TRAIN I INCINERATOR SYSTEM
TSCA TRIAL BURN PLAN
CLEAN HARBORS DEER PARK, LLC

PREPARED FOR:

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List of Acronyms

acfm	actual cubic feet per minute
APC	air pollution control
ASTM	American Society for Testing and Materials
AWFCO	automatic waste feed cutoff
Btu	British thermal unit
CEM	continuous emissions monitoring
CEMS	continuous emissions monitoring system
CfPT	confirmatory performance test
CFR	Code of Federal Regulations
cm	centimeter
CMS	continuous monitoring system
cP	centipoises
CPT	comprehensive performance test
cSt	centistokes
CVAA or CVAAS	cold vapor atomic absorption spectrometry
DCBP	decachlorobiphenyl
DRE	destruction and removal efficiency
dscf	dry standard cubic foot
dscfm	dry standard cubic feet per minute
dscm	dry standard cubic meter
dscmm	dry standard cubic meter per minute
EPA	U.S. Environmental Protection Agency
FID	flame ionization detector
FRP	fiber reinforced plastic
ft	foot
g	gram
g/cc	grams per cubic centimeter
GC	gas chromatography
GC/MS	gas chromatograph/mass spectrometry
gpm	gallons per minute
gr	grain
HAP	hazardous air pollutant
HC or THC	total hydrocarbons
Hg	mercury
hr	hour
HRGC/HRMS	high resolution gas chromatography/high resolution mass spectrometry
HWC	hazardous waste combustor
ICP or ICAP	inductively coupled argon plasma spectroscopy.
ICP-MS or ICAP-MS	Inductively coupled argon plasma spectroscopy/mass spectroscopy
in	inch
inwc	inches water column
kg	kilogram
l	liter
lb	pound
L/G	liquid to gas ratio
LVM	low volatility metals
MACT	Maximum Achievable Control Technology
mg	milligram
ml	milliliter
MM Btu/hr	million British thermal units per hour
MS	mass spectroscopy
mscfm	thousand cubic feet per minute

MSL	mean sea level
NDIR	non-dispersive infrared
NESHAP	National Emission Standards for Hazardous Air Pollutants
NIST	National Institute for Standards and Testing
NO	Nitrogen Oxide
NO_X	Oxides of Nitrogen (NO + NO_2)
NO_2	Nitrogen Dioxide
ODCB	ortho-dichlorobenzene (1,2- dichlorobenzene)
OTS	Office of Toxic Substances
PCB	polychlorinated biphenyl
PCDD	polychlorinated dibenzo-p-dioxin
PCDF	polychlorinated dibenzofuran
pg	picogram
POHC	principal organic hazardous constituent
ppm	parts per million
ppmv	parts per million by volume
ppmdv	parts per million by dry volume
ppmw	parts per million by weight
PM	particulate matter
psig	pounds per square inch, gauge
QA	quality assurance
QC	quality control
RCl	chlorinated organics
scfm	standard cubic feet per minute
sec	second
SMVOC	Sampling Method for Volatile Organic Compounds
SRE	system removal efficiency
SVM	semivolatile metals
SVOC	semivolatile organic compound
TBP	trial burn plan
TCDD	tetrachlorinated dibenzo-p-dioxin
TCEQ	Texas Commission on Environmental Quality
TEQ	toxicity equivalents
THC or HC	total hydrocarbons
TPDES	Texas Pollutant Discharge Elimination System
TSCA	Toxic Substances Control Act
VOA	volatile organic analysis
VOC	volatile organic compound
vol%	volume percent
VOST	Volatile Organic Sampling Train
w.c.	water column
wt%	weight percent
µg or ug	microgram
ηg or ng	nanogram

1.0 INTRODUCTION

1.1 GENERAL

Clean Harbors Deer Park LLC (CHDP) operates a commercial hazardous waste incineration facility located in LaPorte, Texas. CHDP operates two incinerator systems at this facility, Train I and Train II. Train I is permitted under the Toxic Substances Control Act (TSCA) to treat polychlorinated biphenyl (PCB) wastes. Environmental Protection Agency (EPA) Region 6 is requiring TSCA compliance testing to be performed to reauthorize Train I to treat PCB-bearing materials. CHDP plans to perform this testing concurrent with the comprehensive performance test (CPT) to demonstrate compliance with the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Hazardous Waste Combustors (HWC), a.k.a., HWC Maximum Achievable Control Technology MACT rule [40 CFR Part 63, Subpart EEE]. The CPT is required by May 2026. The CPT Plan is submitted separately to the Texas Commission on Environmental Quality (TCEQ) and is pending review and approval. Where HWC MACT CPT and TSCA required sampling and analyses overlap, CHDP will use the concurrent test data to demonstrate compliance with both programs, e.g., Method 23 dioxin/furan emissions measured for HWC NESHAP compliance will also be used for TSCA reauthorization.

1.2 DEER PARK FACILITY OPERATION

CHDP is a full-service hazardous waste incineration facility which has been in operation for over 30 years. The facility includes two incinerator systems, Train I and Train II. The TCEQ Hazardous Waste Permit (HWP) allows nearly every waste code to be brought in for treatment. Explosive (except DOT 1.4 air bag cylinders stored in BSA 1, BSA 2, and BSA 3), radioactive, and listed dioxin wastes are excluded from the permit. TSCA regulated wastes are managed separately from the balance of wastes and only treated in Train I.

Solids are delivered in bulk (typically in roll-off bins) or in drums. Bulk solids, drums and other smaller containers can be fed directly to the kilns. Drums can be shredded in a stand-alone unit before being fed to the Train I kiln. Finally, drummed waste can be unloaded and “blended” into large lots of waste for bulk feed. These blends also include bulk loads of solids.

Liquids are brought in by rail or truck, and can be fed directly to a burner for incineration, or unloaded into various tanks as compatibility permits. The tank contents are then fed to burner guns.

Specialty wastes – gas cylinders, drums of liquids, and others – are also handled. These wastes can be routed either directly or educted using steam or nitrogen into the afterburner chamber, for combustion of the container contents. Selected cylinders can also be routed directly to the kiln feed end.

The permitted warehouse, storage areas, and tank farm allow waste inventories to rise and fall with demand. The facility performs thermal treatment via specific function called “burn planning.” Employees combine their knowledge of the incineration systems operation and the permits, with computerized access

to the inventory, to optimize feeds. The optimization involves summing up all feed constituents, to assure that no feed limits are exceeded, while maintaining maximum throughput to the units. This calculation is repeated in detail, in real time, as the wastes are actually fed to the incinerators, to ensure compliance with the HWC MACT standards, TCEQ Hazardous Waste Permit (HWP), and TSCA Authorization.

1.3 SYSTEM CONFIGURATION

Train I includes a rotary kiln, 3.6 meters in diameter, routinely referred to as the "3.6". The kiln is refractory-lined and equipped with a solid feed chute, a combination liquid/gas burner, a sludge feed port, and a gas vent port. Inert solids exit the kiln in the form of slag, dropping into a water bath "deslagger." Hot gases exit the drop-out chamber through refractory lined duct, to the afterburner chamber (ABC).

The Loddby liquid waste burner is the primary heat source for the Train I ABC. The Loddby is a horizontal burner for liquid wastes, natural gas and fuel / used oil. The small eductor and cylinder processing systems feed into the ABC. Finally, the ABC has connections for injection of two separate aqueous (low BTU) liquid waste feeds.

The combined hot gases exit the ABC through a vertical duct that turns down to enter the rapid quench or saturator. The rapid quench cools these hot exhaust gases to the point of adiabatic saturation, typically less than 190^{o}F. Combustion gas quenching is by evaporating water into the gases, and doing so in a co-current configuration that minimizes dioxin/furan formation.

The cooled gases then enter two parallel condensers, which use recirculating cooling water to remove heat from the gases. The parallel condensers begin the scrubbing process for all contaminants, and thoroughly remove HCl formed from combustion of chlorinated organics. The scrubbing water is cooled and neutralized before being recirculated. Next, the gases enter the Calvert collision scrubber, a venturi scrubber that conditions the gas for treatment in the wet electrostatic precipitators (WESPs). The Calvert scrubber uses water, which is recirculated within that system alone. This system blows down into the main water treatment system discussed below. Two WESPs in-series remove fine particulate matter (PM) and metals from the combustion gases.

An induced draft (ID) fan pulls the combustion gas flow through the system. The gases then flow through the selective catalytic reduction (SCR) nitrogen oxides (NO_X) control system. The gases then flow out the stack, from which they are sampled by the continuous emissions monitoring system (CEMS) for carbon monoxide (CO), carbon dioxide (CO_2), total hydrocarbons (THC), oxygen (O_2), and moisture.

1.4 TEST OPERATING PROTOCOL

The CPT is planned as two (2) operating conditions: 1) 2-WESP operation and 2) 1-WESP operation. The TSCA compliance testing will be conducted concurrently during the 2-WESP operating condition. This test condition will be performed to demonstrate worst-case operation of the combustion and emissions control system operation for DRE performance, and dioxin/furan, particulate, HCl/Cl_2, and regulated metals

emissions. The current HWC MACT 2-WESP operating parameter limits (OPLs) and test target operating conditions are summarized in Table 1.

1.5 APPLICABLE TSCA PERFORMANCE, TESTING, AND OPERATING STANDARDS

The following TSCA performance, testing, and operating standards are applicable to Train I:

- Mass air emissions no greater than 0.001 grams (g) of PCB per kilogram (kg) of the PCB introduced into the incinerator [a.k.a., 99.9999% destruction and removal efficiency (DRE)]. [761.70(b)(1)].
- Dwell (residence) time of two (2) seconds at 1,200ºC (±100ºC) and three (3) percent oxygen (3% O_2) in the stack gas. [761.70(a)(1)(i)]
- Combustion efficiency of at least 99.9% computed as follows [761.70(a)(2)]:

$$\text{Combustion efficiency} = [C_{CO2} / (C_{CO2} + C_{CO})]100$$

Where: C_{CO2} = Concentration of carbon dioxide

C_{CO} = Concentration of carbon monoxide.

- The rate and quantity of PCB fed measured and recorded at regular intervals of no longer than 15 minutes. [761.70(a)(3)]
- The temperatures of the incineration process continuously measured and recorded. [761.70(a)(4)]
- PCB feed stopped automatically whenever the combustion temperature drops below the required temperature. [761.70(a)(5)]
- When incinerator is first used for disposal of PCB or after being modified in a manner which may affect stack emissions, monitoring for the following parameters 761.70(a)(6)(i)-(iii)]:
  - O_2, CO, CO_2, Oxides of Nitrogen (NO_X)
  - Hydrochloric acid (HCl)
  - Total chlorinated organic content (RCl)
  - PCB; and
  - Total particulate matter (PM).
- Monitoring of stack emissions for O_2, CO, and CO_2 whenever incinerating PCB. [761.70(a)(7)]
- PCB feed to the incinerator stopped automatically when any one or more of the following conditions occur [761.70(a)(8)]:
  - Failure of monitoring of stack emissions for O_2, CO, and CO_2
  - Failure of the PCB rate and quantity measuring and recording equipment
  - Excess stack gas oxygen falls below 3% O_2.
- Water scrubbers shall be used for HCl control during PCB incineration and meet performance requirements specified by EPA. Scrubber effluent monitored and comply with applicable effluent or pretreatment standards, and State and Federal laws and regulations. [761.70(a)(9)]

1.6 POHC SELECTION

TSCA was passed in 1976. As a result, PCB materials have been substantially removed from commerce and existing materials containing sufficient PCB to conduct the required DRE testing have become exceedingly more rare and difficult to obtain. CHDP does not anticipate having or being able to accumulate sufficient quantities of PCB-bearing wastes for this test program. Therefore, CHDP proposes to use a commercially obtainable, chlorinated aromatic compound as a surrogate for PCB, specifically 1,2-dichlorobenzene [1,2-DCB or ortho-dichlorobenzene (ODCB)] to demonstrate the required 99.9999% DRE. ODCB was used as a surrogate principal organic hazardous constituent (POHC) for PCB during the 2006 Train I TSCA test. Clean Harbors has performed similar TSCA compliance testing of its Aragonite, Utah incinerator using ODCB as a surrogate for PCB in 2020 and 2023, and will be doing so again in 2025. Sections 4.4 and 4.5 include additional detailed discussion of the proposed DRE testing using ODCB.

1.7 APPLICABLE TSCA PERFORMANCE AND EMISSIONS DATA

The following performance and emissions data will be collected and reported as required by TSCA:

- Mass air emissions no greater than 0.001 grams (g) of ODCB per kilogram (kg) of the ODCB introduced into the incinerator [a.k.a., 99.9999% destruction and removal efficiency (DRE)]. [761.70(b)(1)].
- Dwell (residence) time of two (2) seconds at 1,200ºC ($\pm$100ºC) and three (3) percent oxygen (3% O_2) in the stack gas. [761.70(a)(1)(i)]
- Emissions monitoring for the following parameters 761.70(a)(6)(i)-(iii)]:
  - O_2, CO, CO_2, Oxides of Nitrogen (NO_X)
  - Hydrochloric acid (HCl)
  - Total chlorinated organic content (RCl)
  - PCB; and
  - Total particulate matter (PM).

No specific limits are established by TSCA for CO, HCl, RCl, PCB, or PM emissions, simply that they are to be measured and reported.

1.8 APPLICABLE TSCA OPERATING LIMITS

The 2-WESP CPT operating condition will establish OPLs for combustion system and emissions control equipment operation in accordance with the HWC MACT. Provided ODCB DRE performance meets the 99.9999% TSCA requirement and other emissions comply with the standards for existing incinerators at 40 CFR 63.1219(a) summarized in Table 2, CHDP anticipates the only additional operating limits expected in the TSCA Authorization are monitoring of the following when treating PCB wastes:

- Minimum combustion efficiency of at least 99.9% [761.70(a)(2)]
- Maximum feed rate PCB [761.70(a)(3)]

- Minimum combustion system temperatures [761.70(a)(4)]
- PCB feed stopped automatically whenever the combustion temperature drops below the minimum required temperature [761.70(a)(5)]
- Monitoring of stack emissions for O_2, CO, and CO_2 whenever incinerating PCB [761.70(a)(7)]
- PCB feed to the incinerator stopped automatically when any one or more of the following conditions occur [761.70(a)(8)]:
  - Failure of monitoring of stack emissions for O_2, CO, and CO_2
  - Failure of the PCB rate and quantity measuring and recording equipment
  - Excess stack gas oxygen falls below 3% O_2.

1.9 TEST PLAN ORGANIZATION

This test plan is prepared in a chapter format which includes regulatory citations where appropriate. The major sections of the test plan are as follows:

- Section 1.0 - Introduction
- Section 2.0 - Engineering Description
- Section 3.0 - Feedstream Description
- Section 4.0 - Test Design and Protocol
- Section 5.0 - Sampling, Analysis, and Monitoring Procedures
- Section 6.0 - Test Schedule
- Section 7.0 – TSCA Operating Authorization Objectives
- Section 8.0 - Test Reporting

1.10 REFERENCE DOCUMENTS

Reference documents which have been used in developing this test plan include the following:

- Polychlorinated Biphenyls Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions, 40 CFR 761.
- National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors, 40 CFR 63 Subpart EEE, October 12, 2005.
- EPA, “Guidance on Setting Permit Conditions and Reporting Trial Burn Results”, Volume II of the Hazardous Waste Guidance Series”, EPA/625/6-89/019, January 1989.
- Quality Assurance/Quality Control (QA/QC) Procedures for Hazardous Waste Incineration, EPA/625/6-89/023, January 1990.
- American Society for Testing and Materials, "Annual Book of ASTM Standards”, latest annual edition.
- EPA, "New Source Performance Standards, Test Methods and Procedures,” Appendix A, 40 CFR 60.
- EPA, "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods (SW-846)”, Third Edition, 1986.
- Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans (QAMS-005/80).

Table 1. Train I 2-WESP Mode Test Target Operating Conditions

Operating Parameter	Units	Current HWC Limit 2-WESP Operation	CPT Target Range	Avg. Period
Total Kiln Waste	lb/hr	20,666	21,000-22,000	Maximum HRA
Total ABC Waste	lb/hr	16,848	16,800-18,000	Maximum HRA
Total Pumpable Feed	lb/hr	23,025	23,000-24,000	Maximum HRA
Total ODCB and PCB Feed Rate	lb/hr	3,057 (current TSCA authorization)	3,000	Test Run Average
Ash Feed	lb/hr	10,961	10,000 -13,000	Maximum 12-HRA
Chlorine/Chloride Feed	lb/hr	5,261	4,500 -5,500	Maximum 12-HRA
Mercury (Hg)	lb/hr	0.136	0.05 -0.06 (2)	Maximum 12-HRA
Total SVM (Pb, Cd)	lb/hr	69.2	35-45 (2)	Maximum 12-HRA
Total LVM (As, Be, Cr) Feed	lb/hr	79.7	25 -30 (2)	Maximum 12-HRA
Pumpable LVM (As, Be, Cr) Feed	lb/hr	76.1	25 -30 (2)	Maximum 12-HRA
Kiln Temperature	deg F	1,672	1,650-1,750	Minimum HRA
ABC Temperature	deg F	1,882	1,830-1,930	Minimum HRA
Stack Flow	dscfm	48,634	48,000 –50,000	Maximum HRA
THC	ppmv @ 7%O_2	10	<10	Maximum HRA
CO (1)	ppmv @ 7%O_2	100 (1)	NA (1)	Maximum HRA
Combustion Chamber Pressure	Alternative Monitoring Approved			
Condenser (Scrubber) Liquid Flow	gpm	3,396 gpm	3,450 – 3,600	Minimum HRA
Condenser Inlet pH	SU	5.6 SU	5.5. – 6.0	Minimum HRA
Calvert Scrubber dP	inwc	33 inwc	30 -35	Minimum HRA
Calvert Scrubber flow	gpm	151	110 -300	Minimum HRA
Calvert Scrubber Blowdown	gpm	175	120 – 200	Minimum HRA
Calvert Scrubber Tank Level	%	23.0%	20-25%	Minimum HRA
WESP 1 Power	On/Off	On	0.5	Minimum HRA
WESP 2 Power	kVA	6.6	6.0-8.0	Minimum HRA

(1) CHDP uses THC as compliance with HWC MACT. CO limit applies when THC CEMS is off-line. Both CO and THC will be monitored during testing.
(2) Final metals feed rate limit for each metal group will be establsihed based on the lesser of extrapolation to the applicable emissions standard or three times (3X) the test-demonstrated feed rate.

Table 2. Applicable HWC MACT Emissions Standards

Emissions	HWC Standard	Rule Citation
Dioxin/furan	0.40 ng TEQ/dscm @ 7% O_2	63.1219(a)(1)(i)(B)
Mercury (Hg)	130 ug/dscm @ 7% O_2	63.1219(a)(2)
Semi-volatile metals (SVM) (cadmium and lead)	230 ug/dscm @ 7% O_2	63.1219(a)(3)
Low volatile metals (LVM) (arsenic, beryllium, chromium)	92 ug/dscm @ 7% O_2	63.1219(a)(4)
Carbon monoxide (CO)	100 ppmdv @ 7% O_2 HRA (1)	63.1219(a)(5)(i)
Total hydrocarbon (THC)	10 ppmdv @ 7% O_2 HRA	63.1219(a)(5)(ii)
Hydrogen chloride (HCl) and chlorine (Cl_2)	32 ppmdv @ 7% O_2	63.1219(a)(6)
Particulate matter (PM)	29 mg/dscm @ 7% O_2 (0.013 grains/dscf @ 7% O_2)	63.1219(a)(7)

(1) CHDP uses THC as compliance with HWC MACT. CO limit applies when THC CEMS is off-line. Both CO and THC will be monitored during testing.

2.0 ENGINEERING DESCRIPTION

2.1 GENERAL SYSTEM DESIGN AND OPERATION

Train I is designed to thermally destroy liquid, solid, mixtures of liquids and solids, and gaseous wastes. The combustion systems is designed for operation at temperatures between 1,300°F and 2,800°F, with a nominal afterburner (ABC) residence (dwell) time of two (2) seconds. However, previous TSCA authorization testing has demonstrated greater than 99.9999% DRE with less than two (2) seconds ABC residence time and at less than 1,100°C (2,012°F). EPA has previously issued TSCA Authorization for Train I based on the test demonstrated ABC temperature and residence time. CHDP expects similar EPA approval based on the results of this test program.

Combustion gases are quenched, then cooled and scrubbed in a packed tower-venturi scrubber-WESP system. An induced draft (ID) fan pulls the gases through these unit operations, and then pushes it through the SCR NO_X reduction system. Gases then exit to atmosphere through the stack which is equipped with a CEMS.

Train I operates 24 hours per day, 7 days per week. The combustion system burners have natural gas igniters and supplemental gas and fuel / used oil burners for the purpose of initial heat-up and supplemental heat addition. Natural gas at utility supply pressure is metered, reduced to low pressure, controlled by an automatic flow control valve, and injected through the natural gas burners. Fuel / used oil are pumped from the proper tankage, and air atomized into either burner. Waste liquids are similarly atomized.

2.2 COMBUSTION SYSTEM

The primary combustion chamber of the Train I system is a rotary kiln, 3.6 meters in diameter. The kiln is equipped with a solid feed chute, a combination liquid/gas burner, a sludge feed port, and a waste gas feed port. These all enter the kiln on the “front wall” or feed end. The kiln is slightly sloped down from this end. The slope, combined with chemistry control and the slow rotation of the kiln, allows solid wastes to move away from the point of feed. This assures combustion or volatilization of all organic contents of the waste. Inert solids exit the kiln in the form of molten slag, though the exact condition of the inerts is very much a function of feed chemistry and the eutectic curve for the inert residues. The solids exit the back end of the kiln, dropping into a water bath “deslagger” which cools the solids, and provides a seal to preclude drawing air into this part of the unit. Hot gases exit this deslagger area through refractory lined duct, to the ABC.

The ABC provides residence time at high temperature, to assure destruction of the organic constituents in all system feeds. The Loddby liquid waste burner is the primary heat source for the ABC. The Loddby is a horizontal burner for liquid wastes, which can also be fed natural gas and fuel / used oil if additional heat is required to maintain minimum ABC destruction temperature. The small eductor and cylinder vent systems feed into the ABC. Finally, the ABC has connections for injection of two separate aqueous liquid waste feeds.

The combined hot combustion gases exit the ABC through a vertical duct, which turns down to enter the rapid quench. At the top of the "hot duct" is an Emergency Safety Vent (ESV), which opens only in emergency situations to preclude downstream system damage, and maintain appropriate combustion conditions in the kiln and ABC during emergency procedures.

2.3 EMISSIONS CONTROL SYSTEM

The combustion gases from the ABC enter the rapid quench which cools the hot exhaust gases to the point of adiabatic saturation, typically less than 190°F, by evaporating water into the gases in a co-current configuration. This configuration ensures that the combustion gases are cooled in literally microseconds, minimizing the de Novo formation of dioxin/furan compounds. Two separate water supplies deliver quench water to a set of sprays, to saturate the gas. Evaporation is the primary heat transfer mechanism in the rapid quench. The quench is equipped with a backup system that ensures water availability even during a power failure, to maintain protection for this equipment.

The cooled gases then enter two parallel condensers, which use recirculating cooling water to remove heat from the gases. The condensers also remove HCl, Cl_2 and mercury, since the recirculated water is both cooled and pH adjusted to near neutral. Under these conditions, HCl, chlorine, and mercury will condense and be absorbed into the scrubbing solution. The condensers are filled with plastic packing that maximizes their heat and mass transfer capability.

The gases then enter the Calvert collision scrubber, a venturi scrubber that conditions the gas for treatment in the WESPs. Scrubbing water is recirculated through this scrubber, and a blowdown from its tank is controlled to purge collected solids. The blowdown flows into the common (shared with Train II) water treatment system described below. The Calvert collision scrubber was the original PM control device in the system, but two WESPs are now installed as the primary PM control devices to ensure compliance with HWC MACT standards.

Two WESPs in-series remove fine PM – the most difficult to remove – and metals from the combustion gases. Electrostatic forces in the WESP push particulate matter to the grounded, wetted tube surface, from which it is rinsed and purged in a liquid effluent. A constant water flow is added to the inlet gas, to assure that it is saturated with water. That flow is purged to the water treatment by a level control system. The WESPs are washed intermittently but not simultaneously by a high flow of water, to remove any accumulation of PM from the tubes.

An ID fan then pulls combustion gas flow through the unit. The fan speed is controlled to maintain negative pressure on the entire system. The fan is designed to overcome the system pressure drop, at maximum combustion gas flow. The gases then flow through the SCR NO_X control system. Finally, the combustion gas flows out the stack. The CEMS extracts a combustion gas sample from the stack for analysis.

The Calvert venturi is equipped with a scrubber water recirculation loop which is separate from the other water flows. Blowdown water from the Calvert loop flows to the water treatment system where it combines

with the other scrubber water flows. The combined scrubber water is neutralized with lime and sodium hydroxide, clarified to remove solids, and cooled. After cooling, the water is recirculated to the scrubbing unit operations, except for the Calvert loop. Water from the common (shared with Train II) system is treated further before discharge under the TPDES permit.

The incineration system is assembled from units manufactured by multiple companies. The manufacturer and key design details are identified in Section 2.5 and 2.6.

2.4 DISCHARGED WATER MANAGEMENT

The scrubbing water blowdown (purge) from Train I flows through a water treatment system where the water is neutralized with lime and sodium hydroxide, clarified to remove solids, and cooled. The treated waters are recycled back to and reused in the emission control systems of both Train I and Train II. Blowdown from the water treatment system is treated further before being discharged under the facility's TPDES wastewater permit.

2.5 TRAIN I COMBUSTION EQUIPMENT

The equipment associated with waste combustion is listed and detailed in this section. The rotary kiln, afterburner chamber, and exit duct are included here.

2.5.1 Rotary Kiln K-101R

Manufacturer: BKMI Industreanlagen GMBH
Size: Length: 32 ft 9 in @ 4% pitch
Diameter: 10 ft 6 in inside diameter (ID)
Material: Refractory lined steel
Volume: 2,836 ft^3 (approx.)

2.5.2 Kiln Burner X-101R/103R/104R

Manufacturer: McGill
Type: 3 air-atomized guns
Material: Refractory lined steel
Minimum Turndown: Atomization Pressure: 5 psi > waste pressure 10:1

2.5.3 Afterburner (ABC) K-103 Burner

Manufacturer: Loddby
Size: 7 ft OD, 5.5 ft ID X 13 ft length
Type: air-atomized
Material: Refractory lined steel

2.5.4 Afterburner and Exit Duct: K-103

Material: Field erected refractory with steel support

Type: 2 air atomized guns plus 4 eduction lines

Volume: 8,180 cubic feet downstream of burner

2.5.5 Kiln Combustion Air Fan C-102R

Manufacturer: Buffalo Forge

Material: Carbon Steel

Capacity: 40 HP, 13,000 acfm @ 11 inwc

2.5.6 ABC Combustion Air Fan C-1

Manufacturer: Claridge

Material: Carbon Steel

Capacity: 100 HP, 21,100 acfm @ 20 inwc

2.6 TRAIN I EMISSIONS CONTROL EQUIPMENT

2.6.1 Saturator (Rapid Quench) S-501

Manufacturer: Lurgi Corporation

Overall Height: 29 ft 3 in

Diameter: varies from 11 ft to 5 ft 8 in

Material: Refractory lined Carbon Steel

Pumps: (2) 40 HP booster pumps totaling 1,800 gpm @ 100’ head

2.6.2 Absorber/Condenser (2) CD-501, 502 (in-parallel)

Manufacturer: Ceilcote

Size: 11’ diameter x 26’ with 12’ of packing

Fiberglass reinforced plastic (FRP) with Polypropylene (PPL) packing

2.6.3 Calvert Collision (Venturi) Scrubber X-501

Manufacturer: Calvert Environmental

Design Airflow: 69,557 acfm outlet gas flow

Material: Derkane 470 FRP (premium)

2.6.4 Calvert Scrubber Recycle Tank T-508

Size: 12’ diameter X 15’ high (12,700 gallons)

Material: FRP

Pumps: (P-516A/B/C) (3) 50 HP totaling 1200-gpm capacity

2.6.5 Wet Electrostatic Precipitators (2) X-520, 521 (in-series)

Manufacturer: Lurgi Corporation

Tubes: (228) 9.5” diameter x 16.7’ long

Material: FRP casing, PPL tubes

Specific Collection Area: 9,985 ft^2

2.6.6 Induced Draft Fan C-301R

Manufacturer: Robinson

Size: 83” diameter wheel

Capacity: 64,000 acfm (51,200 dscfm) @ 86.5 inwc

Material: Inconel wheel, AL6XN housing

2.6.7 SCR System: X-524

Manufacturer: BDT Engineering

Catalyst: 12,000 pounds

Material: 2205 Stainless bottom section, Carbon Steel top

Heat Requirement: 550^oF from preheat + heat exchanger

2.7 TRAIN I RESIDUE MANAGEMENT

Slag is removed from the kiln exit by a water-filled conveyance system.

Kiln Wet deslagger **X-108R**

Materials: Carbon Steel

Drag Conveyor: 3 HP

3.0 FEEDSTREAM DESCRIPTION

3.1 WASTE RECEIVING AND STORAGE

The CHDP facility is permitted to store waste in 43 tanks, 250 bulk storage containers, and up to 25,000 55-gallon drums. The permit specifically excludes dioxin (waste codes F020, F021, F022, F023, F026, or F027), explosive (except DOT 1.4 air bag cylinders stored in BSA 1, BSA 2, and BSA 3), and radioactive wastes. The permit also requires pyrophoric and infectious wastes be treated within 30 days of delivery. PCB waste is stored in specially designated areas that are permitted under the TSCA Authorization and only treated in Train I.

3.2 WASTE CHARACTERISTICS

Waste is received into the facility in many forms. All waste goes through an approval process prior to shipment to the facility, to assure that it can be managed safely within the confines of the permit. This approval process identifies the specific procedures that will be used to prepare a waste for incineration and to manage the waste through the incineration unit. Wastes received are typically in the following forms:

- SOLIDS in steel, fiber, or plastic drums and buckets; fiber or plastic boxes; bulk containers (roll-off boxes)
- SLUDGES in tank trucks or vacuum boxes of various alloy construction; these are pumpable mixtures of liquid and solid constituents
- LIQUIDS in drums and buckets; tank trucks; rail tank cars
- GASES in cylinders.

To initiate approval, generators complete a waste profile that describes the type of waste material to be approved. This profile includes information on the process generating the waste, and a description of the waste's physical and chemical properties, including chemical constituents (organics, chlorine, metals, etc.) present and their concentration range, heating value of the waste (BTU), physical state (liquid, solid), and other pertinent properties. In some cases, generators supply analytical data to further describe the waste or CHDP requests additional analytical information. This information serves as a basis for determining the processing approach and is evaluated for impact on incinerator feed rates and waste feed mix.

Most wastes are sampled and analyzed for indicator parameters upon receipt at the facility. Basic tests for key parameters such as BTU, ash, chlorine and metals are performed to:

- Verify the generator supplied information, and
- Supply additional data as needed for feed rate (constituent) control to the incinerator.

The specific type of waste received and processed at the CHDP commercial incinerator varies widely from month to month. There are some wastes that are routinely received from large customers, but most waste

is received on an intermittent or one time only basis. Accordingly, it is not possible or practical to predict the waste mix and actual constituent concentrations that will be available in the inventory during the actual performance test. It is also not practical to inventory large quantities of waste in advance, specifically for use during the test. The waste in inventory at the time of the test, including incinerator ash and slag requiring reburn, will be used for the test, augmented by spiking of various constituents [metals (e.g., chromium, lead, mercury), and chlorine] as needed to meet the feed rate objectives for these constituents. The typical properties of wastes treated are summarized in Table 3.

Table 3. Typical Waste Feed Properties

Component	Bulk Waste Liquids	Aqueous Waste	Drum and Box Solids	Bulk Solids
Heating Value, BTU/lb	9,300	3,200	6,700	3,800
Ash, %wt	11	4.9	27	14
Chlorine, %wt	5.1	2.3	5.5	1.2
Key Metals (all ppmw)				
Arsenic, As	7.6	17	11	38
Beryllium, Be	<0.5	<0.5	<0.8	<0.4
Chromium, Cr	43	37	84	117
Cadmium, Cd	3.5	2.8	14	5.6
Lead, Pb	1.8	13	32	31
Mercury, Hg	<0.05	<0.05	<0.14	<0.12
Antimony, Sb	<24	12	<40	<22
Barium, Ba	<110	30	<320	53
Nickel, Ni	51	35	<120	42
Selenium, Se	<10	<7.6	<20	<8.1
Silver, Ag	<20	<3.3	<50	<2.9
Thallium, Tl	<18	<7	<35	<10
Zinc, Zn	325	170	460	670

3.3 WASTE MANAGEMENT

The storage capacity at the site allows for blending of waste both directly (liquids using aboveground tanks, solids using in-ground tanks) and indirectly by staging and controlling the drum feed types and rates, such as one drum per hour of certain waste types, etc. The process of “burn planning” is used to establish these blends and feed rate parameters in various ways.

Incoming wastes are sampled and these samples are analyzed in the on-site laboratory. The data produced, combined with data provided by the waste generator and CHDP’s prior experience with the waste, is used to specify a treatment method. Wastes that are incompatible with other materials are fed directly to the incinerators in or from their original packages. Non-reactive wastes are blended in various ways to optimize thermal and constituent feed capacity.

The burn planning process selects compatible waste solids. The drums, boxes, and roll-off bins selected are emptied into an in-ground mixing tank. The various solids are blended by mechanical agitation with a

clamshell bucket, by the process of lifting a bucket full of waste and placing it back into a different location in the tank. This process is repeated multiple times until the various increments of solid waste are well mixed. The resulting blend is then removed from the tank and loaded into roll-off bins or tote containers for transfer as bulk feed to the Train I kiln. This blending allows the high thermal or constituent levels in any particular lot of waste to be mixed with other wastes which may be high in other constituents. The resulting blends provide a more consistent waste feed mix to the kiln and ensure compliance with system feed limits. The burn plan selection process centers on this compliance

Liquids are similarly selected and mixed in tanks. Compatibility of the liquids is crucial to the selection process, to avoid short-term reactivity and longer-term reactivity issues such as slow polymerization of a mixture.

Waste feeds to the incinerator come in a wide range of packages and sizes. Ultimately, any waste received must be delivered to the incinerator. Industry jargon refers to the point of entry for a waste, into the combustion zone, as a "port."

The following ports are utilized on the Train I kiln for waste feed:

Train I Kiln Feed Ports

Feed Chute	Slanted chute in front face of kiln, with air lock, to allow direct drop of drums and bulk solids into kiln	All SOLIDS feeds
Combination Burner	Equipped with pilot, natural gas burner, and 3 liquid guns for fuel / used oil and/or waste feed, each with separate controller	LIQUIDS feed
Cylinder feed	Injection nozzle on kiln "front wall"	GAS feed
Sludge Burner	Injection nozzle for pumping sludge at controlled rate into kiln	SLUDGE feed

The ABC is a refractory-lined chamber to provide residence time for combustion gases at high temperature. It is configured with the following feed ports:

Train I ABC Feed Ports

Loddby Burner	Equipped with 3 liquid guns for fuel / used oil and/or waste feed, plus a pilot and natural gas burner, each with separate controller	LIQUIDS feed
T-Ox burners	Two liquid guns outside of flame zone, for injection of aqueous (low-BTU) liquid wastes	LIQUIDS feed
Eduction feed	Four small injection lines for low flow of cylinder gases (vented under pressure) or eduction (with steam or nitrogen) of containerized liquids	GAS and LIQUID feed

The flow of wastes fed through these ports is monitored by direct measurement (mass flowmeter) or loss-of-weight calculation scales (for weight determination). The burn planning process attempts to maintain maximum use of these ports while staying within permit limits for total waste feed rate and constituent feed rates.

The waste mix on hand at the time of the test will be treated. The test will be executed using organic liquids, wastewater, and solids that will be spiked with metals, chlorine, and ash as necessary to demonstrate the constituent feed rate targets noted in Table 1. Commercial wastes will be utilized to the maximum extent possible within the test planning window to minimize spiking requirements. Reburn ash and/or soil may be fed as well to demonstrate the waste feed rate targets.

4.0 TEST DESIGN AND PROTOCOL

4.1 TEST PERFORMANCE AND EMISSIONS OBJECTIVES

During 2-WESP operation, Train I will demonstrate compliance with following HWC MACT emissions standards:

- Dioxin/furan (DF) emissions < 0.40 ng TEQ/dscm [63.1219(a)(1)(i)(B)]
- Mercury emissions (Hg) < 130 ug/dscm [63.1219(a)(2)]
- Semi-volatile metals (SVM) (cadmium and lead) emissions < 230 ug/dscm [63.1219(a)(3)]
- Low volatile metals (LVM) (arsenic, beryllium, chromium) emissions < 92 ug/dscm [63.1219(a)(4)]
- Carbon monoxide (CO) emissions < 100 ppmdv hourly rolling average [63.1219(a)(5)(i)]
- Total hydrocarbon (THC) emissions < 10 ppmdv hourly rolling average [63.1219(a)(5)(ii)]
- Hydrogen chloride (HCl) + chlorine (Cl_2) emissions < 32 ppmdv [63.1219(a)(6)]
- Particulate matter (PM) emissions < 29 mg/dscm (0.013 grains/dscf) [63.1219(a)(7)]

In addition, Train I will demonstrate the TSCA-required 99.9999% organic destruction and removal efficiency (DRE) of 1,2-dichlorobenzene [1,2-DCB or ortho-dichlorobenzene (ODCB)]. ODCB is proposed as a surrogate principal organic hazardous constituent (POHC) for demonstrating PCB DRE and as recommended in EPA guidance. ODCB was used as a surrogate for PCB during the original 2006 CPT.

4.2 TEST OPERATING OBJECTIVES

The following Train I HWC MACT operating limits will be established based on the test results:

- Minimum combustion temperatures [40 CFR 63.1209(j)(1), (k)(2)]
- Maximum stack gas flow rate [40 CFR 63.1209(j)(2), (k)(3), (m)(2), (n)(5), (o)(2)]
- Maximum hazardous waste feed rates [40 CFR 63.1209(j)(3), (k)(4)]
- Maximum ash feed rate [40 CFR 63.1209(m)(3)]
- Maximum total mercury feed rate [40 CFR 63.1209(l)(1)]
- Maximum total semi-volatile metals (SVM) feed rate [40 CFR 63.1209(n)(2)]
- Maximum total and pumpable low volatile metals (LVM) feed rates [40 CFR 63.1209(n)(2)]
- Maximum total chloride feed rate [40 CFR 63.1209(n)(4), (o)(1)]
- Minimum condenser (scrubber) liquid flow rate [40 CFR 63.1209(o)(2)]
- Minimum condenser (scrubber) water pH [40 CFR 63.1209(o)(3)(iv)]
- Minimum Calvert scrubber differential pressure [40 CFR 63.1209(m)(1)(i)(A), (o)(3)(i), (l)(2), (n)(3), (k)(5)
- Minimum Calvert scrubber recycle flow rate [40 CFR 63.1209(l)(2), (m)(1)(C), (o)(3)(v), (n)(3), (k)(5)]

- Minimum Calvert scrubber blowdown and tank level [40 CFR 63.1209(m)(1)(i)(B), (n)(3), (k)(5), (l)(3)]
- Minimum WESP power [40 CFR 63.1209(m)(1)(iv), (n)(3), (k)(5), (l)(3)].

The following TSCA operating limits will be based on test-demonstrated results:

- ABC dwell (residence) time [761.70(a)(1)(i)]
- Maximum feed rate PCB [761.70(a)(3)]
- Minimum combustion system temperatures [761.70(a)(4)].

Provided 99.9999% DRE is demonstrated, CHDP expects the test demonstrated stack flow rate will be established as a maximum value and the indicator of minimum ABC residence (dwell) for TSCA compliance. Similarly, CHDP expects the test demonstrated combustion system temperatures will be established as the minimum limits for TSCA compliance. CHDP proposes the PCB feed rate limit be established based on the sum of the test-demonstrated mass waste feed rates of PCB and ODCB .

4.3 TSCA TEST SAMPLING PROTOCOL

Data to demonstrate TSCA compliance will be collected concurrently during the Train I 2-WESP CPT operating condition. The target operating conditions are summarized in Table 1. ODCB spiking and measurement of emissions will be performed concurrently during this test condition.

4.4 TSCA SURROGATE POHC

TSCA was passed in 1976. As a result, PCB materials have been mostly removed from commerce and existing materials containing high concentrations of PCB necessary to conduct TSCA DRE testing have become exceedingly more difficult to obtain. CHDP proposes using a commercially obtainable material as a surrogate for PCB to conduct TSCA DRE performance testing.

Chlorobenzenes are suggested as possible surrogates for PCB in Section D.3 of Appendix D of *Guidance on Setting Permit Conditions and Reporting Trial Burn Conditions*, Volume II of the Hazardous Waste Incineration Guidance Series (HWIGS), January 1989 (EPA 625/6-89/019). Mono- through hexa-chlorobenzenes are all Class 1 compounds on EPA's *Thermal Stability-Based Incinerability Ranking*. In lieu of liquid PCB, other possible surrogate liquid semi-volatile organic compound (SVOCs) are 1,2-dichlorobenzene [1,2-DCB or ortho-dichlorobenzene (ODCB)], 1,3-dichlorobenzene [1,3-DCB or meta-dichlorobenzene (MDCB)], or 1,2,4-trichlorobenzene (1,2,4-TCB). Table 4 summarizes the properties of these three compounds. These particular chlorinated benzene compounds are liquids with melting (freezing) points at temperatures making them generally suitable for handling at most ambient conditions. These possible surrogate compounds can also be obtained commercially as industrial technical grade materials and can be metered to the liquid waste feed. The other di- through hexa- chlorinated benzene

congeners are all solids and would require spiking as discrete packages to the solid waste feed or dissolved in another solvent for metering as a liquid. CHDP's preference is to use a liquid POHC to limit potential material handling hazards and simplify testing logistics.

Monochlorobenzene (MCB) is also a Class 1 compound with a well-establsihed history of being routinely used to demonstrate DRE. MCB is a liquid at ambient temperature and would be a suitable POHC with all the commercially available and logistical qualities of the three other chlorinated benzene compounds discussed above. However, CHDP believes any of the three other chlorinated benzene compounds are preferable given MCB is a volatile organic compound (VOC) from a sampling and analysis perspective. The other three suggested compounds are SVOCs and more representative of PCB which are SVOCs. Additionally, the in-stack detection limits of MCB would require spiking this compound at an order of magnitude (10X) higher rate to demonstrate 99.9999% (6-9s) DRE.

Based on commercial availability and past testing experience, CHDP specifically proposes using ODCB as the surrogate POHC for PCB DRE. ODCB can be purchased as technical grade material with >99% purity. CHDP demonstrated >99.9999% DRE using ODCB surrogate for PCB during the original 2006 CPT of Train I. More recently, Clean Harbors demonstrated >99.9999% DRE using ODCB as a PCB surrogate at its Aragonite, Utah facility during the July 2020 confirmatory performance test (CfPT) and May 2023 CPT. The DRE results from the Train I 2006 CPT are summarized in Table 5. The DRE results from the 2020 and 2023 Aragonite tests are summarized in Tables 6 and 7 . The distinction between the 2006 Train I test, and the 2020 and 2023 Aragonite tests, is the use of Method 8270 analysis without and with selected ion monitoring (SIM) analysis. The 2006 Train I test was performed without using SIM analysis, while the 2020 and 2023 Aragonite tests utilized SIM analysis. Using SIM analysis substantially reduces the feed rate of ODCB necessary to demonstrate 99.9999% DRE. If approved by TCEQ, ODCB can serve concurrently as both a HWC MACT POHC and surrogate for PCB with associated OPLs established at the same values.

4.5 ODCB FEED RATE

Table 8 summarizes the minimum required and maximum expected ODCB feed rate to demonstrate 99.9999% (6-9s) DRE. ODCB emissions will be sampled using SW-846 Method 0010. The minimum required ODCB feed rate is based on 99.9999% destruction with an expected stack gas flow rate of approximately 50,000 dry standard cubic feed per minute (dscfm), a minimum sampled gas volume of 3.0 dry standard cubic meters (dscm) (105.9 dscf), sample extracts split two ways (one-half for ODCB by SIM analysis and one-half for SVOC RCl analysis), and corresponding sampling train total reporting limit (RL) of 120 nanograms (ng) [40 ng per fraction times three (3) fractions: front-half, back-half, and condensate analyzed separately]. The target feed rate provides sufficient ODCB to demonstrate the required DRE with at least a factor of ten (10X) contingency in case of an interference in the analytical method which increases the detection limit or a lower ODCB feed rate during the test. DRE will be calculated by the conventional method, using the equation:

$$DRE\ (\%) = 100 \times (M_{in} - M_{out}) / M_{in}$$

M_{in} and M_{out} represent the mass feed rate and stack emission rate, respectively for the designated DRE compound.

Table 4. Properties of Proposed Possible PCB Surrogate POHCs

Criteria	1,2- DCB (ODCB)	1,3-DCB (MDCB)	1,2,4- TCB
Thermal Stability	Class 1, Rank 25	Class 1, Rank 26	Class 1, Rank 28
Heat of Combustion Ranking	~104	~103	~85
Heat of Combustion, kcal/g	4.82	4.81	3.68
Physical State	Liquid	Liquid	Liquid
Melting Point, °C	-17	-20	17
Boiling Point, °C	180	173	214
Gas Sampling Method	Method 0010	Method 0010	Method 0010

Table 5. Train I Ortho-dichlorobenzene DRE-May 2006

Run	ODCB Feed Rate (lb/hr)	Stack Emission Rate (lb/hr)	ODCB DRE
7	801	$<2.85 \times 10^{-4}$	> 99.99996 %
8	841	$<2.79 \times 10^{-4}$	> 99.99997 %
9	817	$<2.81 \times 10^{-4}$	> 99.99997 %

Table 6. Aragonite, Utah Ortho-dichlorobenzene DRE-July 2020

Parameter	Units	Run 1	Run 2	Run 3
Stack Gas Flow Rate	dscfm	34,107	34,218	34,612
	dscm/hr	57,956	58,144	58,814
Stack Gas Sampled Volume	dscf	140.651	144.179	142.407
	dscm	3.983	4.083	4.033
ODCB, FH	ng	< 20.0 ND	< 20.0 ND	< 20.0 ND
ODCB, BH	ng	1,390	1,040	1,290
ODCB, Cond.	ng	< 2.50 ND	3.84	6.77
Total ODCB	ng	< 1,413	< 1,064	< 1,317
Stack Gas ODCB	ng/dscm	< 355	< 261	< 326
	lb/dscf	2.21E-11	1.63E-11	2.04E-11
ODCB Emission Rate	lb/hr	4.53E-05	3.34E-05	4.23E-05
ODCB Feed Rate	lb/hr	382.4	403.6	389.1
ODCB DRE	%	> 99.999988%	> 99.9999917%	> 99.999989%

Table 7. Aragonite, Utah Ortho-dichlorobenzene DRE-May 2023

Parameter	Units	Run 1	Run 2	Run 3
Stack Gas Flow Rate	dscfm	30,569	31,642	30,330
	dscm/hr	51,944	53,767	51,538
Stack Gas Sampled Volume	dscf	126.365	131.272	127.583
	dscm	3.579	3.718	3.613
ODCB, FH	ng/sample	40.0 ND	40.0 ND	40.0 ND
ODCB, BH	ng/sample	1,860	3,640	1,130
ODCB, Cond.	ng/sample	6.12 J	46.3	2.38 J
Total ODCB	ng/sample	1,906	3,726	1,172
Stack Gas ODCB	ng/dscm	533	1,002	324
	lb/dscf	3.33E-11	6.26E-11	2.02E-11
ODCB Emission Rate	lb/hr	6.1E-05	1.2E-04	3.7E-05
ODCB Feed Rate	lb/hr	178.4	178.5	101.4
ODCB DRE	%	99.999966%	99.999933%	99.999964%

Table 8. Ortho-dichlorobenzene Principal Organic Hazardous Constituent Quantity

Parameter	Units	Value
Sampling method	---	SW-846 Method 0010 w/Selected Ion Monitoring Analysis by Method 8270
Reporting limit	ng	40 (for Filter & Probe Rinse) + 40 (for XAD Condenser Rinse) + 40 (condensate) = 120 ng Total
Sampled volume	dscm	3.00
Reporting limit	ng/dscm	40
	ng/dscf	1.13E+00
Estimated stack flow rate	dscfm	50,000
	dscm/min	1,416
Target destruction and removal efficiency	%	99.9999
Minimum emission rate required for detection	lb/hr	7.49E-06
Minimum required POHC feed rate at DRE target	lb/hr	7.49
Maximum potential POHC feed rate	lb/hr	3,000 (Possible feed rate necessary to preserve current nominal TSCA authorization PCB feed rate limit)

Note: ODCB detection levels are based on gas chromatograph/mass spectrometry (GC/MS) analysis by SW-846 Method 8270, with selected ion monitoring (SIM). Refer to Section 7.5.5 of Method 8270C, Section 11.5.5 of Method 8270D, or Section 11.3.1 of Method 8270E. The SIM analysis approach is comparable to isotope dilution high resolution GC/MS (HRGC/HRMS) approach normally used for dioxin/furan analysis. The SIM approach provides for detection limits 1-2 orders of magnitude lower than the normal GC/MS analysis. The SIM approach significantly reduces the ODCB spiking rate necessary to effectively demonstrate DRE.

5.0 SAMPLING, ANALYSIS, AND MONITORING PROCEDURES

5.1 GENERAL

The proposed CPT will consist of two test conditions for Train I, 2-WESP and 1-WESP operation. The TSCA compliance testing will be performed concurrently during the 2-WESP operation.

5.2 TSCA EMISSIONS SAMPLING AND ANALYSIS PROTOCOL

TSCA compliance emissions sampling and analysis are summarized in Table 9. Stack gas flow rate is continuously measured as a required OPL. Clean Harbors will verify and document the absence of stack gas cyclonic flow at maximum stack gas flow rate prior to beginning any testing. At EPA's request, a cyclonic flow check will be performed prior to testing each day during the 2-WESP mode demonstration.

5.2.1 Stack Gas Method 23 (PCB and Dioxin/Furan)

The stack gas will be sampled isokinetically for PCB and dioxin/furan using an EPA Method 23 sampling train. Emissions data will be used for demonstrating both HWC MACT and TSCA compliance. The sampling train extracts will be split for the respective analyses. Method 23 samples will be analyzed for PCB via EPA Method 23/1668C [high resolution gas chromatography/high resolution mass spectrometry (HRGC/HRMS)]. Method 23 samples will be analyzed for dioxin/furan via EPA Method 23/SW-846 Method 8290A (HRGC/HRMS). The target PCB and dioxin/furan compounds are presented in Section 9.0 of the Quality Assurance Project Plan (QAPP).

For TSCA and Air Permit compliance, the extracts from the Method 23 sampling train will be spilt for concurrent analysis of PCB emissions. Analysis results will be reported for each of the 209 PCB congeners and the totals per mono- through deca-chlorinated homologue groups.

At 40 CFR 63.1208(b)(1)(ii) and (iii), the HWC MACT rule requires the Method 23 sampling train be operated for a minimum of 180 minutes (3 hours) to sample a minimum of 2.5 dry standard cubic meters (dscm) of stack gas during each sampling run so any dioxin/furan congener which is non-detect may be counted as zero in calculating 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (TCDD) toxicity equivalents (TEQ). The Method 23 sampling train will be operated for the minimum specified time and to obtain the minimum specified volume as required. Analysis results will be reported for each of the seventeen (17) 2,3,7,8-chlorinated dioxin and furan congeners and the totals per tetra- through octa-chlorinated homologue groups.

5.2.2 Stack Gas Method 0010 (ODCB Semivolatile RCI)

The stack gas will be separately sampled isokinetically for the PCB surrogate POHC ODCB using a SW-846 Method 0010 sampling train. ODCB emissions data will be used for demonstrating both HWC MACT and TSCA DRE compliance. Additionally, for TSCA compliance, the Method 0010 will be used to measure

emissions of chlorinated semivolatile organic compounds (SVOC RCl). The sampling train extracts will be split for the respective analyses. Because the ODCB data are being used to demonstrate DRE, Section 6.3.4 of Method 0010 requires the sampling train be operated to sample a minimum of three (3) dry standard cubic meters (dscm) of stack gas during each sampling run; no minimum sampling time is specified. The sampling train extracts will be analyzed for ODCB via Method 8270E [gas chromatography/mass spectrometry (GC/MS)] with selected ion monitoring (SIM). The sampling train extracts will be analyzed for SVOC RCl via Method 8270E GC/MS. The target SVOC RCl compounds are presented in Section 9.0 of the QAPP.

5.2.3 Stack Gas Method 0031 (Volatile RCl)

For Air Permit and TSCA compliance, SW-846 Method 0031 Sampling Method for Volatile Organic Compounds (SMVOC) train will be used to respectively measure emissions of vinyl chloride and chlorinated volatile organic compound (VOC RCl). Four (4) sets of SMVOC tubes will be used to sample stack gas during each sampling run. SMVOC analyses will be performed using SW-846 Method 5041A/8260D. The target VOC RCl compounds, including vinyl chloride, are presented in Section 9.0 of the QAPP.

5.2.4 Stack Gas Method 26A (Hydrogen Chloride and Chlorine)

The stack gas will be sampled isokinetically for HCl and Cl_2 according to EPA Method 26A. The data will be used for demonstrating HWC MACT compliance and measuring HCl emissions measured as required by TSCA. HCl and Cl_2 emissions will be determined via analysis of the acid and basic impinger solutions respectively for chloride ion as specified in EPA Method 26A/SW-846 Method 9056A.

For HWC MACT compliance, the acetone probe rinse and filter fractions from the EPA Method 26A sampling train will be recovered and analyzed via EPA Method 5 for filterable particulate matter as allowed by Section 2.1 of Method 26A.

5.2.5 Stack Gas Method 5/202 (Total Particulate)

The stack gas will be sampled isokinetically for total particulate according to EPA Method 5/202. Total particulate emissions will be measured as required by TSCA. Total particulate emissions will be determined via analysis of the sampling train components as specified in EPA Methods 5 and 202.

5.2.6 Stack Gas Method 7E (Nitrogen Oxides)

During the test, the stack gas will be monitored for nitrogen oxides (NO_X) to demonstrate compliance with the Air Permit and TSCA. NO_X monitoring will be performed using a temporary CEMS. The temporary NO_X CEMS will be calibrated and operated in accordance with the procedures in 40 CFR 60, Appendix A, Method 7E.

5.2.7 Installed Stack Gas CEMS

During the test, the stack gas will be monitored continuously for carbon monoxide (CO), carbon dioxide (CO_2), and oxygen (O_2) concentrations to demonstrate compliance with TSCA. The CO and O_2 data will be concurrently used to demonstrate compliance with HWC MACT. Monitoring will be performed using installed CEMS. The installed CO and O_2 CEMS will be calibrated and operated in accordance with the procedures in 40 CFR 60, Appendix B, Performance Specification (PS)-4B. The installed CO_2 CEMS will be calibrated and operated in accordance with the procedures in 40 CFR 60, Appendix B, PS-3.

5.3 TSCA WASTE FEED SAMPLING AND ANALYSIS PROTOCOL

TSCA waste feeds sampling and analysis are summarized in Table 9. Sampling of waste feeds for PCB analysis will be limited to those waste streams suspected or known to contain PCB. The solids and liquid sampling descriptions from the CPT plan are repeated as sections 5.3.1 and 5.3.2.

5.3.1 Solid Wastes

Solids selected for the CPT will be blended in batches by dumping the drums or bins into the large mixing pan at the mix building at the facility. Batches are made up by unloading containers – drums and larger – into the permitted in-ground tanks, and mixing the various contents with mechanical equipment. The resulting mixture of solids is delivered directly to the kiln feed system in bulk by dumping bins into the bulk feed hopper, or in drums/containers depending upon the specifics of the waste. All solids fed will be identified by a batch identification number.

The bulk feed and drum/container feed will be the two solids feed types for the CPT. It is anticipated that six to ten batches of waste will be needed to perform the CPT on each incineration Train. However, depending on the type of waste available at the time of the CPT, this number may vary. In any case, each batch of waste fed during the CPT will be sampled and analyzed.

Individual drums from the batches will not be sampled - the batch sample will be used. Waste that is repackaged into drums/containers will be sampled by collecting a minimum of five grab samples taken from the batch bin being used for the repackaging. These samples will be taken from the front, middle, and back of the bin, and at least two depths. Each grab sample will be collected in a new clean glass container and labeled with the batch number and a number identifying the individual container. The grab samples will be composited into one sample for analysis. Each batch of waste that is repacked will be given a unique identifying batch number that will identify the waste batch and be used by the plant automatic tracking system to log waste feed pounds and constituents when waste is fed to the unit during the test.

Waste that is removed from the mixing pan and placed in roll off bins for bulk feed will be sampled by collecting a minimum of five grab samples from the roll off bin. Each grab sample will be collected in a new clean glass container and labeled with the batch number and a number identifying the individual grab

sample. These samples will be taken from the front, middle, and back of the bin, and at least two depths. The grab samples will be composited into one sample for analysis. Each batch of waste (roll off bin) will be given a unique identifying batch number that will identify the waste batch and be used by the plant automatic tracking system to log waste feed pounds and constituents when waste is fed to the unit during the test.

All solids composite samples will be made by thoroughly mixing aliquots of the grab samples into one composite container. The grab samples will be sub-sampled using standard sub-sampling procedures. The grab samples will be mixed and emptied onto a clean surface, divided into quarters and one quarter of the sample added to the composite container.

Note that TSCA solids are typically received and handled as containerized materials. For health and safety reasons, containerized TSCA solids are not normally opened or repackaged. In these cases, the containers will not be opened or sampled by CHDP; the customer provided information related to PCB content will be utilized.

5.3.2 Liquids and Aqueous Wastes

Bulk waste liquids are fed to the unit from the blend tank(s) in the tank farm. Grab samples of each liquid waste stream will be taken at each feed line outlet (tank) every hour during each CPT run. These grab samples will be composited to correspond to the appropriate run periods. There will be one composite sample for each feed location (i.e. organic liquid blend tank or aqueous liquid blend tank) for each test run.

Direct burn tankers and/or totes of waste liquids are fed to the unit from direct feed lines connected directly to the unit. Each tanker or tote will be grab sampled and characterized per the facility FAP/WAP. These sample analyses will be used as the basis for constituent (i.e., ash, metals, chlorine) feed rates during each test run.

All liquid waste samples will be collected manually by CHDP trained personnel. Each grab sample will be labeled with the location of the sample (the liquid batch or tank number), the time, date, and sampler's initials. These grabs will then be thoroughly mixed in the laboratory and aliquots placed into the composite container. Each composite sample will identify the CPT run number, the tank or batch of waste number, a date, time, and sample preparation persons' initials.

5.4 QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

Appendix A contains the Quality Assurance Project Plan (QAPP) prepared according to EPA Guidance. The QAPP delineates the QA/QC procedures for the test sampling and analyses.

Table 9. Train I 2-WESP Minimum Temperature DRE Test TSCA Emissions Sampling and Analysis

Sample Name	Sampling Location/ Access	Sampling Equipment	Sampling Reference Method [a]	Sample Size/Frequency	Analytical Parameters	Analytical Reference Method [a]
Stack Gas	Isokinetic Port	Method 23 Sampling Train	EPA Method 23[d]	Minimum of 3 hours and 2.5 dry standard cubic meters [b,c]	Dioxin/Furan PCB	EPA Method 23/SW846-8290A (Dioxin/Furan) EPA Method 23/EPA Method 1668C (PCB)
Stack Gas	Isokinetic Port	Method 0010 Sampling Train	SW846 0010	Minimum of 3.0 dry standard cubic meters [b,c]	ODCB Semivolatile Organic RCIs	SW846 3542/8270E with Selected Ion Monitoring (SIM) (ODCB) SW846 3542/8270E (SVOC RCIs)
Stack Gas	Non-Isokinetic Port	SMVOC	SW846 0031 (SMVOC)[e]	80 L integrated sample; 0.5 to 1.0 L/min, four tube sets, 20 L per Tube set	Volatile Organic RCIs	SW846 5041A/8260D
Stack Gas	Isokinetic Port	Method 26A	EPA Method 26A[f]	120 minutes [b,c]	HCl/Cl_2	EPA Method 26A/SW-846 Method 9056A
Stack Gas	Isokinetic Port	Method 5/202	EPA Method 5/202	120 minutes [b,c]	Total Particulate (Filterable + Condensable)	EPA Method 5 (Filterable Particulate) EPA Method 202 (Condensable Particulate)
Stack Gas	CEMS Port	Installed CO and O_2 CEMS	40 CFR 60 Appendix B Specification 4B[g]	Continuous	CO and O_2	40 CFR 60 Appendix B Specification 4B
Stack Gas	CEMS Port	Installed CO_2 CEMS	40 CFR 60 Appendix B Specification 4B	Continuous	CO_2	40 CFR 60 Appendix B Specification 3
Stack Gas	Non-Isokinetic Port	Temporary NO_X CEMS	EPA Method 7E[h]	Continuous	NO_X	40 CFR 60 Appendix A Method 7E
Repackaged Containerized Solid TSCA Waste Feeds[i]	Solids Bin	Sampling scoop or thief scoop/rod and glass sample jar	Minimum of five (5) grab samples taken from the each bin being used for the repackaging.	Single analysis of composite created from five (5) grab samples taken from each solids bin	PCB	SW846 8082A

Table 9. Train I 2-WESP Minimum Temperature DRE Test TSCA Emissions Sampling and Analysis

Sample Name	Sampling Location/ Access	Sampling Equipment	Sampling Reference Method [a]	Sample Size/Frequency	Analytical Parameters	Analytical Reference Method [a]
Bulk Solid TSCA Waste Feeds[i]	Solids Bin	Sampling scoop or thief scoop/rod and glass sample jar	Minimum of five (5) grab samples taken from each bin transferred into bulk solids feed tank	Single analysis of composite created from five (5) grab samples taken from solids bin	PCB	SW846 8082A
Bulk Liquid TSCA Waste Feeds	Tap on Feed Line	Glass grab and compositing sample bottles	Collect equal volume grab samples during each test run and use to build composite for each test run.	Grab samples every hour during each test run used to build run composite sample. Samples for analysis prepared from the homogenized composite sample at end of each test run.	PCB	SW846 8082A
Direct Burn Tanker Liquid TSCA Waste Feeds	Tap on tanker discharge line or from manhole access using thief sampler	Glass grab sample bottle	Collect single grab sample of each tanker per the facility FAP/WAP for analysis prior to feeding	Collect single grab sample of each tanker per the facility FAP/WAP for analysis prior to feeding	PCB	SW846 8082A

Table 9. Train I 2-WESP Minimum Temperature DRE Test TSCA Emissions Sampling and Analysis

Notes:

(a) Reference Method Sources:

- "ASTM" refers to American Society for Testing Materials, Annual Book of ASTM Standards, Annual Series
- "SW846" refers to Test Methods for Evaluating Solid Waste, Third Edition, November 1986, and Updates.
- "EPA Method" refers to New Source Performance Standards, Test Methods and Procedures, Appendix A, 40 CFR 60.

(b)The exact volume of gas sampled will depend on the isokinetic sampling rate.

(c) Isokinetic sampling trains include:

- Collecting one set of bag samples (or using CEM) for oxygen and carbon dioxide to determine stack gas molecular weight (EPA Method 3)
- Performing stack gas velocity, pressure and temperature profile measurement for each sampling location (EPA Method 2)
- Determining the moisture content of the stack gas for each sampling train sample (EPA Method 4).

(d) Method 23 sampling train is being performed concurrently for demonstrating HWC MACT dioxin/furan emissions compliance and Air Permit PCB emissions compliance.

(e) Method 0031 sampling is being performed concurrently for demonstrating Air Permit vinyl chloride emissions compliance.

(f) Method 26A sampling is being performed concurrently for demonstrating HWC MACT HCl/Cl_2 and filterable PM emissions compliance.

(g) CO and O_2 emissions sampling are being performed concurrently for demonstrating HWC MACT CO emissions compliance.

(h) Method 7E sampling is being performed concurrently for demonstrating Air Permit NO_X emissions compliance.

(i) TSCA solids are typically received and handled as containerized materials. For health and safety reasons, containerized TSCA solids are not normally opened or repackaged. In these cases, the containers will not be opened or sampled by CHDP; the customer provided information related to PCB content will be utilized.

6.0 TEST SCHEDULE

6.1 PLANNED TEST DATE

The required CPT test date is by May 2026. In accordance with 40 CFR 63.1207(e)(1)(i)(B), CHDP will notify EPA and TCEQ at least 60 days before the planned date for starting the test. The test start date will be confirmed one week before the start of the test. CEMS RATAs are performed annually as required by the Appendix to 40 CFR 63, Subpart EEE and 40 CFR 60, Appendix F. Clean Harbors will schedule and perform the CEMS RATA within 60 days of the planned test start date.

6.2 TEST DURATION

The Train 1 CPT consists of two (2) test conditions, 2-WESP and 1-WESP operation. Each test condition will consist of three replicate sampling runs. TSCA compliance testing will be performed during the 2-WESP operating condition. The anticipated order of testing is as follows:

- Monday-Test team travels to test site, participates in on-site health and safety training, and begins test equipment setup.
- Tuesday-Complete testing set up; conduct 2-WESP operation, Run 1 (HWC MACT and TSCA Testing).
- Wednesday-Conduct 2-WESP operation, Runs 2 and 3 (HWC MACT and TSCA Testing).
- Thursday-Conduct 1-WESP operation, Runs 1 and 2 (HWC MACT Testing Only).
- Friday-Conduct 1-WESP operation, Run 3 (HWC MACT Testing Only); test team demobilizes from test site.

The proposed sequencing of the 2-WESP stack sampling is outlined in Figure 1. The sampling may begin once Train I has stabilized at the target test conditions for at least one hour to establish rolling average values.

6.3 TEST INTERRUPTIONS

In the event of an AWFCO or similar test interruption, all stack gas sampling will be suspended immediately. Stack sampling pumps will be switched off, but probes may remain in the stack. The waste feed, HCl product, and scrubber water discharge sampling will continue pending a determination and assessment of the expected stoppage or test delay time by the test manager.

Should the situation be resolved very shortly (15 minutes or less), and waste feed instantaneous rates are resumed at or above 90% of the rates prior to the test stoppage event, and other target conditions are comparable to before the test interruption, stack sampling may be resumed at the discretion of the test manager and after consultation with the Train I operations staff. Optionally, the test manager may elect to hold off the re-start of sampling until hourly rolling averages have re-established at or closer to test target values.

Should the situation take longer to be resolved (more than 15 minutes), all sampling will be suspended until the hourly rolling averages have re-established at or close to test target values. The stack gas sampling probes will be removed from the stack ports and the nozzles sealed off with Teflon tape. Stack sampling equipment will be maintained on hot standby pending a test re-start decision. Once the situation is corrected, waste feed has inclusive of spiking is resumed, and the hourly rolling averages are re-established, testing will resume at the direction of the test manager.

Should the situation become evident testing cannot be resumed in 1-2 hours, or will take even longer to resolve, the test manager may suspend testing for the day. The test manager will assess whether any stack gas sampling trains which have been completed should be retained or discarded. Most incomplete sampling trains may be held for up to 24 hours and then resumed. Process samples (e.g., waste feed) may be held over as well. If testing can be resumed the following day, the incomplete stack gas sampling trains, the process sampling equipment, and completed sampling train samples will be secured for the night in such manner as to properly preserve the samples. Sampling will resume the following day where testing the previous day ended once the unit is back at the target test conditions. Optionally, the test run may be scrubbed altogether with all samples to that point being discarded, and all stack gas and process sampling started anew when testing can be resumed. No incomplete sampling train or process samples will be held over for more than 24 hours.

All test start/stop/suspension/scrub decisions will be communicated to the regulatory observers present at the time of testing. Such decisions may include consultations between the test manager, the Train I operations staff, and the regulatory observers present.

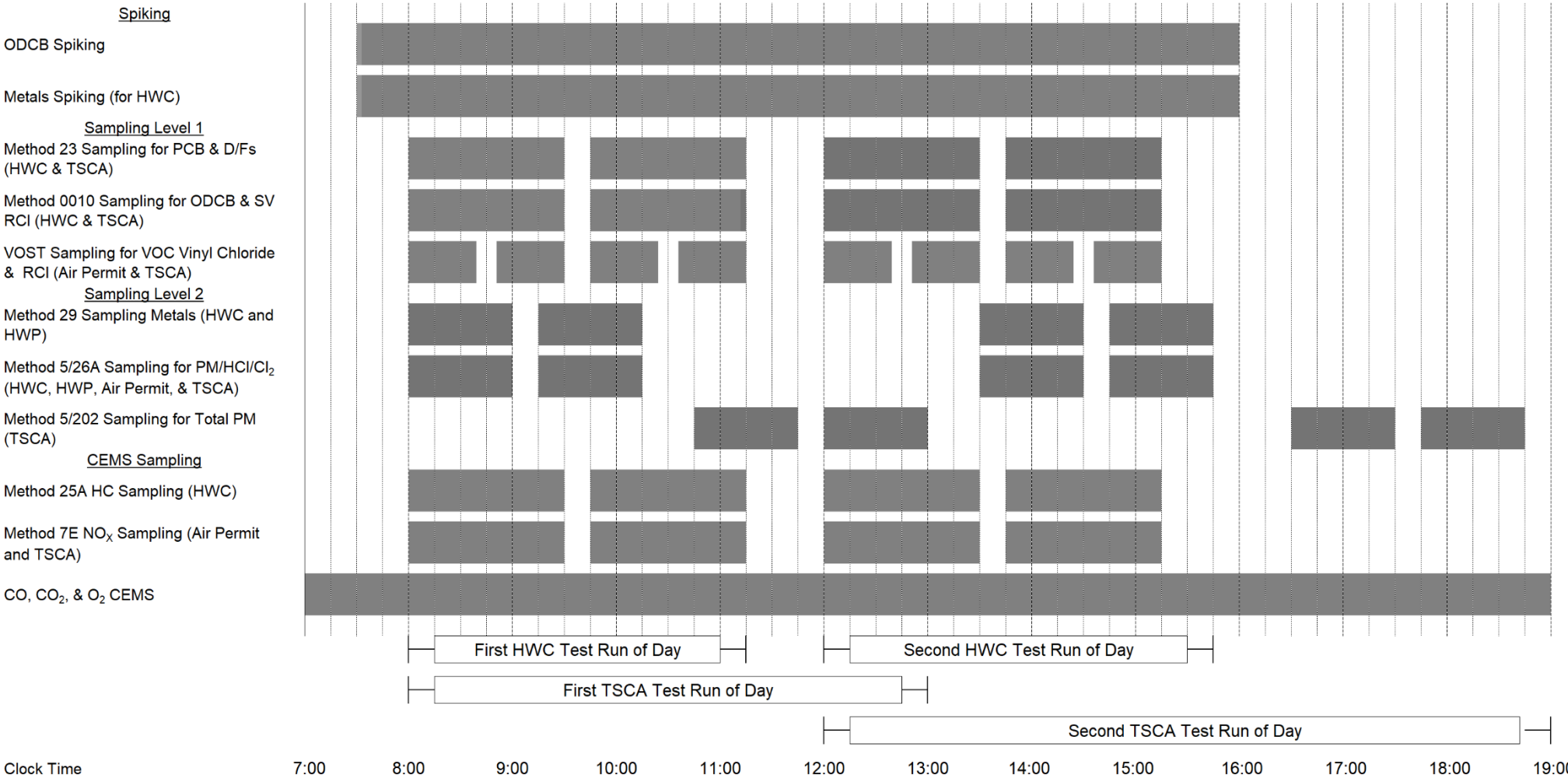

Figure 1. Train I 2-WESP Minimum Temperature DRE Test Sampling Activities

7.0 TSCA OPERATING AUTHORIZATION OBJECTIVES

7.1 GENERAL

Based on the results of the testing, CHDP will propose HWC MACT operating limits for Train I in the Notification of Compliance (NOC) submitted in accordance with 40 CFR 63.1207(j)(1) which assures continuing compliant performance of Train I. CHDP proposes the TSCA Authorization operating limits for Train I be established consistent with the HWC MACT values.

7.2 TSCA CONTROL PARAMETERS

Table 1 summarizes the current HWC MACT operating limits. Based on the pending CPT, CHDP anticipates similar HWC MACT operating limits for Train I comparable to those in Table 1. CHDP proposes the Train I TSCA Authorization be incorporated by reference the HWC MACT NOC limits. The TSCA Authorization will allow the continued treatment of TSCA-listed wastes (wastes containing greater than 50 mg/kg of PCB). The TSCA-specific operating limits would be limited to those proposed in following section.

7.2.1 Minimum Combustion Gas Dwell (Residence) Time [40 CFR 761.70(a)(1)(i)]

Train I uses stack flow rate measurement as the indicator of combustion gas velocity and residence time. Under HWC MACT, the DRE-related maximum stack flow rate limit for Train I will be established from the average of the maximum hourly rolling average stack flows demonstrated during the three runs of the 2-WESP test condition. CHDP proposes the same maximum stack gas flow limit value for the TSCA Authorization limit as the indicator of combustion gas dwell (residence) time. Based on previous TSCA testing, the ABC combustion gas residence time is expected to be slightly less than two (2) seconds. The same previous testing has demonstrated greater than 99.9999% DRE with less than two (2) seconds ABC residence time and temperatures less than 1,100°C (2,012°F). EPA has previously issued TSCA Authorization for Train I that included a maximum stack gas flow limit based on the test demonstrated value. CHDP expects similar EPA approval based on the results of this test program.

7.2.2 Minimum Combustion Efficiency [40 CFR 761.70(a)(2)]

TSCA requires monitoring of combustion efficiency based on the stack gas CO and CO_2 concentrations as follows:

$$\text{Combustion efficiency} = [C_{CO2} / (C_{CO2} + C_{CO})]100$$

Where: C_{CO2} = Concentration of carbon dioxide

C_{CO} = Concentration of carbon monoxide.

Combustion efficiency must be maintained at least 99.9% when incinerating PCB. Train I is equipped with CO and CO_2 CEMS. CHDP expects the TSCA Authorization will include the requirement to monitor and

maintain 99.9% combustion efficiency when treating PCB materials. CHDP proposes the minimum combustion efficiency AWFCO is triggered when less than 99.9% for more than four (4) minutes, the Performance Specifications 3 and 4B response time standard of the CEMS monitors.

7.2.3 Maximum PCB Feed Rate [40 CFR 761.70(a)(3)]

The Train I 2-WESP test will be conducted to demonstrate the maximum feed rates. The waste feed rates will be monitored on a continuous basis. Under HWC MACT, the maximum allowable waste feed rate limits will be established as hourly rolling average limits from the averages of the maximum hourly rolling average feed rates demonstrated during the three runs of the 2-WESP test condition. CHDP will sample and analyze the PCB content of waste feeds suspected/known to contain PCB. These analyses will be used to document native PCB feed rate and will not be used for any DRE calculations. ODCB will be metered as a PCB-surrogate and its DRE measured during testing. CHDP proposes to establish the total PCB feed rate limit for the TSCA Authorization limit as the sum of the native PCB and ODCB feed rates.

7.2.4 Minimum Combustion Temperature [40 CFR 761.70(a)(4), (a)(5)]

The Train I 2-WESP test includes testing at the conditions of the minimum kiln and ABC combustion temperatures with maximized combustion gas flow (minimum combustion gas residence time), since these conditions are least favorable for DRE. Combustion gas temperature will be monitored on a continuous basis. Based on successful demonstration of DRE during the Train I 2-WESP test, the minimum combustion temperature limits for Train I will be established as hourly rolling averages equal to the average of the average values. CHDP will propose the same minimum ABC (hot duct; refer to Section 2.2) temperature limit value for the TSCA Authorization. The AWFCO system will stop PCB material feed if the ABC temperature falls below the minimum limit. Previous TSCA authorization testing has demonstrated greater than 99.9999% DRE with less than two (2) seconds ABC residence time and at less than 1,100^{o}C (2,012^{o}F). EPA has previously issued TSCA Authorization for Train I that included a minimum ABC temperature limit based on the test demonstrated value. CHDP expects similar EPA approval based on the results of this test program.

7.2.5 Stack Emission Product Monitoring [40 CFR 761.70(a)(6)]

TSCA requires monitoring of *"stack emission products"* when an incinerator is first used for disposal of PCB or modified in a manner which may affect the characteristics of the *"stack emission products"*. The 2-WESP test condition as proposed in this test plan will demonstrate worst-case system operation and subsequent emissions thus satisfying this TSCA requirement. The 2-WESP test program includes monitoring/measurement of O_2, CO, CO_2 , NO_X, HCl, total RCl, PCB, and total particulate emissions. The HWC MACT operating limits established by the test program will assure continued organic compound destruction and control of the organic and inorganic *"stack emission products"* consistent with and better

than the test-demonstrated values. CHDP proposes incorporation by reference of the HWC MACT NOC limits in the Train I TSCA Authorization will assure continuing compliance with TSCA requirements.

7.2.6 Stack Emissions Monitoring and Recording [40 CFR 761.70(a)(7)]

TSCA requires monitoring and recording stack gas concentrations of CO, CO_2 and O_2 when treating PCB materials. Monitoring of stack gas CO, CO_2, and O_2 is required to be periodic at a frequency specified by the EPA Regional Administrator. CHDP shall monitor CO, CO_2 and O_2 as prescribed by EPA Region 6 to satisfy this requirement when treating PCB wastes.

7.2.7 Stack Emission Product Monitoring [40 CFR 761.70(a)(8)]

TSCA requires automatically stopping PCB feed when any of the following occur:

- Failure of monitoring of stack emissions for O_2, CO, and CO_2
- Failure of the PCB feed and quantity measuring and recording equipment
- Excess stack gas oxygen falls below 3% O_2.

Train I is equipped with a continuous monitoring system (CMS) and associated AWFCO system. CHDP expects the TSCA Authorization will include the requirement for continuous monitoring and triggering of AWFCO when any of the above listed operational situations occurs. CHDP proposes the stack gas minimum oxygen concentration AWFCO is triggered when less than 3% O_2 by volume for more than four (4) minutes, the Performance Specification 4B response time standard of the CEMS monitor.

7.2.8 HCl Emissions Control and Water Management [40 CFR 761.70(a)(9)]

TSCA requires use of water scrubbers for HCl control when incinerating PCB materials and meet performance requirements specified by EPA. The scrubber effluent must be monitored and comply with applicable effluent or pretreatment standards, and State and Federal laws and regulations.

The Train I emissions controls include packed bed absorber (condenser) columns for removing HCl. These devices are operated in accordance with HWC MACT requirements for minimum liquid flow rate and maximum stack gas flow rate limits (minimum L/G limits), and minimum pH limit for control of HCl. CHDP proposes incorporation by reference of the HWC MACT NOC limits in the Train I TSCA Authorization to assure continuing compliance with this TSCA requirement.

The scrubbing water blowdown (purge) flows through a water treatment system where the water is neutralized with lime and sodium hydroxide, clarified to remove solids, and cooled. The treated waters are recycled back to and reused in the emissions control system. Blowdown from the water treatment system is treated further before being discharged under the facility's TPDES wastewater permit. CHDP proposes incorporation by reference of the TPDES wastewater permit in the Train I TSCA Authorization will assure continuing compliance with this TSCA requirement.

8.0 TEST REPORT

The final test report will be postmarked before the close of business on the 90th day after completion of the test unless a time extension must be requested. The final test report will be a comprehensive test report which contains a discussion of the test objectives; sampling, analysis, and QA/QC activities performed; summaries of process operating conditions; the results of the test determinations; and proposed TSCA Authorization conditions. The planned outline of the test report is shown in Table 10.

Table 10. Example Train I TSCA Report Outline

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