State of Utah

GARY R. HERBERT
*Governor*

SPENCER J. COX
*Lieutenant Governor*

Department of
Environmental Quality

L. Scott Baird
*Executive Director*

DIVISION OF WASTE MANAGEMENT
AND RADIATION CONTROL
Ty L. Howard
*Director*

October 22, 2020

William Simmons, General Manager
Clean Harbors Aragonite, LLC
P.O. Box 1339
Grantsville, UT 84029-1339

RE: Class 2 Modification Approval – Increase Thermal Feed Rate Limit
UTD981552177

Dear Mr. Simmons:

On May 20, 2020, Clean Harbors submitted a Class 2 modification request seeking approval to increase the thermal feed rate limit specified in the Aragonite permit from 140 MM Btu/hr to 155.7 MM Btu/hr.

In support of the modification request, Clean Harbors provided a summary of recent modeling performed of the Aragonite incineration system by Focus Environmental and included a discussion of the differences between the assumed operating limits used in the calculations that supported the 140 MM Btu/hr limit and those limits currently specified in the permit. Since the 140 MM Btu/hr limit was established, several operating limits in the permit have been modified through trial burn demonstrations and Aragonite has gained considerable data on the performance of the incinerator in daily operations.

By performing modeling of the incineration system using these updated permit limits and assumptions supported by operating data, Focus Environmental was able to demonstrate the Aragonite incineration system's capability to operate within the permit and equipment limitations at higher thermal inputs.

As part of the Class 2 modification process, a 60-day public comment period and an informational public meeting were held. No comments were received during the public comment period. Based upon review of the modification request, and subsequent discussions with the facility, the modification request is hereby approved as enclosed. Clean Harbors should update its copy of the permit by replacing Module 5 and Attachment 17 with the revised enclosures.

(Over)



195 North 1950 West • Salt Lake City, UT
Mailing Address: P.O. Box 144880 • Salt Lake City, UT 84114-4880
Telephone (801) 536-0200 • Fax (801) 536-0222 • T.D.D. (801) 536-4284
*www.deq.utah.gov*

If you have any questions, please call Boyd Swenson at (801) 536-0232.

Sincerely,

Ty L. Howard, Director
Division of Waste Management and Radiation Control

TLH/BAS/ar

Enclosures: Module 5 -- Incineration (DSHW-2012-011664)
Attachment 17 -- Waste Management Plan for PCBs (DSHW-2012-011637)

c: Jeff Coombs, EHS, Health Officer, Tooele County Health Department
Bryan Slade, Environmental Health Director, Tooele County Health Department
Tyson Hone, Clean Harbors Aragonite (Email)
Annette Maxwell, US EPA, Region VIII (ENF-RC)

# MODULE 5
# INCINERATION

The incinerator consists of a slagging rotary kiln followed by a vertical afterburner. Combustion gases, after exiting the afterburner, pass through a spray dryer, a baghouse, a saturator, a two stage packed bed scrubber, and exit out the stack. The air pollution control train also includes a carbon injection system that delivers a weighed amount of activated carbon to the duct between the spray dryer and baghouse. The system consists of a storage bin that feeds two carbon-feeding trains. Each train has a rotary valve that periodically feeds carbon from the bin to a hopper mounted on a loss-in-weight scale. The scale feeds an eductor and piping that pneumatically conveys the weighed carbon to the crossover duct between the spray dryer and baghouse. The eductor motive airflow rate is a minimum of 80 actual cubic feet per minute (acfm) as specified by the eductor manufacturer.

## 5.A. OPERATION AND MAINTENANCE

5.A.1. The Permittee shall maintain and operate the incineration system in accordance with the drawings and specifications contained in Attachments 10 and 11.

5.A.2. Modifications to the drawings and specifications for the incineration system shall be allowed only in accordance with the permit modification requirements in Condition 1.D.

5.A.3. All process monitors, required pursuant to Condition 5.E. shall be equipped with alarms operated to warn of deviation or imminent deviation from the limits specified in Condition 5.D.

5.A.4. The Permittee shall maintain the incineration system so that when it is operated in accordance with the requirements in this permit, it will meet the performance standards specified in Condition 5.B.

5.A.5. The Permittee shall maintain the incinerator and ancillary equipment in good repair. Routine maintenance shall be performed at sufficient frequency to ensure the incinerator remains in good repair. Malfunctions and deterioration shall be corrected as expeditiously as possible as outlined in Attachment 3.

5.A.6. The Permittee shall comply with the provisions specified in the Fume Management Plan, Attachment 14.

## 5.B. PERFORMANCE STANDARDS

5.B.1. The incinerator shall achieve a destruction and removal efficiency (DRE) of at least 99.99% for each of the principal organic hazardous constituents (POHCs) designated below.

a. hexachloroethane
b. monochlorobenzene
c. polychlorinated biphenyls

The DRE shall be calculated in accordance with the formula given below.

$$DRE = \frac{W_{in} - W_{out}}{W_{in}} * 100\%$$

Where: $W_{in}$ = mass feed rate of one POHC in the waste feeding the incinerator
$W_{out}$ = mass emission rate of the same POHC present in exhaust emissions prior to release to the atmosphere

The DRE may not be rounded up to meet the required standard of 99.99%.

5.B.2. The incinerator shall not emit particulate matter in excess of 28 milligrams per dry standard cubic meter (0.013 grains per dry standard cubic foot) when corrected to 7% oxygen in accordance with the formula given below.

$$PM_c = PM_m * \frac{14}{21 - Y}$$

Where: $PM_c$ = corrected concentration of particulate matter
$PM_m$ = measured concentration of particulate matter
$Y$ = measured $0_2$ concentration (%) in the stack gas on a dry basis

5.B.3. The Permittee shall not emit hydrochloric acid and chlorine gas in excess of 32 parts per million by volume, combined emissions, expressed as hydrochloric acid equivalents, dry basis and corrected to 7% oxygen in accordance with the formula given below.

$$HCl_c = HCl_m * \frac{14}{21 - Y}$$

Where: $HCl_c$ = corrected concentration of hydrochloric acid equivalents
$HCl_m$ = measured concentration of hydrochloric acid equivalents
$Y$ = measured $0_2$ concentration (%) in the stack gas on a dry basis

5.B.4. The Permittee shall control emissions of products of incomplete combustion from the stack so that at least one of the following two standards is met:

a. The carbon monoxide (CO) level in the stack, corrected to 7% oxygen in accordance with the formula given below, shall not exceed 100 ppmv, dry

basis, over a one hour rolling average and shall not exceed 500 ppmv, dry basis, for more than one minute at any time.

$$CO_c = CO_m * \frac{14}{21 - Y}$$

Where: $CO_c$ = corrected CO concentration (ppmv) on a dry basis
$CO_m$ = measured CO concentration (ppmv) on a dry basis
$Y$ = measured $0_2$ concentration (%) in the stack gas on a dry basis

b. The total hydrocarbon (THC) emissions from the stack, corrected to 7% oxygen in accordance with the formula given below, shall not exceed 10 ppmv, over a one hour rolling average.

$$THC_c = THC_m * \frac{14}{21 - Y}$$

Where: $THC_c$ = corrected THC concentration (ppmv)
$THC_m$ = measured THC concentration (ppmv)
$Y$ = measured $0_2$ concentration (%) in the stack gas on a dry basis

5.B.5. The Permittee shall control metal emissions from the stack so that the rate of emission for semivolatile metals (lead and cadmium combined), low volatile metals (arsenic, beryllium, and chromium combined), and mercury, corrected to 7% oxygen in accordance with the formula given below, is no greater than the maximum allowable emission rate specified herein.

| Metal | Maximum Emission Rate (µg/dscm) |
|---|---|
| Semivolatile metals | 230 |
| Low volatile metals | 92 |
| Mercury | 130 |

$$M_c = M_m * \frac{14}{21 - Y}$$

Where: $M_c$ = corrected concentration of metal
$M_m$ = measured concentration of metal
$Y$ = measured $0_2$ concentration (%) in the stack gas on a dry basis

5.B.6. The Permittee shall not emit dioxins and furans in excess of 0.40 ng TEQ/dscm corrected to 7% oxygen in accordance with the formula given below.

$$TEQ_c = TEQ_m * \frac{14}{21 - Y}$$

Where: $TEQ_c$ = corrected concentration of dioxin and furan TEQ
$TEQ_m$ = measured concentration of dioxin and furan TEQ
$Y$ = measured $0_2$ concentration (%) in the stack gas on a dry basis

TEQ is defined in 40 CFR §63.1201

5.B.7. Compliance with the operating conditions specified in Condition 5.D. of this permit shall be regarded as compliance with the required performance standards identified in Conditions 5.B.1. through 5.B.6. However, if it is determined that compliance with the operating conditions in 5.D. is not sufficient to ensure compliance with the performance standards specified in Conditions 5.B.1. through 5.B.6., the permit may be modified, revoked, or reissued, pursuant to R315-3-4.2.

## 5.C. PERMITTED AND PROHIBITED WASTES

5.C.1. The Permittee may feed to the incinerator the wastes identified in Condition 2.C.1. unless prohibited in Condition 5.C.2. subject to the requirements of this permit.

5.C.2. The following shall not be fed to the incinerator at any time:

a. Any waste or material identified in Condition 2.C.2.
b. Waste with the codes F020, F021, F022, F023, F026, F027, and F028.

5.C.3. The Permittee may pursue approval to incinerate dioxin-listed wastes (i.e., wastes with the codes F020, F021, F022, F023, F026, F027, and F028), but any such request for approval must comply with the following:

a. The request for approval shall be considered a class 3 permit modification subject to all applicable procedures in Condition 1.D.2.

b. The modification request shall include a plan detailing two separate tests that must be successfully conducted before final approval to incinerate dioxin-listed wastes can be obtained.

c. The first or DRE test shall be for the purpose of demonstrating a DRE equal to or greater than 99.9999% on all POHCs. The designated POHCs shall be those determined to be more difficult to incinerate than tetra-, penta-, and hexachlorodibenzo-p-dioxins and dibenzofurans. The test plan must include all applicable EPA-approved trial burn test methods and procedures in effect at the time of the request.

d. The Director may require the Permittee to demonstrate compliance with other performance standards contained in this permit when conducting this DRE test.

e. The Director may require the Permittee to perform additional risk assessment studies based upon the measured emissions from the DRE test.

f. The second test that must be detailed in the class 3 modification request may only be conducted if the Permittee successfully demonstrates to the Director that at least 99.9999% DRE was obtained on all of the POHCs during the DRE test burn. The purpose of the second test, the dioxin risk test, is to demonstrate that while burning dioxin-listed wastes, the dioxin/furan emissions from the incinerator are below levels that pose an unacceptable risk to human health and the environment. The Permittee may only incinerate dioxin-listed wastes for the purpose of conducting this dioxin risk test.

g. The description of this dioxin risk test in the modification request must include at a minimum the following:

   Details of all applicable EPA-approved test methods and procedures that will be used during the test.

   Provisions for ensuring that the dioxin-listed wastes fed during the test are representative of the dioxin-listed wastes that the Permittee expects to feed during routine operation.

   Procedures to conduct a risk assessment based upon the measured dioxin/furan emission rates as directed by the Director.

   Management procedures for dioxin-listed wastes at the facility prior to incineration.

   If applicable, specific incinerator operating conditions when feeding dioxin-listed wastes.

h. No final approval to incinerate dioxin-listed wastes can be granted unless the Permittee successfully conducts both tests as described in this condition and demonstrates through approved risk assessment procedures that burning dioxin-listed wastes does not pose an unacceptable risk to human health and the environment.

## 5.D. OPERATING REQUIREMENTS AND FEED RATE LIMITS

The Permittee shall comply with all requirements established in this permit when feeding any wastes to the incinerator, including those which may not carry an

EPA waste code (e.g., infectious waste, industrial waste, exempt hazardous waste, non-hazardous waste, etc.).

The feed rate limits established in this Condition shall include contributions from all feed sources, waste and non-waste. (For example, metals feed rates shall include contributions from sources such as shot from slag removal equipment and fluxing agents; weight limits shall include containers, fluxing agents, and other additives fed to the incinerator; etc. However, analysis of additives such as salt or glass which are not likely to have significant levels of metals will not be required.)

All operating requirements and feed rate limits described in this Condition are based upon instantaneous, unsmoothed values unless explicitly indicated otherwise. When two instruments are used to monitor a process variable, one of the instruments will be selected for compliance purposes, unless indicated otherwise below. When three instruments are used to monitor a process variable, the selected value will be the median value of the three instrument readings if all three are on-line, the average of the two if only two are on-line, or the value of the one if only one is on-line. The selected value will be the compliance point.

Where an hourly rolling average (HRA) or a 12-hour rolling average is specified, the calculations shall be in accordance with 40 CFR §63.1209(a)(6) and 40 CFR §63.1209(b)(5).

The Permittee may feed the wastes described in Condition 5.C.1. to the incinerator only under the following conditions:

5.D.1. The temperature of the combustion gas at the kiln exit shall not be less than 1824°F on an hourly rolling average basis. This temperature is defined as the average temperature readings of either the A and B or the A and C infrared pyrometers. Alternatively, when only one infrared pyrometer is on-line, the temperature of the combustion gas at the kiln exit, as measured by the single pyrometer, shall not be less than 1940°F on an hourly rolling average basis. The Permittee shall document in the operating record those periods when only one infrared pyrometer is on-line.

5.D.2. The kiln rotation shall be maintained at 0.15 rpm or greater.

5.D.3. The kiln secondary combustion air pressure shall be maintained at 2" W.C. or greater.

5.D.4. The temperature of the combustion gas at the afterburner hot duct shall not be less than 2026°F on an hourly rolling average basis.

5.D.5. The Permittee shall control fugitive emissions from the combustion zone of the incinerator. The pressure in the combustion zone shall not be equal to or above atmospheric pressure for more than 5 seconds.

5.D.6. The Permittee shall minimize the emissions from the deslagger by venting the fumes back to the afterburner chamber. The Permittee shall correct malfunctions in the venting system within 72 hours.

5.D.7. The concentration of oxygen in the afterburner shall not be less than 3% for more than 2 minutes or less than 2% for more than 15 seconds.

5.D.8. The exhaust gas temperature at the exit of the spray dryer shall not exceed 385°F on an hourly rolling average basis. The exhaust gas temperature at the exit of the spray dryer shall not exceed 520°F. The exhaust gas temperature at the exit of the spray dryer shall not be less than 250°F nor be less than 350°F for more than 15 minutes.

5.D.9. The brine pressure to the spray dryer upper nozzles shall not be less than 300 psi. The brine pressure to the spray dryer lower nozzles shall not be less than 300 psi.

5.D.10. The pressure drop across the baghouse shall be no less than 1.8 inches W.C.

5.D.11. The baghouse shall be operated with a minimum of seven compartments on line.

5.D.12. The baghouse shall be operated so that the reading from the broken bag detector (optical particle counter) does not exceed 50% of the instrument span.

5.D.13. The exhaust gas temperature at the exit of the saturator shall not exceed 225°F.

5.D.14. The liquid flowrate to the saturator shall not be less than 300 gallons per minute on an hourly rolling average basis.

5.D.15. The pH of the first stage scrubber liquid feed to the packed tower shall not be less than 5.99 on an hourly rolling average basis. Sodium carbonate will be used as the neutralization agent.

5.D.16. Scrubber liquid flowrate to the first stage of the packed tower shall not be less than 1907 gallons per minute on an hourly rolling average basis.

5.D.17. The pressure drop across the first stage of the packed tower shall not be less than 0.5" W.C. on an hourly rolling average basis.

5.D.18. The pH of the second stage scrubber liquid feed to the packed tower shall not be less than 6.25 on an hourly rolling average basis. Sodium carbonate will be used as the neutralization agent.

5.D.19. The pH of the scrubber effluent from the second stage of the packed tower shall not be less than 5.8 on an hourly rolling average basis.

5.D.20. Scrubber liquid flowrate to the second stage of the packed tower shall not be less than 1972 gallons per minute on an hourly rolling average basis.

5.D.21. The pressure drop across the second stage of the packed tower shall not be less than 0.5" W.C. on an hourly rolling average basis.

5.D.22. The feed rate of activated carbon to the inlet of the baghouse shall not be less than 26.2 pounds per hour on an hourly rolling average basis.

5.D.23. reserved

5.D.24. Combustion gas velocity, measured as combustion gas flowrate at the stack, shall not exceed 77,147 acfm on an hourly rolling average basis.

5.D.25. Emissions shall be controlled so that at least one of the following is met:

a. Carbon monoxide (CO) concentration in the stack exhaust gas, corrected to 7% oxygen in accordance with the formula specified in Condition 5.B.4., shall not exceed 100 ppmv, dry basis, over a one hour rolling average and shall not exceed 500 ppmv, dry basis, for more than one minute at any time.

b. Total hydrocarbon (THC) concentration in the stack exhaust gas, corrected to 7% oxygen in accordance with the formula specified in Condition 5.B.4., shall not exceed 10 ppmv, over a one hour rolling average.

5.D.26. The total feed rate of liquid wastes through burner A-104 in the kiln front wall shall not exceed 3090 pounds per hour on an hourly rolling average basis. The feed rate of liquid wastes through burner A-104 in the kiln front wall shall not exceed 90 pounds per minute for more than 15 seconds.

5.D.27. The feed rate of liquid waste through burner A-104 in the kiln front wall shall not be less than 1.125 gallons per minute for more than 15 seconds except during a three minute waste liquid gun startup transition period.

5.D.28. The feed rate of liquid wastes through the kiln direct burn lance, A-101, shall not exceed 1710 pounds per hour on an hourly rolling average basis.

5.D.29. The feed rate of liquid waste through the kiln aqueous waste lance, A-102, shall not exceed 1350 pounds per hour on an hourly rolling average basis. The feed rate of liquid wastes through the kiln aqueous waste lance, A-102, shall not exceed 60 pounds per minute for more than 15 seconds.

5.D.30. The feed rate of pumpable sludge through the kiln sludge lance, A-103, shall not exceed 2170 pounds per hour on an hourly rolling average basis. The feed rate of pumpable sludge through the kiln sludge lance, A-103, shall not exceed 200 pounds per minute for more than 15 seconds.

5.D.31. The feed rate of bulk solids and containerized wastes combined to the kiln shall not exceed 18,600 pounds per hour on an hourly rolling average basis.

5.D.32. The total feed rate of gas and liquid wastes to the afterburner burners A-106A, A-106B-1, A-106B-3, and A-106B-5 (when the waste being fed from the drive through corrosive direct burn system has a heat content equal to or greater than 5000 Btu per pound) shall not exceed 3720 pounds per hour on an hourly rolling average basis. The feed rate of liquid wastes through burner A-106A in the afterburner shall not exceed 90 pounds per minute for more than 15 seconds. The total feed rate of gas and liquid wastes through burners A-106B-1, A-106B-3, and A-106B-5 (when the waste being fed from the drive through corrosive direct burn system has a heat content equal to or greater than 5000 Btu per pound) in the afterburner shall not exceed 90 pounds per minute for more than 15 seconds.

5.D.33. The feed rate of liquid waste through burner A-106A in the afterburner shall not be less than 1.125 gallons per minute for more than 15 seconds except during a three minute waste liquid gun startup transition period.

5.D.34. The feed rate of liquid waste through burners A-106B-1 and A-106B-5 (when the waste being fed from the drive through corrosive direct burn system has a heat content equal to or greater than 5000 Btu per pound) in the afterburner shall not be less than 1.125 gallons per minute for more than 15 seconds except during a three minute waste liquid gun startup transition period.

5.D.35. The total feed rate of liquid wastes through the afterburner aqueous waste lances, A-105A and/or A-105B, and burner A-106B-5 (when the waste being fed from the drive through corrosive direct burn system has a heat content less than 5000 Btu per pound) shall not exceed 6440 pounds per hour on an hourly rolling average basis. The feed rate of liquid wastes through lance A-105A in the afterburner shall not exceed 60 pounds per minute for more than 15 seconds. The total feed rate of liquid wastes through lance A-105B and burner A-106B-5 (when the waste being fed from the drive through corrosive direct burn system has a heat content less than 5000 Btu per pound) in the afterburner shall not exceed 60 pounds per minute for more than 15 seconds.

5.D.36. Total organic chlorine feed to the incinerator for all feed mechanisms combined shall not exceed 1775 pounds per hour on a 12-hour rolling average basis.

5.D.37. The maximum thermal input to the incineration system (kiln and afterburner combined) for any combination of waste, fuel, or both shall not exceed 155.7 x $10^6$ Btu per hour on an hourly rolling average basis.

5.D.38. The heat content of the liquid waste fed through burners A-104, A-106A, and A-106B-1 shall be a minimum of 5000 Btu per pound.

5.D.39. The heat content of aqueous waste fed through lances A-102, A-105A, and A-105B shall not exceed 5000 Btu per pound.

5.D.40. The viscosity of liquid waste as fed to the kiln burner (A-104) shall not exceed 100 centipoise (cp). The viscosity of liquid waste as fed to the afterburner burners (A-106A, A-106B-1, and A-106B-5 (when the waste being fed from the drive through corrosive direct burn system has a heat content equal to or greater than 5000 Btu per pound)) shall not exceed 50 centipoise (cp).

5.D.41. The viscosity of pumpable sludge as fed to the kiln shall not exceed 1500 cp. The viscosity of liquid wastes as fed to the kiln through the direct burn lance (A-101) shall not exceed 1500 cp.

5.D.42. The differential pressure (atomizing air to waste liquid) for guns A-104, A-106A, and A-106B-1 shall be maintained at or above 10 psid.

5.D.43. Atomizing air pressure to the aqueous waste lances (A-102, A-105A, and A-105B) shall be maintained at or above 30 psig. Atomizing air pressure to the corrosive waste port (A-106B-5) shall be maintained at or above 30 psig. Atomizing air pressure to the sludge lance (A-103) and the direct burn lance (A-101) shall be maintained at or above 5 psig.

5.D.44. The waste liquid pressure immediately upstream of the block valve/control valve to A-102, A-104, A-105A, A-105B, A-106A, A-106B-1, and A-106B-5 (when the waste being fed from the drive through corrosive direct burn system has a heat content equal to or greater than 5000 Btu per pound) shall be maintained at or above 15 psig.

5.D.45. The cylinder eductor nitrogen pressure shall be maintained at or above 50 psig.

5.D.46. The glove box eductor nitrogen pressure shall be maintained at or above 15 psig.

5.D.47. The Permittee shall not exceed the maximum metal feed rates to the incinerator as specified herein. Compliance with these metals feed limitations shall be demonstrated through waste analysis of the incinerator feed in accordance with Conditions 2.D. and 5.D.

| Metal | Maximum feed rate (lb/hr on a 12-hour rolling average basis) |
|---|---|
| Semivolatile metals (lead and cadmium combined) | 4370 |
| Low volatile metals (arsenic, beryllium, and chromium combined) | 964 |
| Mercury | 1.29 |

5.D.48. The Permittee shall operate the incinerator in such a way as to minimize opening the emergency vent.

5.D.49. The Permittee shall operate the incinerator in such a way as to minimize bypassing the baghouse.

5.D.50. The Permittee shall operate the incinerator in such a way as to minimize the activation of the emergency stop button.

5.D.51. Throughout operation, the Permittee shall conduct sufficient analysis of the feed, in accordance with the waste analysis requirements of Conditions 2.D. and 5.D., to verify that the waste fed to the incinerator is within the physical and chemical composition limits specified in this permit.

## 5.E. MONITORING, RECORDKEEPING, AND CALIBRATION REQUIREMENTS

5.E.1. Hazardous wastes may be fed to the incinerator only when all instruments required by this condition are on-line and operating properly.

5.E.2. The Permittee shall maintain and operate the monitoring and recording equipment specified in Attachment 16 while incinerating hazardous waste. The data shall be monitored and recorded in accordance with Attachment 16. The monitoring equipment specified in Attachment 16 shall provide accurate data.

5.E.3. Alarms generated by the plant control system shall be recorded and made available for review by the Director.

5.E.4. The Permittee shall record the date and time of all automatic waste feed cut-offs, including the initiating triggering parameter(s), reason for the cut-off, and corrective action taken.

5.E.5. The monitoring instruments shall be calibrated in accordance with Attachment 13.

5.E.6. The Permittee shall comply with 40 CFR 266 Appendix IX, Section 2.1, which is incorporated by reference in R315-14-7, and the Quality Assurance and Calibration Procedures Plan for CO and $O_2$ Continuous Emission Monitors in Attachment 15.

5.E.7. The Permittee shall provide access to the data archiving system (Wonderware) for the Director to review. This shall be accomplished by making available a remote link to the computer system and the appropriate query system for accessing the required data. Data to be accessible include the data required to be maintained in Attachment 16.

5.E.8. All wastes or materials processed in the incinerator shall be tracked in accordance with the waste tracking provisions of Attachment 8. The Permittee shall provide access to the electronic waste tracking system portion of the operating record for the Director to review. This shall be accomplished by making available a remote

link to the computer system and the appropriate query system for accessing the required data. Data to be accessible include manifest information, load sample analyses, weights, current locations, movement histories, and the dates/times incinerated or transferred off-site.

## 5.F. WASTE FEED CUT-OFF REQUIREMENTS

All waste feed cut-off requirements described in Condition 5.F. are based upon instantaneous, unsmoothed values unless explicitly indicated otherwise.

The Permittee shall maintain systems to automatically cut off the hazardous waste feed to the incinerator as identified in Attachment 10 and under any of the following conditions:

| PARAMETER | TYPE OF WFCO* | IMMEDIATE CUTOFF LIMIT | DELAYED CUTOFF LIMIT | DELAY PERIOD |
|---|---|---|---|---|
| 1. Kiln exit gas temperature ((a) average of two infrared pyrometers or (b) reading from one infrared pyrometer) | 2 | (a)<1824ºF HRA<br>(b)<1940ºF HRA | N/A | N/A |
| 2. Kiln rotation | 2 | <0.15 rpm | N/A | N/A |
| 3. Kiln secondary combustion air pressure | 3 | <2" W.C. | N/A | N/A |
| 4. Afterburner exit gas temperature | 1 | <2026ºF HRA | N/A | N/A |
| 5. Afterburner chamber differential pressure | 1 | N/A | ≥0.0" W.C. | 5 seconds |
| 6. Afterburner oxygen concentration | 1 | N/A | <3% | 2 minutes |
| 7. Afterburner oxygen concentration | 1 | N/A | <2% | 15 seconds |
| 8. Spray dryer outlet gas temperature | 1 | >385ºF HRA | N/A | N/A |
| 9. Spray dryer outlet gas temperature | 1 | >520ºF | N/A | N/A |
| 10. Spray dryer outlet gas temperature | 1 | <250ºF | <350ºF | 15 minutes |
| 11. Spray dryer upper brine pressure | 1 | <300 psi | N/A | N/A |
| 12. Spray dryer lower brine pressure | 1 | <300 psi | N/A | N/A |
| 13. Pressure drop across the baghouse | 1 | <1.8" W.C. | N/A | N/A |
| 14. Baghouse compartments on-line | 1 | <7 compartments | N/A | N/A |
| 15. Baghouse broken bag detector | 1 | >50% of span | N/A | N/A |
| 16. Saturator outlet gas temperature | 1 | >225ºF | N/A | N/A |
| 17. Saturator brine flow rate | 1 | <300 gpm HRA | N/A | N/A |
| 18. 1st stage packed tower liquid feed pH | 1 | <5.99 HRA | N/A | N/A |
| 19. 1st stage packed tower brine flow rate | 1 | <1907 gpm HRA | N/A | N/A |
| 20. 1st stage packed tower pressure drop | 1 | <0.5" W.C. HRA | N/A | N/A |
| 21. 2nd stage packed tower liquid feed pH | 1 | <6.25 HRA | N/A | N/A |
| 22. 2nd stage packed tower liquid effluent pH | 1 | <5.8 HRA | N/A | N/A |
| 23. 2nd stage packed tower brine flow rate | 1 | <1972 gpm HRA | N/A | N/A |
| 24. 2nd stage packed tower pressure drop | 1 | <0.5" W.C. HRA | N/A | N/A |
| 25. Feed rate of activated carbon | 1 | <26.2 lb/hr HRA | N/A | N/A |
| 26. reserved | N/A | N/A | N/A | N/A |
| 27. Combustion gas flowrate as measured at the stack | 1 | >77,147 acfm HRA | N/A | N/A |

| PARAMETER | TYPE OF WFCO* | IMMEDIATE CUTOFF LIMIT | DELAYED CUTOFF LIMIT | DELAY PERIOD |
|---|---|---|---|---|
| 28. a. CO concentration in the stack (corrected to 7% oxygen, dry basis), OR<br>b. THC concentration in the stack (corrected to 7% oxygen) | 1<br>1 | >100 ppmv HRA<br>>10 ppmv HRA | >500 ppmv<br>N/A | 60 seconds<br>N/A |
| 29. Feed rate of liquid waste through the waste liquid gun of burner A-104 | 5 | >3090 lb/hr HRA | >90 lb/min | 15 seconds |
| 30. Feed rate of liquid waste through the waste liquid gun of burner A-104 (except during 3 minute gun startup) | 5 | N/A | <1.125 gpm | 15 seconds |
| 31. Feed rate of liquid waste through the kiln direct burn lance A-101 | 5 | >1710 lb/hr HRA | N/A | N/A |
| 32. Feed rate of liquid waste through the kiln aqueous lance A-102 | 5 | >1350 lb/hr HRA | >60 lb/min | 15 seconds |
| 33. Feed rate of pumpable sludge through the kiln sludge lance A-103 | 5 | >2170 lb/hr HRA | >200 lb/min | 15 seconds |
| 34. Feed rate of bulk solids and containerized wastes combined | 4 | >18,600 lb/hr HRA | N/A | N/A |
| 35. Total feed rate of gas and liquid waste to the afterburner through the waste liquid guns of burners A-106A, A-106B-1, A-106B-3, and A-106B-5 (when corrosive direct burn feed heat content ≥ 5000 Btu/lb) | 6 | >3720 lb/hr HRA | N/A | N/A |
| 36. Feed rate of liquid waste to the afterburner through burner A-106A | 5 | N/A | >90 lb/min | 15 seconds |
| 37. Total feed rate of gas and liquid waste to the afterburner through burners A-106B-1, A-106B-3, and A-106B-5 (when corrosive direct burn feed heat content ≥ 5000 Btu/lb) | 8 | N/A | >90 lb/min | 15 seconds |
| 38. Feed rate of liquid waste through the waste liquid gun of burner A-106A (except during 3 minute gun startup) | 5 | N/A | <1.125 gpm | 15 seconds |
| 39. Feed rate of liquid waste through the waste liquid gun of burners A-106B-1 and A-106B-5 (when corrosive direct burn feed heat content ≥ 5000 Btu/lb) (except during 3 minute gun startup) | 9 | N/A | <1.125 gpm | 15 seconds |
| 40. Total feed rate of liquid waste to the afterburner through the aqueous waste lances A-105A, A-105B, and burner A-106B-5 (when corrosive direct burn feed heat content < 5000 Btu/lb) | 7 | >6440 lb/hr HRA | N/A | N/A |
| 41. Feed rate of liquid waste to the afterburner through the aqueous lance A-105A | 5 | N/A | >60 lb/min | 15 seconds |
| 42. Total feed rate of liquid waste to the afterburner through the aqueous lance A-105B and burner A-106B-5 (when corrosive direct burn feed heat content < 5000 Btu/lb) | 10 | N/A | >60 lb/min | 15 seconds |
| 43. Atomizing air to the direct burn lance A-101 | 5 | <5 psig | N/A | N/A |

| PARAMETER | TYPE OF WFCO* | IMMEDIATE CUTOFF LIMIT | DELAYED CUTOFF LIMIT | DELAY PERIOD |
|---|---|---|---|---|
| 44. Atomizing air pressure to kiln aqueous lance A-102 | 5 | <30 psig | N/A | N/A |
| 45. Atomizing air pressure to sludge lance A-103 | 5 | <5 psig | N/A | N/A |
| 46. Atomizing air to waste liquid differential pressure for gun A-104 | 5 | <10 psid | N/A | N/A |
| 47. Atomizing air to waste liquid differential pressure for gun A-106A | 5 | <10 psid | N/A | N/A |
| 48. Atomizing air to waste liquid differential pressure for gun A-106B-1 | 5 | <10 psid | N/A | N/A |
| 49. Atomization air pressure to burner A-106B-5 | 5 | <30 psig | N/A | N/A |
| 50. Atomization air pressure to lance A-105A | 5 | <30 psig | N/A | N/A |
| 51. Atomization air pressure to lance A-105B | 5 | <30 psig | N/A | N/A |
| 52. Waste liquid pressure to lance A-102 | 5 | <15 psig | N/A | N/A |
| 53. Waste liquid pressure to gun A-104 | 5 | <15 psig | N/A | N/A |
| 54. Waste liquid pressure to gun A-106A | 5 | <15 psig | N/A | N/A |
| 55. Waste liquid pressure to gun A-106B-1 | 5 | <15 psig | N/A | N/A |
| 56. Waste liquid pressure to gun A-106B-5 (when corrosive direct burn feed heat content ≥ 5000 Btu/lb) | 5 | <15 psig | N/A | N/A |
| 57. Waste liquid pressure to lance A-105A | 5 | <15 psig | N/A | N/A |
| 58. Waste liquid pressure to lance A-105B | 5 | <15 psig | N/A | N/A |
| 59. Cylinder eductor nitrogen pressure | 5 | <50 psig | N/A | N/A |
| 60. Shutdown of the A-104 burner management system (BMS) | 2 | shutdown** | N/A | N/A |
| 61. Shutdown of the A-106A burner management system (BMS) | 5 | shutdown** | N/A | N/A |
| 62. Shutdown of the A-106B burner management system (BMS) | 5 | shutdown** | N/A | N/A |
| 63. Shutdown of the A-106A and A-106B burner management systems (BMS) | 1 | shutdown** | N/A | N/A |
| 64. Emergency stop button | 1 | activated | N/A | N/A |
| 65. Manual waste feed cutoff button | 1 | activated | N/A | N/A |
| 66. Utility power failure | 1 | power failure | N/A | N/A |
| 67. Emergency vent opening | 1 | vent open | N/A | N/A |
| 68. Baghouse on bypass | 1 | baghouse bypass | N/A | N/A |
| 69. reserved | N/A | N/A | N/A | N/A |
| 70. ID fan off | 1 | fan off | N/A | N/A |

* 1 -- total waste feed cutoff
2 -- total kiln waste feed cutoff only
3 -- containers, solids, and sludge cutoff only
4 -- combined bulk solids and containers waste feed cutoff only
5 -- waste feed cutoff to the affected gun/lance/feed mechanism only
6 -- combined A-106A, A-106B-1, A-106B-3, and A-106B-5 (when corrosive direct burn feed heat content ≥ 5000 Btu/lb) waste feed cutoff only

7 -- combined A-105A, A-105B, and A-106B-5 (when corrosive direct burn feed heat content < 5000 Btu/lb) waste feed cutoff only
8 -- combined A-106B-1, A-106B-3, and A-106B-5 (when corrosive direct burn feed heat content ≥ 5000 Btu/lb) waste feed cutoff only
9 -- combined A-106B-1 and A-106B-5 (when corrosive direct burn feed heat content ≥ 5000 Btu/lb) waste feed cutoff only
10 -- combined A-105B and A-106B-5 (when corrosive direct burn feed heat content < 5000 Btu/lb) waste feed cutoff only

** shutdown of the burner management system (BMS) for any of the following:
i) Flameout;
ii) Loss of burner combustion air pressure;
iii) Loss of pressure on all enabled fuel and waste liquid lines;
iv) Loss of atomizing air pressure on all enabled fuel and waste liquid lines;
v) Disabling all fuels and waste liquids;
vi) Manual shutdown of BMS;

5.F.69. In the case of a malfunction of the automatic waste feed cut-off system, the Permittee shall immediately initiate manual waste feed cut-off. The Permittee shall not restart feed to the incinerator until the problem causing the malfunction has been identified and corrected.

5.F.70. The Permittee shall test the emergency waste feed cut-off systems and associated alarms at least on a weekly basis (once every 168 hours on waste) in accordance with Attachment 12 to verify operability.

5.F.71. For certain feed parameters that require analysis of the waste in addition to a feed rate in order to comply with feed limitations (i.e., metals, chlorine, thermal input), the control system shall be programmed to evaluate the impact of feeding the next incremental unit of waste and forecast if the permit limits would still be met. If feeding that particular waste would cause the permit limits to be exceeded, the system shall not allow the material to be fed.

## 5.G. TESTING REQUIREMENTS

5.G.1. The Permittee shall conduct periodic sampling and analysis of the waste and exhaust emissions to verify that the operating requirements established in the permit achieve the performance standards or a subset of the performance standards as approved by the Director in the test plan. This sampling and analysis or subsequent performance testing shall be performed at a minimum of every 30 months in accordance with the MACT Confirmatory and Comprehensive Performance Testing Schedule or more often if requested in writing by the Director. The performance testing, as required by this condition, is not for the purpose of establishing new permit limits. The Permittee must follow the modification procedures in Condition 1.D. and conduct a trial burn for establishing new limits.

5.G.2. At least six months prior to a scheduled performance test, the Permittee shall submit a test plan describing the parameters to be tested for, the sampling and analytical methods to be used, the quality assurance/quality control procedures to be followed, and any other necessary information for approval from the Director. Within 90 days of the conclusion of the performance test (defined as the last day that samples were collected at the site) a report shall be submitted to the Director. The report will include a copy of all data collected during the performance test and calculations and determinations to show whether the applicable performance standards outlined in Condition 5.B. were met. The calculations and supporting data shall also be submitted electronically.

# ATTACHMENT 17

# WASTE MANAGEMENT PLAN
# FOR
# POLYCHLORINATED BIPHENYLS

Attachment 17

Waste Management Plan for Polychlorinated Biphenyls

## OVERVIEW

This attachment includes the operating requirements specific to disposal of PCB's by incineration. EPA has issued a TSCA PCB Coordinated Approval pursuant to 40 CFR §761.77 that requires compliance with this attachment. Should any conflict arise between this attachment and the other sections of this permit, or the Clean Air Act, the more stringent provision shall be effective.

Clean Harbors is authorized under 40 CFR §761.65(b)(2)(iii) to store PCB's and PCB items designated for disposal in accordance with this permit, issued under the authorization contained in Section 3006, RCRA. Spills of PCB's shall be cleaned up in accordance with the PCB regulations.

## WAIVER OF TECHNICAL REQUIREMENTS

The United States Environmental Protection Agency Region VIII (EPA) has waived the requirement at 40 CFR §761.70(a)(1)(i) for a burn temperature of 2192°F (+ or - 180°F) at the afterburner exit to allow a waste feed cutoff if the temperature drops to less than 1980°F for more than 60 seconds. EPA believes that PCBs can be burned with a DRE of 99.9999% using a waste feed cutoff at 1980°F as the result of two miniburns conducted to demonstrate this (*vide* Miniburn Test Report, METCO Environmental, January 2001).

## CONTENTS

DEFINITIONS

1. "EPA or EPA Region VIII" means the United States Environmental Protection Agency Regional Office located in Denver, Colorado.

2. "PCB" means POLYCHLORINATED BIPHENYLS as defined in 40 CFR §761.3.

3. "PCB spill" has the same meaning as "spill", defined in the PCB Spill Cleanup Policy in 40 CFR §761.123 and “disposal", defined in 40 CFR §761.3.

4. "Quantifiable Level/Level of Detection" means 2 micrograms per gram from any resolvable gas chromatographic peak, i.e., 2 ppm.

5. "Clean Harbors" means Clean Harbors Aragonite, LLC.

6. "TSCA" means the Toxic Substances Control Act.

7. All definitions contained in 40 CFR § 761.3 (Reference also 63FR35384) and § 761.123 are incorporated by reference into this attachment. Terms not defined in the regulations or in the attachment shall be defined by a generally accepted scientific or industrial meaning or a standard dictionary meaning.

**Clean Harbors Aragonite, LLC**

**Attachment 17**

PCB WASTE MANAGEMENT CONDITIONS

I. Design and Performance Requirements

(1) Storage for disposal shall be in accordance with the requirements of this permit and 40 CFR §761.65(b)(2)(iii), in a facility authorized under section 3006 of RCRA to manage hazardous waste in containers. PCB spills shall be cleaned up in accordance with PCB regulations. PCB spills and closure cleanup shall be performed in accordance with PCB regulations.

(2) Incineration. In accordance with 40 CFR §761.70 and this permit, the PCB incineration facility shall meet the following standards:

(i) Combustion criteria for liquid PCBs is maintenance of the introduced liquids for a 2-second dwell time at 1200ºC ±100ºC (>2012ºF) and 3% excess oxygen in the stack gas (undiluted) and is subject to the waiver of technical requirements;

(ii) Combustion efficiency shall be at least 99.90 % computed as follows:

$$CE = \frac{C_{CO2}}{C_{CO2}+C_{CO}} * 100, \text{ where}$$

CE = combustion efficiency

$C_{CO2}$ = concentration of carbon dioxide by volume; and

$C_{CO}$ = concentration of carbon monoxide by volume;

(iii) The rate and quantity of PCBs that are fed to the combustion system shall be measured and recorded at regular intervals of no longer than 15 minutes;

(iv) The temperature of the incineration process shall be continuously measured and recorded;

(v) The flow of PCBs to the incinerator shall stop automatically whenever the Operating Conditions specified in Condition II that are tied to interlocks are exceeded or whenever the monitoring or recording devices for those conditions fail.

(vi) Continuous emissions monitoring and recording shall be conducted for the following parameters whenever the incinerator is incinerating PCBs: $O_2$, CO and $CO_2$.

(vii) Air pollution control devices shall be used for HCl and particulate control in accordance with the Operation Requirements specified in Condition II of this attachment.

(viii) The mass air emissions from the incinerator shall be no greater than 0.001 grams of PCB per kilogram of PCB introduced to the incinerator (i.e., 99.9999% destruction and removal efficiency).

(ix) The emission of dioxins and furans shall be no greater than 0.40 ng TEQ/dscm.

(x) In accordance with 40 CFR §761.70(d)(4)(ii), the operation of the incinerator shall not present an unreasonable risk of injury to health or the environment from PCBs.

II. Operating Requirements

(1) General. Clean Harbors shall comply with all PCB regulations contained in 40 CFR Part 761.

(i) Attachment 1 Waste Analysis Plan is amended to include the following conditions regarding PCB residue characterization during incinerator operations:

a. Sampling. Clean Harbors shall obtain discrete samples from three waste streams; the kiln/ABC slag, the spray dryer residue and the baghouse dust. Two sampling methods are approved. The first method is grab samples from each waste stream residue exit (excluding those isolated for discrete analysis, reincineration, or both). The second method is six samples from each rolloff container, from a rectangular six point grid, three of which shall be taken to a minimum depth of one foot above the bottom of the rolloff.

b. Compositing. The samples described in II.(1)(i)a. above shall be composited to create two samples for each day of "incinerator operations." The first daily composite shall consist of all kiln/ABC slag samples (excluding those isolated for discrete analysis, reincineration, or both). The second daily composite shall be proportionate by weight of all spray dryer residue and baghouse dust samples.

c. Analysis. The composite samples described in II.(1)(i)b. above shall be analyzed by Clean Harbors to demonstrate that the total of all the Aroclors in the residues is less than 2 ppm. All residues that contain 2 ppm or more PCBs shall be reincinerated. Clean Harbors has the option, in lieu of the analytical requirements of this condition, to reincinerate any residue that it believes contains 2 ppm or more PCBs.

d. Upset conditions. In the event that any one of the feed limits or any one of the operating limits described in Conditions II.(2)(i)a. through d. and Conditions II.(2)(iii)a. through d., q. and r. is exceeded for a duration of 10 minutes or longer, the kiln/ABC slag residue waste stream will be discretely sampled. The timing of this sample shall be approximately one hour from the initiation of the exceedence unless the rate of movement of the slag residue through the kiln and conveyors has been affected by the exceedence. If the latter is the case, the discrete sample will be taken at such a time as is most likely to capture slag residue produced after the exceedence and before approved operating conditions were reestablished. The sample will be analyzed for PCBs, and all slag residues produced during the exceedence that contain 2 ppm or more PCBs shall be reincinerated. Clean Harbors has the option, in lieu of the sampling and analytical requirements of this condition, to reincinerate all slag residue produced during an exceedence specified in this condition.

(2) Incineration. The incinerator consists of a slagging rotary kiln followed by a vertical afterburner. Combustion gases, after exiting the afterburner, pass through a spray dryer, a baghouse, a saturator, a two stage packed bed scrubber, and exit out the stack. Because the Clean Harbors incineration system is subject to the strict construction, maintenance and operating conditions of this permit, this PCB Waste Management Plan shall only impose conditions that are essential to compliance with the performance standards listed in Condition I of this attachment. Throughout this section there are references to 60-minute rolling averages and 12-hour rolling averages. Calculation of these values will be as described in 40 CFR §§ 63.1209(a)(6) and 63.1209(b)(5). Therefore, this PCB Waste Management Plan is conditioned as follows:

(i) Limitations on Waste Feed.

a. Total organic chlorine feed to the incinerator for all feed mechanisms combined shall not exceed 2319 pounds per hour as calculated on a 12-hourly rolling average basis.

b. All types of PCB waste may be fed to the incinerator under the conditions of this attachment. No PCB concentration restriction applies to the waste feed.

c. The PCB feed rate of both bulk solids and containers to the kiln shall not exceed 600 pounds per hour unless Condition II.(2)(i)d. (below) is met.

d. If the kiln is discharging molten slag and the discharge end of the kiln is coated with molten slag, Condition II.(2)(i)c. (above) is suspended. The determination of slagging mode in the kiln shall be made as specified in Condition II.(2)(iv)f.

e. The total PCB feed rate to the kiln and afterburner chamber shall not exceed 1608 pounds per hour as calculated on a 60-minute rolling average basis.

f. The maximum thermal input to the incineration system (kiln and afterburner combined) for any combination of waste, fuel, or both shall not exceed $155.7 \times 10^6$ Btu per hour as calculated on a 60-minute rolling average basis.

g. PCB waste shall only be incinerated when the incinerator complies with the operating conditions specified in Condition II.(2)(iii) of this attachment.

(ii) Analysis of Waste Feed. Throughout operation, Clean Harbors shall conduct sufficient analysis of the waste feed, in accordance with the waste analysis requirements to verify that the waste fed to the incinerator is within the physical and chemical composition limits specified in this attachment.

(iii) Operating Limits. Clean Harbors shall incinerate the wastes described in Condition II.(2)(i) only under the following conditions and subject to the automatic waste feed cutoffs specified in Condition II.(2)(v) of this attachment.

a. The kiln rotation shall be maintained at no less than 0.15 rpm while feeding waste and shall be monitored and recorded continuously.

b. The temperature of the combustion gas at the kiln exit shall not be less than 1800ºF as calculated on a 60-minute rolling average basis. This temperature is defined as the average temperature readings of the A and B

or the A and C infrared pyrometers. Alternatively, when only one infrared pyrometer is on-line, the temperature of the combustion gas at the kiln exit, as measured by the single pyrometer, shall not be less than 1940°F as calculated on a 60-minute rolling average basis. Clean Harbors shall document in the operating record those periods when only one infrared pyrometer is on-line.

c. The temperature of the combustion gas at the afterburner chamber exit shall be maintained at 2018°F or higher as calculated on a 60-minute rolling average basis. This temperature shall be monitored and recorded continuously.

d. Oxygen concentration shall be $\geq$3% by volume as monitored and recorded continuously at the exit of the afterburner chamber.

e. Clean Harbors shall control fugitive emissions from the combustion zone of the incinerator by maintaining pressure in the combustion zone at less than -0.01 inches of water column. The combustion zone pressure shall be monitored and recorded on a continuous basis.

f. The exhaust gas temperature at the exit of the spray dryer shall not exceed 520°F. The spray dryer exhaust gas temperature shall be monitored and recorded continuously.

g. The pressure drop across the baghouse shall be no less than 1.8 inches W.C. Pressure drop across the baghouse shall be monitored and recorded on a continuous basis.

h. The liquid flowrate to the saturator shall be maintained at or above 300 gallons per minute as calculated on a 60-minute rolling average basis. The liquid flowrate to the saturator shall be monitored and recorded continuously.

i. The exhaust gas temperature at the exit of the saturator shall not exceed 225°F. The saturator exhaust gas temperature shall be monitored and recorded continuously.

j. Scrubber liquid flowrate to the first stage of the packed tower shall be maintained at or above 1,882 gallons per minute as calculated on a 60-minute rolling average basis. The flowrate of liquid to the first stage of the packed tower shall be monitored and recorded continuously.

k. Scrubber liquid flowrate to the second stage of the packed tower shall be maintained at or above 1,996 gallons per minute as calculated on a 60-minute rolling average basis. Scrubber liquid flowrate to the second stage of the packed tower shall be monitored and recorded continuously.

l. The pH of the first stage scrubber liquid feed to the packed tower shall be maintained at or above a pH of 5.47 as calculated on a 60-minute rolling average basis. The pH of the first stage scrubber liquid feed shall be monitored and recorded continuously.

m. The pH of the second stage scrubber liquid feed to the packed tower shall be maintained at or above a pH of 6.23 as calculated on a 60-minute rolling average basis. The pH of the second stage scrubber liquid feed shall be monitored and recorded continuously.

n. The pH of the scrubber effluent from the second stage of the packed tower shall be maintained at or above a pH of 5.80 as calculated on a 60-minute rolling average basis. The pH of the second stage scrubber effluent shall be monitored and recorded continuously.

o. The feed rate of activated carbon to the inlet of the baghouse shall be maintained at no less than 25 pounds per hour as calculated on a 60-minute rolling average basis. The feed rate of activated carbon shall be monitored and recorded continuously.

p. reserved

q. Combustion Efficiency (CE) shall be $\geq$ 99.90% in the stack exhaust gas, calculated in accordance with the formula specified in Condition I.(2)(ii). CO and $CO_2$ are monitored and recorded continuously and CE is calculated and recorded every 15 seconds.

r. Combustion gas flowrate, measured as combustion gas flowrate at the stack, shall not exceed 77,800 acfm as calculated on a 60-minute rolling average basis. The combustion gas flowrate at the stack shall be monitored and recorded on a continuous basis.

(iv) Monitoring Requirements.

a. The feedrate of pumpable materials, including waste feed and auxiliary fuel, shall be monitored and recorded continuously. The feed rate shall be quantified in pounds per hour.

b. The feedrate of non-pumpable wastes shall be monitored and recorded on a periodic basis equal to the charging cycle. The feed rate shall be quantified in pounds per hour.

c. The feedrate of containerized waste shall be monitored and recorded. The feedrate shall be quantified in pounds per hour.

d. The feedrates specified in condition II.(2)(i) shall be monitored and recorded in the units specified in condition II.(2)(i).

e. Clean Harbors shall maintain and operate monitoring equipment and record the data while incinerating PCB waste as specified in the following table:

| System Parameter Process | Monitor Type-Tag # | Location | Recording |
|---|---|---|---|
| Kiln Rotation | Speed Transmitter ST 1003 | PI-101 | rpm, Continuous |
| Kiln Exit Temperature | Infrared Pyrometer TT 1005 A,B,C | PI-101 | $^{o}$F, Continuous |
| ABC Exit Temperature | Type K Thermocouple TE/TT 1009 A,B,C | PI-101 | $^{o}$F, Continuous |
| ABC Exit $O_2$ Level | Oxygen Sensor AE/AT 1010 A,B | PI-101 | %, Continuous, Wet basis |
| Combustion Zone Pressure | Differential Pressure Transmitter PIT 1006 A,B,C | PI-101 | Inches W.C., Continuous |
| Spray Dryer Exit Gas Temperature | Type J Thermocouple TE/TT 2001 A,B,C | PI-201 | $^{o}$F, Continuous |
| Baghouse Pressure Drop | Differential Pressure Transmitter PIT 2020 A,B | PI-202 | Inches W.C., Continuous |
| Saturator Liquid | Flow Transmitter | PI-204 | GPM, Continuous |

| | | | |
|---|---|---|---|
| Flowrate | FT 2081 | | |
| Saturator Exit Gas Temperature | Type J Thermocouple TE/TT 2082 A,B,C | PI-204 | °F, Continuous |
| Packed Tower First Stage Liquor Flowrate | Flow Transmitter FT 2092 | PI-204 | GPM, Continuous |
| Packed Tower Second Stage Liquor Flowrate | Flow Transmitter FT 2095 | PI-204 | GPM, Continuous |
| Packed Tower First Stage Liquor pH | pH Sensor AE 2104 A,B; AT 2104; AIC 2104 | PI-205 | pH, Continuous |
| Packed Tower Second Stage Liquor pH | pH Sensor AE 2130 A,B; AT 2130; AIC 2130 | PI-206 | pH, Continuous |
| Packed Tower Second Stage Effluent pH | pH Sensor AE/AT 2129 A,B | PI-206 | pH, Continuous |
| Activated Carbon Feed Rate | loss-in-weight scale WT 2037 RL | | lb/hr, hourly rolling average |
| Stack CO Level | NDIR photometer AE/AT 2199 A,B,C | PI-212 | ppmv, Continuous, Oxygen Corrected, Dry Basis, Hourly Rolling Average |
| Stack $CO_2$ Level | NDIR photometer Continuous, AE/AT 2198 A,B | PI-212 | ppmv, $O_2$ Corrected, Dry Basis |
| Combustion Gas Velocity | Annubar FE/FIT 2195 | PI-212 | ACFM,Continuous |

f. Clean Harbors shall visually monitor the mode of kiln operation at least once before exceeding 600 pounds per hour of PCBs fed to the kiln in bulk solids and containers. During each kiln monitoring period Clean Harbors shall determine whether or not the kiln is discharging molten slag and whether or not the discharge end of the kiln is coated with molten slag. Clean Harbors shall note in the operating record the observations and determinations made during each kiln monitoring period.

g. Upon written request of the Assistant Regional Adminstrator Office for Partnership and Regulatory Assistance, Clean Harbors shall conduct sampling and analysis of the waste and exhaust emissions to verify that the

operating requirements established in this attachment achieve the performance standards included in Section I.(2) of this attachment. Clean Harbors shall redemonstrate the PCB performance standards at the same frequency and at the same time as it redemonstrates the other performance standards included in this permit.

h. Clean Harbors shall calibrate the instruments and monitors specified in Condition II.(2)(iv) of this attachment in accordance with the requirements of this permit and with conformance to 40 CFR §266 Appendix IX for the CO and $O_2$ continuous monitors and conformance to 40 CFR §60, Appendix B for $CO_2$ continuous monitors. .

(v) Waste Feed Cut-off Requirements.

a. Clean Harbors shall construct, maintain and operate automatic waste feed cut-off (AWFCO) systems for the following operating conditions:

1. A kiln rotation less than 0.15 rpm, instantaneous.

2. A kiln exit gas temperature of less than 1800°F as calculated on a 60-minute rolling average basis when operating with two pyrometers or a kiln exit gas temperature of less than 1940°F as calculated on a 60-minute rolling average basis when operating with one pyrometer (kiln waste feed cutoff only).

3. An afterburner chamber exit gas temperature of less than 1980°F for more than 60 seconds, an afterburner exit gas temperature of less than 2018°F as calculated on a 60-minute rolling average basis, or both.

4. An afterburner chamber exit oxygen concentration less than 3% by volume, wet basis, for more than two minutes and an afterburner chamber exit oxygen concentration less than 2% by volume, wet basis, for more than 15 seconds.
5. A combustion zone pressure of greater than -0.01 inches of water column, for more than 5 seconds.

6. Emergency vent opening, instantaneous.

7. An exhaust gas temperature at the exit of the spray dryer greater than 520°F, instantaneous.

8. A pressure drop across the baghouse of less than 1.8 inches of water column, instantaneous.

9. A liquid flowrate to the saturator of less than 300 gpm as calculated on a 60-minute rolling average basis.

10. An exhaust gas temperature at the exit of the saturator greater than 225°F, instantaneous.

11. A scrubber liquid flowrate to the packed tower first stage of less than 1882 gpm as calculated on a 60-minute rolling average.

12. A scrubber liquid flowrate to the packed tower second stage of less than 1996 gpm calculated on a 60-minute rolling average basis.

13. A pH of less than 5.47 in the first stage packed tower liquid feed, calculated on a 60-minute rolling average basis.

14. A pH of less than 6.23 in the second stage packed tower liquid feed, as calculated on a 60-minute rolling average basis.

15. A pH of less than 5.80 in the packed tower second stage effluent as calculated on a 60-minute rolling average basis.

16. A feed rate of activated carbon to the inlet of the baghouse of less than 25 pounds per hour as calculated on a 60-minute rolling average basis.

17. Induced draft fan off, instantaneous.

18. A combustion efficiency of less than 99.90% in the stack exhaust gas for more than 60 seconds.

19. A combustion gas flowrate, as measured at the stack, greater than 77,800 acfm as calculated on a 60-minute rolling average basis.

20. Activation of the emergency stop button, instantaneous.

21. Utility power failure, instantaneous.

b. In the case of a malfunction of the automatic waste feed cut-off system, Clean Harbors shall immediately initiate manual waste feed cut-off. Clean Harbors shall not restart the incineration system until the problem causing the malfunction has been identified and corrected.

c. Clean Harbors shall test the emergency waste feed cut-off systems and associated alarms every 168 hours of incinerator operations in accordance with the UDEQ RCRA permit to verify operability.

d. Clean Harbors shall operate the incinerator in such a way as to minimize opening the emergency vent.

(3) Record Keeping.

(i) Clean Harbors shall notify the Assistant Regional Administrator for the Office of Partnerships in writing within seven (7) days describing the incident and indicate the reason for each emergency vent opening. This notification shall also describe corrective measures taken by Clean Harbors to prevent future occurrences.

(ii) Clean Harbors shall record and maintain in the operating record all monitoring, maintenance, recording, calibration, test, and inspection data compiled under the requirements of this attachment.

(iii) Clean Harbors shall maintain a separate maintenance log for each instrument/monitor required in this attachment. The log shall contain all work, maintenance, calibration, testing, and inspection data as required for each instrument.

(iv) Clean Harbors shall record in a separate log as part of the operating record, the date and time of all automatic waste feed cut-offs while incinerating waste, including the triggering parameters, reason for the cut-off, and corrective action taken. Clean Harbors shall also record all failures of the automatic waste feed cut-off system to function properly and corrective actions taken.

(v) Clean Harbors shall prepare and maintain annual records and a written annual document log on the disposition of all PCBs and PCB items at the facility.

(vi) These records shall be kept either electronically, on paper, microfilm/microfiche, or other equivalent method, and shall be readily retrievable during an EPA inspection. Any copies shall be confirmable as accurate and true copies of the original records that represent the operational conditions of waste management activities at the facility.

(4) Reporting.

(i) Clean Harbors shall comply with Subparts J and K of the PCB regulations. Clean Harbors shall submit to EPA annual reports, as required by Subpart J, §761.180(b), due by July 15, of the records of all PCB wastes handled at the facility during the previous calendar year.

(ii) Clean Harbors shall notify the EPA regional administrator of changes to this attachment and changes relating to PCB waste requirements in the UDSHW Hazardous Waste Permit in accordance with §761.77(a)(3).

III. Administrative and Other Requirements

(1) Financial Assurance. Financial assurance shall be maintained in accordance with Attachment 7, Closure Cost.

(2) Closure Plan. Closure will be in compliance with PCB regulations.

(3) EPA Region VIII contacts. All written reports required to be submitted to EPA pursuant to this attachment shall be sent to the Director of the Office of Partnerships and Regulatory Assistance (OPRA), U.S. Environmental Protection Agency, 1595 Wynkoop Street, Denver, Colorado, 80202-1129. All telephone reports to EPA shall be made to the Chief of the Toxics Section.