when performing the Step 1 gasket marking procedure. Excessive tension will cause the gasket splice to rupture, rendering the gasket unfit for service.

You should not need to hammer or pound the gasket to install it. Light taps with a soft-faced mallet against a softwood block is acceptable, but use precaution to avoid damaging the gasket, or gasket lip. Do not use any type of sharp edged tools or implements that could cut or sever the gasket.

16.4 Sterilizer Door Lubrication

A cross section of the closed, and locked, Sterilizer Door is shown in the figure below, to show the geometric relationship of the Door components. When the Door Lock-Ring is rotated to lock and unlock the Door, there is sliding friction between: the rear bearing surfaces of the Door Lock-Ring and the slotted lugs on the Door Shell Flange; and the Tapered Wedges on the Door Lock-Ring and the slotted lugs on the Door Head Flange. The Lock-Ring Camrols roll on the OD of the Door Shell flange to keep the Lock-Ring centered.



(See next page for table)

The numbered Door components in the above figure are listed in the Table, below:

Item No.	Component
1	Door Locking Ring, or Lock-Ring
2	Door Head Flange
3	Door Shell Flange
4	Door Head
5	Shell Flange Tapered Locking Wedges
6	Lock-Ring Tapered Locking Wedges
7	Door Gasket, in Shell Flange Gasket Groove
8	Lock-Ring Camrol
9	Camrol Lubrication Fitting

It is important to maintain adequate lubrication of the Sterilizer Door. Failure to do so will result in abnormal Door wear, and the shortening of the life of the Door.

To avoid the collection of deleterious debris during the fabrication and shipping of the Sterilizer the Door sliding friction surfaces are factory coated with a dry solid lubricant. All Door sliding friction surfaces must be lubricated with ***a high-temperature, water-proof, corrosion resistant, high-bearing anti-seize grease*** immediately after installing, and prior to operating, the Sterilizer. We recommend that you use a stiff ***synthetic molybdenum-disulfide grease***. These surfaces shall be regreased every day for the first week of operation, and at least weekly thereafter: wipe off excess old grease before applying new grease. At least once monthly, thoroughly clean friction surfaces, and relubricate with fresh grease.

When greasing the Wedges, it is important that you cover all surfaces of the Wedges, including the ends and sides, and the adjacent Door component surfaces at, and beyond, the base of the Wedges. This provides a protective lubricant film to prevent moisture from seeping in between the base of the Wedges and the Door Lock-Ring and Door Flange mating surfaces. Failure to do so will allow moisture to seep in under the base of the Wedges, which will lead to rusting. The resultant expansive forces due to rusting could eventually lead to the loss of the Wedges.

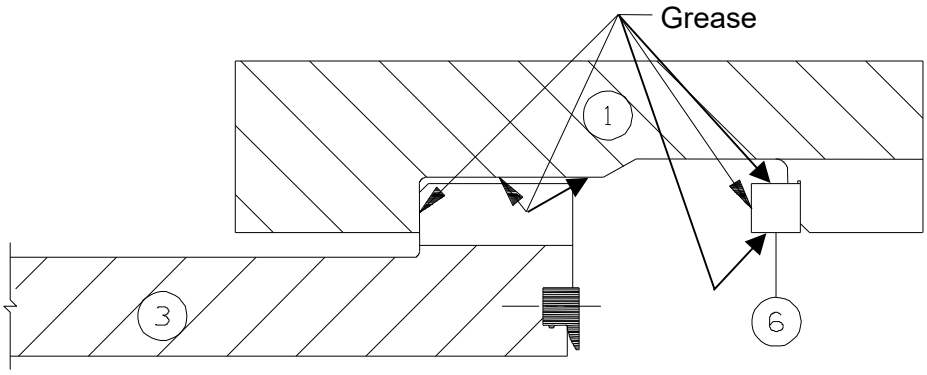
To help prevent rusting under the Door Wedges we recommend that you apply an aerosol, or liquid, ***high-temperature silicon penetrant*** at the base of the Door Wedges:

- Prior to greasing the Door Wedges for the first time,.
- After the monthly cleaning of the Wedges, before greasing the Wedges.

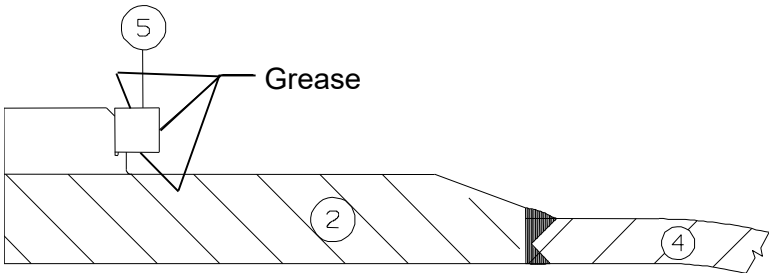
Apply the penetrant liberally. Allow a few minutes for the penetrant to work, and the aerosol propellant to evaporate. Wipe off the excess penetrant before greasing the Wedges.

Grease the Door Lock-Ring (Item 1) and Lock-Ring Wedges (Items 6) surfaces as shown in the following figure, using the recommended Moly-Disulfide lubricant. The Lock-Ring ID and rear bearing surfaces are only accessible through the gaps in the Door Shell Flange (Item 3). First, grease the Lock-Ring ID & rear bearing surfaces with the Lock-Ring in the unlocked position. Then use the hydraulic system to rotate the Lock-Ring to the locked position, and

grease the newly exposed Lock-Ring surfaces. When completed greasing the Lock-Ring, rotate the Lock-Ring back to its unlocked position. When greasing the Wedges, cover all surfaces, including ends and sides.



Grease the Door flange Wedges (Items 5), as shown in the following figure, using the recommended Moly-Disulfide lubricant.



16.5 Lubricating the Sterilizer Door Lock-Ring Camrols

The multiple Lock-Ring Camrols (Items 8) are sealed needle bearings that require infrequent lubrication. Inspect the Camrols at least weekly to insure that they are turning freely, which is a sign of adequate lubrication. If lubrication is required, use a manual grease gun to lubricate the Camrols (through the Item 9 grease fittings) with high-***temperature, non-channeling, grease suitable for needle bearings***.

The grease volume within the Camrols is very small, so only a small amount of grease is needed. Take care to avoid blowing out the Camrol grease seals when lubricating. Stop greasing when you feel resistance on the manual grease gun lever: just a fraction on one stroke of the grease gun is typically required.

16.6 Lubricating the Sterilizer Door Hinge Bearings

The Sterilizer Door Hinge Bearings are sealed ball bearings that will rarely, if ever, require lubrication. If lubrication is required, use a manual grease gun with a ***standard lithium based, non-channeling, ball bearing grease***. Inspect the bearing at least once a week to insure that they are turning freely, and are not “squeaking”, which are signs of adequate lubrication.

When lubricating these bearings take care to avoid blowing out the bearing grease seals. Stop when you feel resistance on the manual grease gun lever. Just a partial stroke of the grease gun is normally required.

16.7 Lubricating the Sterilizer Door Hydraulic Cylinder Pins (optional equipment)

There are four hydraulic cylinders on each door: two for rotating the Door Lock-Ring, and two for swinging the Door Head open and closed. The base and rod end pins of these hydraulic cylinders should be lubricated after Sterilizer installation, and once a month thereafter. We recommend a ***PTFE Lubricating/Penetrating Gel*** aerosol, which dispenses as an oil, and then thickens to a grease-like gel. Whichever lubricant is used, it shall have the requisite properties to protect the steel surfaces against rust and corrosion, and reduce friction and wear when subjected to severe pressure and abrasion.

16.8 Sterilizer Door Alignment and Adjustment

The Sterilizer Door Hinge allows for the realignment of the Door, should that ever become necessary. However, ***the User is cautioned to consult with the factory before attempting to adjust, or realign, the Sterilizer Door.***

16.9 Sterilizer Door Hydraulic System Maintenance (optional equipment)

Initial Service

Before operating the Sterilizer Door hydraulic system (optional equipment):

1. Fill the hydraulic power unit (HPU) fluid reservoirs The hydraulic fluid used shall be in accordance with the HPU manual.
2. Use the manual hydraulic valve to cycle (extend and contract) each set of hydraulic cylinders to fill the cylinders and lines with fluid. Continue cycling the cylinders until they move smoothly, and instantly, when the manual valve is actuated to extend and retract the cylinders.
3. Monitor the fluid level in the HPU reservoir during Step 2, adding fluid as needed.

Routine Maintenance

The Sterilizer Door hydraulic system is relatively maintenance free. The recommended hydraulic maintenance is as follows:

1. Inspect the HPU weekly, and top off with hydraulic fluid as needed.
2. Visually inspect hydraulic hoses, fitting, valves, and cylinders, daily for signs of leakage, hose fraying, or component wear.
3. Lubricate hydraulic cylinder pins as addressed in a prior section of the Manual.
4. Empty & clean the HPU fluid reservoirs, and refill with fresh hydraulic fluid, at least once annually, or as advised in the HPU manufacturer's Manual.
5. Operators shall immediately report any leaks, or malfunction, to their Supervisors.
6. Maintenance shall address and correct any deficit condition.
7. Replace frayed hoses immediately.

16.10 Equipment Lock-Out Tag-Out Instructions

ONLY AUTHORIZED PERSONNEL SHOULD BE ALLOWED INSIDE THE FRONT INTERIOR PANEL OF THE STERILIZER CONTROLLER ENCLOSURE, OR INSIDE THE ENCLOSURE AT THE REAR OF THE STERILIZER THAT CONTAINS THE VALVE ACTUATOR ELECTRO-PNEUMATIC SOLENOID VALVES. These enclosures contain high voltage components. Before entering, or servicing, these enclosures, be sure that all sources of energy have been shut off, all potential hazards have been eliminated, and the equipment is locked-out and tagged-out in accordance with OSHA and ANSI requirements (in the USA), or applicable regulatory requirements. The specific lockout and tag-out instructions may vary from company to company (i.e. multiple locks may be required, or other machinery may need to be locked-out and tagged-out). The following instructions are provided as minimum guidelines.

ELECTICAL LOCK-OUT AND TAG-OUT INSTRUCTIONS

1. Move the main disconnect lever to the OFF position.
2. Padlock the disconnect lever with a keyed padlock and take the key with you.
3. Along with the padlock, place an appropriate, highly visible, warning tag on the disconnect lever. The tag should provide a warning such as: “Danger: Do not operate equipment. Person working on equipment.” Or “Warning: Do not energize without the permission of _____.”
4. After locking and tagging the Sterilizer panel, try to start and operate the Sterilizer (as outlined in the Operating Instructions) to make sure the lock-out and tag-out is effective..

HYDRAULIC: Before attempting to service a Hydraulic Power Unit (HPU), be sure that all sources of energy have been shut off, all potential hazards have been eliminated, and the equipment is locked-out and tagged-out in accordance with the preceding instructions. With the HPU de-energized, cycle the manual valve handles to release stored hydraulic energy in the hydraulic circuits.

17. TROUBLESHOOTING

The following troubleshooting sections provides guidance on recognizing, and correcting, common malfunctions that could occur when operating the equipment. Consult with the factory should symptoms, or malfunctions, occur that are not covered in these sections.

17.1 Sterilizer Door(s)

Symptom	Cause(s)	Corrective Action(s)
1. Steam or water leaking from door gasket	1. Damaged or brittle door gasket 2. Debris on gasket or door sealing face 3. Debris accumulation under gasket lip 4. Pitted, grooved, or damaged door sealing face 5. Missing steel sealing wedge(s)	1. Inspect door gasket. Replace if split, damaged, or cracked. 2. Clean gasket & door sealing face, & lubricate door sealing face 3. Same as 2 4. Clean & lubricate door sealing face to see if problem is solved: if not, consult factory. See Materials troubleshooting section for cause & corrective actions 5. Consult factory
2. Door gasket pulls out of groove	1. Gasket sticking to door sealing face. 2. Improper gasket installation 3. Gasket shrinkage 4. Undersized gasket	1. Clean gasket & door sealing face, & lubricate door sealing face 2. See gasket installation instructions 3. Replace gasket. Shrinkage can occur with age, or exposure to incompatible fluids, lubricants, or propellants 4. Replace gasket & notify factory
3. Difficulty in rotating door locking-ring far enough to allow door safety device handle to be closed when locking the door	1. Inadequate door lubrication 2. Gasket protruding due to improper gasket installation 3. Inadequate hydraulic pressureMisaligned door 4. Misaligned door	1. See door lubrication section 2. See gasket installation instructions 3. Check for proper door locking pressure setting. Inspect & service hydraulic system. 4. Consult factory
4. Difficulty in rotating door locking-ring when unlocking door	1. Inadequate door lubrication 2. Inadequate hydraulic pressure 3. Excessive door locking pressure 4. Misaligned door	1. See door lubrication section 2. Check for proper door unlocking pressure setting. Inspect & service hydraulic system. 3. Check for proper door locking pressure setting. 4. Consult factory

5. Difficulty in swinging door open &/or close	1. Inadequate hydraulic pressure 2. Obstruction 3. Mechanical malfunction or interference 4. Inadequate hinge bearing, or hydraulic cylinder pins lubrication	1. Check hydraulic pressure setting(s). Inspect & service hydraulic system. 2. Remove obstruction 3. Inspect hinge & hydraulic cylinder components, & correct/repair as needed 4. Inspect & lubricate hinge bearings & hydraulic cylinder pins
6. Water flows out of door when door is opened	1. Clogged sump debris basket 2. Clogged drain line strainers 3. Clogged drain lines 4. Drain valve V5 malfunction 5. Vacuum leaks	1. Empty & clean sump debris basket. Clean sump if needed 2. Blow out strainers. Clean/service line strainer screens. 3. Clean drain lines 4. Check that valve V5 is open at end of cycle. V5 should only be closed during the operating cycle 5. Check for vacuum leaks in drain lines, & lines to Consenser/Vacuum Pump Skid

17.2 Materials Issues

Symptom	Cause(s)	Corrective Action(s)
1. Pitting of chamber interior steel surfaces	Inadequate, or improper boiler feed water (BFW) treatment	Analyze BFW & water in boiler and correct chemical imbalance or deficiency. Failure to correct the problem can shorten Sterilizer life, or result in expensive repairs.
2. Steel erosion at door gasket lip	1. Water flowing out of door when opening door 2. Inadequate surface lubrication	1. See Sterilizer Door trouble shooting section for cause & corrective actions 2. Keep the steel surfaces under, & adjacent to, the gasket lip lubricated. See Manual lubrication & gasket installation sections
3. Pitted, grooved, or damaged, door gasket sealing face surface	1. Inadequate sealing face lubrication, &/or failure to maintain or replace door gasket 2. Misaligned door	1. See lubrication & gasket installation Manual sections 2. Consult factory

17.3 Operating Cycle

Symptom	Cause(s)	Corrective Action(s)
1. Inadequate vacuum during cycle Pre-vac & Post-vac	1. Improper vacuum setting(s) 2. Clogged drain sump, sump debris basket, &/or drain system piping 3. Vacuum leaks 4. Poor vacuum pump performance. 5. Clogged Condenser, or poor Condenser performance	1. Check Controller vacuum settings 2. Clean drain sump & debris basket. Check for plugged or obstructed piping. 3. Inspect Sterilizer, door gasket, valves, piping, & Condenser-Vacuum Pump skid for vacuum leaks. Seal all leaks & replace door gasket if needed 4. Inspect & service/repair vacuum pump per pump manual. Check for proper vacuum pump service water flow, clogged separator-silencer tank drain or vent line 5. Inspect condenser, condenser cooling water supply, & self-actuating condenser cooling water valve (including valve capillary & bulb).
2. Slow cycle Pre-vac & Post-vac evacuation	See symptom 1, causes 2 to 5, above	Same as for symptom 1, above
3. High peak Condenser &/or Vacuum Pump discharge water temperature(s)	1. Temperature setting of self-actuating condenser cooling water valve set too high 2. Sterilizer vacuum exhaust valve V3 opening too quickly at end of cycle Sterilize phase	1. Adjust stem on valve to lower temperature setting, so valve opens at a lower Condenser discharge water temperature 2. Adjust needle valve NV3 to reduce flow through needle valve which slows the opening of V3.
4. Low peak Condenser discharge water temperature	1. Temperature setting of self-actuating condenser cooling water valve set too low 2. Sterilizer vacuum exhaust valve V3 opening too slowly at end of cycle Sterilize phase	1. Adjust stem on valve to raise temperature setting, so valve opens at a higher Condenser discharge water temperature. 2. Adjust needle valve NV3 to increase flow through needle valve which speeds the opening of V3.

18. Fire Protection

The Sterilizer and other Mark-Costello furnished equipment poses no special threats in the event of a fire within the facility. The Sterilizer pressure relief devices and external insulation should provide adequate initial protection for plant personnel, and fire fighters. It is recommended that when possible, in the event of a fire, Operating personnel press the Sterilizer emergency stop button, which will immediately de-energize the Sterilizer electrical circuits, and safely vent pressure from the Sterilizer.

Other User furnished equipment, including the steam boiler, may pose a significant threat in the event of a fire within the facility.

19. INSPECTIONS & TESTS REQUIRED BY REGULATORY AGENCIES

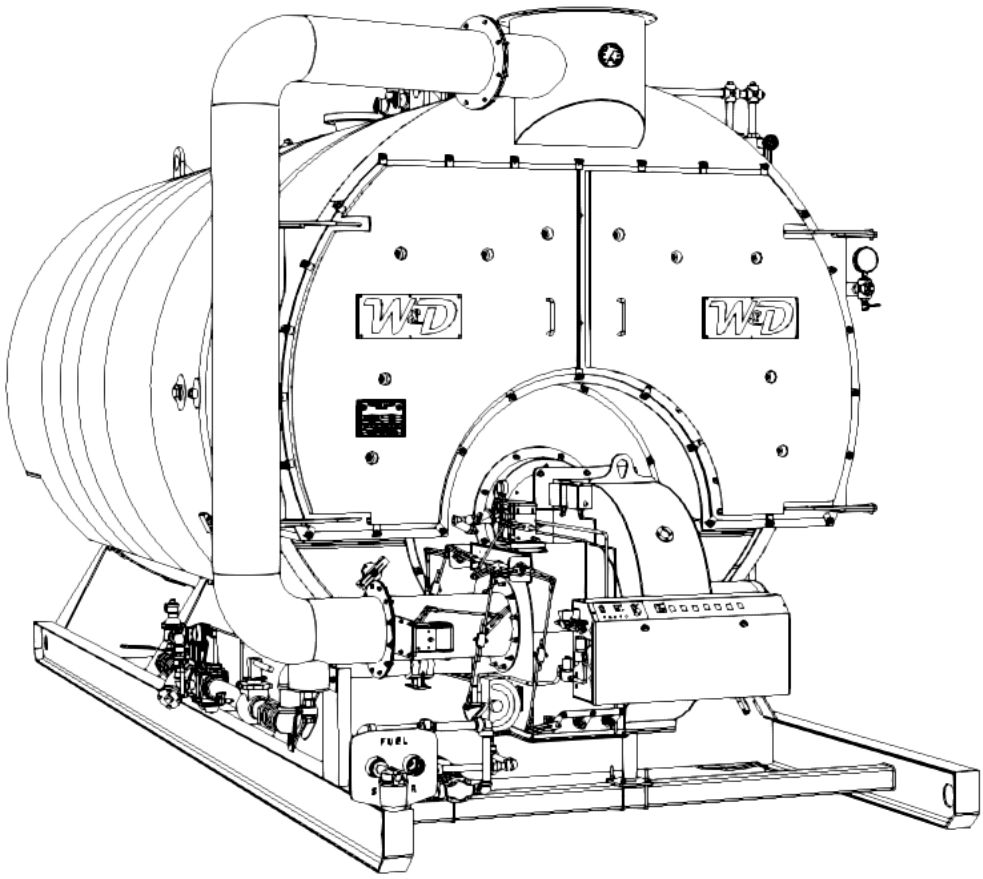
The Mark-Costello Company has completed all tests prescribed for PED certification of the PED pressure equipment.

The User is responsible for all additional installation and operational tests that may be required by the relevant jurisdictional authorities.

20. EQUIPMENT WARRANTY

See the separate Mark-Costello warranty documents for details of the Equipment warranty.

WILLIAMS & DAVIS BOILERS



DRY-BACK AND WET-BACK SCOTCH MARINE

OPERATION AND MAINTENANCE MANUAL

REV. 02 01/2015

Williams & Davis Boilers - 2044 I-45 South, Hutchins, TX 75141 USA
Phone (Office): (972) 225-2356 - Fax: (972) 225-5739
Email: support@wdboiler.com - Visit our website at www.wdboiler.com

SAFETY PRECAUTIONS

The guidelines and precautions in this chapter are imperative for safety of personnel and property and must be followed by all persons who will operate, maintain or otherwise be allowed within 50 feet of this equipment. This equipment may store a large quantity of energy and must be properly maintained and operated. Improperly adhering to this manual's specifications may result in equipment damage, personal injury or death and will void your boiler's warranty. Williams & Davis Boilers reserves the right to change, update, revise or amend any part of this manual at any time.

ATTENTION: THIS BOILER MUST ONLY BE OPERATED BY SOMEONE WHO HAS BEEN FACTORY TRAINED BY THE BURNER MANUFACTURER. READ THIS ENTIRE MANUAL BEFORE ATTEMPTING INSTALLATION. IF NECESSARY, CONSULT A QUALIFIED BOILER SERVICE COMPANY. FAILURE TO COMPLY MAY RESULT IN PROPERTY DAMAGE, SERIOUS INJURY OR DEATH.

WARNING: ELECTRIC SHOCK HAZARD. THIS EQUIPMENT IS TO BE SERVICED BY TRAINED PERSONNEL ONLY. FAILURE TO COMPLY MAY RESULT IN PROPERTY DAMAGE, SERIOUS INJURY OR DEATH.

GLOVES AND LONG SLEEVED CLOTHING MUST BE WORN AT ALL TIMES. Some surfaces of this equipment will become hot during normal operation and will remain hot for long periods of time following operation. This may cause burns or discomfort if contact is made with unprotected skin.

EYE PROTECTION AND PROTECTIVE CLOTHING MUST BE WORN AT ALL TIMES. This boiler contains steam, hot water, and hot gasses which are under pressure during normal operation and may unexpectedly escape during rare conditions of relief or failure.

HEARING PROTECTION MUST BE WORN AT ALL TIMES. During operation, the boiler will produce levels of noise which may cause discomfort or damage to hearing.

TABLE OF CONTENTS

TERMS USED IN THIS MANUAL

ASME BPVC: The American Society of Mechanical Engineers (ASME), is a professional association that governs the ASME Boiler and Pressure Vessel Code (BPVC). The ASME BPVC is a standard that provides rules for the design, fabrication and inspection of boilers and pressure vessels. It is a mandatory code and widely accepted throughout the world.

Blow Down Separator: An ASME certified pressure vessel used to vent steam and drain hot water when a boiler is blown down. The steam and hot water are separated within the vessel.

Burner: A device used to generate a flame to heat a boiler using fuel such as fuel gas (natural gas), fuel oil, or LPG (propane).

Corrosion: Chemical or electrochemical deterioration of a metal or ally. Ex) Surface oxidation (rust).

Draft: A differential in pressure which will produce a flow of air, typically the pressure difference between air intake and air exit.

Flame Scanner: A sensor used to sight and respond to the presence of a flame. Boiler flame scanners are typically used to turn off fuel supply if a main flame cannot be established or maintained.

FSG (Flame SafeGuard): A Microprocessor-based integrated burner control for automatically fired gas, oil, coal or combination fuel single burner applications. Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and troubleshooting.

Hand Hole: A small hole in a boiler used for inspection and cleaning.

In. w.c.: Inches of Water Column, a common unit of low pressure.

Low Water Cut Off (LWCO): A device used to shut down a boiler in the event a low water condition occurs.

MAWP: Maximum Allowable Working Pressure.

Man hole / Manway: A hole through which a person may enter the boiler used for cleaning, repair, maintenance, etc. *Note: Before entering a boiler, make sure all proper permits and lockout/tagout procedures have been followed.*

Pilot: A small gas flame used to ignite the main fuel.

PSI: Pounds per Square Inch, a common unit of pressure.

Refractory: An insulating material similar to concrete used to protect metal surfaces on the fire side of the boiler. Boiler refractory is typically designed to withstand temperatures of 2,600°F or greater.

Sight Glass: A transparent tube through which the level of liquid in a boiler or tank can be checked visually.

Stack: A flue gas passageway through which combustion gasses are transported to a safe point of discharge.

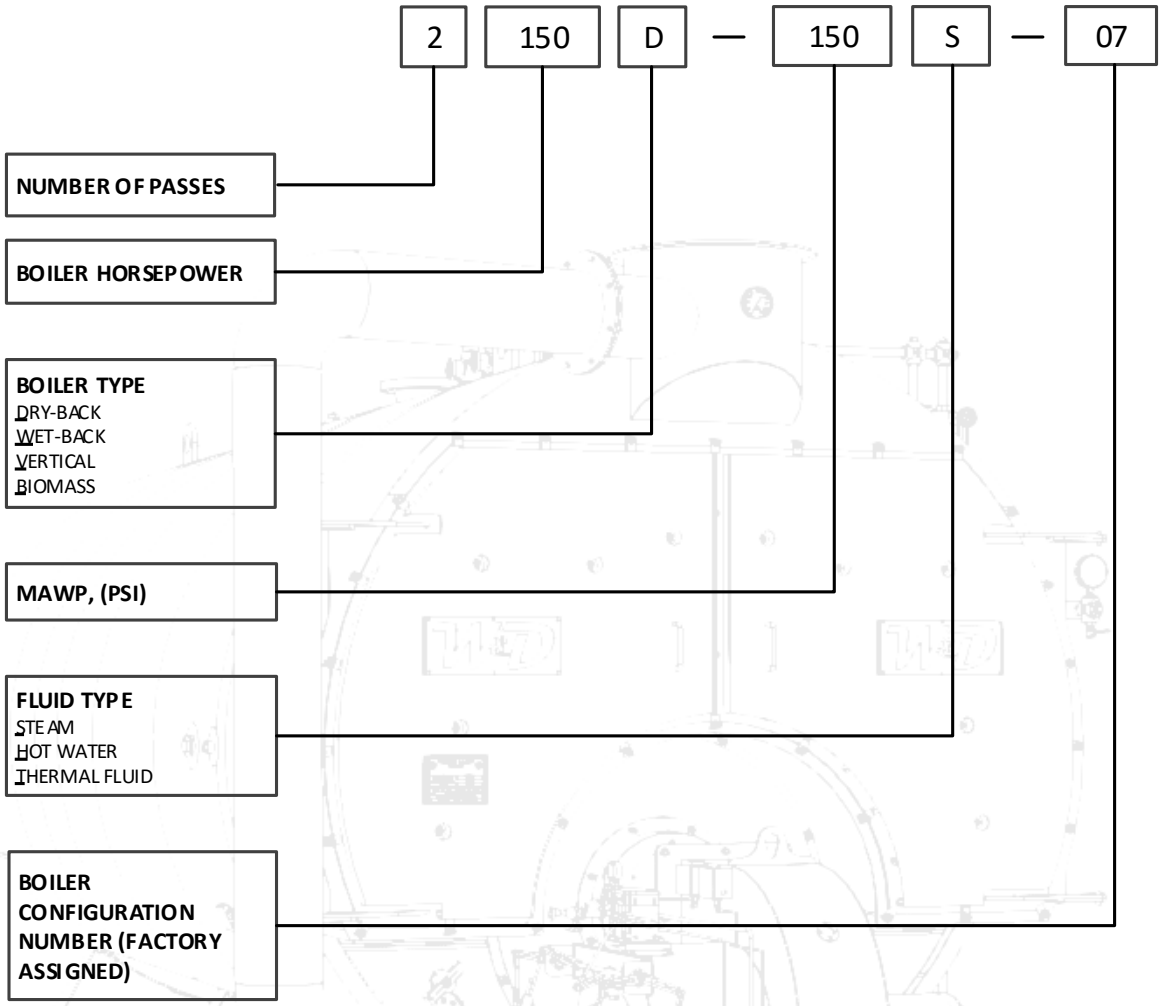
Stack Damper: A device installed in the venting system that regulates draft.

Turbulator: A device that turns a laminar flow into a turbulent flow. Turbulent flow is desirable because it increases the heat transfer amount between the combustion gas and boiler tube. Turbulators also affect the pressure drop through a boiler.

Turndown Ratio: The ratio of maximum firing rate to minimum firing rate. Ex) A 10:1 turndown may have a high fire rate of 8400 MBH and a low fire rate of 840 MBH.

Water Column: Used on a steam boiler to reduce the turbulence and fluctuation of the water level so the sight glass can provide a steady, accurate water level reading. The water column typically contains the primary low water cut off and pressure controls for the boiler.

MODEL NUMBER BREAKDOWN



INSTALLATION

LIFTING PROCEDURE

All Williams & Davis Boilers must be moved using the designated lifting lugs or properly sized skates. Do not attempt to use other lifting points. Skates may be placed directly under the skid saddles. On boilers with 2 and 4 lifting lugs, every available lug must be used for lifting. Any lifting angle must not exceed 45° from vertical. NEVER attempt to lift or move a boiler unless it is completely drained and all doors are closed.

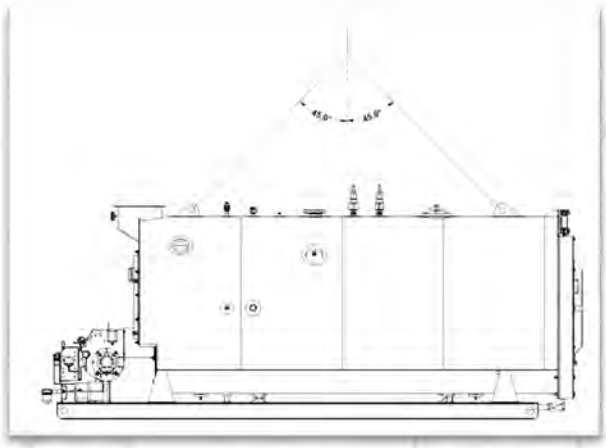


Figure 1. Maximum lifting angle

Figure 2. Typical lifting configuration

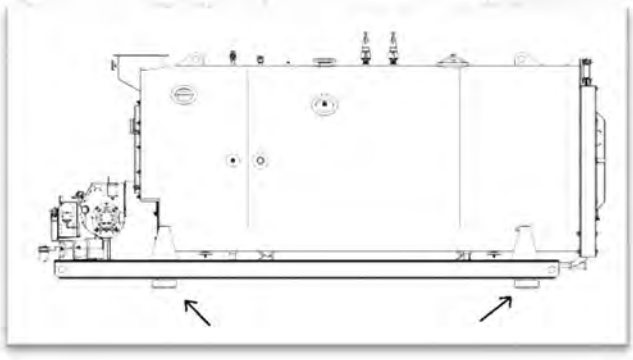
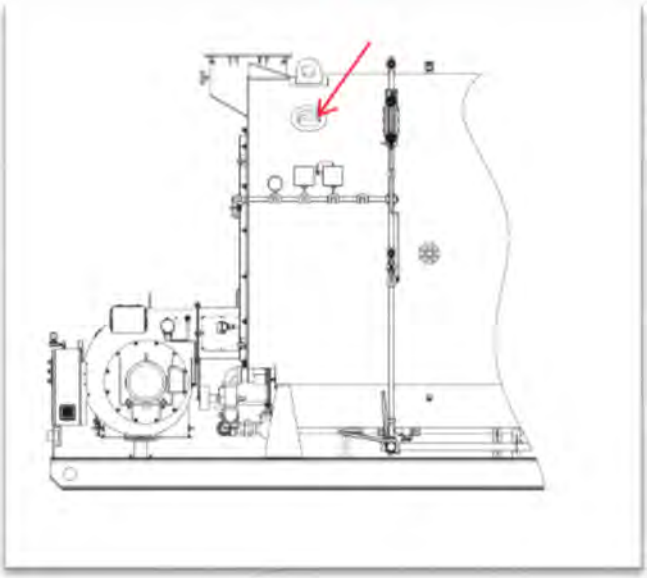
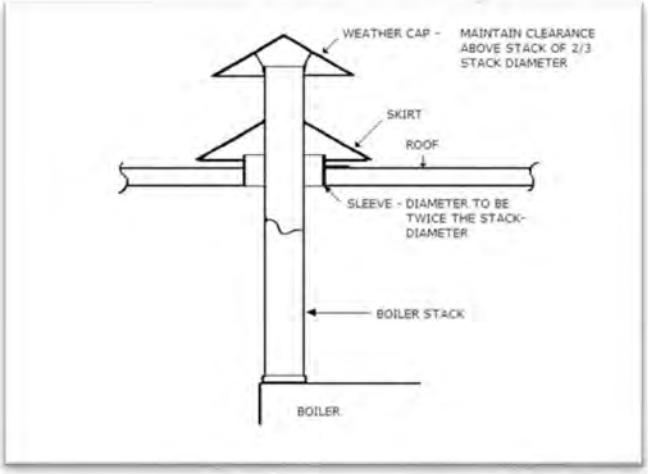


Figure 3. Skate location under saddles only



STAMP LOCATION

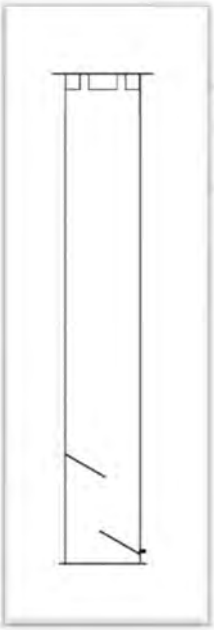
The boiler stampings are located on the shell near the normal water line height and typically about 12”-26” from the front door frame. The stampings include critical information such as the boiler MAWP, maximum steaming capacity, serial number and ASME certification mark. Other information such as tube length and quantity, burner input and voltage may be found on the boiler nameplate. The boiler nameplate is typically located on the front door.



EXHAUST INSTALLATION

The purpose of a boiler stack is to transport the products of combustion to a safe point of discharge. The design of the stack system must include consideration for purge cycles, outside wind and air conditions and other variables. Proper draft is critical to boiler performance. The flue gas exit pressure variation should be limited to ±0.50 in. w.c. to reduce undesirable oscillations.

W&D boiler stack flanges are capable of withstanding up to 2,000 lbs static vertical weight. If moment loading or more weight is expected, please consult the factory. A single wall carbon steel (12 ga minimum) stack is adequate for most applications. A rain cap must be installed at the top of the stack to minimize rain or snow entrance.



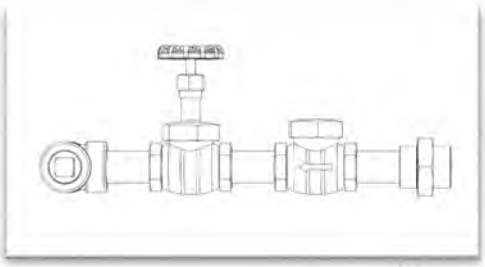
If the stack height is over 50 ft, or the stack duct is unusually large, a barometric damper may be necessary. This should only be considered after any necessary burner adjustments have been made.

On 3 and 4 pass dry back boiler stacks, it is critical to have an internal baffle and drain configuration to prevent condensation from entering the boiler. If condensed exhaust gas enters the boiler, it will accumulate on top of the refractory arch. This will damage the refractory and void the boiler’s warranty.

BOILER ROOM VENTILATION

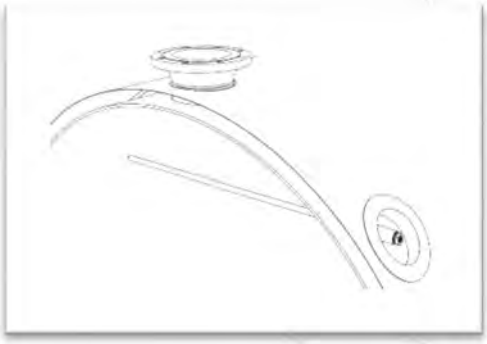
It is critical for any boiler room to have proper ventilation. The boiler room must have adequate circulation to support proper combustion and maintain safe air quality. Care must be taken to monitor Carbon Monoxide (CO) levels in the boiler room at all times. Levels of CO exposure over an 8 hour day should never exceed 50 PPM. CO levels above 400 PPM can be lethal in under 3 hours.

PIPEWORK REQUIREMENTS



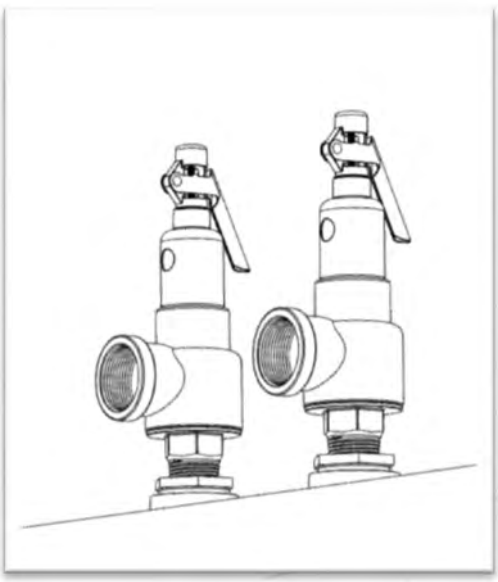
FEED WATER

Typical feed water pipework should always include a shut off valve as close as possible to the boiler and a check valve directly after to prevent back flow of the high temperature water from the boiler. Corrosion of metal surfaces in contact with water and steam constitute a large boiler maintenance expense. The boiler feedwater must be free of dissolved corrosive gases and the pH of the water must be closely monitored to prevent the attack of metal surfaces. Boiler feedwater should be maintained as close to pH 11 as possible. Condensate should be maintained between pH 7.5 and 8.5.



SURFACE BLOW DOWN

Surface blow down may be used either continuously or intermittently to keep the total dissolved solids at the correct level. The surface blow down line is located below the water line in the boiler. Continuous blow down through a graduated needle valve is typically used to control the solids concentration in boiler systems. However, continuous blow down can only provide tight control where both the load and the condensate return are constant. Automatic blow down controllers are able to maintain a consistent boiler solids level regardless of changes in load or condensate return. The payback in terms of optimized blow down control and improved treatment program performance can be rapid.



SAFETY RELIEF VALVES

The purpose of safety relief valves is to prevent excessive pressure in the boiler. Safety relief valve(s) furnished by W&D are sized to comply with the latest applicable ASME Code requirements. Safety valves are normally located on the shell and are factory set and sealed by the valve manufacturer. ***Removal of the seal wires or any attempt to adjust, repair or modify the safety valve(s) will void the warranty and may cause serious damage to equipment, personal injury or death.*** There should be no obstructions at the safety valve inlets or outlets. Always use an adjustable wrench to install a safety valve as a pipe wrench may damage the body. Safety valve discharge pipe size shall not be reduced. The weight of the discharge pipework must be independently supported.

INITIAL START-UP

Please note: Some boilers may include various types of control systems and pressure controls. The burner manufacturer's manual should always be referenced before any initial start-up procedure. ***This boiler must only be operated by someone who has been factory trained by the burner manufacturer. Read this entire manual and the entire burner manual before attempting installation. If necessary, consult a qualified boiler service company. Failure to comply may result in property damage, serious injury or death.***

WARNING - If a cold start routine or comparable low fire hold is not in effect during a cold startup the boiler should set to manual operation and the firing rate potentiometer set to its lowest firing rate setpoint. Allowing the boiler to run directly to high fire during a cold startup will create thermal stresses in the pressure vessel and refractory, significantly reducing its useful life. A cold start is defined as starting the boiler when it contains less than 50 PSI of steam pressure.

If the boiler has not been fired in an extended amount of time, moisture may accumulate in the refractory material. In this case, the boiler must remain at its lowest firing rate setpoint for at least one hour prior to automatic operation.

BOIL OUT PROCEDURE

Before placing a new steam boiler in service, the internal surfaces must be cleaned and protected. Cleaning helps remove the oil, grease, or mill scale that may be present. Failure to remove these coatings can result in problems such as priming and carryover on start up as well as reduced heat transfer efficiency. Passivation aids corrosion control by forming a protective iron phosphate film on metal surfaces. The waterside of every new boiler should be inspected prior to the boil out to verify that no significant corrosion has occurred before the unit is placed in service.

Carefully read the Material Safety Data Sheets (MSDS) on all products involved before starting this procedure. Follow all safety precautions. Note that the products are highly alkaline and will cause burns and ruin clothing. When handling these products, wear protective clothing, a face shield or splash proof goggles, and rubber gloves. An eye wash station and ready supply of potable water should be nearby. Do not use aluminum or galvanized containers for handling. The recommended boil out procedure is detailed below:

1. Fill the boiler just over the top tubes with cold water.

2. Add WD 100 or WD 133 at a rate of 1 gallon product per 50 gallons boiler volume. Alternatively, WD BOILOUT STICKS can be used at a rate of 1 stick per 50 gallons boiler volume.

3. Finish filling the boiler with water to the normal operating level, replace manway and hand hole covers, and close steam header. Pipe a steel vent line from the steam space to a drain. Make sure this line is secured properly so that any boil out solution carried over to the vent line will not strike people or property. Do not allow the boil out solution to contact painted surfaces.

4. Start the boiler and run on low fire for 6 hours at atmospheric pressure. Maintain normal water level in the boiler while heating.

5. During and upon completion of Step 4, blow down all valves and water column thoroughly.

6. Allow boiler to cool and then drain completely. It may be necessary to neutralize the boil out solution prior to discharging. Do not neutralize the cleaning solution in the boiler.

7. Open manway and hand holes. Wash out thoroughly using fresh water. To prevent thermal stress, avoid sudden temperature changes.

8. Inspect boiler, replace manway and hand holes, and refill with soft water. Open steam header before placing in operation.

10. If the boiler is not to be immediately used, follow the dry or wet storage procedure outlined later in this manual. Failure to follow these guidelines can result in significant corrosion damage.

11. If the water appears dirty after the boiler is placed on line, increase the blowdown rate until it clears up.

12. As new steam and condensate return pipework is put on line, the boiler water may become dirty and/or foamy due to the grease, oils, etc., stripped from this pipework being returned to the boiler(s). If possible, the condensate should be dumped when new pipework is first used. Otherwise, blow down heavily until the boiler water is clear and not foamy.

INTERLOCK CONTROLS

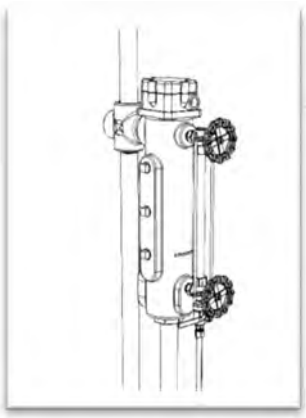
The interlock controls are present to prevent the burner from starting or continuing operation if measureable process variables are outside the normal range. Typically these controls are electromechanical devices which are electrically connected in series, and connect or interrupt the burner demand signal to the flame safeguard control. These controls should be properly adjusted by a trained technician who is familiar with the process to which the boiler is connected, and the operational limits of the entire boiler system and the burner. Operational tests should be performed at the intervals recommended in the maintenance section of this manual or the maintenance section of the burner manual.

HIGH GAS PRESSURE SWITCH

This control is connected to the fuel gas system between the modulating gas valve and the burner gas manifold connection. The switch is normally closed and interrupts the burner demand circuit when an over pressure condition occurs in the gas pipe which will result in over firing of the boiler. The set point should be set slightly above the maximum gas manifold pressure of the burner. This control requires manual reset if activated.

LOW GAS PRESSURE SWITCH

This control is connected to the fuel gas system between the main fuel gas shutoff valve and the fuel gas regulator. The switch is normally open and closes the burner demand circuit when minimum gas pressure is present. The set point should be set slightly above the maximum gas manifold pressure of the burner. This control requires manual reset if activated.

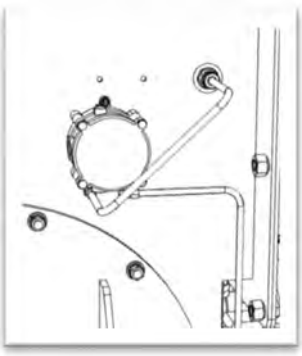


PRIMARY LOW WATER CUT OFF / PUMP CONTROLLER – MCDONNELL & MILLER 157S/193/194/1575

The primary low water cutoff is located near the normal water line at the front of the boiler. It is normally open and closes the burner demand circuit when the water level is above the lowest test plug. This control resets automatically when water level is above lowest permissible level.

AUXILIARY LOW WATER CUT OFF – WARRICK 26M

The Warrick probe type low water control is typically located on the boiler centerline near the water column. It is normally open and closes the burner demand circuit when water maintains contact with the connected low water probe. The control must require manual reset of the pushbutton to activate following low water shut off. The reset pushbutton is typically located on the burner cabinet.



COMBUSTION AIR SWITCH

The combustion air switch(es) ensure the flow of air within the burner remains within required ranges during purge cycles, ignition, and normal operation. Refer to the specific burner manual for detailed information regarding switch location(s) and adjustment(s).

STEAM PRESSURE HIGH LIMIT CONTROL

The high pressure limit control is a Honeywell PressureTrol® model L4079. It contains a normally closed, pressure-operated switch with one adjustable set point shown on a linear scale. This control requires manual reset to continue operation if pressure has momentarily exceeded the set point. The set point of this control should be set above the set point of the operating pressure control and any external pressure controllers, but below the set points of safety relief valves and the pressure vessel MAWP.

OPERATING PRESSURE CONTROL

The operating pressure control is a Honeywell PressureTrol® model L404F. It contains a normally closed, pressure-operated switch with two adjustable set points shown on two linear scales. The main scale (right) is the set point at which the switch will open and remove power from FSG demand terminal 6. The differential scale (left) sets the level of pressure reduction which must occur for the control switch to close and reapply FSG demand. If used with an external controller, such as a lead-lag system, the set point of this control should be set above the shutoff set point of the external controller.

MODULATING CONTROL

The modulating control is not an interlock control. The typical modulating pressure control, also known as the firing rate control or load control, is a Honeywell PressureTrol® model L91B. It is connected to and operated by the internal steam pressure of the boiler to which it controls. This control has two visible, adjustable scales. The main scale is the setpoint of the throttling range. Up to this point the control will provide maximum firing rate output by positioning the modulating motor to 90 degrees. This is achieved by a proportional 135 ohm connection made by a 3-wire connection to local panel terminals B2, R2, and W2. When the setpoint is achieved, the firing rate will begin linear reduction as the pressure increases. The second scale is the proportioning, or throttling, range adjustment. This determines the rate of linear reduction the control will provide as the pressure increases. This control is not required for boilers with the firing rate controlled by a lead-lag system.

STEAM PRESSURE CONTROL SETTINGS

The typical steam pressure control factory settings are shown below:

Boiler MAWP	High limit	Operating	Modulating
15 PSI	14 PSI	12 PSI set, 10 PSI restart	5 PSI set, 4 PSI range
150 PSI	110 PSI	100 PSI set, 80 PSI restart	75 PSI set, 20 PSI range
250 PSI	240 PSI	200 PSI set, 180 PSI restart	160 PSI set, 30 PSI range

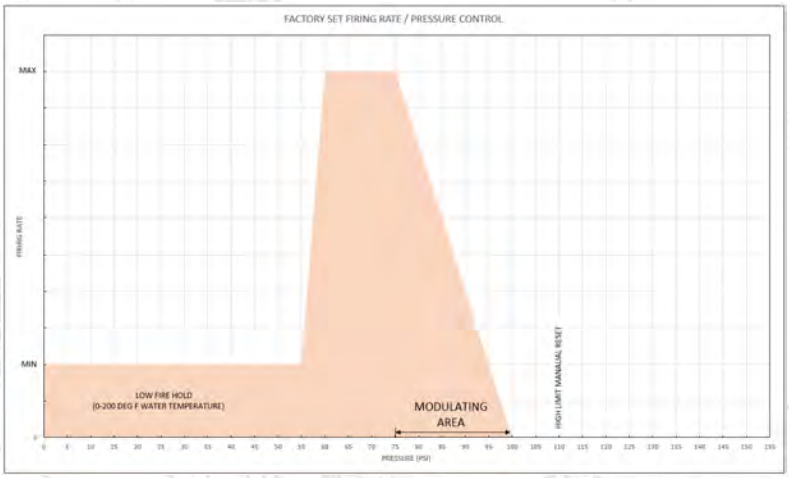


Figure 4. Typical firing rate factory settings for a 150 PSI MAWP boiler.

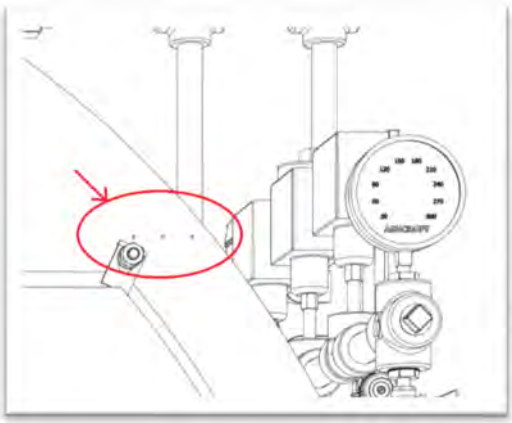
HOT WATER BOILER CONTROL SETTINGS

Typical hot water boiler control factory settings are shown below:

High limit	Operating	Modulating
200 °F	190 °F set, 175 °F restart	180 °F set, 10 °F range

SAFETY INSPECTION

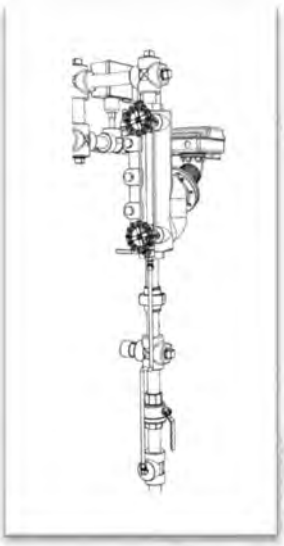
Note: All persons responsible for operation, maintenance or inspection, or those otherwise allowed within 50 feet of this boiler, must be familiar with the following points of inspection and the safety shut down procedure so normal or abnormal conditions of operation may be recognized and proper action may be taken. If any of the following points of inspection indicate a possible problem, the safety shut down procedure should be initiated immediately.



WATER LEVEL INSPECTION

Maintaining proper water level is critical for safety and the life of the boiler. If the water level is not correctly maintained, it can cause parts of the boiler to overheat and possibly fail. The lowest permissible water line for the boiler is shown by marks on the front door frame and/or a label on the jacket. The lowest permissible water line is typically 1.5" above the top of the tubes or 1.5" above the bottom of the refractory arch.

The auxiliary low water cut off is set at the lowest permissible water line. The primary low water cut off is typically 1/2" above the secondary low water cut off (whichever is higher).

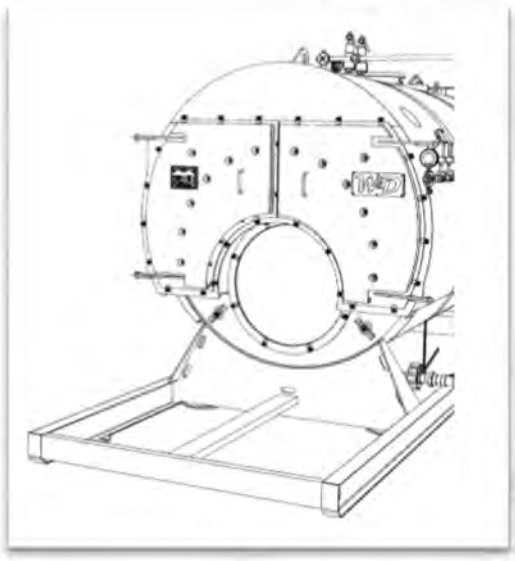


The water level **must** remain visible in the water level sight glass at all times prior to, through the duration of, and following burner operation. The normal water level is between the bottom and middle test plugs of the McDonnell Miller water level control. The float type low water cut-off should be blown down when the water is at the normal level and when the burner is on.

Note: When blowing down any control or pressure vessel, the blow down valve(s) should be opened slowly. The piping needs to be warmed up and stagnant water in the drain piping needs to be pushed out. Suddenly opening a single blow down valve quickly can cause steam to condense, which causes water hammer. Water hammer can damage pipework and attachment structures which can cause serious injury or death.

STEAM PRESSURE GAUGE INSPECTION

The steam pressure indicated by the steam pressure gauge should be less than the MAWP (maximum allowable working pressure) of the boiler. This pressure should be verified by reading the MAWP directly from the boiler shell data stamp. This information is located on the right-hand side (facing the front of the boiler) near the normal water line and front (burner end) of the boiler.



FRONT DOOR INSPECTION

The front doors must maintain a proper exhaust seal to the boiler face. Exhaust should be contained within the front chamber within the front doors and must not escape into the boiler room. The doors are insulated and the seal to the boiler is maintained by ¼" ceramic fiber paper fastened to the inside of the door.

PROCEDURE TO OPEN AND CLOSE FRONT DOORS [AND REAR DOORS ON WET-BACK BOILERS]

The front doors allow access to the front tubesheet for inspection and seal to the front of the boiler to enclose the front exhaust chamber. The front exhaust chamber is sometimes referred to as the smokebox. Use this procedure to open and close the rear doors on a Wet-back boiler.

TO OPEN THE FRONT DOORS:

1. Remove the nuts, washers and fastening clips from each of the threaded studs located around the perimeter of each of the front doors. Inspect the hardware during removal. Replace nuts which may appear damaged prior to reinstallation.

2. If the burner is equipped with an air filter and the doors will both need to be fully opened, the air filter needs to be removed prior to opening. The unprotected opening in the burner should be covered until the filter is replaced. Refer to the burner manual for removal and installation procedures.

3. Slowly open each door using the front door handles. The front door insulation will likely stick to the front of the boiler. It should be loosened from the boiler side during opening using a flat scraping tool such as a putty knife to prevent unnecessary tearing of the material.

4. Use caution when opening doors. Do not allow the doors to strike consoles, instruments or conduit which may be located on the burner or boiler.

TO CLOSE THE FRONT DOORS:

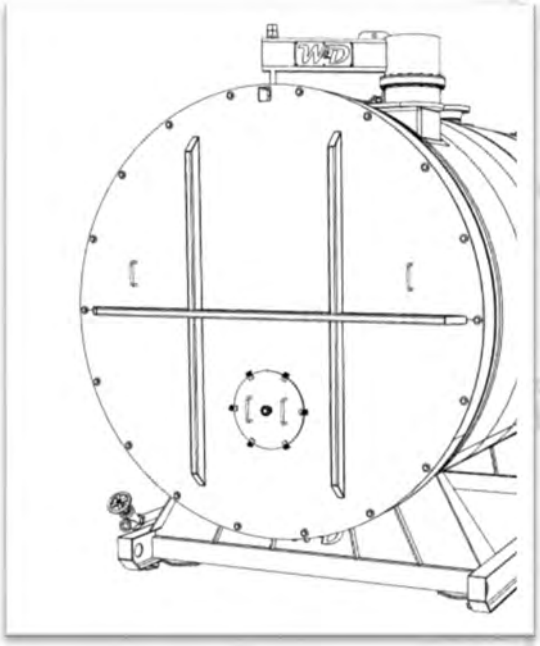
1. Replace the front door insulation if it appears damaged or deteriorated. Typical insulating material is ¼" ceramic fiber paper with a temperature rating of 2300°F or higher. Fiberfrax type 970 or equivalent may be used. Ceramic fiber tape, 1" wide x 1/16" thick with 2300°F or higher rating, may be used to line the perimeter of the door sealing surface. Localized repairs may be made to maintain a continuous seal around the perimeter of the door. Insulation anchor clips may be reinstalled if removal is necessary.

2. Close the front doors and reinstall fastening clips and washers. Hand tighten all nuts before proceeding. Ensure fastening clips are perpendicular to closest door edge.

3. Tighten nuts on each side of the top and bottom hinges to approximately 20 ft-lbs. Then tighten remaining nuts along outer door edges, and continue in an alternating pattern moving towards the center of the front doors.

4. Repeat the previous step tightening the nuts to 35 ft-lbs.

5. Check for leaks upon following purge cycle. Stop the purge cycle if a leak is detected. Slightly increase tightness of fastener or perform repair of insulation if required until the front doors are completely sealed.



REAR DOOR INSPECTION [DRY-BACK BOILER ONLY]

The rear door should maintain a proper seal to the rear flange of the boiler. The rear door is internally insulated with refractory and the seal is maintained using 1" x 6" woven ceramic fiber strip(s). The door should not quickly develop significant discoloration of the outer door face or surrounding areas. Exhaust should not leak from the seal into the boiler room.

PROCEDURE TO OPEN AND CLOSE REAR DOOR [DRY-BACK BOILER ONLY]

The rear door allow access to the rear tubesheet for inspection and seals to the rear of the boiler to enclose the rear exhaust chamber. The rear exhaust chamber is sometimes referred to as the turnaround.

TO OPEN THE REAR DOORS:

1. If equipped, remove the 6" wide rear jacket section to access the rear door hardware. Remove the bolts, nuts, washers and fastening clips from the door. Inspect the hardware during removal. Replace hardware which may appear damaged prior to reinstallation.

3. Slowly open the door using the front door handles or an attachment to the rear door handles. The rear door insulation will likely stick to the rear door flange. It should be loosened from the boiler side during opening using a flat scraping tool such as a putty knife to prevent unnecessary tearing of the material.

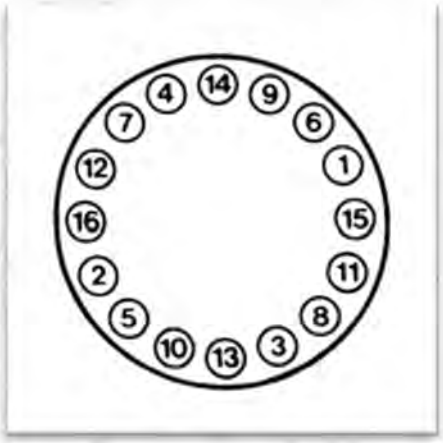
4. Use extreme caution when opening doors. Do not allow the door to swing open quickly or strike instruments, pipework or conduit which may be located near the boiler.

TO CLOSE THE REAR DOOR:

1. Replace rear door insulation if it appears damaged or deteriorated. Typical insulating material is 1" thick ceramic fiber blanket with a temperature rating of 2300°F or higher. It is very important to not have any gaps in the rear door insulation. The insulation should seal the rear door to the rear door flange as well as the refractory blocks and dividing bridge. Localized repairs may be made to maintain a continuous seal around the perimeter of the door.

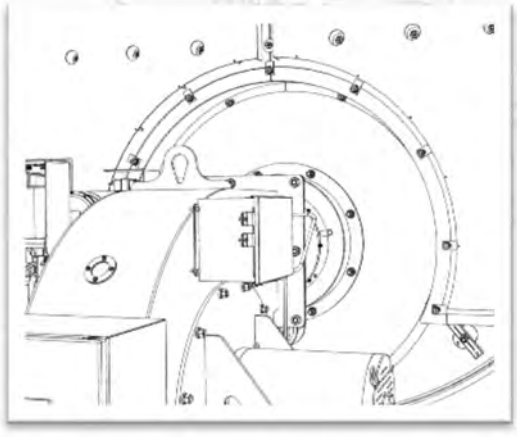
2. Close the rear door and reinstall hardware. Hand tighten all nuts before proceeding.

3. Tighten nuts to approximately 40 ft-lbs in a circular pattern similar to the figure shown below.



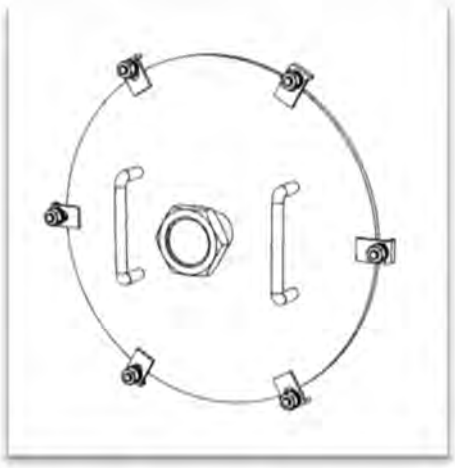
4. Repeat the previous step tightening the nuts to 80 ft-lbs.

5. Check for leaks upon following purge cycle. Stop the purge cycle if a leak is detected. Slightly increase tightness of fastener or perform repair of insulation if required until the front doors are completely sealed.



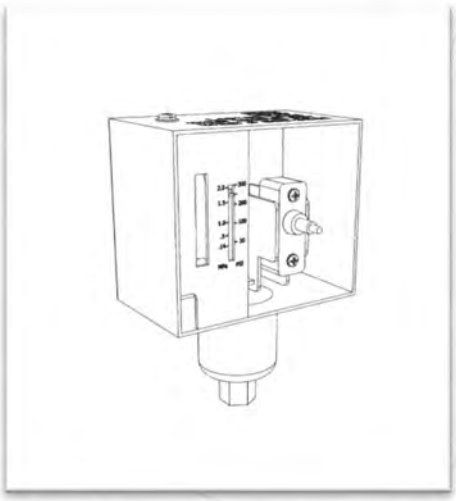
BURNER MOUNT INSPECTION

The burner flange should be sealed properly to the burner mount and the burner mount plate should be sealed properly to the furnace flange. Failure to seal the burner mount flange or burner mount plate properly can cause dangerous combustion gas to leak into the boiler room or damage the mounting surfaces.



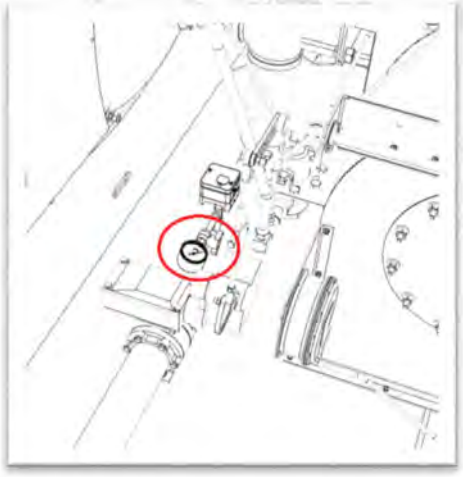
REAR DOOR MANWAY INSPECTION

The rear door manway must remain sealed to the face of the door. The seal is composed of ¼" ceramic fiber rope compressed between the manway flange and the face of the door. The combustion chamber sight glass should be inspected for leaks and replaced if the glass is cracked or discolored. The glass gaskets should be replaced if exhaust is allowed to leak around the glass.



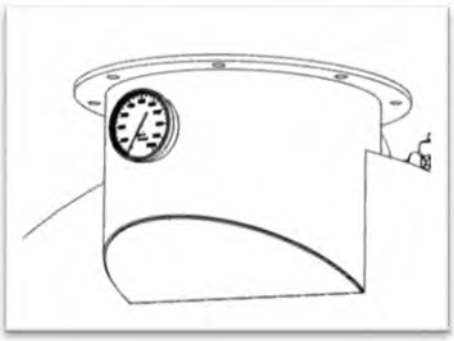
HIGH LIMIT PRESSURE CONTROL INSPECTION

The setting of the high pressure limit control should be less than the safety valve set pressure, and setting above MAWP must not be possible. If the control is activated, the manual reset pushbutton will require resetting once the cause of the condition has been resolved.



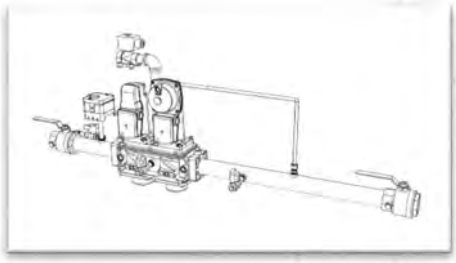
GAS PRESSURE MANIFOLD GAUGE INSPECTION

The gas manifold pressure gauge, located between the gas modulating valve and the burner manifold connection, indicates the firing rate of the boiler based upon the pressure at this point. The pressure should not exceed the maximum manifold pressure indicated on the burner label or burner spec. sheet unless instructed by a qualified technician. Development of increasing fluctuations may also indicate need for combustion setting adjustments.



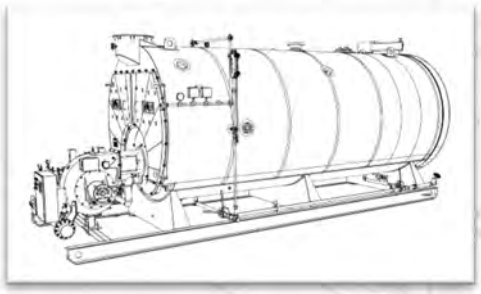
EXHAUST TEMPERATURE INSPECTION

The exhaust temperature thermometer indicates the boiler exhaust temperature. Due to variations in combustion efficiency, the exhaust temperature may vary, but will typically be within 50-100°F above the current steam temperature. For example, 120 PSI of saturated steam pressure is equal to 350°F (verified from a steam table). This will result in an exhaust temperature of approximately 400-450°F.



FUEL SYSTEM INSPECTION

Supply gas pressure should remain consistent following commissioning of the burner. The pressure must remain above the maximum firing rate pressure listed on the burner nameplate or spec. sheet, but lower than the maximum operating pressure rating of the gas pressure regulator. The gas train assembly, including the normally open vent valve should be observed for normal operation and remain free of leaks. Chattering or buzzing during operation indicates the need for service or replacement of components.



PRESSURE CONNECTIONS INSPECTION

Connections to controls, couplings, valves and pipe fittings should be inspected for leaks and tightened or otherwise repaired if leaks are found.

HOT WATER BOILER SPECIFIC REQUIREMENTS

The following requirements must be considered when sizing a hot water boiler:

1. Minimum water temperature – The minimum return water temperature for a Scotch Marine hot water boiler must be *at least* 150°F and the minimum outlet water temperature must be *at least* 170°F. Water temperatures lower than this will cause the combustion gasses to condense inside the boiler. Since exhaust gas can be highly corrosive, this will cause rapid deterioration of the fireside surfaces.
2. Maximum circulation – See the table below for maximum circulating rates based on boiler HP and temperature differential. Please note: Temperature differential over 30°F is not recommended and should be reviewed by W&D. A design safety factor of at least 1.5 is highly recommended.

BOILER HP	BOILER OUTPUT [mBTU/Hr]	TEMPERATURE DIFFERENTIAL [°F]		
		10	20	30
		MAX CIRCULATING RATE [GPM]		
15	502	100	50	33
20	670	134	67	45
25	837	167	84	56
30	1004	201	100	67
40	1339	268	134	89
50	1674	335	167	112
60	2009	402	201	134
80	2678	536	268	179
100	3348	670	335	223
125	4184	837	418	279
150	5021	1004	502	335
200	6695	1339	670	446
250	8369	1674	837	558
300	10043	2009	1004	670
350	11716	2343	1172	781
400	13390	2678	1339	893
500	16738	3348	1674	1116
600	20085	4017	2009	1339
700	23433	4687	2343	1562
800	26780	5356	2678	1785

3. Rapid replacement of boiler water – Pumping large quantities of relatively cold water into a hot boiler will cause thermal shock or stress. When metal surfaces of the boiler expand at different rates due to thermal shock, the life of the boiler is reduced.

SAFETY SHUTDOWN PROCEDURE

If any of the preceding inspections indicate an abnormal condition, the following procedure should be performed in the listed order while observing any additional precautions:

1. Activate the boiler emergency stop switch.
NOTE: This will shut down the burner by interrupting power to the control system only. Power will still be present in the control cabinet and should be completely removed at the main power disconnect before performing any maintenance or troubleshooting.

2. Activate the feed water system emergency stop switch and isolate the boiler from the feed water system if water is not present in the water level sight glass.
IMPORTANT: In the unlikely event the boiler is still operational during a low water condition, the pressure vessel internals will become excessively hot. The feed water system should be disabled immediately so water is not introduced into the boiler in this condition. Failure to do so in this event could result in pressure vessel failure and/or severe injury or death. The boiler should be allowed to cool slowly, and a thorough inspection and hydrostatic pressure test performed.

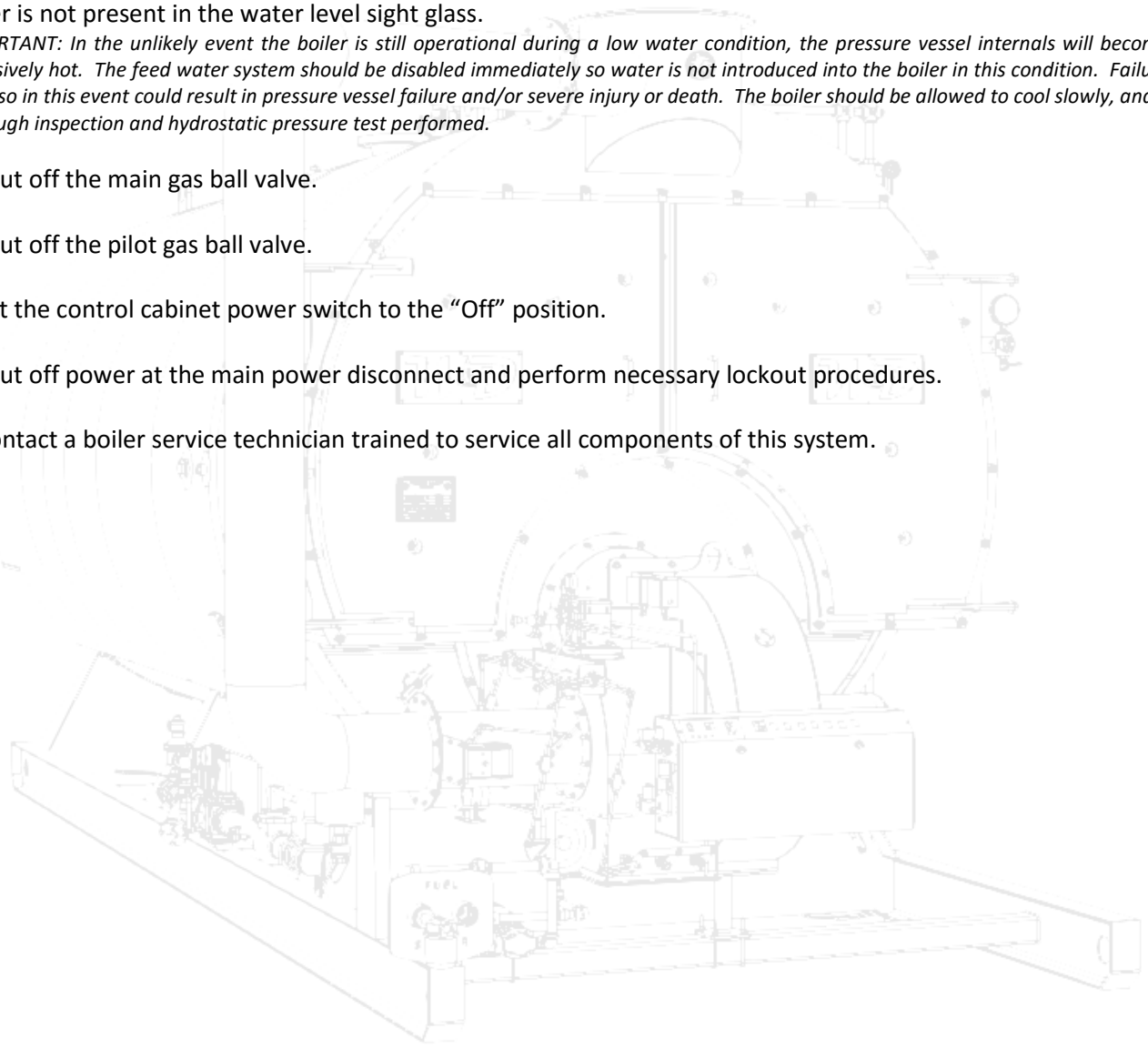
3. Shut off the main gas ball valve.

4. Shut off the pilot gas ball valve.

5. Set the control cabinet power switch to the “Off” position.

6. Shut off power at the main power disconnect and perform necessary lockout procedures.

7. Contact a boiler service technician trained to service all components of this system.



INTERMITTENT BLOWDOWN PROCEDURE

As water evaporates into steam, dissolved impurities are left in the boiler water. Without blowdown, these impurities can precipitate on the boiler heating surfaces, creating scale. Scale can build up on the furnace, shell and tubes of a boiler. When this scale builds up, it can insulate the heat transfer surfaces which will increase operating costs since the boiler will not be as efficient. Insulating the heat transfer surfaces can also lead to overheating of the boiler. This causes tube failure or pressure vessel failure which can be very dangerous and/or costly.

Proper blowdown control is a critical part of the overall water treatment program. Too much blowdown increases fuel, water and treatment chemical requirements. The amount and frequency of blowdown differs for each boiler system and should be determined in consultation with a water treatment professional.

The recommended bottom blowdown procedure is detailed below:

1. Open the quick opening valves (valves closest to boiler).
2. Open the slow opening valve.
3. Blowdown the boiler for the amount of time specified by the water treatment supplier by opening and then closing the slow-opening valve. Pay close attention to the water level in the sight glass. Some loads require several, short blowdown cycles to maintain the proper water level in the boiler.
4. Close the slow opening valve
5. Close the quick opening valves.
6. Open the slow opening valve again to drain the line between the quick and slow opening valves.
7. Close the slow opening valve again and double check that the shutoff is tight after the valve has cooled.

Notes:

• Never double pump a quick opening valve to blowdown a boiler. This can cause water hammer and damage piping and valves. It can also cause personal injury.

• Never leave an open blowdown valve unattended.

• Opening the quick-opening valve (nearest the boiler) first and closing it last protects the valve from the wear associated with blowdown and keeps them more reliable. Also, maintenance and repairs can be performed on the slow-opening valve farthest from boiler without having to drain the boiler.

GENERAL OPERATING PROCEDURE

The operation of this system is automatic under normal conditions and requires minimal input from the operator for normal use. Any operator of this system should be thoroughly familiar with the safety shutdown procedure, the safety interlocks, the required safety inspections and the daily, weekly and annual maintenance requirements.

1. Perform safety inspections prior to operation.
2. Verify feed water system is powered and ready.
3. Verify the emergency stop switch disables operation of the boiler by activating the device and observing shutdown of all indications of power.
4. Verify the cold start routine or low fire hold is active.

WARNING *- If a cold start routine or comparable low fire hold is not in effect during a cold startup the boiler should set to manual operation and the firing rate potentiometer set to its lowest firing rate setpoint. Allowing the boiler to run directly to high fire during a cold startup will create thermal stresses in the pressure vessel and refractory, significantly reducing its useful life. A cold start is defined as starting the boiler when it contains less than 50 PSI of steam pressure.*

5. Verify water is present in the water level sight glass.
6. Verify supply gas pressure is steady and at the supply pressure at which the boiler was commissioned.
7. Verify blow down valves are closed and the steam outlet is open.
8. Verify air louvers are at low fire position and modulating gas valve is closed.
9. Set the control panel power switch to the ON position.
10. Observe air louver and modulating gas valve for proper operation during purge cycle.

NOTE – The air louver will remain closed or slightly open during standby, and should adjust to its fully open position for approximately 30 seconds during the purge cycle. After the purge time is complete, the air louver and modulating gas valve will return to their low fire position.

11. The burner will then fire. Steady combustion should be observed by visual inspection of the flame through the combustion chamber sight glass and steady gas manifold pressure should be observed on the gas manifold pressure gauge.
12. Verify the burner remains at low fire until the boiler is above 50 PSI steam pressure.
13. The burner should modulate as required after the warm up period.

MAINTENANCE & INSPECTION SCHEDULE

Annual preventative maintenance should be performed when the unit is shut down, drained and cooled. An ideal time for annual preventative maintenance is prior to the boiler's annual inspection. Depending on your boiler's code of construction and state law (US), annual or bi-annual inspection may be required. Annual preventative maintenance should be performed concurrent with this inspection.

NOTE: More frequent and more comprehensive maintenance may be necessary depending on a boiler's water quality and/or local codes.

MAINTENANCE ITEM	INTERVAL	PROCEDURE
SAFETY INSPECTION	10 HRS / DAILY	PERFORM ALL INSPECTIONS DETAILED IN THE SAFETY PROCEDURE SECTION OF THIS MANUAL.
BLOW DOWN	10 HRS / DAILY	PERFORM BLOW DOWN PROCEDURE AS OUTLINED IN THE BLOW DOWN SECTION OF THIS MANUAL.
VISUAL INSPECTION OF COMBUSTION CHAMBER	10 HRS / DAILY	VISUALLY INSPECT MAIN FLAME FOR PROPER APPEARANCE, ABSENCE OF FURNACE IMPINGEMENT, AND CONTACT WITH APPROPRIATE FIRING HEAD SURFACE OR DIFFUSER.
AIR LOUVER LINKAGE CONDITION	50HRS / WEEKLY	CHECK FOR WEAR INDICATED BY >5° OF BACKLASH OR INCONSISTENT/BINDING MOVEMENT.
BLOWER MOTOR SERVICE	50HRS / WEEKLY	APPLY SMALL AMOUNT OF GREASE AT MOTOR GREASE FITTINGS, CHECK FOR HIGH FREQUENCY VIBRATION DURING OPERATION.
PILOT FLAME FAILURE TEST	50HRS / WEEKLY	CLOSE PILOT FUEL GAS SHUTOFF VALVE AND CLOSE MAIN FUEL GAS SHUTOFF VALVE, VERIFY BOILER LOCKOUT CONDITION UPON ATTEMPTED IGNITION OF PILOT FLAME.
PILOT FLAME SIGNAL STRENGTH	50HRS / WEEKLY	OBSERVE PILOT FLAME SIGNAL STRENGTH ON MAIN CONTROL FOR STEADY INDICATION OF: 5-15 FOR AUTOFLAME SYSTEMS, 0-5 VOLTS FOR HONEYWELL SYSTEMS, OR 16-100% FOR SIEMENS SYSTEMS.
MAIN FLAME RECOGNITION	50HRS / WEEKLY	OPEN PILOT FUEL GAS SHUTOFF VALVE AND CLOSE MAIN FUEL GAS SHUTOFF VALVE, VERIFY BOILER LOCKOUT CONDITION UPON ATTEMPTED IGNITION OF MAIN FLAME.
MAIN FLAME SIGNAL STRENGTH	50HRS / WEEKLY	OBSERVE MAIN FLAME SIGNAL STRENGTH ON MAIN CONTROL FOR STEADY INDICATION OF: GREATER THAN 15 FOR AUTOFLAME SYSTEMS, 0-5 VOLTS FOR HONEYWELL SYSTEMS, OR 16-100% FOR SIEMENS SYSTEMS.
HI STEAM PRESSURE LIMIT CONTROL	200HRS / MONTHLY	DECREASE SET POINT TO 75% AND VERIFY BURNER SHUTDOWN, RETURN TO NORMAL SET POINT AND VERIFY MANUL RESET REQUIREMENT TO RESTART.
OPERATING STEAM PRESSURE CONTROL	200HRS / MONTHLY	DECREASE SET POINT TO 75% AND VERIFY BURNER SHUTDOWN.
LOW WATER CUTOFF	200HRS / MONTHLY	PERFORM BLOWDOWN PROCEDURE UNTIL BURNER SHUTDOWN BY LOW WATER CUTOFF, VERIFY LOW WATER INDICATOR ON CONTROL PANEL, REMOVE CONTROL ENCLOSURE COVER AND VERIFY SMOOTH AND NORMAL OPERATION OF FLOAT LINKAGE.
AUXILIARY LOW WATER CUTOFF	200HRS / MONTHLY	DISABLE PRIMARY LOW WATER CUTOFF BY TEMPORARILY DEPRESSING SWITCH LEVERS IN CONTROL ENCLOSURE, PERFORM BLOWDOWN PROCEDURE UNTIL BURNER SHUTDOWN BY AUXILARY LOW WATER CUTOFF. VERIFY MANUAL RESET REQUIRED TO RESTART.
HIGH WATER CUTOFF (IF EQUIPPED)	200HRS / MONTHLY	FILL BOILER MANUALLY UNTIL BURNER SHUTDOWN, WATER LEVEL SHOULD BE APPRX. 3" TO HIGHEST INDICATED LEVEL POSSIBLE BUT NOT ABOVE, VERIFY HIGH WATER INDICATOR ON CONTROL PANEL, BLOW DOWN BOILER TO NORMAL LEVEL.
LOW FUEL GAS PRESSURE SWITCH (IF EQUIPPED)	200HRS / MONTHLY	SHUT OFF MAIN FUEL GAS BALL VALVE AND VERIFY BURNER SHUTDOWN, OPEN MAIN FUEL GAS BALL VALVE AND OBSERVE BURNER DOES NOT ATTEMPT RESTART UNTIL SWITCH RESET.
HIGH FUEL GAS PRESSURE SWITCH (IF EQUIPPED)	200HRS / MONTHLY	DECREASE SET POINT TO 50% OF NORMAL, VERIFY BURNER SHUTDOWN AT GAS MANIFOLD PRESSURE GAUGE READING EQUAL TO DECREASED SETTING, RETURN TO NORMAL SET POINT, VERIFY MANUAL RESET REQUIRED FOR BURNER OPERATION
FUEL GAS PILOT ASSEMBLY	200HRS / MONTHLY	REMOVE FUEL GAS PILOT ASSEMBLY, CLEAN AND INSPECT FOR DETERIORATION, INSPECT PILOT AIR TUBE FOR PROPER CONNECTIONS AND CONDITION.
FLAME SCANNER	200HRS / MONTHLY	REMOVE FLAME SCANNER ASSEMBLY, CLEAN LENS WITH A SOFT CLOTH, INSPECT FOR DETERIORATION OF HOUSING AND CONDUIT.
WATER LEVEL SIGHT GLASS	200HRS / MONTHLY	CLOSE AND REOPEN UPPER AND LOWER CONNECTING VALVES, INSPECT GLASS FOR CRACKS OR DISCOLORATION AND GASKETS FOR PROPER SEAL, CLEAN OR REPLACE AS REQUIRED.

MAINTENANCE & INSPECTION SCHEDULE (CONT'D)

MAINTENANCE ITEM	INTERVAL	PROCEDURE
WATER SIDE INSPECTION AND CLEANING	2500HRS / ANNUAL	SUPPLY/RETURN, FEED WATER INLET, AND ANY OTHER CONNECTIONS ARE LOCKED AND TAGGED CLOSED, AND THE AIR VENT IS LOCKED AND TAGGED OPEN. REMOVE ALL MANWAY AND HAND HOLE GASKETS AND INSPECT THE GASKET SEATING SURFACE FOR CORROSION. CLEAN AND INSPECT THE BOILER FOR EXCESSIVE WEAR, CORROSION OR SCALING. WASH THE BOILER DOWN USING THE OPENINGS TO REMOVE AS MUCH SCALE AS POSSIBLE. REPLACE THE MANWAY AND HAND HOLE GASKETS. TYPICAL TORQUE SETTING FOR MANWAY AND HAND HOLE NUTS IS 90 FT-LBS.
FIRE SIDE INSPECTION AND CLEANING	2500HRS / ANNUAL	OPEN FRONT AND REAR DOORS. INSPECT FOR LEAKS AND CLEAN AS REQUIRED. INSPECT REFRACTORY FOR INTEGRITY. SOOT CAN BE REMOVED WITH A BOILER FIRE TUBE PUNCHING MACHINE, SIZED FOR 2.5" TUBES. RUST (ORANGE) OR SCALE (WHITE) TRAILS SHOULD BE MARKED AND INSPECTED CLOSELY FOR LEAKS. ALL GASKETS MUST BE REMOVED AND REPLACED. INSPECT THE REFRACTORY AND NOTE ANY LARGE CRACKS THAT MAY PROPAGATE THROUGH THE REFRACTORY ARCH OR DIVIDER. LARGE CRACKS MUST BE ADDRESSED BEFORE THE BOILER IS FIRED AGAIN.
INTERNAL INSPECTION OF BURNER	2500HRS / ANNUAL	INSPECT CERAMIC FIBER INSULATION BETWEEN BURNER MOUNT AND FURNACE WALL FOR FULL COVERAGE AND PROPER SEAL.
BURNER FLAME SURFACE	2500HRS / ANNUAL	INSPECT FOR DETERIORATION OR DEFORMATION.
AUTHORIZED INSPECTOR CERTIFICATION	2500HRS / ANNUAL	IF REQUIRED BY LOCAL JURISDICTION, AN AUTHORIZED INSPECTOR WILL BE REQUIRED TO PERFORM INTERNAL INSPECTION AND FIRESIDE HEATING SURFACE INSPECTION FOR CONTINUED OPERATION.
PRESSURE PIPEWORK	2500HRS / ANNUAL	REMOVE PLUGS FROM WATER COLUMN, CONTROL PIPES, AND BLOWDOWN PIPES, INSPECT FOR CORROSION AND BLOCKAGE, CLEAN OUT BLOCKAGE AND DEPOSITS.
PRIMARY LOW WATER CUTOFF	2500HRS / ANNUAL	REMOVE HEAD MECHANISM OF FLOAT TYPE LEVEL CONTROLS. FULLY CLEAN FLOAT BOWL, FLOAT, AND FLOAT LINKAGE. INSPECT FLOAT AND REPLACE IF IT APPEARS CORRODED, DENTED OR MIS-SHAPED. INSPECT FLOAT CHAMBER AND EQUALIZING PIPEWORK. REPLACE THE HEAD MECHANISM AT LEAST EVERY 5 YEARS.
AUXILIARY LOW WATER CUTOFF	2500HRS / ANNUAL	REMOVE PROBE HOLDER ASSEMBLY AND CLEAN THE PROBE AS REQUIRED (A WIRE BRUSH OR STEEL WOOL MAY BE USED), INSPECT PROBE WIRE CONNECTION AND INSULATION.
SAFETY RELIEF VALVE OPERATION	2500HRS / ANNUAL	FOLLOW THE SAFETY VALVE'S INSTRUCTIONS TO TEST FOR PROPER OPERATION OF THE VALVE(S). INSPECT / CLEAR VENT PIPES AS REQUIRED.
BURNER BLOWER WHEEL	2500HRS / ANNUAL	THE BLOWER WHEEL CONDITION SHOULD BE INSPECTED AND CLEANED AS REQUIRED. IT MAY BE ACCESSED BY REMOVING THE INTAKE COVER SHOWN IN THE BURNER ASSEMBLY DIAGRAM OF THE BURNER MANUAL.

LAY UP PROCEDURE

Proper boiler storage should be performed to protect your boiler from oxygen pitting and severe corrosion. Dry or wet lay up should be used when a boiler is to be shut down for an extended amount of time with no urgency to restart. It may be beneficial to schedule the boiler's annual inspection at the same time as the boiler is put into storage.

DRY LAY UP

The recommended long term storage for Williams & Davis boilers is dry lay up. Dry storage is recommended for long down times or when there is a risk of freezing temperatures.

1. **DRAINING THE BOILER**

   The boiler should be locked and tagged out before draining. Performing a bottom blow down will remove sediment and scale while reducing the boiler's pressure. Once there is no pressure in the boiler, an air vent can be opened in the top to empty the boiler. A plug in the water column cross can typically be used. *Do not use the safety valve(s) for vents.*

2. **FIRE SIDE INSPECTION**

   Since soot is generally easier to clean when the boiler is warm and dry, now is a good time to remove soot from the boiler tubes. Soot can be removed with a boiler fire tube punching machine, sized for 2.5" tubes. Rust (orange) or scale (white) trails should be marked and inspected closely for leaks. All gaskets must be removed and replaced. Inspect the refractory and note any large cracks that may propagate through the refractory arch or divider. Large cracks must be addressed before the boiler is fired again.

3. **WATER SIDE INSPECTION**

   Before the water side inspection, make sure the steam outlet, hot water supply/return, feed water inlet, and any other connections are locked and tagged closed, and the air vent is locked and tagged open. Remove and replace all manway and hand hole gaskets and inspect the gasket seating surface for corrosion. Inspect the water side of the boiler and evaluate the scale and corrosion. Wash the boiler down using the openings to remove as much scale as possible. Scale that is not removed can still retain moisture and oxygen and corrode the boiler.

4. **COMPLETE INSPECTION**

   Once the fire side and water side of the boiler have been cleaned out, a fan should be used to completely dry the boiler. *Do not use a fuel-fired heater.* They can cause moisture build up and leave petroleum products on the metal surfaces. Examine all surfaces of the pressure vessel. Any surface showing signs of leaks should be dye-penetrant tested by a qualified individual.

5. **REPAIRS**

   If repairs are necessary, contact your Williams & Davis Boilers to a local representative with an R stamp. Any organization without an R stamp should *never* be permitted to perform repairs on a pressure vessel.

6. **STORAGE PREPARATION**

   After inspection and repair, fireside surfaces can be swabbed with mineral oil to prevent corrosion. Please note: Initial start-up after storage may be smoky due to the mineral oil burning off. A "Dry lay up kit, Part#: 930-0001" can be purchased from Williams & Davis Boilers. This kit will include one or more (depending on your boiler size) water-soluble bag(s) of corrosion inhibitor. The bag(s) should be placed

in the boiler and all openings closed. When the boiler is put back into service, it can be filled with water and a typical start-up procedure can be employed. No product or bag removal is necessary. The Williams & Davis Boilers Dry lay up kit will provide up to 12 months of protection.

A Nitrogen blanket may also be used to store the boiler for extended periods of time. The boiler must be completely sealed and a positive pressure of 3-5 PSIG of Nitrogen maintained. When returning the boiler to service, disconnect it from the Nitrogen supply and vent in a safe manner external to the building and away from any air intakes. If it is necessary to enter the boiler stored with a Nitrogen blanket, *the boiler must be thoroughly purged with dry air. Nitrogen will not support life.*

The stack should also be covered to prevent moisture from entering the boiler. This can be done easily by placing a piece of sheet metal between the stack flange and boiler stack flange. *A sign or tag must be placed on the power disconnect to warn of the stack cover.*

WET LAY UP

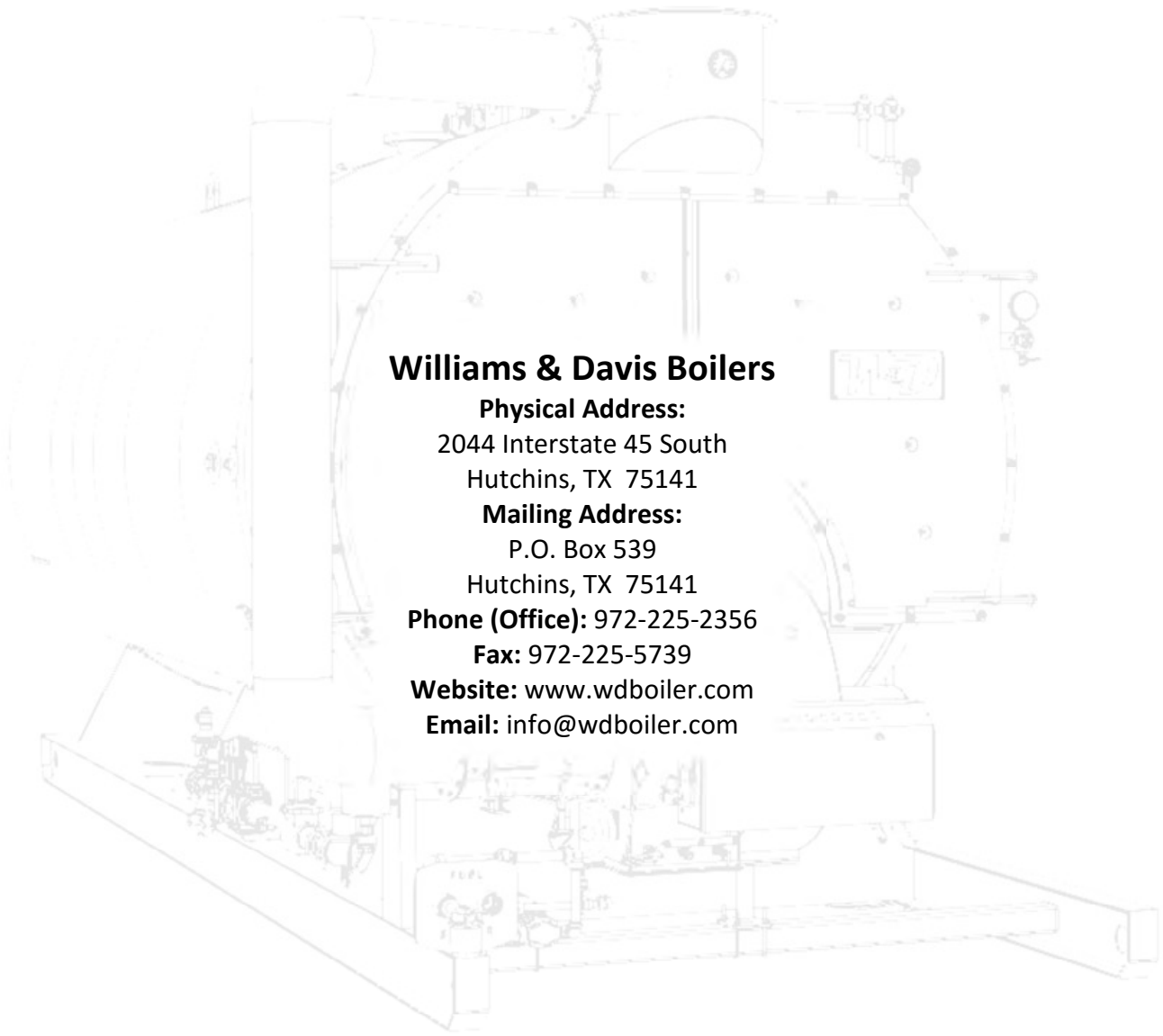
The recommended short term storage for Williams & Davis boilers is a wet lay up. Wet storage is convenient when the boiler may need to be placed back in service quickly. The wet lay up procedure includes steps 1-5 of the dry lay up procedure as well as the following:

1. **WATER AND TREATMENT CHEMICALS**
   A water treatment specialist should be consulted to provide the proper concentrations of tri-sodium phosphate, caustic soda, sodium sulfite, sodium chromate or hydrazine. A minimum of 100 ppm of sulfite and 400 ppm of P-Alkalinity should be maintained in a wet stored or stand-by boiler.
   Fill the boiler to the flooded level with water at least 180°F to get rid of dissolved gasses. If necessary, the burner can be fired to raise the water temperature. Vent the air and gasses as necessary. It is recommended the chemicals be premixed in the water before it is placed in the boiler.
2. **WET STORAGE MAINTENANCE**
   The water must be circulated periodically to prevent stratification of chemicals. This can be done either by installing a circulating pump between the surface blow down opening and bottom blow down opening, or by firing the boiler periodically. The burner will warm the water which provides natural circulation. The water should be checked weekly to ensure at least 100 ppm of sulfite and 400 ppm of P-Alkalinity.

STEAM TABLE

GAUGE PRESSURE	TEMPERATURE	SPECIFIC VOLUME SATURATED VAPOR	ENTHALPY		
(PSIG)	*(°F)*	*(FT^3/LB)*	SATURATED LIQUID	EVAPORATED	SATURATED VAPOR
			(BTU/LB)	*(BTU/LB)*	*(BTU/LB)*
5	227	20.1	195	960	1155
10	239	16.5	207	953	1160
12	244	15.3	212	949	1161
14	248	14.3	216	947	1163
16	252	13.4	220	944	1164
18	256	12.6	224	941	1165
20	259	11.9	227	939	1166
22	262	11.3	230	937	1167
24	265	10.8	233	934	1167
26	268	10.3	236	933	1169
28	271	9.85	239	930	1169
30	274	9.46	243	929	1172
32	277	9.1	246	927	1173
34	279	8.75	248	925	1173
36	282	8.42	251	923	1174
38	284	8.08	253	922	1175
40	286	7.82	256	920	1176
42	289	7.57	258	918	1176
44	291	7.31	260	917	1177
46	293	7.14	262	915	1177
48	295	6.94	264	914	1178
50	298	6.68	267	912	1179
55	300	6.27	271	909	1180
60	307	5.84	277	906	1183
65	312	5.49	282	901	1183
70	316	5.18	286	898	1184
75	320	4.91	290	895	1185
80	324	4.67	294	891	1185
85	328	4.44	298	889	1187
90	331	4.24	302	886	1188
95	335	4.05	305	883	1188
100	338	3.89	309	880	1189
110	344	3.59	316	875	1191
120	350	3.34	322	871	1193
130	356	3.12	328	866	1194
140	361	2.92	333	861	1194
150	366	2.74	339	857	1196
160	371	2.6	344	853	1197
170	375	2.47	348	849	1197
180	380	2.31	353	845	1198
190	384	2.24	358	841	1199
200	388	2.14	362	837	1199
210	392	2.05	366	834	1200
220	396	1.96	370	830	1200
230	399	1.89	374	827	1201
240	403	1.81	378	823	1201
250	406	1.75	382	820	1202
260	409	1.69	385	817	1202
270	413	1.63	389	814	1203
280	416	1.57	392	811	1203
290	418	1.53	395	808	1203
300	421	1.47	398	805	1203
310	425	1.43	402	802	1204
320	427	1.38	405	799	1204
330	430	1.34	408	796	1204
340	433	1.31	411	793	1204
350	435	1.28	414	790	1204
360	438	1.24	417	788	1205
370	441	1.2	420	785	1205
380	443	1.18	422	783	1205
390	446	1.14	425	780	1205
400	448	1.12	428	777	1205
450	460	1	439	766	1205
500	470	0.89	453	751	1204
550	479	0.82	464	740	1204
600	489	0.74	475	728	1203
650	497	0.69	483	719	1202
700	505	0.64	491	710	1201
750	513	0.6	504	696	1200
800	520	0.56	512	686	1198
900	534	0.49	529	666	1195
1000	546	0.44	544	647	1191
1250	574	0.34	580	600	1180
1500	597	0.23	610	557	1167
1750	618	0.22	642	509	1151
2000	636	0.19	672	462	1134
2250	654	0.16	701	413	1114
2500	669	0.13	733	358	1091
2750	683	0.11	764	295	1059
3000	696	0.08	804	213	1017

NOTES



Williams & Davis Boilers

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Phone (Office): 972-225-2356
Fax: 972-225-5739
Website: www.wdboiler.com
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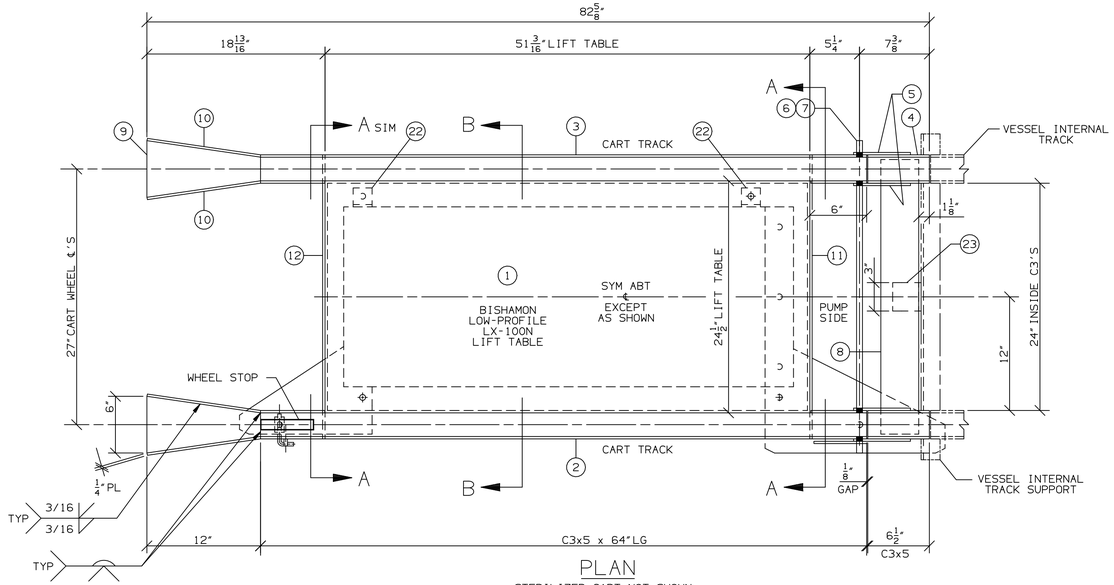
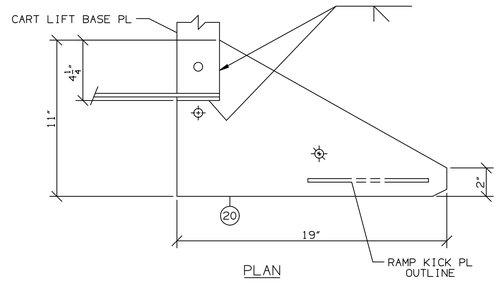


PLAN

STERILIZER CART NOT SHOWN

CART LIFT ELEVATION

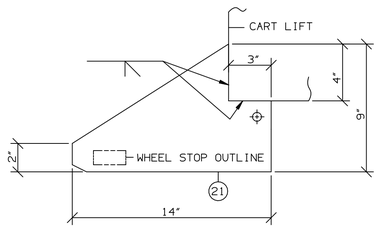
SHOWN AT RAISED CART LOADING ELEVATION



PLAN

TRACK KICK BAR WEAR PLATE DETAIL

SCALE: 3/16



PLAN

WHEEL STOP WEAR PLATE DETAIL

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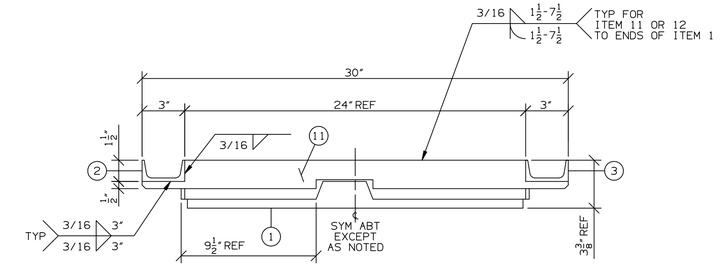
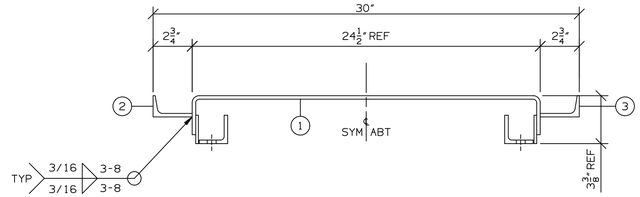


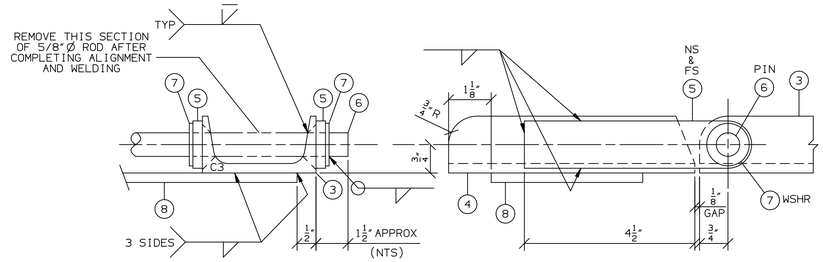
VIEW A-A

AS SHOWN FOR ITEM 11, SIMILAR FOR ITEM 12
TOP OF ITEM 11 & 12 FLUSH W/TOP OF LIFT TABLE
SHOWN WITH CART LIFT TABLE AT LOW POSITION



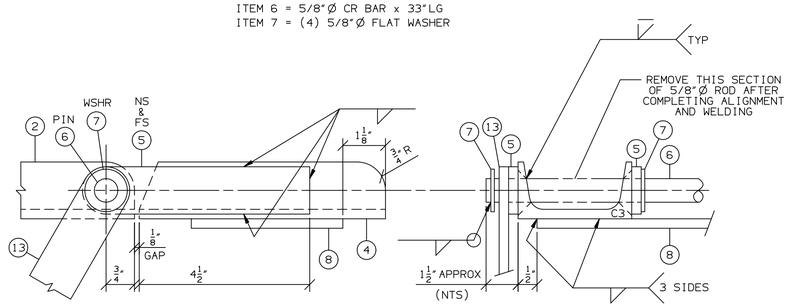
SECTION B-B

SHOWN WITH CART LIFT TABLE AT LOW POSITION



TRACK HINGE DETAIL - RIGHT

ITEM 6 = 5/8"Ø CR BAR x 33"LG
ITEM 7 = (4) 5/8"Ø FLAT WASHER



TRACK HINGE DETAIL - LEFT

REV	DATE	DESCRIPTION	BY	CHK	APR
1	07/10/14	REV'D WEAR PL'S	OS	JAG	JAG
0	04/23/14	NEW RELEASE	OS	JAG	JAG

DRWN BY: O.SILVA
DATE: 04/23/14
SCALE: 3/16"

THE MARK-COSTELLO CO.
1145 DOMINGUEZ STREET, CARSON, CA. 90746 · (213) 637-1851

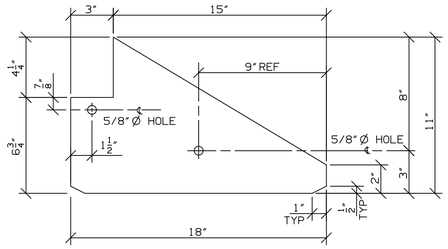
TRI-WEST ENGINEERING STRUCTURES MECHANICAL
SANTA ANA, CALIFORNIA

EQUIPMENT
HYDRAULIC CART LIFT FOR AS5XX STERILIZER HV CARTS

TITLE
LX-100N W/HINGED AUTO-FOLD TRACK

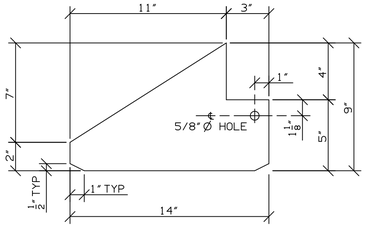
DRAWING NO. D-140011

SHT 1



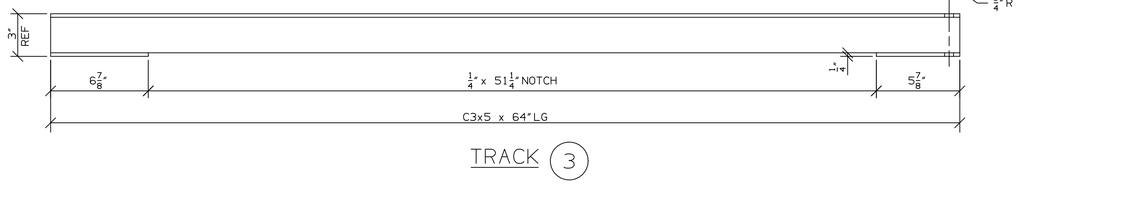
RAMP KICK BAR WEAR PL (20)

1/4" PL

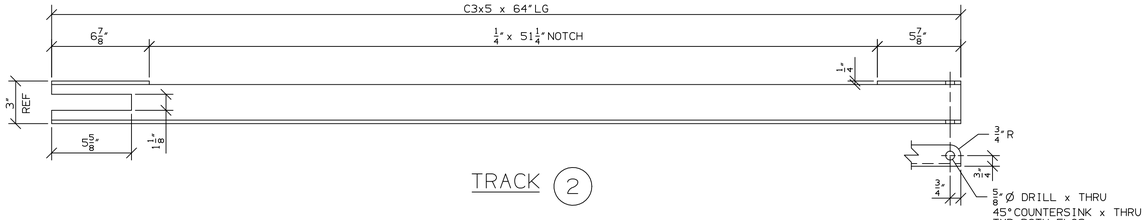


WHEEL STOP WEAR PL (21)

1/4" PL



TRACK (3)



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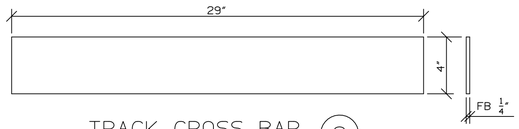
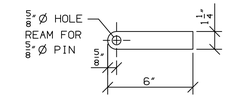


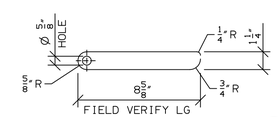
TRACK CROSS BAR (8)

1/4" x 4" FB



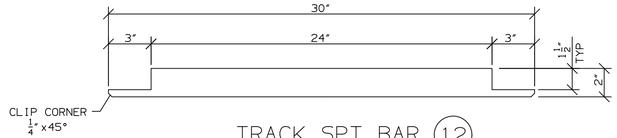
HINGE BAR (5)

1/4" x 1 1/4" FB
FOUR (4) REQ'D



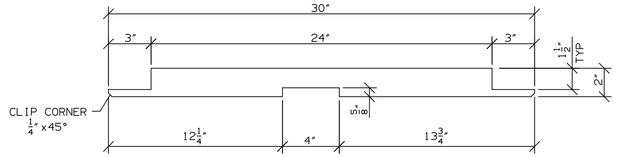
TRACK KICK BAR (13)

1/4" x 1 1/4" FB



TRACK SPT BAR (12)

1/4" x 2" FB



TRACK SPT BAR (11)

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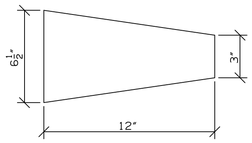
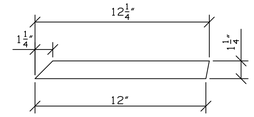


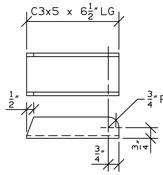
RAMP WEB (9)

1/4" PL
TWO (2) REQ'D



RAMP FLG (10)

1/4" x 1 1/4" FB
FOUR (4) REQ'D



TRACK (4)

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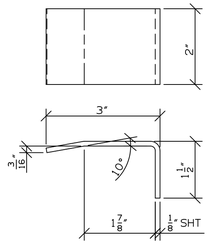
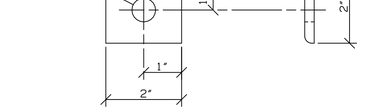


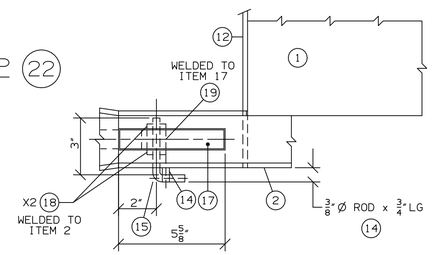
HINGED TRACK SUPPT (23)

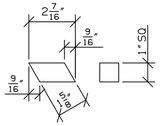
BEND SHT 1/8" x 2" x 4 3/8" LG



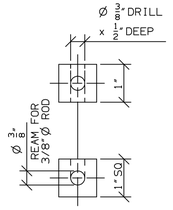
SUPPORT CLIP (22)

L2x2x1/4
TWO (2) REQ'D



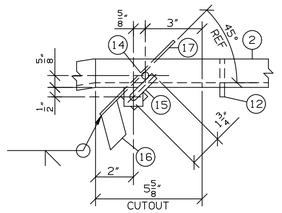


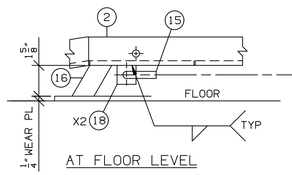
ITEM 16



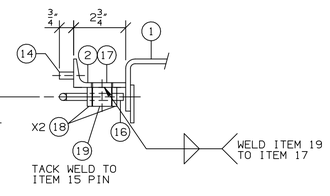
ITEM 19

SCALE: HALF





AT FLOOR LEVEL

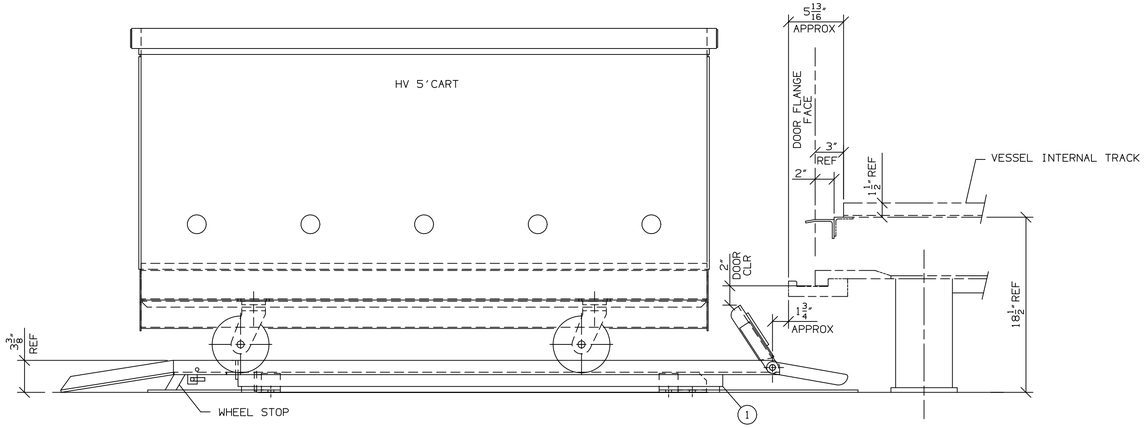


TACK WELD TO
ITEM 15 PIN

WHEEL STOP DETAIL

ITEM 14 = 3/8" Ø ROD x 3/4" LG
ITEM 15 = 3/8" Ø BENT ROD
ITEM 16 = 1" SQ BAR x 2 7/16" LG
ITEM 17 = FB 1/4" x 1" x 5 1/2" LG
ITEM 18 = FB 1/4" x 1" x 1" LG
ITEM 19 = 1" SQ BAR x 1" LG

SCALE: 1/4



CART LIFT ELEVATION

SHOWN WITH CART LIFT TABLE AT LOWERED POSITION

THE MARK-COSTELLO CO.

1145 DOMINGUEZ STREET, CARSON, CA. 90746 · (213) 637-1851

TRI-WEST ENGINEERING
STRUCTURES MECHANICAL
SANTA ANA, CALIFORNIA

EQUIPMENT
HYDRAULIC CART LIFT FOR AS5XX STERILIZER HV CARTS

TITLE
LX-100N W/HINGED AUTO-FOLD TRACK

REV	DATE	DESCRIPTION	BY	CHK	APR
1	07/10/14	REV'D WEAR PL'S & ADD MK 4 & 23 DET	OS	JAG	JAG
0	04/23/14	NEW RELEASE	OS	JAG	JAG

DRWN BY: O.SILVA
DATE: 04/23/14
SCALE: 3/16"

DRAWING NO. D-140011

SHT 2

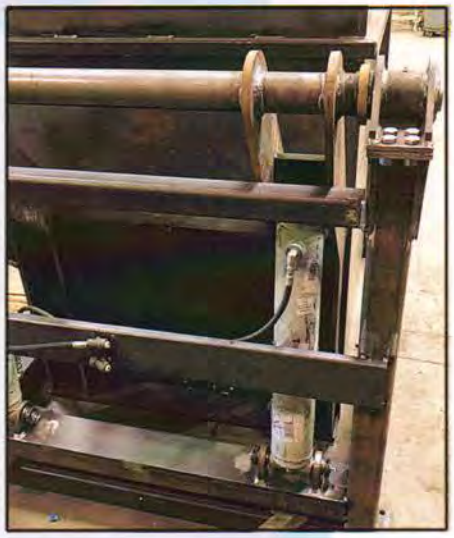
MARK-COSTELLO

Cart Dumpers
&
Cart to Cart Dumpers

Systems & Solutions Since 1956

Compare a Mark-Costello Co. cart dumper with any other hydraulic cart dumper on the market, and you'll quickly discover why Mark-Costello is the premiere cart dumper. Components are selected for rugged heavy duty use with special attention to longevity and minimum maintenance. Only the highest standards of quality can be found in the manufacturing process. That's why you will find Mark-Costello's hydraulic cart dumpers "dumping trash" long after other brands have been scrapped.

- ✓ Heavy duty thick wall tubular steel frame for strength & stiffness
- ✓ Precision built
- ✓ Large diameter pivot shaft with high capacity self-lubricated replaceable non- metallic brushings
- ✓ Heavy duty large bore dual hydraulic cylinders with large diameter rods for increased column strength and faster cylinder return stroke



- ✓ Steel frame integrally resists all hydraulic cylinder forces
- ✓ Anchor bolts resist only low magnitude static & dynamic loads
- ✓ Therefore, anchors will not "pullout" of supporting concrete like competing brand dumpers
- ✓ High capacity hydraulic pump with large fluid reservoir, with manual control valves for smoother operation
- ✓ Available in heavy- duty models that can handle up to 5,000 pounds
- ✓ Various pivot heights available

- Free standing or dock installation
- Safe and reliable design
- Use on compactors and balers
- Custom and extreme duty units available

Systems & Solutions Since 1956

Carriage Dumper Applications
Solid Waste & Recycling









Side load carriage dumper with one cubic yard tilt hopper-dumping into self-contained compactor.

End load carriage dumper with one cubic yard tilt hopper dumping into load chute.

End load - portable carriage dumper attachment dumping one cubic yard tilt hopper Into self-contained compactor.

Leasing and Rental Programs Available

Fork Style Dumper - Solid Waste Application

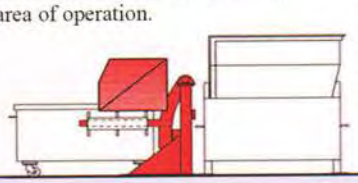
Side load fork dumper mounted on stationary compactor -dumping two cubic yard carts from a trainable cart system.

End load fork dumper dumping two cubic yard carts into self-contained compactor. 95 gallon cart – cart dumper side mounted working in conjunction with fork dumper.

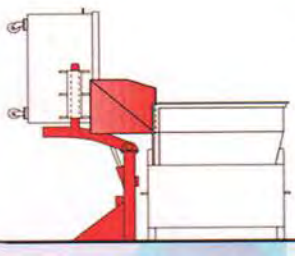
End load fork dumper dumping two cubic yard carts from a trainable cart system.

In Action ...

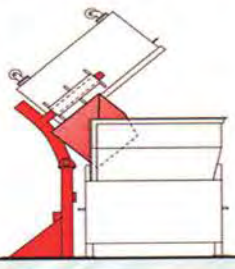
Container is rolled into dumper arms. Mark-Costello's 5hp or 10hp power pack is activated from outside the area of operation.



Special guards prevent spillage or leakage even in the vertical position. Operator has full control of cycle at all times.



Container is tilted a full 45 degrees past vertical, assuring complete cleanout. Dumping cycle is 34 seconds for the heavy- duty model.



Fork Style Dumper - Recycling Application

Trainable Cart System with Horizontal Baler

Standard Carts

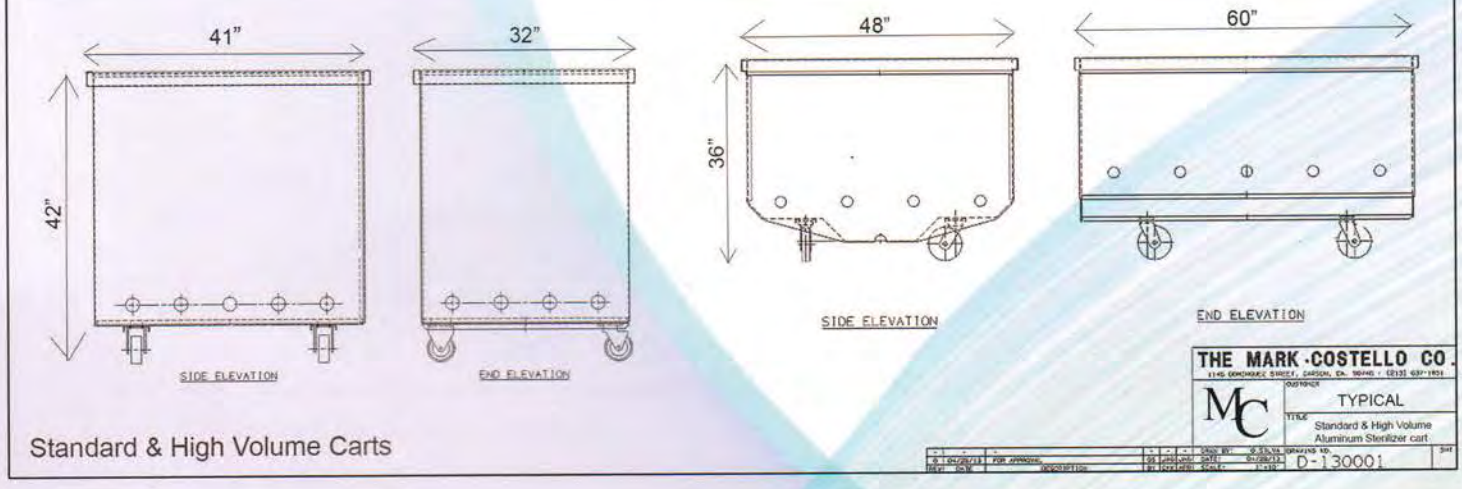
Custom Carts Available

Fork & Carriage Dumper
Medical & USDA Waste Application

Side load carriage dumper dumping high volume autoclave carts into stationary compactor.

Side load carriage dumper dumping high volume autoclave carts into self-contained compactor.

End load fork dumper dumping high volume autoclave carts into self-contained compactor.

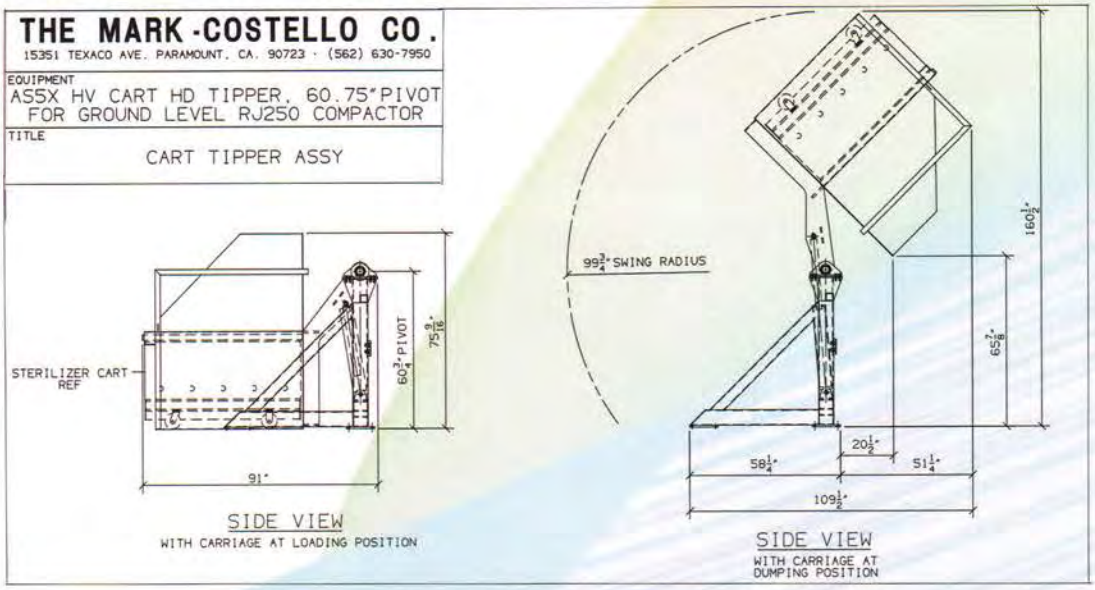


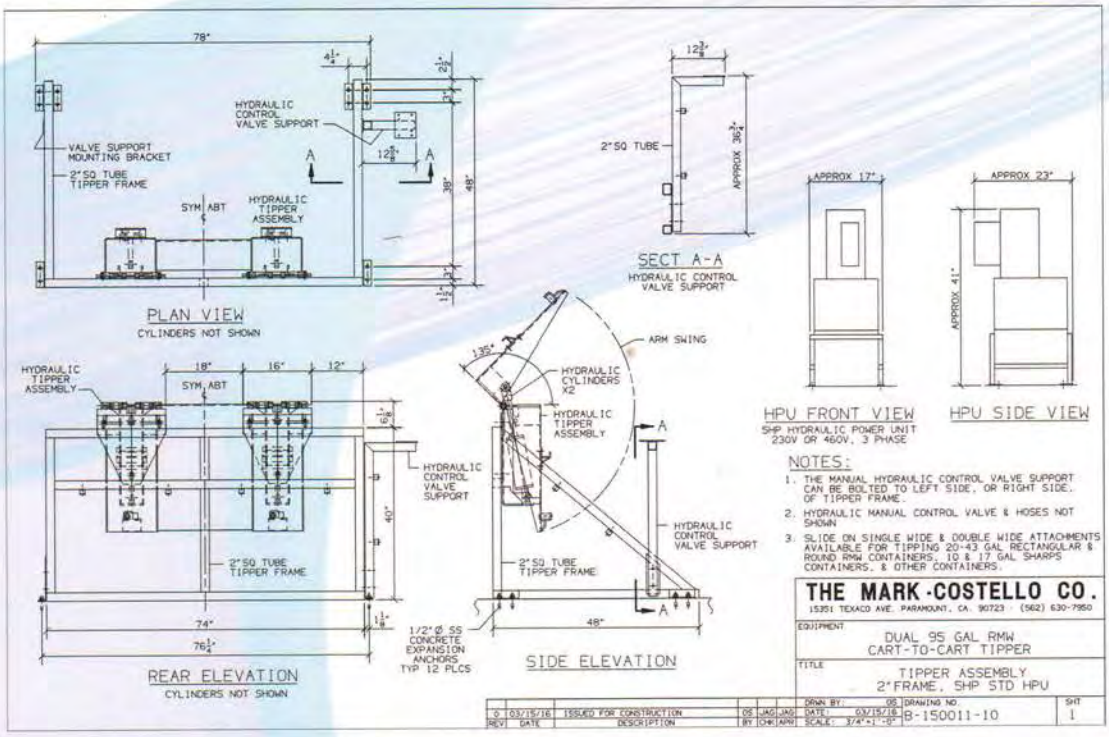
Container/Cart-to-Cart Dumper
Medical & USDA Waste Application

Container/Cart dumper with portable container dumper attachment dumping various size RMW container into high volume autoclave cart.

Container/Cart dumper dumping 95 gallon RMW cart(s) into high volume autoclave carts

Container/Cart dumper dumping one cubic yard Regulated Garbage into high volume autoclave cart.





Specifications

	Cart to Cart	Cart Dumper
Cylinders (2):		
Bore	3"	4 1/2"
Rod	1 1/8"	2 1/2"
Stroke	8"	25"
Hydraulic Pressure	1,800 psi	1,000 psi
Hydraulic Pump Capacity	5.2 gpm	10 gpm

	Cart to Cart	Cart Dumper
Motor Size	5 hp	10 hp
Controls	Manual	Manual
Cycle Time	10.5 sec.	34 sec.
Weight Capacity	up to 800 lbs.	up to 5,000 lbs.
Tilt Cart Weight Capacity	up to 600 lbs	up to 4,500 lbs.

15351 Texaco Ave
Paramount, CA 90723
mark-costello.com
(562) 630-7950

RJ-250SC and RJ-250HT Self-Contained Compactors

Dimensions and Specifications

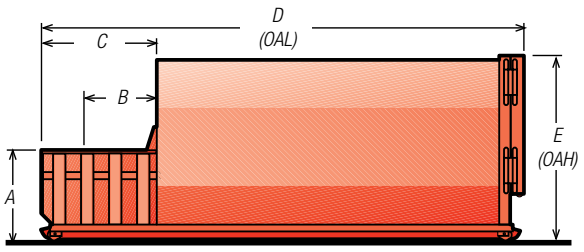
Specifications		
Charge Box Capacity		
[Mfr. Rating]	1.7 cu yd	1.30 m^3
[WASTEC Rating]	1.31 cu yd	1.00 m^3
Clear Top Opening	41"L x 58"W	1041mm x 1473mm
Performance Characteristics:		
Cycle Time	33 sec.	33 sec.
Total Normal Force	39,900 lbs.	177 kN
Total Maximum Force	49,500 lbs.	220 kN
Normal Ram Face Pressure	27.1 psi	189 kPa
Maximum Ram Face Pressure	33.7 psi	235 kPa
Ram Penetration	6"	152mm
Electrical Equipment:		
Electric Motor 3/60/230-460	**10 hp**	**7.5kW**
Electric Control Voltage	120 VAC	120VAC
Panel Box Assembly		
UL® and CUL® Listed	Key Operated	120 VAC
All Circuits Fused	2-Push Button Station Start/Stop	
Hydraulic Equipment:		
Hydraulic Pump	10 gpm	38 L/min
Normal Pressure	1850 psi	128 bar
Maximum Pressure	2300 psi	159 bar
Hydraulic Cylinders (2) - Bore	4"	102mm
- Rod	2 1/2"	64mm

RJ-250SC	A	B	C	D**	E	WT.
15 cu yds	4'0" 1219mm	3'7¼" 1099mm	5'7" 1702mm	14'3" 4343mm	7'5" 2261mm	8,860 lbs. 4019 kg
20 cu yds	4'0" 1219mm	3'7¼" 1099mm	5'7" 1702mm	17'4" 5283mm	7'5" 2261mm	9,520 lbs. 4318 kg
25 cu yds	4'0" 1219mm	3'7¼" 1099mm	5'7" 1702mm	17'10" 5436mm	8'8" 2642mm	10,030 lbs. 4550 kg
30 cu yds	4'0" 1219mm	3'7¼" 1099mm	5'7" 1702mm	20'5" 6223mm	8'8" 2642mm	10,620 lbs. 4818 kg
34 cu yds	4'0" 1219mm	3'7¼" 1099mm	5'7" 1702mm	22'5" 6833mm	8'8" 2642mm	11,130 lbs. 5049 kg
39 cu yds	4'0" 1219mm	3'7¼" 1099mm	5'7" 1702mm	24'11½" 7607mm	8'8" 2642mm	11,790 lbs. 5348 kg
RJ-250HT	**A**	**B**	**C**	**D****	**E**	**WT.**
25 cu yds	4'1" 1245mm	3'7¼" 1099mm	5'7" 1702mm	20'9½" 6337mm	8'6"* 2591mm	11,104 lbs. 4173 kg
29 cu yds	4'1" 1245mm	3'7¼" 1099mm	5'7" 1702mm	23'1" 7036mm	8'6"* 2591mm	11,604 lbs. 5264 kg

** Overall height with hydraulic tailgate raised: 16'6". Hoist should be equipped with selector valve (1500 psi minimum) in order to control hydraulic tailgate.*
*** Other lengths available. Call factory for details.*

Signature Series Warranty

Featuring 3 Years Structure, 2 Years Components, 6 Months Labor



Dimensions not shown: 8'4⅛" (2543mm) Overall Width
Ground Roller Widths: 61⅞" (1569mm) Inside Rollers
67⅜" (1712mm) Roller Centers
72⅞" (1851mm) Outside Rollers

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Solar power for our environment.
By MARATHON

Also available as Green Built®, featuring Solar and other environmentally friendly components.

Marathon's solar option is not UL and CUL Listed.

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Environmental Solutions Group A DOVER COMPANY
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ATTACHMENT 17

FIRE PROTECTION PLAN

FIRE PROTECTION PLAN

This Fire Protection Plan is designed to serve as a guide to aid personnel in the proper procedures/protocols in the event of a fire or other emergency situation. All employees will be properly trained in the contents and use of this Fire Protection Plan.

An adequate supply of water under pressure for firefighting purposes is available via fire hydrants located near the northwest corner of the facility boundary. Firefighting equipment such as fire extinguishers will be readily available. The primary source of fire protection is the City of Corpus Christi Fire Department. The nearest fire station is located approximately 2-miles northwest of the facility. The facility will coordinate with the local authorities to ensure that this Fire Protection Plan and all fire detection/fighting equipment comply with Federal, State and Local fire code requirements. If local requirements are changed, the Fire Protection Plan will be revised, as required.

Fire Prevention Procedures

The most effective way to prevent a fire is to eliminate or minimize all fire hazards. The following procedures will be implemented at the facility to minimize fire hazards.

- Prohibit burning at the facility;
- Designate specific smoking areas and restrict smoking from all other areas by clearly indicated non-smoking signs;
- Maintain clean and clutter-free work areas;
- Handle, store and maintain chemicals appropriately;
- Conduct monthly fire inspections; and
- Train employees to immediately call for professional help in the event of a fire.

Sources and/or Procedures for Fire Protection

The facility is within the service area of City of Corpus Christi Fire Department. Other sources and/or procedures for fire protection are as follows:

- Smoke detectors will be placed throughout the building.
- Fire extinguishers will be kept on all equipment and within the building.
- All fire extinguishers will be fully charged and ready for use at all times.
- Each extinguisher will be installed and maintained in accordance with NFPA 10.
- Fire extinguishers will be rated as ABC extinguishers.
- Fire extinguishers will be inspected monthly by site personnel.
- Fire extinguishers will be inspected professionally on an annual basis and recharged, as necessary.

Reporting a Fire

Call 911 to notify the fire department and give the following information:

Name of Company: **Nature Environmental & Marine Services**
Address of Company: **8713 Root Street, Corpus Christi, Texas 78409**
Nearest Major Cross Street: **N. Clarkwood Rd.**

Extinguishing or Containing a Fire

Employees who have successfully completed fire extinguisher training may attempt to extinguish small fires. Individual judgement to extinguish a fire must be based on the limitations of their training and their ability to safely control the fire and use the following procedures:

- Call 911 for assistance.
- Contact facility's emergency coordinator, or their designee.
- Do not attempt to fight a fire alone.
- Do not attempt to fight a fire without adequate personal protective equipment.
- Be familiar with the use and limitations of firefighting equipment.
- Assess extent of fire and its potential to spread and seek alternatives for extinguishing the fire.
- If it appears that the fire can be safely contained or extinguished with available firefighting devices until the fire department arrives, attempt to contain or extinguish the fire. If a fire extinguisher is to be used, the **PASS** method will be used: **P**ull pin, **A**im at the base of the fire, **S**queeze trigger, and **S**weep from side to side.
- Upon arrival of fire department personnel, maintain access to the facility by having gates opened, alert/direct fire department to the fire, and provide assistance, if requested.

Emergency Evacuation

Supervisors are responsible for ensuring that all assigned evacuation routes and exits are adequately marked and clear from obstructions that could hinder emergency evacuation. In the event of an emergency evacuation, the following procedures will be followed:

- Alert facility personnel and evacuate the building using the closest exit.
- If safe, shut all doors, and turn off the ventilation system to prevent spread of fire.
- Personnel are to quickly move away from the building as soon as they exit from the building and assemble at the rally point.
- Alert/contact neighboring buildings/businesses that may be at risk.
- Supervisors are to take a headcount at the assembly area. Emergency personnel are to be notified of missing personnel who might require rescue.
- Employees may not reenter the building until an "all clear" has been given.
- Management will conduct a formal critique of the incident and associated actions.

Employee Training and Safety Procedures

Personnel will be trained upon initial employment and annually thereafter in the following:

- Fire prevention procedures;
- Fire reporting procedures;
- Fire extinguisher use and capabilities; and
- Emergency evacuation procedures.

Personnel training records shall be maintained.

ATTACHMENT 18

HEALTH AND SAFETY PLAN

HEALTH AND SAFETY PLAN

Training

Each employee upon hiring will be instructed as to proper procedures for performing the specific job they were hired for. Each new employee will be given a tour of the entire facility to familiarize themselves with the location of fire extinguishers, telephones, emergency telephone numbers and locations of safety equipment.

Equipment

Applicable safety equipment includes the following:

Respirators available are 3M half-mask and full-face organic vapor respirators.

Each sales representative and facility employee who may be involved in response to an emergency is issued a 1/2-face respirator. Numerous full-face respirators are also stored at the facility.

There are full-face shields available for all employees and safety glasses available for each employee at the facility. This equipment is stored in the emergency response kit located on northeast side of warehouse.

A pair of steel-toed boots is assigned to each employee. Two pair of neoprene/steel-toed boots are available for employee use.

Coveralls made of Tyvek Neoprene aprons are also used as needed.

A pair of neoprene gloves is assigned to each employee and are replaced as necessary.

Other equipment available includes: mops, buckets, shovels, soap, portable pumps, wet/dry vacuum, telephones, eye wash stations, first aid station, fire extinguisher, and safety showers.

Electronic copies of all Safety Data Sheets (SDS) are kept on a database and accessible at any time.

ATTACHMENT 19

OPERATION PLAN AND SPILL CONTAINMENT

OPERATION PLAN AND SPILL CONTAINMENT

Medical waste is picked up in local delivery trucks and delivered to the Facility. At the Facility, the containers will be offloaded either into the building and staged for treatment or stored until such time that a full truckload is sent to the final destination facility or another permitted facility.

The waste will be delivered to the treatment facility within 7 days of being received from the generator in accordance with all applicable requirements.

Should a spill occur at this facility or elsewhere, our personnel are well-equipped and specifically trained to handle the containment and cleanup. Each company vehicle, as well as our-facility, is fully stocked with first aid supplies, personal protective equipment (gloves, face shield), absorbent materials, biohazard bags, disinfectant, dust pans, brushes, shovels, broom, etc. All spills or discharges shall be reported to regulatory agencies promptly.

In the event of a spill the following measures will be taken:

1. Identification of the spill to determine appropriate response, including Emergency Notification Requirements, PPE, and Cleanup Equipment
2. If cleanup is indicated, alert proper parties, don appropriate PPE, stop the spill from spreading, cover the spill with absorbent if needed, spray the spill with a bleach solution or other EPA approved disinfectant, allow sufficient contact time for the disinfectant, clean up the material and repackage for appropriate shipment. Follow up with a report to supervisors and place the report in an incident log for viewing by TCEQ personnel as needed.

ARDURRA
COLLABORATE. INNOVATE. CREATE.

August 3, 2022

Danuel Gonzalez (Danuel.Gonzalez@tceq.texas.gov)
Municipal Solid Waste Permits Section
Waste Permits Division (MC 124)
Texas Commission on Environmental Quality
12100 Park 35 Circle
Austin, Texas 78753

Re: Response to Prelim-Review 1
Application for Medical Waste Registration (MSW Registration No. 20789)
Nature Environmental & Marine Services LLC (Nature)
RN105939763 / CN604652479
Tracking No. 27685394

This letter is in response to your August 1, 2022 e-mail to Ryan Freeman with Nature regarding preliminary review of their application for a medical waste registration for a proposed facility at 8713 Root Street in Corpus Christi, Nueces County, Texas. Your email requested a Land Ownership Map with an equidistant radius from the facility boundary.

In response to your comment, Attachment 4 (Land Ownership Map) was revised to correct the bar scale and show an equidistant offset from the facility boundary. As a result, five previously included properties fell outside of the quarter-mile offset. These properties/landowners were removed from the Land Ownership List and mailing labels. A redline/strikeout version of the list is enclosed.

The following pages of the application have been revised and are enclosed:

1. Application Binder Cover Page (revised)
2. Application cover page (TCEQ-20789, page 1 of 23) (revised)
3. Table of Contents (TCEQ-20789, page 2 of 29) (revised)
4. Applicant Certification and Signature (TCEQ-20789, page 26 of 29) (revised)
5. Attachment 4 Land Ownership Map and Land Ownership List
    a. Land Ownership Map, Attachment 4, Figure 1 (revised)
    b. Land Ownership List (Attachment 4, page 1) (revised)
    c. Land Ownership Labels

One original and two copies of the revised application pages are provided for your use. A copy of this submittal has been sent to the appropriate regional office. A copy of this submittal will be added to the posting of the application on a publicly accessible website. Electronic documents containing revised landowner list in mailing label format will be submitted by email to Danuel.Gonzalez@tceq.texas.gov and mswper@tceq.texas.gov. If you have any questions or comments, please contact me at ahesseltine@ardurra.com or (361) 883-1984.

Sincerely,

Amy R. Hesseltine

Amy R. Hesseltine, P.E.
Environmental Group Leader

cc: Ryan Freeman, Nature (Ryan.Freeman@natureenviro.com)
Sudhakar Yenumala, Nature (sudhakar@natureenviro.com)
Tim Perdue, Waste Section Manager, TCEQ Region 14 (Timothy.Perdue@tceq.texas.gov)

APPLICATION FOR MEDICAL WASTE REGISTRATION

Prepared for:

NATURE ENVIRONMENTAL & MARINE SERVICES, LLC
8713 ROOT STREET
CORPUS CHRISTI, NUECES COUNTY, TEXAS

TCEQ MSW REGISTRATION NO. 20789

Prepared by:

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TBPELS FIRM NO. 10053
801 Navigation, Suite 300
Corpus Christi, TX 78408
(361) 883-1984

Initial Application Submittal Date: 06/30/2022
Prelim-Review 1: 08/03/2022

Texas Commission on Environmental Quality

Application for a Medical Waste Registration

Nature Environmental & Marine Services LLC

Registration No. 20789

Corpus Christi, Nueces County, Texas

June 2022

Prelim-Review 1 (August 2022)

Prepared for:

Nature Environmental & Marine Services LLC

8713 Root Street

Corpus Christi, TX 78409

Prepared by:

Amy Hesseltine, P.E., Environmental Group Leader

Ardurra Group, Inc.

TBPELS Firm #10053

801 Navigation, Suite 300

Corpus Christi, Texas 78408

Table of Contents

STATE OF TEXAS
AMY REIN HESSELTINE
93578
LICENSED
PROFESSIONAL ENGINEER

8/3/22
Amy R Hesseltine
Firm No. 10053

Section 6—Applicant Certification and Signature

The applicant is the person or entity who would be the owner of the facility and in whose name the registration would be issued. If the application is signed by an authorized representative for the applicant, the applicant must complete the delegation of signature authority.

Certification by Applicant or Authorized Signatory [30 TAC §305.44]

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name of applicant, or other person authorized to sign: Sudhakara Yenumala

Title of person signing: Director

Signature: Y.S. Reddy Date: 8/3/2022

Notarization

SUBSCRIBED AND SWORN to before me by the said Y.S. Reddy - Sudhakara Yenumala

On this 3 day of August, 2022

My commission expires on the 15 day of Dec., 2025

Notary Public in and for

Cobb County, ~~Texas~~ Georgia

TOM BURY NOTARY EXPIRES GEORGIA December 15, 2025 PUBLIC COBB COUNTY

Applicant's Delegation of Signature Authority [30 TAC §305.43]

I hereby delegate the person named below as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and appear for me at any hearing or before the Commission in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative in support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

Name of applicant's representative: _____

Name of person who is the applicant, or officer or official representing corporation or public agency that is the applicant: _____

Signature: _____ Date: _____

Notarization

SUBSCRIBED AND SWORN to before me by the said _____

On this _____ day of _____, _____.

My commission expires on the _____ day of _____, _____.

_____

Notary Public in and for

_____ County, Texas

ATTACHMENT 4

LAND OWNERSHIP MAP AND

LAND OWNERSHIP LIST

LEGEND:

- 1/4–MILE OFFSET FROM FACILITY
- FACILITY
- 100 PROPERTY IDENTIFICATION

LAND OWNERSHIP MAP

SCALE: 1"=600'

0 600'

NOTES:

1. PROPERTY IDENTIFICATION NUMBERS CORRESPOND TO LANDOWNERS AS DESIGNATED ON LAND OWNERSHIP LIST.
2. MAP DERIVED FROM NUECES COUNTY APPRAISAL DISTRICT GIS MAPS https://corpus.maps.arcgis.com/apps/webappviewer/index.html?id=364701d357474326839d4099aa526473

STATE OF TEXAS
AMY REIN HESSELTINE
93578
LICENSED PROFESSIONAL ENGINEER
8/3/22

NATURE ENVIRONMENTAL & MARINE SERVICES
8713 ROOT STREET
CORPUS CHRISTI, TEXAS

LAND OWNERSHIP MAP
ATTACHMENT 4

ARDURRA
COLLABORATE. INNOVATE. CREATE.
801 Navigation Suite 300
Corpus Christi, Texas 78408
Phone: (361) 883-1984
www.Ardurra.com
Engineering License #F-10053
Ardurra Group, Inc.
Surveying Firm 10194688
Architectural Firm BR4160

DATE:	6/30/22
DRAWN BY:	TSH
CHECKED BY:	AH
APPROVED BY:	AH
JOB NO:	220101

REVISIONS		
8/3/22	1	1/4 MILE OFFSET
DATE	NO.	DESCRIPTION

LAND OWNERSHIP LIST

1. NATURE ENVIRONMENTAL & MARINE SERVICES LLC
   2002 TIMBERLOCH PL STE 200
   SPRING, TX 77380-1182

   No mineral right's owners identified on the Nueces County Appraisal District

2. RELATED INVESTORS LTD
   P O BOX 8229
   CORPUS CHRISTI, TX 78468-8229

3. VASQUEZ ELIZABETH A F
   3829 MACARTHUR ST
   CORPUS CHRISTI, TX 78416

4. GONZALES RICHARD JOSEPH
   534 EVERGREEN DR
   CORPUS CHRISTI, TX 78412-3140

5. SMITH JAMES S
   638 RANGER DR
   SANDIA, TX 78383

6. MILLER FLOYD TYSON III
   P O BOX 9063
   CORPUS CHRISTI, TX 78469

7. MOBLEY OFFICES LP
   PO BOX 176
   DEER PARK, TX 77536-0176

8. CETCO ENERGY SERVICES CO LLC
   2870 FORBS AVE
   HOFFMAN ESTATES, IL 60192-3702

9. FLOWSERVE US INC
   5215 N O CONNOR BLVD
   STE 2300
   IRVING, TX 75039-3726

10. RODRIGUEZ RODOLFO R AND
    SALLY A RODRIGUEZ
    PO BOX 506
    CORPUS CHRISTI, TX 78403

11. RANGELAND PRODUCTS TERMINALS LLC
    ATTN: ROBERT F SINGLETON
    2150 TOWN SQUARE PL STE 700
    SUGAR LAND, TX 77479-1465

12. HERNANDEZ MARIA T
2305 S GOODWIN RD
MISSION, TX 78572-2161

13. HOELSCHER KATHRYN TTEE OF THE HOELSCHER REV LIV TR
17003 ELLINGTON WAY
SAN ANTONIO, TX 78247-5948

14. ARANSAS DRILLING AND WORKOVER INC
130 GILLIAM RD
CORPUS CHRISTI, TX 78409

15. ISENSEE HUGO HENRY
C/O LUKE ISENSEE
506 E WILDWOOD DR
CORPUS CHRISTI, TX 78410-1729

ISENSEE LUKE OMAR
506 E WILDWOOD DR
CORPUS CHRISTI, TX 78410-1729

16. FERNANDEZ JULIO
3302 SHALLOW CREEK DR
CORPUS CHRISTI, TX 78410-5780

17. H L HINES OF ALL PRO TANK SERVICES INC
PO BOX 1050
REFUGIO, TX 78377-1050

18. ISENSEE GRADY M
746 PRINCESS
CORPUS CHRISTI, TX 78410

ISENSEE HUGO HENRY
C/O LUKE ISENSEE
506 E WILDWOOD DR
CORPUS CHRISTI, TX 78410-1729

ISENSEE LUKE OMAR
506 E WILDWOOD DR
CORPUS CHRISTI, TX 78410-1729

KILGORE CAROL ISENSEE & CHRISTOPHER HUGO ISENSEE
9025 AGNES ST UNIT A
CORPUS CHRISTI, TX 78406-1538

19. CITY OF CORPUS CHRISTI
PO BOX 9277
CORPUS CHRISTI, TX 78469-9277

20. SHEETS WILLIAM MICHAEL
PO BOX 9272
CORPUS CHRISTI, TX 78469-9272

REDLINE/STRIKEOUT COPY

LAND OWNERSHIP LIST

1. NATURE ENVIRONMENTAL & MARINE SERVICES LLC
   2002 TIMBERLOCH PL STE 200
   SPRING, TX 77380-1182

   No mineral right's owners identified on the Nueces County Appraisal District

2. RELATED INVESTORS LTD
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   CORPUS CHRISTI, TX 78468-8229

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    SALLY A RODRIGUEZ
    PO BOX 506
    CORPUS CHRISTI, TX 78403

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    ATTN: ROBERT F SINGLETON
    2150 TOWN SQUARE PL STE 700
    SUGAR LAND, TX 77479-1465

12. HERNANDEZ MARIA T
2305 S GOODWIN RD
MISSION, TX 78572-2161

13. HOELSCHER KATHRYN TTEE OF THE HOELSCHER REV LIV TR
17003 ELLINGTON WAY
SAN ANTONIO, TX 78247-5948

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130 GILLIAM RD
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KILGORE CAROL ISENSEE & CHRISTOPHER HUGO ISENSEE
9025 AGNES ST UNIT A
CORPUS CHRISTI, TX 78406-1538

19. CITY OF CORPUS CHRISTI
PO BOX 9277
CORPUS CHRISTI, TX 78469-9277

~~20. SC VALLE SERVICE DBA ARC DEMOLITION~~
~~PO BOX 12396~~
~~ODESSA, TX 79768-2396~~

~~21. R ROBERTS CONSTRUCTION LTD~~
~~PO BOX 2770~~
~~PORT ARANSAS, TX 78373-2770~~

~~22. ISENSEE GRADY M~~
~~746 PRINCESS~~
~~CORPUS CHRISTI, TX 78410~~

~~23.~~20. SHEETS WILLIAM MICHAEL
PO BOX 9272
CORPUS CHRISTI, TX 78469-9272

~~24. PAVELKA DOROTHY TRUST~~
~~JOYCE DANYSH & WYLMA AVANT TRUSTEES~~
~~2578 COUNTY ROAD 36~~
~~ROBSTOWN, TX 78380-5746~~

~~25. POLK DENNIS LEE~~
~~726 N CLARKWOOD RD~~
~~CORPUS CHRISTI, TX 78409-3304~~

ARDURRA
COLLABORATE. INNOVATE. CREATE.

October 13, 2022

Danuel Gonzalez
Project Manager
Municipal Solid Waste Section
Texas Commission on Environmental Quality
12100 Park 35 Circle
Austin, Texas 78753

RE: Response to Technical Review Notice of Deficiency (Tech-Review 1)
Nature Environmental & Marine Services
Corpus Christi, Nueces County, Texas
Municipal Solid Waste – Registration No. 40332
RN105939763 / CN604652479 / Tracking No. 27741358

This letter is provided on behalf of Nature Environmental & Marine Services (Nature) in response to the TCEQ's September 23, 2022 Notice of Deficiency (Tech-Review 1) email for the above referenced registration application. The table below summarizes the revisions to the application in response to the TCEQ NOD Letter:

NOD ID	Application Part, Section, Page Number	NOD Description	NOD Resolution
1	Section 2, Subsection. 2.2 (pg. 9) & Attachment 9	Provide letter response from TXDOT.	A response letter was received from TxDOT on October 4, 2022. A copy of the letter is included with this submittal as Attachment 9.
2	Section 2 Subsection 2.3 (pg. 10)	Revise the attachment number from Att. 9 to Att. 10.	The reference to Attachment 9 was revised to correctly reference Attachment 10.
3	Section 2, Subsection 2.4 (pg. 10) & Attachment 2	a. Autoclave in current location does not have a 25-ft buffer. Revise facility layout as necessary to ensure a 25-foot buffer for the autoclave.	a. It is not practicable to maintain a 25 ft buffer due to the location of existing structures, as well as tanks and storage areas for active operations at the facility. §326.71(h)(3) states that the executive director may consider alternatives to the buffer zone requirements if owner/ operator demonstrates that buffer zone is not feasible and affords ready access for emergency response and maintenance. This demonstration is provided in Section 2, Subsection 2.4 of the initial application submittal. (*continued on next page*)

NOD ID	Application Part, Section, Page Number	NOD Description	NOD Resolution
3	Section 2, Subsection 2.4 (pg. 10) & Attachment 2	b. Confirm that the "Non-Medical Waste" Storage does not mean "treated medical waste" or describe the materials being stored in the Non-Medical Waste Storage. c. Update attach. 2 to reflect the new location of the autoclave.	An alternative buffer of 10 ft is requested between the Waste Processing Building and the western property boundary and coincides with the location of the building. The request for an alternative buffer coinciding with existing building walls is consistent with alterative buffers granted by the ED for other medical waste management facilities in Texas. b. Materials stored in the "Non-Medical Waste" Storage includes tools, empty drums, and empty totes. The site layout plan was updated to add this information. Treated medical waste will not be stored in the area labeled "Non-Medical Waste". c. The autoclave is existing and the location will remain as shown on Attachment 2.
4	Section 2, Subsection 2.5, Table 3 (pg. 11-12)	a. Revise Table 3 to indicate the autoclaves processing capacity per cycle time. Add all applicable Waste Management Units, i.e., refrigerated trailers, wastewater tank, washer, etc. Revise the attachment number from Att. 17 to Att. 16. b. Explain how spills will be treated in the processing unit.	a. Table 3 was revised to include the autoclave's processing capacity per cycle time (lbs/hr) and to add other waste management units as requested. The reference to Attachment 17 was revised to correctly reference Attachment 16. b. The following text was added to Contaminated Water Management section in Section 2, Subsection 2.5 to explain how spills will be treated in the processing unit: Absorbent materials such as towels used to clean up spills will be treated as medical waste and placed into the processing unit for treatment.

NOD ID	Application Part, Section, Page Number	NOD Description	NOD Resolution
5	Section 4, Subsection 4.1 (pg. 15-16)	a. Clarify the waste screening training provided to employees. b. Describe the duration that prohibited waste will be stored.	a. The following text was added to Subsection 4.1 to clarify that employees will be provided waste screening training: Employees responsible for inspecting and observing loads will be trained to recongnize prohibited waste. Procedures used to identify prohibited waste include random inspections of packaging and accompanying manifests/shipping doucments, knowledge of container packaging and labels, and questioning transporter as to the origin of the waste. All training records and inspection records will be maintained at the site. b. If prohibited waste is detected, the generator will be notified immediately. If temporary storage is necessary, the prohibited waste will be stored up to 72 hours. Subsection 4.1 was updated to state that prohibited waste will be stored up to 72 hours.
6	Section 4, Subsection 4.2 (pg. 16-17)	a. Remove “cruise lines” from the sources of waste streams as this is unrelated to the medical waste registration. b. Clarify that medical waste will not be commingled with other waste streams. c. Revise the medical waste defining statement to be in accordance with the language in the 30 TAC 326.3(23).	a. Nature provides waste removal services to cruise lines and will accept medical waste from medical clinics on-board cruise ships. Since other health care related facilities encompasses this source, the specific reference to cruise lines was deleted from Subsection 4.2 as requested. b. Subsection 4.2 was revised to include the following text: Medical waste will not be commingled with these other waste streams. However, shipments of untreated medical waste, properly containerized APHIS regulated garbage, and non-hazardous pharmaceutical waste may be commingled during transport to the facility per §326.53(b)(12). Once received at the facility, these waste streams will be managed separately. c. Subsection 4.2 was revised to define medical waste in accordance with the language in the 30 TAC 326.3(23).

NOD ID	Application Part, Section, Page Number	NOD Description	NOD Resolution
6	Section 4, Subsection 4.2 (pg. 16-17)	d. Omit any mention of “biohazardous” and “putrescible” as this is unrelated to the medical waste registration.	d. 30 TAC 326.3(42) provides a definition for putrescible medical waste. 30 TAC 326.71(i)(5) addresses storage requirements for putrescible and biohazardous untreated medical waste held longer than 72 hours. The language in Subsection 4.2 replicates §326.71(i)(5) and was not removed.
7	Section 4, Subsection 4.3 (pg. 17-18)	Describe how condensed liquid from the autoclave will be collected and managed.	Condensate from autoclave process is drained through piping to a sump and then into the on-site above ground sanitary water holding tank. Text was added to Subsection 4.3 to describe the collection.
8	Section 4, Subsection 4.4 (pg. 18) & Attachment 2	Fencing is required around the entire facility. Update site layout map to show that fencing is around the entirety of the facility.	Access to the facility is controlled by fencing and building walls. Fencing is provided around the entire facility with the exception of the west and north sides of the Medical Waste Processing Building where the building itself provides access control. Subsection 4.4 states that access along the west side of the facility is controlled by a six-foot-high chain-link fence and the building. Attachment 2 (Facility Access and Layout Map) reflects this. No changes were made to Attachment 2 in response to this comment.
9	Section 4, Subsection 4.5 (pg. 19)	Provide justification for working hours outside of 7 am to 7 pm M-F; remove second paragraph if not part of your justification.	Due to the workload of Nature’s core business/existing services separate from medical waste processing, the facility operates 24 hours per day, 7 days per week. Medical waste processing and transfer operations will coincide with their existing operating hours which are 24 hours per day, 7 days per week. The second paragraph Subsection 4.5 was revised to provide more concise justification.
10	Section 5, Subsection 5.1 (pg. 20)	a. Describe the storage operations in more detail to ensure compliance with 326.75(d).	a. Additional details were added to Subsection 5.1 to show storage operations will comply 326.75(d).

NOD ID	Application Part, Section, Page Number	NOD Description	NOD Resolution
10	Section 5, Subsection 5.1 (pg. 20)	b. Omit information unrelated to the medical waste registration. c. Ensure that the medical waste will not be commingled with other waste streams.	b. Information unrelated to the medical waste registration was deleted from Subsection 5.1. c. The following text was added to Subsection 5.1: Medical waste will not be commingled with other waste streams at the facility. Medical waste is stored and processed separately from other waste streams managed at the facility.
11	Section 5, Subsection 5.2 (pg. 20-21)	Address rule citation 326.75(e)(3) on pages 20-21 (Subsec. 5.2).	Text was added to Subsection 5.2 to address 326.75(e)(3) related to signatories to reports.
12	Section 5, Subsection 5.5 (pg. 22)	Remove any mention of incineration because incineration is not part of the facility's treatment processes.	Mention of incineration was removed from Subsection 5.5.
13	Section 5, Subsection 5.8 (pg. 22)	Address the frequency of the routine inspections; ensure that routine inspections, at minimum, are completed daily.	Subsection 5.8 was updated to state that routine inspections will be done daily.
14	Section 5, Subsection 5.9 (pg. 23)	a. Describe the coordination with local authorities of maintenance of access roads not owned by the owner or operator. b. Describe the actions that will be taken if potholes, depressions, or ruts occur within the facility access roads maintained by the owner or operator.	a. A coordination letter was submitted the TxDOT Area Engineer. Public roadway improvements (such as turning lanes) are not proposed. Therefore, coordination with the local authority is not required at this time. If maintenance of an off-site public access road serving the facility becomes necessary in the future, Nature will coordinate with the appropriate agency with maintenance authority. Subsection 5.9 was revised to include text regarding coordination with appropriate agency for maintenance. b. Text was added to Subsection 5.9 to state that significant potholes, depressions, or ruts on access roads within the facility boundaries will be repaired.

NOD ID	Application Part, Section, Page Number	NOD Description	NOD Resolution
15	Section 5, Subsection 5.10 (pg. 23)	a. Provide more information on how noise pollution will be reduced and contained. b. Describe what measures will be used for visual screening.	Waste processing operations are conducted inside the building. The building walls reduce noise pollution and provide visual screening. During truck to truck transfer operations, the trucks are parked end to end to provide visual screening and minimize noise pollution. These details were added to Subsection 5.10.
16	Section 5, Subsection 5.12 (pg. 23) & Attachment 2	a. Provide sanitary facilities on Facility Layout Map. b. Explain how spilled material will be treated in the onsite autoclave. c. Include a statement stating that an EPA approved disinfectant will be used for clean-ups (as mentioned in attachment 19). d. Describe the disinfection procedures to be used for all surfaces that may come into contact with untreated medical waste in the event of a spill. e. Describe how wash water will be collected, managed, and disposed of.	a. Sanitary facilities were added to the Facility Layout Map. Restrooms are located in the office area and a sink is located along the southern wall of the Waste Processing Building. b. In the event of a spill, the waste and respective clean-up materials will be collected, packaged, and managed as untreated medical waste and treated in the onsite autoclave. Subsection 5.12 was revised to clarify. c. Subsection 5.12 was revised to state that spills are cleaned up with an EPA approved disinfectant. d. Subsection 5.12 was revised to state that surfaces that come into contact with waste are washed down and disinfected with an EPA approved disinfectant. e. Subsection 5.12 was revised to include a description of how wash water will be collected, managed, and disposed of.
17	Section 5, Subsection 5.15 (pg. 24)	Address rule citations 326.75(r)(2)(3) & (5) on page 24 (Subsec. 5.15).	Subsection 5.15 was revised to address rule citations §326.75(r)(2)(3) & (5)

NOD ID	Application Part, Section, Page Number	NOD Description	NOD Resolution
18	Attachment 5	a. Provide an updated Metes and Bounds survey drawing and description. b. Provide a stamp from registered professional land surveyor.	a. An updated Metes and Bounds drawing and description are provided to replace the survey drawing submitted in Attachment 5 of the initial application. b. The metes and bounds is signed and sealed by a registered professional land surveyor.
19	Attachment 7	Revise attachment to include a more detailed written procedure for the operation and testing of treatment equipment.	Attachment 7 was revised to provide more details for testing procedures and to reference Attachment 16 for operation procedures. Attachment 16 contains a document titled *Installation, Operating, and Maintenance Instructions for The Mark-Castello Company Biomedical Waste Steam Sterilizer AS-Series Gravity Displacement Units.* This document provides details for sterilizer operation (p 16) and testing/validation (p. 18).
20	Attachment 16	Update attachment 16 to include new units/equipment added to Table 3, Sec. 2.5.	Attachment 16 was updated to include standard specifications for a typical refrigerated trailer, pressure washer for container washing, and poly tank. A foreword page was added to Attachment 16 to state the following: This attachment provides specifications for waste management units intended to be installed and operated at the facility. Specifications are considered typical. Actual manufacturer and dimensions may vary from specifications provided in this attachment, but the equipment will be similar in size and capacity.
NA	Section 1, Subsections 1.1 and 1.2 (pg 3)	NA	The applicant's contract in Section 1 was changed from Ryan Freeman, Controller to James Lemos, Operations Manager.

The following replacement pages are included with this response:

- Binder Cover
- Application Form - TCEQ-20789, Cover Page (page 1) and Table of Contents (page 2)
- Application Form - TCEQ-20789, pages 3, 10-13 and 16-25
- Application Form - TCEQ-20789, page 26, Section 6 – Applicant Certification and Signature
- Attachment 2, Facility Access and Layout Map
    - Revised Facility Access and Layout Map

- Attachment 5, Metes and Bounds Drawing and Description
  - Updated Metes and Bounds Drawing and Description
- Attachment 7, Procedures for Operation and Testing of Treatment Equipment
  - Revised page 1
- Attachment 9, TxDOT Coordination Letter
  - Coordination letter received from TxDOT
- Attachment 16, Manufacturer Specifications for Waste Management Units
  - New page 1
  - Specifications for typical standard refrigerated tractor trailer, sanitary water holding tank, and trailer mounted pressure washer

Each replacement page contains a revision date. An original, one unmarked copy, and one marked copy of the revised pages are enclosed. One unmarked and one marked copy will be sent to the Region 14 office and placed at the library designated in the application. A copy will also be posted on the website listed in the application. If you have any questions regarding this NOD response or require any additional information, please feel free to contact me at (361) 883-1984 or ahesseltine@ardurra.com.

Sincerely,

Amy R Hesseltine

Amy Hesseltine, P.E.
Environmental Group Leader

Enclosures

cc: Sudhakar Yenumala, Nature Environmental & Marine Services
Tim Perdue, TCEQ Region Office 14

APPLICATION FOR MEDICAL WASTE REGISTRATION

Prepared for:

NATURE ENVIRONMENTAL & MARINE SERVICES, LLC
8713 ROOT STREET
CORPUS CHRISTI, NUECES COUNTY, TEXAS

TCEQ MSW REGISTRATION NO. 40332

Prepared by:

ARDURRA
COLLABORATE. INNOVATE. CREATE.

Engineering License #F-10053
801 Navigation, Suite 300
Corpus Christi, TX 78408
(361) 883-1984

Initial Application Submittal Date: 06/30/2022
Prelim-Review 1: 08/03/2022
Tech-Review 1: 10/13/2022

Texas Commission on Environmental Quality

Application for a Medical Waste Registration

Nature Environmental & Marine Services LLC

Registration No. 40332

Corpus Christi, Nueces County, Texas

June 2022

Prelim-Review 1 (August 2022)

Tech-Review 1 (October 2022)

Prepared for:

Nature Environmental & Marine Services LLC

8713 Root Street

Corpus Christi, TX 78409

Prepared by:

Amy Hesseltine, P.E., Environmental Group Leader

Ardurra Group, Inc.

Engineering License #F-10053

801 Navigation, Suite 300

Corpus Christi, Texas 78408

10/13/22

Amy R Hesseltine

Table of Contents

10/13/22
Amy R Hesseltine

Section 1—General Information

1.1 Facility Information (must match regulated entity information on Core Data Form)

Facility Name: Nature Environmental & Marine Services LLC

Regulated Entity Reference No. (if issued): RN105939763

Physical or Street Address (if available): 8713 Root Street

City: Corpus Christi County: Nueces State: TX Zip Code: 78409

(Area Code) Telephone Number: 361-654-3088

Email Address: medicalpermit@natureenviro.com

Latitude (Degrees, Minutes, Seconds, or Decimal Degrees): 27.790394°

Longitude (Degree, Minutes, Seconds, or Decimal Degrees): -97.534302°

Activities Conducted at the Facility (check all that apply)

☒ Storage ☒ Treatment ☒ Transfer ☐ Other: _____

Describe the location of the facility with respect to known or easily identifiable landmarks:

Facility is located three miles west-northwest of the Corpus Christi International Airport in the southwest quadrant of the intersection of Root Street and Gilliam Street.

Detail access routes from the nearest United States or state highway to the facility:
Due west on TX-44, exit Agnes Street towards Manning Rd, turn right on Agnes St, turn right onto North Clarkwood Road, turn right onto Root Street, location in on right side

1.2 Applicant Information

The owner of a facility is the applicant, to whom the registration would be issued.

Owner of Facility (must match customer information on Core Data Form)

Owner Name: Nature Envrionmental & Marine Services LLC

Contact Person's Name: James Lemos Title: Operations Manager

Customer Reference No. (if issued): CN604652479

Mailing Address: 18511 Beaumont Highway

City: Houston County: Harris State: TX Zip Code: 77049

(Area Code) Telephone Number: (832) 770-7952

Email Address: medicalpermit@natureenviro.com

2.3 Floodplain and Wetlands [30 TAC §326.71(f)]

Will the facility be located within a 100-year floodplain?

No ☒ Yes ☐ Identify the floodplain zone Zone X – Areas determined to be outside the 0.2% (500 yr) annual change floodplain.

Attach a copy of the Federal Emergency Management Administration administrator (FEMA) flood map for the area. See Attachment 10 for FEMA Map (Map Number 48355C0300G, Effective Date: Preliminary October 23, 2015). Map obtained from the City of Corpus Christi website (www.cctexas.com/floodplainmanagement/floodmaps).

Zone X is not in the 100-year floodplain. Therefore, additional documentation is not required. The facility will be constructed, maintained, and operated to manage run-on and run-off during the peak discharge of a 25-year rainfall event and will prevent the off-site discharge of waste. Surface water drainage in and around the facility will be controlled to minimize surface water running onto, into, and off the storage and transfer areas.

The facility has an active authorization (TXR05CS14) under the 2021 Multi-Sector General Permit (MSGP) to discharge storm water.

If the facility will be within a 100-year floodplain, attach documentation demonstrating that the facility is designed and will be operated in a manner to prevent washout of waste during a 100-year storm event, or that the facility has obtained a conditional letter of map amendment from the FEMA.

Will the facility be located in wetlands?

Yes ☐ No ☒

If yes, attach documentation to the extent required under Clean Water Act, §404 or applicable state wetlands laws.

2.4 Buffer Zones and Easement Protection [30 TAC §326.71(h)(3)]

Is the buffer zone in any location at the facility less than 25 feet wide?

Yes ☒ No ☐

If yes, describe your alternative buffer zone and how it will allow access for emergency response and maintenance (attach additional pages to answer this question if necessary):

It is not practicable to maintain a 25 ft buffer due to the location of existing structures, as well as tanks and storage areas for active operations at the facility associated with maritime waste, USDA/APHIS waste, used oil (Registration No. A86098), and industrial and hazardous waste (SWR No. 88576).

Where buildings are located, the alternative buffer will coincide with the distance between the boundary and building walls which is approximately 5 to 10 ft on the west and 15 ft on the north. The portion of the northern boundary where the building is not located and along the eastern boundary, an alternative buffer of 10 ft will be maintained. An alternative buffer of 5 ft will be maintained along the southern boundary. Refer to Attachment 2, Facility Access and Layout Plan, for locations and widths of alternative buffers.

The alterative buffers do not impose additional limitations to access for emergency response. Unimpeded access to the building is provided on the north side via Root Street and on the west side via an unobstructed easement. Sliding gates on the north and east property boundaries provide access into the fenced area. Buildings, tanks, and storage

areas are along the perimeter of the facility leaving open access through the center of the facility. Access to the inside of the waste processing building for emergency response is provided by roll up doors on the east side of the structure and a standard door on the north side. The alterative buffers do not impose additional limitations to access for maintenance. Maintenance may include grading of the gravel yard, repairs to fences, and repairs to building. These maintenance activities can be completed regardless of the buffer zones. Vehicles and dumpsters can be relocated as needed to allow maintenance activities to be completed.

No loading/unloading, transfer, or storage of medical waste will occur within any easement, buffer zone or right-of-way crossing the registration boundary.

2.5 Waste Management Unit Designs [30 TAC §326.71(i)]

Waste Management Unit Details

List each waste management unit in Table 3. Include attachments documenting manufacturer specifications. **The type of units listed below are manufactured by an array of companies to meet industry standards. Specifications provided are considered typical. Actual manufacturer and dimensions may vary from specifications provided in this attachment, but the equipment will be similar in size and capacity.**

Table 3. Design Details and Manufacturer Specifications for Waste Management Units.

Unit Type	Minimum Number of Units	Design Details	Approximate Dimensions	Approximate Capacity per Unit
Gravity Autoclave	1	See Attachment 16	5 ft diameter x 15 ft long	1,125 lbs/hr
Boiler	1	See Attachment 16	165" x 68" x 80"	150 hp
Cart Dumper	1	See Attachment 16	91" x 75" x 76"	Up to 5,000 lbs
Cart Tipper	1	See Attachment 16	48" x 75" x 40"	Up to 5,000 lbs
Floor Scale	1	See Attachment 16	48"x 75" x 40"	2,500 lbs
Compactor	1	See Attachment 16	48" x 300" x 104"	Up to 40 cubic yards
Refrigerated Tractor Trailer (or equivalent)	1	See Attachment 16 for typical standard freight trailer	Length: 24- 53 ft Width: 8.5 ft Height: 8 ft	Cargo Weight: 22,000 lbs to 45,000 lbs per load
Sanitary Water Holding Tank	1	Above Grade Poly Tank See Attachment 16	8 ft diameter x 7.5” ft tall	2,600 gallons
Trailer Mounted Pressure Washer for Container Washing	1	See Attachment 16 for typical standard pressure washer	182” x 72”	8 gal/min 500 gallon water holding tank

Foundations and Supports

Provide a generalized description of construction materials for slab and subsurface supports of all storage and processing components (attach additional pages to answer this question if necessary):

Medical waste processing, transfer, and storage will be conducted inside an existing building supported on a concrete, slab-on-grade foundation capable of supporting the building and the waste processing and storage units. Waste processing equipment will be installed on the existing building foundation. No additional foundation reinforcement will be required to support the equipment.

Contaminated Water Management

Describe how storage and processing areas will be designed to control and contain spills and prevent contaminated water from leaving the facility. For unenclosed containment areas, also account for precipitation from a 25-year, 24-hour storm (attach additional pages to answer this question if necessary):

Waste processing units will be located in the enclosed waste processing building. Untreated waste will be stored inside the enclosed waste processing building or inside fully enclosed transportation unit(s). Treated waste will be stored in covered compactor(s) and/or roll-off(s). Since waste is under cover, contaminated water resulting from precipitation in contact with untreated medical waste, if any, will be minimal. The building and the transportation units are capable of controlling and containing worst case spills or releases and prevent contaminated water from leaving the facility.

Liquids generated during waste processing, container washing, and routine cleaning will be controlled and contained to prevent spills and to prevent contaminated water from leaving the facility. Any spills will be immediately contained, collected, and placed into the processing unit or discharged to the onsite sanitary water holding tank. This liquid waste is then transported to Delta Water Processing LLC (TCEQ RN110477700). Tools that may be used to contain and collect spills include absorbent materials, mop, bucket, and/or broom. Absorbent materials such as towels used to clean up spills will be treated as medical waste and placed into the processing unit for treatment.

Storage of medical waste will be in a secure manner and location that affords protection from theft, vandalism, inadvertent human or animal exposure, rain, water, and wind. The waste will be managed so as not to provide a breeding place or food for insects or rodents, and not generate noxious odors.

An Operations Plan and Spill Containment is provided in Attachment 19.

2.6 Treatment Requirements [30 TAC §326.71(j)]

Attach a written procedure for the operation and testing of any equipment used, and for thepreparation of any chemicals used in treatment.

See Attachment 7.

Section 3—Facility Closure

3.1 Closure Plan [30 TAC §326.71(k)]

The operator must comply with the closure requirements listed in 30 TAC §326.71(k).

List other activities that the facility will conduct during closure, if any (attach additional pages to answer this question if necessary):

Upon closure, the owner or operator will remove all waste, waste residue, and any recovered materials. The owner or operator will transport all untreated medical waste to a TCEQ authorized facility. Final disposition of treated medical waste will be at an authorized facility. All waste management units will be disinfected and removed off-site. Waste receiving and storage areas will be disinfected. Closure of the facility must be completed within 180 days following last acceptance of processed or unprocessed materials unless otherwise directed or approved in writing by the executive director.

No later than 90 days prior to the initiation of final facility closure, the owner or operator will, through a public notice in the newspaper(s) of largest circulation in the vicinity of the facility, provide public notice for final facility closure. This notice will provide the name, address, and physical location of the facility; the registration number; and the last date of intended receipt of waste. The owner or operator will also make available an adequate number of copies of the approved final closure plan for public access and review. The owner or operator will also provide written notification to the executive director of the intent to close the facility and place the notice of intent in the site operating record.

Upon notification to the executive director of the intent to close the site, the owner or operator will post a minimum of one sign at the main entrance and all other frequently used points of access for the facility notifying all persons who may utilize the facility or site of the date of closing for the entire facility or site and the prohibition against further receipt of waste materials after the stated date. Further, suitable barriers will be installed at all gates or access points to adequately prevent the unauthorized dumping of solid waste at the closed facility.

Within 10 days after completion of final closure activities of the facility, the owner or operator shall submit to the executive director by registered mail a certification, signed by an independent licensed professional engineer, verifying final closure has been completed in accordance with the approved closure plan. The submittal to the executive director will include all applicable documentation necessary for the certification of final facility closure. Upon closure of the facility, the owner or operator will request a voluntary revocation of the registration.

3.2 Closure Cost Estimate [30 TAC §326.71(m)]

Provide itemized closure cost estimates in Table 4. The cost estimates must meet the requirements listed in 30 TAC §326.71(m).

Attach documents detailing any additional unit closure costs not itemized. Enter the total of those additional unit closure costs on line 13 of the closure cost worksheet in Table 4.

An increase in the closure cost estimate and the amount of financial assurance provided must be made if changes to the facility conditions increase the maximum cost of closure at any time during the active life of the facility. A reduction in the cost estimate and the financial assurance must be considered a modification and the owner or operator shall provide a detailed justification for the reduction of the closure cost estimate and the amount of financial assurance.

A reduction in the closure cost estimate and the amount of financial assurance may be approved if the cost estimate exceeds the maximum cost of closure during any time during the operation of the facility.

Note that regulations prohibit opening bags or containers of medical waste. However, the facility will employ random visual inspection of packaging when the transport containers are opened to make sure they are properly labeled, identified as to contents and with the corresponding required paperwork. Employees responsible for inspecting and observing loads will be trained to recongnize prohibited waste. Procedures used to identify prohibited waste include random inspections of packaging and accompanying manifests/shipping doucments, knowledge of container packaging and labels, and questioning transporter as to the origin of the waste. All training records and inspection records will be maintained at the site.

The contract with the customer (generator) contains a clause pertaining to unauthorized disposal of waste considered non-conforming or outside the scope of regulated medical waste. The generator must sign this contract. A Waste Acceptance Protocol that outlines the laws and regulations concerning the identification, packaging, transportation, treatment, and disposal of regulated medical waste is provided to each customer (generator). In the event any non-conforming waste is received from the generator Nature Environmental & Marine Services, LLC will contact the generator immediately so the unauthorized material can be returned to generator or other approved site on approval of generator for proper disposal. Unauthorized waste will be stored in a designated area until appropriate arrangements are authorized by the generator. Prohibited waste will be stored up to 72 hours.

Ongoing training, along with a review of customer records, is provided to customers on an as needed basis to ensure compliance with all applicable laws and regulations to ensure proper management of medical waste and protect against unauthorized disposal.

4.2 Waste Acceptance [30 TAC §326.75(b)]

Describe all sources and characteristics of medical wastes to be received for storage and processing or disposal (attach additional pages to answer this question if necessary):

Sources of waste streams include hospitals, clinics, nursing homes, other health care related facilities, and/or any generator of regulated medical waste. Regulated medical waste will be received in approved Federal and State required packaging accompanied by a manifest.

The facility will receive, transfer, store, and process medical waste as defined in §326.3(23), non-hazardous pharmaceuticals and trace chemotherapeutic waste. §326.3(23) defines medical waste as treated and untreated special waste from health care-related facilities that is comprised of animal waste, bulk blood, bulk human blood, bulk human body fluids, microbiological waste, pathological waste, and sharps as those terms are defined in 25 TAC §1.132 (relating to Definitions).

Although not considered medical waste in Texas, “Pharmaceutical” means a prescription or over-the-counter human or veterinary drug, including, but not limited to, a drug as defined in Section 109925 of the Federal Food, Drug, and Cosmetic Act, as amended, (21 U.S.C.A. Sec. 321(g)(1)). For purposes of this part, “pharmaceutical” does not include any pharmaceutical that is regulated pursuant to either of the following: The federal Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C.A. Sec. 6901 et seq.). “Trace chemotherapeutic waste” means waste that is contaminated through contact with, or having previously contained, chemotherapeutic agents, including, but not limited to, gloves, disposable gowns, towels, and intravenous solution bags and attached tubing that are empty. These non medical waste items may be received from time to time and transferred.

The medical waste operations for Nature Environmental & Marines Services, LLC will be co-located at Nature’s existing facility in Corpus Christi. The existing facility accepts waste for

active operations associated with maritime waste, USDA/APHIS waste, used oil (Registration No. A86098), and industrial and hazardous waste (SWR No. 88576). Medical waste will be stored and managed separately from the other waste streams. Medical waste will not be commingled with these other waste streams. However, shipments of untreated medical waste, properly containerized APHIS regulated garbage, and non-hazardous pharmaceutical waste may be commingled during transport to the facility per §326.53(b)(12). Once received at the facility, these waste streams will be managed separately.

Describe the sources and characteristics of recyclable materials, if applicable, to be received for storage and processing (attach additional pages to answer this question if necessary):

No recycling operations are employed at this location for regulated medical waste. The facility may wash empty plastic containers to be returned to generators for reuse.

Maximum amount of waste to be received daily: 50,000 ☒ pounds/day ☐ tons /day

Maximum amount of waste to be stored at any point in time: 100,000 ☒ pounds

Maximum length of time waste is to remain at the facility: 30 ☐ hours ☒ days

Specify the maximum time that unprocessed and processed wastes will be allowed to remain on-site:

Processed: 10 days

Unprocessed: 30 ☐ hours ☒ days

Identify the intended disposition of processed and unprocessed waste received at the facility(attach additional pages to answer this question if necessary):

Untreated medical waste will be managed in accordance with 25 TAC Subchapter K and 30 TAC Chapter 326. Untreated medical waste may be temporarily stored at the facility unrefrigerated for up to 72 hours after receipt at the facility. Putrescible or biohazardous untreated medical waste held longer than 72 hours after receipt at the facility will be stored at a temperature of 45 degrees Fahrenheit or less.

Once treated in the autoclave unit(s), the steam sterilized waste will be placed in covered compactor/roll-off container(s) for transport and disposal at an approved landfill in accordance with 25 TAC §1.136 and 30 TAC §326.75(r).

4.3 Generated Waste [30 TAC §326.75(c)]

Describe how all liquids and solid waste resulting from the facility operations will be disposed of in a manner that will not cause surface water and groundwater pollution (attach additional pages to answer this question if necessary):

All liquids resulting from the facility operations will be generated inside the waste processing building with impervious concrete flooring and will be disposed of in a manner that will not cause surface water or groundwater pollution. Liquids generated during waste processing, washing, and routine cleaning will be controlled, collected, and channeled directly to the sump and then into the onsite sanitary water holding tank. Condensate from autoclave process is drained through piping to the sump and then to the holding tank. Liquids in the tank are then transported to Delta Water Processing LLC (TCEQ RN110477700).

No contaminated water will be discharged off-site without specific written authorization under the Texas Pollutant Discharge Elimination System (TPDES) authority. All necessary authorizations and approvals will be obtained and retained within the operating record at the site. If applicable, the owner/operator will provide a copy of the authorization to

discharge wastewater to a treatment facility permitted under Texas Water Code, Chapter 26.

Solid wastes generated by the facility are characterized as municipal solid waste. Municipal solid wastes generated by the facility can be adequately managed by MSW landfills permitted by the TCEQ. MSW will be stored in covered roll-off prior to transport to the landfill for disposal. Since waste will be stored under cover, contaminated water resulting from contact with waste is not anticipated.

4.4 Access Control [30 TAC §326.75(g)]

Describe how public access to the facility will be controlled (attach additional pages to answer this question if necessary):

The facility surrounded by barbed wire topped chain-link perimeter fencing and an electronic entrance gate controlled with a keypad/remote. The entrance gate is closed 24 hours per day.

Access to the facility is controlled by a six-foot-high chain-link fence topped with barbed wire along the north, east, and south sides of the facility. Access along the west side of the facility is controlled by a six-foot-high chain-link fence and the building. Building walls and lockable doors control access to the waste processing building where waste processing and storage occurs. Untreated waste may also be stored in enclosed, lockable transport vehicles.

Visitors are required to sign-in with identification and have an escort at all times.

Describe how access roads and parking areas will be maintained to control dust and prevent mud from being track off-site (attach additional pages to answer this question if necessary):

Public roads used by transport vehicles to access the facility are paved; no dust or mud is anticipated from paved roads.

Any loose gravel at the facility can be sprayed down to eliminate dust at the time transport vehicles are arriving or exiting the facility. Within the facility, a standard garden hose connected to an on-site water source may be sufficient to apply water.

The facility has a concrete paved two-lane entrance, designed for the expected traffic flow. Adequate turning radii for transport vehicles that will utilize the facility is available to avoid disruption of normal traffic patterns. Parking for transport vehicles is provided within the fenced area of the facility. Employee and visitor parking is provided on the north side of the building. Incoming waste will be off loaded directly into the building or into another transfer vehicle/trailer. Safety bumpers will be provided at hoppers, if used at that facility.

Access to the facility will be controlled by a perimeter fence, with lockable gates. Identify or describe the type of fence that will be installed at the facility:

☐ A four-foot-high barbed wire fence;

☒ A six-foot-high chain-link fence; and/or

☒ Other: Building Walls

4.5 Operating Hours [(30 TAC §326.75(i)]

Provide the operating hours of the facility; ***include justification for hours outside of 7:00 a.m. to 7:00 p.m., Monday through Friday***:

Waste acceptance and transfer hours for waste transportation vehicles is 24 hours a day, seven days a week. Waste processing hours is 24 hours per day, seven days per week. The facility may conduct operations for maintenance and housekeeping, as needed, 24 hours per day, seven days per week. Additional operating hours outside of 7 am to 7 pm, Monday through Friday are necessary to accommodate customer and business needs.

Due to the workload of Nature's existing core business, operating hours at the facility are 24 hours per day, 7 days per week. Core business services include the collection and disposal of maritime waste and collection and treatment of USDA and APHIS regulated garbage. Medical waste transfer and processing will be conducted during the same hours as the core business services which is 24 hours per day, seven days per week.

List the alternative operating hours, if any, of up to five days in a calendar-year period:

The need for alterative operating hours for special occasions, special purpose events, holidays, or other special occurrences is not anticipated.

Section 5—Other Site Operating Plan, Financial Assurance, and Closure Requirements

Attach additional pages describing how the facility will comply with the following requirements.

- 30 TAC §326.75(d), Storage
- 30 TAC §326.75(e), Recordkeeping and Reporting
- 30 TAC §326.75(f), Fire protection Plan
- 30 TAC §326.75(g)(2), Access Roads, Vehicle Parking, and Safety Measures
- 30 TAC §326.75(g), Access Control
- 30 TAC §326.75(h), Unloading of Waste
- 30 TAC §326.75(i)(3), Recording of Applicable Alternative Hours (if used)
- 30 TAC §326.75(j), Signs at Facility Entrances
- 30 TAC §326.75(k), Control of Windblown Material and Litter
- 30 TAC §326.75(l), Facility Access Roads
- 30 TAC §326.75(m), Noise Pollution and Visual Screening
- 30 TAC §326.75(n), Overloading and Breakdown
- 30 TAC §326.75(o), Sanitation
- 30 TAC §326.75(p), Ventilation and Air Pollution Control
- 30 TAC §326.75(q), Health and Safety
- 30 TAC 326.75(r), Disposal of Treated Medical Waste (if applicable)
- 30 TAC §326.71(n); Financial Assurance
- 30 TAC §326.71(l)(1); provide notice for final facility closure and information for the public andexecutive director no later than 90 days prior to initiating final closure.

- 30 TAC §326.71(l)(2); install signs and barriers upon notification of final closure to the executive director.
- 30 TAC §326.71(l)(3); provide certification of closure, and a request for voluntary revocation of facility registration within 10 days after completion of final closure of the facility.

See sections 5.1 to 5.17 on pages 20 to 24 for Other Site Operating Plan, Financial Assurance, and Closure Requirements.

5.1 Storage (30 TAC §326.75(d))

All regulated medical waste arriving at the facility will be off loaded and placed into the building as shown on the facility drawings so as not to create a nuisance, and to prevent putrefaction. Medical waste will not be commingled with other waste streams at the facility. Medical waste is stored and processed separately from other waste streams managed at the facility.

Storage will be in a manner that does not constitute fire, safety, or health hazard or provide food or harborage for animals and disease vectors and shall be contained in such a way as to not result in litter. This facility has existing protocols to control odors, vectors, and windblown waste. All medical waste containers are stored either in the building or on the vehicle. Medical waste is by and large not putrescible and is transferred to other locations or treated promptly. The company maintains a robust vector control program covering the entire property.

All containers coming onto the property are promptly and subsequently staged for processing as described later in this section or if applicable, transferred to other locations. Medical waste containers will be transferred or treated within 72 hours of receipt. Untreated medical waste held longer than 72 hours after receipt at the facility will be stored at a temperature of 45 degrees Fahrenheit or less. The majority of the waste will be staged in the building as described later in this section for treatment by sterilization at this location. The handling of the containers is maintained in such a way as to protect the integrity of each container during storage, handling, and transport. Containers will be maintained in a clean condition so that they do not constitute a nuisance. Containers to be mechanically handled will be designed to prevent spillage and leakage during storage, handling, and transport.

Stationary compactor(s) will be operated and maintained in such a way to not create a public nuisance through material loss or spillage, odor, vector breeding or other conditions.

5.2 Recordkeeping and Reporting (30 TAC §326.75(e))

All records shall be maintained by the facility as required by applicable regulations.

A copy of the registration, the approved registration application, and any other required plan or other related document, will be maintained at all times. These documents will be available for inspection by authorized personnel from applicable authorities, agency representatives;

All information contained in the operating record will be furnished upon request to the Executive Director and shall be made available at all reasonable times for inspection by the Executive Director. Nature Environmental & Marine Services, LLC will retain all information contained within the operating record and the various plans required for the facility for the life of the operation. The following will be promptly recorded and retained in the operating record: 1) Any and all applicable location-restriction demonstrations, 2) Inspection records and training procedures, 3) Closure plans, cost estimates and financial assurance documentation relating to financial assurance for closure, 4) Copies of all correspondence and responses relating to the operation of the facility, modifications to the registration, approvals, and other matters pertaining to technical assistance, and 5) All documents,

manifests, shipping documents, and any other document(s) as specified by the approved authorization or by the executive director.

When accepting delivery of untreated medical waste for which a shipping document is required for processing, the owner or operator will ensure each of the following requirements is met:

1. The shipment is accompanied by a shipping document, which designates the facility to receive the waste;
2. The shipping document is signed by the owner or operator and at least one copy of the signed shipping document is immediately given to the transporter;
3. One copy of the shipping document is retained by the owner or operator; and
4. Within 45 days after delivery, the treatment facility owner or operator sends a written or electronic copy of the shipping document to the generator that includes the total weight of waste received and a statement that the medical waste was treated in accordance with 25 TAC §1.136 (relating to Approved Methods of Treatment and Disposition).

The owner or operator or by a duly authorized representative of the owner or operator will sign all reports and other information requested by the executive director as described in §305.128 relating to Signatories to Reports and §305.44(a) relating to Signatories to Application.

A person is a duly authorized representative only if:

1. The authorization is made in writing by the owner or operator as described in §305.44(a);
2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity or for environmental, matters for the owner or operator; and
3. The authorization is submitted to the executive director.

If an authorization under this section is no longer accurate because of a change in individuals or position, a new authorization satisfying the requirements of §326.75(e)(3) will be submitted to the executive director prior to, or together with, any reports, information, or applications to be signed by an authorized representative.

Any person signing a report will make the following certification per §305.44(b).

"*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel property gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fines an imprisonment for knowing violations*."

5.3 Fire Protection Plan (30 TAC §326.75(f))

There is a comprehensive fire protection plan (see Attachment 17) at the facility that addresses all of the following:

1. There is always an adequate supply of water for firefighting purposes supplied under normal conditions by the water company.

2. Fire extinguishers that comply with all requirements are strategically placed to be readily available as needed. Fire extinguishers are located at each exit door in the facility building. Extinguishers are typically 20-lb ABC Type.

3. All employees are trained in the fire protection program including contact information, training and safety procedures. The Fire Protection Plan includes measures for fire protection, procedures for using fire protection measures, employee training and safety procedures, notification protocols and other appropriate items. The Fire Protection Plan is in compliance with all local fire codes.

5.4 Access Control (30 TAC §326.75(g))

Public access control is maintained through several means. The facility is locked and secured during non-operational hours and equipped with an alarm system monitored offsite.

The access roads to the facility are all paved roadways. All operations are maintained inside the building shown on the site plan. Access to the facility is controlled via a fence that surrounds the perimeter along with security gates that are accessed via a code or key card.

Public access to this facility is restricted and limited to employees, invited visitors or contractors, and authorized regulatory agency personnel. Visitors and others enter the office, and authorized access is granted after signing in and revealing the purpose of the visit. No visitors are unaccompanied at any time.

The facility access is designed for the traffic flow via a multi-lane paved road. Safe on-site access for all vehicles is provided, including adequate turning radii and does not disrupt normal traffic patterns. Parking is provided for equipment, employees, and visitors. All interior driving and parking surfaces are paved to minimize dust and mud.

A 6-foot perimeter fence topped with 3-stranded barbed wire surrounds the facility and includes lockable and monitored pedestrian and vehicle gates for access. Monitoring is conducted via closed circuit cameras with recording devices. The property is always occupied during normal business hours.

5.5 Unloading of Waste (30 TAC §326.75(h))

The unloading of waste will be confined to as small an area as practical. Waste is unloaded in the specific designated area shown on the site and floor plans. From there it is placed either into a refrigerated trailer or the specified medical waste storage area within the building. Waste will be stored in the building both for treatment onsite or for transfer to another location as described. A trained employee will monitor all incoming loads of waste to help prevent the receipt of unauthorized waste and to direct the unloading of waste. The unloading of prohibited waste will not be allowed. Any non-conforming waste is returned to the generator or transporter within 72 hours.

Appropriate signs will be used to indicate where vehicles are to unload. Any waste deposited in an unauthorized area will be removed promptly and managed of properly. Once unloaded, the waste is staged for treatment onsite in the autoclave or for transfer to another appropriate treatment facility. The process flow diagram and narrative in this section describes the process in detail.

5.6 Operating Hours (30 TAC §326.75(i)(3))

Operating hours of the facility are as follows:

24 hours per day, 7 days per week (operations)

8:00 am to 4:00 pm Monday through Friday (office)

Weekend and holiday hours vary by the work conditions.

Since the facility is authorized to operate 24 hours per day, seven days per week, alternative hours are not applicable.

5.7 Facility Sign (30 TAC §326.75(j))

Signs measuring four feet by four feet with letters at least 3" high will be prominently displayed at the vehicle entrance locations. The signs will include the following information: facility name, type of facility, days and hours of operation, authorization number of the facility, and access rules.

5.8 Control of Windblown Material and Litter (30 TAC §326.75(k))

The entire location is maintained in a clean, healthy, and safe manner, through in part controlling windblown material and litter being promptly collected and disposed of. Routine visual inspection of the building and grounds are done daily to ensure any material and litter does not escape the property and cause a nuisance.

5.9 Facility Access Roads (30 TAC §326.75(l))

Vehicle and personnel safety is of primary concern, so all interior roads are maintained to minimize depressions, ruts, and potholes. Significant depressions, ruts, and potholes on access roads within the facility boundaries will be repaired.

Public access roads to the facility are paved, all weather roads. Mud and dust are not an issue from vehicles entering the facility as there are no unpaved roadways used to access the site. Onsite roads are all-weather gravel and may be dampened upon arrival and departure to reduce the potential of dust and mud from transportation vehicles.

On-site roads/parking areas are maintained by Nature Environmental & Marine Services, LLC. Off-site access roads are paved and maintained by the proper authority (City of Corpus Christi, Nueces County and/or Texas Department of Transportation). If maintenance of an off-site public access road serving the facility becomes necessary in the future, Nature will coordinate with the appropriate agency with maintenance authority.

5.10 Noise Pollution and Visual Screening (30 TAC §326.75(m))

The only noise arising from the operation is that of vehicles entering or exiting the property. Equipment in the building includes that which is associated with treatment of the waste and that is identified and explained in this document. All noise levels are below the limits from all applicable agencies. Visual screening is maintained due to the location of the operation which is around behind the buildings or within them. The building walls will provide visual screening and will minimize noise pollution. When waste is transferred from vehicle to vehicle, the vehicles will be parked end to end to provide visual screening and will minimize noise pollution.

5.11 Overloading and Breakdown (30 TAC §326.75(n))

The waste treatment design capacity of the facility unit is 25 tons per day (50,000 pounds per day) of medical waste and this rate will not be exceeded. The facility may store up to 50 tons (100,000 pounds) of medical waste at any one time. The facility will not accumulate waste in quantities that cannot be processed within such time that would allow for the creation of odors, insect breeding, or harborage of other vectors. There will be several measures employed by Nature Environmental & Marine Services, LLC to ensure waste is stored properly and repackaged in a timely manner:

The facility has sufficient storage capacity for incoming wastes and can store in the building and vehicles. Incoming wastes stored longer than 72 hours are refrigerated. As needed, incoming waste shipments can be delayed, or sent to an alternative permitted treatment facility if necessary.

If significant work stoppage should occur due to unexpected circumstances, the facility will restrict the receipt of waste accordingly. Under such circumstances, incoming deliveries will be delayed or diverted to an approved backup facility. If the stoppage lasts long enough to create a nuisance, odor or vectors, waste will be transferred off-site to an alternate approved facility.

In such an event that the facility becomes inoperable for periods longer than 24 hours, waste will be transported via approved transportation vehicles to an alternative processing facility approved by the TCEQ.

5.12 Sanitation (30 TAC §326.75(o))

Sanitary facilities and potable water are available at all times for employees and visitors.

All working surfaces that come into contact with untreated medical wastes are washed down regularly and disinfected with an EPA approved disinfectant. The building will be swept daily, and washing and cleaning activities are conducted as needed in the building, at least twice weekly. Processing facilities that operate continuously must be swept daily. All working areas will be swept daily. Moisture is not allowed to accumulate on site in order to prevent the creation of odors or attraction of vectors. Mopping is conducted for floor cleaning. Spilled material is collected, containerized/packaged, and managed as untreated medical waste and treated in the onsite autoclave. Wash water from routine cleaning and sanitizing will be absorbed and placed into the processing unit or discharged to a drain connected to the above-ground wastewater holding tank. Surfaces in contact with spills are cleaned with an EPA approved disinfectant.

5.13 Ventilation and Air Pollution Control (30 TAC §326.75(p))

The area is well ventilated at all times. Air emissions from this facility will not cause or contribute to air pollution as defined in the Texas Clean Air Act. This Facility will comply with all applicable regulations regarding air emissions and will obtain any required authorizations from the TCEQ Air Permits Division. All liquid waste and solid waste shall be stored in odor-retaining containers and vessels. No odors are expected to occur in the facility since the medical waste is kept in sealed containers unless being repackaged. The facility is designed to provide adequate ventilation for odor control and employee safety. In the event of odors passing the facility boundary, actions will be taken to prevent nuisance odors from leaving the facility. Control of potential odors is accomplished through a number of measures including use of the routine cleanup, sealed containerized and refrigerated storage, and conducting operations within the enclosed indoor structure.

Treatment and storage is conducted within the facility structure. Medical waste exposure to the air is limited and minimal. Waste is received and stored in enclosed containers.

5.14 Health and Safety (30 TAC §326.75(q))

All employees are trained in appropriate sections of the Company's health and safety plan, the details of which are included in the Attachment 18.

5.15 Disposal of Treated Waste (30 TAC §326.75(r))

All treated waste is placed in stationary compactors and when full transferred to the

designated landfill which at the present time is El Centro Landfill. All approvals are in place for waste to be accepted at that location.

Medical wastes will be treated using steam disinfection in accordance with 25 TAC §1.136. Medical wastes that have been treated in accordance with 25 TAC §1.136 may be managed as routine municipal solid waste unless otherwise specified in §326.75(r).

Treated microbiological waste, blood, blood products, body fluids, laboratory specimens of blood and tissue, and animal bedding may be disposed of in a permitted landfill. Any markings that identify the waste as medical waste shall be covered with a label that identifies the waste as treated medical waste. The identification of the waste as treated may be accomplished by the use of color coded, disposable containers for the treated waste or by label that states that the contents of the disposable container have been treated in accordance with the provision of 25 TAC §1.136.

Treated carcasses and body parts of animals designated as a medical waste may, after treatment, be disposed of in a permitted landfill in accordance with 30 TAC Chapter 330. The collection and transportation of these wastes shall conform to the applicable local ordinance or rule if such ordinance or rule is more stringent.

Sharps treated and containerized with one of the approved methods as described under 25 TAC §1.136(a)(5) shall be disposed of in a permitted landfill in accordance with 30 TAC Chapter 330. Unused sharps should be disposed of as treated sharps.

5.16 Financial Assurance (30 TAC §326.71(n))

Financial Assurance is provided by insurance procured by the applicant.

Continuous financial assurance coverage for closure will be provided until all requirements of the closure plan have been completed and the facility is determined to be closed in writing by the executive director. A copy of the documentation required to demonstrate financial assurance will be submitted 60 days prior to the initial receipt of waste.

5.17 Certification of Final Closure (30 TAC §326.71(l))

No later than 90 days prior to the initiation of final facility closure, the owner or operator will, through a published notice in the newspaper(s) of largest circulation in the vicinity of the facility, provide public notice for final facility closure. This notice will provide the name, address, and physical location of the facility; the registration number; and the last date of intended receipt of waste. The owner or operator will also make available an adequate number of copies of the approved final closure plan for public access and review.

The owner or operator will also provide written notification to the executive director of the intent to close the facility and place the notice of intent in the facility's operating record.

Upon notification to the executive director of the intent to close the site, the owner or operator will post a minimum of one sign at the main entrance and all other frequently used points of access for the facility notifying all persons who may utilize the facility or site of the date of closing for the entire facility and the prohibition against further receipt of waste materials after the stated date. Suitable barriers will be installed at all gates or access points to adequately prevent the unauthorized dumping of solid waste at the closed facility.

Within ten days after completion of final closure activities of the facility, the owner or operator shall submit to the executive director by registered mail a certification, signed by an independent licensed professional engineer, verifying final closure has been completed in accordance with the approved closure plan. and a request for voluntary revocation of the facility registration.

Section 6—Applicant Certification and Signature

The applicant is the person or entity who would be the owner of the facility and in whose name the registration would be issued. If the application is signed by an authorized representative for the applicant, the applicant must complete the delegation of signature authority.

Certification by Applicant or Authorized Signatory [30 TAC §305.44]

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name of applicant, or other person authorized to sign: SUDHAKARA YENUMALA

Title of person signing: DIRECTOR

Signature: Y. S. Reddy Date: 10/13/2022

Notarization

SUBSCRIBED AND SWORN to before me by the said Sudhakara Yenumala

On this 13 day of October, 2022.

My commission expires on the 2 day of December, 2025

Notary Public in and for

Cobb County, ~~Texas~~ Georgia

R STEFFENS NOTARY PUBLIC COBB COUNTY, GEORGIA MY COMMISSION EXPIRES DEC. 02, 2025

Applicant's Delegation of Signature Authority [30 TAC §305.43]

I hereby delegate the person named below as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and appear for me at any hearing or before the Commission in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative in support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

Name of applicant's representative: _____

Name of person who is the applicant, or officer or official representing corporation or public agency that is the applicant: _____

Signature: _____ Date: _____

Notarization

SUBSCRIBED AND SWORN to before me by the said _____

On this _____ day of _____, _____.

My commission expires on the _____ day of _____, _____.

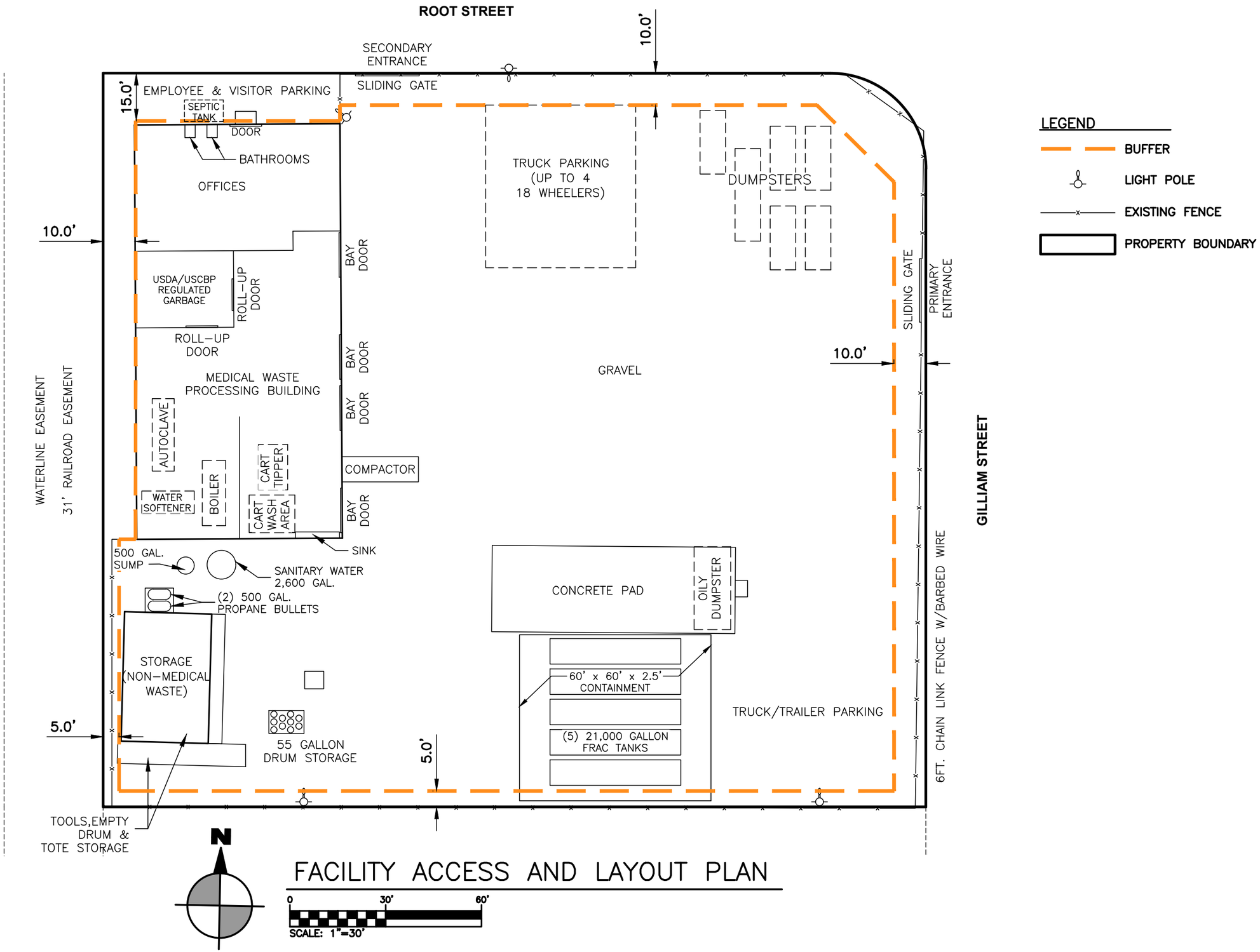
_____

Notary Public in and for

_____ County, Texas

ATTACHMENT 2

FACILTY ACCESS AND LAYOUT MAP



FACILITY ACCESS AND LAYOUT PLAN

LEGEND

- BUFFER
- LIGHT POLE
- EXISTING FENCE
- PROPERTY BOUNDARY

STATE OF TEXAS
AMY REIN HESSELTINE
93578
LICENSED PROFESSIONAL ENGINEER

10/13/2022

Amy R Hesseltine

NATURE ENVIRONMENTAL AND MARINE SERVICES
8713 ROOT STREET
CORPUS CHRISTI, TEXAS

ATTACHMENT 2
FACILITY ACCESS AND LAYOUT PLAN

ARDURRA
COLLABORATE. INNOVATE. CREATE.

801 Navigation Suite 300
Corpus Christi, Texas 78408
Phone: (361) 883-1984
www.Ardurra.com

Engineering License #F-10053

Ardurra Group, Inc.
Surveying Firm 10194688
Architectural Firm BR4160

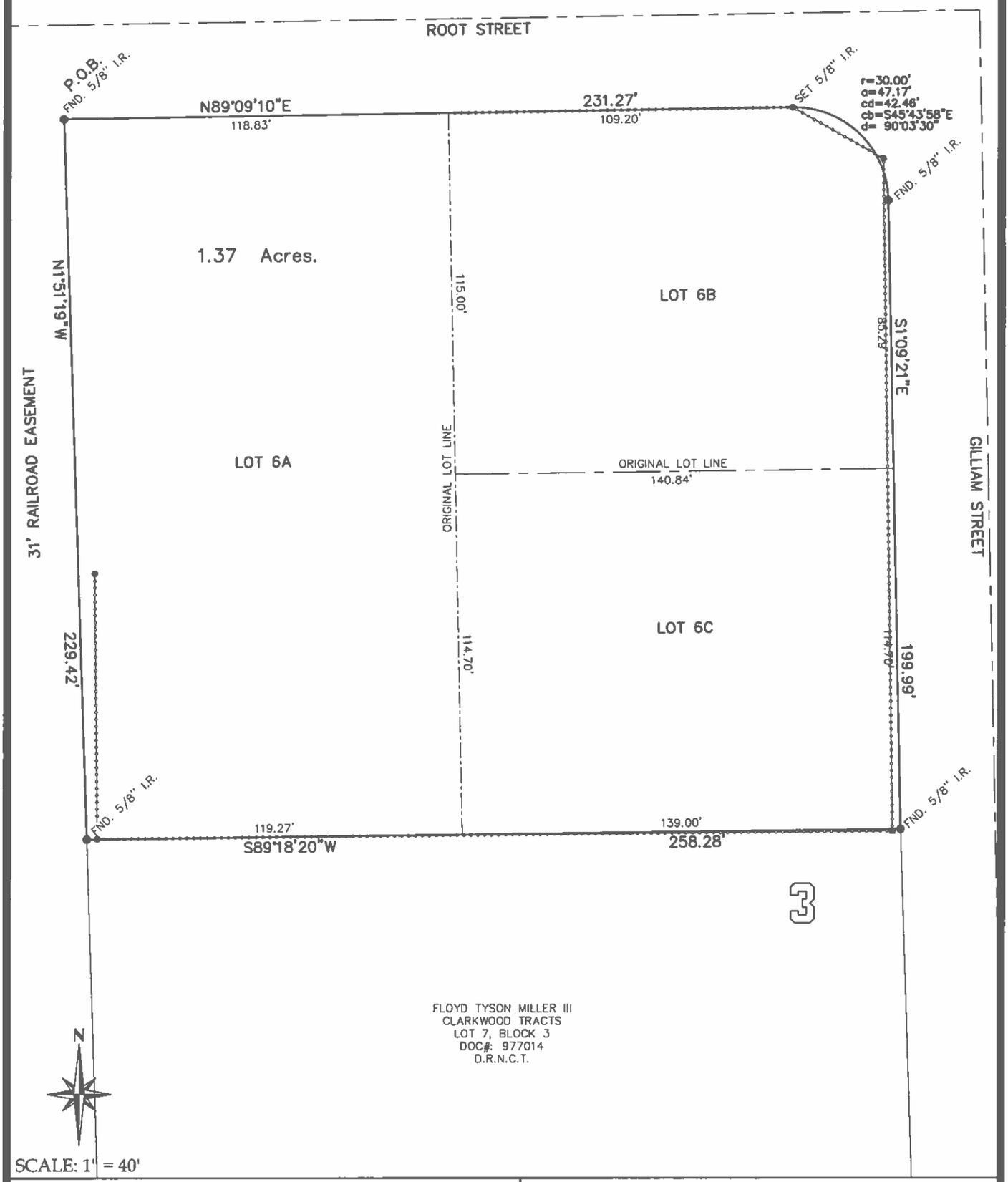
DATE:	10/13/2022
DRAWN BY:	SCG
CHECKED BY:	AH
APPROVED BY:	AH
JOB NO:	220101.000.2

REVISIONS		
10/22	1	ADDED SINK/BATHROOMS
DATE	NO.	DESCRIPTION

ATTACHMENT 5

METES AND BOUNDS DRAWING AND DESCRIPTION

EXHIBIT "B"



SURVEY OF:

1.37 ACRE TRACT OF LAND BEING OUT OF LOTS SIX-A (6A), SIX-B (6B) & SIX-C (6C), BLOCK THREE (3) OF A REPLAT OF LOT SIX (6), BLOCK THREE (3) OF THE CLARKWOOD TRACT SUBDIVISION AS SHOWN BY MAP RECORDED IN VOLUME 30, PAGE 31 OF THE MAP RECORDS OF NUECES COUNTY, TEXAS.

TITLE NOTE:

ACCORDING TO THE TITLE COMMITMENT PROVIDED BY NUECES TITLE COMPANY, GF#: 22-7-PI, HAVING AN EFFECTIVE DATE OF: 02/07/2022 AND HAVING AN ISSUED DATE OF: 02/25/2022, ALL NECESSARY ITEMS IN SECTION 10 ARE SHOWN.

I, JARREL L. MOORE, A REGISTERED PROFESSIONAL LAND SURVEYOR, DO HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, THIS PLAT RE-PRESENTS AN ACTUAL SURVEY MADE ON THE GROUND UNDER MY SUPERVISION AND SUBSTANTIALLY COMPLIES WITH THE MINIMUM STANDARDS FOR LAND SURVEYING IN TEXAS AS SET FORTH BY THE TEXAS BOARD OF PROFESSIONAL LAND SURVEYORS. OCTOBER 10, 2022

STATE OF TEXAS
REGISTERED
JARREL L. MOORE
4854
PROFESSIONAL
LAND SURVEYOR

JARREL L. MOORE
REGISTERED PROFESSIONAL LAND SURVEYOR
LICENSE No. 4854

ALL BEARINGS AND DISTANCE REFER TO THE TEXAS STATE PLANE COORDINATE SYSTEM OF 1983, TEXAS SOUTH ZONE.

TEXAS GEO TECH
LAND SURVEYING, INC
5525 SOUTH STAPLES, SUITE B-2
Corpus Christi, TX 78411
(361) 993-0808 Fax (361) 993-2955
www.texasgeotech.com

DATE:	10/10/2022	DRAWN:	EF
SCALE:	1" = 40'	JOB NUMBER:	221015
APPROVED:	JLM	SURVEY:	JC, RG & LL

Texas Geo Tech
LAND SURVEYING, INC.

EXHIBIT "A"

1.37-acre tract of land being out of Lots Six-A (6A), Six-B (6B), and Six-C (6C), Block Three (3) of a replat of Lot Six (6), Block Three (3), of The Clarkwood Tract Subdivision as shown by map recorded in Volume 30, Page 31 of the Map Records of Nueces County, Texas and more particularly described by metes and bounds as follows;

BEGINNING at a 5/8-inch iron rod found on the south right-of-way line of Root Street, for the northwest corner of this tract;

THENCE: N 89° 09' 10" E – with the south right-of-way line of said Root Street a distance of 231.27 feet to a 5/8-inch iron rod set for a curve to the right, having a radius of 30.00 feet, an arc distance of 47.17 feet, a cord distance of 42.46 feet, a cord bearing of S45°43'58''E and a delta angle of 90° 03'30'', to a 5/8-inch iron rod found on the west right-of-way line of Gilliam Street, same being the most easterly corner of this tract;

THENCE: S 01° 09' 21" E – with the west right-of-way line of said Gilliam Street a distance of 199.99 feet to a 5/8-inch iron rod found for the southeast corner of this tract;

THENCE: S 89° 18' 20" W – 258.28 feet to a 5/8-inch iron rod found for the southwest corner of this tract;

THENCE: N 01° 51' 19" W – 229.42 feet to the **POINT OF BEGINNING** containing 1.37 acres of land, more or less.

I, Jarrel L. Moore, a Registered Professional Land Surveyor, do here by certify that to the best of my knowledge, this plat represents an actual survey made on the ground under my supervision and substantially complies with the minimum standards set forth by the Texas Board of Professional Land Surveying. Bearings and distances are NAD 1983, Texas South Zone and are based on grid coordinates. October 12, 2022.

STATE OF TEXAS
REGISTERED
JARREL L. MOORE
4854
PROFESSIONAL
LAND SURVEYOR

Jarrel L. Moore
Register Professional Land Surveyor
License Number 4854

October 12, 2022
2201015.doc

ATTACHMENT 7

PROCEDURES FOR OPERATION AND TESTING OF TREATMENT EQUIPMENT

ATTACHMENT 7

PROCEDURES FOR OPERATION AND TESTING OF TREATMENT EQUIPMENT

Medical waste will be treated in accordance with the provisions of 25 TAC §1.136 (relating to Approved Methods of Treatment and Disposition).

The facility will use an autoclave unit to treat waste. The parameters of time, temperature and pressure of the steam sterilization system used at this facility will meet or exceed those required by the Department of State Health Services requirements for steam sterilization found in 25 TAC §1.133(b)(4). The temperature of the autoclave unit must reach at least 121 degrees Celsius (250 degrees Fahrenheit) and there must be at least 15 pounds per square inch gauge pressure for at least 30 minutes. Detailed operating procedures are included in Attachment 16 in a document titled *Installation, Operating, and Maintenance Instructions for The Mark-Castello Company Biomedical Waste Steam Sterilizer AS-Series Gravity Displacement Units.*

A minimum four log 10 reduction as defined in 25 TAC §1.132 will be demonstrated on routine performance testing using appropriate Bacillus species biological indicators. Ampules containing Bacillus species will be placed in the approximate center of the load for quality assurance. The ampules are retrieved from the load and incubated and examined for no color change indicating sufficient temperature, pressure, and time to kill the Bacillus species. A log of quality assurance testing will be maintained.

Per 30 TAC §326.71(j)(3), the operator may substitute routine parameter monitoring for biological monitoring for those processes that the manufacturer has documented compliance with the performance standard prescribed in 25 TAC §1.135 based on specified parameters and for previously approved treatment processes that a continuous readout and record of operating parameters is available. The autoclave temperature and pressure are continuously monitored and recorded during the entire length of each cycle. When continuous readout is not available, quality assurance/performance testing as described above will be performed weekly.

All required records and documentation regarding operating parameters will be initiated and maintained for three years.

Backflow preventers will be used at potable water connections to prevent contamination of potable water supplies.

ATTACHMENT 9

TEXAS DEPARTMENT OF TRANSPORTATION COORDINATION LETTERS

Texas Department of Transportation

1701 South Padre Island Drive, Corpus Christi, TEXAS 78416 | 361.808.2500 | WWW.TXDOT.GOV

October 4, 2022

Amy R. Hesseltine, P.E.
Environmental Group Leader
Ardurra Group, Inc.
801 Navigation Blvd, Suite 300
Corpus Christi, Texas 78408

RE: ***Coordination for TCEQ permit applications***
TxDOT (CRP) Letter of No Objection

Control Section: N/A
Highway: N/A
County: Nueces

Ms. Hesseltine,

The Texas Department of Transportation (TxDOT) received the attached letter from Ardurra Group, Inc. on August 4, 2022. The letter requests documentation of coordination for traffic impacts and location restrictions for a proposed medical waste management facility to be located at 8713 Root Street in Corpus Christi, TX.

After reviewing the information provided in the letter and the roadways within one (1) mile of the proposed facility, TxDOT has no restrictions or objections to the facility's proposed traffic impacts.

You are hereby advised that the use of State right-of-way will be at your own risk and that TxDOT does not assume liability for any injuries or damages to person or property arising from the use of said right-of-way.

Should you have any questions please contact me at (361) 808-2500.

Sincerely,

DocuSigned by:
7B4D4CCB909C4CF...

Ernest Longoria, P.E.
Corpus Christi Area Engineer
Corpus Christi Area Office

cc: Esmael Hernandez – Corpus Christi Maintenance Section Assistant Supervisor

ATTACHMENT 16

MANUFACTURER SPECIFICATIONS FOR WASTE MANAGEMENT UNITS

ATTACHMENT 16

MANUFACTUER SPECIFICATIONS FOR WASTE MANAGEMENT UNITS

This attachment provides specifications for waste management units intended to be installed and operated at the facility. Specifications are considered typical. Actual manufacturer and dimensions may vary from specifications provided in this attachment, but the equipment will be similar in size and capacity.

Specification Sheet: Refrigerated Trailer

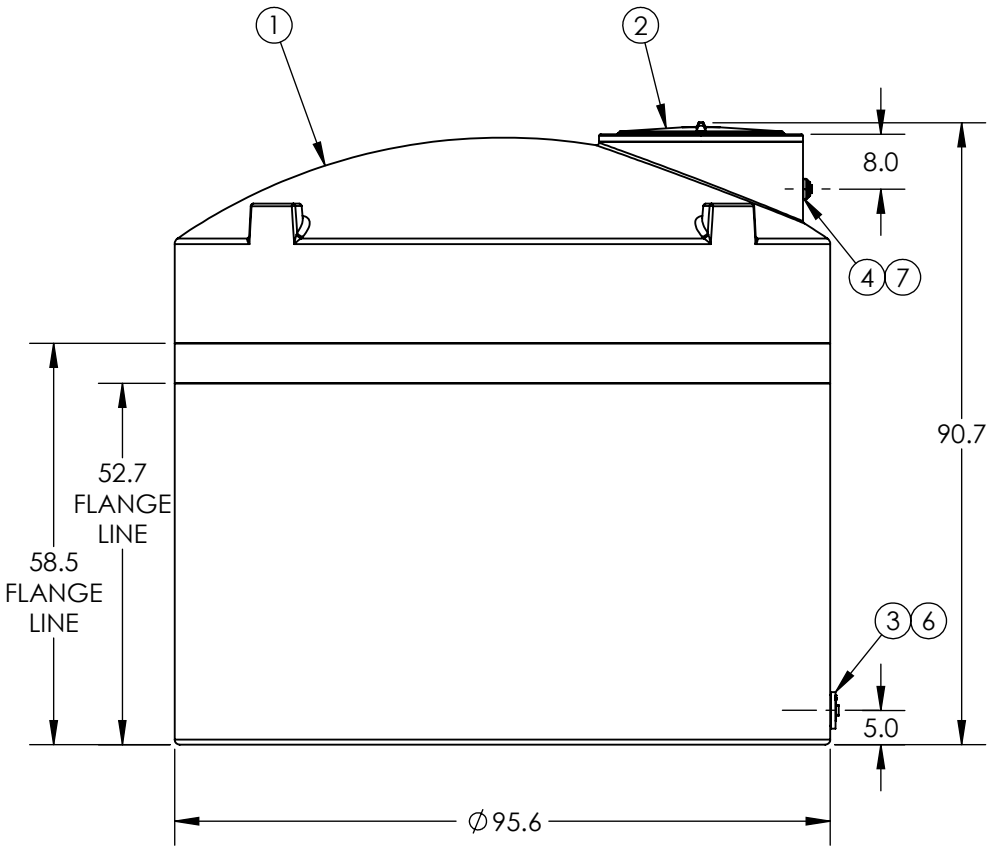
Refrigerated Trailer Specifications	
Delivery Mechanism	Tractor (Semi-truck)
Color	Variable; Unmarked required, white preferred
Length	Variable; Should not exceed 53’
Width	Variable; Should not exceed 8’5”
Overall Height	Variable; Should not exceed 13’ 6”
Loading Height	Variable; Typically between 48” to 55”
Floor Type	Extruded metal or flat polymer (“grocery floor”)
Temperature	37 degrees Fahrenheit
Power Source	▪ Diesel fuel ▪ Electric (230 volts, 3-phase, 50 amps circuit, CS plug style)
Fueling	Generally every 2 – 3 days
Maintenance:	Every 6 months or as needed
Shelving:	▪ Unit will not come with shelves ▪ Shelves can be added as necessary and available
Security	▪ Rear door: Secured with high-secure hardened steel lock ▪ Kingpin: Appropriate kingpin lock for trailer type
Loading	Direct via loading dock or lift gate
Capacity	Approximately 9 – 44
Refrigeration	▪ Must be requested – does not come standard ▪ Must maintain 37 F

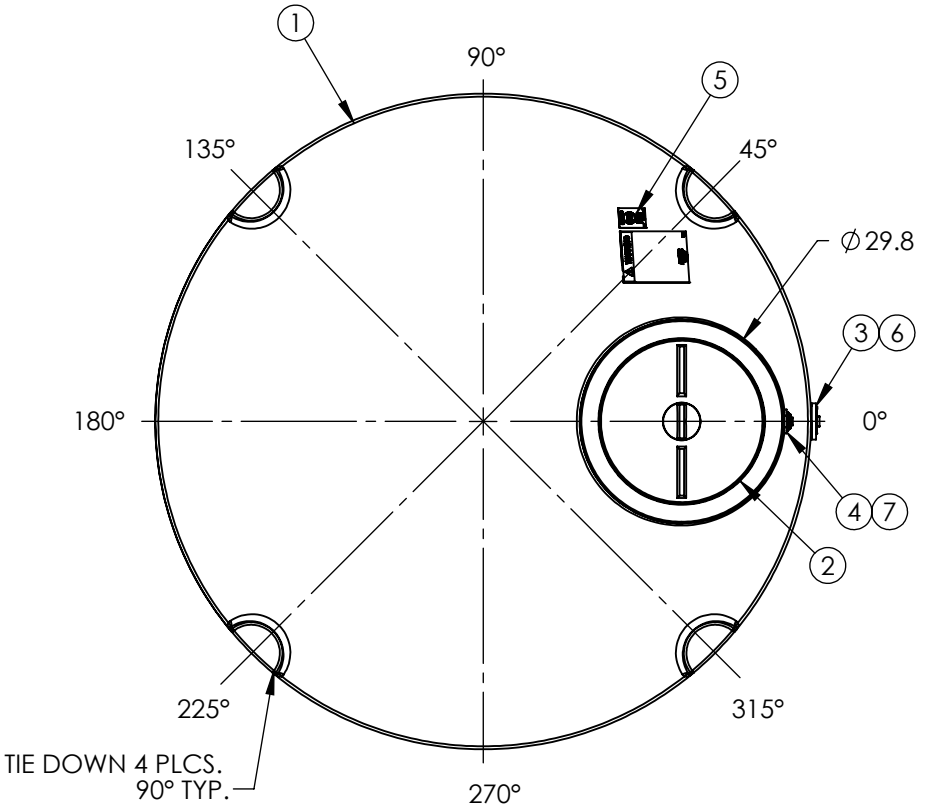
Note: Most refrigerated trailers are powered with diesel fuel. Refueling requirements will vary, but generally trailers will need to be refueled every two to three days. Some refrigerated trailers may come with an electric standby mode on the refrigeration unit which will allow it to run solely on electrical power. Refrigeration units can also be plugged into the main facility’s electrical grid without significant alterations. Internal temperatures should be strictly monitored to ensure a constant 37º F temperature. Maintenance needs and requirements should be noted and communicated to the HCF Morgue Manager.

Specification Sheet: Refrigerated CONEX Unit

Refrigerated CONEX Unit Specifications	
Delivery Mechanism	Flatbed or roll-off tractor trailer; Heavy duty forklift or crane
Color	Variable; Unmarked required
Length	20’ or 40’
Width	8’
Overall Height	8’6”
Loading Height	Level
Floor type	Metal/steel
Temperature	37 degrees Fahrenheit
Power Source	▪ Diesel fuel ▪ Electric (380/460 volts, 3-phase, 50/60 Hz, 50 amp power supply)
Fueling	Generally every 2 – 3 days
Maintenance	Every 6 months or as needed
Shelving	▪ Unit will not come with shelves ▪ Shelves can be added as necessary and available
Security	Rear doors: Secured with high-secure hardened steel lock
Loading	Direct from ground level
Capacity	Approximately 16-29
Refrigeration	Must be requested – does not come standard Must maintain 37 F

BLACK OR DARK OLIVE GREEN





ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
7	1	64149	1-1/2" NPT PLUG
6	1	60021	2" NPT PLUG
5	1	99700231	DECAL NSF MARK - WATER TKS
4	1	63931	FTG PP 1-1/2IN ECO-BH EPDM TXT
3	1	63683	FTG 2IN HD BH PP/EPDM
2	1	34700352	ASM MANWAY PE 24IN VENTED
1	1	5090200W___02	ASM TK 2600VDT X 96 WATER NH/NOMW

***ALL EXTERNAL PIPING MUST BE INDEPENDENTLY SUPPORTED.**
***ONLY BASE FITTINGS TO BE LEFT INSTALLED AT TIME OF SHIPMENT PER SII PROCEDURE.**
***Consult Snyder's Guidelines for Use and Installation prior to delivery.**
Available on-line at http://www.snyderindustriestanks.com/Technical

ALL DIMENSIONS ARE IN INCHES, NOMINAL, & SUBJECT TO CHANGE WITHOUT NOTICE.
ALL DIMENSIONS ON ROTATIONAL MOLDED PARTS ARE SUBJECT TO A ± 3% TOLERANCE.

DO NOT SCALE | DRAWN BY: BH

STATUS: **Released**

SNYDER INDUSTRIES, INC.
(402) 467-5221
www.snydernet.com

TITLE: **ASM TK 2600VDT X 96 WATER**

REVISION: C
SHEET: 1 OF 1

PART NO.: **5090200W___03**

ENG. ID.: **D006336**

‹ Pressure Washer

Pressure Washer Trailer 20152C Alkota - Alkota has been manufacturing industrial mobile cleaning systems since 2001. Alkota pressure washer trailers are manufactured specifically for industrial and commercial applications to compliment hot or cold water power washers. A trailer mounted pressure washer allows you to take your pressure washing equipment directly to your mess, no matter how remote it might be or what services are available. Trailer packages are completely self-contained with a water tank, trailer mounted power washer, and hose reels. Each Alkota pressure washer trailer is completely customize-able for your specific cleaning job. If you don't see what you want, we will customize our trailer to your specifications. Mobile cleaning systems provides a powder coated welded tubular frame construction for maximum strength. DOT approved running lights. All wiring is routed through the trailer frame to eliminate damage. Alkota 20152C dual axle pressure washer trailer features: 460-gallon water capacity Electric brakes, both axles, Auto fill water inlet - automatic shut off, High pressure hose reel with 100 ft of hose, Fill hose reel with 100 ft of 3/4 in. hose, Chrome wheels, 2" ball receiver standard, Swing up wheel jack. Electric brake pressure washer trailers have a brake controller and 7-prong plug. Customize your commercial trailer pressure washer with: rotating hazard light, spare tire, low water shut off, surge brakes, hydrant air gap fill, antifreeze kit, 3-way ball valve, chemical rack, sand hopper, chemical tank, custom trailer colors, alternate hitch choices, tool box storage systems, wastewater filtration systems. With the support of your local Alkota dealer we can find the correct solution for you.

<no value>

Contact Us

REDLINE/STRIKEOUT COPY

Texas Commission on Environmental Quality

Application for a Medical Waste Registration

Nature Environmental & Marine Services LLC

Registration No. 4033220789

Corpus Christi, Nueces County, Texas

June 2022

Prelim-Review 1 (August 2022)

Tech-Review 1 (October 2022)

Prepared for:

Nature Environmental & Marine Services LLC

8713 Root Street

Corpus Christi, TX 78409

Prepared by:

Amy Hesseltine, P.E., Environmental Group Leader

Ardurra Group, Inc.

Engineering License #TBPELS FirmF-

#10053

801 Navigation, Suite 300

Corpus Christi, Texas 78408

Section 1—General Information

1.1 Facility Information (must match regulated entity information on Core Data Form)

Facility Name: Nature Environmental & Marine Services LLC

Regulated Entity Reference No. (if issued): RN105939763

Physical or Street Address (if available): 8713 Root Street

City: Corpus Christi County: Nueces State: TX Zip Code: 78409

(Area Code) Telephone Number: 361-654-3088

Email Address: ~~ryan.freeman~~medicalpermit@natureenviro.com

Latitude (Degrees, Minutes, Seconds, or Decimal Degrees): 27.790394°

Longitude (Degree, Minutes, Seconds, or Decimal Degrees): -97.534302°

Activities Conducted at the Facility (check all that apply)

☒ Storage ☒ Treatment ☒ Transfer ☐ Other: _____

Describe the location of the facility with respect to known or easily identifiable landmarks:

Facility is located three miles west-northwest of the Corpus Christi International Airport in the southwest quadrant of the intersection of Root Street and Gilliam Street.

Detail access routes from the nearest United States or state highway to the facility:
Due west on TX-44, exit Agnes Street towards Manning Rd, turn right on Agnes St, turn right onto North Clarkwood Road, turn right onto Root Street, location in on right side

1.2 Applicant Information

The owner of a facility is the applicant, to whom the registration would be issued.

Owner of Facility (must match customer information on Core Data Form)

Owner Name: Nature Envrionmental & Marine Services LLC

Contact Person's Name: ~~Ryan L Freeman~~James Lemos Title: ~~Controller~~Operations Manager

Customer Reference No. (if issued): CN604652479

Mailing Address: 18511 Beaumont Highway

City: Houston

County: Harris State: TX Zip Code: 77049

(Area Code) Telephone Number: (832~~936~~) 770~~900~~-7952~~2293~~

Email Address: ~~ryan.freeman@natureenviro.com~~

2.3 Floodplain and Wetlands [30 TAC §326.71(f)]

Will the facility be located within a 100-year floodplain?

No ☒ Yes ☐ Identify the floodplain zone Zone X – Areas determined to be outside the 0.2% (500 yr) annual change floodplain.

Attach a copy of the Federal Emergency Management Administration administrator (FEMA) flood map for the area. See Attachment 109 for FEMA Map (Map Number 48355C0300G, Effective Date: Preliminary October 23, 2015). Map obtained from the City of Corpus Christi website (www.cctexas.com/floodplainmanagement/floodmaps).

Zone X is not in the 100-year floodplain. Therefore, additional documentation is not required. The facility will be constructed, maintained, and operated to manage run-on and run-off during the peak discharge of a 25-year rainfall event and will prevent the off-site discharge of waste. Surface water drainage in and around the facility will be controlled to minimize surface water running onto, into, and off the storage and transfer areas.

The facility has an active authorization (TXR05CS14) under the 2021 Multi-Sector General Permit (MSGP) to discharge storm water.

If the facility will be within a 100-year floodplain, attach documentation demonstrating that the facility is designed and will be operated in a manner to prevent washout of waste during a 100-year storm event, or that the facility has obtained a conditional letter of map amendment from the FEMA.

Will the facility be located in wetlands?

Yes ☐ No ☒

If yes, attach documentation to the extent required under Clean Water Act, §404 or applicable state wetlands laws.

2.4 Buffer Zones and Easement Protection [30 TAC §326.71(h)(3)]

Is the buffer zone in any location at the facility less than 25 feet wide?

Yes ☒ No ☐

If yes, describe your alternative buffer zone and how it will allow access for emergency response and maintenance (attach additional pages to answer this question if necessary):

It is not practicable to maintain a 25 ft buffer due to the location of existing structures, as well as tanks and storage areas for active operations at the facility associated with maritime waste, USDA/APHIS waste, used oil (Registration No. A86098), and industrial and hazardous waste (SWR No. 88576).

Where buildings are located, the alternative buffer will coincide with the distance between the boundary and building walls which is approximately 5 to 10 ft on the west and 15 ft on the north. The portion of the northern boundary where the building is not located and along the eastern boundary, an alternative buffer of 10 ft will be maintained. An alternative buffer of 5 ft will be maintained along the southern boundary. Refer to Attachment 2, Facility Access and Layout Plan, for locations and widths of alternative buffers.

The alterative buffers do not impose additional limitations to access for emergency response. Unimpeded access to the building is provided on the north side via Root Street and on the west side via an unobstructed easement. Sliding gates on the north and east property boundaries provide access into the fenced area. Buildings, tanks, and storage

areas are along the perimeter of the facility leaving open access through the center of the facility. Access to the inside of the waste processing building for emergency response is provided by roll up doors on the east side of the structure and a standard door on the north side. The alterative buffers do not impose additional limitations to access for maintenance. Maintenance may include grading of the gravel yard, repairs to fences, and repairs to building. These maintenance activities can be completed regardless of the buffer zones. Vehicles and dumpsters can be relocated as needed to allow maintenance activities to be completed.

No loading/unloading, transfer, or storage of medical waste will occur within any easement, buffer zone or right-of-way crossing the registration boundary.

2.5 Waste Management Unit Designs [30 TAC §326.71(i)]

Waste Management Unit Details

List each waste management unit in Table 3. Include attachments documenting manufacturer specifications. **The type of units listed below are manufactured by an array of companies to meet industry standards. Specifications provided are considered typical. Actual manufacturer and dimensions may vary from specifications provided in this attachment, but the equipment will be similar in size and capacity.**

~~**No specific manufacturer specifications are provided with this application.**~~

Table 3. Design Details and Manufacturer Specifications for Waste Management Units.

Unit Type	Minimum Number of Units	Design Details	Approximate Dimensions	Approximate Capacity per Unit
Gravity Autoclave	1	See Attachment 16~~7~~	5 ft diameter x 15 ft long~~271" x 79" x 74"~~	~~202.5 cubic feet~~1,125 lbs/hr
Boiler	1	See Attachment 16~~7~~	165" x 68" x 80"	150 hp
Cart Dumper	1	See Attachment 16~~7~~	91" x 75" x 76"	Up to 5,000 lbs
Cart Tipper	1	See Attachment 16~~7~~	48" x 75" x 40"	Up to 5,000 lbs
Floor Scale	1	See Attachment 16~~7~~	48"x 75" x 40"	2,500 lbs
Compactor	1	See Attachment 1~~7~~6	48" x 300" x 104"	Up to 40 cubic yards
Refrigerated Tractor Trailer (or equivalent)	1	See Attachment 16 for typical standard freight trailer	Length: 24- 53 ft Width: 8.5 ft Height: 8 ft	Cargo Weight: 22,000 lbs to 45,000 lbs per load

Sanitary Water Holding Tank	1	Above Grade Poly Tank See Attachment 16	8 ft diameter x 7.5" ft tall	2,600 gallons
Trailer Mounted Pressure Washer for Container Washing	1	See Attachment 16 for typical standard pressure washer	182" x 72"	8 gal/min 500 gallon water holding tank

Foundations and Supports

Provide a generalized description of construction materials for slab and subsurface supports of all storage and processing components (attach additional pages to answer this question if necessary):

Medical waste processing, transfer, and storage will be conducted inside an existing building supported on a concrete, slab-on-grade foundation capable of supporting the building and the waste processing and storage units. Waste processing equipment will be installed on the existing building foundation. No additional foundation reinforcement will be required to support the equipment.

Contaminated Water Management

Describe how storage and processing areas will be designed to control and contain spills and prevent contaminated water from leaving the facility. For unenclosed containment areas, also account for precipitation from a 25-year, 24-hour storm (attach additional pages to answer this question if necessary):

Waste processing units will be located in the enclosed waste processing building. Untreated waste will be stored inside the enclosed waste processing building or inside fully enclosed transportation unit(s). Treated waste will be stored in covered compactor(s) and/or roll-off(s). Since waste is under cover, contaminated water resulting from precipitation in contact with untreated medical waste, if any, will be minimal. The building and the transportation units are capable of controlling and containing worst case spills or releases and prevent contaminated water from leaving the facility.

Liquids generated during waste processing, container washing, and routine cleaning will be controlled and contained to prevent spills and to prevent contaminated water from leaving the facility. Any spills will be immediately contained, collected, and placed into the processing unit or discharged to the onsite sanitary water holding tank~~500-gallon storage container~~. This liquid waste is then transported to Delta Water Processing LLC (TCEQ RN110477700). Tools that may be used to contain and collect spills include absorbent materials, mop, bucket, and/or broom. Absorbent materials such as towels used to clean up spills will be treated as medical waste and placed into the processing unit for treatment.

Storage of medical waste will be in a secure manner and location that affords protection from theft, vandalism, inadvertent human or animal exposure, rain, water, and wind. The waste will be managed so as not to provide a breeding place or food for insects or rodents, and not generate noxious odors.

An Operations Plan and Spill Containment is provided in Attachment 19.

2.6 Treatment Requirements [30 TAC §326.71(j)]

Attach a written procedure for the operation and testing of any equipment used, and for

Note that regulations prohibit opening bags or containers of medical waste. However, the facility will employ random visual inspection of packaging when the transport containers are opened to make sure they are properly labeled, identified as to contents and with the corresponding required paperwork. Employees responsible for inspecting and observing loads will be trained to recongnize prohibited waste. Procedures used to identify prohibited waste include random inspections of packaging and accompanying manifests/shipping doucments, knowledge of container packaging and labels, and questioning transporter as to the origin of the waste. All training records and inspection records will be maintained at the site.

The contract with the customer (generator) contains a clause pertaining to unauthorized disposal of waste considered non-conforming or outside the scope of regulated medical waste. The generator must sign this contract. A Waste Acceptance Protocol that outlines the laws and regulations concerning the identification, packaging, transportation, treatment, and disposal of regulated medical waste is provided to each customer (generator). In the event any non-conforming waste is received from the generator Nature Environmental & Marines Services, LLC will contact the generator immediately so the unauthorized material can be returned to generator or other approved site on approval of generator for proper disposal. Unauthorized waste will be stored in a designated area until appropriate arrangements are authorized by the generator. Prohibited waste will be stored up to 72 hours.

Ongoing training, along with a review of customer records, is provided to customers on an as needed basis to ensure compliance with all applicable laws and regulations to ensure proper management of medical waste and protect against unauthorized disposal.

4.2 Waste Acceptance [30 TAC §326.75(b)]

Describe all sources and characteristics of medical wastes to be received for storage and processing or disposal (attach additional pages to answer this question if necessary):

Sources of waste streams include hospitals, clinics, nursing homes, other health care related facilities, cruise lines, and/or any generator of regulated medical waste. Regulated medical waste will be received in approved Federal and State required packaging accompanied by a manifest.

The facility will receive, transfer, store, and process medical waste as defined in §326.3(23), non-hazardous pharmaceuticals and trace chemotherapeutic waste. §326.3(23) defines medical waste as treated and untreated special waste from health care-related facilities that is comprised of animal waste, bulk blood, bulk human blood, bulk human body fluids, microbiological waste, pathological waste, and sharps as those terms are defined in 25 TAC §1.132 (relating to Definitions).

~~The following medical wastes will be received for storage, treatment and/or transfer at this location: "Biohazardous red bags waste" includes disposable items such as dressings, bandages, gauze, PPE and other items that have been saturated with blood or body fluids. "Sharps waste" means a device that has acute rigid corners, edges, or protuberances capable of cutting or piercing, including, but not limited to, hypodermic needles, hypodermic needles with syringes, blades, needles with attached tubing, acupuncture needles, root canal files, broken glass items used in health care such as Pasteur pipettes and blood vials contaminated with biohazardous waste, and any item capable of cutting or piercing from trauma scene waste. Pathology waste includes both of the following: (A) Human body parts, except for teeth, removed at surgery and surgery specimens or tissues removed at surgery or autopsy that are suspected by the health care professional of being contaminated with infectious agents known to be contagious to humans or having been fixed in formaldehyde or another fixative. (B) Animal parts, tissues, fluids, or carcasses~~

~~suspected by the attending veterinarian of being contaminated with infectious agents known to be contagious to humans.~~

Although not considered medical waste in Texas, "Pharmaceutical" means a prescription or over-the-counter human or veterinary drug, including, but not limited to, a drug as defined in Section 109925 of the Federal Food, Drug, and Cosmetic Act, as amended, (21 U.S.C.A. Sec. 321(g)(1)). For purposes of this part, "pharmaceutical" does not include any pharmaceutical that is regulated pursuant to either of the following: The federal Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C.A. Sec. 6901 et seq.). "Trace chemotherapeutic waste" means waste that is contaminated through contact with, or having previously contained, chemotherapeutic agents, including, but not limited to, gloves, disposable gowns, towels, and intravenous solution bags and attached tubing that are empty. These non medical waste items may be received from time to time and transferred.

The medical waste operations for Nature Environmental & Marines Services, LLC will be co-located at Nature's existing facility in Corpus Christi. The existing facility accepts waste for active operations associated with maritime waste, USDA/APHIS waste, used oil (Registration No. A86098), and industrial and hazardous waste (SWR No. 88576). Medical waste will be stored and managed separately from the other waste streams. Medical waste will not be commingled with these other waste streams. However, shipments of untreated medical waste, properly containerized APHIS regulated garbage, and non-hazardous pharmaceutical waste may be commingled during transport to the facility per §326.53(b)(12). Once received at the facility, these waste streams will be managed separately.

Describe the sources and characteristics of recyclable materials, if applicable, to be received for storage and processing (attach additional pages to answer this question if necessary):

No recycling operations are employed at this location for regulated medical waste. The facility may wash empty plastic containers to be returned to generators for reuse.

Maximum amount of waste to be received daily: 50,000 ☒ pounds/day ☐ tons /day

Maximum amount of waste to be stored at any point in time: 100,000 ☒ pounds

Maximum length of time waste is to remain at the facility: 30 ☐ hours ☒ days

Specify the maximum time that unprocessed and processed wastes will be allowed to remain on-site:

Processed: 10 days

Unprocessed: 30 ☐ hours ☒ days

Identify the intended disposition of processed and unprocessed waste received at the facility(attach additional pages to answer this question if necessary):

Untreated medical waste will be managed in accordance with 25 TAC Subchapter K and 30 TAC Chapter 326. Untreated medical waste may be temporarily stored at the facility unrefrigerated for up to 72 hours after receipt at the facility. Putrescible or biohazardous untreated medical waste held longer than 72 hours after receipt at the facility will be stored at a temperature of 45 degrees Fahrenheit or less.

Once treated in the autoclave unit(s), the steam sterilized waste will be placed in covered compactor/roll-off container(s) for transport and disposal at an approved landfill in accordance with 25 TAC §1.136 and 30 TAC §326.75(r).

4.3 Generated Waste [30 TAC §326.75(c)]

Describe how all liquids and solid waste resulting from the facility operations will be disposed of in a manner that will not cause surface water and groundwater pollution (attach additional pages to answer this question if necessary):

All liquids resulting from the facility operations will be generated inside the waste processing building with impervious concrete flooring and will be disposed of in a manner that will not cause surface water or groundwater pollution. Liquids generated during waste processing, washing, and routine cleaning will be controlled, collected, and channeled directly to the sump and then into the onsite sanitary water ~~500-gallon~~ holding tank. Condensate from autoclave process is drained through piping to the sump and then to the holding tank. Liquids in the tank are then transported to Delta Water Processing LLC (TCEQ RN110477700).

No contaminated water will be discharged off-site without specific written authorization under the Texas Pollutant Discharge Elimination System (TPDES) authority. All necessary authorizations and approvals will be obtained and retained within the operating record at the site. If applicable, the owner/operator will provide a copy of the authorization to discharge wastewater to a treatment facility permitted under Texas Water Code, Chapter 26.

Solid wastes generated by the facility are characterized as municipal solid waste. Municipal solid wastes generated by the facility can be adequately managed by MSW landfills permitted by the TCEQ. MSW will be stored in covered roll-off prior to transport to the landfill for disposal. Since waste will be stored under cover, contaminated water resulting from contact with waste is not anticipated.

4.4 Access Control [30 TAC §326.75(g)]

Describe how public access to the facility will be controlled (attach additional pages to answer this question if necessary):

The facility surrounded by barbed wire topped chain-link perimeter fencing and an electronic entrance gate controlled with a keypad/remote. The entrance gate is closed 24 hours per day.

Access to the facility is controlled by a six-foot-high chain-link fence topped with barbed wire along the north, east, and south sides of the facility. Access along the west side of the facility is controlled by a six-foot-high chain-link fence and the building. Building walls and lockable doors control access to the waste processing building where waste processing and storage occurs. Untreated waste may also be stored in enclosed, lockable transport vehicles.

Visitors are required to sign-in with identification and have an escort at all times.

Describe how access roads and parking areas will be maintained to control dust and prevent mud from being track off-site (attach additional pages to answer this question if necessary):

Public roads used by transport vehicles to access the facility are paved; no dust or mud is anticipated from paved roads.

Any loose gravel at the facility can be sprayed down to eliminate dust at the time transport vehicles are arriving or exiting the facility. Within the facility, a standard garden hose connected to an on-site water source may be sufficient to apply water.

The facility has a concrete paved two-lane entrance, designed for the expected traffic flow. Adequate turning radii for transport vehicles that will utilize the facility is available to avoid

disruption of normal traffic patterns. Parking for transport vehicles is provided within the fenced area of the facility. Employee and visitor parking is provided on the north side of the building. Incoming waste will be off loaded directly into the building or into another transfer vehicle/trailer. Safety bumpers will be provided at hoppers, if used at that facility.

Access to the facility will be controlled by a perimeter fence, with lockable gates. Identify or describe the type of fence that will be installed at the facility:

☐ A four-foot-high barbed wire fence;

☒ A six-foot-high chain-link fence; and/or

☒ Other: Building Walls

4.5 Operating Hours [(30 TAC §326.75(i)]

Provide the operating hours of the facility; ***include justification for hours outside of 7:00 a.m. to 7:00 p.m., Monday through Friday***:

Waste acceptance and transfer hours for waste transportation vehicles is 24 hours a day, seven days a week. Waste processing hours is 24 hours per day, seven days per week. The facility may conduct operations for maintenance and housekeeping, as needed, 24 hours per day, seven days per week. Additional operating hours outside of 7 am to 7 pm, Monday through Friday are necessary to accommodate customer and business needs.

Due to the workload of Nature's existing core business, operating hours at the facility are 24 hours per day, 7 days per week. Core business services include the collection and disposal of maritime waste and collection and treatment of USDA and APHIS regulated garbage. Medical waste transfer and processing will be conducted during the same hours as the core business services which is 24 hours per day, seven days per week.

~~In addition to meeting the needs of medical waste needs, Nature Environmental & Marine Services specializes in the collection and disposal of maritime waste. We process liquid waste such engine room sludge, bilge, and gray water. In addition, we collect and dispose of solid waste. This is done through various recycling partners and through sterilization of USDA and APHIS materials. Currently we are expanding into the removal, transportation, and recycling of industrial waste in and around the Texas Gulf Coast. Due to the workload of the core business, operating hours are 24 hours per day, 7 days per week.~~

List the alternative operating hours, if any, of up to five days in a calendar-year period:

The need for alterative operating hours for special occasions, special purpose events, holidays, or other special occurrences is not anticipated.

Section 5—Other Site Operating Plan, Financial Assurance, and Closure Requirements

Attach additional pages describing how the facility will comply with the following requirements.

- 30 TAC §326.75(d), Storage
- 30 TAC §326.75(e), Recordkeeping and Reporting
- 30 TAC §326.75(f), Fire protection Plan
- 30 TAC §326.75(g)(2), Access Roads, Vehicle Parking, and Safety Measures
- 30 TAC §326.75(g), Access Control
- 30 TAC §326.75(h), Unloading of Waste
- 30 TAC §326.75(i)(3), Recording of Applicable Alternative Hours (if used)
- 30 TAC §326.75(j), Signs at Facility Entrances
- 30 TAC §326.75(k), Control of Windblown Material and Litter
- 30 TAC §326.75(l), Facility Access Roads
- 30 TAC §326.75(m), Noise Pollution and Visual Screening
- 30 TAC §326.75(n), Overloading and Breakdown
- 30 TAC §326.75(o), Sanitation
- 30 TAC §326.75(p), Ventilation and Air Pollution Control
- 30 TAC §326.75(q), Health and Safety
- 30 TAC 326.75(r), Disposal of Treated Medical Waste (if applicable)
- 30 TAC §326.71(n); Financial Assurance
- 30 TAC §326.71(l)(1); provide notice for final facility closure and information for the public andexecutive director no later than 90 days prior to initiating final closure.
- 30 TAC §326.71(l)(2); install signs and barriers upon notification of final closure to the executive director.
- 30 TAC §326.71(l)(3); provide certification of closure, and a request for voluntary revocation of facility registration within 10 days after completion of final closure of the facility.

See sections 5.1 to 5.17 on pages 20 to 24 for Other Site Operating Plan, Financial Assurance, and Closure Requirements.

5.1 Storage (30 TAC §326.75(d))

All regulated medical waste arriving at the facility will be off loaded and placed into the building as shown on the facility drawings so as not to create a nuisance, and to prevent putrefaction. Medical waste will not be commingled with other waste streams at the facility. Medical waste is stored and processed separately from other waste streams managed at the facility.

~~All medical waste will be stored separate from all other waste materials or other processes. The medical waste operations for Nature Environmental & Marines Services, LLC will be co-located at Nature's existing facility in Corpus Christi. The existing facility has equipment,~~

~~tanks and storage areas for active operations associated with maritime waste, USDA/APHIS waste, used oil (Registration No. A86098), and industrial and hazardous waste (SWR No. 88576).~~

Storage will be in a manner that does not constitute fire, safety, or health hazard or provide food or harborage for animals and disease vectors and shall be contained in such a way as to not result in litter. This facility has existing protocols to control odors, vectors, and windblown waste. All medical waste containers are stored~~located~~ either in the building or on the vehicle. Medical waste is by and large not putrescible and is transferred to other locations or treated promptly. The company maintains a robust vector control program covering the entire property.

All containers coming onto the property are promptly and subsequently staged for processing as described later in this section or if applicable, transferred to other locations. Medical waste containers will be transferred or treated within 72 hours of receipt. Untreated medical waste held longer than 72 hours after receipt at the facility will be stored at a temperature of 45 degrees Fahrenheit or less. The majority of the waste will be staged in the building as described later in this section for treatment by sterilization at this location. The handling of the containers is maintained in such a way as to protect the integrity of each container during storage, handling, and transport. Containers will be maintained in a clean condition so that they do not constitute a nuisance. Containers to be mechanically handled will be designed to prevent spillage and leakage during storage, handling, and transport.

Stationary compactor(s) will be operated and maintained in such a way to not create a public nuisance through material loss or spillage, odor, vector breeding or other conditions.

5.2 Recordkeeping and Reporting (30 TAC §326.75(e))

All records shall be maintained by the facility as required by applicable regulations.

A copy of the registration, the approved registration application, and any other required plan or other related document, will be maintained at all times. These documents will be available for inspection by authorized personnel from applicable authorities.~~,~~ agency representatives;

All information contained in the operating record will be furnished upon request to the Executive Director and shall be made available at all reasonable times for inspection by the Executive Director. Nature Environmental & Marine Services, LLC will retain all information contained within the operating record and the various plans required for the facility for the life of the operation. The following will be promptly recorded and retained in the operating record: 1) Any and all applicable location-restriction demonstrations, 2) Inspection records and training procedures, 3) Closure plans, cost estimates and financial assurance documentation relating to financial assurance for closure, 4) Copies of all correspondence and responses relating to the operation of the facility, modifications to the registration, approvals, and other matters pertaining to technical assistance, and 5) All documents, manifests, shipping documents, and any other document(s) as specified by the approved authorization or by the executive director.

When accepting delivery of untreated medical waste for which a shipping document is required for processing, the owner or operator will ensure each of the following requirements is met:

1. The shipment is accompanied by a shipping document, which designates the facility to receive the waste;
2. The shipping document is signed by the owner or operator and at least one copy of the signed shipping document is immediately given to the transporter;
3. One copy of the shipping document is retained by the owner or operator; and
4. Within 45 days after delivery, the treatment facility owner or operator sends a written

or electronic copy of the shipping document to the generator that includes the total weight of waste received and a statement that the medical waste was treated in accordance with 25 TAC §1.136 (relating to Approved Methods of Treatment and Disposition).

The owner or operator or by a duly authorized representative of the owner or operator will sign all reports and other information requested by the executive director as described in §305.128 relating to Signatories to Reports and §305.44(a) relating to Signatories to Application.

A person is a duly authorized representative only if:

1. The authorization is made in writing by the owner or operator as described in §305.44(a);
2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity or for environmental, matters for the owner or operator; and
3. The authorization is submitted to the executive director.

If an authorization under this section is no longer accurate because of a change in individuals or position, a new authorization satisfying the requirements of §326.75(e)(3) will be submitted to the executive director prior to, or together with, any reports, information, or applications to be signed by an authorized representative.

Any person signing a report will make the following certification per §305.44(b).

"*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel property gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fines an imprisonment for knowing violations.*"

5.3 Fire Protection Plan (30 TAC §326.75(f))

There is a comprehensive fire protection plan (see Attachment 17) at the facility that addresses all of the following:

1. There is always an adequate supply of water for firefighting purposes supplied under normal conditions by the water company.

~~1.~~2. Fire extinguishers that comply with all requirements are strategically placed to be readily available as needed. Fire extinguishers are located at each exit door in the facility building. Extinguishers are typically 20-lb ABC Type.

~~2.~~3. All employees are trained in the fire protection program including contact information, training and safety procedures. The Fire Protection Plan includes measures for fire protection, procedures for using fire protection measures, employee training and safety procedures, notification protocols and other appropriate items. The Fire Protection Plan is in compliance with all local fire codes.

5.4 Access Control (30 TAC §326.75(g))

Public access control is maintained through several means. The facility is locked and secured

during non-operational hours and equipped with an alarm system monitored offsite.

The access roads to the facility are all paved roadways. All operations are maintained inside the building shown on the site plan. Access to the facility is controlled via a fence that surrounds the perimeter along with security gates that are accessed via a code or key card.

Public access to this facility is restricted and limited to employees, invited visitors or contractors, and authorized regulatory agency personnel. Visitors and others enter the office, and authorized access is granted after signing in and revealing the purpose of the visit. No visitors are unaccompanied at any time.

The facility access is designed for the traffic flow via a multi-lane paved road. Safe on-site access for all vehicles is provided, including adequate turning radii and does not disrupt normal traffic patterns. Parking is provided for equipment, employees, and visitors. All interior driving and parking surfaces are paved to minimize dust and mud.

A 6-foot perimeter fence topped with 3-stranded barbed wire surrounds the facility and includes lockable and monitored pedestrian and vehicle gates for access. Monitoring is conducted via closed circuit cameras with recording devices. The property is always occupied during normal business hours.

5.5 Unloading of Waste (30 TAC §326.75(h))

The unloading of waste will be confined to as small an area as practical. Waste is unloaded in the specific designated area shown on the site and floor plans. From there it is placed either into a refrigerated trailer or the specified medical waste storage area within the building. Waste will be stored in the building both for treatment onsite or for transfer to another location as described. A trained employee will monitor all incoming loads of waste to help prevent the receipt of unauthorized waste and to direct the unloading of waste. The unloading of prohibited waste will not be allowed. Any non-conforming waste is returned to the generator or transporter within 72 hours.

Appropriate signs will be used to indicate where vehicles are to unload. Any waste deposited in an unauthorized area will be removed promptly and managed of properly. Once unloaded, the waste is staged for treatment onsite in the autoclave or for transfer to another ~~location for treatment by incineration or transfer to an~~ appropriate treatment facility. The process flow diagram and narrative in this section describes the process in detail.

5.6 Operating Hours (30 TAC §326.75(i)(3))

Operating hours of the facility are as follows:

24 hours per day, 7 days per week (operations)

8:00 am to 4:00 pm Monday through Friday (office)

Weekend and holiday hours vary by the work conditions.

Since the facility is authorized to operate 24 hours per day, seven days per week, alternative hours are not applicable.

5.7 Facility Sign (30 TAC §326.75(j))

Signs measuring four feet by four feet with letters at least 3" high will be prominently displayed at the vehicle entrance locations. The signs will include the following information: facility name, type of facility, days and hours of operation, authorization number of the facility, and access rules.

5.8 Control of Windblown Material and Litter (30 TAC §326.75(k))

The entire location is maintained in a clean, healthy, and safe manner, through in part controlling windblown material and litter being promptly collected and disposed of. Routine visual inspection of the building and grounds are done daily to ensure any material and litter does not escape the property and cause a nuisance.

5.9 Facility Access Roads (30 TAC §326.75(l))

Vehicle and personnel safety is of primary concern, so all interior roads are maintained to minimize depressions, ruts, and potholes. Significant depressions, ruts, and potholes on access roads within the facility boundaries will be repaired.

Public access roads to the facility are paved, all weather roads. Mud and dust are not an issue from vehicles entering the facility as there are no unpaved roadways used to access the site. Onsite roads are all-weather gravel and may be dampened upon arrival and departure to reduce the potential of dust and mud from transportation vehicles.

On-site roads/parking areas are maintained by Nature Environmental & Marine Services, LLC. Off-site access roads are paved and maintained by the proper authority (City of Corpus Christi, Nueces County and/or Texas Department of Transportation). If maintenance of an off-site public access road serving the facility becomes necessary in the future, Nature will coordinate with the appropriate agency with maintenance authority.

5.10 Noise Pollution and Visual Screening (30 TAC §326.75(m))

The only noise arising from the operation is that of vehicles entering or exiting the property. Equipment in the building includes that which is associated with treatment of the waste and that is identified and explained in this document. All noise levels are below the limits from all applicable agencies. Visual screening is maintained due to the location of the operation which is around behind the buildings or within them. The building walls will provide visual screening and will minimize noise pollution. When waste is transferred from vehicle to vehicle, the vehicles will be parked end to end to provide visual screening and will minimize noise pollution.

5.11 Overloading and Breakdown (30 TAC §326.75(n))

The waste treatment design capacity of the facility unit is 25 tons per day (50,000 pounds per day) of medical waste and this rate will not be exceeded. The facility may store up to 50 tons (100,000 pounds) of medical waste at any one time. The facility will not accumulate waste in quantities that cannot be processed within such time that would allow for the creation of odors, insect breeding, or harborage of other vectors. There will be several measures employed by Nature Environmental & Marine Services, LLC to ensure waste is stored properly and repackaged in a timely manner:

The facility has sufficient storage capacity for incoming wastes and can store in the building and vehicles. Incoming wastes stored longer than 72 hours are refrigerated. As needed, incoming waste shipments can be delayed, or sent to an alternative permitted treatment facility if necessary.

If significant work stoppage should occur due to unexpected circumstances, the facility will restrict the receipt of waste accordingly. Under such circumstances, incoming deliveries will be delayed or diverted to an approved backup facility. If the stoppage lasts long enough to create a nuisance, odor or vectors, waste will be transferred off-site to an alternate approved

facility.

In such an event that the facility becomes inoperable for periods longer than 24 hours, waste will be transported via approved transportation vehicles to an alternative processing facility approved by the TCEQ.

5.12 Sanitation (30 TAC §326.75(o))

Sanitary facilities and potable water are available at all times for employees and visitors.

All working surfaces that come into contact with untreated medical wastes are washed down regularly and disinfected with an EPA approved disinfectant. The building will be swept daily, and washing and cleaning activities are conducted as needed in the building, at least twice weekly. Processing facilities that operate continuously must be swept daily. All working areas will be swept daily. Moisture is not allowed to accumulate on site in order to prevent the creation of odors or attraction of vectors. Mopping is conducted for floor cleaning. ~~Spills are cleaned with a 10% sodium hypochlorite solution or similar disinfection material.~~ Spilled material is collected, ~~disinfected,~~ containerized/packaged, and managed as untreated medical waste and treated in the onsite autoclave. Wash water from routine cleaning and sanitizing will be absorbed and placed into the processing unit or discharged to a drain connected to the above-ground wastewater holding tank. Surfaces in contact with spills are cleaned with an EPA approved disinfectant.

5.13 Ventilation and Air Pollution Control (30 TAC §326.75(p))

The area is well ventilated at all times. Air emissions from this facility will not cause or contribute to air pollution as defined in the Texas Clean Air Act. This Facility will comply with all applicable regulations regarding air emissions and will obtain any required authorizations from the TCEQ Air Permits Division. All liquid waste and solid waste shall be stored in odor-retaining containers and vessels. No odors are expected to occur in the facility since the medical waste is kept in sealed containers unless being repackaged. The facility is designed to provide adequate ventilation for odor control and employee safety. In the event of odors passing the facility boundary, actions will be taken to prevent nuisance odors from leaving the facility. Control of potential odors is accomplished through a number of measures including use of the routine cleanup, sealed containerized and refrigerated storage, and conducting operations within the enclosed indoor structure.

Treatment and storage is conducted within the facility structure. Medical waste exposure to the air is limited and minimal. Waste is received and stored in enclosed containers.

5.14 Health and Safety (30 TAC §326.75(q))

All employees are trained in appropriate sections of the Company's health and safety plan, the details of which are included in the Attachment 18.

5.15 Disposal of Treated Waste (30 TAC §326.75(r))

All treated waste is placed in stationary compactors and when full transferred to the designated landfill which at the present time is El Centro Landfill. All approvals are in place for waste to be accepted at that location.

Medical wastes will be treated using steam disinfection in accordance with 25 TAC §1.136. Medical wastes that have been treated in accordance with 25 TAC §1.136 may be managed as routine municipal solid waste unless otherwise specified in §326.75(r).

Treated microbiological waste, blood, blood products, body fluids, laboratory specimens of blood and tissue, and animal bedding may be disposed of in a permitted landfill. Any markings that identify the waste as medical waste shall be covered with a label that identifies the waste as treated medical waste. The identification of the waste as treated may be accomplished by the use of color coded, disposable containers for the treated waste or by label that states that the contents of the disposable container have been treated in accordance with the provision of 25 TAC §1.136.

Treated carcasses and body parts of animals designated as a medical waste may, after treatment, be disposed of in a permitted landfill in accordance with 30 TAC Chapter 330. The collection and transportation of these wastes shall conform to the applicable local ordinance or rule if such ordinance or rule is more stringent.

Sharps treated and containerized with one of the approved methods as described under 25 TAC §1.136(a)(5) shall be disposed of in a permitted landfill in accordance with 30 TAC Chapter 330. Unused sharps should be disposed of as treated sharps.

5.16 Financial Assurance (30 TAC §326.71(n))

Financial Assurance is provided by insurance procured by the applicant.

Continuous financial assurance coverage for closure will be provided until all requirements of the closure plan have been completed and the facility is determined to be closed in writing by the executive director. A copy of the documentation required to demonstrate financial assurance will be submitted 60 days prior to the initial receipt of waste.

5.17 Certification of Final Closure (30 TAC §326.71(l))

No later than 90 days prior to the initiation of final facility closure, the owner or operator will, through a published notice in the newspaper(s) of largest circulation in the vicinity of the facility, provide public notice for final facility closure. This notice will provide the name, address, and physical location of the facility; the registration number; and the last date of intended receipt of waste. The owner or operator will also make available an adequate number of copies of the approved final closure plan for public access and review.

The owner or operator will also provide written notification to the executive director of the intent to close the facility and place the notice of intent in the facility's operating record.

Upon notification to the executive director of the intent to close the site, the owner or operator will post a minimum of one sign at the main entrance and all other frequently used points of access for the facility notifying all persons who may utilize the facility or site of the date of closing for the entire facility and the prohibition against further receipt of waste materials after the stated date. Suitable barriers will be installed at all gates or access points to adequately prevent the unauthorized dumping of solid waste at the closed facility.

Within ten days after completion of final closure activities of the facility, the owner or operator shall submit to the executive director by registered mail a certification, signed by an independent licensed professional engineer, verifying final closure has been completed in accordance with the approved closure plan. and a request for voluntary revocation of the facility registration.

ATTACHMENT 7

PROCEDURES FOR OPERATION AND TESTING OF TREATMENT EQUIPMENT

Medical waste will be treated in accordance with the provisions of 25 TAC §1.136 (relating to Approved Methods of Treatment and Disposition).

The facility will use an autoclave unit to treat waste. The parameters of time, temperature and pressure of the steam sterilization system used at this facility will meet or exceed those required by the Department of State Health Services requirements for steam sterilization found in 25 TAC §1.133(b)(4). The temperature of the autoclave unit must reach at least 121 degrees Celsius (250 degrees Fahrenheit) and there must be at least 15 pounds per square inch gauge pressure for at least 30 minutes. Detailed operating procedures are included in Attachment 16 in a document titled *Installation, Operating, and Maintenance Instructions for The Mark-Castello Company Biomedical Waste Steam Sterilizer AS-Series Gravity Displacement Units.*

A minimum four log 10 reduction as defined in 25 TAC §1.132 will be demonstrated on routine performance testing using appropriate Bacillus species biological indicators. Ampules containing Bacillus species will be placed in the approximate center of the load for quality assurance. The ampules are retrieved from the load and incubated and examined for no color change indicating sufficient temperature, pressure, and time to kill the Bacillus species. A log of quality assurance testing will be maintained.

Per 30 TAC §326.71(j)(3), the operator may substitute routine parameter monitoring for biological monitoring for those processes that the manufacturer has documented compliance with the performance standard prescribed in 25 TAC §1.135 based on specified parameters and for previously approved treatment processes that a continuous readout and record of operating parameters is available. The autoclave temperature and pressure are continuously monitored and recorded during the entire length of each cycle. When continuous readout is not available, quality assurance/performance testing as described above will be performed weekly.

~~The autoclave temperature and pressure are continuously monitored and recorded during the entire length of each cycle. For autoclave units with continuous readout and record of operating parameters, the operator may substitute routine parameter monitoring for biological monitoring.~~
All required records and documentation regarding operating parameters will be initiated and maintained for three years.

Backflow preventers will be used at potable water connections to prevent contamination of potable water supplies.

ARDURRA
COLLABORATE. INNOVATE. CREATE.

February 8, 2023

Madison Howard
Project Manager
Municipal Solid Waste Section
Texas Commission on Environmental Quality
12100 Park 35 Circle
Austin, Texas 78753

RE: Response to Technical Review Notice of Deficiency (Tech-Review 2)
Nature Environmental & Marine Services
Corpus Christi, Nueces County, Texas
Municipal Solid Waste – Registration No. 40332
RN105939763 / CN604652479 / Tracking No. 27741358

This letter is provided on behalf of Nature Environmental & Marine Services (Nature) in response to the TCEQ's January 31, 2023, Notice of Deficiency (Tech-Review 2) email for the above referenced registration application. The table below summarizes the revisions to the application in response to the TCEQ NOD Letter:

NOD ID	Application Part, Section, Page Number	NOD Description	NOD Resolution
1	Section 2, Subsection 2.4 (pg. 10) & Attachment 2	Revise facility layout as necessary to maintain 25-ft buffer on the north, east, and south.	The application has been updated to show that a 25 ft buffer will be maintained along the southern boundary, eastern boundary, and the portion of the northern boundary where no existing building is located.
2	Attachment 2	Show the locations of the interior facility roadways.	The site does not have dedicated roadways on the interior of the facility. The entire area within the facility is covered with gravel which serves as a driving surface. No changes made to Attachment 2 in response to this comment.
3	Attachment 2	Include longitudinal and latitudinal geographic coordinates for the point of beginning of the facility boundary's metes and bounds description in Attachment 2.	Longitude and latitude for the point of beginning of the facility boundary's metes and bounds description was added to Attachment 2.
4	Attachment 2	Show the site entrance roads from the public access roads.	The site entrances from Gilliam Street and Root Street are already shown on Attachment 2. For clarity, driveways were added to Attachment 2.

NOD ID	Application Part, Section, Page Number	NOD Description	NOD Resolution
5	Attachment 6	Provide narrative for how non-hazardous trace chemotherapeutic waste and pathologic waste will be treated.	Attachment 6 was revised to include a narrative for transporting non-hazardous trace chemotherapeutic waste and pathologic waste off-site for treatment at an authorized facility.

The following replacement pages are included with this response:

- Binder Cover
- Application Form - TCEQ-20789, Cover Page (page 1) and Table of Contents (page 2)
- Application Form - TCEQ-20789, page 10, Section 2.4 – Buffer Zones and Easement Protection
- Application Form - TCEQ-20789, page 26, Section 6 – Applicant Certification and Signature
- Attachment 2, Facility Access and Layout Map
  - Revised Facility Access and Layout Map
- Attachment 6, Process Flow Diagram and Narrative
  - Revised pages 1 and 2

Each replacement page contains a revision date. An original, one unmarked copy, and one marked copy of the revised pages are enclosed. One unmarked and one marked copy will be sent to the Region 14 office and placed at the library designated in the application. A copy will also be posted on the website listed in the application. If you have any questions regarding this NOD response or require any additional information, please feel free to contact me at (361) 883-1984 or ahesseltine@ardurra.com.

Sincerely,

Amy Hesseltine, P.E.
Environmental Group Leader

Enclosures

cc: Sudhakar Yenumala, Nature Environmental & Marine Services
Tim Perdue, TCEQ Region Office 14

UNMARKED COPIES

Texas Commission on Environmental Quality

Application for a Medical Waste Registration

Nature Environmental & Marine Services LLC

Registration No. 40332

Corpus Christi, Nueces County, Texas

June 2022

Prelim-Review 1 (August 2022)

Tech-Review 1 (October 2022)

Tech-Review 2 (February 2023)

Prepared for:

Nature Environmental & Marine Services LLC

8713 Root Street

Corpus Christi, TX 78409

Prepared by:

Amy Hesseltine, P.E., Environmental Group Leader

Ardurra Group, Inc.

Engineering License #F-10053

801 Navigation, Suite 300

Corpus Christi, Texas 78408

Table of Contents

2/8/23
Amy R Hesseltine

2.3 Floodplain and Wetlands [30 TAC §326.71(f)]

Will the facility be located within a 100-year floodplain?

No ☒ Yes ☐ Identify the floodplain zone Zone X – Areas determined to be outside the 0.2% (500 yr) annual change floodplain.

Attach a copy of the Federal Emergency Management Administration administrator (FEMA) flood map for the area. See Attachment 10 for FEMA Map (Map Number 48355C0300G, Effective Date: Preliminary October 23, 2015). Map obtained from the City of Corpus Christi website (www.cctexas.com/floodplainmanagement/floodmaps).

Zone X is not in the 100-year floodplain. Therefore, additional documentation is not required. The facility will be constructed, maintained, and operated to manage run-on and run-off during the peak discharge of a 25-year rainfall event and will prevent the off-site discharge of waste. Surface water drainage in and around the facility will be controlled to minimize surface water running onto, into, and off the storage and transfer areas.

The facility has an active authorization (TXR05CS14) under the 2021 Multi-Sector General Permit (MSGP) to discharge storm water.

If the facility will be within a 100-year floodplain, attach documentation demonstrating that the facility is designed and will be operated in a manner to prevent washout of waste during a 100-year storm event, or that the facility has obtained a conditional letter of map amendment from the FEMA.

Will the facility be located in wetlands?

Yes ☐ No ☒

If yes, attach documentation to the extent required under Clean Water Act, §404 or applicable state wetlands laws.

2.4 Buffer Zones and Easement Protection [30 TAC §326.71(h)(3)]

Is the buffer zone in any location at the facility less than 25 feet wide?

Yes ☒ No ☐

If yes, describe your alternative buffer zone and how it will allow access for emergency response and maintenance (attach additional pages to answer this question if necessary):

Where buildings are located, the alternative buffer will coincide with the distance between the boundary and building walls which is approximately 5 to 10 ft on the west and 15 ft on the north. The portion of the northern boundary where the building is not located, a 25 ft buffer of 10 ft will be maintained. A 25 ft buffer will be maintained along the southern and eastern boundaries. Refer to Attachment 2, Facility Access and Layout Plan, for locations and widths of alternative buffers.

The alterative buffers do not impose additional limitations to access for emergency response. Unimpeded access to the building is provided on the north side via Root Street and on the west side via an unobstructed easement. Sliding gates on the north and east property boundaries provide access into the fenced area. Buildings, tanks, and storage areas are along the perimeter of the facility leaving open access through the center of the facility. Access to the inside of the waste processing building for emergency response is provided by roll up doors on the east side of the structure and a standard door on the north side. The alterative buffers do not impose additional limitations to access for maintenance.

Maintenance may include grading of the gravel yard, repairs to fences, and repairs to building. These maintenance activities can be completed regardless of the buffer zones. Vehicles and dumpsters can be relocated as needed to allow maintenance activities to be completed.

Existing structures, as well as tanks and storage areas for active operations at the facility associated with maritime waste, USDA/APHIS waste, used oil (Registration No. A86098), and industrial and hazardous waste (SWR No. 88576) may be located within the buffer.

No loading/unloading, transfer, or storage of medical waste will occur within any easement, buffer zone or right-of-way crossing the registration boundary.

2.5 Waste Management Unit Designs [30 TAC §326.71(i)]

Waste Management Unit Details

List each waste management unit in Table 3. Include attachments documenting manufacturer specifications. **The type of units listed below are manufactured by an array of companies to meet industry standards. Specifications provided are considered typical. Actual manufacturer and dimensions may vary from specifications provided in this attachment, but the equipment will be similar in size and capacity.**

Table 3. Design Details and Manufacturer Specifications for Waste Management Units.

Unit Type	Minimum Number of Units	Design Details	Approximate Dimensions	Approximate Capacity per Unit
Gravity Autoclave	1	See Attachment 16	5 ft diameter x 15 ft long	1,125 lbs/hr
Boiler	1	See Attachment 16	165" x 68" x 80"	150 hp
Cart Dumper	1	See Attachment 16	91" x 75" x 76"	Up to 5,000 lbs
Cart Tipper	1	See Attachment 16	48" x 75" x 40"	Up to 5,000 lbs
Floor Scale	1	See Attachment 16	48"x 75" x 40"	2,500 lbs
Compactor	1	See Attachment 16	48" x 300" x 104"	Up to 40 cubic yards
Refrigerated Tractor Trailer (or equivalent)	1	See Attachment 16 for typical standard freight trailer	Length: 24- 53 ft Width: 8.5 ft Height: 8 ft	Cargo Weight: 22,000 lbs to 45,000 lbs per load
Sanitary Water Holding Tank	1	Above Grade Poly Tank See Attachment 16	8 ft diameter x 7.5” ft tall	2,600 gallons
Trailer Mounted Pressure Washer for Container Washing	1	See Attachment 16 for typical standard pressure washer	182” x 72”	8 gal/min 500 gallon water holding tank

Section 6—Applicant Certification and Signature

The applicant is the person or entity who would be the owner of the facility and in whose name the registration would be issued. If the application is signed by an authorized representative for the applicant, the applicant must complete the delegation of signature authority.

Certification by Applicant or Authorized Signatory [30 TAC §305.44]

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name of applicant, or other person authorized to sign: Sudhakar Yenumala

Title of person signing: Director

Signature: Y.S. Reddy Date: 2/10/2023

Notarization

SUBSCRIBED AND SWORN to before me by the said Sudhakar Yenmala

On this 10 day of Feb., 2023.

My commission expires on the 01 day of July, 2025.

STEFFANY LAUREN STARKS
Notary Public, State of Texas
Comm. Expires 07-01-2025
Notary ID 133186737

Notary Public in and for

Harris County, Texas

Applicant's Delegation of Signature Authority [30 TAC §305.43]

I hereby delegate the person named below as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and appear for me at any hearing or before the Commission in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative in support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

Name of applicant's representative: _____

Name of person who is the applicant, or officer or official representing corporation or public agency that is the applicant: _____

Signature: _____ Date: _____

Notarization

SUBSCRIBED AND SWORN to before me by the said _____

On this _____ day of _____, _____.

My commission expires on the _____ day of _____, _____.

_____

Notary Public in and for

_____ County, Texas

ATTACHMENT 2

FACILTY ACCESS AND LAYOUT MAP

ROOT STREET

27°47'25.29" N
-97°32'4.75" W

SECONDARY ENTRANCE
SLIDING GATE

15.0'
EMPLOYEE & VISITOR PARKING
SEPTIC TANK
DOOR
BATHROOMS
OFFICES

25.0'
TRUCK PARKING
(UP TO 4
18 WHEELERS)

DUMPSTERS

10.0'

USDA/USCBP
REGULATED
GARBAGE
ROLL-UP DOOR
ROLL-UP DOOR

BAY DOOR
BAY DOOR
BAY DOOR
BAY DOOR

MEDICAL WASTE
PROCESSING BUILDING

AUTOCLAVE
BOILER
WATER SOFTENER
CART TIPPER
CART WASH AREA
COMPACTOR

GRAVEL

SLIDING GATE
PRIMARY ENTRANCE

25.0'

WATERLINE EASEMENT
31' RAILROAD EASEMENT

500 GAL. SUMP
SANITARY WATER 2,600 GAL.
(2) 500 GAL. PROPANE BULLETS
SINK

CONCRETE PAD
OILY DUMPSTER

STORAGE (NON-MEDICAL WASTE)
60' x 60' x 2.5' CONTAINMENT
(5) 21,000 GALLON FRAC TANKS
TRUCK/TRAILER PARKING

5.0'
55 GALLON DRUM STORAGE
25.0'

TOOLS, EMPTY DRUM & TOTE STORAGE

GILLIAM STREET

6FT. CHAIN LINK FENCE W/BARBED WIRE

N

FACILITY ACCESS AND LAYOUT PLAN

0 30' 60'
SCALE: 1"=30'

LEGEND

- BUFFER (SEE NOTE 1)
- LIGHT POLE
- EXISTING FENCE
- PROPERTY BOUNDARY

NOTE:
1. NO LOADING, STORAGE OR PROCESSING OF MEDICAL WASTE SHALL OCCUR WITHIN AN EASEMENT, BUFFER, OR RIGHT-OF-WAY THAT CROSSES THE FACILITY.

STATE OF TEXAS
AMY REIN HESSELTINE
93578
LICENSED PROFESSIONAL ENGINEER
02/08/2023
Amy R. Hesseltine

NATURE ENVIRONMENTAL AND MARINE SERVICES
8713 ROOT STREET
CORPUS CHRISTI, TEXAS

ATTACHMENT 2
FACILITY ACCESS AND LAYOUT PLAN

ARDURRA
COLLABORATE. INNOVATE. CREATE.
801 Navigation Suite 300
Corpus Christi, Texas 78408
Phone: (361) 883-1984
www.Ardurra.com
Engineering License #F-10053
Ardurra Group, Inc.
Surveying Firm 10194688
Architectural Firm BR4160

DATE:	2/08/2023
DRAWN BY:	SCG
CHECKED BY:	AH
APPROVED BY:	AH
JOB NO:	220101.000.2

REVISIONS		
10/22	1	ADDED SINK/BATHROOMS
2/23	2	BUFFER, LAT & LONG
DATE	NO.	DESCRIPTION

ATTACHMENT 6

PROCESS FLOW DIAGRAM AND NARRATIVE

PROCESS FLOW DIAGRAM AND NARRATIVE

§326.71(h)(4) Flow Diagram and Narrative

A flow diagram indicating the receipt, storage, and transfer sequences for the various types of wastes received is provided in this Attachment 6 of the application. A narrative of each phase is provided below.

Arrival of Waste at Facility: Medial waste is delivered by a TCEQ registered medical waste transporter to the medical waste management facility. Only those waste streams specified in this registration application will be unloaded. The unloading of prohibited wastes will not be allowed.

Visual Inspection and Manifest Review: Incoming waste and accompanying manifests/shipping documents will be visually inspected by employees trained to identify prohibited waste. Random visual inspections of packaging for incoming waste containers will be conducted a minimum of once per week to verify proper markings have been placed on all containers of waste.

Waste Accepted: The facility will accept medical waste as defined in §326.3(23), non-hazardous pharmaceuticals, trace chemotherapeutic waste, and confidential documents. §326.3(23) defines medical waste as treated and untreated special waste from health care-related facilities that is comprised of animal waste, bulk blood, bulk human blood, bulk human body fluids, microbiological waste, pathological waste, and sharps as those terms are defined in 25 TAC §1.132 (relating to Definitions).

Reject / Return to Transporter: Any prohibited waste discovered prior to unloading will be rejected and returned promptly to the transporter or generator of the waste. In the event unauthorized materials are unloaded at the site, the material will be rejected, and the transporter will be required to immediately remove the waste along with any contaminated materials from the facility. Any undisclosed prohibited waste discovered after unloading will be isolated until the material can be adequately identified.

Waste Transfer: Waste may be transferred to another appropriately permitted/registered facility for treatment. Transfer of waste will occur at the loading/unloading docks or from truck to truck. In the event the waste generator specifically requests a waste to be incinerated, the facility will accept, segregate for temporary storage, and transfer the waste off-site to an appropriately permitted facility. Non-hazardous trace chemotherapeutic waste and pathological waste will be transferred off-site to a facility authorized to accept and treat the waste.

Temporary Storage of Untreated Waste: Untreated medical waste may be temporarily stored at the site unrefrigerated for up to 72 hours. Putrescible or biohazardous untreated medical waste held longer than 72 hours after being received at the facility will be stored at a temperature of 45 degrees Fahrenheit or less. Stand-alone refrigeration units or transport trucks/trailers with refrigeration units will be used to store untreated medical waste held longer than 72 hours after receipt at the facility.

Non-hazardous trace chemotherapeutic waste and pathological waste will be segregated and stored temporarily until transferred off-site for treatment at another facility authorized to accept and treat the waste.

Transfer Waste to Autoclave Bin: A cart tipper will transfer untreated waste from containers into autoclave bins for processing.

Waste Processing by Autoclave: Waste received at the facility (expect non-hazardous trace chemotherapeutic waste and pathological waste) will be treated by steam sterilization disinfection using autoclave unit(s) with associated boiler(s). This treatment technology is a Texas Department of State Health Services approved treatment technology. The process consists of placing the untreated waste in a pressure vessel/autoclave unit and forcing steam into the chamber and through the waste. When the waste is exposed to the proper temperatures for the approved time, the waste will be rendered sterilized. The parameters of time, temperature and pressure of the autoclave(s) used at this facility will meet or exceed those required by the Department of State Health Services requirements for steam disinfection found in 25 TAC §1.133(b)(4)(B). 25 TAC §1.133(b)(4)(B) states that when subjecting waste to steam under pressure, the temperature in the chamber of the autoclave must reach at least 121 degrees Celsius and there must be at least 15 pounds per square inch gauge pressure for at least 30 minutes. Autoclave bins loaded with untreated waste are rolled into the autoclave unit for treatment.

Temporary Storage of Treated Waste: Autoclave bins containing treated waste will be emptied into waste compactor. Treated waste will be temporarily stored on-site and then transported off-site for disposal at a TCEQ approved municipal solid waste landfill.

Transport of Treated Waste to MSW Landfill: Treated waste will be transported to a TCEQ permitted landfill for disposal.

Empty Container Washing: The empty waste containers will be washed with pressurized water and detergent. Clean containers will be returned to generators for reuse.

REDLINE/STRIKEOUT COPY

Texas Commission on Environmental Quality

Application for a Medical Waste Registration

Nature Environmental & Marine Services LLC

Registration No. 40332

Corpus Christi, Nueces County, Texas

June 2022

Prelim-Review 1 (August 2022)

Tech-Review 1 (October 2022)

Tech-Review 2 (February 2023)

Prepared for:

Nature Environmental & Marine Services LLC

8713 Root Street

Corpus Christi, TX 78409

Prepared by:

Amy Hesseltine, P.E., Environmental Group Leader

Ardurra Group, Inc.

Engineering License #F-10053

801 Navigation, Suite 300

Corpus Christi, Texas 78408

Table of Contents

2.3 Floodplain and Wetlands [30 TAC §326.71(f)]

Will the facility be located within a 100-year floodplain?

No ☒ Yes ☐ Identify the floodplain zone Zone X – Areas determined to be outside the 0.2% (500 yr) annual change floodplain.

Attach a copy of the Federal Emergency Management Administration administrator (FEMA) flood map for the area. See Attachment 10 for FEMA Map (Map Number 48355C0300G, Effective Date: Preliminary October 23, 2015). Map obtained from the City of Corpus Christi website (www.cctexas.com/floodplainmanagement/floodmaps).

Zone X is not in the 100-year floodplain. Therefore, additional documentation is not required. The facility will be constructed, maintained, and operated to manage run-on and run-off during the peak discharge of a 25-year rainfall event and will prevent the off-site discharge of waste. Surface water drainage in and around the facility will be controlled to minimize surface water running onto, into, and off the storage and transfer areas.

The facility has an active authorization (TXR05CS14) under the 2021 Multi-Sector General Permit (MSGP) to discharge storm water.

If the facility will be within a 100-year floodplain, attach documentation demonstrating that the facility is designed and will be operated in a manner to prevent washout of waste during a 100-year storm event, or that the facility has obtained a conditional letter of map amendment from the FEMA.

Will the facility be located in wetlands?

Yes ☐ No ☒

If yes, attach documentation to the extent required under Clean Water Act, §404 or applicable state wetlands laws.

2.4 Buffer Zones and Easement Protection [30 TAC §326.71(h)(3)]

Is the buffer zone in any location at the facility less than 25 feet wide?

Yes ☒ No ☐

If yes, describe your alternative buffer zone and how it will allow access for emergency response and maintenance (attach additional pages to answer this question if necessary):

~~It is not practicable to maintain a 25 ft buffer due to the location of existing structures, as well as tanks and storage areas for active operations at the facility associated with maritime waste, USDA/APHIS waste, used oil (Registration No. A86098), and industrial and hazardous waste (SWR No. 88576).~~

Where buildings are located, the alternative buffer will coincide with the distance between the boundary and building walls which is approximately 5 to 10 ft on the west and 15 ft on the north. The portion of the northern boundary where the building is not located ~~and along the eastern boundary~~, a 25 ft ~~an alternative~~ buffer of 10 ft will be maintained. An ~~alternative~~ 25 ft buffer ~~of 5 ft~~ will be maintained along the southern and eastern boundaries~~y~~. Refer to Attachment 2, Facility Access and Layout Plan, for locations and widths of alternative buffers.

The alterative buffers do not impose additional limitations to access for emergency response. Unimpeded access to the building is provided on the north side via Root Street and on the west side via an unobstructed easement. Sliding gates on the north and east

property boundaries provide access into the fenced area. Buildings, tanks, and storage areas are along the perimeter of the facility leaving open access through the center of the facility. Access to the inside of the waste processing building for emergency response is provided by roll up doors on the east side of the structure and a standard door on the north side. The alterative buffers do not impose additional limitations to access for maintenance. Maintenance may include grading of the gravel yard, repairs to fences, and repairs to building. These maintenance activities can be completed regardless of the buffer zones. Vehicles and dumpsters can be relocated as needed to allow maintenance activities to be completed.

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List each waste management unit in Table 3. Include attachments documenting manufacturer specifications. **The type of units listed below are manufactured by an array of companies to meet industry standards. Specifications provided are considered typical. Actual manufacturer and dimensions may vary from specifications provided in this attachment, but the equipment will be similar in size and capacity.**

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Cart Tipper	1	See Attachment 16	48" x 75" x 40"	Up to 5,000 lbs
Floor Scale	1	See Attachment 16	48"x 75" x 40"	2,500 lbs
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Certification by Applicant or Authorized Signatory [30 TAC §305.44]

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Name of applicant, or other person authorized to sign: _____

Title of person signing: _____

Signature:_____Date: _____

Notarization

SUBSCRIBED AND SWORN to before me by the said _____

On this_____day of_____,_____.

My commission expires on the_____day of_____,_____.

_____

Notary Public in and for

_____ County, Texas

Applicant's Delegation of Signature Authority [30 TAC §305.43]

I hereby delegate the person named below as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and appear for me at any hearing or before the Commission in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative in support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

Name of applicant's representative: _____

Name of person who is the applicant, or officer or official representing corporation or public agency that is the applicant: _____

Signature:_____Date: _____

Notarization

SUBSCRIBED AND SWORN to before me by the said _____

On this_____day of_____,_____.

My commission expires on the_____day of_____,_____.

_____

Notary Public in and for

_____ County, Texas

ROOT STREET

27°47'25.29" N
-97°32'4.75" W

SECONDARY ENTRANCE
SLIDING GATE

15.0'
EMPLOYEE & VISITOR PARKING
SEPTIC TANK
DOOR
BATHROOMS
OFFICES

25.0'
TRUCK PARKING
(UP TO 4
18 WHEELERS)

DUMPSTERS

10.0'

USDA/USCBP
REGULATED
GARBAGE
ROLL-UP DOOR
ROLL-UP DOOR

BAY DOOR
BAY DOOR
BAY DOOR
BAY DOOR

MEDICAL WASTE
PROCESSING BUILDING

AUTOCLAVE
BOILER
WATER SOFTENER
CART TIPPER
CART WASH AREA
COMPACTOR

GRAVEL

SLIDING GATE
PRIMARY ENTRANCE

25.0'

WATERLINE EASEMENT
31' RAILROAD EASEMENT

500 GAL. SUMP
SANITARY WATER 2,600 GAL.
(2) 500 GAL. PROPANE BULLETS
SINK

CONCRETE PAD
OILY DUMPSTER

STORAGE (NON-MEDICAL WASTE)
60' x 60' x 2.5' CONTAINMENT
(5) 21,000 GALLON FRAC TANKS
TRUCK/TRAILER PARKING

5.0'
55 GALLON DRUM STORAGE
25.0'

TOOLS, EMPTY DRUM & TOTE STORAGE

GILLIAM STREET

6FT. CHAIN LINK FENCE W/BARBED WIRE

N

FACILITY ACCESS AND LAYOUT PLAN

0 30' 60'
SCALE: 1"=30'

LEGEND

- BUFFER (SEE NOTE 1)
- LIGHT POLE
- EXISTING FENCE
- PROPERTY BOUNDARY

NOTE:
1. NO LOADING, STORAGE OR PROCESSING OF MEDICAL WASTE SHALL OCCUR WITHIN AN EASEMENT, BUFFER, OR RIGHT-OF-WAY THAT CROSSES THE FACILITY.

STATE OF TEXAS
AMY REIN HESSELTINE
93578
LICENSED PROFESSIONAL ENGINEER
02/08/2023
Amy R. Hesseltine

NATURE ENVIRONMENTAL AND MARINE SERVICES
8713 ROOT STREET
CORPUS CHRISTI, TEXAS

ATTACHMENT 2
FACILITY ACCESS AND LAYOUT PLAN

ARDURRA
COLLABORATE. INNOVATE. CREATE.
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Phone: (361) 883-1984
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Engineering License #F-10053
Ardurra Group, Inc.
Surveying Firm 10194688
Architectural Firm BR4160

DATE:	2/08/2023
DRAWN BY:	SCG
CHECKED BY:	AH
APPROVED BY:	AH
JOB NO:	220101.000.2

REVISIONS		
10/22	1	ADDED SINK/BATHROOMS
2/23	2	BUFFER, LAT & LONG
DATE	NO.	DESCRIPTION

PROCESS FLOW DIAGRAM AND NARRATIVE

§326.71(h)(4) Flow Diagram and Narrative

A flow diagram indicating the receipt, storage, and transfer sequences for the various types of wastes received is provided in this Attachment 6 of the application. A narrative of each phase is provided below.

Arrival of Waste at Facility: Medial waste is delivered by a TCEQ registered medical waste transporter to the medical waste management facility. Only those waste streams specified in this registration application will be unloaded. The unloading of prohibited wastes will not be allowed.

Visual Inspection and Manifest Review: Incoming waste and accompanying manifests/shipping documents will be visually inspected by employees trained to identify prohibited waste. Random visual inspections of packaging for incoming waste containers will be conducted a minimum of once per week to verify proper markings have been placed on all containers of waste.

Waste Accepted: The facility will accept medical waste as defined in §326.3(23), non-hazardous pharmaceuticals, trace chemotherapeutic waste, and confidential documents. §326.3(23) defines medical waste as treated and untreated special waste from health care-related facilities that is comprised of animal waste, bulk blood, bulk human blood, bulk human body fluids, microbiological waste, pathological waste, and sharps as those terms are defined in 25 TAC §1.132 (relating to Definitions).

Reject / Return to Transporter: Any prohibited waste discovered prior to unloading will be rejected and returned promptly to the transporter or generator of the waste. In the event unauthorized materials are unloaded at the site, the material will be rejected, and the transporter will be required to immediately remove the waste along with any contaminated materials from the facility. Any undisclosed prohibited waste discovered after unloading will be isolated until the material can be adequately identified.

Waste Transfer: Waste may be transferred to another appropriately permitted/registered facility for treatment. Transfer of waste will occur at the loading/unloading docks or from truck to truck. In the event the waste generator specifically requests a waste to be incinerated, the facility will accept, segregate for temporary storage, and transfer the waste off-site to an appropriately permitted facility. Non-hazardous trace chemotherapeutic waste and pathological waste will be transferred off-site to a facility authorized to accept and treat the waste.

Temporary Storage of Untreated Waste: Untreated medical waste may be temporarily stored at the site unrefrigerated for up to 72 hours. Putrescible or biohazardous untreated medical waste held longer than 72 hours after being received at the facility will be stored at a temperature of 45 degrees Fahrenheit or less. Stand-alone refrigeration units or transport trucks/trailers with refrigeration units will be used to store untreated medical waste held longer than 72 hours after receipt at the facility.

Non-hazardous trace chemotherapeutic waste and pathological waste will be segregated and stored temporarily until transferred off-site for treatment at another facility authorized to accept and treat the waste.

Transfer Waste to Autoclave Bin: A cart tipper will transfer untreated waste from containers into autoclave bins for processing.