

ATTACHMENT C

Operation and Maintenance Plan

Regenerative Thermal Oxidizer (RTO)

OPERATION & MAINTENANCE PLAN
VOC Control System – Regenerative Thermal Oxidizer (RTO)

A. Process Parameters:

| | |
|----------------------------------|--|
| 1. Source NEDS Number | 1030119, Regenerative Thermal Oxidizer |
| 2. Incinerator Manufacturer | TANN Corporation, L&E America |
| 3. Model Name and Number | Regenerative Thermal Oxidizer, Model TR3295 |
| 4. Design Flow Rate | 32,000 SCFM |
| 5. Efficiency Rating | 98.3% VOC Destruction |
| 6. Typical Operating Temperature | |
| a. Inlet | 150 – 250°F |
| b. Outlet | 250 – 500°F |
| 7. Stack Height | 40 feet |
| 9. Controlled Process | Coating Line 1, Coating Line2, Mixing Room and QC Laboratory |

B. Time Table for Routine Maintenance:

- Monthly – Lubricate bearings, flame rod, inter locks, flame guard, ductwork, damper controls, burner controls, Fan and Motor, Exhaust ductwork actuators, and operational sequencing.
- 6-Month – Manufacturer recommendation: Poppet valve blades, poppet valve seats, blade-to-seat connection, manual gas valve, and air-gas ratio.
- Annual – Ignition cable and connector, thermocouple, gas piping, orifice plate and RTO motors.

C. The following observations, checks and operations apply to this source and shall be conducted on the schedule specified:

Continuously record and monitor RTO combustion chamber temperature

Monthly:

- Ductwork and dampers
- RTO
- Burner Controls
- Computer Data
- Fans and Motors

**D. Spare Parts List:**

| Item | Part Number | Description | Required | On Hand |
|------|-------------|---|----------|---------|
| 1 | 974500 | Timer,ATC, FM approved. ATC# 328D-200F-10XX | 1 | 1 |
| 2 | 916078 | Controller, high limit, FM approved, no alarm contact. Yokogawa#UT1506RN | 1 | 1 |
| 3 | 991306 | Duct, Flexible Silicone, CW-GS, 7.00 Diameter | 1 | 1 |
| 4 | 983000 | Transmitter, pressure, Dwyer, 0-10"wc, 4-20mA. 607.8 | 1 | 1 |
| 5 | 979230-1 | Switch, pressure, AIF-0-SS-1-3 | 1 | 1 |
| 6 | 979230-2 | A-447 Enclosure, Weatherproof | 1 | 1 |
| 7 | 994350 | Valve, solenoid, AAA SO8, 1" for 10" Bore Parker cylinder | 1 | 1 |
| 8 | 906009 | Rod Gland Kit for 10" bore (capture), 2A | 1 | 1 |
| 9 | 906010 | Piston Seal Kit, for 10" bore (capture), 2A | 1 | 1 |
| 10 | 979323 | Pressure switch (TANN "combustion blower" and "high negative"), 2-20"wc, N4, SPDT, 1/4" NPT.KDI #46020-5. | 2 | 2 |
| 11 | 979322 | Pressure switch (TANN "Fan differential"), 0.4-4"wc, N4, SPDT, 1/4" NPT.KDI #46020-3. | 1 | 1 |
| 12 | 965022 | Actuator, Motor, Honeywell, M7294Q1007, 300 in lbs, 4-20 mA, 60 sec, 90 deg. | 1 | 1 |
| 13 | 912453 | Scanner, UV, self-checking, Fireye | 1 | 1 |
| 14 | 912458 | Flame safeguard amplifier, Fireye | 1 | 1 |
| 15 | 912459 | Flame safeguard programmer, Fireye | 1 | 1 |
| 16 | 966009 | Valve Main Gas, w/overtravel, 2" NPT, Honeywell #V5055C-1000 | 1 | 1 |
| 17 | 994200 | Valve, Solenoid, 2-wa, Normally closed (NC), 1/2" NPT, Asco #8214G20 (pilot gas), MN #A2-8214G20 | 1 | 1 |
| 18 | 965910 | Actuator, Gas Valve, On-Off, Honeywell # V4055D-1035 | 1 | 1 |
| 19 | 979305 | Switch, Pressure, High Gas, 40"-200"wc, Manual Reset, KDI# GMH-A2-4-8 | 1 | 1 |
| 20 | 979306 | Switch, Pressure, Low Gas, 1"-20"wc, Manual Reset, KDI# GMH-A2-4-4 | 1 | 1 |
| 21 | 984224-P | Pyromation Duplex K type Thermocouple, SB 24" long 1/4" diameter Inconel sheath, Part #KK43U-024-00-8HN49 | 2 | 2 |

E. Records:

Records of inspections, maintenance, and performance parameters shall be retained for a minimum of five years and shall be made available to the Department or the Pinellas County Department of Environmental Management upon request. The attached form is used to document and record inspection and maintenance activities.



RTO Maintenance Log Monthly Inspection

G = GOOD, F = FAIR, NR = NEEDS REPAIR, SD = SHUT DOWN AND REPAIR,
CORR = FOUND TO BE IN NEED OF ATTENTION AND CORRECTED

Note: Tasks are to be performed according to established techniques, procedures, references, materials and equipment.

| DUCTWORK and DAMPERS | |
|--|-----------|
| Description | Condition |
| Metal condition, i.e. rust free | |
| Condition of Stands and Mountings | |
| Mounting integrity of actuators | |
| Manual damper balance lockdown condition | |
| Automatic Linkage condition | |

| RTO | |
|---|-----------|
| Description | Condition |
| Lubricate Bearings | |
| Inspect Flame rod | |
| Test interlocks | |
| Check Ignition spark plug | |
| Check valve motors | |
| Test flame safeguard | |
| Clean or replace combustion air filter | |
| Poppet valve blade (every 6 months) | |
| Poppet valve seat (every 6 months) | |
| Blade to seat connection (every 6 months) | |
| Manual gas valve (every 6 months) | |
| Air-gas ratio (every 6 months) | |
| Pressure Switches (every 6 months) | |
| Ignition cable and connector (annually) | |
| Gas Piping (annually) | |
| Orifice plate (annually) | |
| Motors (annually) | |
| Thermocouple (annually) | |

| BURNER CONTROLS | |
|---|-----------|
| Description | Condition |
| Integrity of Gas Train, check for leaks | |
| Gas Valve safeties | |
| Pilot Gas setting and pressure | |
| Flame out control shutdown | |

| COMPUTER DATA | |
|--|-----------|
| Description | Condition |
| RTO Burner Set point (1655°F) | |
| RTO Burner present value | |
| Main Blower Pressure set point (3.5" wc) | |
| System free from Alarms and warnings | |

| FANS and MOTORS | |
|----------------------------------|-----------|
| Description | Condition |
| Condition of V-belts and Pulleys | |
| Motor and Fan mountings | |
| Pressure switches and sensors | |
| Bearing and shaft condition | |
| Lubrication | |

| NOTES | |
|-------|--|
| | |
| | |
| | |
| | |
| | |

| INSPECTOR/REPAIRMAN | START DATE | END DATE | COMMENTS |
|---------------------|------------|----------|----------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |