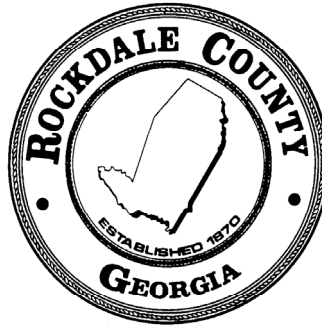


BOARD OF COMMISSIONERS

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DEPARTMENT OF FINANCE

SUE SANDERS, INTERIM CFO

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Addendum No. 1

**ITB No. 25-03
PROJECT/BID NAME GOES HERE**

May 1, 2025

ITB #25-03 is hereby amended as follows:

1. Below are questions received and corresponding answers:

A. Question: Page 6, note 3 calls for replacement of filter media in the destruct units. Can the O&Ms be provided for the units with instructions on proper procedures to replace the media?

Answer: Yes, they are attached.

2. All other conditions remain in full force and effect.

3. If a bid has been submitted and anything in this Addendum causes the bidder to change the item offered or to increase or decrease the bid price, the new price and/or changes will be inserted below:

4. All bidders under this Invitation to Bid are kindly requested to acknowledge receipt of this Addendum on page 11 of the Bid Package.

Tina Malone

Tina Malone, CPPB CPPO

Procurement Manager

Department of Finance, Purchasing Division

11

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ROCKDALE COUNTY WTP
CONYERS, GA.

Date: 10/2/01
By: **FUJI**
Project: RDGA-0600

OZONE SYSTEM OPERATION & MAINTENANCE MANUAL

1.0 OZONE DESTRUCT DESCRIPTION AND CHARACTERISTICS

The ozone destruct skid units use the thermal-catalytic process to reduce the excess ozone in the off-gas from the contact chambers to a level for safe exhaustion into the atmosphere.

An ozone destruct skid consists of the pre-heater, catalyst vessel, vent blower, electrical control panel and vent gas ozone monitor all mounted on a common skid for ease of installation.

The Ozone Destruct skid unit includes a prefabricated power and control panel. This unit has built in capabilities of controlling the system locally from the Ozone Destruct Control Panel (ODCP) or from a remote source. The system is a stand alone system, with limited field control work required.

MANUFACTURER:	FUJI ELECTRIC
MODEL:	FOD-30-F
TYPE:	THERMAL-CATALYTIC
MAT. OF CONSTRUCTION:	316L (all ozone wetted parts)
CATALYST TYPE:	CARULITE 200, 3/16" EXTRUSION
VESSEL DIAMETER:	8" inches
CATALYST REQUIRED:	29 lbs.
DESIGN FLOW (NORMAL MAX.):	30 scfm
PRESSURE DROP (NORMAL MAX.):	5 in wc
MAX. OUTLET OZONE CONC.:	0.1 ppm (by volume)
ELECTRICAL POWER:	480Vac, 3 Phase, 60 Hz.
PREHEATER	500 Watts
TEMPERATURE RISE:	30 °F
VENT BLOWERS	2 HP 3450 rpm
TEMPERATURE SENSORS:	
PREHEATER OVER-TEMP.	TYPE J 1000°F
PREHEATER TEMPERATURE	THREMOCOUPLE
QUANTITY:	3
<u>TAG No.:</u>	DESTRUCT UNIT #1, #2, & #3

Bob McHenry
404
797 3653

2.0 INSTALLATION

The ozone destruct skid unit comes fully assembled. Once the skid has been installed and readied for operation, no adjustments are required.

The destructor skid unit is to be set level on an equipment pad using the recommended size anchor bolts. Remove the flange covers and inspect the inlet to insure that the heater elements were not damaged during transit. INLET and OUTLET piping connections are to be made in accordance with

OZONE SYSTEM OPERATION & MAINTENANCE MANUAL

the installation drawings. All piping is to be adequately supported to limit stress on the unit.

Electrical power and signal wiring are to be connected in accordance with the installation drawings. All conduit entrances into the control box are to be made with weathertight fittings. Insure that the disconnect switch is in the OFF position during the installation phase.

2.1 CATALYST INSTALLATION PROCEDURE

Each destruct unit is sized to hold 29 lbs of catalyst. The catalyst is shipped in drums of 45 lbs. To load the catalyst, a sufficient number of catalyst drums must first be transported to a location near the destruct units.

Tools that are required include proper sized wrenches for the nuts & bolts, proper sized screwdrivers and a flashlight. To install the catalyst proceed as follows:

**CAUTION: DO NOT EXPOSE THE
CATALYST DRUMS TO DAMPNESS.**

1. Remove the bolts on the top access cover and remove the access cover.
2. Inside the destruct unit, remove the upper catalyst tray. There are tightening screws on the side of the trays that secure the trays to the side of the vessel. These screws must be loosened to remove these trays.
3. Fill the catalyst chamber with 29 lbs, of CARULITE 200 Low Temperature Oxidation Catalyst material. Transfer the catalyst from the supply drums to the chamber by scooping or pouring.

**CAUTION: Refer to the MSDS for the catalyst in Safety-
Section of this manual for information on this catalyst.
Safety glasses and rubber or plastic gloves should be worn
when handling the catalyst. Also provide sufficient
mechanical and/or local exhaust to maintain exposure below
levels of overexposure.**

OZONE SYSTEM OPERATION & MAINTENANCE MANUAL

4. Install the upper tray.
5. Inspect the cover gasket for damage. Replace if damaged.
6. Align cover holes and install bolts and nuts. Tighten all nuts sufficiently to produce equal compression of the gasket around the cover. **DO NOT OVER TIGHTEN THE COVER AS DAMAGE COULD RESULT.**
7. Slightly pressurize the unit (less than 10 psig) with oil free air or oxygen and check for leaks around all flange connections using soap and water.

3.0 OPERATION

The Destruct System includes the Demister, Preheater, Destructor, and Off-gas Blower. An Ozone Destruct Field Control Panel is provided to control the components of the Destruct System.

A demister is installed on the off-gas line from the basins to remove water droplets carried over with the off-gas and return these droplets into the basin.

Off-gas from the contact basin is piped to the Ozone Destruct Units.

Since the performance of the catalyst is affected by temperature, an inlet preheater is provided to keep the incoming gas at the temperature required for optimum operation. The preheater raises the gas temperature to assure the gas remains unsaturated and that no water condenses out. The temperature of the heater is controlled by a temperature indicating controller mounted in the ODCP.

Should a problem be encountered with the temperature control components or should the gas flow be reduced or restricted, a High Limit Safety Cutout is installed in the control panel. A thermocouple is installed on the heater elements to monitor the surface temperature of the heater. The output from this thermocouple is connected to a high temperature switch. If the temperature increases beyond the preset limit (1000 °F), the switch will activate, and the preheater will shut down, and a high temperature fault signal will be displayed.

An off-gas blower is used to pull the off-gas from the contactor and thru the destruct unit.

Off-gas ozone concentration monitors, AE/AIT-5-1-3, & 5-2-3 are installed in the off-gas line from the basins to monitor the amount of ozone in the off-gas. A sample pump is supplied in the monitor to pull a sample gas through the ozone sensor.

Vent gas ozone monitors, AE/AIT-3-7-1, 3-7-2, & 3-7-3 are installed on the blower discharge piping.

OZONE SYSTEM OPERATION & MAINTENANCE MANUAL

This monitor measures the ozone level on the outlet of the blower. The ozone level at this point should be less than 0.1 ppm (by vol.). Any level above this will sound an alarm.

3.1 STARTUP

1. Verify power is available to the ozone destruct control panel from the supply source.
2. Make sure the selector switch on the destruct panel is in the "OFF" position.
3. Open the panel door and make sure the Circuit breakers are "ON".

Caution: Each control panel has multiple sources of power. There is 480 volts and 120 volts. Take appropriate electrical safety precautions when operating these control panels.

4. Open any manual valves on the off-gas lines to ensure there is a clear path from the basin headspace to the vent gas outlet at the blower. Close all drain and vent valves.
5. Close the panel and switch the selector to the "ON" position.
6. Ensure all the instrumentation, especially the ozone off-gas and vent gas monitors are on-line and operating properly.

3.2 OPERATING MODES

There are two modes of operation available in the destruct system. These are the LOCAL mode - used for setup, testing or for manual operation and the REMOTE mode, used for operation from the plant control system.

LOCAL MODE (from the Ozone Destruct Control Panel):

1. Turn the control power "ON". Verify the system energizes a power "ON" light.
2. Turn the "ON/OFF/REMOTE" selector switch to "ON". Verify the blower and Perheater "ON" lights are lit.



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OZONE SYSTEM OPERATION & MAINTENANCE MANUAL

3. Set the temperature controller located in the destruct control panel to the desired gas temperature setpoint. The actual temperature of the destruct unit and the set temperature are displayed and selected at this controller.

REMOTE MODE (from the Generator Control Panel):

1. Turn the control power "ON", Verify the system energizes a power "ON" light.
2. Turn the "ON/OFF/REMOTE" selector switch to "REMOTE". The unit will automatically start upon receiving a remote start command from the plant control system. The blower and Preheater "ON" lights will light upon activation.
3. Set the temperature controller located in the destruct control panel to the desired gas temperature setpoint. The actual temperature of the destruct unit and the set temperature are displayed and selected at this controller. The temperature must be set at the LOCAL panel.

4.0 SHUTDOWN

LOCAL MODE (from the Ozone Destruct Control Panel):

To shut off the destruct system, turn the "ON/OFF/REMOTE" selector switch to the "OFF" position.

For extended shutdown periods, it is recommended that the disconnect switch be placed in the "OFF" position and the inlet valve to the destruct unit be closed.

REMOTE MODE (from the Plant Control System):

By placing the destruct panel in "REMOTE" the destruct system can be stopped remotely through the plant control system.

OZONE SYSTEM OPERATION & MAINTENANCE MANUAL**5.0 ROUTINE MAINTENANCE**

Perform routine maintenance as follows:

FUNCTION	FREQUENCY	COMMENTS
PERHEATER OPERATION	Daily.	Outlet temperature should be a minimum of 20 °F greater than inlet temperature
CHECK PRESSURE DROP THROUGH CATALYST	Weekly.	Pressure drop should be less than 5" WC. Excessive pressure drop can indicate potential clogging of catalyst or a flow rate that has exceeded the design flow rate.
VACUUM PRESSURE RELIEF VALVE	Monthly	Inspect and clean
REFURBISH CATALYST	When pressure drop exceeds ozone discharge of greater than 0.1 ppm	Catalyst life should last for several years unless it becomes contaminated or is deactivated by excess moisture. Refill chamber per instructions.
VENT BLOWER MOTOR	Monthly	Rotate rotor to ensure free movement and reduce chance of flat spots on bearings.
INSTRUMENT CALIBRATION	Quarterly	Perform instrument calibration as needed.
BLOWER AND MOTOR	Quarterly	Inspect all blower moving parts. Inspect motor and lubricate as necessary.



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CONYERS, GA.

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Project: RDGA-0600

OZONE SYSTEM OPERATION & MAINTENANCE MANUAL

**FUJI ELECTRIC DESTRUCT UNIT
MAINTENANCE LOG**

Destruct Unit No. _____

DATE										
HOUR METER READING										
INLET GAS TEMPERATURE										
CONTROLLER SET TEMPERATURE										
OUTLET GAS TEMPERATURE										
OZONE VENT GAS CONCENTRATION (PPM)										
CATALYST DIFFERENTIAL PRESSURE (IN-WC)										
BLOWER DIFFERENTIAL PRESSURE (IN-WC)										

This form may be copied and used for your maintenance log book!

OZONE SYSTEM OPERATION & MAINTENANCE MANUAL

6.0 TROUBLESHOOTING

The following troubleshooting guide can be used for problems encountered with the Ozone Destruct.

PROBLEM	CORRECTIVE ACTION
EXCESS OZONE AT OUTLET.	1. Check and make sure the vent gas ozone monitor is working properly by using a portable ozone monitor to verify the ozone reading is accurate. 2. Check to insure the preheater is operating properly. 3. Check to insure inlet ozone residual is not beyond design limits of 2.0% wt continuous. 4. Check catalyst vessel to insure the gaskets are not damaged and are properly seated. 5. Check and/or refurbish catalyst.
EXCESS PRESSURE DROP	1. Inspect catalyst for particulate and debris buildup. 2. Inspect catalyst for excess moisture. 3. Clean or replace as necessary.
PREHEATER UNABLE TO MAINTAIN SET TEMPERATURE	1. Check to insure main power is energized. 2. Check to insure off-gas blower is operating. 3. Check for blown fuses and tripped circuit breakers. 4. Check to insure temperature controller is operating properly with correct setpoint. 5. Check preheater high-limit cut-out for proper setting (1000°F) and operation. 6. Check preheater for grounded element. Replace as required.
INSUFFICIENT GAS FLOW	1. Verify off-gas blower is operating. If not, check blower setup. 2. Verify ozone destruct unit inlet valve is open. 3. Verify ozone destruct unit inlet and outlet isolation valves are open. 4. Verify destruct unit D/P is below 12" w.c., clogged catalyst will cause excessive D/P and reduce gas flow. 5. Check the operation of the pressure controller and the throttling valve 6. Inspect the check valve for proper operation. 7. Verify blower inlet and outlet valves are open.



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ITEM:	CATALYST
MANUFACTURER:	CARUS CARULITE 200
COMPOSITION:	MANGANESE DIOXIDE
SHAPE:	3/16" EXTRUDED
DENSITY:	58 LB/CU.FT.
ANTICIPATED LIFE:	1 YEAR (MINIMUM)

PRODUCT DATA SHEET

CARULITE® 200 Catalyst

CARULITE® 200 extruded catalyst is recommended for the destruction of toxic and corrosive ozone. It is available in both 1/8" and 3/16" extrusions.

TYPICAL ANALYSIS

Bulk Density	0.93 g/cc or 58 lbs/ft ³
Surface Area	≥ 175 m ² /g
Crush Strength	
1/8" Extrusions	> 8 kg
3/16" Extrusions	> 10 kg
Weight Loss	< 1%
Particle Size Distribution	
1/8" Diameter Extrusions	95% on 8 mesh
3/16" Diameter Extrusions	97% on 5 mesh

APPLICATIONS

Water and Wastewater

Removes excess ozone off-gas used to treat water and wastewater.

Corona Treaters

Removes unwanted ozone formed during corona treatment of paper, plastic and other materials.

Office Equipment

Removes irritating ozone produced by copiers, printers and other office equipment.

Other

Removes ozone to improve indoor air quality. Used to remove excess ozone used in industrial processes.

DESCRIPTION

Manganese dioxide/copper oxide catalyst extrusions are black in color and odorless.

HANDLING

Use of a dust respirator is advised. Eye protection and gloves should also be worn.

STORAGE

Store in a cool, dry area in closed container. Protect containers against physical damage. Segregate from easily oxidizable materials.

INCOMPATIBILITY

Avoid contact with easily oxidizable materials, peroxides, chlorates, and acids.

SHIPPING

CARULITE® 200 Catalyst is not regulated by DOT.

Proper Shipping Name: Manganese dioxide compound.

ID Number: Not regulated by DOT.

Schedule B or Harmonized Code:
38169000 (090 0A)

PACKAGING

CARULITE® 200 Catalyst is packed in 45 lb net plastic drums. One pallet contains 24 drums, 1,080 lb net (1,221 lb gross).

(F495)

The information contained herein is accurate to the best of our knowledge. However, data, safety standards and governmental regulations are subject to change, and therefore, holders and users should satisfy themselves that they are aware of all current data and regulations relevant to their particular use of product. CARUS CHEMICAL COMPANY DISCLAIMS ALL LIABILITY FOR RELIANCE ON THE COMPLETENESS OR ACCURACY OF THE INFORMATION INCLUDED HEREIN. CARUS CHEMICAL COMPANY MAKES NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE OF THE PRODUCT DESCRIBED HEREIN. All conditions relating to storage, handling, and use of the product are beyond the control of Carus Chemical Company, and shall be the sole responsibility of the holder or user of the product.

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