

#### Massachusetts Department of Environmental Protection Bureau of Water Resources – Surface Water Discharge (NPDES) Permitting Program

Please do not mail.
Submit through ePlace.
See instructions.

WM 05, 06, 07

#### Surface Water Discharge (NPDES Individual) Permit Application

To be filed by all persons required to obtain a permit to discharge Industrial or Non-Industrial Wastewater to waters of the Commonwealth.

### A. Facility Information

	1.	Permit # (if known), name, address, and telephone	number of facility p	roducing the discharge:
		Permit # (if known)		
		Name		
		Street address		
		City	State	Zip Code
		Telephone number (including extension)	E-mail address (option	onal)
		Billing address (if different):		
		Street/PO Box		
	_	City	State	Zip Code
		Discharge Site:		
P Use Only		Facility Name		
		Street address		
pplication #		City	State	Zip Code
ate Received		Ownership:  Individual  Corporation	Partnership 🗌 (	Other (specify):
		Status: Private Public Other (specify)	:	
		Major/Minor:		
	2.	Contact Person:		
		Give the name, title, and work telephone number of operation of the facility, with the facts reported in th Surface Water Discharge (NPDES) Program if necessary	is application, and	
		Name	Title	
		Telephone Number (including extension)		



# Massachusetts Department of Environmental Protection Bureau of Water Resources – Surface Water Discharge (NPDES) Permitting Program $WM\ 05,\ 06,\ 07$

Surface Water Discharge (NPDES Individual) Permit Application

Α.	Facility Information (cont.)	
3.	Facility Status:	
	☐ Existing ☐ Proposed	
4.	Does the project affect a site of historic or arc Massachusetts Historical Commission, 950 C	cheological significance, as defined in regulations of the MR 71.00?
	☐ Yes ☐ No	
5.	Does this project require a filing under 301 CF (MEPA)?	RM 11.00, the Massachusetts Environmental Policy Act
	☐ Yes ☐ No	
	If yes, has a filing been made?	
	☐ Yes ☐ No	
6.	Submit a copy of the required US EPA Forms The Forms are located at the following link: https://example.com/html/html/html/html/html/html/html/htm	s to MassDEP: ttps://www.epa.gov/npdes-permits/epa-npdes-permit-
В.	Certification	
sup eva sys to the	pervision in accordance with a system designed aluate the information submitted. Based on my stem, or those persons directly responsible for the best of my knowledge and belief, true, accu	nd all attachments were prepared under my direction or d to assure that qualified personnel properly gather and inquiry of the person or persons who manage the gathering the information, the information submitted is, urate, and complete. I am aware that there are significant ing the possibility of fine and imprisonment for knowing
	Signature of applicant	Date Signed
	Printed name of applicant	Name of Preparer
	Title	Title
		Telephone Number (including extension)





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March 31, 2023

Mr. George Papadopoulos Environmental Engineer United States Environmental Protection Agency 5 P.O. Square, Suite 100 Boston, MA 02109-3912

Subject: Pilgrim Nuclear Power Station – National Pollutant Discharge Elimination System Permit #MA0003557 Modification Application

Mr. Papadopoulos,

Holtec Decommissioning International, LLC (HDI) is providing this submittal package to the United States Environmental Protection Agency (USEPA) to propose modification to National Pollutant Discharge Elimination System Permit (NPDES) permit #MA0003557 for Pilgrim Nuclear Power Station (PNPS) located in Plymouth, Massachusetts. The contents of this submittal package include:

- Statement of Facts
- USEPA Form 3510-1 and attachments
- USEPA Form 3510-2C and attachments

Please note, all existing stormwater discharges under the current permit are not subject to this modification and therefore USEPA Form 3510-2F is not required with this request.

In addition, a hard copy of the USEPA forms and relevant attachments will be sent directly for your attention to the address provided above.

HDI believes that the information presented is complete and accurate to allow for comprehensive review of the NDPES permit modification proposal. Should the USEPA have any questions, comments, or requires additional materials, please feel free to contact Mr. Ben Reynolds, HDI Director of Environmental Affairs, or myself at (856-797-0900, ext. 3578).

Sincerely

Jean Fleming Vice President, Licensing, Regulatory Affairs, & PSA Holtec International

## APPLICATION FOR MODIFICATION TO NPDES PERMIT NO. MA0003557

#### STATEMENT OF FACTS

Holtec Decommissioning International, LLC ("Holtec") submits this application for a modification to the existing National Pollutant Discharge Elimination System ("NPDES") Permit No. MA0003557 to authorize a temporary discharge of non-radiological pollutants in an industrial wastewater at the Pilgrim Nuclear Power Station ("PNPS") into Cape Cod Bay.

#### A. APPLICANT

**APPLICANT** 

Holtec Decommissioning International, LLC 1 Holtec Boulevard Camden, NJ 08104

**FACILITY** 

Pilgrim Nuclear Power Station 600 Rocky Hill Road Plymouth, MA 02360

CONTACT

Dave Noyes Compliance Manager Pilgrim Nuclear Power Station (508) 830-7826

#### B. DESCRIPTION OF THE FACILITY

PNPS is a former 670 megawatt electricity-generating power plant adjacent to Cape Cod Bay. The facility occupies approximately 140 acres and is located on the western shore of Cape Cod Bay, occupying one mile of continuous shoreline frontage. Commercial operation of the station began in December 1972, when the facility was owned by Boston Edison Company. In 1999, Entergy assumed ownership of the facility. Holtec acquired PNPS from Entergy in 2019 and is in the process of decommissioning the facility under a Post Shutdown Decommissioning Activities Report (PSDAR) as revised.

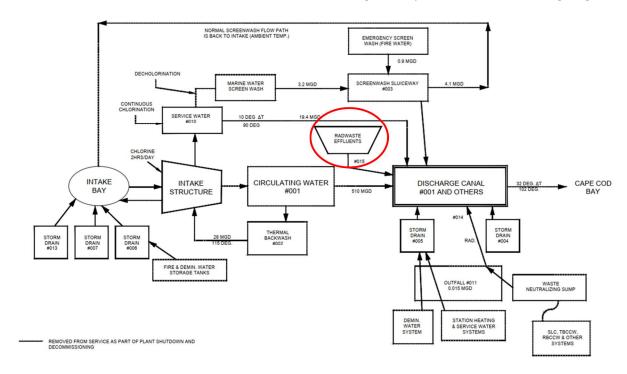
#### C. EXISTING PERMIT

United State Environmental Protection Agency ("EPA") issued the Final NPDES Permit No. MA0003557 on January 30, 2020 covering ongoing wastewater discharges at the Facility. While the Station permanently ceased generating electricity on May 31, 2019, certain discharges to Cape Cod Bay continue, including cooling water used to absorb waste heat from the spent fuel pool, process water, and stormwater. With the removal of the remaining spent fuel rods from the spent fuel pool, permitted Clean

Water Act ("CWA") currently discharges from the site are limited to stormwater and cooling water used for auxiliary heating systems and dilution. There remains approximately 1.1 million gallons of water stored at the facility, comprised of water from the spent fuel pool that contains varying levels of radioactivity. The term "pollutant" in the CWA excludes "radioactive materials" regulated by the Nuclear Regulatory Commission ("NRC") under the Atomic Energy Act. Consequently, the Final NPDES Permit does not include any numeric limits on such radioactive materials. Rather, the disposal of radioactive materials is overseen by the NRC<sup>1</sup>. The existing permit does not authorize the discharge of non-radiological pollutants in the spent fuel pool water (including but not limited to, boron). See Section B, Paragraph 2 of the NPDES Permit

#### D. DESCRIPTION OF PROPOSED MODIFICATION

Holtec is seeking to modify Section B, Paragraph 2 of the NPDES Permit to include Outfall #015 (Radwaste Effluent) which is combined with flow in the discharge canal pursuant to the following diagram:



During plant operation, the Spent Fuel Pool ("SFP") water volume remained substantially unchanged other than minor SFP Cooling System loss into waste collection systems and routed to radiological waste collection and makeup from the Condensate Storage and Transfer System to account for minor loss and evaporation. The SFP Cooling System was essentially continuously run providing filtration and demineralization of the segregated volume. During biennial refueling outages, the volume of water was interconnected with the water in the reactor cavity and dryer separator pit. Circulating water systems commingled and mixed these two normally segregated volumes. During refueling and maintenance activities, permanently installed and temporary filtration systems were used to reduce any impurities being generated by the activities. At the end of each refueling outage, a portion of this commingled

<sup>&</sup>lt;sup>1</sup> Part I, Section A, Paragraph 23: The discharge of radioactive materials shall be in accordance with and regulated by the Nuclear Regulatory Commission (NRC) requirements (10 C.F.R Part 20 and NRC Technical Specifications set forth in facility operating license, DPR-35)

volume was drained to condensate storage tanks with any remainder that exceeded onsite water volume storage capability being filtered, demineralized, verified to meet radiological and non-radiological quality standards and discharged. The last discharge of any water having resided for any period of time in the SFP, occurred in 2015. Following the permanent shutdown of Pilgrim in 2019, spent fuel assemblies stored in the pool were transferred to dry cask storage in a stand-alone Independent Spent Fuel Storage Installation ("ISFSI"). The racks that stored the fuel have been removed and disposed of and the pool is currently being used to package radiological materials such as the reactor vessel internal components for ultimate disposal. Following the completion of the packaging campaign the SFP water will be drained to the Torus for final disposition. Under the terms of this proposed NPDES Permit modification, the water will be filtered using a Solids Collection Filter Top-Loading Canister System, routed to a mixed bed resin/charcoal demineralizer for radiological and chemical (including organic) contaminant removal, radiologically characterized, and then discharged via Outfall #015 in batches of approximately 19,000 gallons and diluted into the plants discharge canal and further diluted in the Cape Cod Bay.

#### E. REGULATION OF SPENT FUEL POOL

The CWA prohibits the discharge of pollutants, including heat, into certain types of water bodies from facilities such as PNPS, except in conformance with a NPDES permit issued by EPA or an authorized state. The CWA also requires that the location, design, construction, and capacity of cooling water intake structures ("CWIS") at such facilities reflect the best technology available for minimizing adverse environmental impact. EPA is the NPDES permitting authority in Massachusetts and last issued a NPDES permit for PNPS in 2020. The disposal of radioactive materials is overseen by the NRC.

This application for modification of NPDES Permit No. MA0003557 to authorize discharge of a new source of industrial wastewater is submitted as required by Section 301(a) and 402 of the Clean Water Act, and 40 CFR 122.21 and 122.62.

A separate Water Discharge Permit will be obtained as required by the Massachusetts Clean Waters Act, as amended (M.G.L. Chapter 21 §§26-53).

#### F. EFFLUENT LIMIT GUIDELINES

The facility is subject to the Best Practicable Control Technology Currently Available ("BPT") Effluent Limitation Guidelines ("ELGs") applicable to the Steam Electric Power Generating Point Source Category specified in 40 CFR 423.12(b)(1) and (2) for pH and PCBs; 40 CFR 423.12(b)(3) for TSS and Oil and Grease in low-volume waste sources; and 40 CFR 423.12(b)(6) for free available chlorine in once-through cooling water.

The industrial wastewater proposed for discharge is a New Source, thus the discharge is also subject to the ELGs specified at 40 CFR 423.15(a)(1) and (2) for pH and PCBs; and 40 CFR 423.15(a)(3) for TSS and Oil and Grease in low-volume waste sources.

The permittee is authorized to discharge non-contact cooling water from the Salt Service Water system, classified as low volume waste, through Outfall 010 in the existing NPDES permit for the facility. The Salt Service Water system will be used during discharges from new Outfall 015 to meet NRC

requirements. Outfall 010 is monitored under the existing permit for Flow, Intake Velocity, Temperature, Temperature Rise, pH, TSS, Oil and Grease and Total Residual Oxidants.

The industrial wastewater will be treated and then discharged through an internal outfall designated Outfall 015 and will not rely on dilution from the Outfall 010 flow to meet discharge limits.

A summary of the analytical results for treated water, intake water (i.e., Cape Cod bay seawater), and the three source volumes presently contained in the Spent Fuel Pool, Reactor Cavity/Dryer Separator Pit and Torus analytical results are provided in Table 1, included as an attachment to this Statement of Fact. The quality of the water presently stored in the Torus generally represents the volume with the highest concentrations of pollutants. Water from the Torus was processed through the treatment system and discharged into a treated water tank. Sample TWT A was collected from the treated water tank and represents the performance of the treatment system in reducing the pollutant concentrations in water drawn from the volume with highest pollutant concentrations. The three water volumes will be combined in the Torus prior to commencing discharge. The blended water quality will be generally better than the water used to generate the treated water volume analytical results presented in this Statement of Facts and the NPDES modification application. Thus, the analytical results for the treated water represent a conservative characterization of the anticipated water quality prior to discharge.

A comparison of detected pollutants in the treated water with applicable ELGs is provided below.

Table 2. Comparison of Detected Pollutant Concentrations in the Treated Wastewater with Applicable Effluent Limitation Guidelines

Parameter	Dotostod Value	Effluent Limit Guideline					
Parameter	Detected Value	Daily Maximum	Monthly Average				
Total Suspended Solids	1.0 mg/L	100.0 mg/L	30.0 mg/L				
рН	6.87 S.U.	6.0 – 9.	0 S.U.				
Oil & Grease	vil & Grease 1.47 mg/L		15.0 mg/L				

mg/l = milligrams per liter; S.U. = standard units

Other pollutants detected at trace levels in the treated water include copper at 1.39 micrograms per liter ( $\mu$ g/L), zinc at 36.1  $\mu$ g/L and total residual oxidants at 0.0449 mg/L. While not directly applicable to the discharge proposed in this application, ELGs for these pollutants have been established for these pollutants in wastewater produced from other discharges common to Steam Electric Power Generating plants. For example, the ELG concentration for copper in chemical metal cleaning wastewater is 1,000  $\mu$ g/L. Similarly, the ELG concentration for zinc in cooling tower blowdown wastewater is 1,000  $\mu$ g/L. The ELG concentrations for total residual oxidants are a daily maximum of 0.5 mg/L and monthly average of 0.2 mg/L. The concentrations for these pollutants in the treated wastewater are well below these ELGs for similar discharges from Steam Electric Power Generating Category plants. Further, the water intended for treatment and discharge has not been chlorinated during power plant operations and will not be chlorinated during its management and treatment for discharge.

#### G. TECHNOLOGY-BASED LIMITS ("TBELS")

The industrial wastewater discharge from Outfall 015 may be subject to site-specific TBELs for pollutants present in the treated wastewater that are not subject to applicable ELGs. Site-specific TBELs

are generally determined using Best Professional Judgment in consideration of the appropriate standard (BPT, BCT, BAT or NSPS) for determination of TBELs.

The pollutants detected in the treated water that are not subject to promulgated ELGs for the industry category and discharge type associated with Outfall 015 include chemical oxygen demand (COD), boron, copper, lead, nickel and zinc. COD and boron are present in the treated water at concentrations well below concentrations detected in the intake water. The intake water quality is representative of the Cape Cod Bay receiving water quality. Both COD and boron are naturally occurring chemical characteristics of seawater.

The existing permit includes a discharge limit of  $5,600\,\mu g/L$  for boron (approximately 1 mg/L above the receiving water concentration). The boron concentration in the treated and intake waters are  $36.7\,\mu g/L$  and  $4,290\,\mu g/L$ , respectively, consequently, there is no potential for the discharge from Outfall 015 to increase boron concentrations in the receiving water.

Copper (1.39  $\mu g/L$ ) and lead (0.660  $\mu g/L$ ) are present in the treated water at very low concentrations and will be further reduced in the untreated wastewater after blending with the volumes in the Spent Fuel Pool and Reactor Cavity/Dryer Separator Pit which do not contain detectable concentrations of these metals. Zinc is present at 36.1  $\mu g/L$  in the treated water and also will be reduced in the blended water. Lead and zinc will likely be diluted to non-detectable levels after mixing with the Outfall 010 flow in the discharge canal. The concentration of copper in the treated water (1.39  $\mu g/L$ ) is similar to the concentration in the intake water (1.69  $\mu g/L$ ) and will therefore have little to no effect on the receiving water ambient concentration.

Based on these facts, while TBELs could be developed for pollutants that do not have applicable ELGs for the Outfall 015 discharge, there is no need to establish TBELs for these pollutants given the lack of potential for adverse effect, further discussed below regarding Water Quality-Based Effluent Limits (WQBELs).

#### H. Water Quality-Based Effluents Limits

The water quality results, as presented in Tables A through E of USEPA Form 2C (and associated attachments for the treated wastewater to be discharged through Outfall 015 confirms that there is no reasonable potential for discharge of pollutants at concentrations or masses<sup>2</sup> sufficient to cause adverse environmental impacts in Cape Cod Bay.

The discharge will be monitored at an internal outfall directly from the treated water tank. Discharge limits will apply at the internal outfall. The discharge from Outfall 015 will combine with the Salt Service Water discharge at the head of the discharge canal and undergo mixing before reaching the end of the canal where it will enter Cape Cod Bay. The ratio of Outfall 015 plant water flow to Outfall 010 Salt Service Water flow will be a minimum of 1:20. Based on the analytical results for the Treated Water, it is likely that the concentrations of detected pollutants in the treated water will be mixed to levels below laboratory detection limits, except in cases where the receiving water (Cape Cod Bay) already contains measurable concentrations of the constituents.

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<sup>&</sup>lt;sup>2</sup> Masses calculated in USEPA Form 3510-2C based on a 19,000-gallon volume.

There will be insufficient thermal load in the Outfall 015 discharge to substantially change the ambient temperature of the discharge from Outfall 010 due to its moderate temperature and low volume (5 percent or less) of the Outfall 010 flow.

A comparison of detected pollutant concentrations above reporting limits in the treated wastewater with available water quality standards, screening criteria and other relevant criteria, including pollutants with applicable ELGs, is provided below.

Table 3. Comparison of Detected Pollutant Concentrations Above Reporting Limits in the Treated Wastewater with Water Quality Standards, Screening Criteria, NPDES Required Detection Limits, Existing NPDES Permit Limits and Cape Cod Bay Ambient Seawater Concentrations

Parameter	Treated Water	EPA Aquatic Life	NOAA Screening	NPDES	Discharge Limits in	Intake Water
	Concentration	Criteria Salt	Levels for Marine	Minimum	Existing NPDES	Concentration
		Water CMC	Surface Water	Level of	Permit for Other	(Ambient Seawater)
		(Acute)	(Acute)	Detection	Outfalls\1	
Chemical Oxygen	18.1 mg/L					F21 mg/l
Demand	18.1 mg/L					531 mg/L
Total Suspended	1.00 = /1				20 /1	4.10 /1
Solids	1.00 mg/L				30 mg/L	4.10 mg/L
рН	6.87 S.U.	6.5 – 9 S.U.			6.5 – 8.5 S.U.	8.07 S.U.
Boron	36.7 μg/L				5,600 μg/L	4,290 μg/L
Copper	1.39 μg/L	4.8 μg/L		3 4.8 μg/L		1.69 μg/L
Lead	0.660 μg/L	210 μg/L		0.5 μg/L		< 2.50 μg/L
Nickel	2.02 μg/L	74 μg/L		20 μg/L		< 3.0 μg/L
Zinc	36.1 μg/L	90 μg/L	90 μg/L	15 μg/L		< 66.0 μg/L
Oil & Grease	1.47 mg/L				15 mg/L	< 1.11 μg/L
Total Phenol	1.67 μg/L					4.04 μg/L

<sup>\1</sup> Listed value is the most stringent limit listed in the existing permit for once-through cooling water and other industrial wastewater discharges.

#### I. ANTI-BACKSLIDING/ANTIDEGRADATION

The proposed permit modification is consistent with the requirements to meet anti-backsliding provisions of the Clean Water Act, Section 402(o) and 40 CFR §122.44(I)(i)(A), which state in part that interim or final effluent limitations must be as stringent as those in the previous permit, unless material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation. The proposed permit modification contains effluent limitations at least as stringent as the current permit.

The treated water proposed for discharge through Outfall 015 will be subject to TBELs including applicable ELGs and site-specific TBELs as determined during the EPA's NPDES permitting process. Water Quality Based Effluent Limits ("WQBELs") also may be set for the new discharge to ensure preservation of existing uses in Cape Cod Bay.

Cape Cod Bay is a Class SA surface water. Discharges to the bay are allowed if authorized by an NPDES permit and a State Water Discharge Permit. No limits for Outfall 015 will be less stringent than those in the existing permit.

The industrial wastewater proposed for discharge will contain low concentrations of a small number of pollutants that would meet existing discharge limits for the facility (where a limit exists) and are either below potentially applicable water quality standards and screening criteria, or lower than or similar to the ambient concentrations of the same constituents in Cape Cod Bay seawater. The discharge will meet appropriate TBELs and WQBELs at an internal outfall, then the concentrations will be diluted by mixing with once-through cooling water in the discharge canal. The Salt Service Water is not being used to meet discharge limits for Outfall 015; however, the dilution afforded by mixing of the Outfall 015 discharge with the Outfall 010 discharge will result in generally non-detectable concentrations of pollutants from Outfall 015 at the end of discharge canal.

The low-level pollutant concentrations in the treated industrial wastewater when discharged to Cape Cod Bay, support a conclusion that the proposed discharge from Outfall 015 is not expected to adversely affect receiving water bodies or result in any degradation of water quality.

#### J. PROPOSED MONITORING

Proposed monitoring, reporting requirements and limits are presented below.

		Discharge	Limitation	Monitoring Requirements <sup>\1</sup>		
Effluent Characteristic	Units	Monthly Average or Total	Maximum Daily	Measurement Frequency	Sample type	
Flow	MGD	Report <sup>∖2</sup>	0.019	Daily\3	Flow Meter <sup>\4</sup>	
Days of Operation	Days	Report <sup>∖3</sup>		Daily\3	Count	
pH	S.U.		-	1 Month <sup>∖3</sup>	Grab	
		6.5 –	8.5			
Oil and Grease	mg/L	15	20	1/Month <sup>\3</sup>	Grab	
Total Suspended Solids	mg/L	30	100	1/Month <sup>\3</sup>	Grab	
Temperature, Effluent	°F	Report		1/Month <sup>\3</sup>	Grab	

<sup>\1</sup> Measurements to be collected at the internal outfall at the treated water tank in use for the daily discharge, and upstream of the release of the discharge to the Discharge Canal.

#### K. ALL OTHER PERMIT CONDITIONS AND STANDARD CONDITIONS REMAIN IN EFFECT

All other aspects of the existing permit shall remain in effect for the duration of the unmodified permit in accordance with 314 CMR 2.10.

#### L. Proposed Public Process

Date of Notice [TBD]

Date of Public Hearing [TBD]

<sup>\2</sup> Total discharged for the month.

<sup>\3</sup> When discharging.

<sup>\4</sup> Discharge volume may be measured using a flow meter or by recording the volume of treated water in the tank on the day of discharge prior to discharge of the tank volume.

Table 1

Analytical Results for Treated Water Tank, Source Water Volumes and Intake Water

Name	ike
Total Organic Carbon	
Total Organic Carbon	.0
Total Suspended Solids	1
Nitrogen, Ammonia   7664-41-7   MG/L   < 0.0170   0.0230   0.0300   < 0.0170   0.170   0.170   0.0230     0.0300   < 0.0170   0.170   0.180	09
DH	0
Toxic Metals, Cyanide, and Total Phenols	96
Antimony 7440-36-0 UG/L < 1.00 < 10.0 < 10.0 < 1.00 < 5.00	.07
Arsenic         7440-38-2         UG/L         < 2.00         < 20.0         < 2.00         < 4.00           Beryllium         7440-41-7         UG/L         < 0.200	
Beryllium	0
Boron	.0
Cadmium         7440-43-9         UG/L         < 0.300         < 3.00         < 0.300         < 1.5           Chromium         7440-47-3         UG/L         < 3.00	0
Chromium         7440-47-3         UG/L         < 3.00         < 30.0         < 30.0         < 3.00         < 15           Copper         7440-50-8         UG/L         1.39         < 3.00	90
Copper         7440-50-8         UG/L         1.39         < 3.00         < 3.00         < 0.300         1.6           Lead         7439-92-1         UG/L         0.660         < 5.00	0
Lead         7439-92-1         UG/L         0.660         < 5.00         < 5.00         < 0.500         < 2.50           Mercury         7439-97-6         UG/L         < 0.0670	.0
Mercury         7439-97-6         UG/L         < 0.0670         < 0.670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.0670         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000         < 0.000	9
Nickel         7440-02-0         UG/L         0.600         31.1         32.9         2.93         < 3.0           Selenium         7782-49-2         UG/L         < 1.50	0
Selenium         7782-49-2         UG/L         < 1.50         < 15.0         < 15.0         < 3.0           Silver         7440-22-4         UG/L         < 0.300	670
Silver         7440-22-4         UG/L         < 0.300         < 3.00         < 3.00         < 0.300         < 1.5           Thallium         7440-28-0         UG/L         < 0.600	0
Thallium 7440-28-0 UG/L < 0.600 < 6.00 < 6.00 < 0.600 < 3.00   Zinc 7440-66-6 UG/L 36.1 726 798 1400 < 6.60   Cyanide, Total 57-12-5 UG/L < 1.67 < 8.35 < 8.35 < 1.67 < 1.67   Total Phenol UG/L < 1.67   Organic Toxic Pollutants (GC/MS Fraction - Volatile Compounds)  Acrolein 107-02-8 UG/L < 1.67   Acrylonitrile 107-13-1 UG/L < 1.67   Senzene 71-43-2 UG/L < 0.333   Carbon tetrachloride 56-23-5 UG/L < 0.333   Chlorobenzene 108-90-7 UG/L < 0.333   Chloroethane 75-00-3 UG/L < 0.333   Co.333   Co.33	.0
Zinc         7440-66-6         UG/L         36.1         726         798         1400         < 66           Cyanide, Total         57-12-5         UG/L         < 1.67	0
Cyanide, Total         57-12-5         UG/L         < 1.67         < 8.35         < 8.35         < 1.67         < 1.67           Total Phenol         UG/L         < 1.67	0
Cyanide, Total         57-12-5         UG/L         < 1.67         < 8.35         < 8.35         < 1.67         < 1.67           Total Phenol         UG/L         < 1.67	
Total Phenol         UG/L         < 1.67         10.5         < 8.34         < 1.67         4.0           Organic Toxic Pollutants (GC/MS Fraction - Volatile Compounds)           Acrolein         107-02-8         UG/L         < 1.67	57
Acrolein $107-02-8$ $UG/L$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$	)4
Acrylonitrile $107-13-1$ $UG/L$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$ $< 1.67$	
Benzene $71-43-2$ $UG/L$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $< 0.333$ $<$	7
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	7
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	33
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	33
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	33
Chloroethane 75-00-3 UG/L < 0.333 < 0.333 < 0.333 < 0.333 < 0.333	33
Chloroethane 75-00-3 UG/L < 0.333 < 0.333 < 0.333 < 0.333 < 0.333	33
2-Chloroethylvinyl ether 110-75-8 UG/L < 1.67 < 1.67 < 1.67 < 1.67 < 1.67	33
	7
Chloroform 67-66-3 UG/L < 0.333 < 0.333 < 0.333 < 0.333 < 0.3	33
Dichlorobromomethane\(^\bar{b}\) 75-27-4 UG/L < 0.333 < 0.333 < 0.333 < 0.333 < 0.333	33
1,1-Dichloroethane 75-34-3 UG/L < 0.333 < 0.333 < 0.333 < 0.333 < 0.333	33
1,2-Dichloroethane 107-06-2 UG/L < 0.333 < 0.333 < 0.333 < 0.333 < 0.333	
1,1-Dichloroethylene 75-35-4 UG/L < 0.333 < 0.333 < 0.333 < 0.333 < 0.333	
1,2-Dichloropropane 78-87-5 UG/L < 0.333 < 0.333 < 0.333 < 0.333 < 0.333	
1,3-Dichloropropylene 542-75-6 UG/L < 0.500 < 0.500 < 0.500 < 0.500	
Ethylbenzene 100-41-4 UG/L < 0.333 < 0.333 < 0.333 < 0.333 < 0.333	
Methyl Bromide\(^c\) 74-83-9 UG/L < 0.337 < 0.337 < 0.337 < 0.337 < 0.337	
Methyl Chloride\d 74-87-3 UG/L < 0.333 < 0.333 < 0.333 < 0.333 < 0.333	
·	80
1,1,2,2-Tetrachloroethane 79-34-5 UG/L < 0.333 < 0.333 < 0.333 < 0.333 < 0.333	
Tetrachloroethylene 127-18-4 UG/L < 0.333 < 0.333 < 0.333 3.44 < 0.3	
Toluene 108-88-3 UG/L < 0.333 < 0.333 < 0.333 < 0.333 < 0.333	
trans-1,2-Dichloroethylene 156-60-5 UG/L < 0.333 < 0.333 < 0.333 < 0.333 < 0.333	
1,1,1-Trichloroethane 71-55-6 UG/L < 0.333 < 0.333 < 0.333 < 0.333 < 0.333	

4.4.2 Triabless at hear	70.00.5	116/1	. 0 222	. 0.222	. 0.222	. 0.222	. 0 222
1,1,2-Trichloroethane	79-00-5	UG/L	< 0.333	< 0.333	< 0.333	< 0.333	< 0.333
Trichloroethylene	79-01-6	UG/L	< 0.333	< 0.333	< 0.333	< 0.333	< 0.333
Vinyl chloride	75-01-4	UG/L	< 0.333	< 0.333	< 0.333	< 0.333	< 0.333
2 Chlanauh an al			tants (GS/MS Fra			. 2.04	. 12.70
2-Chlorophenol	95-57-8	UG/L	< 2.87	< 30.0	< 30.0	< 2.84	< 2.78
2,4-Dichlorophenol	120-83-2	UG/L	< 2.87	< 30.0	< 30.0	< 2.84	< 2.78
2,4-Dimethylphenol	105-67-9	UG/L	< 2.87	< 30.0	< 30.0	< 2.84	< 4.63
4,6-dinitro-o-cresol/e	534-52-1	UG/L	< 2.87	< 30.0	< 30.0	< 2.84	< 2.78
2,4-Dinitrophenol 2-Nitrophenol	51-28-5	UG/L	< 4.78	< 50.0	< 50.0 < 30.0	< 4.74	< 2.78
	88-75-5	UG/L	< 2.87	< 30.0		< 2.84	< 2.78
4-Nitrophenol p-chloro-m-cresol\f	100-02-7	UG/L	< 2.87	< 30.0 < 30.0	< 30.0 < 30.0	< 2.84	< 2.78 < 2.78
Pentachlorophenol	59-50-7 87-86-5	UG/L UG/L	< 2.87 < 2.87	< 30.0	< 30.0	< 2.84 < 2.84	< 2.78
Phenol	108-95-2		< 2.87		< 30.0		< 2.78
2,4,6-Trichlorophenol	88-06-2	UG/L UG/L	< 2.87	< 30.0 < 30.0	< 30.0	< 2.84	< 2.78
2,4,6-171Chlorophenoi			tants (GC/MS Fr			< 2.84	< 2.78
Aroclor-1016	12674-11-2	UG/L	< 0.0317	< 0.333		4 0 0215	4 0 0200
Aroclor-1016 Aroclor-1221	11104-28-2	UG/L	< 0.0317	< 0.333	< 0.333 < 0.333	< 0.0315 < 0.0315	< 0.0309 < 0.0309
Aroclor-1221 Aroclor-1232		UG/L	< 0.0317	< 0.333	< 0.333	< 0.0315	< 0.0309
Aroclor-1242	11141-16-5	UG/L		< 0.333			
Aroclor-1248	53469-21-9 12672-29-6	UG/L	< 0.0317 < 0.0317	< 0.333	< 0.333 < 0.333	< 0.0315 < 0.0315	< 0.0309 0.0455
Aroclor-1254					< 0.333	< 0.0315	< 0.0309
Aroclor-1254 Aroclor-1260	11097-69-1 11096-82-5	UG/L UG/L	< 0.0317 < 0.0317	< 0.333 < 0.333	< 0.333	< 0.0315	< 0.0309
Aroclor-Total	PCBTOT	UG/L	< 0.0317	< 0.333	< 0.333		0.0309
Arocior-rotal			ional and Non-Co			< 0.0315	0.0433
Chlorine, Total Residual	Certa		0.0449	0.0183	0.0220	0.0170	< 0.0170
Oil & Grease		MG/L MG/L	1.47	< 1.37	1.46	1.44	< 1.11
Oil & diease		IVIG/L	PFAS/PFOA		1.40	1.44	V 1.11
Perfluorododecanoic acid			FI AS/FI OF	\ I			
(PFDOA)	307-55-1	NG/L	< 0.572				< 0.530
Perfluorooctane sulfonic acid	307-33-1	NG/L	< 0.572				< 0.550
(PFOS)	1763-23-1	NG/L	< 0.693				< 0.642
Perfluoroheptanoic acid	1703-23-1	NG/L	< 0.033				< 0.042
(PFHpA)	375-85-9	NG/L	< 0.572				< 0.530
Perfluorohexanoic acid	373-63-9	NG/L	< 0.572				< 0.530
(PFHxA)	307-24-4	NG/L	< 0.693				< 0.642
Perfluorobutane sulfonic acid	307-24-4	NG/L	< 0.093				< 0.042
(PFBS)	375-73-5	NG/L	< 0.572				< 0.530
Perfluorooctanoic acid	373-73-3	NG/L	< 0.572				< 0.530
(PFOA)	335-67-1	NG/L	< 0.693				< 0.642
(ITOA)	333-07-1	NO/L	< 0.033				₹ 0.042
Hexafluoropropyleneoxide							
dimer acid (HFPO-DA)(Gen-X)	13252-13-6	NG/L	< 0.572				< 0.530
Perfluorotridecanoic acid	13232-13-0	NG/L	< 0.372				< 0.530
(PFTrDA)	72629-94-8	NG/L	< 0.572				< 0.530
N-Methylperfluorooctane	72029-94-6	NG/L	< 0.572				< 0.550
sulfonamido acetic acid							
(NMeFOSAA)	2255 24 0	NC/I	- 1 14				< 1.06
N-Ethylperfluorooctane	2355-31-9	NG/L	< 1.14				< 1.06
sulfonamido acetic acid	2001 50 6	NC /I	. 1 1 4				4 1 OC
(NEtFOSAA)	2991-50-6	NG/L	< 1.14				< 1.06
Perfluorotetradecanoic acid	276 06 7	NO!	. 0.666				. 0.643
(PFTDA)	376-06-7	NG/L	< 0.693				< 0.642
Perfluoroundecanoic acid	2052 2 : 2	NO!	. 0 5=0				. 0 500
(PFUnDA)	2058-94-8	NG/L	< 0.572				< 0.530
9-Chlorohexadecafluoro-3-							
oxanonane-1-sulfonic acid (9-	756426 52 :	NG "	. 0 ===				. 0 500
CI-PF3ONS)	756426-58-1	NG/L	< 0.572				< 0.530

Perfluorononanoic acid					
(PFNA)	375-95-1	NG/L	< 0.572	 	 < 0.530
11-Chloroeicosafluoro-3-					
oxaundecane-1-sulfonic acid				 	
(11-Cl-PF3OUdS)	763051-92-9	NG/L	< 0.572		< 0.530
Perfluorohexane sulfonic acid					
(PFHxS)	355-46-4	NG/L	< 0.572	 	 < 0.530
4,8-Dioxa-3H-					
perfluorononanoic acid				 	
(DONA)	919005-14-4	NG/L	< 0.572		< 0.530
Perfluorodecanoic acid					
(PFDA)	335-76-2	NG/L	< 0.676	 	 < 0.626

UG/L = micrograms per liter

MG/L - milligrams per liter

NG/L = nanograms per liter

-- = Not Analyzed

 $\a = Dibromochloromethane$ 

\b = Bromodichloromethane

\c = Bromomethane

d = Chloromethane

\e = 2-Methyl-4,6-dinitrophenol

\f = 4-Chloro-3-methylphenol

\\* Methylene chloride is a common laboratory contaminant and is likely not present in the water volumes tested. It was detected in the lab blank for the Torus sample, and detected in all of the analyzed samples at similar trace levels, including in the Intake (seawater) sample. These facts, comsidered collectively, indicate that the methylene

#### Application to Modify NPDES Permit No. MA0003557

for

Authorization to Discharge Plant Water
Pilgrim Nuclear Power Station
Plymouth, MA

**Holtec Decommissioning International, LLC** 

#### Contents of Application

#### USEPA Form 3510-1

Figure 7-A. Site Location

Figure 7-B. Outfall Locations

#### USEPA Form 3510-2C

Figure 2.1 - NPDES Permitted Outfalls Flow Diagram, Current Status, and Proposed Outfall 015

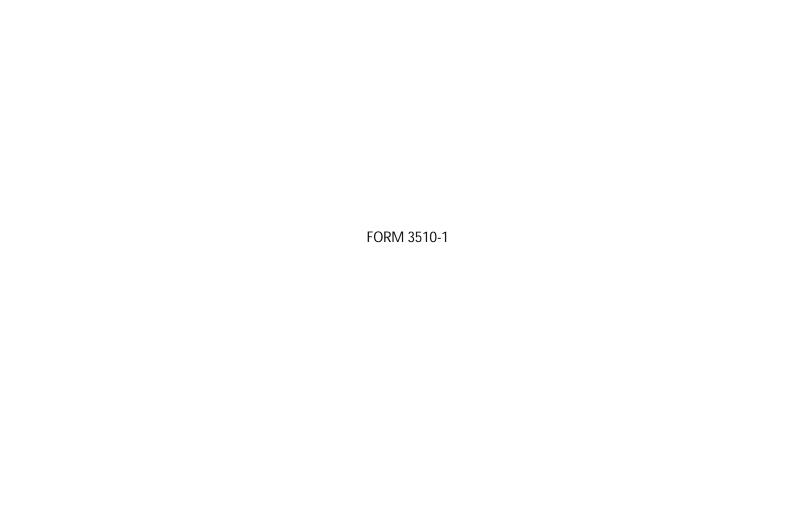
Attachment 3.2A – Operations Contributing to Flow for Outfall 015

Attachment 3.1B - Treatment Units for Outfall 015

Attachment 3.1C – Laboratory Reports

3.1C-1 – Source Volume Laboratory Reports

3.1C-2 – Treated Water Tank and Intake Laboratory Reports



EPA Identification Number		tion Number NPDES Permi	t Number	Fac	cility Name	Form Approved 03/05/19 OMB No. 2040-0004			
Form 1	9	EPA			tal Protection Ager ermit to Discharge				
NPDES	•			<b>GENERAL</b>	GENERAL INFORMATION				
SECTIO	N 1. ACT	TIVITIES REQUIRING AN NPDES P	ERMIT (40 CF	R 122.21(f) an	d (f)(1))				
	1.1	Applicants Not Required to Sub-							
	1.1.1	Is the facility a new or existing pub treatment works? If yes, STOP. Do NOT complete Form 1. Complete Form 2A.	licly owned	1.1.2	Is the facility a new treating domestic If yes, STOP. Do N complete Form 1.4 Form 2S.	NOT No			
	1.2	Applicants Required to Submit F	orm 1						
PDES Permit	1.2.1	Is the facility a concentrated anim operation or a concentrated aquiproduction facility?  Yes  Complete Form 1  and Form 2B.		1.2.2	1.2.2 Is the facility an <b>existing</b> manufacturing, commercial, mining, or silvicultural <b>facility</b> that <b>is currently discharging process wastewater</b> ?  ☐ Yes → Complete Form ☐ No 1 <b>and</b> Form 2C.				
Activities Requiring an NPDES Permit	1.2.3	Is the facility a new manufacturing mining, or silvicultural facility that commenced to discharge?  Yes  Complete Form 1  and Form 2D.		1.2.4	Is the facility a new commercial, mining discharges only n  ☐ Yes → Com	or existing manufacturing, g, or silvicultural facility that conprocess wastewater?			
Activitie	1.2.5	Is the facility a <b>new or existing fact</b> discharge is composed entirely of a <b>associated with industrial activite</b> discharge is composed of <b>both stonon-stormwater?</b> Yes → Complete Form 1 <b>and</b> Form 2F  unless exempted by 40 CFR 122.26(b)(14)(x) or (b)(15).	stormwater by or whose ormwater and No						
SECTIO	N 2. NAI	ME, MAILING ADDRESS, AND LOC	ATION (40 CF	R 122.21(f)(2)					
	2.1	Facility Name							
Name, Mailing Address, and Location	2.2	EPA Identification Number							
and	2.3	Facility Contact							
Address,		Name (first and last)	Title		P	hone number			
Mailing ,		Email address							
ne, I	2.4	Facility Mailing Address							
Nan		Street or P.O. box							
		City or town	State		ZI	P code			

EPA Form 3510-1 (revised 3-19)

EPA Identification Number		NPDE	S Permit Number	Facility Name	'	OMB No. 2040-0004				
s,	2.5	Facility Locati	on							
Name, Mailing Address, and Location Continued				er specific identifier						
Add										
g C		County name		County code (i	f known)					
ailli		County name		County code (i	i kilowii)					
, M .oc.										
ame nd L		City or town		State		ZIP code				
SECTIO	N 3. SIC	AND NAICS CO	DES (40 CFI	R 122.21(f)(3))						
	3.1	SIC C	Code(s)	Description (c	ptional)					
S										
ode:										
SIC and NAICS Codes										
	3.2	NAICS	Code(s)	Description (c	optional)					
and			( )		1 ,					
SIC										
SECTIO	N 4. OPE	RATOR INFORI	MATION (40	CFR 122.21(f)(4))						
SECTIO	<b>N 4. O</b> PE 4.1	RATOR INFORI		CFR 122.21(f)(4))						
SECTIO				CFR 122.21(f)(4))						
	4.1	Name of Opera	ator							
		Name of Opera	ator	CFR 122.21(f)(4)) m 4.1 also the owner?						
	4.1	Name of Opera	ator u listed in Iter							
	4.1	Is the name you	ator u listed in Iter							
	4.1	Is the name you  Yes  Operator Statu	ator u listed in Iter No us	m 4.1 also the owner?		r nublic (specify)				
	4.1	Is the name you  Yes  Operator Statu  Public—fee	ator u listed in Iter No us	m 4.1 also the owner?	☐ Othe	r public (specify)				
Operator Information OLD	4.2	Is the name you  Yes  Operator Statu Public—fee	u listed in Iter No us deral	m 4.1 also the owner?  Public—state Other (specify)	☐ Othe					
	4.1	Is the name you  Yes  Operator Statu  Public—fee	u listed in Iter No us deral	m 4.1 also the owner?  Public—state Other (specify)	☐ Othe					
	4.1 4.2 4.3	Is the name you  Yes  Operator Statu Public—fee	u listed in Iter No us deral	m 4.1 also the owner?  Public—state Other (specify)	☐ Othe					
Operator Information	4.2	Is the name you  Yes  Operator Statu Public—fec Private Phone Numbe  Operator Addr	u listed in Iter No us deral er of Operato	m 4.1 also the owner?  Public—state Other (specify)	☐ Othe					
Operator Information	4.1 4.2 4.3	Is the name you  Yes  Operator Statu Public—fee Private Phone Numbe	u listed in Iter No us deral er of Operato	m 4.1 also the owner?  Public—state Other (specify)	☐ Othe					
Operator Information	4.1 4.2 4.3	Is the name you  Yes  Operator Statu Public—fec Private Phone Numbe  Operator Addr	u listed in Iter No us deral er of Operato	m 4.1 also the owner?  Public—state Other (specify)	☐ Othe					
Operator Information	4.1 4.2 4.3	Is the name you  Yes  Operator Statu Public—fec Private Phone Numbe  Operator Addr	u listed in Iter No us deral er of Operato	m 4.1 also the owner?  Public—state Other (specify)	☐ Othe					
Operator Information	4.1 4.2 4.3	Is the name you  Yes  Operator Statu Public—fec Private Phone Numbe  Operator Addr Street or P.O. E	u listed in Iter No us deral er of Operato	m 4.1 also the owner?  Public—state Other (specify)	☐ Othe					
Operator Information	4.1 4.2 4.3	Is the name you  Yes Operator Statu Public—fec Private Phone Numbe Operator Addr Street or P.O. E	u listed in Iter No us deral er of Operato ress Box	m 4.1 also the owner?  Public—state Other (specify)	☐ Othe					
ation Operator Information	4.1 4.2 4.3	Is the name you  Yes  Operator Statu Public—fec Private Phone Numbe  Operator Addr Street or P.O. E	u listed in Iter No us deral er of Operato ress Box	m 4.1 also the owner?  Public—state Other (specify)	☐ Othe					
Operator Information Operator Information	4.1 4.2 4.3 4.4 4.5	Is the name you  Yes Operator Statu Public—fee Private Phone Number  Operator Addr Street or P.O. E	u listed in Iter No us deral er of Operator ress Box	m 4.1 also the owner?  Public—state Other (specify) or	☐ Othe					
Operator Information Operator Information	4.1 4.2 4.3 4.4 4.5	Is the name you  Yes  Operator Statu Public—fect Private Phone Numbe  Operator Addr Street or P.O. E  City or town  Email address of	u listed in Iter No us deral er of Operator ress Box	Public—state Other (specify)  State	☐ Othe					
Operator Information Operator Information	4.1 4.2 4.3 4.4 4.5	Is the name you  Yes  Operator Statu Public—fect Private Phone Numbe  Operator Addr Street or P.O. E  City or town  Email address of the facility local	u listed in Iter No us deral er of Operator ress Box	Public—state Other (specify)  State	☐ Othe					

EPA Form 3510-1 (revised 3-19) Page 2

EPA Identification Number		NPDES Permit N	lumber Facility Name			OMB No. 2040-0004		
SECTIO	N 6. EXIS	STING ENVIRON	MENTAL PERMITS	(40 CFR 122	.21(f)(6	))		
al	6.1	Existing Envir	onmental Permits (c	heck all that	apply a	nd print or type the cor	respo	onding permit number for each)
Existing Environmental Permits		NPDES (discharges to surface water)			(hazard	lous wastes)		UIC (underground injection of fluids)
ing Enviro		PSD (air ei	missions)	☐ Nonatta	ainment	program (CAA)		NESHAPs (CAA)
Exist		Ocean dun	nping (MPRSA)	☐ Dredge	or fill (	CWA Section 404)		Other (specify)
SECTIO	N 7. MAI	(40 CFR 122.2	1(f)(7))					
Мар	7.1	Have you attac specific require		p containing	all requ	uired information to this	s appl	ication? (See instructions for
2		☐ Yes ☐	No 🗆 CAFO—No	t Applicable (	(See re	quirements in Form 2B	3.)	
SECTIO			ESS (40 CFR 122.21)					
	8.1	Describe the na	ature of your business	i.				
Nature of Business								
Busi								
of								
ature								
Ž								
SECTIO	N 9. CO	DLING WATER I	NTAKE STRUCTURE	S (40 CFR 1	122.21(1	f)(9))		
	9.1		ity use cooling water?		`	777		
S		☐ Yes ☐	No → SKIP to Item	10 1				
ng Water Structures	9.2				cilities th	nat use a cooling water	rintak	se structure as described at
ng W Struc								FR 122.21(r). Consult with your
Cooling Intake Si		NPDES permitt	ling authority to deterr	nine what sp	ecitic in	formation needs to be	subm	nitted and when.)
nt C								
SECTIO	N 10. VA		ESTS (40 CFR 122.21					
sts	10.1							R 122.21(m)? (Check all that needs to be submitted and
Variance Requests		·	entally different factor 301(n))	s (CWA		Water quality related 302(b)(2))	efflue	ent limitations (CWA Section
Varianc			iventional pollutants (0 301(c) and (g))	CWA		Thermal discharges (	(CWA	Section 316(a))
-		□ Not appl	icable					

EPA Form 3510-1 (revised 3-19)

EPA Identification Number		tion Number	NPDES Permit Number		Facil	ity Name	Form Approved 03/05/19 OMB No. 2040-0004		
SECTIO	N 11. CH	IECKLIST AND	CERTIFICATION STATEMENT (4)	0 CFR 12	2.22(a	) and (d))			
	11.1	In Column 1 be For each section	elow, mark the sections of Form 1 t	hat you ha	ave completed and are submitting with your application. It you are enclosing to alert the permitting authority. Note				
			Column 1			(	Column 2		
		☐ Section	n 1: Activities Requiring an NPDES	S Permit		w/ attachments			
		☐ Section	n 2: Name, Mailing Address, and L	ocation		w/ attachments			
		☐ Section	n 3: SIC Codes			w/ attachments			
		☐ Section	n 4: Operator Information			w/ attachments			
		☐ Section	n 5: Indian Land			w/ attachments			
ent		☐ Section	n 6: Existing Environmental Permit	s		w/ attachments			
Checklist and Certification Statement		☐ Section	n 7: Map			w/ topographic map	☐ w/ additional attachments		
tion S		☐ Section	Section 8: Nature of Business			w/ attachments			
rtifica		☐ Section	n 9: Cooling Water Intake Structure	es		w/ attachments			
nd Ce		☐ Section	n 10: Variance Requests			w/ attachments			
clist a		☐ Section	n 11: Checklist and Certification Sta	atement		w/ attachments			
hecl	11.2	Certification S	Statement						
၁		in accordance information sub- directly respon- belief, true, acc including the po	penalty of law that this document a with a system designed to assure to pmitted. Based on my inquiry of the sible for gathering the information, curate, and complete. I am aware to ossibility of fine and imprisonment	that qualifi e person o the inform hat there a	ed per r perso nation are sig ng viola	sonnel properly ga ons who manage th submitted is, to the nificant penalties fo ations.	ther and evaluate the ne system, or those persons best of my knowledge and		
		Name (print or	type first and last name)		Offici	al title			
		Signature				signed			

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Form 3510-1

Figure 7-A. Site Location

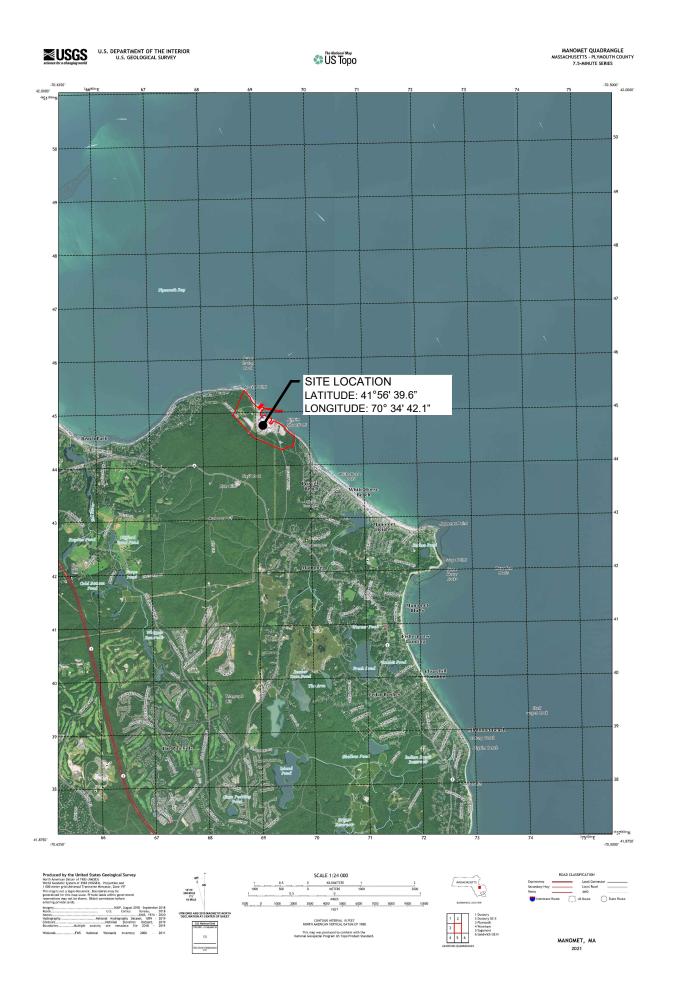


Figure 7-A. Site Location

Form 3510-1

Figure 7-B. Outfall Locations

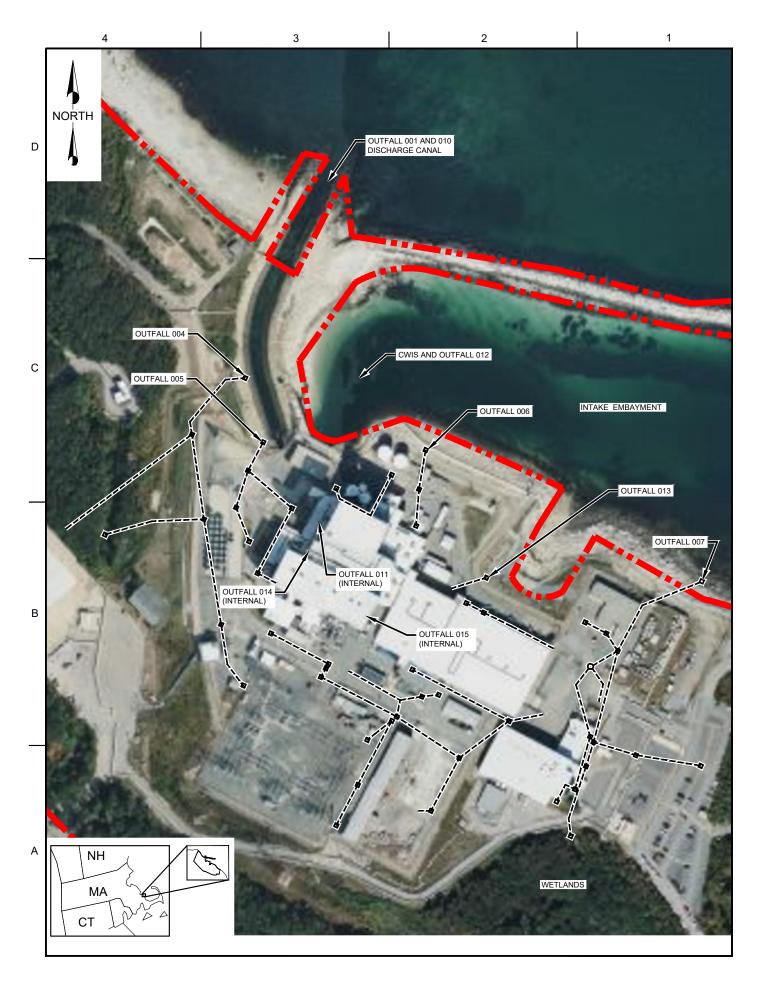
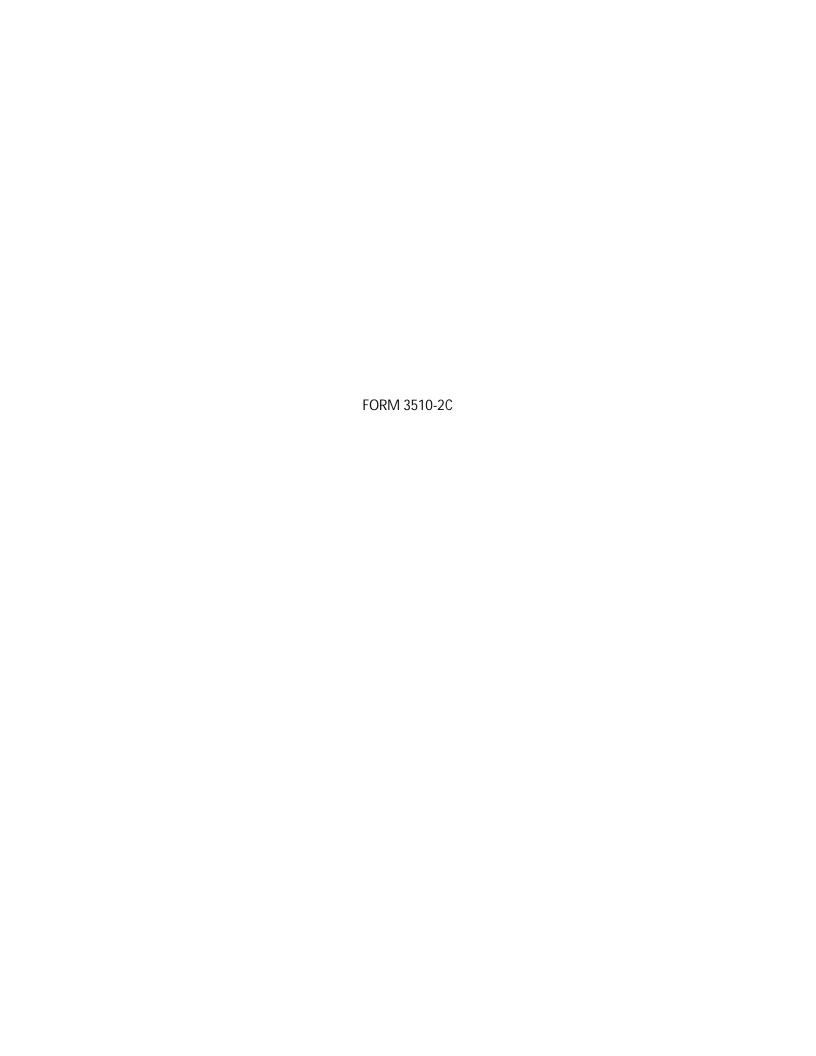


Figure 7-B. Outfall Locations



EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19
		-	OMB No. 2040-0004

Form 2C	.0.1	<b>EPA</b>	Application for NPDES Permit to Discharge Wastewater							
NPDES			EXISTING MANUFACTI	URING, COMM	ERCIAL	, MINING, AND SIL	VICULTUR	E OPERATION	ONS	
SECTION	N 1. OUT	FALL LOCAT	ION (40 CFR 122.21(g)(1))							
	1.1	Provide information on each of the facility's outfalls in the table below.								
ation		Outfall Number	Receiving Water Name	l	_atitude		Longitude			
I Loc				0	,	"	0	, "		
Outfall Location				۰	,	"	۰	, "		
				o	,	"	۰	, "		
SECTION	N 2. LINE		0 CFR 122.21(g)(2))							
Line Drawing	2.1		ached a line drawing to this ap se instructions for drawing requ							
L Dra		☐ Yes	☐ No							
SECTION	N 3. AVE	RAGE FLOWS	S AND TREATMENT ( <u>40</u> CFR	122.21(g)(3))						
	3.1	For each outfall identified under Item 1.1, provide average flow and treatment information. Add additional sheets if necessary.								
				**Outfall Numl						
				Operations Co	Contributing to Flow					
			Operation			AV	erage Flow			
¥							mgd			
atmeı									mgd	
d Tre					mgd					
ws an									mgd	
Flo			D	Treatm	ent Unit	ts	F: I D		1.1	
Average Flows and Treatment		(include s	<b>Description</b> size, flow rate through each tre retention time, etc.)	atment unit,		Code from Table 2C-1	Liquid \	isposal of S Wastes Othe y Discharge	er Than	
			-							

EPA	Identification	n Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004						
	3.1		**Outf	all Number**							
	cont.			ions Contributing to Flow							
			Operation	A	verage Flow						
					mgd						
					mgd						
					mgd						
					mgd						
				Treatment Units							
		(include	<b>Description</b> size, flow rate through each treatmen retention time, etc.)	t unit, Code from Table 2C-1	Final Disposal of Solid or Liquid Wastes Other Than by Discharge						
pen											
Average Flows and Treatment Continued											
ent C											
reatm											
_ pue		**Outfall Number**									
SWC		Operations Contributing to Flow Operation Average Flow									
e Flo		Ziverage i ion									
verag					mgd mgd						
⋖					mgd						
				Treatment Units	mgd						
			Description		Final Disposal of Solid or						
		(include	size, flow rate through each treatmen	t unit, Code from Table 2C-1	Liquid Wastes Other Than						
			retention time, etc.)		by Discharge						
	0.0										
	7.7	Are you applying for an NPDES permit to operate a privately owned treatment works?									
tem	3.2	☐ Yes		No → SKIP to See	ection 4.						
System Users	3.3		tached a list that identifies each user		ection 4.						

EPA Identification Number		on Number	NPDES Permit	Number	Facility Name		Form Approved 03/05/19 OMB No. 2040-0004				
SECTIO	N 4. INTE	RMITTENT	FLOWS (40 CFR 122.2	11(g)(4))							
	4.1	Except for s	storm runoff, leaks, or s	pills, are any disch	arges described in Sec	tions 1 and 3 inte	ermittent or sea	sonal?			
		☐ Yes	No → SKIP to Section 5.								
	4.2	Provide info	ormation on intermittent			ecessary.					
		Outfall	Operation		quency	Flow	Rate Maximum	Duration			
		Number	(list)	Average Days/Week	Average Months/Year	Long-Term Average	Daily	Duration			
				days/week	months/year	mgd	mgd	days			
Flows				days/week	months/year	mgd	mgd	days			
ttent F				days/week	months/year	mgd	mgd	days			
Intermittent Flows				days/week	months/year	mgd	mgd	days			
				days/week	months/year	mgd	mgd	days			
				days/week	months/year	mgd	mgd	days			
		_		days/week	months/year	mgd	mgd	days			
				days/week	months/year	mgd	mgd	days			
				days/week	months/year	mgd	mgd	days			
SECTIO	N 5. PRO	DUCTION (4	0 CFR 122.21(g)(5))								
	5.1	Do any efflo	uent limitation guideline	s (ELGs) promulga	ited by EPA under Sec	tion 304 of the C	WA apply to you	ur facility?			
s	5.2	Provide the	following information o								
ELO		EL	.G Category		ELG Subcategory		Regulatory	/ Citation			
Applicable ELGs			ectric Power g Industry								
Appl											
	5.3	Are any of	the applicable ELGs ex	pressed in terms of	f production (or other m	neasure of operat	ion)?				
દ		☐ Yes				SKIP to Section 6	•				
atior	5.4	Provide an	actual measure of daily	nroduction expres	sed in terms and units	of applicable FL	વિલ				
Limit	0.4	Outfall Number		tion, Product, or I		Quantity p	or Day	Unit of Measure			
Based		Humber					- N	iicasult			
ction-											
Production-Based Limitations											
_											

EPA	Identification	n Number	NPDES Permit Number		Facility Nam	ie		Approved 03/05/19 MB No. 2040-0004			
SECTIO	N 6. IMPI	ROVEMENTS	(40 CFR 122.21(g)(6))								
	6.1	Are you pres upgrading, or	ently required by any federal, s	ral, state, or local authority to meet an implementation schedule for constructing atment equipment or practices or any other environmental programs that could application?  No → SKIP to Item 6.3.							
ents	6.2		y each applicable project in the								
	V. <u> </u>			Affected			Final Comp	liance Dates			
nprovem		Brief Identi	fication and Description of Project	Outfalls (list outfall number)		urce(s) of ischarge	Required	Projected			
Upgrades and Improvements											
Upgra											
	6.3	that may affe	ached sheets describing any active your discharges) that you no	ow have underv			itèm)	ntal projects			
		☐ Yes	L	No			Not applicable				
SECTIO			NTAKE CHARACTERISTICS (								
	See the instructions to determine the pollutants and parameters you are required to monitor and, in turn, the tables you must complete. Not all applicants need to complete each table.										
	•	ble A. Conventional and Non-Conventional Pollutants									
	7.1	Are you requ		ES permitting a	authority for one or more of the Table A pollutants for any of						
		☐ Yes		m 7.3.							
	7.2	.2 If yes, indicate the applicable outfalls below. Attach waiver request and other required information t									
		Outfall Number Outfall Number Outfall Number									
ristics	7.3	Have you completed monitoring for all Table A pollutants at each of your outfalls for which a waiver has not been requested and attached the results to this application package?									
acte		☐ Yes					peen requested from by for all pollutants at				
Chai	Table E	B. Toxic Metals	s, Cyanide, Total Phenols, an	nd Organic Tox			y for all pollutarite at	dii odiidiio.			
Effluent and Intake Characteri	7.4		e facility's processes that contri bit 2C-3? (See end of instruction		er fall into one	or more of the	he primary industry o	categories			
and		☐ Yes			□ No <del>-3</del>	SKIP to Ite	m 7.8.				
ffluent	7.5	Have you cho	ecked "Testing Required" for al	I toxic metals, o	cyanide, and t	otal phenols	in Section 1 of Table	e B?			
ш	7.6	List the appli	cable primary industry categori	es and check t		cating the rec	quired GC/MS fraction	on(s) identified			
		in Exhibit 2C	Primary Industry Category				GC/MS Fraction(s) applicable boxes.)				
					□ Volatile	☐ Acid	☐ Base/Neutral	□ Pesticide			
					☐ Volatile	☐ Acid	☐ Base/Neutral	☐ Pesticide			
					□ Volatile	☐ Acid	☐ Base/Neutral	☐ Pesticide			

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EPA	Identificatio	n Number	NPDES Permit Number	Fa	cility Name	Form Approved 03/05/19 OMB No. 2040-0004				
	7.7		ecked "Testing Required" for all requi	I red pollutants i	n Sections 2 through	I 5 of Table B for each of the				
		GC/MS fracti	ons checked in Item 7.6?		No					
	7.8		ecked "Believed Present" or "Believed	A Absort" for al		Continue 1 through 5 of Table P				
	7.0		g is not required?	a Absent ioi ai	i poliutarits listeu iri c	beclions I unough 5 of Table b				
		☐ Yes	, '		No					
	7.9	Have you provided (1) quantitative data for those Section 1, Table B, pollutants for which you have indicated testing i required or (2) quantitative data or other required information for those Section 1, Table B, pollutants that you have indicated are "Believed Present" in your discharge?								
		☐ Yes			No					
	7.10	Does the app	plicant qualify for a small business ex	emption under	the criteria specified	in the instructions?				
pə		☐ Yes →	Note that you qualify at the top of Tathen SKIP to Item 7.12.	able B,	No					
Effluent and Intake Characteristics Continued	7.11	Have you provided (1) quantitative data for those Sections 2 through 5, Table B, pollutants for which you have determined testing is required or (2) quantitative data or an explanation for those Sections 2 through 5, Table B, pollutants you have indicated are "Believed Present" in your discharge?  Yes								
eris	Table C		ventional and Non-Conventional P	ollutants						
haract	7.12		licated whether pollutants are "Believ		"Believed Absent" fo	r all pollutants listed on Table C				
ke C		Yes			No					
nt and Inta	7.13	Have you completed Table C by providing (1) quantitative data for those pollutants that are limited either directly or indirectly in an ELG and/or (2) quantitative data or an explanation for those pollutants for which you have indicated "Believed Present"?								
llue		Yes			No					
#			ardous Substances and Asbestos	- LD	"D. I' I Al 1" (	and and the telephone Table B.C.				
	7.14	all outfalls?	licated whether pollutants are "Believ	ed Present" or		r all pollutants listed in Table D for				
	- 1-	Yes		<u>U</u>	No					
	7.15	and (2) by providing quantitative data, if available?								
	<b>T.1. F</b>	Yes			No					
	7.16		achlorodibenzo-p-Dioxin (2,3,7,8-To ility use or manufacture one or more		CDD congoners lists	ad in the instructions, or do you				
	7.10		e reason to believe that TCDD is or m			ed in the instructions, or do you				
		☐ Yes →	Complete Table E.		No → SKIP to Se	ction 8.				
	7.17	Have you co	mpleted Table E by reporting qualitat	ive data for TC	DD?					
		Yes			No					
SECTIO	N 8. USE		ACTURED TOXICS (40 CFR 122.21							
red	8.1	an intermedia	ant listed in Table B a substance or a ate or final product or byproduct?	component of						
actu	0.0	Yes		Ш	No → SKIP to S	ection 9.				
Manufa Foxics	8.2	List the pollu								
r Ma Tox		1.	4.		7.					
Used or Manufactured Toxics		2.	5.		8.					
		3.	6.		9.					

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EPA Identification		on Number	Number NPDES Permit Number		Facility Name			Form Approved 03/05/19 OMB No. 2040-0004			
SECTIO	N 9 RIOI	OGICAL TOX	CICITY TEST	S (40 CER 122 21(a)(11	))						
GEOTIO	9.1	DLOGICAL TOXICITY TESTS (40 CFR 122.21(g)(11))  Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made within the last three years on (1) any of your discharges or (2) on a receiving water in relation to your discharge?  Yes  No → SKIP to Section 10.									
sts	0.0		4 411-			I INO 7	SKIP to Sec	LION TO.			
ξ	9.2	•		purposes below.	、 Sul	bmitted to	NPDES	D ( 0 )			
oxic		Tes	t(s)	Purpose of Test(s	Per	mitting A	uthority?	Date Submitted			
Biological Toxicity Tests						Yes	□ No				
Biolo						Yes	□ No				
						Yes	□ No				
SECTIO	N 10. CO	NTRACT ANA	ALYSES (40 C	CFR 122.21(g)(12))							
	10.1	Were any of	the analyses	reported in Section 7 pe	erformed by a	contract la	boratory or co	nsulting firm?			
		☐ Yes ☐ No → SKIP to Section 11.									
	10.2	Provide information for each contract laboratory or consulting firm below.									
		Name of labo	aratan /firm	Laboratory Numbe	r1 L	aboratory	Number 2	Laboratory Number 3			
		Name of labo	oratory/IIIIII								
40											
yses		Laboratory a	ddress								
Anal											
Contract Analyses											
Con		Phone numb	er								
		Pollutant(s) a	analyzed								
SECTIO	N 11. AD	DITIONAL INF	ORMATION	(40 CFR 122.21(g)(13))							
	11.1	Has the NPD	ES permitting	g authority requested ad	ditional inform	ation?					
<b>E</b>		☐ Yes									
matic	11.2	List the inform	mation reque	sted and attach it to this	application.						
l Infor		1.			4.						
Additional Information		2.			5.						
Ac		3.			6.						

**EPA Identification Number** NPDES Permit Number Facility Name Form Approved 03/05/19 OMB No. 2040-0004 SECTION 12. CHECKLIST AND CERTIFICATION STATEMENT (40 CFR 122.22(a) and (d)) In Column 1 below, mark the sections of Form 2C that you have completed and are submitting with your application. For each section, specify in Column 2 any attachments that you are enclosing to alert the permitting authority. Note that not all applicants are required to complete all sections or provide attachments. Column 1 Column 2 Section 1: Outfall Location w/ attachments Section 2: Line Drawing w/ line drawing w/ additional attachments w/ list of each user of Section 3: Average Flows and w/ attachments П privately owned treatment Treatment works Section 4: Intermittent Flows w/ attachments Section 5: Production w/ attachments w/ optional additional sheets describing any Section 6: Improvements w/ attachments additional pollution control w/ request for a waiver and w/ explanation for identical supporting information outfalls Checklist and Certification Statement w/ small business exemption w/ other attachments request Section 7: Effluent and Intake w/ Table A w/ Table B Characteristics w/ Table C w/ Table D w/ analytical results as an w/ Table E attachment Section 8: Used or Manufactured w/ attachments Toxics Section 9: Biological Toxicity w/ attachments Section 10: Contract Analyses w/ attachments Section 11: Additional Information w/ attachments Section 12: Checklist and w/ attachments **Certification Statement** 12.2 **Certification Statement** I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Name (print or type first and last name) Official title Signature Date signed

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				_
EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number	Form Approved 03/05/19 OMB No. 2040-0004

TAB	TABLE A. CONVENTIONAL AND NON CONVENTIONAL POLLUTANTS (40 CFR 122.21(g)(7)(iii)) 1										
						Effl	uent		Intake (Optional)		
	Pollutant	Waiver Requested (if applicable)	Units (specify)		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses	
	Check here if you have applied	to your NPDE	S permitting authori	ty for a wai	ver for all of the p	ollutants listed on t	his table for the no	ted outfall.	,		
1.	Biochemical oxygen demand		Concentration								
۱.	(BOD <sub>5</sub> )		Mass								
2.	Chemical oxygen demand		Concentration								
۷.	(COD)		Mass								
3.	Total organic carbon (TOC)		Concentration								
J.	Total organic carbon (TOC)		Mass								
4.	Total suspended solids (TSS)		Concentration								
ť	Total suspended solids (133)		Mass								
5.	Ammonia (as N)		Concentration								
ე.	Animonia (as N)		Mass								
6.	Flow		Rate								
7.	Temperature (winter)		°C	°C							
1.	Temperature (summer)		°C	°C							
8.	pH (minimum)		Standard units	s.u.							
0.	pH (maximum)		Standard units	S.U.							

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<sup>&</sup>lt;sup>1</sup> Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR chapter I, subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

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	EPA Identification Number	NPDES F	Permit Number		Facility Name		C	outfall Number					ved 03/05/19 o. 2040-0004
TABL	E B. TOXIC METALS, CYANIDE	, TOTAL PHE	Presence	ORGANIC T or Absence ck one)	TOXIC POLLUTAN	OXIC POLLUTANTS (40 CFR		R 122.21(g)(7)(v)) <sup>1</sup> Effluent				Intake (optional)	
	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Believed Present	Believed Absent	Units (specify)		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long- Aver Da Disch	rage ily narge	Number of Analyses	Long- Term Average Value	Number of Analyses
	Check here if you qualify as a small business per the instructions to Form 2C and, therefore, do not need to submit quantitative data for any of the organic toxic pollutants in Sections 2 through 5 of this table. Note, however, that you must still indicate in the appropriate column of this table if you believe any of the pollutants listed are present in your discharge.												
Section	on 1. Toxic Metals, Cyanide, and	d Total Pheno	ols										
1.1	Antimony, total (7440-36-0)				Concentration								
	,				Mass Concentration								
1.2	Arsenic, total (7440-38-2)				Mass								
1.3	Beryllium, total				Concentration								
	(7440-41-7)	_	_	_	Mass								
1.4	Cadmium, total (7440-43-9)				Concentration  Mass								
1.5	Chromium, total				Concentration								
1.5	(7440-47-3)		Ш	Ш	Mass								
1.6	Copper, total (7440-50-8)				Concentration								
	,				Mass								
1.7	Lead, total (7439-92-1)				Concentration Mass								
1.8	Mercury, total				Concentration								
1.0	(7439-97-6)	<u> </u>			Mass								
1.9	Nickel, total (7440-02-0)				Concentration  Mass								
	Selenium, total				Concentration								
1.10	(7782-49-2)				Mass								
1.11	Silver, total (7440-22-4)				Concentration Mass								

				_
EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number	Form Approved 03/05/19
		-		OMB No. 2040-0004

TABL	E B. TOXIC METALS, CYANIDE,	TOTAL PHE	NOLS, AND	ORGANIC T	OXIC POLLUTANT	S (40 CFF	R 122.21(g)(7)	(v)) <sup>1</sup>				
			Presence (cher					Efflo	uent			ake ional)
	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Believed Present	Believed Absent	Units (specify)		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
1.12	Thallium, total				Concentration							
	(7440-28-0)				Mass							
1.13	Zinc, total (7440-66-6)				Concentration Mass							
	,				Concentration							
1.14	Cyanide, total (57-12-5)				Mass							
					Concentration							
1.15	Phenols, total				Mass							
Section 2. Organic Toxic Pollutants (GC/MS Fraction—Volatile Compounds)												
2.1	Acrolein				Concentration							
	(107-02-8)	_	_	_	Mass							
2.2	Acrylonitrile (107-13-1)				Concentration  Mass							
	,				Concentration							
2.3	Benzene (71-43-2)				Mass							
	Bromoform				Concentration							
2.4	(75-25-2)				Mass							
2.5	Carbon tetrachloride				Concentration							
2.5	(56-23-5)	Ш			Mass							
2.6	Chlorobenzene				Concentration							
	(108-90-7)				Mass							
2.7	Chlorodibromomethane				Concentration							
	(124-48-1)				Mass							
2.8	Chloroethane (75-00-3)				Concentration							
			Ш		Mass							

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number	Form Approved 03/05/19 OMB No. 2040-0004

TABL	E B. TOXIC METALS, CYANIDE,	TOTAL PHE	Presence	ORGANIC T or Absence ck one)	OXIC POLLUTANTS (40 CFF	OXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))¹  Effluent					take tional)
	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Believed Present	Believed Absent	Units (specify)	Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
2.9	2-chloroethylvinyl ether (110-75-8)				Concentration Mass						
2.10	Chloroform (67-66-3)				Concentration Mass						
2.11	Dichlorobromomethane (75-27-4)				Concentration Mass						
2.12	1,1-dichloroethane (75-34-3)				Concentration  Mass						
2.13	1,2-dichloroethane (107-06-2)				Concentration Mass						
2.14	1,1-dichloroethylene (75-35-4)				Concentration Mass						
2.15	1,2-dichloropropane (78-87-5)				Concentration Mass						
2.16	1,3-dichloropropylene (542-75-6)				Concentration Mass						
2.17	Ethylbenzene (100-41-4)				Concentration Mass						
2.18	Methyl bromide (74-83-9)				Concentration Mass						
2.19	Methyl chloride (74-87-3)				Concentration Mass						
2.20	Methylene chloride (75-09-2)				Concentration  Mass						
2.21	1,1,2,2- tetrachloroethane (79-34-5)			<del></del>	Concentration  Mass						

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number	Form Approved 03/05/19
		-		OMB No. 2040-0004

TABL	E B. TOXIC METALS, CYANIDE,	TOTAL PHE	Presence	ORGANIC T or Absence ck one)	OXIC POLLUTANTS (40	0 CFR 122.21(g)(	7)(v)) <sup>1</sup> Efflu	ent		Intake (optional)	
	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Believed Present	Believed Absent	Units (specify)	Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Terr Average Daily Discharg (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
2.22	Tetrachloroethylene (127-18-4)				Concentration  Mass						
2.23	Toluene (108-88-3)				Concentration  Mass						
2.24	1,2-trans-dichloroethylene (156-60-5)				Concentration Mass						
2.25	1,1,1-trichloroethane (71-55-6)				Concentration Mass						
2.26	1,1,2-trichloroethane (79-00-5)				Concentration Mass						
2.27	Trichloroethylene (79-01-6)				Concentration Mass						
2.28	Vinyl chloride (75-01-4)				Concentration Mass						
Section	on 3. Organic Toxic Pollutants (G	C/MS Fract	ion—Acid C	ompounds)							
3.1	2-chlorophenol (95-57-8)				Concentration  Mass						
3.2	2,4-dichlorophenol (120-83-2)				Concentration  Mass						
3.3	2,4-dimethylphenol (105-67-9)				Concentration  Mass						
3.4	4,6-dinitro-o-cresol (534-52-1)				Concentration Mass						
3.5	2,4-dinitrophenol (51-28-5)				Concentration Mass						

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TABL	E B. TOXIC METALS, CYANIDE,	TOTAL PHE		ORGANIC T	OXIC POLLUTANTS (40 C	FR 122.21(g)(7)	(v)) <sup>1</sup>			_	
				ck one)			Efflu	ient			ake ional)
	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Believed Present	Believed Absent	Units (specify)	Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
3.6	2-nitrophenol (88-75-5)				Concentration  Mass						
3.7	4-nitrophenol				Concentration						
2.0	(100-02-7) p-chloro-m-cresol				Mass Concentration						
3.8	(59-50-7)				Mass Concentration						
3.9	Pentachlorophenol (87-86-5)				Mass						
3.10	Phenol (108-95-2)				Concentration Mass						
3.11	2,4,6-trichlorophenol (88-05-2)				Concentration Mass						
Secti	on 4. Organic Toxic Pollutants (0	C/MS Fract	ion—Base /	Neutral Com							
4.1	Acenaphthene (83-32-9)				Concentration  Mass						
4.2	Acenaphthylene (208-96-8)				Concentration Mass						
4.3	Anthracene (120-12-7)				Concentration  Mass						
4.4	Benzidine (92-87-5)				Concentration  Mass						
4.5	Benzo (a) anthracene (56-55-3)				Concentration  Mass						
4.6	Benzo (a) pyrene	П	П		Concentration						
	(50-32-8)	]	Mass								

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number	Form Approved 03/05/19
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TABI	E B. TOXIC METALS, CYANIDE,	TOTAL PHE	NOI S. AND	ORGANIC T	OXIC POLLUTANTS (40 C	FR 122.21(a)(7)	(v)) <sup>1</sup>				
			Presence	or Absence ck one)			Efflu	ent		Intake (optional)	
	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Believed Present	t Absent	Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses	
4.7	3,4-benzofluoranthene (205-99-2)				Concentration Mass						
4.8	Benzo (ghi) perylene (191-24-2)				Concentration Mass						
4.9	Benzo (k) fluoranthene (207-08-9)				Concentration Mass						
4.10	Bis (2-chloroethoxy) methane (111-91-1)				Concentration Mass						
4.11	Bis (2-chloroethyl) ether (111-44-4)				Concentration Mass						
4.12	Bis (2-chloroisopropyl) ether (102-80-1)				Concentration Mass						
4.13	Bis (2-ethylhexyl) phthalate (117-81-7)				Concentration Mass						
4.14	4-bromophenyl phenyl ether (101-55-3)				Concentration Mass						
4.15	Butyl benzyl phthalate (85-68-7)				Concentration Mass						
4.16	2-chloronaphthalene (91-58-7)				Concentration Mass						
4.17	4-chlorophenyl phenyl ether (7005-72-3)				Concentration Mass						
4.18	Chrysene (218-01-9)				Concentration Mass						
4.19	Dibenzo (a,h) anthracene (53-70-3)				Concentration Mass						

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<b>T</b> ( D)	E D. TOVIO METALO, OVANIDE	TOTAL BUE	NOLO AND		COVIO DOLLUTANTO (40 OF	D 400 04/ \/T\	/ N/				
IABL	E B. TOXIC METALS, CYANIDE,	C METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC  Presence or Absence (check one)		or Absence	OXIC POLLUTANTS (40 CF)	Effluent					take tional)
	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Believed Present	Believed Absent	Units (specify)	Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
4.20	1,2-dichlorobenzene (95-50-1)				Concentration Mass						
4.21	1,3-dichlorobenzene (541-73-1)				Concentration  Mass						
4.22	1,4-dichlorobenzene (106-46-7)				Concentration Mass				+		
4.23	3,3-dichlorobenzidine (91-94-1)				Concentration Mass						
4.24	Diethyl phthalate (84-66-2)				Concentration Mass						
4.25	Dimethyl phthalate (131-11-3)				Concentration Mass						
4.26	Di-n-butyl phthalate (84-74-2)				Concentration Mass						
4.27	2,4-dinitrotoluene (121-14-2)				Concentration Mass						
4.28	2,6-dinitrotoluene (606-20-2)				Concentration Mass						
4.29	Di-n-octyl phthalate (117-84-0)				Concentration Mass						
4.30	1,2-Diphenylhydrazine (as azobenzene) (122-66-7)				Concentration Mass						
4.31	Fluoranthene (206-44-0)				Concentration Mass						
4.32	Fluorene (86-73-7)				Concentration Mass						

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TABL	E B. TOXIC METALS, CYANIDE,	TOTALTTIL	Presence	or Absence ck one)	OXICT CLEOTAINTS (40	JIK 122.21(9)(1)	Efflu	uent			take tional)
	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Believed Present	Believed Absent	Units (specify)	Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
4.33	Hexachlorobenzene (118-74-1)				Concentration  Mass						
4.34	Hexachlorobutadiene (87-68-3)				Concentration Mass						
4.35	Hexachlorocyclopentadiene (77-47-4)				Concentration Mass						
4.36	Hexachloroethane (67-72-1)				Concentration  Mass						
4.37	Indeno (1,2,3-cd) pyrene (193-39-5)				Concentration Mass						
4.38	Isophorone (78-59-1)				Concentration Mass						
4.39	Naphthalene (91-20-3)				Concentration Mass						
4.40	Nitrobenzene (98-95-3)				Concentration Mass						
4.41	N-nitrosodimethylamine (62-75-9)				Concentration Mass						
4.42	N-nitrosodi-n-propylamine (621-64-7)				Concentration Mass						
4.43	N-nitrosodiphenylamine (86-30-6)				Concentration Mass						
4.44	Phenanthrene (85-01-8)				Concentration Mass						
4.45	Pyrene (129-00-0)				Concentration Mass						

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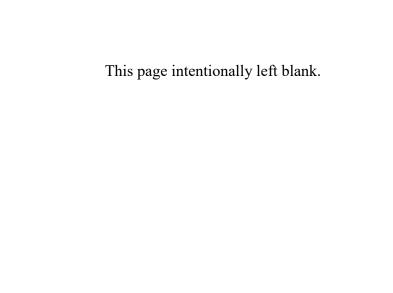
										02		
TABL	E B. TOXIC METALS, CYANIDE,	TOTAL PHE			OXIC POLLUTANTS (40	CFR 122.21(g)(7)	)(v)) <sup>1</sup>					
				or Absence ck one)			Efflu	ient			take tional)	
	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Believed Present	Believed Absent	Units (specify)	Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses	
4.46	1,2,4-trichlorobenzene (120-82-1)				Concentration Mass							
Secti	ection 5. Organic Toxic Pollutants (GC/MS Fraction—Pesticides)											
5.1	Aldrin (309-00-2)				Concentration Mass							
5.2	α-BHC (319-84-6)				Concentration Mass							
5.3	β-BHC (319-85-7)				Concentration  Mass							
5.4	γ-BHC (58-89-9)				Concentration  Mass							
5.5	δ-BHC (319-86-8)				Concentration  Mass							
5.6	Chlordane (57-74-9)				Concentration  Mass							
5.7	4,4'-DDT (50-29-3)				Concentration  Mass							
5.8	4,4'-DDE (72-55-9)				Concentration Mass							
5.9	4,4'-DDD (72-54-8)				Concentration  Mass							
5.10	Dieldrin (60-57-1)				Concentration Mass							
5.11	α-endosulfan (115-29-7)				Concentration Mass							

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TABL	E B. TOXIC METALS, CYANIDE,	TOTAL PHE	Presence	ORGANIC T or Absence ck one)	OXIC POLLUTANTS (40 C	FR 122.21(g)(7)(v)) <sup>1</sup> Effluent					Intake (optional)	
	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Believed Present	Believed Absent	Units (specify)	Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses	
5.12	β-endosulfan (115-29-7)				Concentration Mass							
5.13	Endosulfan sulfate (1031-07-8)				Concentration Mass							
5.14	Endrin (72-20-8)				Concentration Mass							
5.15	Endrin aldehyde (7421-93-4)				Concentration Mass							
5.16	Heptachlor (76-44-8)				Concentration Mass							
5.17	Heptachlor epoxide (1024-57-3)				Concentration Mass							
5.18	PCB-1242 (53469-21-9)				Concentration Mass							
5.19	PCB-1254 (11097-69-1)				Concentration Mass							
5.20	PCB-1221 (11104-28-2)				Concentration Mass							
5.21	PCB-1232 (11141-16-5)				Concentration Mass							
5.22	PCB-1248 (12672-29-6)				Concentration Mass							
5.23	PCB-1260 (11096-82-5)				Concentration  Mass							
5.24	PCB-1016 (12674-11-2)				Concentration Mass							

	EPA Identification Number	NPDES F	Permit Number		Facility Name		Outfall Number			Form Approved 03/05/19 OMB No. 2040-0004			
<b>TABL</b>	TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v)) <sup>1</sup>												
				or Absence ck one)				Effl	uent				ake onal)
	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Believed Present	Believed Absent	Units (specify)		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-To Avera Daily Discha (if availal	ge N / rge Ar	lumber of nalyses	Long- Term Average Value	Number of Analyses
5.25	Toxaphene (8001-35-2)				Concentration								
3.23					Mass	·							·

<sup>&</sup>lt;sup>1</sup> Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR chapter I, subchapter N or O. See instructions and 40 CFR 122.21(e)(3).



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TAE	TABLE C. CERTAIN CONVENTIONAL AND NON CONVENTIONAL POLLUTANTS (40 CFR 122.21(g)(7)(vi)) <sup>1</sup>										
		Presence o				Efflu	ent		Intal (Optio		
	Pollutant	Believed Present	Believed Absent	Units (specify)	Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses	
	Check here if you believe all pollutants on Table C to be <b>present</b> in your discharge from the noted outfall. You need <i>not</i> complete the "Presence or Absence" co each pollutant.								ence" column of T	able C for	
	Check here if you believe all pollutants on Table C to be <i>absent</i> in your discharge from the noted outfall. You need <i>not</i> complete the "Presence or Absence" column of Table C for <i>each</i> pollutant.										
1.	Bromide (24959-67-9)			Concentration Mass							
2.	Chlorine, total residual			Concentration Mass							
3.	Color			Concentration  Mass							
4.	Fecal coliform			Concentration Mass							
5.	Fluoride (16984-48-8)			Concentration Mass							
6	Nitrate-nitrite			Concentration Mass							
7.	Nitrogen, total organic (as N)			Concentration Mass							
8.	Oil and grease			Concentration Mass							
9.	Phosphorus (as P), total (7723-14-0)			Concentration  Mass							
10.	Sulfate (as SO <sub>4</sub> ) (14808-79-8)			Concentration Mass							
11.	Sulfide (as S)			Concentration Mass							

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		Presence or Absence (check one)				Efflu	uent		Inta (Optio	
	Pollutant	Believed Present	Believed Absent	Units (specify)	Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
12.	Sulfite (as SO <sub>3</sub> ) (14265-45-3)			Concentration Mass						
13.	Surfactants			Concentration Mass						
14.	Aluminum, total (7429-90-5)			Concentration  Mass						
	Barium, total (7440-39-3)			Concentration  Mass						
16.	Boron, total (7440-42-8)			Concentration  Mass						
	Cobalt, total (7440-48-4)			Concentration  Mass						
18.	Iron, total (7439-89-6)			Concentration  Mass						
19.	Magnesium, total (7439-95-4)			Concentration  Mass						
	Molybdenum, total			Concentration  Mass						
21.	(7439-98-7) Manganese, total (7439-96-5)			Concentration  Mass						
22.	Tin, total (7440-31-5)			Concentration  Mass						
23	Titanium, total (7440-32-6)			Concentration  Mass						

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number	Form Approved 03/05/19 OMB No. 2040-0004						
ABLE C. CERTAIN CONVENTIONAL AND NON CONVENTIONAL POLLUTANTS (40 CFR 122.21(g)(7)(vi))1										

TAB	LE C. CERTAIN CO	NVENTIONAL	AND NON CO	NVENTIONAL POLLUTA	ANTS (40 CFR 122.21(g	)(7)(vi))¹				
		Presence or Absence (check one)				Efflu		Intake (Optional)		
	Pollutant	Believed Present	Believed Absent	Units (specify)	Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
24.	Radioactivity					,				
	Alpha, total		П	Concentration						
	Aipria, totai	Ш	Ш	Mass						
	Beta, total	П	Ιп	Concentration						
	Dela, Iolai	Ш		Mass						
	Radium, total			Concentration						
	Radium, total	Ш		Mass						
	Radium 226, total			Concentration						
	Naululli 220, lolai			Mass						

<sup>&</sup>lt;sup>1</sup> Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR chapter I, subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

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TAE	BLE D. CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (40 CFR 122.21(g)(7)(vii)) <sup>1</sup> Presence or Absence											
	5 " / /	Presence of (check			Available Quantitative Data							
	Pollutant	Believed Present	Believed Absent	Reason Pollutant Believed Present in Discharge	(specify units)							
1.	Asbestos											
2.	Acetaldehyde											
3.	Allyl alcohol											
4.	Allyl chloride											
5.	Amyl acetate											
6.	Aniline											
7.	Benzonitrile											
8.	Benzyl chloride											
9.	Butyl acetate											
10.	Butylamine											
11.	Captan											
12.	Carbaryl											
13.	Carbofuran											
14.	Carbon disulfide											
15.	Chlorpyrifos											
16.	Coumaphos											
17.	Cresol											
18.	Crotonaldehyde											
19.	Cyclohexane											

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number	Form Approved 03/05/19
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TAB	BLE D. CERTAIN HAZARDOUS SUBSTANC	CES AND ASBEST	OS (40 CFR 122.	21(g)(7)(vii))¹	
		Presence or (check			Assilable Ossastitation Data
	Pollutant	Believed Present	Believed Absent	Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
20.	2,4-D (2,4-dichlorophenoxyacetic acid)				
21.	Diazinon				
22.	Dicamba				
23.	Dichlobenil				
24.	Dichlone				
25.	2,2-dichloropropionic acid				
26.	Dichlorvos				
27.	Diethyl amine				
28.	Dimethyl amine				
29.	Dintrobenzene				
30.	Diquat				
31.	Disulfoton				
32.	Diuron				
33.	Epichlorohydrin				
34.	Ethion				
35.	Ethylene diamine				
36.	Ethylene dibromide				
37.	Formaldehyde				
38.	Furfural				

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TAB	LE D. CERTAIN HAZARDOUS SUBSTANG	CES AND ASBEST	OS (40 CFR 122.	21(g)(7)(vii)) <sup>1</sup>	
	,	Presence of (check			Available Overtitative Date
	Pollutant	Believed Present	Believed Absent	Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
39.	Guthion				
40.	Isoprene				
41.	Isopropanolamine				
42.	Kelthane				
43.	Kepone				
44.	Malathion				
45.	Mercaptodimethur				
46.	Methoxychlor				
47.	Methyl mercaptan				
48.	Methyl methacrylate				
49.	Methyl parathion				
50.	Mevinphos				
51.	Mexacarbate				
52.	Monoethyl amine				
53.	Monomethyl amine				
54.	Naled				
55.	Naphthenic acid				
56.	Nitrotoluene				
57.	Parathion				

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TAE	LE D. CERTAIN HAZARDOUS SUBSTANG			.21(g)(7)(vii)) <sup>1</sup>	LE D. CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (40 CFR 122.21(g)(7)(vii)) <sup>1</sup> Presence or Absence												
	5 " / /	Presence of (check			Available Quantitative Data												
	Pollutant	Believed Present	Believed Absent	Reason Pollutant Believed Present in Discharge	(specify units)												
58.	Phenolsulfonate																
59.	Phosgene																
60.	Propargite																
61.	Propylene oxide																
62.	Pyrethrins																
63.	Quinoline																
64.	Resorcinol																
65.	Strontium																
66.	Strychnine																
67.	Styrene																
68.	2,4,5-T (2,4,5-trichlorophenoxyacetic acid)																
69.	TDE (tetrachlorodiphenyl ethane)																
70.	2,4,5-TP [2-(2,4,5-trichlorophenoxy) propanoic acid]																
71.	Trichlorofon																
72.	Triethanolamine																
73.	Triethylamine																
74.	Trimethylamine																
75.	Uranium																
76.	Vanadium																

	EPA Identification Number NF		DES Permit Number F		Facility Name	Outfall Number		Form Approved 03/05/19 OMB No. 2040-0004				
TAB	ABLE D. CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (40 CFR 122.21(g)(7)(vii)) <sup>1</sup>											
	Pollutant		Presence or (check		Danas Dallad	land Daliana d Danasad in Disabanna		Available Quantitative Data				
			Believed Present	Believed Absent	Reason Pollut	ant Believed Present in Discharge		(specify units)				
77.	Vinyl acetate											
78.	Xylene											
79.	Xylenol											
80.	Zirconium											

<sup>&</sup>lt;sup>1</sup> Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR chapter I, subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

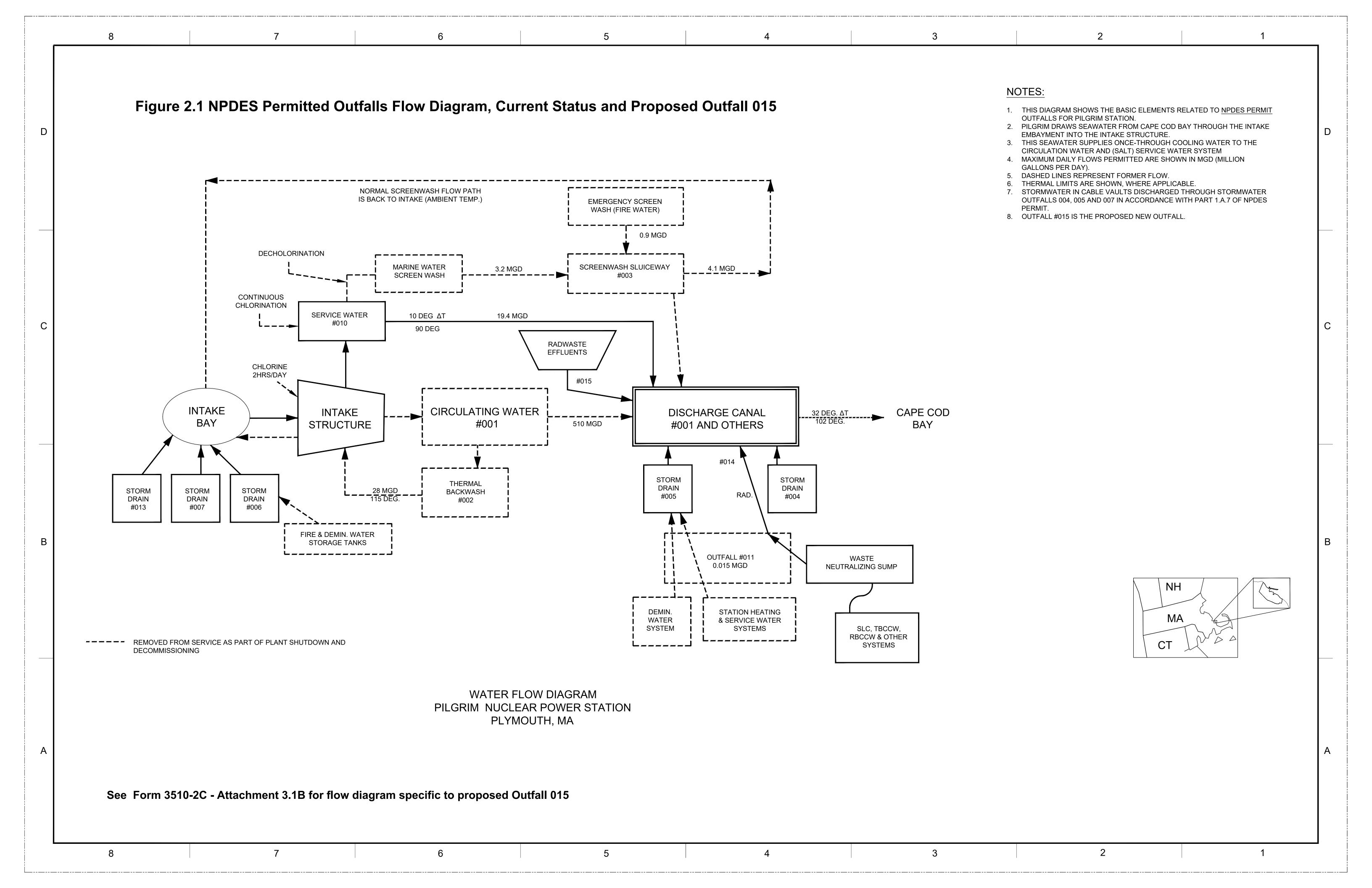
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EPA Identification Number	NPDES Permit Number			racility Name	OMB No. 2040-0004								
TABLE E. 2,3,7,8 TETRACHLORO	ABLE E. 2,3,7,8 TETRACHLORODIBENZO P DIOXIN (2,3,7,8 TCDD) (40 CFR 122.21(g)(7)(viii))												
Pollutant	TCDD Congeners Used or Manufactured	Relieved Relieved		Results of Screening Procedure									
2,3,7,8-TCDD													

## FORM 3510-2C

Figure 2.1

NPDES Permitted Outfalls Flow Diagram, Current Status, and Proposed Outfall 015

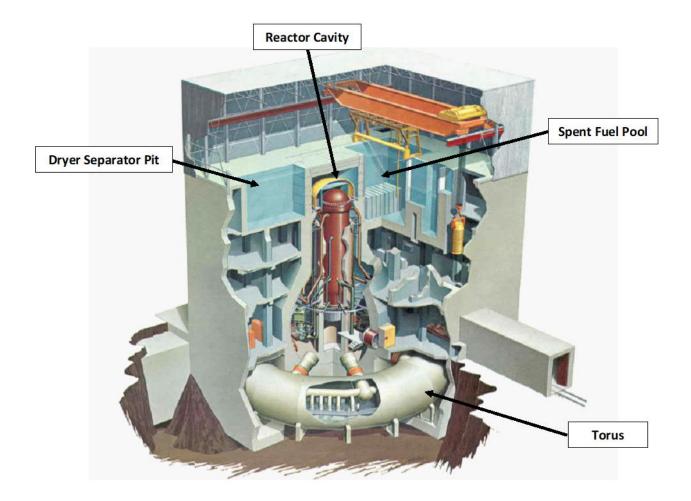


FORM 3510-2C - ATTACHMENT 3.1A

Operations Contributing to Flow for Outfall 015

#### Form 2c Attachment 3.1A

The water volumes proposed for discharge through Outfall #015 after their treatment include inventories currently stored in the Reactor Cavity / Dryer Separator Pit (approximately volume 400,000 gallons), Spent Fuel Pool (approximate volume 280,000 gallons) and Torus (approximate volume 285,000 gallons). These volumes were originally filled using a demineralized Plymouth town water source prior to the initial plant operation in 1972. The same demineralized town water source was also used for periodic makeup to account for any leakage and evaporation. During operation, these volumes functionally supported power generation and periodic refueling as depicted in the graphic below and as described in the following sections:



1. Water in the Reactor Cavity / Dryer Separator Pit was stored in the facility's Condensate Storage Tanks while the plant was generating electricity. On an interval not to exceed 2 years, the reactor was shutdown to exchange roughly 200 of the spent nuclear fuel assemblies with new equivalents. During these outage periods and following reactor shutdown, the water in the Condensate Storage Tanks was transferred to the Reactor Cavity and Dryer Separator Pit to provide a medium for safe transfer of the fuel assemblies underwater between the reactor and the spent fuel pool. Stringent programs for foreign material exclusion prevented the introduction of chemicals and materials that could damage the nuclear fuel. During

- decommissioning, water in the Reactor Cavity / Dryer Separator Pit provides for radiological shielding of irradiated component removal including underwater waste generation, consolidation, and packaging activities. During these activities, local filtration provides for removal of any fine solid debris that is generated.
- 2. Water in the Spent Fuel Pool was used to remove decay heat from the spent nuclear fuel assemblies stored in the facility until the fuel was moved to onsite storage in an Independent Spent Fuel Storage Installation (ISFSI) that utilize a dry cask system for containment, security, and cooling. Heat generated in the Spent Fuel Pool was removed by operation of the Fuel Cooling and Demineralization System with heat ultimately rejected through a closed cooling water system to the once-through Salt Service Water System. The Fuel Pool Cooling and Demineralization system utilizes filtration and demineralization to maintain a high degree of water quality to prevent chemical interactions with the spent fuel assemblies. During decommissioning, water in the Spent Fuel Pool provides for radiological shielding of irradiated component packaging and removal activities. During these activities, local filtration provides for removal of any fine solid debris that is generated.
- 3. Water in the Torus was required to provide a quenching function for steam from the reactor's safety relief valves during abnormal and transient conditions. The water also provided a surge volume to limit the pressurization of the plant's primary containment and was a credited source of makeup to the reactor under emergency conditions. Although requirements for water quality were not as stringent as those established for the operating reactor, Reactor Cavity / Dryer Separator Pit, or Spent Fuel Pool, the water was maintained with a high degree of quality to satisfy fuel warranty standards. During decommissioning, the torus is solely utilized as a repository for excess water not needed for waste generation, handling, and disposal activities. Following the completion of these activities, it is expected that the water from the Reactor Cavity / Dryer Separator Pit and Spent Fuel Pool will be transferred to the Torus to await final disposition and subsequent reactor building dismantlement.

Source Water Volumes Chemical Characterization Summary

Analytical sampling was performed in accordance with Form 2C instructions and at direction from the permitting agencies for water contained in the Spent Fuel Pool, Reactor Cavity/Dryer Separator Pit and Torus. A summary of the analytical results for the source volumes (Spent Fuel Pool, Reactor Cavity/Dryer Separator Pit and Torus) are provided in Table 3.1A below. Laboratory reports are provided in Attachment 3.1C.

Table 3.1A Analytical Results for Source Water Volumes

			Reactor Cavity/Dryer Separator Pit			Spent Fuel Pool				Torus				
Parameter	CAS#	Units					D			Di				
			Resu		DL ntional and Non-C	RL	Resul		DL e.A)	RL	Resu	ΙĹ	DL	RL
BOD		MG/L	ND	dU	10.0	20.0	ND	dU	10.0	20.0	ND	dU	1.00	2.00
COD		MG/L	ND	U	8.95	20.0	ND	U	8.95	20.0	39.2		8.95	20.0
Total Organic Carbon		MG/L	ND	U	165	500	ND	U	165	500	0.528	J	0.330	1.00
Total Suspended Solids Nitrogen, Ammonia	7664-41-7	MG/L MG/L	ND 0.0230	J	5.70 0.0170	25.0 0.0500	ND 0.0300	U	5.70 0.0170	25.0 0.0500	ND ND	U	0.570 0.0170	2.50 0.0500
pH	7004-41-7	S.U.	7.07	H	0.0170	0.100	7.27	Н	0.0170	0.100	7.43	Н	0.0170	0.100
,	l l			kic Me	tals, Cyanide, and	L		3 -Sect	l					
Antimony	7440-36-0	UG/L	ND	U	10.0	30.0	ND	U	10.0	30.0	ND	U	1.00	3.00
Arsenic	7440-38-2	UG/L	ND	U	20.0	50.0	ND	U	20.0	50.0	ND	U	2.00	5.00
Beryllium Boron	7440-41-7 7440-42-8	UG/L UG/L	ND 177	U	2.00 52.0	5.00 150	ND 185	U	2.00 52.0	5.00 150	ND 169	U	0.200 5.20	0.500 15.0
Cadmium	7440-43-9	UG/L	ND	U	3.00	10.0	ND	U	3.00	10.0	ND	U	0.300	1.00
Chromium	7440-47-3	UG/L	ND	U	30.0	100	ND	U	30.0	100	ND	U	3.00	10.0
Copper	7440-50-8	UG/L	ND	U	3.00	20.0	ND	U	3.00	20.0	ND	U	0.300	2.00
Lead	7439-92-1	UG/L	ND	U	5.00	20.0	ND	U	5.00	20.0	ND	U	0.500	2.00
Mercury Nickel	7439-97-6 7440-02-0	UG/L UG/L	ND 31.1	U	0.670 6.00	2.00	ND 32.9	U	0.670 6.00	2.00	ND 2.93	U	0.0670	0.200 2.00
Selenium	7782-49-2	UG/L	ND	U	15.0	50.0	32.9 ND	U	15.0	50.0	2.93 ND	U	1.50	5.00
Silver	7440-22-4	UG/L	ND	U	3.00	10.0	ND	U	3.00	10.0	ND	U	0.300	1.00
Thallium	7440-28-0	UG/L	ND	U	6.00	20.0	ND	U	6.00	20.0	ND	U	0.600	2.00
Zinc	7440-66-6	UG/L	726		33.0	200	798		33.0	200	1400		3.30	20.0
Cyanide, Total	57-12-5	UG/L	ND 10.5	U	8.35	25.0	ND ND	U	8.35	25.0	ND	U	1.67	5.00
Total Phenol		UG/L Tab	10.5 le B Sectio	J n 2 - C	8.34 Organic Toxic Pollu	50.0 utants (GC/N	ND AS Fraction	U ı - Vola	8.34 atile Compounds)	50.0	ND	U	1.67	10.0
Acrolein	107-02-8	UG/L	ND	U	1.67	5.00	ND	U	1.67	5.00	ND	U	1.67	5.00
Acrylonitrile	107-13-1	UG/L	ND	U	1.67	5.00	ND	U	1.67	5.00	ND	U	1.67	5.00
Benzene	71-43-2	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00	ND	U	0.333	1.00
Bromoform	75-25-2	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00	ND	U	0.333	1.00
Carbon tetrachloride Chlorobenzene	56-23-5 108-90-7	UG/L UG/L	ND ND	U	0.333 0.333	1.00	ND ND	U	0.333 0.333	1.00	ND ND	U	0.333	1.00
Chlorodibromomethane \alpha	108-90-7	UG/L	ND ND	U	0.333	1.00	ND ND	U	0.333	1.00	ND ND	U	0.333	1.00
Chloroethane	75-00-3	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00	ND	U	0.333	1.00
2-Chloroethylvinyl ether	110-75-8	UG/L	ND	U	1.67	5.00	ND	U	1.67	5.00	ND	U	1.67	5.00
Chloroform	67-66-3	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00	ND	U	0.333	1.00
Dichlorobromomethane\b	75-27-4	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00	ND	U	0.333	1.00
1,1-Dichloroethane 1,2-Dichloroethane	75-34-3 107-06-2	UG/L UG/L	ND ND	U	0.333 0.333	1.00	ND ND	U	0.333 0.333	1.00	ND ND	U	0.333	1.00
1,1-Dichloroethylene	75-35-4	UG/L	ND ND	U	0.333	1.00	ND ND	U	0.333	1.00	ND ND	U	0.333	1.00
1,2-Dichloropropane	78-87-5	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00	ND	U	0.333	1.00
1,3-Dichloropropylene	542-75-6	UG/L	ND	U	0.500	2.00	ND	U	0.500	2.00	ND	U	0.500	2.00
Ethylbenzene	100-41-4	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00	ND	U	0.333	1.00
Methyl Bromide <sup>\c</sup> Methyl Chloride <sup>\d</sup>	74-83-9	UG/L	ND	U	0.337	1.00	ND	U	0.337	1.00	ND	U	0.337	1.00
Methylene chloride\*	74-87-3 75-09-2	UG/L UG/L	ND 0.740	J	0.333 0.500	1.00 2.00	ND 0.750	U J	0.333 0.500	1.00 2.00	ND 1.88	U BJ	0.333	1.00 2.00
1,1,2,2-Tetrachloroethane	79-34-5	UG/L	ND	U	0.333	1.00	0.750 ND	U	0.333	1.00	ND	U	0.333	1.00
Tetrachloroethylene	127-18-4	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00	3.44		0.333	1.00
Toluene	108-88-3	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00	ND	U	0.333	1.00
trans-1,2-Dichloroethylene	156-60-5	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00	ND	U	0.333	1.00
1,1,1-Trichloroethane	71-55-6	UG/L	ND ND	U	0.333	1.00	ND ND	U	0.333	1.00	ND	U	0.333	1.00
1,1,2-Trichloroethane Trichloroethylene	79-00-5 79-01-6	UG/L UG/L	ND ND	U	0.333 0.333	1.00	ND ND	U	0.333 0.333	1.00	ND ND	U	0.333	1.00
Vinyl chloride	75-01-4	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00	ND	U	0.333	1.00
		Та	ble B-Secti	on 3 -	Organic Toxic Pol	llutants (GS	/MS Fractio	n - Ac	id Compounds)					
2-Chlorophenol	95-57-8	UG/L	ND	U	30.0	100	ND	U	30.0	100	ND	U	2.84	9.47
2,4-Dichlorophenol	120-83-2	UG/L	ND	U	30.0	100	ND ND	U	30.0	100	ND	U	2.84	9.47
2,4-Dimethylphenol 4,6-dinitro-o-cresol/e	105-67-9 534-52-1	UG/L UG/L	ND ND	U	30.0 30.0	100 100	ND ND	U	30.0 30.0	100	ND ND	U	2.84	9.47 9.47
2,4-Dinitrophenol	51-28-5	UG/L	ND	U	50.0	200	ND	U	50.0	200	ND	U	4.74	18.9
2-Nitrophenol	88-75-5	UG/L	ND	U	30.0	100	ND	U	30.0	100	ND	U	2.84	9.47
4-Nitrophenol	100-02-7	UG/L	ND	U	30.0	100	ND	U	30.0	100	ND	U	2.84	9.47
p-chloro-m-cresol\f	59-50-7	UG/L	ND	U	30.0	100	ND ND	U	30.0	100	ND	U	2.84	9.47
Pentachlorophenol Phenol	87-86-5 108-95-2	UG/L UG/L	ND ND	U	30.0 30.0	100 100	ND ND	U	30.0 30.0	100	ND ND	U	2.84	9.47 9.47
2,4,6-Trichlorophenol	88-06-2	UG/L	ND	U	30.0	100	ND ND	U	30.0	100	ND	U	2.84	9.47
		•	ble B Sect		Organic Toxic Po									<u></u>
Aroclor-1016	12674-11-2	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00	ND	U	0.0315	0.0947
Aroclor-1221	11104-28-2	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00	ND	U	0.0315	0.0947
Aroclor-1232 Aroclor-1242	11141-16-5	UG/L UG/L	ND ND	U	0.333 0.333	1.00	ND ND	U	0.333 0.333	1.00	ND ND	U	0.0315 0.0315	0.0947 0.0947
Arocior-1242 Aroclor-1248	53469-21-9 12672-29-6	UG/L UG/L	ND ND	U	0.333	1.00	ND ND	U	0.333	1.00	ND ND	U	0.0315	0.0947
Aroclor-1254	11097-69-1	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00	ND	U	0.0315	0.0947
Aroclor-1260	11096-82-5	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00	ND	U	0.0315	0.0947
Aroclor-Total	PCBTOT	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00	ND	U	0.0315	0.0947
Chloring Tatal Basishasi		NAC /1			ertain Conventior	1				0.0500	NID.	102	0.0470	0.0500
Chlorine, Total Residual Oil & Grease		MG/L MG/L	0.0183 ND	JH U	0.0170 1.37	0.0500 4.90	0.0220 1.46	J	0.0170 1.36	0.0500 4.85	ND 1.44	HU	0.0170 1.35	0.0500 4.81
	<u> </u>							-	55			-	55	

# Table 3.1A Analytical Results for Source Water Volumes

Bolded result indicates pollutant was at or detected above the DL

DL = Method Detection Limit

RL = Reporting Limit

UG/L = micrograms per liter

MG/L - milligrams per liter

U = Analyte was analyzed for, but not detected above the MDL

J = Value is estimated

B = The target analyte was detected in the associated blank

H = Analytical holding time was exceeded

d = 5-day BOD--The 2:1 depletion requirement was not met for this sample

\a = Dibromochloromethane

\b = Bromodichloromethane

\c = Bromomethane

\d = Chloromethane

\e = 2-Methyl-4,6-dinitrophenol

f = 4-Chloro-3-methylphenol

\\* Methylene chloride is a common laboratory contaminant and is likely not present in the water volumes tested. It was detected in the lab blank for the Torus sample, and detected in all of the analyzed samples at similar trace levels, including in the Intake (seawater) sample. These facts, comsidered collectively, indicate that the methylene chloride detections are not present in any of the samples.

FORM 3510-2C - ATTACHMENT 3.1B

Treatment Units for Outfall 015

### Form 2c Attachment 3.1B

After being commingled in the Torus, water treatment and discharge will be accomplished as follows and as depicted in the graphic below:

1. Water will undergo mechanical filtration using a Solids Collection Filter Top-Loading Canister System (Mechanical Filter [Exhibit 2C-2 Code 1-T]). The canister system has a rated flow of 85 gallons per minute (gpm) and contains 2 micron sized filter elements having an effective filtration size of 0.75 micron once the filter begins to load with solids. The filter cartridge is changed out when the vendor established differential pressure limit is reached or when radiological conditions could impact handling and disposal of the removed cannister, whichever occurs first.

Following mechanical filtration, water is routed to a mixed bed resin demineralizer (Mixed Bed Resin / Charcoal [Exhibit 2C-2 Code 2-J/2-A]) for radiological and chemical (including organic) contaminant removal. The demineralizer has a rated flow of 100 gpm and is loaded with 20 cubic feet (cu ft) of mixed bed resin (60 / 40 anion / cation mix) and 10 cu ft of granular activated charcoal. Demineralization effectiveness is monitored by sampling effluent for silica. The presence of detectable levels of silica is a precursor to degraded effectiveness necessitating changeout of resin / charcoal mix.

Spent treatment media from both units will be shipped off-site for disposal at an appropriately licensed facility. Concentrated liquid (or semi-liquid) waste from the three onsite water volumes that is not acceptable for discharge because of radiological concern is expected to be shipped off-site for disposal at an appropriately licensed facility as well.

2. Less than 20,000 gallons of the demineralized effluent will be collected in an onsite Treated Water Storage Tank (\*). Once established as radiologically acceptable for discharge, the maximum discharge flow rate will be determined and credited dilution of up to 5 Salt Service Water Pumps, rated for 3,000 gpm each, will be established. This dilution flow enters the facility discharge canal through the Salt Service Water Discharge Header piping at the head of the canal. The Outfall #015 discharge will then commence not to exceed the flow rate limit established based on radiological considerations. The maximum capacity of the radwaste discharge flow based on pump performance is limited to approximately 150 gpm. Outfall #015 discharge point is in the southeast corner of the discharge canal.

Treated Water and Intake Volumes Chemical Characterization Summary

Analytical sampling was performed in accordance with Form 2C instructions and at direction from the permitting agencies for source water obtained from the Torus and treated with the system described above. A sample of Cape Cod Bay seawater also was collected from the Intake structure and analyzed for the same pollutants and water quality characteristics as the treated water sample.

The quality of the water presently stored in the Torus generally represents the volume with the highest concentrations of pollutants (See Table 3.1A). Water from the Torus was processed through the treatment system and discharged into a treated water tank. Sample TWT A was collected from the treated water tank and represents the performance of the treatment system in reducing the pollutant concentrations in water drawn from the volume (Torus) with highest pollutant concentrations. The

three water volumes will be combined in the Torus prior to commencing discharge. The blended water quality will be generally better than the water used to generate the treated water volume analytical results presented in this Statement of Fact and the NPDES modification application. Thus, the analytical results for the treated water represent a conservative characterization of the anticipated water quality prior to discharge.

A summary of the analytical results for the Treated Water and Intake samples are provided in Form 3510-2C, Tables A, B and C, and in Table 3.1B, below. Laboratory reports are provided in Attachment 3.1C.

Total beta radioactivity is noted as "Believed Present" in Form 3510-2C, Table C, but analytical results are not provided because radiologic discharges for Pilgrim Nuclear Power Station are regulated by the NRC.

### Notes:

1. \* Denotes compliance sampling location at the Treated Water Storage Tank

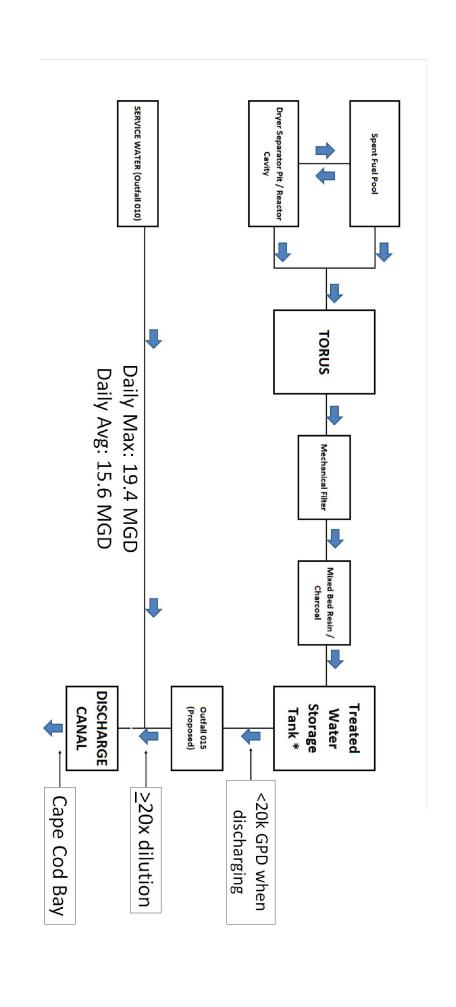


Table 3.1B Analytical Results for Source Water Volumes

Parameter	CAS # Units Treated Water Tank						Intake			
i di diffetei	CA3 π	UTILS	Result DL RL			RL	Result DL RL			
	(	Conventiona	al and Non-	Conven	tional Pollutants	(Table A)			I	<u>l</u>
BOD		MG/L	ND	dUH	1.00	2.00	ND	dU	10.0	20.0
COD		MG/L	18.1	J	8.95	20.0	531		44.8	100
Total Organic Carbon		MG/L	ND	U	0.330	1.00	0.509	J	0.330	1.00
Total Suspended Solids		MG/L	1.00	J	0.570	2.50	4.10		0.570	2.50
Nitrogen, Ammonia	7664-41-7	MG/L	ND ( 07	U	0.0170	0.0500	0.196		0.0170	0.0500
pH S.U. 6.87 H 0.0100 0.100 8.07 H 0.0100 0.100  Toxic Metals, Cyanide, and Total Phenols (Table B -Section 1)										
Antimony	7440-36-0	UG/L	ND	U	1.00	3.00	ND	U	5.00	15.0
Arsenic	7440-38-2	UG/L	ND	U	2.00	5.00	ND	U	40.0	100
Beryllium	7440-41-7	UG/L	ND	U	0.200	0.500	ND	U	1.00	2.50
Boron	7440-42-8	UG/L	36.7		5.20	15.0	4290		260	750
Cadmium	7440-43-9	UG/L	ND	U	0.300	1.00	ND	U	1.50	5.00
Chromium	7440-47-3	UG/L	ND	U	3.00	10.0	ND	U	15.0	50.0
Copper	7440-50-8	UG/L	1.39	J	0.300	2.00	1.69	J	1.50	10.0
Lead	7439-92-1	UG/L	0.660	J	0.500	2.00	ND	U	2.50	10.0
Mercury	7439-97-6	UG/L	ND	U	0.0670	0.200	ND	UHh	0.0670	0.200
Nickel Solonium	7440-02-0	UG/L	2.02	11	0.600	2.00	ND	U	3.00	10.0
Selenium Silver	7782-49-2 7440-22-4	UG/L UG/L	ND ND	U	1.50 0.300	5.00 1.00	ND ND	U	30.0 1.50	100 5.00
Thallium	7440-22-4	UG/L	ND ND	U	0.600	2.00	ND ND	U	3.00	10.0
Zinc	7440-66-6	UG/L	36.1		3.30	20.0	ND	U	66.0	400
Cyanide, Total	57-12-5	UG/L	ND	U	1.67	5.00	ND	U	1.67	5.00
Total Phenol		UG/L	ND	U	1.67	5.00	4.04	J	1.67	10.0
Table B Section 2 - Organic Toxic Pollutants (GC/MS Fraction - Volatile Compounds)										
Acrolein	107-02-8	UG/L	ND	HU	1.67	5.00	ND	U	1.67	5.00
Acrylonitrile	107-13-1	UG/L	ND	HU	1.67	5.00	ND	U	1.67	5.00
Benzene	71-43-2	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00
Bromoform Coulous total children	75-25-2	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00
Carbon tetrachloride Chlorobenzene	56-23-5 108-90-7	UG/L UG/L	ND ND	U	0.333 0.333	1.00 1.00	ND ND	U	0.333 0.333	1.00 1.00
Chlorodibromomethane\*a	124-48-1	UG/L	ND ND	U	0.333	1.00	ND ND	U	0.333	1.00
Chloroethane	75-00-3	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00
2-Chloroethylvinyl ether	110-75-8	UG/L	ND	U	1.67	5.00	ND	U	1.67	5.00
Chloroform	67-66-3	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00
Dichlorobromomethane\b	75-27-4	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00
1,1-Dichloroethane	75-34-3	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00
1,2-Dichloroethane	107-06-2	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00
1,1-Dichloroethylene	75-35-4	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00
1,2-Dichloropropane	78-87-5	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00
1,3-Dichloropropylene Ethylbenzene	542-75-6 100-41-4	UG/L UG/L	ND ND	U	0.500 0.333	2.00 1.00	ND ND	U	0.500 0.333	2.00 1.00
Methyl Bromide \(\cappa \)	74-83-9	UG/L	ND ND	U	0.337	1.00	ND ND	U	0.337	1.00
Methyl Chloride <sup>\d</sup>	74-83-3	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00
Methylene chloride\*	75-09-2	UG/L	0.580	J	0.500	2.00	0.880	J	0.500	2.00
1,1,2,2-Tetrachloroethane	79-34-5	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00
Tetrachloroethylene	127-18-4	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00
Toluene	108-88-3	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00
trans-1,2-Dichloroethylene	156-60-5	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00
1,1,1-Trichloroethane	71-55-6	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00
1,1,2-Trichloroethane	79-00-5	UG/L	ND	U	0.333	1.00	ND	U	0.333	1.00
Trichloroethylene	79-01-6 75-01-4	UG/L UG/L	ND ND	U	0.333 0.333	1.00 1.00	ND ND	U	0.333	1.00
Vinyl chloride 75-01-4 UG/L ND U 0.333 1.00 ND U 0.333 1.00  Table B-Section 3 - Organic Toxic Pollutants (GS/MS Fraction - Acid Compounds)										
2-Chlorophenol	95-57-8	UG/L	ND	U	2.87	9.56	ND	U	2.78	9.26
2,4-Dichlorophenol	120-83-2	UG/L	ND	U	2.87	9.56	ND	U	2.78	9.26
2,4-Dimethylphenol	105-67-9	UG/L	ND	U	2.87	9.56	ND	U	4.63	18.5
4,6-dinitro-o-cresol/e	534-52-1	UG/L	ND	U	2.87	9.56	ND	U	2.78	9.26
2,4-Dinitrophenol	51-28-5	UG/L	ND	U	4.78	19.1	ND	U	2.78	9.26
2-Nitrophenol	88-75-5	UG/L	ND	U	2.87	9.56	ND	U	2.78	9.26
4-Nitrophenol	100-02-7	UG/L	ND	U	2.87	9.56	ND	U	2.78	9.26
p-chloro-m-cresol\f	59-50-7	UG/L	ND	U	2.87	9.56	ND	U	2.78	9.26
Pentachlorophenol Phenol	87-86-5 108-95-2	UG/L UG/L	ND	U	2.87 2.87	9.56 9.56	ND ND	U	2.78 2.78	9.26 9.26
2,4,6-Trichlorophenol	88-06-2	UG/L UG/L	ND ND	U	2.87	9.56	ND ND	U	2.78	9.26
د, <del>-</del> -,0- וווטווטוטµוופווטו	00-00-2	UU/L	טאר	<u> </u>	2.07	9.30	אט	U	2.70	9.20

# Table 3.1B Analytical Results for Source Water Volumes

	Table B Sect	ion 5 - Orga	anic Toxic I	Pollutan	ts (GC/MS Fractio	n - Pesticide	es/PCBs)			
Aroclor-1016	12674-11-2	UG/L	ND	U	0.0317	0.0952	ND	hU	0.0309	0.000928
Aroclor-1221	11104-28-2	UG/L	ND	U	0.0317	0.0952	ND	hU	0.0309	0.000928
Aroclor-1232	11141-16-5	UG/L	ND	U	0.0317	0.0952	ND	hU	0.0309	0.000928
Aroclor-1242	53469-21-9	UG/L	ND	U	0.0317	0.0952	ND	hU	0.0309	0.000928
Aroclor-1248	12672-29-6	UG/L	ND	U	0.0317	0.0952	0.0455	hJ	0.0309	0.000928
Aroclor-1254	11097-69-1	UG/L	ND	U	0.0317	0.0952	ND	hU	0.0309	0.000928
Aroclor-1260	11096-82-5	UG/L	ND ND	U	0.0317	0.0952	ND	hU	0.0309	0.000928
Aroclor-Total	PCBTOT	UG/L	ND ND	U	0.0317	0.0952	0.0455	hJ	0.0309	0.000928
	able C - Certain Co	•				0.0932	0.0433	IIJ	0.0309	0.000328
Chlorine, Total Residual	able c - certain c	MG/L	0.0449		0.0170	0.0500	ND	HU	0.0170	0.0500
Oil & Grease		MG/L	1.47	I	1.37	4.90	ND	U	1.11	3.97
Oli & Grease		IVIG/L		PFAS/PF		4.90	ND	- 0	1.11	3.97
Perfluorododecanoic acid			Ī	PFA3/Pf	-UA I				1	
(PFDOA)	207 55 1	NC/I	ND	U	0.572	1 72	ND	U	0.530	1.61
, ,	307-55-1	NG/L	ND	U	0.572	1.73	ND	U	0.530	1.61
Perfluorooctane sulfonic acid (PFOS)	1762 22 1	NG/I	ND	11	0.603	1 72	ND	11	0.642	1 61
Perfluoroheptanoic acid	1763-23-1	NG/L	ND	U	0.693	1.73	ND	U	0.642	1.61
(PFHpA)	375-85-9	NC/I	ND		0.572	1.73	ND	U	0.530	1.61
(FFIDA)	3/3-83-9	NG/L	ND	U	0.572	1./3	ND	- 0	0.530	1.01
Perfluorohexanoic acid (PFHxA)	307-24-4	NG/L	ND	U	0.693	1.73	ND	U	0.642	1.61
Perfluorobutane sulfonic acid	307-24-4	NO/L	ND		0.055	1.75	ND		0.042	1.01
(PFBS)	375-73-5	NG/L	ND	U	0.572	1.54	ND	U	0.530	1.43
(1123)	373-73-3	NO/L	ND		0.372	1.54	ND	-	0.550	1.45
Perfluorooctanoic acid (PFOA)	335-67-1	NG/L	ND	U	0.693	1.73	ND	U	0.642	1.61
Hexafluoropropyleneoxide	333 07 1	110/2	115		0.055	1.73	110		0.042	1.01
dimer acid (HFPO-DA)(Gen-X)	13252-13-6	NG/L	ND	U	0.572	1.73	ND	U	0.530	1.61
Perfluorotridecanoic acid	13232 13 0	110/2	110		0.372	1.73	ND		0.330	1.01
(PFTrDA)	72629-94-8	NG/L	ND	U	0.572	1.73	ND	U	0.530	1.61
N-Methylperfluorooctane	7 2 0 2 0 1 0	, _			0.072	2.70			0.000	
sulfonamido acetic acid										
(NMeFOSAA)	2355-31-9	NG/L	ND	U	1.14	3.47	ND	U	1.06	3.21
N-Ethylperfluorooctane										
sulfonamido acetic acid										
(NEtFOSAA)	2991-50-6	NG/L	ND	U	1.14	3.47	ND	U	1.06	3.21
Perfluorotetradecanoic acid										
(PFTDA)	376-06-7	NG/L	ND	U	0.693	1.73	ND	U	0.642	1.61
Perfluoroundecanoic acid										
(PFUnDA)	2058-94-8	NG/L	ND	U	0.572	1.73	ND	U	0.530	1.61
9-Chlorohexadecafluoro-3-										
oxanonane-1-sulfonic acid (9-Cl-										
PF3ONS)	756426-58-1	NG/L	ND	U	0.572	1.62	ND	U	0.530	1.50
Perfluorononanoic acid (PFNA)	375-95-1	NG/L	ND	U	0.572	1.73	ND	U	0.530	1.61
11-Chloroeicosafluoro-3-										
oxaundecane-1-sulfonic acid (11-										
Cl-PF3OUdS)	763051-92-9	NG/L	ND	U	0.572	1.63	ND	U	0.530	1.51
Perfluorohexane sulfonic acid										
(PFHxS)	355-46-4	NG/L	ND	U	0.572	1.58	ND	U	0.530	1.46
4,8-Dioxa-3H-perfluorononanoic										
acid (DONA)	919005-14-4	NG/L	ND	U	0.572	1.73	ND	U	0.530	1.61
Perfluorodecanoic acid (PFDA)	335-76-2	NG/L	ND	U	0.676	1.73	ND	U	0.626	1.61

Bolded result indicates pollutant was at or detected above the DL

DL = Method Detection Limit

RL = Reporting Limit

UG/L = micrograms per liter

MG/L - milligrams per liter

NG/L = nanograms per liter

U = Analyte was analyzed for, but not detected above the MDL

J = Value is estimated

B = The target analyte was detected in the associated blank

H = Analytical holding time was exceeded

d = 5-day BOD--The 2:1 depletion requirement was not met for this sample

h = Preparation or preservation holding time was exceeded

\a = Dibromochloromethane

\b = Bromodichloromethane

 $\c =$  Bromomethane

 $\d = Chloromethane$ 

e = 2-Methyl-4,6-dinitrophenol

f = 4-Chloro-3-methylphenol

## Table 3.1B Analytical Results for Source Water Volumes

\\* Methylene chloride is a common laboratory contaminant and is likely not present in the water volumes tested. It was detected in the lab blank for the Torus sample, and detected in all of the analyzed samples at similar trace levels, including in the Intake (seawater) sample. These facts, comsidered collectively, indicate that the methylene chloride detections are not present in any of

FORM 3510-2C - ATTACHMENT 3.1C

Attachment 3.1C – Laboratory Reports

FORM 3510-2C - ATTACHMENT 3.1C

3.1C-1 – Source Volume Laboratory Reports



a member of The GEL Group INC







PO Box 30712 Charleston, SC 29417 2040 Savage Road Charleston, SC 29407 P 843.556.8171 F 843.766.1178

gel.com

March 14, 2023

Laura Hageman HDI, Inc. 1 Holtec Blvd. Camden, New Jersey 08104

Re: Pilgrim NPDES Permit Modification

Work Order: 612631

Dear Laura Hageman:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on March 01, 2023. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Chain of Custody form did not contain a relinquished signature. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4504.

Sincerely,

Anna Johnson fo Erin Trent Project Manager

Purchase Order: 98000918

Enclosures



2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

# Certificate of Analysis Report for

CDEC001 Holtec Decommissioning International, LLC Client SDG: 612631 GEL Work Order: 612631

### The Qualifiers in this report are defined as follows:

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- H Analytical holding time was exceeded
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- d 5-day BOD--The 2:1 depletion requirement was not met for this sample

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Erin Trent.

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Report Date: March 8, 2023

CDEC00107 CDEC001

Proiect: Client ID:

Contact: Laura Hageman

Project: **Pilgrim NPDES Permit Modification** 

> Client Sample ID: Sample ID: Matrix: Cavity 612631001 Water

Collect Date: 28-FEB-23 11:00 Receive Date: 01-MAR-23 Collector:

Client

Domeston.	Olifi	Dan-14		DI	T7 *.	DE	DE 4 1		m·	D ( 1 3 6 1
Parameter	Qualifier	Result	DL	RL	Units	PF	DF Analys	t Date	Time	Batch Mtd.
Micro-biology										
SM 5210B BOD, 5DAY "A	s Received"									
BOD, 5 DAY	dU	ND	10.0	20.0	mg/L		JW2	03/01/2	23 1647	23921031
Spectrometric Analysis										
SM4500CL_G Total Resid	ual Chlorine '	"As Received"								
Chlorine, Residual	JH	0.0183	0.0170	0.0500	mg/L		1 HH2	03/02/	23 1013	23922762
Titration and Ion Analysis										
EPA 150.1 pH "As Receiv	red"									
pH at Temp 12.4C	Н	7.07	0.0100	0.100	SU		1 HH2	03/03/	23 0806	23929513
Volatile Organics										
EPA 624.1 Volatiles Metho	od List "As Re	ceived"								
1,1,1-Trichloroethane	U	ND	0.333	1.00	ug/L		1 JEB	03/02/	23 1928	23926034
71-55-6										
1,1,2,2-Tetrachloroethane	U	ND	0.333	1.00	ug/L		1			
79-34-5 1,1,2-Trichloroethane	U	ND	0.333	1.00	ug/L		1			
79-00-5	U	ND	0.555	1.00	ug/L		1			
1,1-Dichloroethane	U	ND	0.333	1.00	ug/L		1			
75-34-3										
1,1-Dichloroethylene 75-35-4	U	ND	0.333	1.00	ug/L		1			
1,2-Dichloroethane	U	ND	0.333	1.00	ug/L		1			
107-06-2					_					
1,2-Dichloropropane	U	ND	0.333	1.00	ug/L		1			
78-87-5 1,3-Dichloropropylene	U	ND	0.500	2.00	ug/L		1			
542-75-6	U	ND	0.500	2.00	ug/L		1			
2-Chloroethylvinyl ether	U	ND	1.67	5.00	ug/L		1			
110-75-8										
Acrolein	U	ND	1.67	5.00	ug/L		1			
107-02-8		ND	1 7	5.00	/T		1			
Acrylonitrile 107-13-1	U	ND	1.67	5.00	ug/L		1			
107-15-1										

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## **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

Report Date: March 8, 2023

	Client Sample Sample ID:		avity 12631001		I (	Project: Client ID:	CDEC00107 CDEC001		
Parameter	Qualifier	Result	DL	RL	Units	PF	<b>DF</b> Analyst Date	Time	Batch Mtd.
Volatile Organics									
EPA 624.1 Volatiles Met	thod List "As Red	ceived"							
Benzene 71-43-2	U	ND	0.333	1.00	ug/L		1		
Bromodichloromethane 75-27-4	U	ND	0.333	1.00	ug/L		1		
Bromoform 75-25-2	U	ND	0.333	1.00	ug/L		1		
Bromomethane 74-83-9	U	ND	0.337	1.00	ug/L		1		
Carbon tetrachloride 56-23-5	U	ND	0.333	1.00	ug/L		1		
Chlorobenzene 108-90-7	U	ND	0.333	1.00	ug/L		1		
Chloroethane 75-00-3	U	ND	0.333	1.00	ug/L		1		
Chloroform 67-66-3	U	ND	0.333	1.00	ug/L		1		
Chloromethane 74-87-3	U	ND	0.333	1.00	ug/L		1		
Dibromochloromethane 124-48-1	U	ND	0.333	1.00	ug/L		1		
Ethylbenzene 100-41-4	U	ND	0.333	1.00	ug/L		1		
Methylene chloride 75-09-2	J	0.740	0.500	2.00	ug/L		1		
Tetrachloroethylene 127-18-4	U	ND	0.333	1.00	ug/L		1		
Toluene 108-88-3	U	ND	0.333	1.00	ug/L		1		
Trichloroethylene 79-01-6	U	ND	0.333	1.00	ug/L		1		
Vinyl chloride 75-01-4	U	ND	0.333	1.00	ug/L		1		
trans-1,2-Dichloroethyle 156-60-5	ne U	ND	0.333	1.00	ug/L		1		

The following Analytical Methods were performed:

Method Description Analyst Comments

1 SM 5210B 2 SM 4500-Cl G

Page 4 of 27 SDG: 612631

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## **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Report Date: March 8, 2023

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

	Client Sample II Sample ID:	O: Cavity 612631001			Project: Client ID:	CDEC00107 CDEC001		
Parameter	Qualifier R	Result	DL	RL	Units PF	DF Analyst Date	Time	Batch Mtd.
3	EPA 150.1							
4	EPA 624.1							

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Bromofluorobenzene	EPA 624.1 Volatiles Method List "As Received"	48.5 ug/L	50.0	97	(72%-125%)
1,2-Dichloroethane-d4	EPA 624.1 Volatiles Method List "As Received"	52.3 ug/L	50.0	105	(73%-129%)
Toluene-d8	EPA 624.1 Volatiles Method List "As Received"	42.7 ug/L	50.0	85	(75%-123%)

Page 5 of 27 SDG: 612631

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## **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Report Date: March 8, 2023

Contact: Laura Hageman

**Project:** Pilgrim NPDES Permit Modification

Client Sample ID: Spent Fuel Pool Proiect: CDEC00107
Sample ID: 612631002 Client ID: CDEC001
Matrix: Water

Collect Date: 28-FEB-23 11:10

Receive Date: 01-MAR-23
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF	DF Analys	st Date	Time	Batch Mtd.
Micro-biology										
SM 5210B BOD, 5DAY "A.	s Received"									
BOD, 5 DAY	dU	ND	10.0	20.0	mg/L		JW2	03/01/	23 1647	23921031
Spectrometric Analysis										
SM4500CL_G Total Residu	ual Chlorine "	'As Received"								
Chlorine, Residual	НЈ	0.0220	0.0170	0.0500	mg/L		1 HH2	03/02/	23 1014	23922762
Titration and Ion Analysis										
EPA 150.1 pH "As Receive	ed"									
pH at Temp 14.1C	Н	7.27	0.0100	0.100	SU		1 HH2	03/03/	23 0808	23929513
Volatile Organics										
EPA 624.1 Volatiles Metho	od List "As Red	ceived"								
1,1,1-Trichloroethane	U	ND	0.333	1.00	ug/L		1 JEB	03/02/	23 1951	23926034
71-55-6										
1,1,2,2-Tetrachloroethane 79-34-5	U	ND	0.333	1.00	ug/L		1			
1,1,2-Trichloroethane	$\mathbf{U}$	ND	0.333	1.00	ug/L		1			
79-00-5					_					
1,1-Dichloroethane	U	ND	0.333	1.00	ug/L		1			
75-34-3 1,1-Dichloroethylene	<b>T</b> T	ND	0.333	1.00	ug/L		1			
75-35-4	U	ND	0.555	1.00	ug/L		1			
1,2-Dichloroethane	U	ND	0.333	1.00	ug/L		1			
107-06-2	C									
1,2-Dichloropropane	U	ND	0.333	1.00	ug/L		1			
78-87-5		N.D.	0.500	2.00	77					
1,3-Dichloropropylene	U	ND	0.500	2.00	ug/L		1			
542-75-6 2-Chloroethylvinyl ether	<b>T</b> T	ND	1.67	5.00	ug/L		1			
110-75-8	U	ND	1.07	3.00	ug/L		1			
Acrolein	U	ND	1.67	5.00	ug/L		1			
107-02-8	C				J					
Acrylonitrile	U	ND	1.67	5.00	ug/L		1			
107-13-1										

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## **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

Report Date: March 8, 2023

	Client Sample Sample ID:	e ID:	Spent Fuel Pool 612631002			Project: Client ID:	CDEC00107 CDEC001		
Parameter	Qualifier	Result	DL	RL	Units	PF	<b>DF</b> Analyst Date	Time	Batch Mtd.
<b>Volatile Organics</b>									
EPA 624.1 Volatiles Met	thod List "As Red	ceived"							
Benzene 71-43-2	U	ND	0.333	1.00	ug/L		1		
Bromodichloromethane 75-27-4	U	ND	0.333	1.00	ug/L		1		
Bromoform 75-25-2	U	ND	0.333	1.00	ug/L		1		
Bromomethane 74-83-9	U	ND	0.337	1.00	ug/L		1		
Carbon tetrachloride 56-23-5	U	ND	0.333	1.00	ug/L		1		
Chlorobenzene 108-90-7	U	ND	0.333	1.00	ug/L		1		
Chloroethane 75-00-3	U	ND	0.333	1.00	ug/L		1		
Chloroform 67-66-3	U	ND	0.333	1.00	ug/L		1		
Chloromethane 74-87-3	U	ND	0.333	1.00	ug/L		1		
Dibromochloromethane 124-48-1	U	ND	0.333	1.00	ug/L		1		
Ethylbenzene 100-41-4	U	ND	0.333	1.00	ug/L		1		
Methylene chloride 75-09-2	J	0.750	0.500	2.00	ug/L		1		
Tetrachloroethylene 127-18-4	U	ND	0.333	1.00	ug/L		1		
Toluene 108-88-3	U	ND	0.333	1.00	ug/L		1		
Trichloroethylene 79-01-6	U	ND	0.333	1.00	ug/L		1		
Vinyl chloride 75-01-4	U	ND	0.333	1.00	ug/L		1		
trans-1,2-Dichloroethyle 156-60-5	ne U	ND	0.333	1.00	ug/L		1		

The following Analytical Methods were performed:

Method Description Analyst Comments

1 SM 5210B 2 SM 4500-Cl G

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## **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Report Date: March 8, 2023

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

	Client Sample Sample ID:	e ID:	Spent Fuel Pool 612631002			CDEC00107 CDEC001				
Parameter	Qualifier	Result		DL	RL	Units	PF	DF Analyst Da	ite Time	Batch Mtd.
3	EPA 150.1									
4	EPA 624.1									
Surrogato/Tracar i	rocovery Test				Dogult	1	Naminal	Recovery%	Acceptable	Limits

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Bromofluorobenzene	EPA 624.1 Volatiles Method List "As Received"	47.2 ug/L	50.0	94	(72%-125%)
1,2-Dichloroethane-d4	EPA 624.1 Volatiles Method List "As Received"	51.4 ug/L	50.0	103	(73%-129%)
Toluene-d8	EPA 624.1 Volatiles Method List "As Received"	42.2 ug/L	50.0	84	(75%-123%)

Page 8 of 27 SDG: 612631

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QC Summary

Report Date: March 8, 2023

Page 1 of 12

HDI, Inc. 1 Holtec Blvd.

Camden, New Jersey Laura Hageman

Workorder:

**Contact:** 

612631

Parmname		NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Micro-biology Batch 2392103											
QC1205334491 612667001 BOD, 5 DAY	DUP		17.1		17.6	mg/L	3.28 ^		(+/-8.00)	JW2	03/01/23 16:47
QC1205334489 LCS BOD, 5 DAY		198			201	mg/L		102	(85%-115%)		03/01/23 16:47
QC1205334488 MB BOD, 5 DAY					0.0350	mg/L					03/01/23 16:47
QC1205334490 SEED BOD, 5 DAY					0.626	mg/L					03/01/23 16:47
<b>Spectrometric Analysis</b> Batch 2392276											
QC1205334708 612474001 Chlorine, Residual	DUP	HU	ND	HU	ND	mg/L	N/A			HH2	03/02/23 10:11
QC1205334707 LCS Chlorine, Residual		0.500			0.529	mg/L		106	(74%-112%)		03/02/23 10:09
QC1205334706 MB Chlorine, Residual				U	ND	mg/L					03/02/23 10:08
QC1205334709 612474001 Chlorine, Residual	PS	0.500 HU	ND	Н	0.526	mg/L		104	(67%-128%)		03/02/23 10:12
<b>Titration and Ion Analysis</b> Batch 2392951											
QC1205335750 612535001 pH	DUP	Н	6.06	Н	6.05	SU	0.165		(0%-5%)	HH2	03/03/23 08:05

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## QC Summary

Workorder: 612631 Page 2 of 12 Sample Qual Parmname **NOM** QC Units RPD/D% REC% Range Anlst Date Time **Titration and Ion Analysis** 2392951 Batch QC1205335748 LCS 7.03 SU7.00 100 (99%-101%) HH2 03/03/23 08:01 pН Volatile-GC/MS Batch 2392603 QC1205335232 LCS 1,1,1-Trichloroethane 50.0 54.7 ug/L 109 (75%-136%) JEB 03/02/23 12:42 1,1,2,2-Tetrachloroethane 50.0 44.2 ug/L 88 (68%-126%) 1,1,2-Trichloroethane 50.0 43.7 ug/L 87 (73%-120%) 1,1-Dichloroethane 50.0 47.1 ug/L 94 (76%-123%) 1,1-Dichloroethylene 50.0 50.2 100 (67%-133%) ug/L 53.7 50.0 107 1,2-Dichloroethane ug/L (68%-124%) 1,2-Dichloropropane 50.0 44.8 ug/L (74%-121%) 100 91.5 1,3-Dichloropropylene ug/L 92 (75%-129%) 2-Chloroethylvinyl ether 250 220 ug/L 88 (62%-126%) 50.0 Benzene 49.4 99 (74%-118%) ug/L Bromodichloromethane 50.0 53.0 ug/L 106 (73% - 133%)Bromoform 50.0 47.0 ug/L 94 (69%-130%) Bromomethane 50.0 48.6 ug/L 97 (68%-140%)

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## QC Summary

Workorder: 612631 Page 3 of 12 Parmname **NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2392603 Batch Carbon tetrachloride 50.0 54.6 ug/L 109 (73%-140%) JEB 03/02/23 12:42 Chlorobenzene 50.0 44.5 89 (76%-120%) ug/L Chloroethane 50.0 40.5 ug/L 81 (70%-131%) 50.0 50.9 102 Chloroform ug/L (77%-126%) Chloromethane 50.0 36.5 ug/L 73 (60%-139%) 50.0 47.2 Dibromochloromethane ug/L 94 (75%-133%) 50.0 44.9 Ethylbenzene ug/L 90 (75%-121%) Methylene chloride 50.0 42.4 85 (69%-120%) ug/L Tetrachloroethylene 46.9 ug/L 50.0 94 (74%-124%) Toluene 50.0 44.1 ug/L 88 (74% - 118%)Trichloroethylene 50.0 50.1 100 (76%-124%) ug/L Vinyl chloride 50.0 42.0 ug/L 84 (67%-134%) 47.2 trans-1,2-Dichloroethylene 50.0 ug/L 94 (71%-127%) \*\*1,2-Dichloroethane-d4 50.0 51.5 ug/L 103 (73% - 129%)\*\*Bromofluorobenzene 50.0 48.9 ug/L 98 (72%-125%)

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## QC Summary

Workorder: 612631 Page 4 of 12 QC Parmname **NOM** Sample Qual Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2392603 Batch \*\*Toluene-d8 50.0 42.3 ug/L 85 (75%-123%) JEB 03/02/23 12:42 QC1205335233 LCS 250 03/02/23 14:12 Acrolein 300 ug/L 120 (63%-141%) Acrylonitrile 250 304 ug/L 121 (67%-128%) \*\*1,2-Dichloroethane-d4 50.0 52.7 ug/L 105 (73%-129%) \*\*Bromofluorobenzene 50.0 47.3 ug/L 95 (72%-125%) \*\*Toluene-d8 50.0 43.7 ug/L 87 (75%-123%) QC1205335234 MB U 03/02/23 14:37 1,1,1-Trichloroethane ND ug/L 1,1,2,2-Tetrachloroethane U ND ug/L U ND 1,1,2-Trichloroethane ug/L U ND 1,1-Dichloroethane ug/L U ND 1,1-Dichloroethylene ug/L U ND 1,2-Dichloroethane ug/L 1,2-Dichloropropane U ND ug/L U ND 1,3-Dichloropropylene ug/L

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## QC Summary

Page 5 of 12 NOM QC RPD/D% REC% Parmname Sample Qual Units Range Anlst Date Time Volatile-GC/MS 2392603 Batch U 2-Chloroethylvinyl ether ND ug/L JEB 03/02/23 14:37 U Acrolein ND ug/L U Acrylonitrile ND ug/L U ND Benzene ug/L U Bromodichloromethane ND ug/L U ND Bromoform ug/L U Bromomethane ND ug/L Carbon tetrachloride U ND ug/L U ND Chlorobenzene ug/L Chloroethane ND ug/L U ND Chloroform ug/L Chloromethane U ND ug/L U ND Dibromochloromethane ug/L Ethylbenzene U ND ug/L U ND ug/L Methylene chloride

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Workorder:

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## QC Summary

Workorder: 612631 Page 6 of 12 Parmname **NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2392603 Batch Tetrachloroethylene U ND ug/L JEB 03/02/23 14:37 Toluene U ND ug/L Trichloroethylene U ND ug/L U ND Vinyl chloride ug/L trans-1,2-Dichloroethylene U ND ug/L 47.5 \*\*1,2-Dichloroethane-d4 50.0 ug/L (73%-129%) 95 50.0 \*\*Bromofluorobenzene 49.0 ug/L 98 (72%-125%) \*\*Toluene-d8 50.0 43.8 ug/L 88 (75%-123%) QC1205335235 612516007 PS ND 03/02/23 20:15 1,1,1-Trichloroethane 50.0 U 55.4 ug/L 111 (67%-135%) 1,1,2,2-Tetrachloroethane 50.0 U ND 40.5 81 (58%-138%) ug/L 1,1,2-Trichloroethane 50.0 U ND 43.2 ug/L 86 (70%-126%) 1,1-Dichloroethane ND 47.9 50.0 U ug/L (70%-126%) 96 1,1-Dichloroethylene 50.0 U ND 49.5 99 (61%-137%) ug/L U ND 54.4 50.0 109 1,2-Dichloroethane ug/L (64%-129%) 1,2-Dichloropropane 50.0 U ND 44.7 ug/L (68%-127%)

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## QC Summary

Workorder: 612631 Page 7 of 12 Sample Qual Parmname **NOM** QC Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2392603 Batch 1,3-Dichloropropylene 100 88.0 ug/L 88 (74%-123%) JEB 03/02/23 20:15 ND 2-Chloroethylvinyl ether 250 U 242 97 (64%-123%) ug/L Benzene 50.0 U ND 48.7 ug/L 97 (65%-122%) 50.0 U ND 53.3 107 Bromodichloromethane ug/L (68%-137%) Bromoform 50.0 U ND 44.6 ug/L 89 (62%-138%) 50.0 U ND 58.0 Bromomethane ug/L 116 (61%-142%) 50.0 U ND 55.2 Carbon tetrachloride ug/L 110 (63%-144%) ND Chlorobenzene 50.0 U 44.1 88 ug/L (63%-123%) ND 50.0 U 48.8 Chloroethane ug/L 98 (64%-134%) Chloroform 50.0 U ND 51.8 104 ug/L (69%-133%) ND Chloromethane 50.0 U 43.6 87 (45%-142%) ug/L Dibromochloromethane 50.0 U ND 46.7 93 (68%-142%) ug/L 50.0 U ND 45.1 Ethylbenzene ug/L 90 (65%-124%) Methylene chloride 50.0 0.810 42.7 84 (62% - 125%)ug/L 50.0 U ND 46.2 Tetrachloroethylene ug/L 92 (64%-129%)

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## QC Summary

Page 8 of 12 Sample Qual Parmname **NOM** QC Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2392603 Batch Toluene 50.0 U ND 44.0 ug/L 88 (63%-121%) JEB 03/02/23 20:15 Trichloroethylene 50.0 U ND 51.4 103 (66%-126%) ug/L (58%-139%) Vinyl chloride 50.0 U ND 50.1 ug/L 100 50.0 U ND 47.7 trans-1,2-Dichloroethylene ug/L 95 (65%-130%) \*\*1,2-Dichloroethane-d4 50.0 51.6 50.9 ug/L 102 (73%-129%) \*\*Bromofluorobenzene 47.2 47.6 50.0 ug/L 95 (72% - 125%)\*\*Toluene-d8 50.0 41.5 41.3 ug/L 83 (75% - 123%)QC1205335236 612516007 PS ND 226 Acrolein 250 U ug/L 91 (51%-142%) 03/02/23 21:03 ND 302 Acrylonitrile 250 U 121 (60%-135%) ug/L \*\*1,2-Dichloroethane-d4 50.0 51.6 50.2 100 ug/L (73%-129%) 47.2 47.3 \*\*Bromofluorobenzene 50.0 ug/L 95 (72%-125%) \*\*Toluene-d8 50.0 41.5 40.9 ug/L (75%-123%) 82 QC1205335237 612516007 PSD 50.0 U ND 1,1,1-Trichloroethane 56.0 1 112 (0% - 20%)03/02/23 20:39 ug/L 50.0 ND 41.3 2 83 1,1,2,2-Tetrachloroethane ug/L (0%-20%)1,1,2-Trichloroethane 50.0 U ND 43.4 0 87 (0%-20%)ug/L

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Workorder:

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## QC Summary

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Parmname	NOM	Sample Qual	QC	Units	RPD/D%	REC%	Range Anlst	Date Time
Volatile-GC/MS Batch 2392603								
1,1-Dichloroethane	50.0 U	ND	48.8	ug/L	2	98	(0%-20%) JEB	03/02/23 20:39
1,1-Dichloroethylene	50.0 U	ND	50.1	ug/L	1	100	(0%-20%)	
1,2-Dichloroethane	50.0 U	ND	55.0	ug/L	1	110	(0%-20%)	
1,2-Dichloropropane	50.0 U	ND	45.6	ug/L	2	91	(0%-20%)	
1,3-Dichloropropylene	100		89.7	ug/L	2	90	(0%-20%)	
2-Chloroethylvinyl ether	250 U	ND	236	ug/L	3	95	(0%-20%)	
Benzene	50.0 U	ND	49.7	ug/L	2	99	(0%-20%)	
Bromodichloromethane	50.0 U	ND	54.3	ug/L	2	109	(0%-20%)	
Bromoform	50.0 U	ND	46.6	ug/L	4	93	(0%-20%)	
Bromomethane	50.0 U	ND	57.3	ug/L	1	115	(0%-20%)	
Carbon tetrachloride	50.0 U	ND	55.8	ug/L	1	112	(0%-20%)	
Chlorobenzene	50.0 U	ND	44.3	ug/L	0	89	(0%-20%)	
Chloroethane	50.0 U	ND	48.2	ug/L	1	96	(0%-20%)	
Chloroform	50.0 U	ND	52.5	ug/L	1	105	(0%-20%)	
Chloromethane	50.0 U	ND	42.7	ug/L	2	85	(0%-20%)	

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## **QC** Summary

612631 Page 10 of 12 **Parmname NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2392603 Batch Dibromochloromethane 50.0 U ND 47.4 ug/L 2 95 (0%-20%)JEB 03/02/23 20:39 Ethylbenzene 50.0 U ND 45.0 0 90 (0%-20%)ug/L Methylene chloride 50.0 J 0.810 43.3 ug/L 1 85 (0%-20%)50.0 U ND (0%-20%)Tetrachloroethylene 46.5 ug/L 1 93 Toluene 50.0 U ND 44.3 ug/L 1 89 (0%-20%)50.0 U ND 52.2 104 (0%-20%)Trichloroethylene ug/L 2 Vinyl chloride 50.0 U ND 49.4 ug/L 99 (0% - 20%)50.0 U ND 48.1 ug/L 1 96 (0%-20%)trans-1,2-Dichloroethylene 51.6 52.3 \*\*1,2-Dichloroethane-d4 50.0 ug/L 105 (73%-129%) 50.0 47.2 49.7 \*\*Bromofluorobenzene ug/L 99 (72% - 125%)50.0 41.5 42.2 (75%-123%) \*\*Toluene-d8 ug/L 84 QC1205335238 612516007 PSD ND 232 2 03/02/23 21:26 Acrolein 250 U ug/L 93 (0%-20%)Acrylonitrile 250 U ND 307 1 123 (0% - 20%)ug/L 51.1 \*\*1,2-Dichloroethane-d4 51.6 102 50.0 ug/L (73%-129%) \*\*Bromofluorobenzene 50.0 47.2 48.7 ug/L (72% - 125%)

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Workorder:

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## **QC** Summary

Workorder: 612631 Page 11 of 12 **Parmname** NOM Sample Qual  $\mathbf{OC}$ Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS Batch 2392603 \*\*Toluene-d8 50.0 41.5 41.5 ug/L (75% - 123%)JEB 03/02/23 21:26

### **Notes:**

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, the difference is >70%.
- C Analyte has been confirmed by GC/MS analysis
- B The target analyte was detected in the associated blank.
- E Concentration of the target analyte exceeds the instrument calibration range
- A The TIC is a suspected aldol-condensation product
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- N Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
- H Analytical holding time was exceeded
- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- h Preparation or preservation holding time was exceeded
- R Sample results are rejected
- Z Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
- d 5-day BOD--The 2:1 depletion requirement was not met for this sample
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
- D Results are reported from a diluted aliquot of the sample
- N/A RPD or %Recovery limits do not apply.
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- JNX Non Calibrated Compound
- UJ Compound cannot be extracted
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- N1 See case narrative
- Y QC Samples were not spiked with this compound

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## **QC** Summary

Workorder: 612631

Parmname

NOM Sample Qual QC Units RPD/D% REC% Range AnIst Date Time

- R Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance
- N Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
- e 5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes
- J See case narrative for an explanation

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

- ^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
- \* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

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# Technical Case Narrative Holtec Decommissioning International, LLC SDG #: 612631

## **GC/MS Volatile**

**Product:** Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer

**Analytical Method:** EPA 624.1

**Analytical Procedure:** GL-OA-E-026 REV# 29

**Analytical Batch:** 2392603

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612631001	Cavity
612631002	Spent Fuel Pool
1205335232	Laboratory Control Sample (LCS)
1205335233	Laboratory Control Sample (LCS)
1205335234	Method Blank (MB)
1205335235	612516007(NonSDG) Post Spike (PS)
1205335236	612516007(NonSDG) Post Spike (PS)
1205335237	612516007(NonSDG) Post Spike Duplicate (PSD)
1205335238	612516007(NonSDG) Post Spike Duplicate (PSD)

The samples in this SDG were analyzed on an "as received" basis.

### **Data Summary:**

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

## **General Chemistry**

**Product:** Biochemical Oxygen Demand

**Analytical Method:** SM 5210B

**Analytical Procedure:** GL-GC-E-045 REV# 28

**Analytical Batch: 2392103** 

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612631001	Cavity
612631002	Spent Fuel Pool
1205334488	Method Blank (MB)
1205334489	Laboratory Control Sample (LCS)
1205334490	BOD Seed (SEED)
1205334491	612667001(NonSDG) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

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### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

### **Quality Control (QC) Information**

### 30% Difference Replicate Statement

Testing replicates for samples 612631001 (Cavity) and 612631002 (Spent Fuel Pool) show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes.

### **Technical Information**

### 2:1 Depletion Requirement

The following samples in this batch did not meet the 2:1 depletion requirement. 612631001 (Cavity) and 612631002 (Spent Fuel Pool).

### **Miscellaneous Information**

### **Additional Comments**

A limited sample was given for analysis due to HIRAD. 612631001 (Cavity) and 612631002 (Spent Fuel Pool).

**Product: Total Residual Chlorine Analytical Method:** SM 4500-Cl G

**Analytical Procedure:** GL-GC-E-076 REV# 17

**Analytical Batch:** 2392276

The following samples were analyzed using the above methods and analytical procedure(s).

<b>GEL Sample ID#</b>	Client Sample Identification
612631001	Cavity
612631002	Spent Fuel Pool
1205334706	Method Blank (MB)
1205334707	Laboratory Control Sample (LCS)
1205334708	612474001(Torus-Avantech Influent) Sample Duplicate (DUP)
1205334709	612474001(Torus-Avantech Influent) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

### **Technical Information**

### **Holding Times**

Samples (See Below) were received by the laboratory outside of the method specified holding time. The data is qualified.

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Sample	Analyte	Value
1205334708 (Torus-Avantech InfluentDUP)		Received 28-FEB-23, out of holding 27-FEB-23
1205334709 (Torus-Avantech InfluentPS)		Received 28-FEB-23, out of holding 27-FEB-23
612631001 (Cavity)		Received 01-MAR-23, out of holding 28-FEB-23
612631002 (Spent Fuel Pool)		Received 01-MAR-23, out of holding 28-FEB-23

### **Miscellaneous Information**

### **Additional Comments**

10mL sample aliquots analyzed due to high radioactivity. 612631001 (Cavity) and 612631002 (Spent Fuel Pool).

Product: pH

**Analytical Method:** EPA 150.1

**Analytical Procedure:** GL-GC-E-008 REV# 26

**Analytical Batch:** 2392951

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID# Client Sample Identification

612631001 Cavity

612631002 Spent Fuel Pool

1205335748 Laboratory Control Sample (LCS)

1205335750 612535001(NonSDG) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

### **Technical Information**

### **Holding Times**

Samples (See Below) were received by the laboratory outside of the method specified holding time. The data is qualified.

Sample	Analyte	Value
1205335750 (Non SDG 612535001DUP)		Received 01-MAR-23, out of holding 28-FEB-23
612631001 (Cavity)		Received 01-MAR-23, out of holding 28-FEB-23
612631002 (Spent Fuel Pool)		Received 01-MAR-23, out of holding 28-FEB-23

### **Certification Statement**

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Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

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Sample ID * For composites - indicate start and stop date time	*Date Collected	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Radioactive yes, please sul isotopic info.) (7) Known or	szaH əldizzoq 1907-cə ildə ildə ildə ildə ildə ildə ildə ild	DΛ	BC	Iq	Residual					required for sample specific QC	mple
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Spent Fuel Pool	2/28/2023	3 11:10	z	Z	W	Y		x /	x	x x					Sh	Short hold time	
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1.) Chain of Custody Number = Client Determined 2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite 3.) Field Filtered. For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered.	eld Duplicate, EB = Equipment Blank yes the sample was field filtered or -1	, MS = Matrix S	pike Samp s not field	le, MSD = N	datrix Spik	e Duplicate San	ple, <b>G</b> = G	ab, C = C	omposit	0.		10					
4.) Matrix Codes. DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, WL=Misc Liquid, SO=Soil, SD=Sediment, SL=Sludge, SS=Soild Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal S, Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B/7470A - 1).	W=Surface Water, WW=Waste Wate i.e. 8260B, 6010B/7470A) and numb cid SH = Sodium Hydroxide, SA = Si	rr, W=Water, ML er of containers p ulfuric Acid. AA =	=Misc Lic rovided fo = Ascorbic	r each (i.e. 8	il, SD=Sedi 1260B - 3, 6	ment, SL-Sludge, SS-Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urin (0108/7470A - 1). T = Sodium Thiosulfate. If no preservative is added = leave field blank	ge, SS=Soli I).	d Waste, d	D=Oil, F	=Filter, F	=Wipe, U	=Urine, F	=Fecal, N=	-Nasal			
7) KNOWN OR POSSIBLE HAZARDS	Characteristic Hazards	Listed Waste	Waste			Other	er	-	П					Please	provide a	Please provide any additional details	ails
RCRA Metals  As = Arsenic Hg= Mercury  Ba = Barium Se= Selenium	FL = Flammable/Ignitable CO = Corrosive RE = Reactive	LW= Listed W (F,K,P and U-l Waste code(s):	LW= Listed Waste (F,K,P and U-listee Waste code(s):	LW= Listed Waste (F,K,P and U-listed wastes.) Waste code(s):	28.)	OT: (i.e. mise Des	OT= Other / Unknown (i.e.: High/low pH, asbestos, beryllium, irritants, other misc. health hazards, etc.) Description:	Unknov w pH, a hazards	wn sbestoo etc.)	s, beryl	'ium, irri	tants, o	ther	below concer of site	regarding rns. (i.e.: t	below regarding handling and/or disposal concerns. (i.e.: Origin of sample(s), type of site collected from, odd matrices, etc.)	disposal s), type s, etc.)
EE	TSCA Regulated PCB = Polychlorinated biphenyls																

CEE Laboratories LLC SAMPLE RECEIPT & REVIEW FORM SDG/AR/COC/Work Order:\_\_ Client: Date Received: Received By: FedEx-Express FedEx Ground UPS Field Services Courier Other 7714 2970 2379 Carrier and Tracking Number \*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. 2 2 Suspected Hazard Information UN#: If UN2910, is the Radioactive Shipment Survey Compliant? Yes\_ A)Shipped as a DOT Hazardous? COC notation or radioactive stickers on containers equal client designation. B) Did the client designate the samples are to be Maximum Net Counts Observed\* (Observed Counts - Area Background Counts): 600 received as radioactive? C) Did the RSO classify the samples as Classified as: Rad 1 radioactive? COC notation or hazard labels on containers equal client designation. D) Did the client designate samples are hazardous? If D or E is yes, select Hazards below.
PCB's Flammable Fore Beryllium RCRA Asbestos Foreign Soil E) Did the RSO identify possible hazards? Comments/Qualifiers (Required for Non-Conforming Items) % ₹ % Circle Applicable: Seals broken Damnged container Leeking container Other (describe) Sample Receipt Criteria Shipping containers received intact and scaled? Circle Applicable: Client contacted and provided COC Chain of custody documents included Preservation Method: West Ice Packs Dry ice None Other: with shipment? \*all temperatures are recorded in Celsius Samples requiring cold preservation within  $(0 \le 6 \deg, C)$ ?\* Temperature Device Serial #:\_ Daily check performed and pussed on IR Secondary Temperature Device Serial # (If Applicable): Circle Applicable: Souls broken Damaged container Leaking container Other (describe) temperature gun? 5 Sample containers intact and sealed? Sample ID's and Containers Affected: Samples requiring chemical preservation If Yes, are Encores or Soil Kits present for solids? Yes No NA (If yes, take to VOA Freezer)

Do liquid VOA viuls contain acid preservation? Yes No NA (If unknown, select No) at proper pH? Are liquid VOA vials free of headspace? Yes No NA Do any samples require Volatile Sample ID's and containers affected: Analysis? ID's and tests affected: Sumples received within holding time? ID's and containers affected; Sample ID's on COC match ID's on Circle Applicable: No dates on containers No times on containers COC missing info Other (describe) bottles? Date & time on COC match date & time Circle Applicable: No container count on COC Other (describe) on bottles? Number of containers received match number Indicated on COC? Are sample containers identifiable as Circle Applicable: (Not relinquished) Other (describe) GEL provided by use of GEL labels? COC form is properly signed in relinquished/received sections? Comments (Use Continuation Form if needed): MM Date 3/1/28 Page Lof

PM (or PMA) review: Initials \_

List of current GEL Certifications as of 08 March 2023

State	Certification					
Alabama	42200					
Alaska	17-018					
Alaska Drinking Water	SC00012					
Arkansas	88-0651					
CLIA	42D0904046					
California	2940					
Colorado	SC00012					
Connecticut	PH-0169					
DoD ELAP/ ISO17025 A2LA	2567.01					
Florida NELAP	E87156					
Foreign Soils Permit	P330-15-00283, P330-15-00253					
Georgia	SC00012					
Georgia SDWA	967					
Hawaii	SC00012					
Idaho	SC00012 SC00012					
Illinois NELAP	200029					
Indiana	C-SC-01					
Kansas NELAP	E-10332					
Kansas NELAT  Kentucky SDWA	90129					
Kentucky Wastewater	90129					
Louisiana Drinking Water	90129 LA024					
Louisiana NELAP	03046 (AI33904)					
Maine	1					
· · ·	2019020					
Maryland	270					
Massachusetts	M-SC012					
Massachusetts PFAS Approv	Letter					
Michigan	9976					
Mississippi	SC00012					
Nebraska	NE-OS-26-13					
Nevada	SC000122023-4					
New Hampshire NELAP	2054					
New Jersey NELAP	SC002					
New Mexico	SC00012					
New York NELAP	11501					
North Carolina	233					
North Carolina SDWA	45709					
North Dakota	R-158					
Oklahoma	2022-160					
Pennsylvania NELAP	68-00485					
Puerto Rico	SC00012					
S. Carolina Radiochem	10120002					
Sanitation Districts of L	9255651					
South Carolina Chemistry	10120001					
Tennessee	TN 02934					
Texas NELAP	T104704235-22-20					
Utah NELAP	SC000122022-37					
Vermont	VT87156					
Virginia NELAP	460202					
Washington	C780					



a member of The GEL Group INC







PO Box 30712 Charleston, SC 29417 2040 Savage Road Charleston, SC 29407 P 843.556.8171 F 843.766.1178

gel.com

March 16, 2023

Laura Hageman HDI, Inc. 1 Holtec Blvd. Camden, New Jersey 08104

Re: Pilgrim NPDES Permit Modification

Work Order: 612850

Dear Laura Hageman:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on March 02, 2023. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. One of the sample containers for Spent Fuel Pool (2,3,7,8 TCDD) was broken and received empty. Client was notified via email. 612850002(Spent Fuel Pool).

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4504.

Sincerely,

Anna Johnson for
Erin Trent
Project Manager

Purchase Order: 98000918

Enclosures



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# Certificate of Analysis Report for

CDEC001 Holtec Decommissioning International, LLC Client SDG: 612850 GEL Work Order: 612850

### The Qualifiers in this report are defined as follows:

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Erin Trent.

	Cuna Johnson	
Reviewed by		

Page 2 of 45 SDG: 612850

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## Certificate of Analysis

Report Date: March 15, 2023

CDEC00107

CDEC001

Project:

Client ID:

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Contact: Laura Hageman

Project: **Pilgrim NPDES Permit Modification** 

> Client Sample ID: Cavity 612850001 Sample ID: Water Matrix:

Collect Date: 28-FEB-23 11:00 Receive Date: 02-MAR-23 Collector:

Client

Qualifier **Parameter** Result PF DLRLUnits **DF** Analyst Date Time Batch Mtd. **Carbon Analysis** SM 5310 B Total Organic/Inorganic Carbon "As Received" 500 TSM 03/11/23 0102 23943321 Total Organic Carbon Average ND 165 500 mg/L Flow Injection Analysis EPA 335.4 Cyanide, Total "As Received" Cyanide, Total ND 8.35 25.0 ug/L 5.00 1 AXH3 03/07/23 0652 23937072 U 57-12-5 EPA 420.4 Total Phenols "As Received" Total Phenol 10.5 8.34 1 AXH3 03/08/23 0545 23937153 50.0 ug/L 5.00 J Ion Chromatography SW846 9056 Anions, Liquid "As Received" Chloride 10.4 +/-0.3510.134 0.400 mg/L 2 JLD1 03/08/23 2001 23951764 16887-00-6 **Bromide** +/-0.0224 0.0670 0.200 1 JLD1 03/08/23 1132 23951765 U ND mg/L 24959-67-9 +/-0.0110 0.100 Fluoride ND 0.0330 U mg/L 1 16984-48-8 Sulfate +/-0.115 0.133 0.400 3.19 mg/L 1 14808-79-8 Mercury Analysis-CVAA EPA 245 Mercury "As Received" Mercury U ND +/-0.2240.670 2.00 ug/L 10.0 1 JP2 03/07/23 0930 23935826 7439-97-6 Metals Analysis-ICP-MS 200.8/200.2 Priority Pollutant "As Received" Antimony ND +/-3.33 10.0 30.0 1 PRB 03/10/23 1418 23936157 ug/L 10.0 7440-36-0 Arsenic ND +/-6.67 20.0 50.0 10.0 ug/L 1 U 7440-38-2 Bervllium ND +/-0.6672.00 5.00 ug/L 10.0 1 U 7440-41-7 +/-19.552.0 1 Boron 177 150 ug/L 10.0 7440-42-8 10.0

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## **Certificate of Analysis**

Report Date: March 15, 2023

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

	Client Sample Sample ID:		Cavity 612850001				Proiect: Client ID:	CDEC00107 CDEC001		
Parameter	Qualifier	Result		DL	RL	Units	PF	DF Analyst Date	Time	Batch Mtd.
Metals Analysis-ICP-MS	5									
200.8/200.2 Priority Po	llutant "As Recei	ved"								
Cadmium 7440-43-9	U	ND	+/-1.00	3.00	10.0	ug/L		1		
Chromium 7440-47-3	U	ND	+/-10.0	30.0	100	ug/L	10.0	1		
Copper 7440-50-8	U	ND	+/-1.00	3.00	20.0	ug/L	10.0	1		
Lead 7439-92-1	U	ND	+/-1.67	5.00	20.0	ug/L	10.0	1		
Nickel 7440-02-0		31.1	+/-2.53	6.00	20.0	ug/L	10.0	1		
Selenium 7782-49-2	U	ND	+/-5.00	15.0	50.0	ug/L	10.0	1		
Silver 7440-22-4	U	ND	+/-1.00	3.00	10.0	ug/L	10.0	1		
Thallium 7440-28-0	U	ND	+/-2.00	6.00	20.0	ug/L	10.0	1		
Zinc 7440-66-6		726	+/-37.9	33.0	200	ug/L	10.0	1		
Nutrient Analysis										
EPA 350.1 Nitrogen, An	nmonia "As Rece	ived"								
Nitrogen, Ammonia 7664-41-7	J	0.0230		0.0170	0.0500	mg/L		1 AXH3 03/09	/23 0954	23948288
Oil & Grease Analysis										
EPA 1664A/B n-Hexane	Extractable Mat	erial (O&G)	"As Received"							
Oil and Grease	U	ND		1.37	4.90	mg/L		DXB7 03/15	/23 0627	23984109
Semi-Volatile-GC/MS										
EPA 625.1 SVOA, Liqui	id "As Received"									
2,4,6-Trichlorophenol 88-06-2	U	ND		30.0	100	ug/L	0.0100	1 LL2 03/07	/23 1934	239383510
2,4-Dichlorophenol 120-83-2	U	ND		30.0	100	ug/L	0.0100	1		
2,4-Dimethylphenol 105-67-9	U	ND		30.0	100	ug/L	0.0100	1		
2,4-Dinitrophenol 51-28-5	U	ND		50.0	200	ug/L	0.0100	1		
2-Chlorophenol 95-57-8	U	ND		30.0	100	ug/L	0.0100	1		

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## **Certificate of Analysis**

Report Date: March 15, 2023

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

	Client Sample Sample ID:		y 50001			Proiect: Client ID:	CDEC0010 CDEC001	7		
Parameter	Qualifier	Result	DL	RL	Units	PF	DF Analys	t Date	Time	Batch Mtd
Semi-Volatile-GC/MS										
EPA 625.1 SVOA, Liquid	l "As Received"									
2-Methyl-4,6-dinitropher	nol U	ND	30.0	100	ug/L	0.0100	1			
534-52-1		MP	20.0	100	<b>7</b>	0.0100				
2-Nitrophenol 88-75-5	U	ND	30.0	100	ug/L	0.0100	1			
4-Chloro-3-methylpheno	l U	ND	30.0	100	пσ/Ι	0.0100	1			
59-50-7	. 0	ND	30.0	100	ug/L	0.0100	•			
4-Nitrophenol	U	ND	30.0	100	ug/L	0.0100	1			
100-02-7										
Pentachlorophenol	U	ND	30.0	100	ug/L	0.0100	1			
87-86-5 Phenol	**	ND	30.0	100	na/I	0.0100	1			
108-95-2	U	ND	30.0	100	ug/L	0.0100	1			
Semi-Volatiles-PCB										
EPA 608.3 PCB, Liquid	(SPE) "As Recei	ved"								
Aroclor-1016	U	ND	0.333	1.00	ug/L	0.0100	1 NS2	03/07/23	1831	239398111
12674-11-2	C									
Aroclor-1221	U	ND	0.333	1.00	ug/L	0.0100	1			
11104-28-2		N.D.	0.222	1.00	/1	0.0100				
Aroclor-1232 11141-16-5	U	ND	0.333	1.00	ug/L	0.0100	1			
Aroclor-1242	U	ND	0.333	1.00	ησ/Ι.	0.0100	1			
53469-21-9	U	ND	0.555	1.00	ug/L	0.0100	•			
Aroclor-1248	U	ND	0.333	1.00	ug/L	0.0100	1			
12672-29-6										
Aroclor-1254	U	ND	0.333	1.00	ug/L	0.0100	1			
11097-69-1 Aroclor-1260	U	ND	0.333	1.00	ug/I	0.0100	1			
11096-82-5	U	ND	0.555	1.00	ug/L	0.0100	1			
Aroclor-Total	U	ND	0.333	1.00	ug/L	0.0100	1			
PCBTOT										
Solids Analysis										
SM 2540D Total Suspend	ded Solids (TSS)	"As Received"								
Total Suspended Solids	U	ND	5.70	25.0	mg/L		CH6	03/06/23	0801	239373412
Spectrometric Analysis										
EPA 410.4 Chemical Ox	vgen Demand "A	As Received"								
COD	U	ND	8.95	20.0	mg/L		1 HH2	00/05/00	1011	239429713

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# **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Report Date: March 15, 2023

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

	Sample ID:	612850001			Client ID:	CDEC001	
Parameter	Qualifier Resul	t	$\mathbf{DL}$	$\mathbf{RL}$	Units PF	DF Analyst Date	Time Batch Mtd.

The following Prep Methods were performed:							
Method	Description	Analyst	Date	Time	Prep Batch		
EPA 420.4	EPA 420.4 Phenols, Total in liquid PREP	ES2	03/07/23	1100	2393714		
EPA 608.3	EPA 608.3 PCB Prep Liquid (SPE)	JM12	03/07/23	0949	2393980		
EPA 245.1/245.2 Prep	EPA 245 Mercury	RM4	03/06/23	1217	2393581		
EPA 335.4	EPA 335.4 Total Cyanide	ES2	03/06/23	1203	2393706		
EPA 200.2	ICP-MS 200.2 PREP	CD3	03/06/23	1615	2393614		
EPA 625.1	BNA Liq. Prep-EPA 625 Analysis	DG3	03/07/23	1245	2393834		

The following Analytical Methods were performed:

1	SM 5310 B	
1	5W 55TO D	
2	EPA 335.4	
3	EPA 420.4	
4	SW846 9056	
5	SW846 9056	
6	EPA 245.1/245.2	
7	EPA 200.8	
8	EPA 350.1	
9	EPA 1664A/1664B	
10	EPA 625.1	
11	EPA 608.3	
12	SM 2540D	
13	EPA 410.4	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	EPA 625.1 SVOA, Liquid "As Received"	650 ug/L	1000	65	(37%-132%)
Phenol-d5	EPA 625.1 SVOA, Liquid "As Received"	254 ug/L	1000	25	(15%-85%)
2-Fluorophenol	EPA 625.1 SVOA, Liquid "As Received"	351 ug/L	1000	35	(11%-79%)
Nitrobenzene-d5	EPA 625.1 SVOA, Liquid "As Received"	301 ug/L	500	60	(39%-112%)
2-Fluorobiphenyl	EPA 625.1 SVOA, Liquid "As Received"	311 ug/L	500	62	(39%-112%)
p-Terphenyl-d14	EPA 625.1 SVOA, Liquid "As Received"	307 ug/L	500	61	(24%-129%)
Decachlorobiphenyl	EPA 608.3 PCB, Liquid (SPE) "As	1.75 ug/L	2.00	88	(38%-133%)

Page 6 of 45 SDG: 612850

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# **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

Report Date: March 15, 2023

	Client Sample ID: Cavity Sample ID: 612850001				oiect: ient ID:	CDEC00107 CDEC001	
Parameter	Qualifier Result	DL	RL	Units	PF	DF Analyst Date	Time Batch Mtd.
	Received"						
4cmx	EPA 608.3 PCB, Liquid (SPE) "As Received"		1.48	8 ug/L	2.00	74	(33%-109%)

Page 7 of 45 SDG: 612850

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# **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Contact:

Camden, New Jersey 08104

Report Date: March 15, 2023 Laura Hageman

Project: **Pilgrim NPDES Permit Modification** 

> Client Sample ID: Sample ID: Matrix: CDEC00107 CDEC001 Spent Fuel Pool Proiect: 612850002 Client ID:

Water Collect Date: 28-FEB-23 11:10

Receive Date: 02-MAR-23 Collector: Client

	Collector:		Client					
Parameter	Qualifier	Result		DL	$\mathbf{RL}$	Units	PF	DF Analyst Date Time Batch Mtd
Carbon Analysis								
SM 5310 B Total Organi	c/Inorganic C	arbon "As Red	ceived"					
Total Organic Carbon Av	verage U	ND		165	500	mg/L		500 TSM 03/11/23 0122 23943321
Flow Injection Analysis								
EPA 335.4 Cyanide, Tota	al "As Receive	d''						
Cyanide, Total 57-12-5	U	ND		8.35	25.0	ug/L	5.00	1 AXH3 03/07/23 0653 23937072
EPA 420.4 Total Phenols	s "As Receivea	!"						
Total Phenol	U	ND		8.34	50.0	ug/L	5.00	1 AXH3 03/08/23 0546 23937153
Ion Chromatography								
SW846 9056 Anions, Liq	uid "As Receiv	ved"						
Bromide 24959-67-9	U	ND	+/-0.0224	0.0670	0.200	mg/L		1 JLD1 03/08/23 1203 23951764
Fluoride 16984-48-8	U	ND	+/-0.0110	0.0330	0.100	mg/L		1
Sulfate 14808-79-8		3.15	+/-0.114	0.133	0.400	mg/L		1
Chloride 16887-00-6		9.11	+/-0.307	0.134	0.400	mg/L		2 JLD1 03/08/23 2033 23951765
Mercury Analysis-CVAA								
EPA 245 Mercury "As Ro								
Mercury 7439-97-6	U	ND	+/-0.224	0.670	2.00	ug/L	10.0	1 JP2 03/07/23 0932 23935826
Metals Analysis-ICP-MS								
200.8/200.2 Priority Pol		eived"						
Antimony 7440-36-0	U	ND	+/-3.33	10.0	30.0	ug/L	10.0	1 PRB 03/10/23 1432 23936157
Arsenic 7440-38-2	U	ND	+/-6.67	20.0	50.0	ug/L	10.0	1
Beryllium 7440-41-7	U	ND	+/-0.667	2.00	5.00	ug/L	10.0	1
Boron 7440-42-8		185	+/-19.6	52.0	150	ug/L	10.0	1
7 1 10 12 0							10.0	

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# **Certificate of Analysis**

Report Date: March 15, 2023

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

	Client Sample Sample ID:	e ID:	Spent Fuel Poo 612850002	ol			Project: Client ID:	CDEC00107 CDEC001		
Parameter	Qualifier	Result		DL	RL	Units	PF	DF Analyst Date	Time	Batch Mtd.
Metals Analysis-ICP-MS	S									
200.8/200.2 Priority Po		ved"								
Cadmium 7440-43-9	U	ND	+/-1.00	3.00	10.0	ug/L		1		
Chromium 7440-47-3	U	ND	+/-10.0	30.0	100	ug/L	10.0	1		
Copper 7440-50-8	U	ND	+/-1.00	3.00	20.0	ug/L	10.0	1		
Lead 7439-92-1	U	ND	+/-1.67	5.00	20.0	ug/L	10.0	1		
Nickel 7440-02-0		32.9	+/-2.59	6.00	20.0	ug/L	10.0	1		
Selenium 7782-49-2	U	ND	+/-5.00	15.0	50.0	ug/L	10.0	1		
Silver 7440-22-4	U	ND	+/-1.00	3.00	10.0	ug/L	10.0	1		
Thallium 7440-28-0	U	ND	+/-2.00	6.00	20.0	ug/L	10.0	1		
Zinc 7440-66-6		798	+/-41.4	33.0	200	ug/L	10.0	1		
<b>Nutrient Analysis</b>										
EPA 350.1 Nitrogen, Ai	mmonia "As Rece	ived"								
Nitrogen, Ammonia 7664-41-7	J	0.0300		0.0170	0.0500	mg/L		1 AXH3 03/09/	23 0955	23948288
Oil & Grease Analysis										
EPA 1664A/B n-Hexan	e Extractable Mai	terial (O&C	G) "As Received"							
Oil and Grease	J	1.46		1.36	4.85	mg/L		DXB7 03/15/	23 0627	23984109
Semi-Volatile-GC/MS										
EPA 625.1 SVOA, Liqu	id "As Received"									
2,4,6-Trichlorophenol 88-06-2	U	ND		30.0	100	ug/L	0.0100	1 LL2 03/07/	23 2002	239383510
2,4-Dichlorophenol 120-83-2	U	ND		30.0	100	ug/L	0.0100	1		
2,4-Dimethylphenol 105-67-9	U	ND		30.0	100	ug/L	0.0100	1		
2,4-Dinitrophenol 51-28-5	U	ND		50.0	200	ug/L	0.0100	1		
2-Chlorophenol 95-57-8	U	ND		30.0	100	ug/L	0.0100	1		

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# **Certificate of Analysis**

Report Date: March 15, 2023

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

	Client Sample Sample ID:	e ID:	Spent Fuel Pool 612850002				Project: Client ID:	CDEC0010 CDEC001	)7		
Parameter	Qualifier	Result		DL	RL	Units	PF	DF Analys	t Date	Time	Batch Mtd.
Semi-Volatile-GC/MS											
EPA 625.1 SVOA, Liquid	"As Received"										
2-Methyl-4,6-dinitrophen	ol U	ND		30.0	100	ug/L	0.0100	1			
534-52-1 2-Nitrophenol	U	ND		30.0	100	ug/L	0.0100	1			
88-75-5 4-Chloro-3-methylphenol 59-50-7	U	ND		30.0	100	ug/L	0.0100	1			
4-Nitrophenol 100-02-7	U	ND		30.0	100	ug/L	0.0100	1			
Pentachlorophenol 87-86-5	U	ND		30.0	100	ug/L	0.0100	1			
Phenol 108-95-2	U	ND		30.0	100	ug/L	0.0100	1			
Semi-Volatiles-PCB											
EPA 608.3 PCB, Liquid (	SPE) "As Recei	ved"									
Aroclor-1016	U	ND		0.333	1.00	ug/L	0.0100	1 NS2	03/07/2	23 1845	239398111
12674-11-2 Aroclor-1221	***	ND		0.333	1.00	ng/I	0.0100	1			
11104-28-2	U	ND		0.333	1.00	ug/L	0.0100	1			
Aroclor-1232	U	ND		0.333	1.00	ug/L	0.0100	1			
11141-16-5				0.222	1.00	7	0.0100				
Aroclor-1242 53469-21-9	U	ND		0.333	1.00	ug/L	0.0100	1			
Aroclor-1248 12672-29-6	U	ND		0.333	1.00	ug/L	0.0100	1			
Aroclor-1254 11097-69-1	U	ND		0.333	1.00	ug/L	0.0100	1			
Aroclor-1260 11096-82-5	U	ND		0.333	1.00	ug/L	0.0100	1			
Aroclor-Total PCBTOT	U	ND		0.333	1.00	ug/L	0.0100	1			
Solids Analysis											
SM 2540D Total Suspend	ed Solids (TSS)	"As Receiv	ved"								
Total Suspended Solids	U	ND		5.70	25.0	mg/L		CH6	03/06/2	23 0801	239373412
Spectrometric Analysis											
EPA 410.4 Chemical Oxy	_		!! <b>!</b>	0.07	20.0	/=		1 11110	02/07/	22 1211	020400710
COD	U	ND		8.95	20.0	mg/L		1 HH2	03/07//	23 1311	239429713

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# **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Contact: Laura Hageman

Project: **Pilgrim NPDES Permit Modification**  Report Date: March 15, 2023

CDEC00107

	Client Sample ID: Sample ID:	Spent Fuel Pool 612850002		Project: Client ID:	CDEC00107 CDEC001	
Parameter	Qualifier Result	DL	RL	Units PF	DF Analyst Date	Time Batch Mtd.

The following Prep Methods were performed:							
Method	Description	Analyst	Date	Time	Prep Batch		
EPA 420.4	EPA 420.4 Phenols, Total in liquid PREP	ES2	03/07/23	1100	2393714		
EPA 245.1/245.2 Prep	EPA 245 Mercury	RM4	03/06/23	1217	2393581		
EPA 200.2	ICP-MS 200.2 PREP	CD3	03/06/23	1615	2393614		
EPA 608.3	EPA 608.3 PCB Prep Liquid (SPE)	JM12	03/07/23	0949	2393980		
EPA 625.1	BNA Liq. Prep-EPA 625 Analysis	DG3	03/07/23	1245	2393834		
EPA 335.4	EPA 335.4 Total Cyanide	ES2	03/06/23	1203	2393706		

The following Analytical Methods were performed:

Method	Description	<b>Analyst Comments</b>	
1	SM 5310 B		
2	EPA 335.4		
3	EPA 420.4		
4	SW846 9056		
5	SW846 9056		
6	EPA 245.1/245.2		
7	EPA 200.8		
8	EPA 350.1		
9	EPA 1664A/1664B		
10	EPA 625.1		
11	EPA 608.3		
12	SM 2540D		
13	EPA 410.4		

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits	
2,4,6-Tribromophenol	EPA 625.1 SVOA, Liquid "As Received"	838 ug/L	1000	84	(37%-132%)	
Phenol-d5	EPA 625.1 SVOA, Liquid "As Received"	320 ug/L	1000	32	(15%-85%)	
2-Fluorophenol	EPA 625.1 SVOA, Liquid "As Received"	415 ug/L	1000	42	(11%-79%)	
Nitrobenzene-d5	EPA 625.1 SVOA, Liquid "As Received"	390 ug/L	500	78	(39%-112%)	
2-Fluorobiphenyl	EPA 625.1 SVOA, Liquid "As Received"	400 ug/L	500	80	(39%-112%)	
p-Terphenyl-d14	EPA 625.1 SVOA, Liquid "As Received"	407 ug/L	500	81	(24%-129%)	
Decachlorobiphenyl	EPA 608.3 PCB, Liquid (SPE) "As	1.56 ug/L	2.00	78	(38%-133%)	

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# **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

Report Date: March 15, 2023

	Client Sample ID: Sample ID:	Spent Fuel Pool 612850002				Proiect: Client ID:	CDEC00107 CDEC001	
Parameter	Qualifier Result		DL	RL	Units	PF	DF Analyst Date	Time Batch Mtd.
	Received"							
4cmx	EPA 608.3 PCB, I Received"	iquid (SPE) "As		1.39	9 ug/L	2.00	69	(33%-109%)

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2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: March 15, 2023

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HDI, Inc. 1 Holtec Blvd. Camden, New Jersey

Contact: Laura Hageman

Workorder: 612850

QC1205338197 LCS Total Organic Carbon Average 10.0 9.71 mg/L 97.1 (80%-120%) 03/11  QC1205338196 MB Total Organic Carbon Average U ND mg/L 03/11  QC1205338201 612934002 PS Total Organic Carbon Average 10.0 5.05 14.5 mg/L 94.8 (65%-120%) 03/11  Flow Injection Analysis Batch 2393707  QC1205337068 613066001 DUP Cyanide, Total U ND U ND ug/L N/A AXH3 03/07	REC% Range Anlst Date Time	RPD/D% REC%	Units RP	QC	Qual	Sample	NOM	Parmname
QC1205338199   612934002 DUP								
Total Organic Carbon Average 5.05 5.14 mg/L 1.65 (0%-20%) TSM 03/11  QC1205338197 LCS Total Organic Carbon Average 10.0 9.71 mg/L 97.1 (80%-120%) 03/11  QC1205338196 MB Total Organic Carbon Average U ND mg/L 03/11  QC1205338201 612934002 PS Total Organic Carbon Average 10.0 5.05 14.5 mg/L 94.8 (65%-120%) 03/11  Flow Injection Analysis Batch 2393707  QC1205337068 613066001 DUP Cyanide, Total U ND U ND ug/L N/A AXH3 03/07  QC1205337063 LCS								
QC1205338197 LCS Total Organic Carbon Average 10.0 9.71 mg/L 97.1 (80%-120%) 03/11  QC1205338196 MB Total Organic Carbon Average U ND mg/L 03/11  QC1205338201 612934002 PS Total Organic Carbon Average 10.0 5.05 14.5 mg/L 94.8 (65%-120%) 03/11  Flow Injection Analysis Batch 2393707  QC1205337068 613066001 DUP Cyanide, Total U ND U ND ug/L N/A AXH3 03/07	(0%-20%) TSM 03/11/23 02:41	1.65	mg/L	5 14		5.05		
Octal Organic Carbon Average   10.0   9.71   mg/L   97.1 (80%-120%)   03/11	(0/0-20/0) 15141 05/11/25 02.41	1.03	mg/L	3.14		3.03		Total Organic Carbon Average
QC1205338196 MB Total Organic Carbon Average U ND mg/L 03/11  QC1205338201 612934002 PS Total Organic Carbon Average 10.0 5.05 14.5 mg/L 94.8 (65%-120%) 03/11  Flow Injection Analysis Batch 2393707  QC1205337068 613066001 DUP Cyanide, Total U ND U ND ug/L N/A AXH3 03/07								
Total Organic Carbon Average U ND mg/L 03/11  QC1205338201 612934002 PS Total Organic Carbon Average 10.0 5.05 14.5 mg/L 94.8 (65%-120%) 03/11  Flow Injection Analysis Batch 2393707  QC1205337068 613066001 DUP Cyanide, Total U ND U ND ug/L N/A AXH3 03/07	97.1 (80%-120%) 03/11/23 00:50	97.1	mg/L	9.71			10.0	Total Organic Carbon Average
Total Organic Carbon Average								OC1205338196 MB
Total Organic Carbon Average 10.0 5.05 14.5 mg/L 94.8 (65%-120%) 03/11  Flow Injection Analysis  Batch 2393707  QC1205337068 613066001 DUP Cyanide, Total U ND U ND ug/L N/A AXH3 03/07	03/11/23 00:40		mg/L	ND	U			=
Total Organic Carbon Average 10.0 5.05 14.5 mg/L 94.8 (65%-120%) 03/11  Flow Injection Analysis  Batch 2393707  QC1205337068 613066001 DUP Cyanide, Total U ND U ND ug/L N/A AXH3 03/07  QC1205337063 LCS								
Batch 2393707  QC1205337068 613066001 DUP  Cyanide, Total U ND U ND ug/L N/A AXH3 03/07  QC1205337063 LCS	94.8 (65%-120%) 03/11/23 03:01	94.8	mg/L	14.5		5.05	10.0	
Batch 2393707  QC1205337068 613066001 DUP  Cyanide, Total U ND U ND ug/L N/A AXH3 03/07  QC1205337063 LCS								
QC1205337068 613066001 DUP Cyanide, Total U ND U ND ug/L N/A AXH3 03/07 QC1205337063 LCS								•
Cyanide, Total         U         ND         U         ND         ug/L         N/A         AXH3         03/07           QC1205337063         LCS								
	AXH3 03/07/23 07:11	N/A	ug/L	ND	U	ND	U	=
Cyanide, Total 50.0 48.2 ug/L 96.4 (90%-110%) 03/07			-	40.				=
	96.4 (90%-110%) 03/07/23 06:47	96.4	ug/L	48.2			50.0	Cyanide, Total
QC1205337062 MB								QC1205337062 MB
Cyanide, Total U ND ug/L 03/07	03/07/23 06:42		ug/L	ND	U			Cyanide, Total
OCI205227070 (1207700) MS								OC1205227070 (12077001 MS
QC1205337069 613066001 MS Cyanide, Total 100 U ND 101 ug/L 101 (90%-110%) 03/07	101 (90%-110%) 03/07/23 07:13	101	ug/L	101		ND	100 U	•
Batch 2393715 —								
QC1205337077 LCS Total Phenol 50.0 45.2 ug/L 90.4 (90%-110%) AXH3 03/08	90.4 (90%-110%) AXH3 03/08/23 05:34	90.4	ug/L	45.2			50.0	_

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# **QC** Summary

Workorder: 612850 Page 2 of 17 Parmname **NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Flow Injection Analysis 2393715 Batch QC1205337076 U ND ug/L AXH3 03/08/23 05:33 Total Phenol QC1205337078 612516014 MS 50.0 U ND Total Phenol 44.7 ug/L 89.5\* (90%-110%) 03/08/23 05:38 QC1205337079 612516014 MSD ND Total Phenol 50.0 U 93.2 (0%-20%)03/08/23 05:39 46.6 ug/L 4.07 Ion Chromatography 2395176 QC1205339686 613338001 DUP Bromide J 0.169 0.169 mg/L 0.0593 ^ (+/-0.200) JLD1 03/08/23 14:11 Chloride 17.9 17.8 0.171 (0%-20%)03/08/23 18:26 mg/L Fluoride 0.448 0.451 mg/L 0.556 ^ (+/-0.100)03/08/23 14:11 Sulfate 25.5 25.6 mg/L0.137 (0%-20%)03/08/23 18:26 LCS QC1205339685 **Bromide** 1.25 1.27 mg/L 102 (90%-110%) 03/08/23 13:07 Chloride 5.00 5.10 102 (90%-110%) mg/L Fluoride 2.50 2.51 mg/L 101 (90%-110%) 10.0 Sulfate 10.1 mg/L 101 (90%-110%) QC1205339684 MB U ND 03/08/23 12:35 Bromide mg/L U Chloride ND mg/L

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# QC Summary

Workorder: 612850 Page 3 of 17 Parmname **NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Ion Chromatography 2395176 Batch Fluoride U ND mg/L JLD1 03/08/23 12:35 Sulfate U ND mg/L QC1205339687 613338001 PS 1.25 J 0.169 1.39 97.9 (90%-110%) 03/08/23 14:43 Bromide mg/L Chloride 5.00 3.58 9.15 mg/L 111\* (90%-110%) 03/08/23 18:58 Fluoride 2.50 0.448 2.90 98.1 03/08/23 14:43 mg/L (90%-110%) Sulfate 10.0 5.11 15.7 mg/L 106 (90%-110%) 03/08/23 18:58 Metals Analysis - ICPMS Batch 2393615 QC1205336814 612850001 DUP U ND U ND N/A PRB 03/10/23 14:22 Antimony ug/L U ND U ND Arsenic ug/L N/A Beryllium U ND U ND ug/L N/A Boron 177 170 3.52 ^ (+/-150)ug/L Cadmium U ND U ND ug/L N/A ND ND Chromium U U ug/L N/A ug/L Copper U ND U ND N/A U ND U ND N/A Lead ug/L

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# QC Summary

Workorder: 612850 Page 4 of 17 Parmname **NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Metals Analysis - ICPMS Batch 2393615 Nickel 31.1 31.9 ug/L 2.66 ^ (+/-20.0)PRB 03/10/23 14:22 U Selenium ND U ND ug/L N/A Silver U ND U ND ug/L N/A U Thallium ND U ND ug/L N/A Zinc 726 710 ug/L 2.15 ^ (+/-200)QC1205336813 LCS Antimony 500 511 ug/L 102 (85%-115%) 03/10/23 14:15 Arsenic 500 509 ug/L 102 (85%-115%) 542 Beryllium 500 ug/L 108 (85%-115%) 1000 1040 104 Boron ug/L (85%-115%) Cadmium 500 516 103 (85%-115%) ug/L Chromium 500 535 107 ug/L (85%-115%) 500 543 Copper ug/L 109 (85%-115%) Lead 500 523 105 (85%-115%) ug/L 532 Nickel 500 106 ug/L (85%-115%) Selenium 500 512 ug/L 102 (85%-115%)

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# QC Summary

Workorder: 612850 Page 5 of 17 NOM QC RPD/D% REC% Parmname Sample Qual Units Range Anlst Date Time Metals Analysis - ICPMS 2393615 Batch Silver 500 517 ug/L 103 (85%-115%) PRB 03/10/23 14:15 Thallium 500 512 ug/L 102 (85%-115%) Zinc 500 510 ug/L 102 (85%-115%) QC1205336812 MB U 03/10/23 14:12 Antimony ND ug/L U ND ug/L Arsenic U ND Beryllium ug/L U ND Boron ug/L U ND Cadmium ug/L Chromium U ND ug/L U ND Copper ug/L Lead U ND ug/L U ND Nickel ug/L Selenium U ND ug/L Silver U ND ug/L Thallium U ND ug/L

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# QC Summary

612850 Page 6 of 17 QC REC% Range Parmname **NOM** Sample Qual Units RPD/D% Anlst Date Time Metals Analysis - ICPMS Batch 2393615 U Zinc ND ug/L PRB 03/10/23 14:12 QC1205336815 612850001 MS 500 U ND 102 03/10/23 14:25 Antimony 513 ug/L (75% - 125%)Arsenic 500 U ND 506 ug/L 101 (75%-125%) Beryllium 500 U ND 521 ug/L 104 (75%-125%) Boron 1000 177 1190 ug/L 101 (75%-125%) ND Cadmium 500 U 520 ug/L 104 (75%-125%) Chromium 500 U ND 521 104 ug/L (75%-125%) U ND 531 Copper 500 ug/L 106 (75%-125%) 500 U ND 525 ug/L 105 Lead (75%-125%) Nickel 500 31.1 553 104 (75%-125%) ug/L U ND 501 Selenium 500 ug/L 100 (75% - 125%)Silver 500 U ND 509 ug/L 102 (75%-125%) Thallium 500 U ND 509 101 (75% - 125%)ug/L Zinc 500 726 1260 ug/L 106 (75%-125%)

Workorder:

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# QC Summary

Page 7 of 17 **Parmname NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Metals Analysis - ICPMS 2393615 Batch QC1205336816 612850001 SDILT ND U ND U ug/L N/A(0%-10%)PRB 03/10/23 14:29 Antimony ug/L Arsenic U ND U ND N/A (0%-10%)Beryllium U ND U ND (0%-10%) ug/L N/A Boron 17.7 J 5.31 ug/L 50.4 (0%-10%)U ND U ND ug/L Cadmium N/A (0%-10%)U Chromium ND U ND ug/L N/A (0%-10%)U ND U ND ug/L N/A (0%-10%)Copper U ND U ND (0%-10%)Lead ug/L N/A Nickel U ND 3.11 ug/L N/A (0%-10%)U ND U ND Selenium ug/L (0%-10%)N/A Silver U ND U ND ug/L N/A (0%-10%)U ND Thallium ND U ug/L N/A (0%-10%)Zinc 72.6 J 13.6 ug/L 6.56 (0%-10%)Metals Analysis-Mercury 2393582 QC1205336738 612859001 DUP U ND U ND JP2 03/07/23 09:40 Mercury ug/L N/A

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Workorder:

612850

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# **QC** Summary

Workorder: 612850 Page 8 of 17 Parmname **NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Metals Analysis-Mercury Batch 2393582 QC1205336737 LCS 1.99 2.00 ug/L 99.6 (85%-115%) JP2 03/07/23 09:22 Mercury QC1205336736 MB U ND Mercury ug/L 03/07/23 09:20 QC1205336739 612859001 MS 2.00 U ND 2.00 100 (75%-125%) 03/07/23 09:42 Mercury ug/L QC1205336740 612859001 SDILT ug/L 03/07/23 09:43 U ND U ND N/A (0%-10%)Mercury **Nutrient Analysis** Batch 2394828 QC1205339099 612516014 DUP 0.385 0.460 (+/-0.100) AXH3 03/09/23 12:26 Nitrogen, Ammonia mg/L 17.8 ^ QC1205339098 LCS Nitrogen, Ammonia 1.00 1.02 mg/L 102 (90%-110%) 03/09/23 09:31 QC1205339097 MB J 0.0210 Nitrogen, Ammonia mg/L 03/09/23 09:30 QC1205339100 612516014 PS 1.00 0.0920 0.858 76.6\* (90%-110%) 03/09/23 12:28 Nitrogen, Ammonia mg/L Oil & Grease Analysis 2398410 QC1205345721 LCS Oil and Grease 40.0 35.7 mg/L 89.3 (78%-114%) DXB7 03/15/23 06:27 QC1205345720 MB Oil and Grease U ND mg/L 03/15/23 06:27

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# **QC** Summary

Workorder: 612850 Page 9 of 17 Parmname **NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Oil & Grease Analysis 2398410 Batch QC1205345723 611553001 MS ND 38.3 Oil and Grease 40.8 U mg/L 91.3 (78%-114%) DXB7 03/15/23 06:27 Semi-Volatile-GC/MS 2393835 Batch QC1205337319 LCS 50.0 38.5 2,4,6-Trichlorophenol ug/L 77 (50%-127%) LL2 03/07/23 19:07 2,4-Dichlorophenol 50.0 36.9 ug/L 74 (50%-119%) 50.0 29.2 2,4-Dimethylphenol ug/L 58 (46%-99%) 2,4-Dinitrophenol 50.0 43.4 ug/L 87 (28%-151%) 2-Chlorophenol 50.0 34.2 (46%-107%) ug/L 68 49.0 50.0 2-Methyl-4,6-dinitrophenol ug/L 98 (42% - 149%)2-Nitrophenol 50.0 41.3 ug/L 83 (50%-115%) 37.9 4-Chloro-3-methylphenol 50.0 ug/L 76 (50%-118%)4-Nitrophenol 50.0 15.1 ug/L 30 (21%-110%) Pentachlorophenol 50.0 30.9 ug/L 62 (42%-132%) Phenol 50.0 16.1 ug/L 32 (12%-90%) 76.0 \*\*2,4,6-Tribromophenol 100 ug/L 76 (37%-132%) \*\*2-Fluorobiphenyl 50.0 35.5 ug/L 71 (39%-112%)

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# QC Summary

Workorder: 612850 Page 10 of 17 QC REC% Parmname **NOM** Sample Qual Units RPD/D% Range Anlst Date Time Semi-Volatile-GC/MS 2393835 Batch (11%-79%) \*\*2-Fluorophenol 100 38.3 ug/L 38 LL2 03/07/23 19:07 \*\*Nitrobenzene-d5 50.0 34.9 ug/L 70 (39%-112%) \*\*Phenol-d5 100 29.6 ug/L 30 (15%-85%) 50.0 33.3 \*\*p-Terphenyl-d14 ug/L 67 (24%-129%) QC1205337318 MB U ND 03/07/23 18:40 2,4,6-Trichlorophenol ug/L U ND 2,4-Dichlorophenol ug/L U 2,4-Dimethylphenol ND ug/L U ND ug/L 2,4-Dinitrophenol U ND 2-Chlorophenol ug/L U 2-Methyl-4,6-dinitrophenol ND ug/L U ND ug/L 2-Nitrophenol U ND 4-Chloro-3-methylphenol ug/L 4-Nitrophenol U ND ug/L U ND Pentachlorophenol ug/L Phenol U ND ug/L

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# **QC** Summary

Workorder: 612850 Page 11 of 17 **Parmname NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Semi-Volatile-GC/MS 2393835 Batch \*\*2,4,6-Tribromophenol 100 77.1 ug/L 77 (37% - 132%)LL2 03/07/23 18:40 \*\*2-Fluorobiphenyl 50.0 39.9 80 (39%-112%) ug/L \*\*2-Fluorophenol 100 40.9 ug/L 41 (11%-79%) \*\*Nitrobenzene-d5 50.0 41.5 ug/L 83 (39%-112%) \*\*Phenol-d5 100 33.6 ug/L 34 (15%-85%) 33.2 (24% - 129%)\*\*p-Terphenyl-d14 50.0 ug/L 66 QC1205337320 612859003 MS 2,4,6-Trichlorophenol 108 U ND 78.3 ug/L 73 (47%-130%) 03/07/23 20:56 U ND 77.6 2,4-Dichlorophenol 108 ug/L 72 (49%-119%) ND 2,4-Dimethylphenol 108 U 61.9 ug/L 58 (40%-111%) 2,4-Dinitrophenol U ND 88.8 108 ug/L 83 (25%-154%) U ND 78.0 2-Chlorophenol 108 ug/L 73 (42%-113%) ND 102 2-Methyl-4,6-dinitrophenol 108 U ug/L (30%-145%) 95 2-Nitrophenol 108 U ND 85.5 80 (42% - 120%)ug/L U ND 84.8 4-Chloro-3-methylphenol 108 ug/L 79 (42%-123%) 4-Nitrophenol 108 U ND 51.4 ug/L (20% - 98%)

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# **QC** Summary

Workorder: 612850 Page 12 of 17 **Parmname NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Semi-Volatile-GC/MS 2393835 Batch Pentachlorophenol 108 U ND 64.7 ug/L 60 (36%-139%) LL2 03/07/23 20:56 Phenol 108 U ND 55.1 51 (23%-71%) ug/L \*\*2,4,6-Tribromophenol 215 78.7 151 ug/L 70 (37%-132%) \*\*2-Fluorobiphenyl 108 37.9 68.9 ug/L 64 (39%-112%) \*\*2-Fluorophenol 215 39.5 106 ug/L 49 (11%-79%) 108 37.7 70.9 \*\*Nitrobenzene-d5 ug/L (39%-112%) 66 \*\*Phenol-d5 215 30.9 102 ug/L 48 (15%-85%) \*\*p-Terphenyl-d14 108 26.8 75.0 70 (24% - 129%)ug/L QC1205337321 612859003 MSD ND 2,4,6-Trichlorophenol 108 U 288 114\* 268\* (0%-79%)03/07/23 21:23 ug/L 2,4-Dichlorophenol U ND 261 108\* 242\* (0%-42%)108 ug/L U ND 212 2,4-Dimethylphenol 108 ug/L 110\* 197\* (0%-42%)ND 2,4-Dinitrophenol 108 U 368 122\* (0%-106%)ug/L 342\* 2-Chlorophenol 108 U ND 246 104\* 228\* (0%-78%)ug/L U ND 411 120\* 383\* 2-Methyl-4,6-dinitrophenol 108 ug/L (0%-86%)2-Nitrophenol 108 U ND 277 ug/L 106\* 258\* (0%-69%)

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# **QC** Summary

Workorder: 612850 Page 13 of 17 **Parmname NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Semi-Volatile-GC/MS 2393835 Batch 4-Chloro-3-methylphenol 108 U ND 306 ug/L 113\* 285\* (0%-41%)LL2 03/07/23 21:23 4-Nitrophenol 108 U ND 209 121\* 194\* (0%-110%) ug/L Pentachlorophenol 108 U ND 262 ug/L 121\* 244\* (0%-82%)U ND (0%-42%)Phenol 108 176 ug/L 105\* 163\* \*\*2,4,6-Tribromophenol 215 78.7 594 ug/L 276\* (37%-132%) 108 37.9 242 \*\*2-Fluorobiphenyl ug/L 225\* (39%-112%) \*\*2-Fluorophenol 215 39.5 335 ug/L 156\* (11%-79%) \*\*Nitrobenzene-d5 108 37.7 228 (39%-112%) 212\* ug/L 30.9 325 \*\*Phenol-d5 215 ug/L (15%-85%) 108 26.8 256 \*\*p-Terphenyl-d14 ug/L 238\* (24%-129%) Semi-Volatiles-PCB 2393981 Batch QC1205337604 LCS 1.00 0.704Aroclor-1016 ug/L 70 (50%-101%) NS2 03/07/23 18:18 Aroclor-1260 1.00 0.783 ug/L 78 (46%-108%) \*\*4cmx 0.200 0.134 (33%-109%) ug/L 67 \*\*Decachlorobiphenyl 0.200 0.161 ug/L 81 (38%-133%)

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# QC Summary

Workorder: 612850 Page 14 of 17 **P**armname **NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Semi-Volatiles-PCB 2393981 Batch QC1205337603 MB U ND Aroclor-1016 ug/L NS2 03/07/23 18:05 Aroclor-1221 ND ug/L Aroclor-1232 U ND ug/L U Aroclor-1242 ND ug/L Aroclor-1248 U ND ug/L U Aroclor-1254 ND ug/L U ND ug/L Aroclor-1260 Aroclor-Total U ND ug/L 0.200 ug/L \*\*4cmx 0.123 62 (33%-109%) 0.146 \*\*Decachlorobiphenyl 0.200 ug/L 73 (38%-133%) QC1205337605 612878001 MS 1.00 U ND 03/07/23 19:37 Aroclor-1016 0.618 62 (32%-112%)ug/L Aroclor-1260 1.00 U ND 0.579 (32%-126%) ug/L 58 \*\*4cmx 0.200 0.133 0.129ug/L 64 (33%-109%) \*\*Decachlorobiphenyl 0.200 0.135 0.132 66 (38%-133%) ug/L

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# QC Summary

		QC Du		y					
Workorder: 612850									Page 15 of 17
<b>Parmname</b>	NOM	Sample Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Semi-Volatiles-PCB           Batch         2393981           QC1205337606         612878001         MSI	D								
Aroclor-1016	1.00 U	ND	0.719	ug/L	15	72	(0%-27%)	NS2	03/07/23 19:50
Aroclor-1260	1.00 U	ND	0.716	ug/L	21	72	(0%-29%)		
**4cmx	0.200	0.133	0.138	ug/L		69	(33%-109%)		
**Decachlorobiphenyl	0.200	0.135	0.149	ug/L		74	(38%-133%)		
Solids Analysis Batch 2393734 —									
QC1205337143 613035001 DUI Total Suspended Solids	P U	ND U	ND	mg/L	N/A			СН6	03/06/23 08:01
QC1205337140 LCS Total Suspended Solids	500		497	mg/L		99.4	(95%-105%)		03/06/23 08:01
QC1205337139 MB Total Suspended Solids		U	ND	mg/L					03/06/23 08:01
Spectrometric Analysis Batch 2394297 —									
QC1205338112 612952001 DUI COD	P U	ND U	ND	mg/L	N/A			НН2	03/07/23 13:11
QC1205338111 LCS COD	500		495	mg/L		99.1	(90%-110%)		03/07/23 13:11
QC1205338110 MB COD		U	ND	mg/L					03/07/23 13:11
QC1205338113 612952001 MS COD	500 U	ND	507	mg/L		101	(90%-110%)		03/07/23 13:11

**Notes:** 

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# **QC** Summary

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Parmname

NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, the difference is >70%.
- C Analyte has been confirmed by GC/MS analysis
- B The target analyte was detected in the associated blank.
- E Concentration of the target analyte exceeds the instrument calibration range
- A The TIC is a suspected aldol-condensation product
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- N Metals--The Matrix spike sample recovery is not within specified control limits
- N Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
- H Analytical holding time was exceeded
- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- h Preparation or preservation holding time was exceeded
- R Sample results are rejected
- Z Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
- d 5-day BOD--The 2:1 depletion requirement was not met for this sample
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
- D Results are reported from a diluted aliquot of the sample
- N/A RPD or %Recovery limits do not apply.
- ND Analyte concentration is not detected above the detection limit
- E %difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- JNX Non Calibrated Compound
- UJ Compound cannot be extracted
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- N1 See case narrative
- Y Other specific qualifiers were required to properly define the results. Consult case narrative.
- Y QC Samples were not spiked with this compound
- R Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.

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# **QC** Summary

612850 Page 17 of 17 Units **Parmname NOM** Sample Qual  $\mathbf{OC}$ RPD/D% REC% Range Anlst Date Time

- Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
- 5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for e reporting purposes
- T See case narrative for an explanation

Workorder:

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

- ^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
- \* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

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### Technical Case Narrative Holtec Decommissioning International, LLC SDG #: 612850

## **GC/MS Semivolatile**

**Product:** Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

**Analytical Method:** EPA 625.1

**Analytical Procedure:** GL-OA-E-009 REV# 46

**Analytical Batch:** 2393835

**Preparation Method:** EPA 625.1

**Preparation Procedure:** GL-OA-E-013 REV# 35

**Preparation Batch:** 2393834

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612850001	Cavity
612850002	Spent Fuel Pool
1205337318	Method Blank (MB)
1205337319	Laboratory Control Sample (LCS)
1205337320	612859003(NonSDG) Matrix Spike (MS)
1205337321	612859003(NonSDG) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Calibration Information**

### **CCV Requirements**

All Calibration Verification Standards (CCV) did meet the acceptance criteria as outlined in Table 6 in Method 625.1. The analytes which failed on the included Continuing Calibration Summary report were within the %acceptance criteria for the respective analyte or within 60%-140% for analytes not listed in Table 6. The data were reported.

### **Quality Control (QC) Information**

### **Surrogate Recoveries**

The MSD (See Below) did not meet surrogate recovery acceptance criteria. The MSD had a final volume of 3.5 mL, while the parent and MS had a final volume of 1.0 mL. Because the recoveries were biased high and target analytes were not detected in the associated parent sample above the reporting limit, the data were reported.

Sample	Analyte	Value
1205337321 (Non SDG 612859003MSD)	2, 4, 6-Tribromophenol	276* (37%-132%)

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2-Fluorobiphenyl	225* (39%-112%)
2-Fluorophenol	156* (11%-79%)
Nitrobenzene-d5	212* (39%-112%)
Phenol-d5	151* (15%-85%)
p-Terphenyl-d14	238* (24%-129%)

## **Spike Recovery Statement**

The MSD (See Below) spike recoveries were not within the acceptance limits. The MSD had a final volume of 3.5 mL, while the parent and MS had a final volume of 1.0 mL. Because the recoveries were biased high and target analytes were not detected in the associated parent sample above the reporting limit, the data were reported.

Sample	Analyte	Value
1205337321 (Non SDG 612859003MSD)	2, 4, 6-Trichlorophenol	268* (47%-130%)
	2, 4-Dichlorophenol	242* (49%-119%)
	2, 4-Dimethylphenol	197* (40%-111%)
	2, 4-Dinitrophenol	342* (25%-154%)
	2-Chlorophenol	228* (42%-113%)
	2-Methyl-4, 6-dinitrophenol	383* (30%-145%)
	2-Nitrophenol	258* (42%-120%)
	4-Chloro-3-methylphenol	285* (42%-123%)
	4-Nitrophenol	194* (20%-98%)
	Pentachlorophenol	244* (36%-139%)
	Phenol	163* (23%-71%)

#### MS/MSD Relative Percent Difference (RPD) Statement

The RPD values between the MS and MSD, (See Below), were not within the acceptance limits. The MSD had a final volume of 3.5 mL, while the parent and MS had a final volume of 1.0 mL. The biased high recoveries in the MSD when compared to the MS attributed to the RPD failure. The data were reported.

Sample	Analyte	Value
1205337320MS and 1205337321MSD (Non SDG 612859003)	2, 4, 6-Trichlorophenol	RPD 114* (0%-79%)
	2, 4-Dichlorophenol	RPD 108* (0%-42%)
	2, 4-Dimethylphenol	RPD 110* (0%-42%)
	2, 4-Dinitrophenol	RPD 122* (0%-106%)
	2-Chlorophenol	RPD 104* (0%-78%)
	2-Methyl-4, 6-dinitrophenol	RPD 120* (0%-86%)
	2-Nitrophenol	RPD 106* (0%-69%)
	4-Chloro-3-methylphenol	RPD 113* (0%-41%)

4-Nitrophenol	RPD 121* (0%-110%)	
Pentachlorophenol	RPD 121* (0%-82%)	
Phenol	RPD 105* (0%-42%)	

#### **Miscellaneous Information**

# Additional Comments Diphenylamine Statement

Diphenylamine has superseded the reporting of N-Nitroso-diphenylamine. As per the EPA,

N-Nitroso-diphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine. Studies of these two compounds at GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine are therefore reported as Diphenylamine on all reports and forms.

# **GC Semivolatile PCB**

Product: Analysis of The Analysis of Polychlorinated Biphenyls by GC/ECD by ECD

**Analytical Method:** EPA 608.3

**Analytical Procedure:** GL-OA-E-040 REV# 25

**Analytical Batch:** 2393981

**Preparation Method:** EPA 608.3

**Preparation Procedure:** GL-OA-E-070 REV# 11

**Preparation Batch:** 2393980

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612850001	Cavity
612850002	Spent Fuel Pool
1205337603	Method Blank (MB)
1205337604	Laboratory Control Sample (LCS)
1205337605	612878001(NonSDG) Matrix Spike (MS)
1205337606	612878001(NonSDG) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Technical Information**

#### Preparation/Analytical Method Verification

All reported analyte detections in client and quality control samples were within the established retention time windows. Reported analyte concentrations were confirmed on dissimilar columns.

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### **Miscellaneous Information**

#### **Manual integrations**

Samples (See Below) required manual integration to correctly position the baseline as set in the calibration standard injections.

Sample	Analyte	Value
1205337604 (LCS)	Aroclor-1260	Result 0.783ug/L
1205337606 (Non SDG 612878001MSD)	Aroclor-1016	Result 0.719ug/L
	Decachlorobiphenyl	Result 0.149ug/L
612850001 (Cavity)	Decachlorobiphenyl	Result 1.75ug/L

# **Metals**

**Product: Determination of Metals by ICP-MS** 

**Analytical Method:** EPA 200.8

**Analytical Procedure:** GL-MA-E-014 REV# 35

**Analytical Batch:** 2393615

**Preparation Method:** EPA 200.2

Preparation Procedure: GL-MA-E-016 REV# 18

**Preparation Batch:** 2393614

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612850001	Cavity
612850002	Spent Fuel Pool
1205336812	Method Blank (MB)ICP-MS
1205336813	Laboratory Control Sample (LCS)
1205336816	612850001(CavityL) Serial Dilution (SD)
1205336814	612850001(CavityD) Sample Duplicate (DUP)
1205336815	612850001(CavityS) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Calibration Information**

#### **ICSA/ICSAB Statement**

For the ICP-MS analysis, the ICSA solution contains analyte concentrations which are verified trace impurities indigenous to the purchased standard.

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### **Technical Information**

#### **Preparation Information**

The samples in this SDG were prepared with less starting material than stated in the SOP due to the radioactivity concerns of the samples- ALARA.

**Product:** Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer

**Analytical Method:** EPA 245.1/245.2

**Analytical Procedure:** GL-MA-E-010 REV# 39

**Analytical Batch:** 2393582

<u>Preparation Method:</u> EPA 245.1/245.2 Prep <u>Preparation Procedure:</u> GL-MA-E-010 REV# 39

**Preparation Batch:** 2393581

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612850001	Cavity
612850002	Spent Fuel Pool
1205336736	Method Blank (MB)CVAA
1205336737	Laboratory Control Sample (LCS)
1205336740	612859001(NonSDGL) Serial Dilution (SD)
1205336738	612859001(NonSDGD) Sample Duplicate (DUP)
1205336739	612859001(NonSDGS) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Technical Information**

#### **Preparation Information**

The samples in this SDG were prepared with less starting material than stated in the SOP due to the radioactivity concerns of the samples- ALARA. 612850001 (Cavity) and 612850002 (Spent Fuel Pool).

# **General Chemistry**

**Product: Carbon, Total Organic Analytical Method:** SM 5310 B

Analytical Procedure: GL-GC-E-093 REV# 21

**Analytical Batch:** 2394332

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID# Client Sample Identification

612850001 Cavity

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612850002	Spent Fuel Pool
1205338196	Method Blank (MB)
1205338197	Laboratory Control Sample (LCS)
1205338199	612934002(NonSDG) Sample Duplicate (DUP)
1205338201	612934002(NonSDG) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Technical Information**

#### **Sample Dilutions**

The following samples 612850001 (Cavity) and 612850002 (Spent Fuel Pool) in this sample group were diluted due to limited sample quantity. The following samples was limited due to RADII. 612850001 (Cavity) and 612850002 (Spent Fuel Pool). Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Auglida	612850	
Analyte	001	002
Total Organic Carbon Average	500X	500X

**Product: Cyanide, Total Analytical Method:** EPA 335.4

**Analytical Procedure:** GL-GC-E-095 REV# 23

**Analytical Batch:** 2393707

**Preparation Method:** EPA 335.4

Preparation Procedure: GL-GC-E-067 REV# 24

**Preparation Batch:** 2393706

The following samples were analyzed using the above methods and analytical procedure(s).

**Client Sample Identification** 

612850001	Cavity
612850002	Spent Fuel Pool
1205337062	Method Blank (MB)
1205337063	Laboratory Control Sample (LCS)
1205337068	613066001(NonSDG) Sample Duplicate (DUP
1205337069	613066001(NonSDG) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

**GEL Sample ID#** 

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where

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applicable, with the following exceptions.

#### **Technical Information**

#### Sample Preservation/Integrity

Samples 1205337068 (Non SDG 613066001DUP) and 1205337069 (Non SDG 613066001MS) in this sample group did not meet the preservation requirements of the method.

#### Sample Dilutions

Samples were diluted at the prep step due to the highly radioactive and/or hazardous matrix of samples: 612850001 (Cavity) and 612850002 (Spent Fuel Pool). Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

**Product:** Total Phenols

**Analytical Method:** EPA 420.4

Analytical Procedure: GL-GC-E-102 REV# 10 Analytical Batches: 2393715 and 2393714

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612850001	Cavity
612850002	Spent Fuel Pool
1205337076	Method Blank (MB)
1205337077	Laboratory Control Sample (LCS)
1205337078	612516014(NonSDG) Matrix Spike (MS)
1205337079	612516014(NonSDG) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Quality Control (QC) Information**

#### Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The spike recovery falls outside of the established acceptance limits. Since both the spike duplicate recovery and the RPD between the spike and spike duplicate fall within acceptance limits, the data is reported.

Analyte	Sample	Value
Total Phenol	1205337078 (Non SDG 612516014MS)	89.5* (90%-110%)

#### **Technical Information**

#### **Sample Dilutions**

Samples were diluted at the prep step due to the highly radioactive and/or hazardous matrix of samples: 612850001 (Cavity) and 612850002 (Spent Fuel Pool). Dilutions may be required for many reasons, including to

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minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

**Product: Ion Chromatography Analytical Method:** SW846 9056

Analytical Procedure: GL-GC-E-086 REV# 30

**Analytical Batch:** 2395176

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612850001	Cavity
612850002	Spent Fuel Pool
1205339684	Method Blank (MB)
1205339685	Laboratory Control Sample (LCS)
1205339686	613338001(NonSDG) Sample Duplicate (DUP)
1205339687	613338001(NonSDG) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Quality Control (QC) Information**

#### Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity.

Analyte	Sample	Value
Chloride	1205339687 (Non SDG 613338001PS)	111* (90%-110%)

### **Technical Information**

#### **Sample Dilutions**

The following samples 1205339686 (Non SDG 613338001DUP), 1205339687 (Non SDG 613338001PS), 612850001 (Cavity) and 612850002 (Spent Fuel Pool) were diluted because target analyte concentrations exceeded the calibration range. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

A 1+-	612850	
Analyte	001	002
Chloride	2X	2X

**Product:** Ammonia Nitrogen

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**Preparation Method:** EPA 350.1

Preparation Procedure: GL-GC-E-106 REV# 10

**Preparation Batch:** 2394828

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612850001	Cavity
612850002	Spent Fuel Pool
1205339097	Method Blank (MB)
1205339098	Laboratory Control Sample (LCS)
1205339099	612516014(NonSDG) Sample Duplicate (DUP)
1205339100	612516014(NonSDG) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Quality Control (QC) Information**

#### Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity.

Analyte	Sample	Value
Nitrogen, Ammonia	1205339100 (Non SDG 612516014PS)	76.6* (90%-110%)

#### **Technical Information**

#### **Sample Dilutions**

The following samples 1205339099 (Non SDG 612516014DUP) and 1205339100 (Non SDG 612516014PS) in this sample group were diluted due to matrix interference. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

<u>Product:</u> n-Hexane Extractable Material <u>Analytical Method:</u> EPA 1664A/1664B <u>Analytical Procedure:</u> GL-GC-E-094 REV# 18

Analytical Batch: 2398410

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#

612850001

612850002

1205345720

Client Sample Identification
Cavity
Spent Fuel Pool
Method Blank (MB)
Laboratory Control Sample (LCS)

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The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

**Product:** Solids, Total Suspended **Analytical Method:** SM 2540D

Analytical Procedure: GL-GC-E-012 REV# 18

**Analytical Batch:** 2393734

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612850001	Cavity
612850002	Spent Fuel Pool
1205337139	Method Blank (MB)
1205337140	Laboratory Control Sample (LCS)
1205337143	613035001(NonSDG) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Miscellaneous Information**

#### **Additional Comments**

A reduced aliquot was used due to limited volume. The client did not provide an entire 1 liter aliquot. 612850001 (Cavity) and 612850002 (Spent Fuel Pool).

**Product:** COD

CEL Comple ID#

**Analytical Method:** EPA 410.4

Analytical Procedure: GL-GC-E-061 REV# 21

Analytical Batch: 2394297

The following samples were analyzed using the above methods and analytical procedure(s).

Client Comple Identification

GEL Sample ID#	Chent Sample Identification
612850001	Cavity
612850002	Spent Fuel Pool
1205338110	Method Blank (MB)
1205338111	Laboratory Control Sample (LCS)
1205338112	612952001(NonSDG) Sample Duplicate (DUP)
1205338113	612952001(NonSDG) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

### **Data Summary:**

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

### **Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Page 40 of 45 SDG: 612850

Page of		L	_	2	0+0	001							GE	GEL Laboratories, LLC	ratories	, LLC				
Profest #	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	1 Selection 1 Sele	Chemistry	IDOI nistry   Ra	diochemi	Chemistry   Radiochemistry   Radiobloassay   Specialty Analytics	Dassay I S	pecialty	Analytics				Che Che	2040 Savage Road Charleston, SC 29407	SC 20	9407				
COC-Number (1):	2007 1-0		ofC	stody	and A	Chain of Custody and Analytical Request	Redu	est	ADDITIONAL			E STATE OF S	Pho	Phone: (843) 556-8171	3) 556	-8171				
PO Amber: EPA-SUB	GEL Work Order Number:			GEL P	roject	Manager: 1	Aatherin	re Cate	S					Fax: (843) 766-1178	766-1	8/				
Clieren International (CDI)	International (CDI)	Phone # (508)830-8184	)830-81	84				Sar	Sample Analysis Requested (3)	nalysi	s Req	nested		il È	num	oer of	contai	ners t	or eac	(Fill in the number of containers for each test)
Project/Site Name: Pilgrim Station	\$	Fax#				Should this		Sa	ΑS		IN	ΑS	AS		IN	AS	ΥН	ΑS	*	< Preservative Type (6)
Addess: 600 Rocky Hill Road, Plymouth, Ma 02360	360					sample be considered:			1060-110								əsı			Comments
Collected By: Site Chemistry	Send Results To: 1.hageman@CDI-decom.com	n@CDI-deco	m.com			(	ards		OD	SS	stals	əbini	OC	suoi	LOU	sinon	Grea	slons	SA	Note: extra sample is
Sample ID  Sample indicate state and state date limited.	*Date Collected	*Time Collected (Military)	QC Code (2) F	Field Filtered <sup>(3)</sup> 1	Sample Matrix (4)	Radioactive yes, please su isotopic info.	(7) Known o possible Haz	Total number		Т	•M		8,7,8,2 DT	2000	Bo	ımA	ons liO	ьрч	Id	required for sample specific QC
Cavity		8	z	z	M			x 61	×	×	×	×	×	×	×	×	×	×		
Spent Fuel Pool	2/28/2023	11:10	z	z	M	Ą		x 61	×	×	×	×	×	×	×	×	×	×	M	
									- 4											
					#V.											1				
				110																
			17.15																	
	Chain of Custody Signatures									TAT	TAT Requested:	sted:	Normal:	_	Rush:		S _x	Specify:		
Relinquished By (Signed) Date Tin	Time Received by (signed)	ned) Date	te	Time		F	Fax Results: [ ] Yes	ts: [ ]		[ x] No										
2/1/3	1468) 1 AH	1 3	3/2/63	09	3 0	Š	Select Deliverable: [	liverable	$\neg$	CofA	100	[ ] QC Summary	٦	] level [		[ ] Level 2		[ ] Level 3	- 1	[ ] Level 4
2	2 2					И	Additional Remarks:	l Remar	ks:			2000								5
3 3	Samule Receipt & Review form	(SRR.)				For Lab Receiving Use Only: Cust   Sample Collection Time Zone: [X] Eastern	For Lab Receiving Use Only: Custody Seal Intact? [ ] Yes ollection Time Zone: [X] Eastern [ ] Pacific [ ] Centra	Receivin Time Zo	ng Use	Only: (	ustod	ody Seal Inta	itact?	[ ] Central		18	Cooler Temp: untain [ ] C	[ ] Other	ther:	2
1.) Chain of Custody Number = Client Determined 2.) OC Codes. N = Normal Sample. TB = Trip Blank, FD = Field Duplicate. EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite	Field Duplicate, EB = Equipment Blank,	MS = Matrix Sp	ike Sampl	e, MSD =	Matrix Sp	ike Duplicate S	sample, G	= Grab, C	= Compo	site										
3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered.	or yes the sample was field filtered or - N	- for sample was	not field f	Itered.	9	13	9199	Palot Wash		표 된 전 전	P=Wir	e [17]	re F=Fec	Z Z	Isa					
4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, WL=Muse, ML=Muse, SU=Southern, SU=S	SW=Surface Water, WW=Waste Water, d (i.e. 8260B, 6010B/7470A) and number	W=Water, ML= of containers pre	viise Liqu	a, sO=so each (i.e. &	n, su-sec	J=S011, SD=Sediment, SD=Studge, (i.e. 8260B - 3, 6010B/7470A - 1).	. 1).					i i								
6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid,	Acid, $SH = Sodium Hydroxide$ , $SA = Sul$	furic Acid, 🗚 =	Ascorbic	Acid, HX	= Hexane,	HX = Hexane, $ST = Sodium$ Thiosulfate, If no preservative is added = leave field blank	Thiosulfate	e, If no pre	servative	is added	= leave	field blan	٠		7	No.	TANK THE PARTY OF			T. I. I.
7.) KNOWN OR POSSIBLE HAZARDS  RCRA Metals  As = Arsenic Hg= Mercury  Ro = Racting Se= Selentium	Characteristic Hazards FL = Flammable/Ignitable CO = Corrosive RE = Reactive	Listed Waste LW= Listed Waste (F. K.P. and U-listed Waste code(s):	Vaste sted Wa nd U-lis ode(s):	ste ted wastes.)	es.)		Other  OT= Other / Unknown  (i.e.: High/low pH, asbestos, beryllium, irritants, other misc. health hazards, etc.)  Description:	er / Unk Wow pł Ith haza	nown 7, asbez rds, etc	_ tos, be. ∵)	ryllium	, irrita	ıts, othe		Plea hanc samp	se prov lling a	ndor and or a stype of	y addi lispose site ce	ttonal il con illecte	Please provide any additional details below regarding handling and/or disposal concerns. (i.e.: Origin of sample(s), type of site collected from, odd matrices, etc.)
E E	TSCA Regulated PCB = Polychlorinated hinhenvls													Li						
rb = Lead	er kironidio								Control of the Contro				+							

DEWESTING DE	
(d=1)	Laboratories LLC

	(c)=1-1	Laboratories LLC				SAMPLE RECEIPT & REVIEW FORM	
Client	:	CDEC			SDO	G/AR/COC/Work Order:	$\dashv$
Recei	ved By:	G M			Da	te Received: 3/2/2 Circle Applicable:	$\dashv$
C	Carrier an	d Tracking Number			7	Mota FedEx Express FedEx Ground UPS Field Services Courier Other  7714 43718485 #1-4  #12-5  #13-56	<
Suspo	ected Hazai	d Information	Yes	Š	*lf	f Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.	
A)Sh	ipped as a D	OT Hazardous?	-		-	nzard Class Shipped:  If UN2910, Is the Radioactive Shipment Survey Compliant? YesNo	
B) D	id the client ved as radio	designate the samples are to be	-			OC notation or radioactive stickers on containers equal client designation.	
C) D		classify the samples as	-		М	Plaximum Net Counts Observed* (Observed Counts - Area Background Counts):CPM_mR/Fr Classified as: Rad 1	
		t designate samples are hazardous?			1	OC notation or hazard labels on containers equal client designation.	
		identify possible hazards?		-	-	f D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:	
E) [		nple Receipt Criteria	Yes	12	ş T	Comments/Qualifiers (Required for Non-Conforming Items)	
1	Shipping	containers received intact and	1	THE WAY	20	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)	
2	scaled? Chain of with ship	custody documents included	/	ALE LA		Circle Applicable: Client contacted and provided COC COC created upon receipt  Coc created upon receipt  Description Method: Wet Ire Packs Dry ice None Other:	
3	Samples	requiring cold preservation	-			Preservation Method: Well tee Tee Faces By TEMP:	- (
4	Daily ch	eck performed and passed on IR	/	The state of		Temperature Device Serial #:  Secondary Temperature Device Serial # (If Applicable):  Circle Applicable: Seals broken Damaged container Leaking container Other (describe)	1
5	Sample	containers intact and scaled?		CATTOR OF		Spent Fuel Pool - I.TCDD bottle rec'd broken tempt Sample ID's and Containers Affected: Proper preservative Indicated	4
6	Samples at prope	requiring chemical preservation rpH?	0		-	If Preservation added, Lot#:  If Yes, are Encores or Soil Kits present for solids? YesNoNA(If yes, take to VOA Freezer)	
	7 Do	any samples require Volatile Analysis?		Cally Inches		Do liquid VOA vials contain acid preservation? YesNoNA  Are liquid VOA vials free of headspace? YesNoNA  Sample ID's and containers affected:	
-	8 Sample	s received within holding time?		Y		ID's and tests affected:	
-	9 Sample	ID's on COC match ID's on		X		1D's and containers affected:  Circle Applicable: No dates on containers  No times on containers  COC missing info  Other (describe)	
		time on COC match date & tin	ne	1			
+	Numb	er of containers received match ir indicated on COC?		X		Circle Applicable: No container count on COC Other (describe)	
ŀ	12 Are sa	mple containers identifiable as		X	超越	Circle Applicable: Not relinquished Other (describe)	
	13 COC	form is properly signed in	61	¥			
	Comments	(Use Continuation Form if needed):	•				
						A) 2/2/12	
	L	РМ (с	or PN	1A)	revie	ew: Initials Page of GL-CHL-SR-00	)1 Rev

Page 42 of 45 SDG: 612850

#### **Anna Johnson**

From: Erin Trent

**Sent:** Monday, March 6, 2023 10:06 AM Laura Hageman; Anna Johnson

**Cc:** Team Trent

**Subject:** RE: Broken container for 2,3,7,8 TCDD (612850)

Follow Up Flag: Follow up Flag Status: Flagged

Hi Laura,

If you sent 3 bottles for TCDD, then we should be fine. Do you remember if 3 were sent?

### **Erin Trent**

### **Project Manager**



# Laboratories LLC

2040 Savage Road, Charleston, SC 29407 | PO Box 30712, Charleston, SC 29417 Office Direct: 843.769.7374 | Office Main: 843.556.8171 | Fax: 843.766.1178

E-Mail: erin.trent@gel.com | Website: www.gel.com

### **Analytical Testing**







From: Laura Hageman < l.hageman@holtec.com>

**Sent:** Monday, March 6, 2023 9:59 AM **To:** Anna Johnson <Anna.Johnson@gel.com>

Cc: Team Trent <Team.Trent@gel.com>; Erin Trent <Erin.Trent@gel.com>

Subject: RE: Broken container for 2,3,7,8 TCDD (612850)

### [EXTERNAL EMAIL] DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

Thank you for the information. I am sorry I did not reply sooner (we are off on Fridays). Is there enough sample for the analysis to be performed or will another sample need to be sent?

Thank you,

### Laura Hageman

Chemistry Superintendent/ BHI Site Manager Pilgrim Nuclear Power Station (508) 830-8184 (w) (508) 254-5594 (c) From: Anna Johnson <Anna.Johnson@gel.com>

Sent: Friday, March 3, 2023 9:59 AM

To: Laura Hageman < <a href="mailto:l.hageman@holtec.com">l.hageman@holtec.com</a> Cc: Team Trent < Team.Trent@gel.com>

Subject: Broken container for 2,3,7,8 TCDD (612850)

### CAUTION: This email came from a source OUTSIDE of Holtec!!

Do not click any links or open any attachments unless you trust the sender and know the contents to be safe.

Clicking links or opening attachments could lead to infecting your computer or Holtec's servers with malicious viruses.

Hello.

we received sample container Spent Fuel Pool for 2,3,7,8 TCDD broken and empty, please advise how we should proceed.

See attachment for reference,

Thanks!

#### **Anna Johnson**

#### **Project Manager Assistant**



2040 Savage Road, Charleston, SC 29407 | PO Box 30712, Charleston, SC 29417

Office Main: 843.556.8171 | Fax: 843.766.1178

E-Mail: anna.johnson@gel.com | Website: www.gel.com

**Analytical Testing** 







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List of current GEL Certifications as of 15 March 2023

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012 SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2019020
· · ·	
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122023-4
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2022-160
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-22-20
Utah NELAP	SC000122022-37
Vermont	VT87156
Virginia NELAP	460202
Washington	C780



a member of The GEL Group INC







PO Box 30712 Charleston, SC 29417 2040 Savage Road Charleston, SC 29407 P 843.556.8171 F 843.766.1178

gel.com

March 15, 2023

Laura Hageman HDI, Inc. 1 Holtec Blvd. Camden, New Jersey 08104

Re: Pilgrim NPDES Permit Modification

Work Order: 612643

Dear Laura Hageman:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on March 01, 2023. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Chain of Custody form did not contain a relinquished signature. All sample containers arrived without any visible signs of tampering or breakage. The following additional comments were noted at receipt: (insert text box).. Only received 18 containers, and the chain of custody states that there are 19 containers. Client was notified via email and advised to proceed with analysis.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4504.

Sincerely,

Erin Trent

Project Manager

Vie & Trent

Purchase Order: 98000918

Enclosures



2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

# Certificate of Analysis Report for

CDEC001 Holtec Decommissioning International, LLC Client SDG: 612643 GEL Work Order: 612643

### The Qualifiers in this report are defined as follows:

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- J Value is estimated
- N Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Erin Trent.

	Exic &	Trent		
Reviewed by				

Page 2 of 39 SDG: 612643

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

### **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Report Date: March 15, 2023

Contact: Laura Hageman

Project: **Pilgrim NPDES Permit Modification** 

> Client Sample ID: Sample ID: Matrix: CDEC00107 CDEC001 Torus-Avantech Influent Proiect: 612643001 Client ID:

Water

Collect Date: 27-FEB-23 09:05 Receive Date: 01-MAR-23 Collector: Client

	Conector.		Client					
Parameter	Qualifier	Result		DL	RL	Units	PF	DF Analyst Date Time Batch Mtd
Carbon Analysis								
SM 5310 B Total Orga	anic/Inorganic Car	bon "As Rec	ceived"					
Total Organic Carbon	Average J	0.528		0.330	1.00	mg/L		1 TSM 03/13/23 1908 23923791
Flow Injection Analysi	is							
EPA 335.4 Cyanide, T	Total "As Received"	"						
Cyanide, Total 57-12-5	U	ND		1.67	5.00	ug/L	1.00	1 AXH3 03/06/23 1029 23929202
EPA 420.4 Total Pher	nols "As Received"							
Total Phenol	U	ND		1.67	10.0	ug/L	1.00	1 AXH3 03/08/23 0542 23937153
Ion Chromatography								
SW846 9056 Anions, 1	Liquid "As Received	d''						
Chloride 16887-00-6		79.0	+/-2.69	1.68	5.00	mg/L		25 JLD1 03/02/23 2356 23928844
Bromide		0.269	+/-0.0241	0.0670	0.200	mg/L		1 JLD1 03/02/23 1837 23928845
24959-67-9								
Fluoride	U	ND	+/-0.0110	0.0330	0.100	mg/L		1
16984-48-8 Sulfate		8.51	+/-0.287	0.133	0.400	mg/L		1
14808-79-8		0.51	T/-0.287	0.133	0.400	mg/L		1
Mercury Analysis-CV	AA							
EPA 245 Mercury "As								
Mercury	U	ND	+/-0.0226	0.0670	0.200	ug/L	1.00	1 JP2 03/03/23 1038 23922846
7439-97-6	C					C		
Metals Analysis-ICP-N	MS							
200.8/200.2 Priority I	Pollutant "As Recei	ved"						
Zinc		1400	+/-70.0	3.30	20.0	ug/L	1.00	1 BAJ 03/07/23 0450 23922987
7440-66-6						_		
Antimony	U	ND	+/-0.333	1.00	3.00	ug/L	1.00	1 BAJ 03/07/23 1603 23922988
7440-36-0 Arsenic	<b>T</b> T	ND	+/-0.667	2.00	5.00	ug/L	1.00	1
7440-38-2	U	ND	T/-0.00/	2.00	5.00	ug/L	1.00	1
Beryllium	U	ND	+/-0.0667	0.200	0.500	ug/L	1.00	1
7440-41-7	3					Č		
							1.00	

Page 3 of 39 SDG: 612643

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

### **Certificate of Analysis**

Report Date: March 15, 2023

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

	Client Sample Sample ID:	e ID:	Torus-Avante 612643001	ch Influe	nt		Proiect: Client ID:	CDEC00107 CDEC001		
Parameter	Qualifier	Result		DL	$\mathbf{RL}$	Units	PF	DF Analyst Date	Time	Batch Mtd.
Metals Analysis-ICP-M	S									
200.8/200.2 Priority Po	ollutant "As Recei	ved"								
Boron		169	+/-8.64	5.20	15.0	ug/L		1		
7440-42-8										
Cadmium 7440-43-9	U	ND	+/-0.100	0.300	1.00	ug/L	1.00	1		
Chromium 7440-47-3	U	ND	+/-1.00	3.00	10.0	ug/L	1.00	1		
Copper 7440-50-8	U	ND	+/-0.100	0.300	2.00	ug/L	1.00	1		
Lead 7439-92-1	U	ND	+/-0.167	0.500	2.00	ug/L	1.00	1		
Nickel 7440-02-0		2.93	+/-0.248	0.600	2.00	ug/L	1.00	1		
Selenium 7782-49-2	U	ND	+/-0.500	1.50	5.00	ug/L	1.00	1		
Silver 7440-22-4	U	ND	+/-0.100	0.300	1.00	ug/L	1.00	1		
Thallium 7440-28-0	U	ND	+/-0.200	0.600	2.00	ug/L	1.00	1		
Nutrient Analysis										
EPA 350.1 Nitrogen, A	mmonia "As Rece	ived"								
Nitrogen, Ammonia 7664-41-7	U	ND		0.0170	0.0500	mg/L		1 AXH3 03/0	9/23 0939	23948289
Oil & Grease Analysis										
EPA 1664A/B n-Hexan	e Extractable Ma	terial (O&C	G) "As Received"							
Oil and Grease	J	1.44		1.35	4.81	mg/L		DXB7 03/1	4/23 0546	5 239689610
Semi-Volatile-GC/MS										
EPA 625.1 SVOA, Liqu	id "As Received"									
2,4,6-Trichlorophenol 88-06-2	U	ND		2.84	9.47	ug/L0	0.000947	1 LL2 03/0	2/23 2324	239187111
2,4-Dichlorophenol 120-83-2	U	ND		2.84	9.47	ug/L0	0.000947	1		
2,4-Dimethylphenol 105-67-9	U	ND		2.84	9.47	ug/L0	0.000947	1		
2,4-Dinitrophenol 51-28-5	U	ND		4.74	18.9	ug/L0	0.000947	1		
2-Chlorophenol 95-57-8	U	ND		2.84	9.47	ug/L0	0.000947	1		

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Report Date: March 15, 2023

### **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

	Client Sample Sample ID:	e ID:	Torus-Avantech Influe 612643001	nt		Proiect: Client ID:	CDEC0010 CDEC001	7		
Parameter	Qualifier	Result	DL	RL	Units	PF	DF Analyst	t Date	Гіте	Batch Mtd
Semi-Volatile-GC/MS										
EPA 625.1 SVOA, Liquid	"As Received"									
2-Methyl-4,6-dinitrophen	ol U	ND	2.84	9.47	ug/L0	.000947	1			
534-52-1										
2-Nitrophenol	U	ND	2.84	9.47	ug/L0	.000947	1			
88-75-5 4-Chloro-3-methylphenol	<b>T</b> T	ND	2.84	9.47	ng/L 0	.000947	1			
59-50-7	U	ND	2.04	9.47	ug/L0	.000947	1			
4-Nitrophenol	U	ND	2.84	9.47	ug/L0	.000947	1			
100-02-7	C									
Pentachlorophenol	U	ND	2.84	9.47	ug/L0	.000947	1			
87-86-5										
Phenol	U	ND	2.84	9.47	ug/L0	.000947	1			
108-95-2										
Semi-Volatiles-PCB	ann	•								
EPA 608.3 PCB, Liquid (	ŕ		0.004.5		· -			00/07/00	40=4	
Aroclor-1016	U	ND	0.0315	0.0947	ug/L()	.000947	1 YS1	03/05/23	1854	239261012
12674-11-2 Aroclor-1221		ND	0.0315	0.0947	ug/L 0	.000947	1			
11104-28-2	U	ND	0.0313	0.0547	ug/L0	.000947	1			
Aroclor-1232	U	ND	0.0315	0.0947	ug/L0	.000947	1			
11141-16-5	O									
Aroclor-1242	U	ND	0.0315	0.0947	ug/L0	.000947	1			
53469-21-9										
Aroclor-1248	U	ND	0.0315	0.0947	ug/L0	.000947	1			
12672-29-6		MD	0.0215	0.0047	/T. O	000047	4			
Aroclor-1254 11097-69-1	U	ND	0.0315	0.0947	ug/L0	.000947	1			
Aroclor-1260	U	ND	0.0315	0.0947	11g/L.O	.000947	1			
11096-82-5	U	ND	0.0313	0.0517	ug/E	.000717	1			
Aroclor-Total	U	ND	0.0315	0.0947	ug/L0	.000947	1			
PCBTOT										
Solids Analysis										
SM 2540D Total Suspend	ed Solids (TSS)	"As Receiv	ed"							
Total Suspended Solids	U	ND	0.570	2.50	mg/L		CH6	03/02/23	0751	239226113
Spectrometric Analysis										
EPA 410.4 Chemical Oxy	gen Demand "A	As Received	"							
COD	O = 2	39.2	8.95	20.0	mg/L		1 HH2	03/03/23	1403	239284614

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### **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Report Date: March 15, 2023

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

	Client Sample ID: Sample ID:	Torus-Avantech Influent 612643001		Project: Client ID:	CDEC00107 CDEC001	
Parameter	Qualifier Result	DL	$\mathbf{RL}$	Units PF	DF Analyst Date	Time Batch Mtd.

The following Prep Me	thods were performed:					
Method	Description	Analyst	Date	Time	Prep Batch	
EPA 200.2	ICP-MS 200.2 PREP	CD3	03/02/23	1550	2392297	
EPA 245.1/245.2 Prep	EPA 245 Mercury	RM4	03/02/23	1125	2392283	
EPA 420.4	EPA 420.4 Phenols, Total in liquid PREP	ES2	03/07/23	1100	2393714	
EPA 335.4	EPA 335.4 Total Cyanide	ES2	03/03/23	1208	2392919	
EPA 608.3	EPA 608.3 PCB Prep Liquid (SPE)	JM12	03/03/23	1053	2392608	
EPA 625.1	BNA Liq. Prep-EPA 625 Analysis	TH1	03/02/23	1149	2391868	

The following Analytical Methods were performed:

Method	Description	<b>Analyst Comments</b>	
1	SM 5310 B		
2	EPA 335.4		
3	EPA 420.4		
4	SW846 9056		
5	SW846 9056		
6	EPA 245.1/245.2		
7	EPA 200.8		
8	EPA 200.8		
9	EPA 350.1		
10	EPA 1664A/1664B		
11	EPA 625.1		
12	EPA 608.3		
13	SM 2540D		
14	EPA 410.4		

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Nitrobenzene-d5	EPA 625.1 SVOA, Liquid "As Received"	34.8 ug/L	47.4	74	(39%-112%)
2-Fluorobiphenyl	EPA 625.1 SVOA, Liquid "As Received"	34.4 ug/L	47.4	73	(39%-112%)
p-Terphenyl-d14	EPA 625.1 SVOA, Liquid "As Received"	19.4 ug/L	47.4	41	(24%-129%)
2,4,6-Tribromophenol	EPA 625.1 SVOA, Liquid "As Received"	54.4 ug/L	94.7	57	(37%-132%)
Phenol-d5	EPA 625.1 SVOA, Liquid "As Received"	16.8 ug/L	94.7	18	(15%-85%)
2-Fluorophenol	EPA 625.1 SVOA, Liquid "As Received"	22.9 ug/L	94.7	24	(11%-79%)

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### **Certificate of Analysis**

Report Date: March 15, 2023

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

	Client Sample ID: Sample ID:	Torus-Avantech Influen 612643001	ıt		Project: Client ID:	CDEC00107 CDEC001	,	
Parameter	Qualifier Result	DL	RL	Units	PF	DF Analyst	Date Time I	Batch Mtd.
Decachlorobiphenyl	EPA 608.3 PCB, I Received"	Liquid (SPE) "As	0.154	4 ug/L	0.189	81	(38%-133%	5)
4cmx	EPA 608.3 PCB, I Received"	Liquid (SPE) "As	0.124	4 ug/L	0.189	66	(33%-109%	5)

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QC Summary

Report Date: March 15, 2023

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HDI, Inc. 1 Holtec Blvd. Camden, New Jersey

Contact: Laura Hageman

Workorder: 612643

Parmname	NOM	Sample Qual	QC	Units	RPD/D%	REC%	Range A	Anlst	Date Time
Carbon Analysis									
Batch 2392379 —									
QC1205334900 612533001 DUP									
Total Organic Carbon Average	U	ND U	ND	mg/L	N/A			TSM	03/13/23 17:26
QC1205334899 LCS									
Total Organic Carbon Average	10.0		9.84	mg/L		98.4	(80%-120%)		03/13/23 16:34
2				Č			,		
QC1205334898 MB		**	N.D.	7					22/10/20 15 25
Total Organic Carbon Average		U	ND	mg/L					03/13/23 16:25
QC1205334902 612533001 PS									
Total Organic Carbon Average	10.0 U	ND	10.2	mg/L		101	(65%-120%)		03/13/23 18:06
Flow Injection Analysis Batch 2392920 ———									
						_			
QC1205335700 612715002 DUP Cyanide, Total	U	ND U	ND	ug/L	N/A			AXH3	03/06/23 10:43
Cyamac, Total		110 -	1,12	~5/ <del>-</del>	1 1/11			FMAIL	03/00/23 10.43
QC1205335697 LCS				_					
Cyanide, Total	50.0		50.0	ug/L		100	(90%-110%)		03/06/23 10:12
QC1205335696 MB									
Cyanide, Total		U	ND	ug/L					03/06/23 10:11
QC1205335701 612715002 MS Cyanide, Total	100 U	ND	105	ug/L		105	(90%-110%)		03/06/23 10:44
Cyanide, Total	100 0	ND	103	ug/L		103	(90%-110%)		03/00/23 10.44
Batch 2393715 ———									
QC1205337077 LCS									
Total Phenol	50.0		45.2	ug/L		90.4	(90%-110%)	AXH3	03/08/23 05:34

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### **QC** Summary

Workorder: 612643 Page 2 of 17 Parmname **NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Flow Injection Analysis 2393715 Batch QC1205337076 U ND ug/L AXH3 03/08/23 05:33 Total Phenol QC1205337078 612516014 MS 50.0 U ND Total Phenol 44.7 ug/L 89.5\* (90%-110%) 03/08/23 05:38 QC1205337079 612516014 MSD 50.0 U ND Total Phenol 4.07 93.2 (0%-20%)03/08/23 05:39 46.6 ug/L Ion Chromatography 2392884 QC1205335640 612772001 DUP Bromide U ND U ND mg/L N/A JLD1 03/02/23 21:48 Chloride 9.58 9.56 0.192 (0%-20%)mg/L Fluoride 0.279 0.278 mg/L 0.251 ^ (+/-0.100)Sulfate 261 260 mg/L0.403 (0%-20%)03/03/23 02:35 QC1205335639 LCS (90%-110%) Bromide 1.25 1.31 mg/L 105 03/02/23 18:05 Chloride 5.00 4.98 99.5 (90%-110%) mg/L Fluoride 2.50 2.50 mg/L 100 (90%-110%) 10.0 (90%-110%)Sulfate 10.2 mg/L 102 QC1205335638 MB U ND 03/02/23 17:34 Bromide mg/L U Chloride ND mg/L

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### QC Summary

Workorder: 612643 Page 3 of 17 **P**armname **NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Ion Chromatography 2392884 Batch Fluoride U ND mg/LJLD1 03/02/23 17:34 Sulfate U ND mg/L QC1205335641 612772001 PS 1.25 U ND 1.28 102 (90%-110%) 03/02/23 23:24 Bromide mg/L Chloride 5.00 9.58 15.4 mg/L 117\* (90%-110%) Fluoride 2.50 0.279 2.66 95.2 mg/L (90%-110%) Sulfate 10.0 10.4 21.0 mg/L 105 (90%-110%) 03/03/23 03:07 Metals Analysis - ICPMS Batch 2392298 QC1205334767 612643001 DUP U ND U ND N/A BAJ 03/07/23 16:07 Antimony ug/L U ND U ND Arsenic ug/L N/A Beryllium U ND U ND ug/L N/A Boron 169 176 (0%-20%)ug/L 3.83 Cadmium U ND U ND ug/L N/A ND ND Chromium U U ug/L N/A ug/L Copper U ND U ND N/A U ND U ND Lead N/A ug/L

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### QC Summary

Workorder: 612643 Page 4 of 17 Parmname **NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Metals Analysis - ICPMS Batch 2392298 Nickel 2.93 2.86 ug/L 2.35 ^ (+/-2.00)BAJ 03/07/23 16:07 U Selenium ND U ND ug/L N/A Silver U ND U ND ug/L N/A U Thallium ND U ND ug/L N/A Zinc 1400 1460 ug/L 4.38 (0%-20%)03/07/23 04:53 QC1205334766 LCS Antimony 50.0 53.7 ug/L 107 (85%-115%) 03/07/23 16:00 Arsenic 50.0 50.8 ug/L 102 (85%-115%) 54.9 Beryllium 50.0 ug/L 110 (85%-115%) 100 103 103 Boron ug/L (85%-115%) Cadmium 50.0 53.9 108 (85%-115%) ug/L Chromium 50.0 51.9 104 ug/L (85%-115%) 50.0 53.1 Copper ug/L 106 (85%-115%) Lead 50.0 52.7 105 (85%-115%) ug/L 53.2 Nickel 50.0 106 ug/L (85%-115%) Selenium 50.0 51.9 ug/L 104 (85%-115%)

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### QC Summary

Workorder: 612643 Page 5 of 17 NOM QC RPD/D% REC% Parmname Sample Qual Units Range Anlst Date Time Metals Analysis - ICPMS 2392298 Batch Silver 50.0 55.0 ug/L 110 (85%-115%) BAJ 03/07/23 16:00 Thallium 50.0 53.2 ug/L 106 (85%-115%) Zinc 50.0 52.4 ug/L 105 (85%-115%) 03/07/23 04:46 QC1205334765 MB U Antimony ND ug/L 03/07/23 15:56 U ND ug/L Arsenic U ND Beryllium ug/L U ND Boron ug/L U ND Cadmium ug/L Chromium U ND ug/L U ND Copper ug/L Lead U ND ug/L U ND Nickel ug/L Selenium U ND ug/L Silver U ND ug/L Thallium U ND ug/L

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### QC Summary

612643 Page 6 of 17 Range Parmname **NOM** Sample Qual QC Units RPD/D% REC% Anlst Date Time Metals Analysis - ICPMS Batch 2392298 Zinc U ND ug/L BAJ 03/07/23 04:43 QC1205334768 612643001 MS 50.0 U ND 54.2 108 03/07/23 16:11 Antimony ug/L (75% - 125%)Arsenic 50.0 U ND 51.5 ug/L 103 (75%-125%) Beryllium 50.0 U ND 55.1 ug/L 110 (75%-125%) Boron 100 169 270 ug/L 101 (75%-125%) ND Cadmium 50.0 U 52.7 ug/L 105 (75%-125%) Chromium 50.0 U ND 52.7 ug/L 105 (75%-125%) U ND Copper 50.0 53.8 ug/L 107 (75%-125%) 50.0 U ND 50.7 ug/L 101 Lead (75%-125%) Nickel 50.0 2.93 54.6 103 ug/L (75% - 125%)50.0 U ND Selenium 50.7 ug/L 101 (75% - 125%)Silver 50.0 U ND 52.7 ug/L 105 (75%-125%) Thallium 50.0 U ND 50.9 102 ug/L (75%-125%)Zinc 50.0 1400 1480 ug/L N/A (75%-125%) 03/07/23 04:57

Workorder:

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### **QC** Summary

Page 7 of 17 **Parmname** NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Metals Analysis - ICPMS 2392298 Batch QC1205334769 612643001 SDILT ND U ND U ug/L N/A(0%-10%)BAJ 03/07/23 16:14 Antimony Arsenic U ND U ND ug/L N/A (0%-10%)Beryllium U ND U ND (0%-10%) ug/L N/A Boron 169 40.3 ug/L 19 (0%-10%)U ND U ND ug/L Cadmium N/A (0%-10%)U Chromium ND U ND ug/L N/A (0%-10%)U ND U ND ug/L N/A (0%-10%)Copper U ND U ND Lead ug/L N/A (0%-10%)Nickel 2.93 0.674 J ug/L 15.1 (0%-10%)U ND U ND Selenium ug/L (0%-10%)N/A Silver U ND U ND N/A ug/L (0%-10%)U ND Thallium ND U ug/L N/A (0%-10%)Zinc 1400 299 ug/L 6.87 (0%-10%)03/07/23 05:00 Metals Analysis-Mercury 2392284 QC1205334717 612518001 DUP U ND U ND ug/L N/A JP2 03/03/23 10:30 Mercury

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Workorder:

612643

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### **QC** Summary

Workorder: 612643 Page 8 of 17 Parmname NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Metals Analysis-Mercury 2392284 Batch QC1205334716 LCS 1.97 2.00 ug/L 98.5 (85%-115%) JP2 03/03/23 10:25 Mercury QC1205334715 MB U ND 03/03/23 10:23 Mercury ug/L QC1205334718 612518001 MS 2.00 U ND 1.80 89.8 (75%-125%) 03/03/23 10:31 Mercury ug/L QC1205334719 612518001 SDILT U ug/L ND U ND N/A (0%-10%)03/03/23 10:33 Mercury **Nutrient Analysis** Batch 2394828 QC1205339099 612516014 DUP 0.385 0.460 (+/-0.100) AXH3 03/09/23 12:26 Nitrogen, Ammonia mg/L 17.8 ^ QC1205339098 LCS Nitrogen, Ammonia 1.00 1.02 mg/L 102 (90%-110%) 03/09/23 09:31 QC1205339097 MB J 0.0210 Nitrogen, Ammonia mg/L 03/09/23 09:30 QC1205339100 612516014 PS 1.00 0.0920 0.858 76.6\* (90%-110%) 03/09/23 12:28 Nitrogen, Ammonia mg/L Oil & Grease Analysis 2396896 QC1205342505 LCS Oil and Grease 40.0 36.4 mg/L (78%-114%) DXB7 03/14/23 05:46 QC1205342504 MB Oil and Grease U ND mg/L 03/14/23 05:46

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### **QC** Summary

Workorder: 612643 Page 9 of 17 Parmname NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Oil & Grease Analysis 2396896 Batch QC1205342507 611175001 MS 1.98 38.3 Oil and Grease 40.0 J mg/L 90.8 (78%-114%) DXB7 03/14/23 05:46 Semi-Volatile-GC/MS 2391871 Batch QC1205334196 LCS 50.0 42.1 2,4,6-Trichlorophenol ug/L 84 (50%-127%) LL2 03/02/23 17:26 2,4-Dichlorophenol 50.0 37.2 ug/L 74 (50%-119%) 50.0 26.8 2,4-Dimethylphenol ug/L 54 (46%-99%) 50.0 47.1 2,4-Dinitrophenol ug/L 94 (28%-151%) 2-Chlorophenol 50.0 32.0 (46%-107%) ug/L 64 55.1 50.0 2-Methyl-4,6-dinitrophenol ug/L 110 (42% - 149%)2-Nitrophenol 50.0 43.7 ug/L 87 (50%-115%) 50.0 37.8 4-Chloro-3-methylphenol ug/L 76 (50%-118%)4-Nitrophenol 50.0 15.5 ug/L 31 (21%-110%) 64 Pentachlorophenol 50.0 32.1 ug/L (42%-132%) Phenol 50.0 15.7 ug/L 31 (12%-90%) 84.1 \*\*2,4,6-Tribromophenol 100 ug/L 84 (37%-132%) \*\*2-Fluorobiphenyl 50.0 38.6 ug/L 77 (39%-112%)

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## QC Summary

		QC 5u	<i></i>	y				
Workorder: 612643								Page 10 of 17
Parmname	NOM	Sample Qual	QC	Units RPD/	D% REC%	Range	Anlst	Date Time
Semi-Volatile-GC/MS Batch 2391871								
**2-Fluorophenol	100		38.2	ug/L	38	(11%-79%)	LL2	03/02/23 17:26
**Nitrobenzene-d5	50.0		37.3	ug/L	75	(39%-112%)		
**Phenol-d5	100		29.3	ug/L	29	(15%-85%)		
**p-Terphenyl-d14	50.0		37.4	ug/L	75	(24%-129%)		
QC1205334195 MB 2,4,6-Trichlorophenol		U	ND	ug/L				03/02/23 16:59
2,4-Dichlorophenol		U	ND	ug/L				
2,4-Dimethylphenol		U	ND	ug/L				
2,4-Dinitrophenol		U	ND	ug/L				
2-Chlorophenol		U	ND	ug/L				
2-Methyl-4,6-dinitrophenol		U	ND	ug/L				
2-Nitrophenol		U	ND	ug/L				
4-Chloro-3-methylphenol		U	ND	ug/L				
4-Nitrophenol		U	ND	ug/L				
Pentachlorophenol		U	ND	ug/L				
Phenol		U	ND	ug/L				

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### **QC** Summary

Workorder: 612643 Page 11 of 17 **Parmname NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Semi-Volatile-GC/MS 2391871 Batch \*\*2,4,6-Tribromophenol 100 75.9 ug/L 76 (37% - 132%)LL2 03/02/23 16:59 \*\*2-Fluorobiphenyl 50.0 34.8 70 (39%-112%) ug/L \*\*2-Fluorophenol 100 35.9 ug/L 36 (11%-79%)\*\*Nitrobenzene-d5 50.0 35.6 ug/L 71 (39%-112%) \*\*Phenol-d5 100 26.8 ug/L 27 (15%-85%) 36.1 (24% - 129%)\*\*p-Terphenyl-d14 50.0 ug/L 72 QC1205334197 612518003 MS 2,4,6-Trichlorophenol 100 U ND 65.6 ug/L (47%-130%) 03/02/23 22:29 66 U ND 57.7 2,4-Dichlorophenol 100 ug/L 58 (49%-119%) ND 2,4-Dimethylphenol 100 U 44.1 ug/L 44 (40%-111%)2,4-Dinitrophenol 100 U ND 55.2 ug/L 55 (25%-154%) U ND 54.7 2-Chlorophenol 100 ug/L 55 (42%-113%) ND 2-Methyl-4,6-dinitrophenol 100 U 68.6 ug/L (30%-145%) 69 2-Nitrophenol 100 U ND 60.0 (42% - 120%)ug/L 60 ND 67.5 100 U 4-Chloro-3-methylphenol ug/L 67 (42%-123%) 4-Nitrophenol 100 U ND 37.2 ug/L 37 (20% - 98%)

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### **QC** Summary

Workorder: 612643 Page 12 of 17 **Parmname** NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Semi-Volatile-GC/MS 2391871 Batch Pentachlorophenol 100 U ND 48.7 ug/L 49 (36%-139%) LL2 03/02/23 22:29 Phenol 100 U ND 36.1 (23%-71%) ug/L 36 \*\*2,4,6-Tribromophenol 200 53.6 128 ug/L 64 (37%-132%) 27.0 \*\*2-Fluorobiphenyl 100 56.1 ug/L 56 (39%-112%) \*\*2-Fluorophenol 200 29.3 75.7 ug/L 38 (11%-79%) 27.2 52.9 \*\*Nitrobenzene-d5 100 ug/L (39%-112%) 53 \*\*Phenol-d5 200 19.5 66.7 ug/L 33 (15%-85%) \*\*p-Terphenyl-d14 100 22.2 62.0 62 (24% - 129%)ug/L QC1205334198 612518003 MSD ND 2,4,6-Trichlorophenol 100 U 84.4 ug/L 25 84 (0%-79%)03/02/23 22:57 2,4-Dichlorophenol 100 U ND 80.1 32 80 (0%-42%)ug/L U ND 60.1 2,4-Dimethylphenol 100 ug/L 31 60 (0%-42%)ND 2,4-Dinitrophenol 100 U 66.9 ug/L 19 67 (0%-106%)2-Chlorophenol 100 U ND 70.3 70 (0%-78%)ug/L 25 U ND 100 84.0 84 2-Methyl-4,6-dinitrophenol ug/L 20 (0%-86%)2-Nitrophenol 100 U ND 85.0 ug/L 34 85 (0%-69%)

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### **QC** Summary

Workorder: 612643 Page 13 of 17 **Parmname** NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Semi-Volatile-GC/MS 2391871 Batch 4-Chloro-3-methylphenol 100 U ND 88.3 ug/L 27 88 (0%-41%)LL2 03/02/23 22:57 4-Nitrophenol 100 U ND 48.2 48 (0%-110%) ug/L 26 Pentachlorophenol 100 U ND 58.7 ug/L 19 59 (0%-82%)U ND 47.9 Phenol 100 ug/L 28 48 (0%-42%)\*\*2,4,6-Tribromophenol 200 53.6 166 ug/L 83 (37%-132%) 27.0 73.0 \*\*2-Fluorobiphenyl 100 ug/L (39%-112%) 73 95.3 \*\*2-Fluorophenol 200 29.3 ug/L 48 (11%-79%) \*\*Nitrobenzene-d5 100 27.2 72.1 72 (39%-112%) ug/L 19.5 88.2 \*\*Phenol-d5 200 ug/L 44 (15%-85%) 100 22.2 68.3 \*\*p-Terphenyl-d14 ug/L 68 (24% - 129%)Semi-Volatiles-PCB 2392610 Batch QC1205335249 LCS 1.00 0.717 Aroclor-1016 ug/L 72 (50%-101%) YS1 03/05/23 17:18 Aroclor-1260 1.00 0.717 ug/L 72 (46%-108%) \*\*4cmx 0.200 0.121 (33%-109%) ug/L 61 \*\*Decachlorobiphenyl 0.200 0.155 ug/L 77 (38%-133%)

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## QC Summary

		<b>X</b>		itai y					
Workorder: 612643	3								Page 14 of 17
Parmname	NO	OM Sample	Qual Q	C Units	RPD/D%	REC%	Range	Anlst	Date Time
Semi-Volatiles-PCB Batch 2392610									
QC1205335250 LC Aroclor-1016	SD 1.00	)	0.7	741 ug/	L 3	74	(0%-26%)	YS1	03/05/23 17:30
Aroclor-1260	1.00	)	0.′	728 ug/	L 1	73	(0%-26%)		
**4cmx	0.200	)	0.	122 ug/	L	61	(33%-109%)		
**Decachlorobiphenyl	0.200		0.	159 ug/	L	80	(38%-133%)		
QC1205335248 MF Aroclor-1016	3		Ū	ND ug/	L				03/05/23 17:06
Aroclor-1221			U	ND ug/	L				
Aroclor-1232			U	ND ug/	L				
Aroclor-1242			U	ND ug/	L				
Aroclor-1248			U	ND ug/	L				
Aroclor-1254			U	ND ug/	L				
Aroclor-1260			U	ND ug/	L				
Aroclor-Total			U	ND ug/	L				
**4cmx	0.200		0.	112 ug/	L	56	(33%-109%)		
**Decachlorobiphenyl	0.200	)	0.	150 ug/	L	75	(38%-133%)		

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### **QC** Summary

		2000		,					
Workorder: 612643									Page 15 of 17
Parmname	NOM	Sample Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Solids Analysis Batch 2392261 ——									
QC1205334828 612682001 DUP Total Suspended Solids		118	118	mg/L	0 ^		(+/-50.0)	СН6	03/02/23 07:51
QC1205334666 LCS Total Suspended Solids	500		503	mg/L		101	(95%-105%)		03/02/23 07:51
QC1205334667 LCSD Total Suspended Solids	500		500	mg/L	0.598	100	(0%-5%)		03/02/23 07:51
QC1205334665 MB Total Suspended Solids		U	ND	mg/L					03/02/23 07:51
Spectrometric Analysis Batch 2392846									
QC1205335587 612421001 DUP COD		46.2	55.5	mg/L	18.3 ^		(+/-20.0)	НН2	03/03/23 14:03
QC1205335586 LCS COD	500		493	mg/L		98.5	(90%-110%)		03/03/23 14:03
QC1205335585 MB COD		U	ND	mg/L					03/03/23 14:03
QC1205335588 612421001 MS COD	500	46.2	549	mg/L		100	(90%-110%)		03/03/23 14:03

#### **Notes:**

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, the difference is >70%.
- C Analyte has been confirmed by GC/MS analysis
- B The target analyte was detected in the associated blank.
- E Concentration of the target analyte exceeds the instrument calibration range

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### **QC** Summary

Workorder: 612643 Page 16 of 17 **Parmname** NOM Sample Qual  $\mathbf{OC}$ Units RPD/D% REC% Range Anlst Date Time Α The TIC is a suspected aldol-condensation product X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier N Metals--The Matrix spike sample recovery is not within specified control limits Ν Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor Η Analytical holding time was exceeded \*\* Analyte is a surrogate compound Result is less than value reported < Result is greater than value reported h Preparation or preservation holding time was exceeded R Sample results are rejected Z Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. d 5-day BOD--The 2:1 depletion requirement was not met for this sample ٨ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. D Results are reported from a diluted aliquot of the sample N/A RPD or %Recovery limits do not apply. ND Analyte concentration is not detected above the detection limit %difference of sample and SD is >10%. Sample concentration must meet flagging criteria Е NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier Ε General Chemistry--Concentration of the target analyte exceeds the instrument calibration range

- JNX Non Calibrated Compound
- UJ Compound cannot be extracted
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- N1 See case narrative
- Y Other specific qualifiers were required to properly define the results. Consult case narrative.
- Y QC Samples were not spiked with this compound
- R Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
- N Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
- e 5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes
- J See case narrative for an explanation

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### QC Summary

Page 17 of 17 Parmname NOM QC Units RPD/D% REC% Anlst Date Time

Sample Qual Range

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

Workorder:

612643

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

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<sup>^</sup> The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

<sup>\*</sup> Indicates that a Quality Control parameter was not within specifications.

# Technical Case Narrative Holtec Decommissioning International, LLC SDG #: 612643

### **GC/MS Semivolatile**

**Product:** Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

**Analytical Method:** EPA 625.1

**Analytical Procedure:** GL-OA-E-009 REV# 46

**Analytical Batch:** 2391871

**Preparation Method:** EPA 625.1

Preparation Procedure: GL-OA-E-013 REV# 35

**Preparation Batch:** 2391868

The following samples were analyzed using the above methods and analytical procedure(s).

<b>GEL Sample ID#</b>	Client Sample Identification
612643001	Torus-Avantech Influent
1205334195	Method Blank (MB)
1205334196	Laboratory Control Sample (LCS)
1205334197	612518003(NonSDG) Matrix Spike (MS)
1205334198	612518003(NonSDG) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

### **Calibration Information**

### **CCV Requirements**

Not all Calibration Verification Standards (CCV) met the acceptance criteria as outlined in Table 6 in Method 625.1. The target analyte 2-Methyl-4,6-dinitrophenol was outside the acceptance criteria. As the analyte was not detected in the associated client samples, the biased high response had no adverse impact on the reported data. All other analytes which failed on the included Continuing Calibration Summary report were within the %acceptance criteria for the respective analyte or within 60%-140% for analytes not listed in Table 6. The data were reported.

#### **Miscellaneous Information**

#### **Additional Comments**

#### **Diphenylamine Statement**

Diphenylamine has superseded the reporting of N-Nitroso-diphenylamine. As per the EPA, N-Nitroso-diphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine. Studies of these two compounds at GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine are therefore reported as Diphenylamine on all reports and forms.

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### **GC Semivolatile PCB**

**Product:** Analysis of The Analysis of Polychlorinated Biphenyls by GC/ECD by ECD

**Analytical Method:** EPA 608.3

Analytical Procedure: GL-OA-E-040 REV# 25

**Analytical Batch:** 2392610

**Preparation Method:** EPA 608.3

Preparation Procedure: GL-OA-E-070 REV# 11

**Preparation Batch:** 2392608

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612643001	Torus-Avantech Influent
1205335248	Method Blank (MB)
1205335249	Laboratory Control Sample (LCS)
1205335250	Laboratory Control Sample Duplicate (LCSD)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

### **Technical Information**

### Preparation/Analytical Method Verification

All samples and QC in this batch were cleaned using alumina in order to remove oil and other high molecular weight interferences. All reported analyte detections in client and quality control samples were within the established retention time windows. Reported analyte concentrations were confirmed on dissimilar columns.

#### **Miscellaneous Information**

### **Additional Comments**

The column 1 has been chosen as the primary column. The data are reported from the column 1 for all samples in this batch.

### **Metals**

**Product:** Determination of Metals by ICP-MS

**Analytical Method:** EPA 200.8

**Analytical Procedure:** GL-MA-E-014 REV# 35

**Analytical Batch:** 2392298

**Preparation Method:** EPA 200.2

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**Preparation Procedure:** GL-MA-E-016 REV# 18

**Preparation Batch:** 2392297

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612643001	Torus-Avantech Influent
1205334765	Method Blank (MB) <b>ICP-MS</b>
1205334766	Laboratory Control Sample (LCS)
1205334769	612643001(Torus-Avantech InfluentL) Serial Dilution (SD)
1205334767	612643001(Torus-Avantech InfluentD) Sample Duplicate (DUP)
1205334768	612643001(Torus-Avantech InfluentS) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

### **Calibration Information**

#### **ICSA/ICSAB Statement**

For the ICP-MS analysis, the ICSA solution contains analyte concentrations which are verified trace impurities indigenous to the purchased standard.

**Product:** Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer

**Analytical Method:** EPA 245.1/245.2

**Analytical Procedure:** GL-MA-E-010 REV# 39

**Analytical Batch:** 2392284

**Preparation Method:** EPA 245.1/245.2 Prep **Preparation Procedure:** GL-MA-E-010 REV# 39

**Preparation Batch:** 2392283

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612643001	Torus-Avantech Influent
1205334715	Method Blank (MB)CVAA
1205334716	Laboratory Control Sample (LCS)
1205334719	612518001(NonSDGL) Serial Dilution (SD)
1205334717	612518001(NonSDGD) Sample Duplicate (DUP)
1205334718	612518001(NonSDGS) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

### **Data Summary:**

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

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### **General Chemistry**

**Product:** Carbon, Total Organic **Analytical Method:** SM 5310 B

Analytical Procedure: GL-GC-E-093 REV# 21

**Analytical Batch:** 2392379

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	<b>Client Sample Identification</b>
612643001	Torus-Avantech Influent
1205334898	Method Blank (MB)
1205334899	Laboratory Control Sample (LCS)
1205334900	612533001(NonSDG) Sample Duplicate (DUP)
1205334902	612533001(NonSDG) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Technical Information**

#### **Sample Dilutions**

Samples 1205334900 (Non SDG 612533001DUP) and 1205334902 (Non SDG 612533001PS) were diluted based on historical data. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

### Sample Re-analysis

Samples 1205334898 (MB) and 1205334899 (LCS) were re-analyzed due to CCV failure. The reanalysis data with passing instrument QC was reported. Samples 1205334900 (Non SDG 612533001DUP), 1205334902 (Non SDG 612533001PS) and 612643001 (Torus-Avantech Influent) were re-analyzed due to (its) proximity to an overrange sample. The results from the reanalysis are reported.

**Product: Cyanide, Total Analytical Method:** EPA 335.4

**Analytical Procedure:** GL-GC-E-095 REV# 23

**Analytical Batch:** 2392920

**Preparation Method:** EPA 335.4

**Preparation Procedure:** GL-GC-E-067 REV# 24

Preparation Batch: 2392919

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The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612643001	Torus-Avantech Influent
1205335696	Method Blank (MB)
1205335697	Laboratory Control Sample (LCS)
1205335700	612715002(NonSDG) Sample Duplicate (DUP)
1205335701	612715002(NonSDG) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

**Product:** Total Phenols

**Analytical Method:** EPA 420.4

**Analytical Procedure:** GL-GC-E-102 REV# 10 **Analytical Batches:** 2393715 and 2393714

The following samples were analyzed using the above methods and analytical procedure(s).

<b>GEL Sample ID#</b>	<b>Client Sample Identification</b>
612643001	Torus-Avantech Influent
1205337076	Method Blank (MB)
1205337077	Laboratory Control Sample (LCS)
1205337078	612516014(NonSDG) Matrix Spike (MS)
1205337079	612516014(NonSDG) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Quality Control (QC) Information**

### Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The spike recovery falls outside of the established acceptance limits. Since both the spike duplicate recovery and the RPD between the spike and spike duplicate fall within acceptance limits, the data is reported.

Analyte	Sample	Value
Total Phenol	1205337078 (Non SDG 612516014MS)	89.5* (90%-110%)

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**Product: Ion Chromatography Analytical Method:** SW846 9056

Analytical Procedure: GL-GC-E-086 REV# 30

**Analytical Batch:** 2392884

The following samples were analyzed using the above methods and analytical procedure(s).

<b>GEL Sample ID#</b>	Client Sample Identification
612643001	Torus-Avantech Influent
1205335638	Method Blank (MB)
1205335639	Laboratory Control Sample (LCS)
1205335640	612772001(NonSDG) Sample Duplicate (DUP)
1205335641	612772001(NonSDG) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

### **Quality Control (QC) Information**

### Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity.

Analyte	Sample	Value
Chloride	1205335641 (Non SDG 612772001PS)	117* (90%-110%)

### **Technical Information**

### **Sample Dilutions**

The following samples 1205335640 (Non SDG 612772001DUP), 1205335641 (Non SDG 612772001PS) and 612643001 (Torus-Avantech Influent) were diluted because target analyte concentrations exceeded the calibration range. The following samples 1205335640 (Non SDG 612772001DUP) and 1205335641 (Non SDG 612772001PS) in this sample group were diluted due to matrix interference. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analysta	612643
Analyte	001
Chloride	25X

**Product: Ammonia Nitrogen Preparation Method:** EPA 350.1

**Preparation Procedure:** GL-GC-E-106 REV# 10

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**Preparation Batch:** 2394828

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612643001	Torus-Avantech Influent
1205339097	Method Blank (MB)
1205339098	Laboratory Control Sample (LCS)
1205339099	612516014(NonSDG) Sample Duplicate (DUP)
1205339100	612516014(NonSDG) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

### **Quality Control (QC) Information**

### Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity.

Analyte	Sample	Value
Nitrogen, Ammonia	1205339100 (Non SDG 612516014PS)	76.6* (90%-110%)

### **Technical Information**

#### **Sample Dilutions**

The following samples 1205339099 (Non SDG 612516014DUP) and 1205339100 (Non SDG 612516014PS) in this sample group were diluted due to matrix interference. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

<u>Product:</u> n-Hexane Extractable Material <u>Analytical Method:</u> EPA 1664A/1664B <u>Analytical Procedure:</u> GL-GC-E-094 REV# 18

**Analytical Batch:** 2396896

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612643001	Torus-Avantech Influent
1205342504	Method Blank (MB)
1205342505	Laboratory Control Sample (LCS)
1205342507	611175001(NonSDG) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

### **Data Summary:**

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

**Product:** Solids, Total Suspended **Analytical Method:** SM 2540D

**Analytical Procedure:** GL-GC-E-012 REV# 18

**Analytical Batch:** 2392261

The following samples were analyzed using the above methods and analytical procedure(s).

<b>GEL Sample ID#</b>	Client Sample Identification
612643001	Torus-Avantech Influent
1205334665	Method Blank (MB)
1205334666	Laboratory Control Sample (LCS)
1205334667	Laboratory Control Sample Duplicate (LCSD)
1205334828	612682001(NonSDG) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Miscellaneous Information**

#### **Additional Comments**

Sample filtration took > 10 minutes; therefore as prescribed in the method, a reduced aliquot was used. 1205334828 (Non SDG 612682001DUP).

**Product:** COD

**Analytical Method:** EPA 410.4

Analytical Procedure: GL-GC-E-061 REV# 21

**Analytical Batch:** 2392846

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612643001	Torus-Avantech Influent
1205335585	Method Blank (MB)
1205335586	Laboratory Control Sample (LCS)
1205335587	612421001(NonSDG) Sample Duplicate (DUP)
1205335588	612421001(NonSDG) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

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### **Data Summary:**

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

### **Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

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Page: of					-	-	-		1	CIPICIO	7	Č			GEL I	GEL Laboratories, LLC	ories, I	TC					
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> For sample shipping and delivery details, see Sample Receipt & Review form (SRR.)	mple Receipt d	Review form	SRR.)				Sample Collection Time Zone: [X] Eastern	llection	Time	Zone:	[X] Ea	stern	[ ] Pacific	cific	[ ] Central	ntral	[ ] M	[ ] Mountain [ ] Other:	n []	Other			100
1.) Chain of Custody Number = Client Determined	- 4	1 101 1	3	3 -1	- day	Yourse Car	G.	- James	!	1													
2.) QC Codes. IN Final Sample, 10 - 11 polarity, 10 - 1 returbity, 20 - Equipment Danis, 110 - 1 returbity, 120. 3.) Field Filtered For Itania marries indicate with a - Y - for use the sample was field filtered or - N - for sample was not field filtered	es the sample was f	relation of the relation of th	for sample was	not field	iltered.	do come		S S S S S S S S S S S S S S S S S S S															
4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Water, W=Water, W=Water, W=Water, W=Water, W=Fecal, N=Nasal	=Surface Water, W	/W=Waste Water, V	V=Water, ML=	Misc Liqu	id, SO=So	l, SD=Sed	ment, SL=Sl	ndge, SS=	Solid Wa	1ste, 0=0	ii, F=Fil	ter, P=V	/ipe, U=	Urine, F	Fecal, N	=Nasal							
5) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B/7470A - 1).	e. 8260B, 6010B/7	470A) and number	of containers pr	ovided for	each (i.e.	260B - 3,	5010B/7470A	(1 -	;														
Nitric Acid	d, SH = Sodium H	vdroxide, SA = Sulfi	uric Acid, AA	Ascorbic		= Hexane,	HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank	Thiosulfa	te, If no p	reservativ	ve is add	ed = lear	ve tield b	lank	The second	6							
Hg= Mercury Se= Selenium	CO = Corrosive  RE = Reactive	c Hazarus ble/Ignitable ve	Listed waste  LW= Listed Waste  (F,K,P and U-listea  Waste code(s):	sted Wa md U-li.	Listed waste LW= Listed Waste (F, K, P and U-listed wastes.) Waste code(s):	es.)		OT= Other / Unknown (i.e.: High/low pH, asbestos, beryllium, irritants, other misc. health hazards, etc.) Description:	ner / Un th/low p alth haz ion:	ıknown əH, asbı ards, et	estos, b	eryllin	om, irri	tants, o	ther	2 11 28	mdling mple(3	g and/o	any au or dispe of site	sal co	n aeran ncerns. ted from	reuse provue any atantona aetans vetow regarang handling andor disposal concerns. (i.e.: Origin of sample(s), type of site collected fr <mark>om</mark> , odd matrices, etc.)	
Cd = Cadmium Ag= Silver Cr = Chromium MR= Misc. RCRA metals Pb = Lead	TSCA Regulated PCB = Polychlorinated biphenyls	Ited Iorinated 1yls							- P. 100														

[日至日 | Laboratories LLC SAMPLE RECEIPT & REVIEW FORM SDG/AR/COC/Work Order: (1264 Client: Date Received: Received By: FedEx Express FedEx Ground UPS Field Services Courier MSTR 7714 1619 5 704 Carrier and Tracking Number "If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. ž Suspected Hazard Information UN#: Hazard Class Shipped: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes No\_\_\_\_ A)Shipped as a DOT Hazardous? COC notation or radioactive stickers on containers equal client designation. B) Did the client designate the samples are to be received as radioactive? PM/mR/Hr Maximum Net Counts Observed (Observed Counts - Area Background Counts): \_ Classified as: Rad J Rad 2 Rad 3 C) Did the RSO classify the samples as radioactive? COC notation or hazard labels on containers equal client designation. D) Did the client designate samples are hazardous? If D or E is yes, select Hazards below. RCRA Asbestos Beryllium Foreign Soil PCB's Flammable E) Did the RSO identify possible hazards? Comments/Qualifiers (Required for Non-Conforming Items) No No Sample Receipt Criteria Circle Applicable: Seals broken Damaged container Leaking container Other (describe) Shipping containers received intact and Circle Applicable: Client contacted and provided COC COC created upon receipt Chain of custody documents included 2 Preservation Method Wet Ice Dee Packs Dry ice None Other: with shipment? TEMP: \*all temperatures are recorded in Celsius Samples requiring cold preservation within  $(0 \le 6 \text{ deg. C})$ ?\* Temperature Device Serial #: 2 - 2 3 Secondary Temperature Device Serial # (If Applicable): Daily check performed and passed on IR Circle Applicable: Seals broken Damaged container Leaking container Other (describe) temperature gun? 5 Sample containers intact and sealed? Sample ID's and Containers Affected: Samples requiring chemical preservation If Yes, are Encores or Soil Kits present for solids? Yes\_\_\_No\_\_\_NA\_\_(If yes, take to VOA Freezer) 6 at proper pH? Do liquid VOA vials contain acid preservation? Yes\_\_\_ No\_\_\_ NA\_\_(If unknown, select No) Are liquid VOA vials free of headspace? Yes\_\_\_ No\_ Do any samples require Volatile 7 Analysis? Sample ID's and containers affected: ID's and tests affected: 8 Samples received within holding time? ID's and containers affected: Sample ID's on COC match ID's on Circle Applicable: No dates on containers No times on containers COC missing info Other (describe) bottles? Date & time on COC match date & time Circle Applicable: No container count on COC Other (describe) on bottles? Number of containers received match RECEIVED IX number indicated on COC? Are sample containers identifiable as GEL provided by use of GEL labels? Circle Applicable: Not relinquished Other (describe) COC form is properly signed in relinquished/received sections? Comments (Use Continuation Form if needed):

### **Max Gloth**

From: Laura Hageman <1.hageman@holtec.com>

Sent: Thursday, March 2, 2023 1:37 PM

To: Max Gloth

**Subject:** RE: Missing container 612643

#### [EXTERNAL EMAIL] DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

Great, thank you for following up and I apologize for the confusion.

### Laura Hageman

Chemistry Superintendent/ BHI Site Manager Pilgrim Nuclear Power Station (508) 830-8184 (w) (508) 254-5594 (c)

From: Max Gloth <Max.Gloth@gel.com>
Sent: Thursday, March 2, 2023 1:35 PM
To: Laura Hageman <l.hageman@holtec.com>

Subject: RE: Missing container 612643

### CAUTION: This email came from a source OUTSIDE of Holtec!!

Do not click any links or open any attachments unless you trust the sender and know the contents to be safe.

Clicking links or opening attachments could lead to infecting your computer or Holtec's servers with malicious viruses.

We are missing one container of the SVOC/Pesticides/PCBs 1L Amber. We should have enough to proceed with analysis.

From: Laura Hageman < <a href="mailto:l.hageman@holtec.com">l.hageman@holtec.com</a>>

Sent: Thursday, March 2, 2023 10:19 AM
To: Max Gloth < Max.Gloth@gel.com >
Cc: Team Trent < Team.Trent@gel.com >
Subject: RE: Missing container 612643

#### [EXTERNAL EMAIL] DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

Can you tell me which is missing? See below for list of bottles that should have been included:

SVOC/Pesticides/PCBs= 6x 1L Amber 2,3,7,8 TCCD= 3x 1L Amber Metals= 250ml poly with Nitric Cyanide= 250ml poly with Sodium Hydroxide TOC= 150 ml Amber with Sulfuric Anions- 250ml poly Boron= 250ml poly with Nitric COD-125ml poly with sulfuric

TSS= 1L ml Poly

Ammonia= 125 ml poly with sulfuric Phenols= 250 ml amber with sulfuric

Oil and grease= 1Lml Amber with Hydrochloric Acid

Thank you,

### Laura Hageman

Chemistry Superintendent/ BHI Site Manager Pilgrim Nuclear Power Station (508) 830-8184 (w) (508) 254-5594 (c)

From: Max Gloth < Max.Gloth@gel.com > Sent: Thursday, March 2, 2023 10:06 AM
To: Laura Hageman < I.hageman@holtec.com > Cc: Team Trent < Team.Trent@gel.com > Subject: Missing container 612643

CAUTION: This email came from a source OUTSIDE of Holtec!!

Do not click any links or open any attachments unless you trust the sender and know the contents to be safe.

Clicking links or opening attachments could lead to infecting your computer or Holtec's servers with malicious viruses.

Notifying you that we only received 18 containers, while the chain of custody states that there should be 19. Please advise. See attachment for reference, thank you.

#### **Max Gloth**

### **Project Manager Assistant**



2040 Savage Road, Charleston, SC 29407 | PO Box 30712, Charleston, SC 29417

Office Main: 843.556.8171 | Fax: 843.766.1178 E-Mail: max.gloth@gel.com | Website: www.gel.com

#### **Analytical Testing**







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List of current GEL Certifications as of 15 March 2023

State	Certification					
Alabama	42200					
Alaska	17-018					
Alaska Drinking Water	SC00012					
Arkansas	88-0651					
CLIA	42D0904046					
California	2940					
Colorado	SC00012					
Connecticut	PH-0169					
DoD ELAP/ ISO17025 A2LA	2567.01					
Florida NELAP	E87156					
Foreign Soils Permit	P330-15-00283, P330-15-00253					
Georgia	SC00012					
Georgia SDWA	967					
Hawaii	SC00012					
Idaho	SC00012 SC00012					
Illinois NELAP	200029					
Indiana	C-SC-01					
Kansas NELAP	E-10332					
Kentucky SDWA	90129					
Kentucky Wastewater	90129					
Louisiana Drinking Water	LA024					
Louisiana NELAP	03046 (AI33904)					
Maine	2019020					
· · ·						
Maryland	270					
Massachusetts	M-SC012					
Massachusetts PFAS Approv	Letter					
Michigan	9976					
Mississippi	SC00012					
Nebraska	NE-OS-26-13					
Nevada	SC000122023-4					
New Hampshire NELAP	2054					
New Jersey NELAP	SC002					
New Mexico	SC00012					
New York NELAP	11501					
North Carolina	233					
North Carolina SDWA	45709					
North Dakota	R-158					
Oklahoma	2022-160					
Pennsylvania NELAP	68-00485					
Puerto Rico	SC00012					
S. Carolina Radiochem	10120002					
Sanitation Districts of L	9255651					
South Carolina Chemistry	10120001					
Tennessee	TN 02934					
Texas NELAP	T104704235-22-20					
Utah NELAP	SC000122022-37					
Vermont	VT87156					
Virginia NELAP	460202					
Washington	C780					



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gel.com

March 13, 2023

Laura Hageman HDI, Inc. 1 Holtec Blvd. Camden, New Jersey 08104

Re: Pilgrim NPDES Permit Modification

Work Order: 612474

Dear Laura Hageman:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on February 28, 2023. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Chain of Custody form did not contain a relinquished signature. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4504.

Sincerely,

Anna Johnson for Erin Trent Project Manager

Purchase Order: 98000918

Enclosures



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# Certificate of Analysis Report for

CDEC001 Holtec Decommissioning International, LLC Client SDG: 612474 GEL Work Order: 612474

#### The Qualifiers in this report are defined as follows:

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- B The target analyte was detected in the associated blank.
- H Analytical holding time was exceeded
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- d 5-day BOD--The 2:1 depletion requirement was not met for this sample

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Erin Trent.

	Cuna Johnson	
Reviewed by		

Page 2 of 24 SDG: 612474

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# **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Report Date: March 8, 2023

Contact: Laura Hageman

Project: **Pilgrim NPDES Permit Modification** 

> CDEC00107 CDEC001 Torus-Avantech Influent Proiect: 612474001 Client ID:

Client Sample ID: Sample ID: Matrix: Water

Collect Date: 27-FEB-23 09:05 Receive Date: 28-FEB-23 Collector: Client

	0 110	Cileiii						_		
Parameter	Qualifier	Result	DL	RL	Units	PF	DF Analys	t Date	Time	Batch Mtd.
Micro-biology										
SM 5210B BOD, 5DAY "A	s Received"									
BOD, 5 DAY	dU	ND	1.00	2.00	mg/L		JW2	03/01/2	23 0856	23915361
Spectrometric Analysis										
SM4500CL_G Total Resid	ual Chlorine '	'As Received"								
Chlorine, Residual	HU	ND	0.0170	0.0500	mg/L		1 HH2	03/02/2	23 1010	23922762
<b>Titration and Ion Analysis</b>										
EPA 150.1 pH "As Receiv	red"									
pH at Temp 15.9C	Н	7.43	0.0100	0.100	SU		1 JW2	03/01/2	23 1555	23920323
<b>Volatile Organics</b>										
EPA 624.1 Volatiles Metho	od List "As Re	ceived"								
1,1,1-Trichloroethane	U	ND	0.333	1.00	ug/L		1 PXY1	03/01/2	23 1158	23915754
71-55-6										
1,1,2,2-Tetrachloroethane 79-34-5	U	ND	0.333	1.00	ug/L		1			
1,1,2-Trichloroethane 79-00-5	U	ND	0.333	1.00	ug/L		1			
1,1-Dichloroethane	U	ND	0.333	1.00	ug/L		1			
75-34-3		ND	0.222	1.00	/T		i			
1,1-Dichloroethylene 75-35-4	U	ND	0.333	1.00	ug/L		1			
1,2-Dichloroethane	U	ND	0.333	1.00	ug/L		1			
107-06-2		ND	0.222	1.00	/T		1			
1,2-Dichloropropane 78-87-5	U	ND	0.333	1.00	ug/L		1			
1,3-Dichloropropylene	U	ND	0.500	2.00	ug/L		1			
542-75-6				- 00	-					
2-Chloroethylvinyl ether 110-75-8	U	ND	1.67	5.00	ug/L		1			
Acrolein	U	ND	1.67	5.00	ug/L		1			
107-02-8	U	112	1.07	2.00	ug, E		•			
Acrylonitrile 107-13-1	U	ND	1.67	5.00	ug/L		1			
107-13-1										

Page 3 of 24 SDG: 612474

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# **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

Report Date: March 8, 2023

	Client Sample Sample ID:	e ID:	Torus-Avantech Influent 612474001		Pt C	roiect: lient ID:	CDEC00107 CDEC001		
Parameter	Qualifier	Result	DL	RL	Units	PF	DF Analyst Date	Time	Batch Mtd
Volatile Organics									
EPA 624.1 Volatiles Meth	nod List "As Re	ceived"							
Benzene	U	ND	0.333	1.00	ug/L		1		
71-43-2									
Bromodichloromethane 75-27-4	U	ND	0.333	1.00	ug/L		1		
Bromoform 75-25-2	U	ND	0.333	1.00	ug/L		1		
Bromomethane 74-83-9	U	ND	0.337	1.00	ug/L		1		
Carbon tetrachloride 56-23-5	U	ND	0.333	1.00	ug/L		1		
Chlorobenzene 108-90-7	U	ND	0.333	1.00	ug/L		1		
Chloroethane 75-00-3	U	ND	0.333	1.00	ug/L		1		
Chloroform 67-66-3	U	ND	0.333	1.00	ug/L		1		
Chloromethane 74-87-3	U	ND	0.333	1.00	ug/L		1		
Dibromochloromethane 124-48-1	U	ND	0.333	1.00	ug/L		1		
Ethylbenzene 100-41-4	U	ND	0.333	1.00	ug/L		1		
Methylene chloride 75-09-2	BJ	1.88	0.500	2.00	ug/L		1		
Tetrachloroethylene 127-18-4		3.44	0.333	1.00	ug/L		1		
Toluene 108-88-3	U	ND	0.333	1.00	ug/L		1		
Trichloroethylene 79-01-6	U	ND	0.333	1.00	ug/L		1		
Vinyl chloride 75-01-4	U	ND	0.333	1.00	ug/L		1		
trans-1,2-Dichloroethyler 156-60-5	ne U	ND	0.333	1.00	ug/L		1		

The following Analytical Methods were performed:

Method Description Analyst Comments

1 SM 5210B 2 SM 4500-Cl G

Page 4 of 24 SDG: 612474

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# **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

Report Date: March 8, 2023

	Client Sample Sample ID:	e ID:	Torus-Avantech 612474001	Influent			Project: Client ID	CDEC0010 CDEC001	7		
Parameter	Qualifier	Result		DL	RL	Unit	s PF	DF Analys	t Date	Time	Batch Mtd.
3	EPA 150.1										
4	EPA 624.1										
Surrogate/Tracer recov	ery Test				Result		Nominal	Recovery%	Acce	ptable 1	Limits
Bromofluorobenzene	EPA 624	.1 Volatile	s Method List "As		51.9	ug/L	50.0	104	(7	2%-125	5%)

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Bromofluorobenzene	EPA 624.1 Volatiles Method List "As Received"	51.9 ug/L	50.0	104	(72%-125%)
1,2-Dichloroethane-d4	EPA 624.1 Volatiles Method List "As Received"	53.5 ug/L	50.0	107	(73%-129%)
Toluene-d8	EPA 624.1 Volatiles Method List "As Received"	49.9 ug/L	50.0	100	(75%-123%)

Page 5 of 24 SDG: 612474

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**QC** Summary

Report Date: March 8, 2023

Page 1 of 12

HDI, Inc. 1 Holtec Blvd. Camden, New Jersey

Contact: Laura Hageman

Workorder: 612474

Parmname		NOM	Sample Qual	QC	Units	RPD/D%	REC%	Range A	nlst	Date Time
Micro-biology Batch 2391536										
QC1205333886 612553001 BOD, 5 DAY	DUP		12.2	12.8	mg/L	4.78 ^		(+/-6.00)	JW2	03/01/23 13:10
QC1205333669 LCS BOD, 5 DAY		198		206	mg/L		104	(85%-115%)		03/01/23 08:56
QC1205333668 MB BOD, 5 DAY				0.0400	mg/L					03/01/23 08:56
QC1205333670 SEED BOD, 5 DAY				0.639	mg/L					03/01/23 08:56
Spectrometric Analysis Batch 2392276										
QC1205334708 612474001 Chlorine, Residual	DUP	HU	ND HU	ND	mg/L	N/A			НН2	03/02/23 10:11
QC1205334707 LCS Chlorine, Residual		0.500		0.529	mg/L		106	(74%-112%)		03/02/23 10:09
QC1205334706 MB Chlorine, Residual			U	ND	mg/L					03/02/23 10:08
QC1205334709 612474001 Chlorine, Residual	PS	0.500 HU	ND H	0.526	mg/L		104	(67%-128%)		03/02/23 10:12
<b>Titration and Ion Analysis</b> Batch 2392032										
QC1205334358 612158001 pH	DUP	Н	8.10 H	8.10	SU	0		(0%-5%)	JW2	03/01/23 15:37

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# QC Summary

Workorder: 612474 Page 2 of 12 Sample Qual Parmname **NOM** QC Units RPD/D% REC% Range Anlst Date Time **Titration and Ion Analysis** 2392032 Batch QC1205334357 LCS 7.00 SU7.00 100 (99%-101%) JW2 03/01/23 15:36 pН Volatile-GC/MS Batch 2391575 QC1205333728 LCS 1,1,1-Trichloroethane 50.0 56.1 ug/L 112 (75%-136%) PXY1 03/01/23 09:02 1,1,2,2-Tetrachloroethane 50.0 50.3 ug/L 101 (68%-126%) 1,1,2-Trichloroethane 50.0 50.2 100 ug/L (73%-120%) 1,1-Dichloroethane 50.0 53.3 ug/L 107 (76%-123%) 1,1-Dichloroethylene 50.0 53.7 107 (67%-133%) ug/L 47.8 50.0 1,2-Dichloroethane ug/L 96 (68%-124%) 1,2-Dichloropropane 50.0 49.3 ug/L 99 (74%-121%) 100 105 105 1,3-Dichloropropylene ug/L (75%-129%) 2-Chloroethylvinyl ether 250 266 ug/L 106 (62%-126%) 50.0 Benzene 51.2 102 (74%-118%) ug/L Bromodichloromethane 50.0 55.0 ug/L 110 (73% - 133%)Bromoform 50.0 52.4 105 ug/L (69%-130%) Bromomethane 50.0 54.6 ug/L 109 (68%-140%)

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# QC Summary

Workorder: 612474 Page 3 of 12 Parmname **NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2391575 Batch Carbon tetrachloride 50.0 55.5 ug/L 111 (73%-140%) PXY1 03/01/23 09:02 Chlorobenzene 50.0 47.7 95 (76%-120%) ug/L Chloroethane 50.0 57.8 ug/L 116 (70%-131%) Chloroform 50.0 54.1 ug/L 108 (77%-126%) Chloromethane 50.0 44.5 ug/L 89 (60%-139%) Dibromochloromethane 50.0 54.8 ug/L 110 (75%-133%) 50.0 43.4 Ethylbenzene ug/L 87 (75%-121%) В Methylene chloride 50.0 51.1 102 (69%-120%) ug/L Tetrachloroethylene 50.0 47.6 ug/L 95 (74%-124%) Toluene 50.0 47.5 ug/L 95 (74% - 118%)Trichloroethylene 50.0 52.5 105 (76%-124%) ug/L Vinyl chloride 50.0 48.8 ug/L (67% - 134%)98 trans-1,2-Dichloroethylene 50.0 49.8 ug/L 100 (71%-127%) \*\*1,2-Dichloroethane-d4 50.0 51.8 104 (73% - 129%)ug/L

50.3

ug/L

101

(72%-125%)

Page 8 of 24 SDG: 612474

50.0

\*\*Bromofluorobenzene

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# QC Summary

Workorder: 612474 Page 4 of 12 QC Parmname **NOM** Sample Qual Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2391575 Batch \*\*Toluene-d8 50.0 50.0 ug/L 100 (75%-123%) PXY1 03/01/23 09:02 LCS QC1205333729 250 03/01/23 10:00 Acrolein 280 ug/L 112 (63%-141%) Acrylonitrile 250 251 ug/L 100 (67%-128%) \*\*1,2-Dichloroethane-d4 50.0 51.5 ug/L 103 (73%-129%) \*\*Bromofluorobenzene 50.0 49.3 ug/L (72%-125%) \*\*Toluene-d8 50.0 50.9 ug/L 102 (75% - 123%)QC1205333730 MB U 03/01/23 11:29 1,1,1-Trichloroethane ND ug/L 1,1,2,2-Tetrachloroethane U ND ug/L U ND 1,1,2-Trichloroethane ug/L U ND 1,1-Dichloroethane ug/L U ND 1,1-Dichloroethylene ug/L U ND 1,2-Dichloroethane ug/L 1,2-Dichloropropane U ND ug/L U ND 1,3-Dichloropropylene ug/L

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# QC Summary

Workorder: 612474 Page 5 of 12 NOM QC RPD/D% REC% Parmname Sample Qual Units Range Anlst Date Time Volatile-GC/MS Batch 2391575 U 2-Chloroethylvinyl ether ND ug/L PXY1 03/01/23 11:29 U Acrolein ND ug/L U Acrylonitrile ND ug/L U ND Benzene ug/L U Bromodichloromethane ND ug/L U ND Bromoform ug/L U Bromomethane ND ug/L Carbon tetrachloride U ND ug/L U ND Chlorobenzene ug/L Chloroethane ND ug/L U ND Chloroform ug/L Chloromethane U ND ug/L U ND Dibromochloromethane ug/L Ethylbenzene U ND ug/L 0.580 ug/L Methylene chloride

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# QC Summary

Workorder: 612474 Page 6 of 12 Parmname **NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2391575 Batch Tetrachloroethylene U ND ug/L PXY1 03/01/23 11:29 Toluene U ND ug/L Trichloroethylene U ND ug/L U ND Vinyl chloride ug/L trans-1,2-Dichloroethylene U ND ug/L 53.1 \*\*1,2-Dichloroethane-d4 50.0 ug/L 106 (73%-129%) 50.0 \*\*Bromofluorobenzene 51.5 ug/L 103 (72%-125%) \*\*Toluene-d8 50.0 50.9 102 ug/L (75%-123%) QC1205333731 611923001 PS ND 03/01/23 14:57 1,1,1-Trichloroethane 50.0 U 49.4 ug/L 99 (67%-135%) 1,1,2,2-Tetrachloroethane 50.0 U ND 50.5 101 (58%-138%) ug/L 1,1,2-Trichloroethane 50.0 U ND 48.9 ug/L 98 (70%-126%) 1,1-Dichloroethane ND 48.5 50.0 U ug/L (70%-126%) 97 1,1-Dichloroethylene 50.0 U ND 50.4 101 (61%-137%) ug/L U ND 44.1 50.0 1,2-Dichloroethane ug/L 88 (64%-129%) 1,2-Dichloropropane 50.0 U ND 46.0 ug/L (68%-127%)

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# QC Summary

Workorder: 612474 Page 7 of 12 Sample Qual Parmname NOM QC Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2391575 Batch 1,3-Dichloropropylene 100 99.4 ug/L (74%-123%) PXY1 03/01/23 14:57 ND 2-Chloroethylvinyl ether 250 U U ND (64%-123%) ug/L ug/L Benzene 50.0 U ND 46.1 92 (65%-122%) 50.0 U ND 102 Bromodichloromethane 51.2 ug/L (68%-137%) Bromoform 50.0 U ND 50.8 ug/L 102 (62%-138%) 50.0 U ND 58.3 Bromomethane ug/L 117 (61%-142%) 50.0 U ND 49.9 Carbon tetrachloride ug/L 100 (63%-144%) ND Chlorobenzene 50.0 U 44.8 ug/L 90 (63%-123%) 50.0 U ND 51.9 Chloroethane ug/L 104 (64%-134%) Chloroform 50.0 U ND 49.4 ug/L 99 (69%-133%) ND Chloromethane 50.0 U 35.2 70 (45%-142%) ug/L Dibromochloromethane 50.0 U ND 51.6 103 (68%-142%) ug/L 50.0 U ND 42.1 Ethylbenzene ug/L 84 (65%-124%) Methylene chloride 50.0 BJ1.93 В 47.2 91 (62% - 125%)ug/L 50.0 U ND 45.6 Tetrachloroethylene ug/L 91 (64%-129%)

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# **QC** Summary

Workorder: 612474 Page 8 of 12 Sample Qual Parmname NOM QC Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2391575 Batch Toluene 50.0 U ND 45.2 ug/L 90 (63%-121%) PXY1 03/01/23 14:57 Trichloroethylene 50.0 U ND 48.5 97 (66%-126%) ug/L Vinyl chloride 50.0 U ND 26.7 ug/L 53\* (58%-139%) 50.0 U ND 45.7 trans-1,2-Dichloroethylene ug/L 91 (65%-130%) \*\*1,2-Dichloroethane-d4 50.0 51.8 51.5 ug/L 103 (73%-129%) \*\*Bromofluorobenzene 51.6 51.8 50.0 ug/L 104 (72% - 125%)\*\*Toluene-d8 50.0 50.8 51.0 ug/L 102 (75% - 123%)QC1205333733 611923001 PS ND 266 Acrolein 250 U ug/L 106 (51%-142%) 03/01/23 15:56 ND Acrylonitrile 250 U 245 98 (60%-135%) ug/L \*\*1,2-Dichloroethane-d4 50.0 51.8 51.1 102 ug/L (73%-129%) 51.6 50.1 \*\*Bromofluorobenzene 50.0 ug/L 100 (72%-125%) \*\*Toluene-d8 50.0 50.8 50.8 ug/L 102 (75%-123%) QC1205333732 611923001 PSD 50.0 U ND 50.5 2 101 1,1,1-Trichloroethane (0%-20%)03/01/23 15:26 ug/L 50.0 ND 50.7 0 101 1,1,2,2-Tetrachloroethane ug/L (0%-20%)1,1,2-Trichloroethane 50.0 U ND 48.0 2 96 (0%-20%)ug/L

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# QC Summary

Workorder: 612474 Page 9 of 12

Parmname	NOM	Sample Qual	QC	Units	RPD/D%	REC%	Range Anlst	Date Time
Volatile-GC/MS								
Batch 2391575								
1,1-Dichloroethane	50.0 U	ND	47.7	ug/L	2	95	(0%-20%) PXY1	03/01/23 15:26
1,1-Dichloroethylene	50.0 U	ND	50.2	ug/L	0	100	(0%-20%)	
1,2-Dichloroethane	50.0 U	ND	44.1	ug/L	0	88	(0%-20%)	
1,2-Dichloropropane	50.0 U	ND	46.0	ug/L	0	92	(0%-20%)	
1,3-Dichloropropylene	100		98.7	ug/L	1	99	(0%-20%)	
2-Chloroethylvinyl ether	250 U	ND U	ND	ug/L	N/A	0*	(0%-20%)	
Benzene	50.0 U	ND	46.3	ug/L	1	93	(0%-20%)	
Bromodichloromethane	50.0 U	ND	52.1	ug/L	2	104	(0%-20%)	
Bromoform	50.0 U	ND	53.4	ug/L	5	107	(0%-20%)	
Bromomethane	50.0 U	ND	55.7	ug/L	5	111	(0%-20%)	
Carbon tetrachloride	50.0 U	ND	50.9	ug/L	2	102	(0%-20%)	
Chlorobenzene	50.0 U	ND	44.7	ug/L	0	89	(0%-20%)	
Chloroethane	50.0 U	ND	52.2	ug/L	1	104	(0%-20%)	
Chloroform	50.0 U	ND	49.9	ug/L	1	100	(0%-20%)	
Chloromethane	50.0 U	ND	37.1	ug/L	5	74	(0%-20%)	

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# **QC** Summary

Workorder: 612474 Page 10 of 12 Parmname NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2391575 Batch 52.4 Dibromochloromethane 50.0 U ND ug/L 2 105 (0%-20%) PXY1 03/01/23 15:26 Ethylbenzene 50.0 U ND 40.8 3 82 (0%-20%)ug/L Methylene chloride 50.0 BJ1.93 В 47.5 ug/L 0 91 (0%-20%)50.0 U ND (0%-20%)Tetrachloroethylene 44.9 ug/L 2 90 Toluene 50.0 U ND 44.8 ug/L 1 90 (0%-20%)50.0 U ND 49.5 2 (0%-20%)Trichloroethylene ug/L 99 Vinyl chloride 50.0 U ND 45.8 ug/L 53\* 92 (0%-20%)50.0 U ND 44.1 ug/L 4 88 (0%-20%)trans-1,2-Dichloroethylene 51.8 51.3 \*\*1,2-Dichloroethane-d4 50.0 ug/L 103 (73%-129%) 50.0 51.6 51.6 103 \*\*Bromofluorobenzene ug/L (72% - 125%)50.0 50.8 49.8 100 (75%-123%) \*\*Toluene-d8 ug/L QC1205333734 611923001 PSD ND 270 03/01/23 16:26 Acrolein 250 U ug/L 2 108 (0%-20%)Acrylonitrile 250 U ND 255 4 102 (0% - 20%)ug/L 51.8 \*\*1,2-Dichloroethane-d4 50.0 50.6 101 ug/L (73%-129%) \*\*Bromofluorobenzene 50.0 51.6 50.0 ug/L 100 (72% - 125%)

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# **QC** Summary

Workorder: 612474 Page 11 of 12 **Parmname** NOM Sample Qual  $\mathbf{OC}$ Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS Batch 2391575 \*\*Toluene-d8 50.0 50.8 51.9 ug/L 104 (75%-123%) PXY1 03/01/23 16:26

#### **Notes:**

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, the difference is >70%.
- C Analyte has been confirmed by GC/MS analysis
- B The target analyte was detected in the associated blank.
- E Concentration of the target analyte exceeds the instrument calibration range
- A The TIC is a suspected aldol-condensation product
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- N Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
- H Analytical holding time was exceeded
- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- h Preparation or preservation holding time was exceeded
- R Sample results are rejected
- Z Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
- d 5-day BOD--The 2:1 depletion requirement was not met for this sample
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
- D Results are reported from a diluted aliquot of the sample
- N/A RPD or %Recovery limits do not apply.
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- JNX Non Calibrated Compound
- UJ Compound cannot be extracted
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- N1 See case narrative
- Y QC Samples were not spiked with this compound

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# **QC** Summary

612474 Page 12 of 12 **Parmname NOM** Sample Qual  $\mathbf{OC}$ Units RPD/D% REC% Range Anlst Date Time

- Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance R
- Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
- 5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for e reporting purposes
- See case narrative for an explanation

Workorder:

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

- ^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
- \* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

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# Technical Case Narrative Holtec Decommissioning International, LLC SDG #: 612474

# **GC/MS Volatile**

**Product:** Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer

**Analytical Method:** EPA 624.1

Analytical Procedure: GL-OA-E-026 REV# 29

**Analytical Batch:** 2391575

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612474001	Torus-Avantech Influent
1205333728	Laboratory Control Sample (LCS)
1205333729	Laboratory Control Sample (LCS)
1205333730	Method Blank (MB)
1205333731	611923001(NonSDG) Post Spike (PS)
1205333732	611923001(NonSDG) Post Spike Duplicate (PSD)
1205333733	611923001(NonSDG) Post Spike (PS)
1205333734	611923001(NonSDG) Post Spike Duplicate (PSD)

The samples in this SDG were analyzed on an "as received" basis.

### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

### **Quality Control (QC) Information**

#### Blank (MB) Statement

Target analytes were detected in the blank 1205333730 (MB) below the reporting limit. The data are qualified and reported.

### Matrix Spike/Matrix Spike Duplicate Recovery Statement

Preservation by acidification causes 2-Chloroethylvinyl ether to degrade resulting in poor recoveries in samples (See Below).

Sample	Analyte	Value
1205333731 (Non SDG 611923001PS)	2-Chloroethylvinyl ether	0* (64%-123%)
1205333732 (Non SDG 611923001PSD)	2-Chloroethylvinyl ether	0* (64%-123%)

The spike and/or spike duplicate (See Below) recoveries were not all within the acceptance limits. The associated spike and/or spike duplicate passed recoveries near the lower/upper end of the limits.

Sample	Analyte	Value
1205333731 (Non SDG 611923001PS)	Vinyl chloride	53* (58%-139%)

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#### Relative Percent Difference (RPD) Statement

The RPD between the matrix spike pair (See Below) were not all within the acceptance limits. The unacceptable RPD may be attributed to matrix interference and/or sample non-homogeneity.

Sample	Analyte	Value
1205333731PS and 1205333732PSD (Non SDG 611923001)	Vinyl chloride	RPD 53* (0%-20%)

# **General Chemistry**

**Product:** Biochemical Oxygen Demand

**Analytical Method:** SM 5210B

Analytical Procedure: GL-GC-E-045 REV# 28

Analytical Batch: 2391536

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612474001	Torus-Avantech Influent
1205333668	Method Blank (MB)
1205333669	Laboratory Control Sample (LCS)
1205333670	BOD Seed (SEED)
1205333886	612553001(NonSDG) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Technical Information**

### 2:1 Depletion Requirement

The following samples in this batch did not meet the 2:1 depletion requirement. 612474001 (Torus-Avantech Influent).

**Product: Total Residual Chlorine Analytical Method:** SM 4500-Cl G

**Analytical Procedure:** GL-GC-E-076 REV# 17

**Analytical Batch:** 2392276

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#
612474001 Torus-Avantech Influent
1205334706 Method Blank (MB)
1205334707 Laboratory Control Sample (LCS)

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1205334708 612474001(Torus-Avantech Influent) Sample Duplicate (DUP)

1205334709 612474001(Torus-Avantech Influent) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Technical Information**

### **Holding Times**

Samples (See Below) were received by the laboratory outside of the method specified holding time. The data is qualified.

Sample		Value
1205334708 (Torus-Avantech InfluentDUP)		Received 28-FEB-23, out of holding 27-FEB-23
1205334709 (Torus-Avantech InfluentPS)		Received 28-FEB-23, out of holding 27-FEB-23
612474001 (Torus-Avantech Influent)		Received 28-FEB-23, out of holding 27-FEB-23

**Product:** pH

**Analytical Method:** EPA 150.1

Analytical Procedure: GL-GC-E-008 REV# 26

**Analytical Batch:** 2392032

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID# Client Sample Identification

612474001 Torus-Avantech Influent

1205334357 Laboratory Control Sample (LCS)

1205334358 612158001(NonSDG) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

### **Technical Information**

#### **Holding Times**

Samples (See Below) were received by the laboratory outside of the method specified holding time. The data is qualified.

Sample	Analyte	Value	
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1205334358 (Non SDG 612158001DUP)	Received 24-FEB-23, out of holding 21-FEB-23
612474001 (Torus-Avantech Influent)	Received 28-FEB-23, out of holding 27-FEB-23

### **Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

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Sample be  Sample be  Sample be  Sample be  Sample be  Sample be  A sample be  A sample be  A sample be  Residual Chlorine  Tat Requested:  A sample be  Residual Chlorine  Tat Requested:  Additional Remarks:  For Lab Receiving Use Only: Custody Seal Imact? [1] Yes [1] No Cooler 1  For Lab Receiving Use Only: Custody Seal Imact? [1] Yes [1] No Cooler 1	PH Chlorine    Rested: Normal:   Rush:   Normal:
Considered:  W Sample  Matrix © Matrix  W Matrix (Considered)  W Matrix (Considered)  W Matrix (Considered)  Additional Remarks:  Fax Results: [] Yes [x] No  For Lab Receiving Use Only: Custody Seal Intact? [] Yes [] No Coole	Field Sample   Considered:   Sample   Considered:   Sample   Paracter   Pield   Sample   Pield   Pierse supply   Pield   Pierse supply   Pield   Pierse supple   Pierse supp
Time  Field Sample  N W Matrix (9 dal number of possible Hazar)  Time  Fax Results: [1] Yes [x] No Coole  For Lab Receiving Use Only: Custody Seal Intact? [1] Yes [1] No Coole	No   Sepecify:
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TAT Requested: Normal: Rush: X Specify:  Fax Results: [] Yes [x] No  Additional Remarks:  For Lab Receiving Use Only: Custody Seal Intact? [] Yes [] No Cooler Temp: C	
TAT Requested: Normal: Rush: X Specify:  Fax Results: [] Yes [x] No  Additional Remarks:  For Lab Receiving Use Only: Custody Seal Intact? [] Yes [] No Cooler Temp: C	
TAT Requested: Normal: Rush: X Specify:  Fax Results: [] Yes [x] No  Additional Remarks:  For Lab Receiving Use Only: Custody Seal Intact? [] Yes [] No Cooler Temp: C	rested: Normal: Rush: X Specify: Normal: Rush: X Specify: No
TAT Requested: Normal: Rush: X Specify:  Fax Results: [] Yes [x] No  Additional Remarks:  For Lab Receiving Use Only: Custody Seal Intact? [] Yes [] No Cooler Temp: C	lested: Normal: Rush: X Specify:  No  A []QC Summary [] level 1 [] Level 2 [] Level 3  y: Custody Seal Intact? [] Yes [] No Cooler Temp: Castern [] Pacific [] Central [] Mountain [] Other
TAT Requested: Normal: Rush: X Specify:  Fax Results: [] Yes [x] No  Additional Remarks:  For Lab Receiving Use Only: Custody Seal Intact? [] Yes [] No Cooler Temp: C	rested: Normal: Rush: X Specify:  No  A [] QC Summary [] level 1 [] Level 2 [] Level 3  y: Custody Seal Intact? [] Yes [] No Cooler Temp: Castern [] Pacific [] Central [] Mountain [] Othe
TAT Requested: Normal: Rush: X Specify:  Fax Results: [] Yes [x] No  Additional Remarks:  For Lab Receiving Use Only: Custody Seal Intact? [] Yes [] No Cooler Temp: C	rested: Normal: Rush: X Specify: No  No  A [ ] QC Summary [ ] level 1 [ ] Level 2 [ ] Level 3  P: Custody Seal Intact? [ ] Yes [ ] No Cooler Temp: Castern [ ] Pacific [ ] Central [ ] Mountain [ ] Othe
Fax Results: [] Yes [x] No  Select Deliverable: [] C of A [] QC Summary [] level 1 [] Level 2 [] Level 3  Additional Remarks:  For Lab Receiving Use Only: Custody Seal Intact? [] Yes [] No Cooler Temp: C	No A []QC Summary []level1 []Level2 []Level3 y: Custody Seal Intact? []Yes []No Cooler Temp: \(\begin{align*} \text{Sastern} \text{[]Pacific} []Central []Mountain []Othe
Additional Remarks:  For Lab Receiving Use Only: Custody Seal Intact? [] Yes [] No Cooler Temp: C	y: Custody Seal Intact? [] Yes [] No Cooler Temp: <u>Castern</u> [] Pacific [] Central [] Mountain [] Othe
For Lab Receiving Use Only: Custody Seal Intact? [ ] Yes [ ] No Cooler Temp:	y: Custody Seal Intact? [] Yes [] No Cooler Temp: Sastern [] Pacific [] Central [] Mountain [] Other:
	castern [ ] Pacific [ ] Central [ ] Mountain

Laboratories LLC SAMPLE RECEIPT & REVIEW FORM SDG/AR/COC/Work Order: Cllent: Date Received: 🗸 Received By: FedEx Express FedEx Ground UPS Field Services Courier Other 7714 1319 0500 Carrier and Tracking Number \*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. ខ Ž Suspected Hazard Information UN#: 2910 Hazard Class Shipped: If UN2910, Is the Radioactive Shipment Survey Compliant? Yester No\_ A)Shipped as a DOT Hazardous? COC notation or radioactive stickers on containers equal client designation. B) Did the client designate the samples are to be received as radioactive? C) Did the RSO classify the samples as COC notation or hazard tabels on containers equal client designation. radiouctive? D) Did the client designate samples are hazardous? If D or E is yes, select Hazards below. Beryllium RCRA Asbestos Foreign Soil PCB's Flammable E) Did the RSO identify possible hazards? Comments/Qualifiers (Required for Non-Conforming Rems) 2 2 2 Circle Applicable: Saals broken Damaged container Leaking container Other (describe) Sample Receipt Criteria Shipping containers received intact and Circle Applicable: Client contacted and provided COC COC cremed upon receipt scaled? Chain of custody documents included 60 Preservation Method: Wet lee lee Packs Dry ice None Other:
\*all temperatures are recorded in Celsius with shipment? TEMP: Samples requiring cold preservation within  $(0 \le 6 \text{ deg. C})$ ?\* Temperature Device Serial #: 192-25 Daily check performed and passed on IR Secondary Temperature Device Serial # (If Applicable): Circle Applicable: Seals broken Damaged container Leaking container Other (describe) temperature gun? Sample containers intact and scaled? Sample ID's and Containers Affected; Samples requiring chemical preservation NA (If yes, take to VOA Freezer) Preservation added, Lot#; 6 If Yes, ore Encores or Soil Kits present for solids? Yes No.

Do liquid VOA vials contain acid preservation? Yes No. at proper pH? (If unknown, select No) Do any samples require Volatile Are liquid VOA vials free of headspace? Yel No\_ Sample ID's and containers affected: 7 Analysis? ID's and tests affected: Samples received within holding time? ID's and containers affected: Sample ID's on COC match 1D's on Circle Applicable: No dates on containers No times on containers COC missing info Other (describe) bottles? Date & time on COC match date & time Circle Applicable: No container count on COC Other (describe) 10 on bottles? Number of containers received match number indicated on COC? Are sample containers identifiable as Circle Applicable: Not relinquished Diher (describe) GEL provided by use of GEL labels? COC form is properly signed in relinquished/received sections? Comments (Use Continuation Form if needed); MG \_\_\_\_ Date 3 1 23 \_\_ Page \_\_\_\_ of \_\_\_\_

PM (or PMA) review: Initials \_\_\_

List of current GEL Certifications as of 08 March 2023

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012 SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kansas NELAT  Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	90129 LA024
Louisiana NELAP	03046 (AI33904)
Maine	1
· · ·	2019020
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122023-4
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2022-160
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-22-20
Utah NELAP	SC000122022-37
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

# FORM 3510-2C - ATTACHMENT 3.1C

3.1C-2 – Treated Water Tank and Intake Laboratory Reports



a member of The GEL Group INC







PO Box 30712 Charleston, SC 29417 2040 Savage Road Charleston, SC 29407 P 843.556.8171 F 843.766.1178

gel.com

March 06, 2023

Laura Hageman HDI, Inc. 1 Holtec Blvd. Camden, New Jersey 08104

Re: Pilgrim NPDES Permit Modification

Work Order: 611599

Dear Laura Hageman:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on February 21, 2023. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

The sample was delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. The following additional comments were noted at receipt: (insert text box).. Sample was preserved upon arrival. Client was notified via email..

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4504.

Sincerely,

Anna Johnson for
Erin Trent
Project Manager

Purchase Order: 98000918

Enclosures



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# Certificate of Analysis Report for

CDEC001 Holtec Decommissioning International, LLC Client SDG: 611599 GEL Work Order: 611599

### The Qualifiers in this report are defined as follows:

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- H Analytical holding time was exceeded
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- d 5-day BOD--The 2:1 depletion requirement was not met for this sample

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Erin Trent.

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# **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Report Date: March 6, 2023

CDEC00107 CDEC001

Project: Client ID:

Contact: Laura Hageman

**Project:** Pilgrim NPDES Permit Modification

Client Sample ID: Intake
Sample ID: 611599001
Matrix: Water

Collect Date: 20-FEB-23 08:00 Receive Date: 21-FEB-23

Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	PF DF Analy	st Date	Time	Batch Mtd.
Micro-biology									
SM 5210B BOD, 5DAY "A	s Received"								
BOD, 5 DAY	dU	ND	10.0	20.0	mg/L	JW2	02/22/	23 0756	23877191
Spectrometric Analysis									
SM4500CL_G Total Resid	ual Chlorine "	'As Received"							
Chlorine, Residual	HU	ND	0.0170	0.0500	mg/L	1 HH2	02/21/	23 1640	23875852
Titration and Ion Analysis									
EPA 150.1 pH "As Receiv	red"								
pH at Temp 17.1C	Н	8.07	0.0100	0.100	SU	1 JW2	02/22/	23 1658	23881923
Volatile Organics									
EPA 624.1 Volatiles Metho	od List "As Red	ceived"							
1,1,1-Trichloroethane	U	ND	0.333	1.00	ug/L	1 JM6	02/22/	23 1539	23878184
71-55-6									
1,1,2,2-Tetrachloroethane 79-34-5	U	ND	0.333	1.00	ug/L	1			
1,1,2-Trichloroethane 79-00-5	U	ND	0.333	1.00	ug/L	1			
1,1-Dichloroethane	U	ND	0.333	1.00	ug/L	1			
75-34-3									
1,1-Dichloroethylene 75-35-4	U	ND	0.333	1.00	ug/L	1			
1,2-Dichloroethane	U	ND	0.333	1.00	ug/L	1			
107-06-2		NID	0.222	1.00	/T	1			
1,2-Dichloropropane 78-87-5	U	ND	0.333	1.00	ug/L	1			
1,3-Dichloropropylene 542-75-6	U	ND	0.500	2.00	ug/L	1			
2-Chloroethylvinyl ether 110-75-8	U	ND	1.67	5.00	ug/L	1			
Acrolein 107-02-8	U	ND	1.67	5.00	ug/L	1			
Acrylonitrile 107-13-1	U	ND	1.67	5.00	ug/L	1			

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# **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

Report Date: March 6, 2023

	Client Sample Sample ID:	e ID: Intake 61159			F	Proiect: Client ID:	CDEC00107 CDEC001		
Parameter	Qualifier	Result	DL	RL	Units	PF	DF Analyst Date	Time	Batch Mtd.
Volatile Organics									
EPA 624.1 Volatiles Met	thod List "As Red	ceived"							
Benzene 71-43-2	U	ND	0.333	1.00	ug/L		1		
Bromodichloromethane 75-27-4	U	ND	0.333	1.00	ug/L		1		
Bromoform 75-25-2	U	ND	0.333	1.00	ug/L		1		
Bromomethane 74-83-9	U	ND	0.337	1.00	ug/L		1		
Carbon tetrachloride 56-23-5	U	ND	0.333	1.00	ug/L		1		
Chlorobenzene 108-90-7	U	ND	0.333	1.00	ug/L		1		
Chloroethane 75-00-3	U	ND	0.333	1.00	ug/L		1		
Chloroform 67-66-3	U	ND	0.333	1.00	ug/L		1		
Chloromethane 74-87-3	U	ND	0.333	1.00	ug/L		1		
Dibromochloromethane 124-48-1	U	ND	0.333	1.00	ug/L		1		
Ethylbenzene 100-41-4	U	ND	0.333	1.00	ug/L		1		
Methylene chloride 75-09-2	J	0.880	0.500	2.00	ug/L		1		
Tetrachloroethylene 127-18-4	U	ND	0.333	1.00	ug/L		1		
Toluene 108-88-3	U	ND	0.333	1.00	ug/L		1		
Trichloroethylene 79-01-6	U	ND	0.333	1.00	ug/L		1		
Vinyl chloride 75-01-4	U	ND	0.333	1.00	ug/L		1		
trans-1,2-Dichloroethyle 156-60-5	ne U	ND	0.333	1.00	ug/L		1		

The following Analytical Methods were performed:

Method Description Analyst Comments

1 SM 5210B 2 SM 4500-Cl G

Page 4 of 23 SDG: 611599

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# **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Report Date: March 6, 2023

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

	Client Sample ID: Sample ID:	Intake 611599001			Project: Client ID:	CDEC00107 CDEC001	
Parameter	Qualifier Result		DL	$\mathbf{RL}$	Units PF	DF Analyst Date	Time Batch Mtd.
3	EPA 150.1						

4 EPA 624.1

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Bromofluorobenzene	EPA 624.1 Volatiles Method List "As Received"	48.3 ug/L	50.0	97	(72%-125%)
1,2-Dichloroethane-d4	EPA 624.1 Volatiles Method List "As Received"	61.9 ug/L	50.0	124	(73%-129%)
Toluene-d8	EPA 624.1 Volatiles Method List "As Received"	49.5 ug/L	50.0	99	(75%-123%)

Page 5 of 23 SDG: 611599

**GEL LABORATORIES LLC** 2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: March 6, 2023

Page 1 of 12

HDI, Inc. 1 Holtec Blvd. Camden, New Jersey

**Contact:** Laura Hageman

Workorder: 611599

Parmname		NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range A	Anlst	Date Time
Micro-biology											
Batch 2387719											
QC1205327579 611557002 BOD, 5 DAY	DUP		3.58		3.80	mg/L	5.96 ^		(+/-2.00)	JW2	02/22/23 07:56
QC1205327577 LCS BOD, 5 DAY		198			196	mg/L		98.8	(85%-115%)		02/22/23 07:56
QC1205327576 MB BOD, 5 DAY					0.160	mg/L					02/22/23 07:56
QC1205327578 SEED BOD, 5 DAY					0.709	mg/L					02/22/23 07:56
Spectrometric Analysis Batch 2387585											
QC1205327373 611599001 Chlorine, Residual	DUP	HU	ND	HU	ND	mg/L	N/A			НН2	02/21/23 16:40
QC1205327372 LCS Chlorine, Residual		0.500			0.515	mg/L		103	(74%-112%)		02/21/23 16:39
QC1205327371 MB Chlorine, Residual				U	ND	mg/L					02/21/23 16:39
QC1205327374 611599001 Chlorine, Residual	PS	0.500 HU	ND	Н	0.509	mg/L		102	(67%-128%)		02/21/23 16:40
<b>Titration and Ion Analysis</b> Batch 2388192											
QC1205328295 610500001 pH	DUP	Н	8.27	Н	8.27	SU	0		(0%-5%)	JW2	02/22/23 16:24

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# QC Summary

Workorder: 611599 Page 2 of 12 Sample Qual Parmname NOM QC Units RPD/D% REC% Range Anlst Date Time **Titration and Ion Analysis** 2388192 Batch QC1205328294 LCS 7.00 SU7.00 100 (99%-101%) JW2 02/22/23 16:22 pН Volatile-GC/MS 2387818 Batch QC1205327729 LCS 1,1,1-Trichloroethane 50.0 40.8 ug/L 82 (75%-136%) JM6 02/22/23 08:31 1,1,2,2-Tetrachloroethane 50.0 46.1 ug/L 92 (68%-126%) 1,1,2-Trichloroethane 50.0 44.5 ug/L 89 (73%-120%) 1,1-Dichloroethane 50.0 41.1 ug/L 82 (76%-123%) 1,1-Dichloroethylene 50.0 37.9 (67%-133%) ug/L 76 44.7 50.0 1,2-Dichloroethane ug/L 89 (68%-124%) 1,2-Dichloropropane 50.0 39.7 ug/L 79 (74%-121%) 100 89.3 1,3-Dichloropropylene ug/L 89 (75%-129%) 2-Chloroethylvinyl ether 250 230 ug/L 92 (62%-126%) 50.0 Benzene 40.6 81 (74%-118%) ug/L Bromodichloromethane 50.0 46.6 ug/L 93 (73% - 133%)Bromoform 50.0 52.9 106 ug/L (69%-130%) Bromomethane 50.0 51.2 ug/L 102 (68%-140%)

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# QC Summary

Workorder: 611599 Page 3 of 12 Parmname NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2387818 Batch Carbon tetrachloride 50.0 43.1 ug/L 86 (73%-140%) JM6 02/22/23 08:31 Chlorobenzene 50.0 43.3 87 (76%-120%) ug/L Chloroethane 50.0 60.4 ug/L 121 (70%-131%) Chloroform 50.0 42.5 ug/L 85 (77%-126%) Chloromethane 50.0 42.2 ug/L 84 (60%-139%) Dibromochloromethane 50.0 51.0 102 ug/L (75%-133%) 50.0 40.5 Ethylbenzene ug/L 81 (75%-121%) Methylene chloride 50.0 36.9 74 (69%-120%) ug/L Tetrachloroethylene 50.0 41.1 ug/L 82 (74%-124%) Toluene 50.0 41.8 ug/L 84 (74% - 118%)Trichloroethylene 50.0 40.4 81 (76%-124%) ug/L Vinyl chloride 50.0 45.2 ug/L 90 (67%-134%) trans-1,2-Dichloroethylene 50.0 38.7 ug/L 77 (71%-127%) \*\*1,2-Dichloroethane-d4 50.0 54.6 109 (73% - 129%)ug/L \*\*Bromofluorobenzene 50.0 47.0 ug/L 94 (72%-125%)

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# QC Summary

611599 Page 4 of 12 QC Parmname NOM Sample Qual Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2387818 Batch \*\*Toluene-d8 50.0 53.0 ug/L 106 (75%-123%) JM6 02/22/23 08:31 LCS QC1205327730 250 209 02/22/23 09:26 Acrolein ug/L 84 (63%-141%) Acrylonitrile 250 301 ug/L 120 (67%-128%) \*\*1,2-Dichloroethane-d4 50.0 55.3 ug/L 111 (73%-129%) \*\*Bromofluorobenzene 50.0 49.0 ug/L (72%-125%) \*\*Toluene-d8 50.0 51.1 ug/L 102 (75% - 123%)QC1205327731 MB U 02/22/23 10:49 1,1,1-Trichloroethane ND ug/L 1,1,2,2-Tetrachloroethane U ND ug/L U ND 1,1,2-Trichloroethane ug/L U ND 1,1-Dichloroethane ug/L U ND 1,1-Dichloroethylene ug/L U ND 1,2-Dichloroethane ug/L 1,2-Dichloropropane U ND ug/L U ND 1,3-Dichloropropylene ug/L

Workorder:

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# QC Summary

Page 5 of 12 NOM QC RPD/D% REC% Parmname Sample Qual Units Range Anlst Date Time Volatile-GC/MS 2387818 Batch U 2-Chloroethylvinyl ether ND ug/L JM6 02/22/23 10:49 U Acrolein ND ug/L U Acrylonitrile ND ug/L U ND Benzene ug/L U Bromodichloromethane ND ug/L U ND Bromoform ug/L U Bromomethane ND ug/L Carbon tetrachloride U ND ug/L U ND Chlorobenzene ug/L Chloroethane ND ug/L U ND Chloroform ug/L Chloromethane U ND ug/L U ND Dibromochloromethane ug/L Ethylbenzene U ND ug/L U ND ug/L Methylene chloride

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Workorder:

611599

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# QC Summary

Workorder: 611599 Page 6 of 12 Parmname NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2387818 Batch Tetrachloroethylene U ND ug/L JM6 02/22/23 10:49 Toluene U ND ug/L Trichloroethylene U ND ug/L U ND Vinyl chloride ug/L trans-1,2-Dichloroethylene U ND ug/L 56.8 (73% - 129%)\*\*1,2-Dichloroethane-d4 50.0 ug/L 114 50.0 49.1 \*\*Bromofluorobenzene ug/L 98 (72%-125%) \*\*Toluene-d8 50.0 50.4 101 ug/L (75%-123%) QC1205327732 610804001 PS ND 02/22/23 17:34 1,1,1-Trichloroethane 50.0 U 58.0 ug/L 116 (67%-135%) 1,1,2,2-Tetrachloroethane 50.0 U ND 55.3 111 (58%-138%) ug/L 1,1,2-Trichloroethane 50.0 U ND 53.4 ug/L 107 (70%-126%) 1,1-Dichloroethane ND 50.0 U 54.4 ug/L 109 (70%-126%) 1,1-Dichloroethylene 50.0 U ND 55.4 111 (61%-137%) ug/L U ND 60.7 50.0 1,2-Dichloroethane ug/L 121 (64%-129%) 1,2-Dichloropropane 50.0 U ND 50.0 ug/L 100 (68%-127%)

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# QC Summary

Workorder: 611599 Page 7 of 12 Sample Qual Parmname NOM QC Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2387818 Batch 1,3-Dichloropropylene 100 109 ug/L 109 (74%-123%) JM6 02/22/23 17:34 ND 2-Chloroethylvinyl ether 250 U U ND (64%-123%) ug/L ug/L Benzene 50.0 U ND 53.2 106 (65%-122%) 50.0 U ND 59.2 Bromodichloromethane ug/L 118 (68%-137%) Bromoform 50.0 U ND 63.4 ug/L 127 (62%-138%) 50.0 U ND 56.0 Bromomethane ug/L 112 (61%-142%) 50.0 U ND 61.3 Carbon tetrachloride ug/L 123 (63%-144%) ND Chlorobenzene 50.0 U 53.6 ug/L 107 (63%-123%) 50.0 U ND 60.2 Chloroethane ug/L 120 (64%-134%) Chloroform 50.0 U ND 54.7 109 ug/L (69%-133%) ND Chloromethane 50.0 U 42.0 (45%-142%) ug/L 84 Dibromochloromethane 50.0 U ND 61.8 (68%-142%) ug/L 124 50.0 U ND Ethylbenzene 50.8 ug/L 102 (65%-124%) Methylene chloride 50.0 0.800 49.8 98 (62% - 125%)ug/L 50.0 U ND 51.3 103 Tetrachloroethylene ug/L (64%-129%)

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# **QC** Summary

Page 8 of 12 Sample Qual Parmname NOM QC Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2387818 Batch Toluene 50.0 U ND 50.6 ug/L 101 (63%-121%) JM6 02/22/23 17:34 Trichloroethylene 50.0 U ND 52.3 105 (66%-126%) ug/L (58%-139%) Vinyl chloride 50.0 U ND 45.2 ug/L 90 50.0 U ND trans-1,2-Dichloroethylene 54.0 ug/L 108 (65%-130%) \*\*1,2-Dichloroethane-d4 50.0 56.6 55.2 ug/L 110 (73%-129%) \*\*Bromofluorobenzene 47.9 48.1 50.0 ug/L 96 (72%-125%) \*\*Toluene-d8 50.0 51.2 51.0 ug/L 102 (75% - 123%)QC1205327733 610804001 PS ND 205 Acrolein 250 U ug/L 82 (51%-142%) 02/22/23 18:29 ND 113 Acrylonitrile 250 U 282 (60%-135%) ug/L \*\*1,2-Dichloroethane-d4 50.0 56.6 56.1 ug/L 112 (73%-129%) 47.9 49.9 \*\*Bromofluorobenzene 50.0 ug/L 100 (72%-125%) \*\*Toluene-d8 50.0 51.2 50.4 ug/L 101 (75%-123%) QC1205327734 610804001 PSD 50.0 U ND 59.7 3 02/22/23 18:02 1,1,1-Trichloroethane 119 (0%-20%)ug/L 50.0 ND 54.1 2 108 1,1,2,2-Tetrachloroethane ug/L (0%-20%)1,1,2-Trichloroethane 50.0 U ND 53.4 107 0 (0%-20%)ug/L

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Workorder:

611599

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# QC Summary

Workorder: 611599 Page 9 of 12 Parmname NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2387818 Batch 1,1-Dichloroethane 50.0 U ND 55.7 ug/L 2 111 (0%-20%)JM6 02/22/23 18:02 1,1-Dichloroethylene 50.0 U ND 58.3 5 117 (0%-20%)ug/L 1,2-Dichloroethane 50.0 U ND 61.5 ug/L 1 123 (0%-20%)50.0 U ND 50.1 0 100 (0%-20%)1,2-Dichloropropane ug/L 1,3-Dichloropropylene 100 109 ug/L 1 109 (0%-20%)250 U ND U ND 0\* (0%-20%)2-Chloroethylvinyl ether ug/L N/A 50.0 U ND 53.9 108 Benzene ug/L (0%-20%)Bromodichloromethane 50.0 U ND 61.4 4 123 (0%-20%)ug/L ND 50.0 U 65.0 2 130 Bromoform ug/L (0%-20%)Bromomethane 50.0 U ND 57.7 3 115 ug/L (0%-20%)ND Carbon tetrachloride 50.0 U 63.3 3 127 (0%-20%)ug/L Chlorobenzene 50.0 U ND 53.4 0 107 (0%-20%)ug/L 50.0 U ND Chloroethane 62.5 ug/L 4 125 (0%-20%)Chloroform 50.0 U ND 56.3 3 113 (0%-20%)ug/L 50.0 U ND 42.1 Chloromethane ug/L 0 84 (0%-20%)

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# **QC** Summary

611599 Page 10 of 12 **Parmname** NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2387818 Batch Dibromochloromethane 50.0 U ND 61.8 ug/L 0 124 (0%-20%)JM6 02/22/23 18:02 Ethylbenzene 50.0 U ND 50.1 1 100 (0%-20%)ug/L Methylene chloride 50.0 J 0.800 51.0 ug/L 2 100 (0%-20%)50.0 U ND 103 (0%-20%)Tetrachloroethylene 51.6 ug/L 0 Toluene 50.0 U ND 50.5 ug/L 0 101 (0%-20%)50.0 U ND 54.1 108 (0%-20%)Trichloroethylene ug/L 3 Vinyl chloride 50.0 U ND 3 46.7 ug/L 93 (0%-20%)50.0 U ND 54.6 ug/L 1 109 (0%-20%)trans-1,2-Dichloroethylene 56.6 56.5 \*\*1,2-Dichloroethane-d4 50.0 ug/L 113 (73%-129%) 50.0 47.9 49.1 \*\*Bromofluorobenzene ug/L 98 (72% - 125%)50.0 51.2 50.4 101 (75%-123%) \*\*Toluene-d8 ug/L QC1205327735 610804001 PSD ND 198 02/22/23 18:57 Acrolein 250 U ug/L 3 79 (0%-20%)Acrylonitrile 250 U ND 293 4 117 (0% - 20%)ug/L \*\*1,2-Dichloroethane-d4 50.0 56.6 56.8 ug/L 114 (73%-129%) \*\*Bromofluorobenzene 50.0 47.9 50.2 ug/L 100 (72% - 125%)

Page 15 of 23 SDG: 611599

Workorder:

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# **QC** Summary

Workorder: 611599 Page 11 of 12 **Parmname** NOM Sample Qual  $\mathbf{OC}$ Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2387818 Batch \*\*Toluene-d8 50.0 51.2 50.3 ug/L 101 (75% - 123%)JM6 02/22/23 18:57

### **Notes:**

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, the difference is >70%.
- C Analyte has been confirmed by GC/MS analysis
- B The target analyte was detected in the associated blank.
- E Concentration of the target analyte exceeds the instrument calibration range
- A The TIC is a suspected aldol-condensation product
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- N Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
- H Analytical holding time was exceeded
- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- h Preparation or preservation holding time was exceeded
- R Sample results are rejected
- Z Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
- d 5-day BOD--The 2:1 depletion requirement was not met for this sample
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
- D Results are reported from a diluted aliquot of the sample
- N/A RPD or %Recovery limits do not apply.
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- JNX Non Calibrated Compound
- UJ Compound cannot be extracted
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- N1 See case narrative
- Y QC Samples were not spiked with this compound

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# **QC** Summary

Workorder: 611599

Page 12 of 12

Parmname

NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time

- R Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance
- N Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
- e 5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes
- J See case narrative for an explanation

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

- ^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
- \* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Page 17 of 23 SDG: 611599

# Technical Case Narrative Holtec Decommissioning International, LLC SDG #: 611599

# **GC/MS Volatile**

**Product:** Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer

**Analytical Method:** EPA 624.1

Analytical Procedure: GL-OA-E-026 REV# 29

**Analytical Batch:** 2387818

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
611599001	Intake
1205327729	Laboratory Control Sample (LCS)
1205327730	Laboratory Control Sample (LCS)
1205327731	Method Blank (MB)
1205327732	610804001(NonSDG) Post Spike (PS)
1205327733	610804001(NonSDG) Post Spike (PS)
1205327734	610804001(NonSDG) Post Spike Duplicate (PSD)
1205327735	610804001(NonSDG) Post Spike Duplicate (PSD)

The samples in this SDG were analyzed on an "as received" basis.

### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

### **Quality Control (QC) Information**

### Matrix Spike/Matrix Spike Duplicate Recovery Statement

Preservation by acidification causes 2-Chloroethylvinyl ether to degrade resulting in poor recoveries in samples (See Below).

Sample	Analyte	Value
1205327732 (Non SDG 610804001PS)	2-Chloroethylvinyl ether	0* (64%-123%)
1205327734 (Non SDG 610804001PSD)	2-Chloroethylvinyl ether	0* (64%-123%)

# **General Chemistry**

**Product: Biochemical Oxygen Demand** 

**Analytical Method:** SM 5210B

Analytical Procedure: GL-GC-E-045 REV# 28

**Analytical Batch:** 2387719

Page 18 of 23 SDG: 611599

The following samples were analyzed using the above methods and analytical procedure(s).

<b>GEL Sample ID#</b>	Client Sample Identification
611599001	Intake
1205327576	Method Blank (MB)
1205327577	Laboratory Control Sample (LCS)
1205327578	BOD Seed (SEED)
1205327579	611557002(NonSDG) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

### **Technical Information**

### 2:1 Depletion Requirement

The following samples in this batch did not meet the 2:1 depletion requirement. 611599001 (Intake).

**Product: Total Residual Chlorine Analytical Method:** SM 4500-Cl G

**Analytical Procedure:** GL-GC-E-076 REV# 17

**Analytical Batch:** 2387585

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
611599001	Intake
1205327371	Method Blank (MB)
1205327372	Laboratory Control Sample (LCS)
1205327373	611599001(Intake ) Sample Duplicate (DUP)
1205327374	611599001(Intake ) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

### **Technical Information**

### **Holding Times**

Samples (See Below) were received by the laboratory outside of the method specified holding time. The data is qualified.

Sample	Analyte	Value
1205327373 (Intake DUP)		Received 21-FEB-23, out of holding 20-FEB-23
1205327374 (Intake PS)		Received 21-FEB-23, out of holding 20-FEB-23

Page 19 of 23 SDG: 611599

611599001 (Intake)		Received 21-FEB-23,	out of holding 20-FEB-23
--------------------	--	---------------------	--------------------------

**Product:** pH

**Analytical Method:** EPA 150.1

**Analytical Procedure:** GL-GC-E-008 REV# 26

**Analytical Batch:** 2388192

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID# Client Sample Identification

611599001 Intake

1205328294 Laboratory Control Sample (LCS)

1205328295 610500001(NonSDG) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

### **Technical Information**

### **Holding Times**

Samples (See Below) were received by the laboratory outside of the method specified holding time. The data is qualified.

Sample	Analyte	Value
1205328295 (Non SDG 610500001DUP)		Received 10-FEB-23, out of holding 09-FEB-23
611599001 (Intake )		Received 21-FEB-23, out of holding 20-FEB-23

### **Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Page 20 of 23 SDG: 611599

Should this   Sample Analysis Requested (9) (Fill in the number of containers for each test)
Should this sample be somsidered:    HCl
BOD PH Chlorine  x x x  x x SF  Rested: Normal: X Rush: Specify:  No  A []QC Summary []level 1 []Level 2    y: Custody Seal Intact? [] Yes [] No Cool  sastern []Pacific []Central [] Mountai
BOD pH
No   Custody Seal Intact? [] Yes [] Mountain   Sastem [] Pacific [] Central [] Mountain   Mountai
x   x   x
Normal: _X
ested: Normal: _X _ Rush:Specify:
No   No     Normal: _X
Specify:
lested: Normal: _X Rush:Specity:
ested: Normal: _XRush:Specify:
No A [ ] QC Summary [ ] level 1 [ ] Level 2 [ ] Level 3 [ ] Level y: Custody Seal Intact? [ ] Yes [ ] No Cooler Temp: °C sastern [ ] Pacific [ ] Central [ ] Mountain [ ] Other:
A [ ]QC Summary [ ]level 1 [ ]Level 2 [ ]Level 3 [ ]Level 9 [ ] Level 9 [ ] Level 9 [ ] Level 9 [ ] V: Custody Seal Intact? [ ] Yes [ ] No Cooler Temp: "C 3astern [ ] Pacific [ ] Central [ ] Mountain [ ] Other:
y: Custody Seal Intact? [ ] Yes [ ] No Cooler Temp:
Sastern [] Pacific [] Central [] Mountain [] Other:
Маттх Spike Duplicate Sample, G = Grab, C = Composite

Clie				S	DG/AR/COC/Work Order: 0 1599
Rec	eived By: MVH			D	ate Received 2 1 2003
	Carrier and Tracking Number				Clrete Applicable: Fedex Express FedEx Ground UPS Field Services Courier Other
a	norted Howard Information	Yes	۔	<u> </u>	11399009201
ousi	pected Hazard Information	×	ž	+	f Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A)SI	nipped as a DOT Hazardous?		١	A	azard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes No
	old the client designate the samples are to be ved as radioactive?		٧	_	OC notation or radioactive stickers on containers equal client designation.
	old the RSO classify the samples as active?		٧	M	aximum Net Counts Observed* (Observed Counts - Area Background Counts): CPM mR/Hr Classified as: Rad 1 Rad 2 Rad 3
) [C	oid the client designate samples are hazardous?	_	۷	1	OC notation or hazard labels on containers equal client designation.  D or B is yes, select Hazards below.
3) D	id the RSO identify possible hazards?		✓	111	PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:
_	Sample Receipt Criteria	Yes	NA	1	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and scaled?	V			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	<b>√</b>	ļ		Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within $(0 \le 6 \text{ deg. C})$ ?*	<b>V</b>			Preservation Method We'Nce Ice Packs Dry ice None Other:  *all temperatures are resorded in Celsius  TEMP:
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR2-21 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	<b>V</b>			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	<u> </u>	γ		Sample ID's and Containers Affected;  If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?	<b>/</b>			If Yes, are Encores or Soil Kits present for solids? Yes No NA (If yes, take to VOA Freezer)  Do liquid VOA vials contain acid preservation? Yes No NA (If unknown, select No)  Are liquid VOA vials free of headspace? Yes No NA  Sample ID's and containers affected:
8	Samples received within holding time?	~			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	~			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	<b>V</b>	•		Circle Applicable: No dates on containers  No times on containers  COC missing info  Other (describe)
lİ	Number of containers received match number indicated on COC?	<b>V</b>			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?  COC form is properly signed in	V			Circle Applicable: Not relinquished Other (describe)
13	relinquished/received sections? ments (Use Continuation Form if needed):	V			

PM (or PMA) review: Initials M 9 Date 2 2 2 2 Page of

GL-CHL-SR-001 Rev 7

List of current GEL Certifications as of 06 March 2023

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012 SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kansas NELAT  Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	90129 LA024
Louisiana NELAP	03046 (AI33904)
Maine	1
· · ·	2019020
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122023-4
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2022-160
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-22-20
Utah NELAP	SC000122022-37
Vermont	VT87156
Virginia NELAP	460202
Washington	C780



a member of The GEL Group INC





PO Box 30712 Charleston, SC 29417 2040 Savage Road Charleston, SC 29407



F 843.766.1178

P 843.556.8171

March 22, 2023

Laura Hageman HDI, Inc. 1 Holtec Blvd. Camden, New Jersey 08104

Re: Pilgrim NPDES Permit Modification

Work Order: 612189

Dear Laura Hageman:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on February 24, 2023. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4504.

Sincerely,

Erin Trent

Project Manager

grie & Trent

Purchase Order: 98000918

Enclosures



2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

# Certificate of Analysis Report for

CDEC001 Holtec Decommissioning International, LLC Client SDG: 612189 GEL Work Order: 612189

### The Qualifiers in this report are defined as follows:

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- H Analytical holding time was exceeded
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- h Preparation or preservation holding time was exceeded

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Erin Trent.

	Vice &	Trent		
Reviewed by				

Page 2 of 38 SDG: 612189

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

# **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Report Date: March 22, 2023

CDEC00107

CDEC001

Project:

Client ID:

Contact: Laura Hageman

**Project:** Pilgrim NPDES Permit Modification

Client Sample ID: Treated Water Tank A Sample ID: 612189001

Matrix: Water

Collect Date: 22-FEB-23 08:15 Receive Date: 24-FEB-23

ND

U

+/-1.00

Collector: Client **Parameter** Qualifier Result PF Time Batch Mtd. DLRLUnits **DF Analyst Date Carbon Analysis** SM 5310 B Total Organic/Inorganic Carbon "As Received" Total Organic Carbon Average 0.330 1.00 1 TSM 03/08/23 1931 23943371

Total Organic Carbon Average	U	ND		0.330	1.00	mg/L		1 TSM	03/08/23 1931 23943371
Flow Injection Analysis									
EPA 335.4 Cyanide, Total "As R	eceived"								
Cyanide, Total	U	ND		1.67	5.00	ug/L	1.00	1 AXH3	02/28/23 0850 23901592
57-12-5									
Ion Chromatography									
SW846 9056 Anions, Liquid "As	Received"								
Bromide	U	ND	+/-0.0223	0.0670	0.200	mg/L		1 JLD1	03/02/23 0824 23921793
24959-67-9									
Chloride		6.69	+/-0.224	0.0670	0.200	mg/L		1	
16887-00-6 Fluoride		NID	. / 0.0110	0.0220	0.100	/T		1	
16984-48-8	U	ND	+/-0.0110	0.0330	0.100	mg/L		1	
Sulfate		2.32	+/-0.0891	0.133	0.400	mg/L		1	
14808-79-8		2.32	17 0.0051	0.133	0.100	mg/L		1	
Mercury Analysis-CVAA									
EPA 245 Mercury "As Received"	,								
Mercury	U	ND	+/-0.0224	0.0670	0.200	ug/L	1.00	1 JP2	03/22/23 0943 24013914
7439-97-6									
Metals Analysis-ICP-MS									
200.8/200.2 Priority Pollutant "A	As Received'	,							
Antimony	U	ND	+/-0.334	1.00	3.00	ug/L	1.00	1 BAJ	03/01/23 2247 23902285
7440-36-0									
Arsenic	U	ND	+/-0.667	2.00	5.00	ug/L	1.00	1	
7440-38-2		ND	. / 0.0667	0.200	0.500	/T	1.00	1	
Beryllium 7440-41-7	U	ND	+/-0.0667	0.200	0.500	ug/L	1.00	1	
Boron		36.7	+/-2.52	5.20	15.0	ug/L	1.00	1	
7440-42-8		30.7	17 2.32	3.20	15.0	ug/L	1.00	1	
Cadmium	U	ND	+/-0.100	0.300	1.00	ug/L	1.00	1	

3.00

10.0

ug/L 1.00

Page 3 of 38 SDG: 612189

7440-43-9 Chromium

7440-47-3

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# **Certificate of Analysis**

Report Date: March 22, 2023

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

_	Client Sample Sample ID:	e ID:	Treated Water 612189001	r Tank A			ent ID:	CDEC00107 CDEC001	7		
Parameter	Qualifier	Result		DL	RL	Units P	PF	DF Analyst	Date T	ime	Batch Mtd.
Metals Analysis-ICP-MS											
200.8/200.2 Priority Poll	utant "As Recei	ved"									
Copper 7440-50-8	J	1.39	+/-0.122	0.300	2.00	ug/L 1.	.00	1			
Lead	J	0.660	+/-0.170	0.500	2.00	ug/L 1.	.00	1			
7439-92-1											
Nickel 7440-02-0		2.02	+/-0.224	0.600	2.00	C	.00	1			
Selenium 7782-49-2	U	ND	+/-0.501	1.50	5.00	ug/L 1.	.00	1			
Silver 7440-22-4	U	ND	+/-0.100	0.300	1.00	ug/L 1.	.00	1			
Thallium 7440-28-0	U	ND	+/-0.200	0.600	2.00	ug/L 1.	.00	1			
Zinc 7440-66-6		36.1	+/-2.11	3.30	20.0	ug/L 1.	.00	1			
<b>Nutrient Analysis</b>											
EPA 350.1 Nitrogen, Ami	monia "As Rece	ived"									
Nitrogen, Ammonia 7664-41-7	U	ND		0.0170	0.0500	mg/L		1 KLP1	03/06/23	1655	23938206
Oil & Grease Analysis											
EPA 1664A/B n-Hexane	Extractable Mai	terial (O&C	G) "As Received"								
Oil and Grease	J	1.47	,	1.37	4.90	mg/L		DXB7	03/09/23	0544	23952847
Semi-Volatile-GC/MS											
EPA 625.1 SVOA, Liquid	"As Received"										
2,4,6-Trichlorophenol 88-06-2	U	ND		2.87	9.56	ug/L 0.00	00956	1 LL2	02/27/23	2200	23886738
2,4-Dichlorophenol 120-83-2	U	ND		2.87	9.56	ug/L 0.00	00956	1			
2,4-Dimethylphenol 105-67-9	U	ND		2.87	9.56	ug/L 0.00	00956	1			
2,4-Dinitrophenol 51-28-5	U	ND		4.78	19.1	ug/L 0.00	00956	1			
2-Chlorophenol 95-57-8	U	ND		2.87	9.56	ug/L 0.00	00956	1			
2-Methyl-4,6-dinitrophen 534-52-1	ol U	ND		2.87	9.56	ug/L 0.00	00956	1			
2-Nitrophenol 88-75-5	U	ND		2.87	9.56	ug/L 0.00	00956	1			

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# **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

Report Date: March 22, 2023

	Client Sample Sample ID:	e ID:	Treated Water Tank A 612189001		Proje Clien	ct: t ID:	CDEC0010 CDEC001	)7		
Parameter	Qualifier	Result	DL	RL	Units PF		DF Analys	t Date	Time	Batch Mtd.
Semi-Volatile-GC/MS										
EPA 625.1 SVOA, Liquid	d "As Received"									
4-Chloro-3-methylpheno 59-50-7	l U	ND	2.87	9.56	ug/L 0.0009	956	1			
4-Nitrophenol 100-02-7	U	ND	2.87	9.56	ug/L 0.0009	956	1			
Pentachlorophenol 87-86-5	U	ND	2.87	9.56	ug/L 0.0009	956	1			
Phenol 108-95-2	U	ND	2.87	9.56	ug/L 0.0009	956	1			
Semi-Volatiles-PCB										
EPA 608.3 PCB, Liquid (	(SPE) "As Recei	ved"								
Aroclor-1016	U	ND	0.0317	0.0952	ug/L 0.0009	952	1 YS1	03/01/2	23 1844	23911469
12674-11-2										
Aroclor-1221	U	ND	0.0317	0.0952	ug/L 0.0009	952	1			
11104-28-2 Aroclor-1232		ND	0.0217	0.0952	u~/I_0_000	252	1			
11141-16-5	U	ND	0.0317	0.0932	ug/L 0.0009	932	1			
Aroclor-1242	U	ND	0.0317	0.0952	ug/L 0.0009	952	1			
53469-21-9	U	ND	0.0317	0.0752	ug/20.000	752	•			
Aroclor-1248	U	ND	0.0317	0.0952	ug/L 0.0009	952	1			
12672-29-6	_				_					
Aroclor-1254	U	ND	0.0317	0.0952	ug/L 0.0009	952	1			
11097-69-1			0.001=	0.00.50	<b></b>					
Aroclor-1260 11096-82-5	U	ND	0.0317	0.0952	ug/L 0.0009	952	1			
Aroclor-Total	<b>T</b> .T	ND	0.0317	0.0952	ug/L 0.0009	152	1			
PCBTOT	U	ND	0.0317	0.0932	ug/L0.000	932	1			
Solids Analysis										
SM 2540D Total Suspend	ded Solids (TSS)	"As Receiv	red"							
Total Suspended Solids	I	1.00	0.570	2.50	mg/L		CH6	02/27/2	23 0947	238999410
	J	1.00			8' —					
Spectrometric Analysis										
EPA 410.4 Chemical Oxy	ygen Demand "A	As Received	<u>'''</u>							
COD	J	18.1	8.95	20.0	mg/L		1 HH2	02/27/2	23 1444	239032111

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 245.1/245.2 Prep	EPA 245 Mercury	RM4	03/21/23	1134	2401389

Page 5 of 38 SDG: 612189

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# **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

Report Date: March 22, 2023

	Client Sample ID: Treated Wa Sample ID: 612189001			Proiect: Client ID:	CDEC00107 CDEC001		
Parameter	Qualifier Result	DL F	L Units	PF	DF Analyst Date	Time	Batch Mtd.
EPA 200.2	ICP-MS 200.2 PREP	EM2	02/27/2	3 1550	2390227		
EPA 625.1	BNA Liq. Prep-EPA 625 Analysis	TH1	03/02/2	3 1149	2391868		
EPA 625.1	BNA Liq. Prep-EPA 625 Analysis	TH1	02/27/2	3 1228	2388672		
EPA 608.3	EPA 608.3 PCB Prep Liquid (SPE)	JM1	2 03/01/2	3 0956	2391145		
EPA 335.4	EPA 335.4 Total Cyanide	ES2	02/27/2	3 1323	2390158		

The following Analytical Methods were performed:

Method	Description	<b>Analyst Comments</b>	
1	SM 5310 B		
2	EPA 335.4		
3	SW846 9056		
4	EPA 245.1/245.2		
5	EPA 200.8		
6	EPA 350.1		
7	EPA 1664A/1664B		
8	EPA 625.1		
9	EPA 608.3		
10	SM 2540D		
11	EPA 410.4		
			4 11 T' 4

Surrogate/Tracer recovery	Surrogate/Tracer recovery Test		Nominal	Recovery%	Acceptable Limits	
Nitrobenzene-d5	EPA 625.1 SVOA, Liquid "As Received"	28.0 ug/L	47.8	58	(39%-112%)	
2-Fluorobiphenyl	EPA 625.1 SVOA, Liquid "As Received"	26.2 ug/L	47.8	55	(39%-112%)	
p-Terphenyl-d14	EPA 625.1 SVOA, Liquid "As Received"	23.5 ug/L	47.8	49	(24%-129%)	
2,4,6-Tribromophenol	EPA 625.1 SVOA, Liquid "As Received"	54.6 ug/L	95.6	57	(37%-132%)	
Phenol-d5	EPA 625.1 SVOA, Liquid "As Received"	20.6 ug/L	95.6	22	(15%-85%)	
2-Fluorophenol	EPA 625.1 SVOA, Liquid "As Received"	27.2 ug/L	95.6	28	(11%-79%)	
Decachlorobiphenyl	EPA 608.3 PCB, Liquid (SPE) "As Received"	0.144 ug/L	0.190	75	(38%-133%)	
4cmx	EPA 608.3 PCB, Liquid (SPE) "As Received"	0.123 ug/L	0.190	65	(33%-109%)	

Page 6 of 38 SDG: 612189

**GEL LABORATORIES LLC** 2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: March 22, 2023

Page 1 of 17

HDI, Inc. 1 Holtec Blvd. Camden, New Jersey

**Contact:** Laura Hageman

Workorder: 612189

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date T	lime
Carbon Analysis Batch 2394337											
QC1205338214 613027001 DUP Total Organic Carbon Average		1.79		1.80	mg/L	0.669 ^		(+/-1.00)	TSM	03/08/23	22:41
QC1205338213 LCS Total Organic Carbon Average	10.0			10.2	mg/L		102	(80%-120%)		03/08/23	19:21
QC1205338212 MB Total Organic Carbon Average			U	ND	mg/L					03/08/23	19:10
QC1205338216 613027001 PS Total Organic Carbon Average	10.0	1.79		12.0	mg/L		102	(65%-120%)		03/08/23	23:02
Flow Injection Analysis Batch 2390159											
QC1205331266 612085004 DUP Cyanide, Total	τ	J ND	U	ND	ug/L	N/A			AXH3	02/28/23	08:38
QC1205331265 LCS Cyanide, Total	50.0			49.9	ug/L		99.8	(90%-110%)		02/28/23	08:32
QC1205331264 MB Cyanide, Total			U	ND	ug/L					02/28/23	08:31
QC1205331267 612085004 MS Cyanide, Total	100 U	J ND		95.3	ug/L		95.3	(90%-110%)		02/28/23	08:39
QC1205331268 612085004 MSD Cyanide, Total	100 U	J ND		98.6	ug/L	3.4	98.6	(0%-20%)		02/28/23	08:40

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# **QC** Summary

Workorder: 612189 Page 2 of 17 Parmname NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Ion Chromatography 2392179 Batch QC1205334532 612640004 DUP 0.242 0.247 mg/L 2.21 ^ (+/-0.200) JLD1 03/02/23 05:45 **Bromide** Chloride 49.9 49.8 mg/L 0.12 (0%-20%)03/02/23 13:01 Fluoride 0.457 0.447 2.19 ^ 03/02/23 05:45 mg/L (+/-0.100)Sulfate 216 215 mg/L 0.253 (0%-20%)03/02/23 13:01 QC1205334531 LCS Bromide 1.25 1.35 mg/L 108 (90%-110%) 03/02/23 04:41 Chloride 5.00 5.06 101 (90%-110%) mg/L Fluoride 2.50 2.53 mg/L 101 (90%-110%) Sulfate 10.0 10.4 104 (90%-110%) mg/LQC1205334530 MB Bromide U ND 03/02/23 04:09 mg/L U ND Chloride mg/L Fluoride U ND mg/LU ND Sulfate mg/L QC1205334533 612640004 PS 1.39 1.25 0.247 91.3 (90%-110%) 03/02/23 06:17 Bromide mg/L Chloride 5.00 1.99 7.26 mg/L105 (90%-110%) 03/02/23 13:33

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# QC Summary

Workorder: 612189 Page 3 of 17 **P**armname NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Ion Chromatography 2392179 Batch Fluoride 2.50 0.457 2.69 mg/L89.5\* (90%-110%) JLD1 03/02/23 06:17 Sulfate 10.0 8.64 19.5 109 (90%-110%) 03/02/23 13:33 mg/L **Metals Analysis - ICPMS** 2390228 QC1205331491 612189001 DUP U Antimony ND U ND ug/L N/A BAJ 03/01/23 22:50 U ND U ND N/A Arsenic ug/L Beryllium U ND U ND ug/L N/A 36.7 36.4 ug/L 0.709 ^ (+/-15.0)Boron U Cadmium ND U ND ug/L N/A Chromium U ND U ND ug/L N/A 1.30 Copper J 1.39 J ug/L 6.33 ^ (+/-2.00)Lead J 0.660 J 0.649 ug/L 1.68 ^ (+/-2.00)2.02 J 1.99 Nickel ug/L 1.4 ^ (+/-2.00)U Selenium ND U ND ug/L N/A U Silver ND U ND ug/L N/A U Thallium ND U ND ug/L N/A

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# QC Summary

Workorder: 612189 Page 4 of 17 QC Parmname NOM Sample Qual Units RPD/D% REC% Range Anlst Date Time Metals Analysis - ICPMS Batch 2390228 ug/L Zinc 36.1 36.0 0.247 ^ (+/-20.0)BAJ 03/01/23 22:50 QC1205331490 LCS 50.0 103 03/01/23 22:43 Antimony 51.6 ug/L (85%-115%) Arsenic 50.0 50.6 ug/L 101 (85%-115%) Beryllium 50.0 55.3 ug/L 111 (85%-115%) Boron 100 107 ug/L 107 (85%-115%) ug/L Cadmium 50.0 51.4 103 (85%-115%) Chromium 50.0 51.6 103 ug/L (85%-115%) 50.0 52.3 105 Copper ug/L (85%-115%) 50.0 51.3 ug/L 103 Lead (85%-115%) Nickel 50.0 51.5 103 (85%-115%) ug/L 50.0 103 Selenium 51.5 ug/L (85%-115%) Silver 50.0 51.8 ug/L 104 (85%-115%) Thallium 50.0 50.3 101 ug/L (85%-115%) Zinc 50.0 51.2 ug/L 102 (85%-115%)

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# QC Summary

Workorder: 612189 Page 5 of 17 QC REC% Parmname NOM Sample Qual Units RPD/D% Range Anlst Date Time Metals Analysis - ICPMS 2390228 Batch QC1205331489 MB U ND BAJ 03/01/23 22:40 Antimony ug/L Arsenic U ND ug/L Beryllium U ND ug/L U ND Boron ug/L U ND Cadmium ug/L U ND Chromium ug/L U ND Copper ug/L U ND Lead ug/L Nickel U ND ug/L U ND Selenium ug/L Silver U ND ug/L Thallium U ND ug/L Zinc U ND ug/L QC1205331492 612189001 MS Antimony 50.0 U ND 52.4 ug/L 104 (75% - 125%)03/01/23 22:54 ND 50.0 U 50.1 100 (75%-125%) ug/L Arsenic

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# QC Summary

Workorder: 612189 Page 6 of 17 **Parmname** NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Metals Analysis - ICPMS 2390228 Batch Beryllium 50.0 U ND 54.8 ug/L 110 (75%-125%) BAJ 03/01/23 22:54 Boron 100 36.7 142 105 (75%-125%) ug/L Cadmium 50.0 U ND 52.7 ug/L 105 (75%-125%) 50.0 U ND 51.2 Chromium ug/L 101 (75%-125%) Copper 50.0 J 1.39 53.2 ug/L 104 (75%-125%) 0.660 52.4 104 Lead 50.0 J ug/L (75%-125%) 2.02 52.8 Nickel 50.0 ug/L 102 (75%-125%) U Selenium 50.0 ND 49.5 99 ug/L (75% - 125%)ND Silver 50.0 U 52.0 ug/L 104 (75%-125%) Thallium 50.0 U ND 50.6 101 ug/L (75% - 125%)Zinc 50.0 36.1 86.2 100 (75%-125%) ug/L QC1205331493 612189001 SDILT ND U ND U 03/01/23 22:57 Antimony ug/L N/A (0%-10%)Arsenic U ND U ND N/A (0%-10%)ug/L U ND U ND Beryllium (0%-10%) ug/L N/A Boron 36.7 J 10.4 ug/L 41.7 (0%-10%)

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# QC Summary

Workorder: 612189 Page 7 of 17 **Parmname** NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Metals Analysis - ICPMS 2390228 Batch Cadmium U ND ND ug/L N/A (0%-10%)BAJ 03/01/23 22:57 Chromium U ND U ND ug/L (0%-10%)N/A ug/L Copper J 1.39 J 0.310 11.9 (0%-10%)J U ND (0%-10%)Lead 0.660 ug/L N/A Nickel 2.02 U ND ug/L N/A (0%-10%)U ND U ND (0%-10%)Selenium ug/L N/A U ND U ND Silver ug/L N/A (0%-10%)U Thallium ND U ND N/A (0%-10%)ug/L 36.1 J 6.86 Zinc ug/L 4.92 (0%-10%)Metals Analysis-Mercury 2401391 QC1205351468 611601001 DUP Mercury UHh ND UHh ND ug/L N/A JP2 03/22/23 09:37 QC1205351467 LCS Mercury 2.00 2.02 ug/L 101 (85%-115%) 03/22/23 09:34 QC1205351466 MB U ND ug/L 03/22/23 09:32 Mercury QC1205351469 611601001 MS 2.00 UHh Mercury ND Hh 1.42 ug/L 71.1\* (75%-125%) 03/22/23 09:39

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# **QC** Summary

Workorder: 612189 Page 8 of 17 **Parmname** NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Metals Analysis-Mercury Batch 2401391 QC1205351471 611601001 PS ND 2.00 UHh Н 1.46 ug/L (80%-120%) JP2 03/22/23 09:42 Mercury 72.8\*QC1205351470 611601001 SDILT UHh Mercury ND UHh ND ug/L N/A (0%-10%)03/22/23 09:40 **Nutrient Analysis** 2393820 Batch QC1205337290 611728001 DUP U Nitrogen, Ammonia ND U ND mg/L N/A KLP1 03/06/23 11:16 QC1205337289 LCS Nitrogen, Ammonia 1.00 0.970 mg/L (90%-110%) 03/06/23 11:14 QC1205337288 MB U ND 03/06/23 11:12 Nitrogen, Ammonia mg/L QC1205337291 611728001 PS ND Nitrogen, Ammonia 1.00 U 1.09 mg/L 109 (90%-110%) 03/06/23 11:18 Oil & Grease Analysis 2395284 Batch QC1205339845 Oil and Grease 40.0 36.5 mg/L 91.3 (78%-114%) DXB7 03/09/23 05:44 QC1205339844 MB U mg/L Oil and Grease ND 03/09/23 05:44 QC1205339847 612928001 MS Oil and Grease 76.9 U ND 74.8 mg/L 94.8 (78% - 114%)03/09/23 05:44 Semi-Volatile-GC/MS 2388673 Batch OC1205329025 2,4,6-Trichlorophenol 50.0 26.9 ug/L (50%-127%) LL2 02/27/23 17:27

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# QC Summary

Workorder: 612189 Page 9 of 17 **Parmname** NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Semi-Volatile-GC/MS 2388673 Batch 2,4-Dichlorophenol 50.0 24.3 ug/L (50%-119%) LL2 02/27/23 17:27 2,4-Dimethylphenol 50.0 15.7 (46%-99%) ug/L 31\* 2,4-Dinitrophenol 50.0 33.4 ug/L 67 (28%-151%) 2-Chlorophenol 50.0 21.6 ug/L (46%-107%) 2-Methyl-4,6-dinitrophenol 50.0 38.5 ug/L 77 (42%-149%) 28.5 2-Nitrophenol 50.0 ug/L (50%-115%) 57 4-Chloro-3-methylphenol 50.0 24.7 ug/L (50%-118%) 50.0 9.68 (21%-110%) 4-Nitrophenol ug/L 22.7 Pentachlorophenol 50.0 ug/L 45 (42%-132%) Phenol 50.0 10.5 21 ug/L (12% - 90%)\*\*2,4,6-Tribromophenol 100 51.2 (37%-132%) ug/L 51 \*\*2-Fluorobiphenyl 50.0 24.0 ug/L 48 (39%-112%) \*\*2-Fluorophenol 100 24.8 ug/L 25 (11%-79%) \*\*Nitrobenzene-d5 50.0 24.1 48 (39%-112%) ug/L 100 19.0 \*\*Phenol-d5 ug/L 19 (15%-85%)

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# QC Summary

Workorder: 612189 Page 10 of 17 REC% QC **Parmname** NOM Sample Qual Units RPD/D% Range Anlst Date Time Semi-Volatile-GC/MS 2388673 Batch \*\*p-Terphenyl-d14 50.0 22.9 ug/L (24%-129%) LL2 02/27/23 17:27 QC1205329024 MB U ND 02/27/23 16:59 2,4,6-Trichlorophenol ug/L U 2,4-Dichlorophenol ND ug/L U 2,4-Dimethylphenol ND ug/L 2,4-Dinitrophenol U ND ug/L U ND 2-Chlorophenol ug/L 2-Methyl-4,6-dinitrophenol U ND ug/L U ND ug/L 2-Nitrophenol 4-Chloro-3-methylphenol U ND ug/L 4-Nitrophenol ND ug/L U ND Pentachlorophenol ug/L U Phenol ND ug/L 100 84.4 \*\*2,4,6-Tribromophenol ug/L 84 (37%-132%) \*\*2-Fluorobiphenyl 50.0 38.7 ug/L 77 (39%-112%) \*\*2-Fluorophenol 100 40.1 ug/L 40 (11%-79%)

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# **QC** Summary

Workorder: 612189 Page 11 of 17 **Parmname** NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Semi-Volatile-GC/MS 2388673 Batch \*\*Nitrobenzene-d5 50.0 38.6 ug/L 77 (39%-112%) LL2 02/27/23 16:59 \*\*Phenol-d5 100 30.1 30 (15%-85%) ug/L \*\*p-Terphenyl-d14 50.0 41.1 ug/L 82 (24%-129%) QC1205329026 611883003 MS 2,4,6-Trichlorophenol 100 U ND 41.4 ug/L (47%-130%) 02/27/23 19:43 100 U ND 39.7 2,4-Dichlorophenol ug/L (49%-119%) 2,4-Dimethylphenol 100 U ND 27.1 ug/L (40% - 111%)2,4-Dinitrophenol 100 U ND J 23.0 (25%-154%) ug/L ND 38.7 2-Chlorophenol 100 U ug/L (42%-113%)ND 2-Methyl-4,6-dinitrophenol 100 U 25.7 (30%-145%)ug/L 26\* 2-Nitrophenol 100 U ND 43.3 ug/L 43 (42%-120%) U ND 43.3 4-Chloro-3-methylphenol 100 ug/L 43 (42%-123%) ND 4-Nitrophenol 100 U J 16.8 ug/L (20%-98%) 17\* Pentachlorophenol 100 U ND 17.6 (36% - 139%)ug/L ND 25.4 100 U 25 Phenol ug/L (23%-71%) \*\*2,4,6-Tribromophenol 200 37.8 74.4 ug/L (37% - 132%)

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### **QC** Summary

Workorder: 612189 Page 12 of 17 **Parmname NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Semi-Volatile-GC/MS 2388673 Batch \*\*2-Fluorobiphenyl 100 19.4 36.3 ug/L (39%-112%) LL2 02/27/23 19:43 \*\*2-Fluorophenol 200 23.3 52.5 26 (11%-79%) ug/L \*\*Nitrobenzene-d5 100 20.3 36.6 ug/L 37\* (39%-112%) 17.2 45.1 \*\*Phenol-d5 200 ug/L 23 (15%-85%) \*\*p-Terphenyl-d14 100 15.9 36.9 ug/L 37 (24%-129%) QC1205329027 611883003 MSD 2,4,6-Trichlorophenol 100 U ND 55.1 ug/L 28 55 (0%-79%)02/27/23 20:11 2,4-Dichlorophenol 100 U ND 48.3 ug/L 20 48\* (0%-42%)U ND 33.2 2,4-Dimethylphenol 100 ug/L 20 33\* (0%-42%)ND 2,4-Dinitrophenol 100 U J 30.8 29 31 (0%-106%)ug/L 2-Chlorophenol 100 U ND 44.8 45 (0%-78%)ug/L 15 U ND 40.9 2-Methyl-4,6-dinitrophenol 100 ug/L 45 41 (0%-86%)ND 2-Nitrophenol 100 U 51.7 ug/L 18 (0%-69%)52 4-Chloro-3-methylphenol 100 U ND 55.5 25 56 (0%-41%)ug/L U ND 28.2 4-Nitrophenol 100 28 ug/L 51 (0%-110%)Pentachlorophenol 100 U ND 32.2 ug/L 58 32\* (0%-82%)

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### **QC** Summary

Workorder: 612189 Page 13 of 17 Parmname **NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Semi-Volatile-GC/MS 2388673 Batch Phenol 100 ND 30.4 ug/L 18 30 (0%-42%)LL2 02/27/23 20:11 \*\*2,4,6-Tribromophenol 200 37.8 104 (37%-132%) ug/L 52 \*\*2-Fluorobiphenyl 100 19.4 44.5 ug/L 44 (39%-112%) \*\*2-Fluorophenol 200 23.3 61.3 ug/L 31 (11%-79%) \*\*Nitrobenzene-d5 100 20.3 41.3 ug/L 41 (39%-112%) 17.2 53.6 \*\*Phenol-d5 200 ug/L 27 (15%-85%)15.9 \*\*p-Terphenyl-d14 100 48.6 ug/L (24%-129%) Semi-Volatiles-PCB Batch 2391146 QC1205333098 LCS Aroclor-1016 1.00 0.728ug/L 73 (50%-101%) YS1 03/01/23 15:54 Aroclor-1260 1.00 0.718 ug/L 72 (46%-108%) \*\*4cmx 0.200 0.125 ug/L 63 (33%-109%) 0.152 \*\*Decachlorobiphenyl 0.200 ug/L 76 (38%-133%) QC1205333097 MB U ND Aroclor-1016 ug/L 03/01/23 15:43 ug/L Aroclor-1221 U ND Aroclor-1232 U ND ug/L

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### **QC** Summary

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### **QC** Summary

			E C SI		,					
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Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date Time
Solids Analysis Batch 2389994 ———										
QC1205330865 612085003 DUP Total Suspended Solids	U	ND	U	ND	mg/L	N/A			СН6	02/27/23 09:47
QC1205330861 LCS Total Suspended Solids	500			494	mg/L		98.8	(95%-105%)		02/27/23 09:47
QC1205330862 LCSD Total Suspended Solids	500			501	mg/L	1.41	100	(0%-5%)		02/27/23 09:47
QC1205330860 MB Total Suspended Solids			U	ND	mg/L					02/27/23 09:47
Spectrometric Analysis Batch 2390321										
QC1205331695 611601001 DUP COD		531		492	mg/L	7.74 ^		(+/-100)	) HH2	02/27/23 14:44
QC1205331694 LCS COD	500			518	mg/L		104	(90%-110%)		02/27/23 14:44
QC1205331693 MB COD			J	18.1	mg/L					02/27/23 14:44
QC1205331696 611601001 MS COD	500	531		1140	mg/L		24.4*	(90%-110%)		02/27/23 14:44

#### **Notes:**

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, the difference is >70%.
- C Analyte has been confirmed by GC/MS analysis
- B The target analyte was detected in the associated blank.
- E Concentration of the target analyte exceeds the instrument calibration range

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### **QC** Summary

Workorder: 612189 Page 16 of 17 **Parmname** NOM Sample Qual  $\mathbf{OC}$ Units RPD/D% REC% Range Anlst Date Time Α The TIC is a suspected aldol-condensation product X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier N Metals--The Matrix spike sample recovery is not within specified control limits Ν Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor Η Analytical holding time was exceeded \*\* Analyte is a surrogate compound Result is less than value reported < Result is greater than value reported h Preparation or preservation holding time was exceeded R Sample results are rejected Z Paint Filter Test--Particulates passed through the filter, however no free liquids were observed. d 5-day BOD--The 2:1 depletion requirement was not met for this sample ٨ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. D Results are reported from a diluted aliquot of the sample N/A RPD or %Recovery limits do not apply. ND Analyte concentration is not detected above the detection limit %difference of sample and SD is >10%. Sample concentration must meet flagging criteria Ε NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier Ε General Chemistry--Concentration of the target analyte exceeds the instrument calibration range

- JNX Non Calibrated Compound
- UJ Compound cannot be extracted
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- N1 See case narrative
- Y Other specific qualifiers were required to properly define the results. Consult case narrative.
- Y QC Samples were not spiked with this compound
- R Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
- N Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
- e 5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes
- J See case narrative for an explanation

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### **QC** Summary

Page 17 of 17 Parmname NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

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For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

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<sup>^</sup> The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

<sup>\*</sup> Indicates that a Quality Control parameter was not within specifications.

# Technical Case Narrative Holtec Decommissioning International, LLC SDG #: 612189

#### **GC/MS Semivolatile**

**Product:** Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

**Analytical Method:** EPA 625.1

Analytical Procedure: GL-OA-E-009 REV# 46

**Analytical Batch:** 2388673

**Preparation Method:** EPA 625.1

**Preparation Procedure:** GL-OA-E-013 REV# 35

**Preparation Batch:** 2388672

The following samples were analyzed using the above methods and analytical procedure(s).

<b>GEL Sample ID#</b>	Client Sample Identification
612189001	Treated Water Tank A
1205329024	Method Blank (MB)
1205329025	Laboratory Control Sample (LCS)
1205329026	611883003(NonSDG) Matrix Spike (MS)
1205329027	611883003(NonSDG) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Calibration Information**

#### **CCV Requirements**

Not all Calibration Verification Standards (CCV) met the acceptance criteria as outlined in Table 6 in Method 625.1. The target analyte 2-Methyl-4,6-dinitrophenol was outside the acceptance criteria. As the analyte was not detected in the associated client samples, the biased high response had no adverse impact on the reported data. All other analytes which failed on the included Continuing Calibration Summary report were within the %acceptance criteria for the respective analyte or within 60%-140% for analytes not listed in Table 6. The data were reported.

#### **Quality Control (QC) Information**

#### **Surrogate Recoveries**

The MS(See Below) did not meet surrogate recovery acceptance criteria. The parent sample and MSD were within surrogate recovery acceptance criteria. The parent sample for MS was re-extracted out of holding. The re-extraction batch LCS was within acceptance criteria for all spikes (with exception of one poor responder). The non-SDG MS and MSD were within surrogate/spike recovery acceptance criteria. There were no target analytes detected in either extraction. The PM was notified. The initial data were reported.

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Sample	Value
1205329026 (Non SDG 611883003MS)	36* (39%-112%) and 37* (39%-112%)

#### **Laboratory Control Sample (LCS) Recovery**

The LCS(See Below) spike recoveries were not within the acceptance limits. The associated client samples were re-extracted.

Sample	Analyte	Value
1205329025 (LCS)	2, 4-Dichlorophenol	49* (50%-119%)
	2, 4-Dimethylphenol	31* (46%-99%)
	2-Chlorophenol	43* (46%-107%)
	4-Chloro-3-methylphenol	49* (50%-118%)
	4-Nitrophenol	19* (21%-110%)

Sample 612189001 (Treated Water Tank A) was re-extracted out of holding due to multiple spike failures. The initial extraction passed all surrogate recoveries as well as the re-extraction. The re-extraction batch LCS was within acceptance criteria for all spikes (with exception of one poor responder). The non-SDG MS and MSD were within spike recovery acceptance criteria. There were no target analytes detected in either extraction. The PM was notified. The initial data were reported.

#### **Spike Recovery Statement**

The MS and MSD(See Below) spike recoveries were not within the acceptance limits. The associated client samples were re-extracted.

Sample	Analyte	Value
1205329026 (Non SDG 611883003MS)	2, 4, 6-Trichlorophenol	41* (47%-130%)
	2, 4-Dichlorophenol	40* (49%-119%)
	2, 4-Dimethylphenol	27* (40%-111%)
	2, 4-Dinitrophenol	23* (25%-154%)
	2-Chlorophenol	39* (42%-113%)
	2-Methyl-4, 6-dinitrophenol	26* (30%-145%)
	4-Nitrophenol	17* (20%-98%)
	Pentachlorophenol	18* (36%-139%)
1205329027 (Non SDG 611883003MSD)	2, 4-Dichlorophenol	48* (49%-119%)
	2, 4-Dimethylphenol	33* (40%-111%)
	Pentachlorophenol	32* (36%-139%)

#### **Miscellaneous Information**

#### **Additional Comments**

#### **Diphenylamine Statement**

Diphenylamine has superseded the reporting of N-Nitroso-diphenylamine. As per the EPA, N-Nitroso-diphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine. Studies of these two compounds at GEL, both independent of each other and together, showed

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that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine are therefore reported as Diphenylamine on all reports and forms.

### **GC Semivolatile PCB**

**Product:** Analysis of The Analysis of Polychlorinated Biphenyls by GC/ECD by ECD

**Analytical Method:** EPA 608.3

**Analytical Procedure:** GL-OA-E-040 REV# 25

Analytical Batch: 2391146

**Preparation Method:** EPA 608.3

Preparation Procedure: GL-OA-E-070 REV# 11

**Preparation Batch:** 2391145

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612189001	Treated Water Tank A
1205333097	Method Blank (MB)
1205333098	Laboratory Control Sample (LCS)
1205333099	611557001(NonSDG) Matrix Spike (MS)
1205333100	611557001(NonSDG) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Technical Information**

#### **Holding Time Specifications**

Samples (See Below) were extracted out of holding.

Sample	Analyte	Value
1205333099 (Non SDG 611557001MS)		Received 21-FEB-23, within holding, prepped 01-MAR-23, out of holding 27-FEB-23
1205333100 (Non SDG 611557001MSD)		Received 21-FEB-23, within holding, prepped 01-MAR-23, out of holding 27-FEB-23

#### Preparation/Analytical Method Verification

All reported analyte detections in client and quality control samples were within the established retention time windows. Reported analyte concentrations were confirmed on dissimilar columns.

#### **Miscellaneous Information**

#### **Additional Comments**

The column 1 has been chosen as the primary column. The data are reported from the column 1 for all samples in

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this batch.

#### **Metals**

**Product:** Determination of Metals by ICP-MS

**Analytical Method:** EPA 200.8

**Analytical Procedure:** GL-MA-E-014 REV# 35

Analytical Batch: 2390228

**Preparation Method:** EPA 200.2

**Preparation Procedure:** GL-MA-E-016 REV# 18

**Preparation Batch:** 2390227

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612189001	Treated Water Tank A
1205331489	Method Blank (MB)ICP-MS
1205331490	Laboratory Control Sample (LCS)
1205331493	612189001(Treated Water Tank AL) Serial Dilution (SD)
1205331491	612189001(Treated Water Tank AD) Sample Duplicate (DUP)
1205331492	612189001(Treated Water Tank AS) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Calibration Information**

#### **ICSA/ICSAB Statement**

For the ICP-MS analysis, the ICSA solution contains analyte concentrations which are verified trace impurities indigenous to the purchased standard.

**Product:** Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer

**Analytical Method:** EPA 245.1/245.2

**Analytical Procedure:** GL-MA-E-010 REV# 39

**Analytical Batch:** 2401391

**Preparation Method:** EPA 245.1/245.2 Prep **Preparation Procedure:** GL-MA-E-010 REV# 39

**Preparation Batch:** 2401389

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID# Client Sample Identification
612189001 Treated Water Tank A

1205351466	Method Blank (MB)CVAA
1205351467	Laboratory Control Sample (LCS)
1205351470	611601001(Intake L) Serial Dilution (SD)
1205351468	611601001(Intake D) Sample Duplicate (DUP)
1205351469	611601001(Intake S) Matrix Spike (MS)
1205351471	611601001(Intake PS) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Quality Control (QC) Information**

#### Matrix Spike (MS/MSD) Recovery Statement

The percent recoveries (%R) obtained from the MS/MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS/MSD (See Below) did not meet the recommended quality control acceptance criteria for percent recoveries for the following applicable analyte. The post spike also did not meet the required control limits; thus, confirming matrix interferences and/or sample non-homogeneity.

Sample	Analyte	Value
1205351469 (Intake MS)	Mercury	71.1* (75%-125%)

#### Post Spike (PS) Recovery Statement

The percent recoveries (%R) obtained from the PS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The PS did not meet the recommended quality control acceptance criteria for percent recoveries for all applicable analytes and verifies the presence of matrix interferences.

Sample	Analyte	Value
1205351471 (Intake PS)	Mercury	72.8* (80%-120%)

#### **Technical Information**

#### **Holding Time Specifications**

GEL assigns holding times based on the associated methodology. Holding time is measured by comparison of the date and time of sample collection to the date and time of sample preparation and analysis. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. Samples (See Below) did not meet the specified holding time requirements. Samples were logged in beyond the required holding time.

Sample	Analyte	Value
1205351468 (Intake DUP)		Received 21-FEB-23, within holding, analyzed 22-MAR-23, out of holding 20-MAR-23
		Received 21-FEB-23, within holding, prepped 21-MAR-23, out of holding 20-MAR-23

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1205351469 (Intake MS)	Received 21-FEB-23, within holding, analyzed 22-MAR-23, out of holding 20-MAR-23
	Received 21-FEB-23, within holding, prepped 21-MAR-23, out of holding 20-MAR-23
1205351470 (Intake SDILT)	Received 21-FEB-23, within holding, analyzed 22-MAR-23, out of holding 20-MAR-23
	Received 21-FEB-23, within holding, prepped 21-MAR-23, out of holding 20-MAR-23
1205351471 (Intake PS)	Received 21-FEB-23, within holding, analyzed 22-MAR-23, out of holding 20-MAR-23

### **General Chemistry**

**Product: Carbon, Total Organic Analytical Method:** SM 5310 B

Analytical Procedure: GL-GC-E-093 REV# 21

**Analytical Batch:** 2394337

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612189001	Treated Water Tank A
1205338212	Method Blank (MB)
1205338213	Laboratory Control Sample (LCS)
1205338214	613027001(NonSDG) Sample Duplicate (DUP)
1205338216	613027001(NonSDG) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

**Product: Cyanide, Total Analytical Method:** EPA 335.4

**Analytical Procedure:** GL-GC-E-095 REV# 23

**Analytical Batch:** 2390159

**Preparation Method:** EPA 335.4

Preparation Procedure: GL-GC-E-067 REV# 24

**Preparation Batch:** 2390158

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The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612189001	Treated Water Tank A
1205331264	Method Blank (MB)
1205331265	Laboratory Control Sample (LCS)
1205331266	612085004(NonSDG) Sample Duplicate (DUP)
1205331267	612085004(NonSDG) Matrix Spike (MS)
1205331268	612085004(NonSDG) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Miscellaneous Information**

#### **Additional Comments**

Daughter labels were missed during the scanning process. Samples were in analyst's custody during the time of analysis:

Sample	Analyte	Value
612189001 (Treated Water Tank A)		

**Product: Ion Chromatography Analytical Method:** SW846 9056

Analytical Procedure: GL-GC-E-086 REV# 30

**Analytical Batch:** 2392179

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612189001	Treated Water Tank A
1205334530	Method Blank (MB)
1205334531	Laboratory Control Sample (LCS)
1205334532	612640004(NonSDG) Sample Duplicate (DUP)
1205334533	612640004(NonSDG) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Quality Control (QC) Information**

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#### Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity.

Analyte	Sample	Value
Fluoride	1205334533 (Non SDG 612640004PS)	89.5* (90%-110%)

#### **Technical Information**

#### **Sample Dilutions**

The following samples 1205334532 (Non SDG 612640004DUP) and 1205334533 (Non SDG 612640004PS) were diluted because target analyte concentrations exceeded the calibration range. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

#### Sample Re-analysis

Sample 612189001 (Treated Water Tank A) was re-analyzed due to (its) proximity to an overrange sample. The results from the reanalysis are reported. Sample 612189001 (Treated Water Tank A) was re-analyzed to verify the result.

**Product: Ammonia Nitrogen Preparation Method:** EPA 350.1

**Preparation Procedure:** GL-GC-E-106 REV# 10

**Preparation Batch:** 2393820

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612189001	Treated Water Tank A
1205337288	Method Blank (MB)
1205337289	Laboratory Control Sample (LCS)
1205337290	611728001(NonSDG) Sample Duplicate (DUP)
1205337291	611728001(NonSDG) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Technical Information**

#### Sample Re-analysis

Sample 612189001 (Treated Water Tank A) was re-analyzed due to (its) proximity to an overrange sample. The results from the reanalysis are reported.

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<u>Product:</u> n-Hexane Extractable Material <u>Analytical Method:</u> EPA 1664A/1664B <u>Analytical Procedure:</u> GL-GC-E-094 REV# 18

**Analytical Batch:** 2395284

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#
612189001 Treated Water Tank A
1205339844 Method Blank (MB)
1205339845 Laboratory Control Sample (LCS)
1205339847 612928001(NonSDG) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

**Product:** Solids, Total Suspended **Analytical Method:** SM 2540D

**Analytical Procedure:** GL-GC-E-012 REV# 18

Analytical Batch: 2389994

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#Client Sample Identification612189001Treated Water Tank A1205330860Method Blank (MB)1205330861Laboratory Control Sample (LCS)1205330862Laboratory Control Sample Duplicate (LCSD)1205330865612085003(NonSDG) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Miscellaneous Information**

#### **Additional Comments**

A reduced aliquot was used due to limited volume. The client did not provide an entire 1 liter aliquot. 1205330865 (Non SDG 612085003DUP).

**Product:** COD

**Analytical Method:** EPA 410.4

Analytical Procedure: GL-GC-E-061 REV# 21

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#### Analytical Batch: 2390321

The following samples were analyzed using the above methods and analytical procedure(s).

<b>GEL Sample ID#</b>	<b>Client Sample Identification</b>
612189001	Treated Water Tank A
1205331693	Method Blank (MB)
1205331694	Laboratory Control Sample (LCS)
1205331695	611601001(Intake ) Sample Duplicate (DUP)
1205331696	611601001(Intake) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Quality Control (QC) Information**

#### Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity.

Analyte	Sample	Value
COD	1205331696 (Intake MS)	24.4* (90%-110%)

#### **Technical Information**

#### **Sample Dilutions**

The following samples 1205331695 (Intake DUP) and 1205331696 (Intake MS) in this sample group were diluted due to matrix interference. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

#### **Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

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Paged Profet # GEL Quote #: COGNumber (1):	PO Symber: EPA-SUB	Client Name: Comprehensive Decommissioning International (CDI)	Project/Site Name: Pilgrim Station	Adderss: 600 Rocky Hill Road, Plymouth, Ma 02360	Colorted By: Site Chemistry	Sample ID  * For comnosties - indicate start and stop date time	Treated Water Tank A	Intake					`	-	CALL CALL		> For sample shipping and delivery details, see Sample Receipt & Review form (SRR.)	Chain of Custody Number = Client Determined     Que Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MS       Que Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MS       Spike Sample, MS       Spike Sample, MS       Spike Sample was not field filtered or - N - for sample was not filtered or - N - for sample was not filtered or - N - for sample was not filtered or - N - for sample was not filtered or - N - for sample was not filtered or - N - for sample was not filtered or - N - for sample was not filtered or - N - for sample was not filtered or - N - for sample was not filtered or - N - for sample was not filtered or - N - for sample was not filtered or - N - for sample was not filtered or - N - fo	4) Matrix Codes. DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Water, WW=Water, ML=Misc Liquid, SO=Soil, SD=Sediment, SL=Sludge, SS=Soild Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B/7470A - 1).	6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, 6.)	<b>~</b>	Cd = Cadmium Ag= Silvei

CEE Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Clien	: COI Inc			SDG	/AR/COC/Work Order: (012189   U12202							
Recei	ved By: Alex Almes			Date Received: 2/24/23								
(	Carrier and Tracking Number				Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other  7713 7511 9640  7713 7511 9043							
Suspe	cted Hazard Information	Yes	No	*If N	let Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.							
A)Shi	pped as a DOT Hazardous?	/		Haza	rd Class Shipped:  If UN2910, Is the Radioactive Shipment Survey Compliant? Yes No							
B) Di	d the client designate the samples are to be red as radioactive?	/		COC	notation or radioactive stickers on containers equal client designation.							
C) Di	d the RSO classify the samples as	1		Max	imum Net Counts Observed* (Observed Counts - Area Background Counts): 120 CPM mR/Hr Classified as: Rad 1 Rad 2 Rad 3							
	id the client designate samples are hazardous?		/	,	notation or hazard labels on containers equal client designation.							
E) D	d the RSO identify possible hazards?		1		or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:							
	Sample Receipt Criteria	Yes	Z	No	Comments/Qualifiers (Required for Non-Conforming Items)  Circle Applicable: Scals broken Damaged container Leaking container Other (describe)							
	Shipping containers received intact and scaled?	1										
2	Chain of custody documents included with shipment?	/										
3	Samples requiring cold preservation within $(0 \le 6 \text{ deg. C})$ ?*	/			Preservation Methods Wet Ice   Ice Packs   Dry Ice   None   Other: # all temperatures are recorded in Celsius   TEMP:							
4	Daily check performed and passed on IR temperature gun?	1			Secondary Temperature Device Serial # (If Applicable):  Circle Applicable: Seals broken Damaged container Leaking container Other (describe)							
5	Sample containers intact and sealed?	1			Sample ID's and Containers Affected:							
6	Samples requiring chemical preservation at proper pH?	X	ND4		If Preservation added, Lot#:  If Yes, are Encores or Soil Kits present for solids? Yes No NA (If yes, take to VOA Freezer)							
7	Do any samples require Volatile Analysis?	)			Do liquid VOA vials contain acid preservation? Yes No NA_(If unknown, select No)  Are liquid VOA vials free of headspace? Yes No_NA_  Sample ID's and containers affected:							
8	Samples received within holding time?	X			1D's and tests affected:							
9	Sample ID's on COC match ID's on bottles?	X			1D's and containers affected:							
10	Date & time on COC match date & time on bottles?	×	1		Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)							
11	Number of containers received match			X	Circle Applicable: No container count on COO Other (describe) Below							
12	Are sample containers identifiable as GEL provided by use of GEL labels?	X			Circle Applicable: Not relinquished Other (describe)							
13	COC form is properly signed in relinquished/received sections?	y			Circle 747							
Co	Note: Missing leafer 3	id tk	3	ast	flus there.							
L					M(M Date ) 27 22 Page 1 of 3							

Laboratories LLC SAMPLE RECEIPT & REVIEW FORM 91 SDG/AR/COC/Work Order: Client: Date Received: Circle Applicable BedEx Ground UPS Field Services Courier Other Carrier and Tracking Number "If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. Yes S Suspected Hazard Information UN#: 2910 Hazard Class Shipped: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes No\_ A)Shipped as a DOT Hazardous? COC notation or radioactive stickers on containers equal client designation. B) Did the client designate the samples are to be received as radioactive? C) Did the RSO classify the samples as Classified as: Rad 1 Rad 2 Rad 3 radioactive? COC notation or hazard labels on containers equal client designation. D) Did the client designate samples are hazardous? If D or E is yes, select Hazards below. Foreign Soil RCRA Asbestos Beryllium PCB's Flammable E) Did the RSO identify possible hazards? Comments/Qualifiers (Required for Non-Conforming Items) NA S Sample Receipt Criteria Circle Applicable: Seals broken Damaged container. Leaking container. Ciber (describe) Shipping containers received intact and Circle Applicable: Client contacted and provided COC. COC created upon receipt Chain of custody documents included with shipment? Preservation Method Wet low lee Packs Dry ice None Other; \*all temperatures are recorded in Celsius TEMP: Samples requiring cold preservation within  $(0 \le 6 \text{ deg. } \mathbb{C})$ ?\*\* Temperature Device Serial #: TR 3 - 73 Daily check performed and passed on IR Secondary Temperature Device Serial # (If Applicable): 4 temperature gun? Circle Applicable: Scals broken Damaged container Leaking container Other (describe) Sample containers intact and sealed? Sample ID's and Containers Affected: Samples requiring chemical preservation If Preservation added, Lot#: at proper pH? If Yes, are Encores or Soil Kits present for solids? Yes\_\_\_No\_\_\_NA\_\_(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes No NA (If unknown, select No) Do any samples require Volatile Are liquid VOA vials free of headspace? Yes\_\_\_ No\_\_ NA\_ 7 Analysis? Sumple ID's and containers affected: ID's and tests affected: 8 Samples received within holding time? 1D's and containers affected: Sample ID's on COC match ID's on Circle Applicable: No dates on containers No times on containers COC missing info Other (describe) bottles? Date & time on COC match date & time on bottles? Circle Applicable: No container count on COC Other (describe) Number of containers received match number indicated on COC? Are sample containers identifiable as GEL provided by use of GEL labels? Circle Applicable: Not relinquished Other (describe) COC form is properly signed in relinquished/received sections? Comments (Use Continuation Form if needed):

M(D)

PM (or PMA) review: Initials \_

GL-CHL-SR-001 Rev 7

Date 2 2 1 2 3 Page 2 of 3

ent:	CDEC		7	SDG/A	R/COC/Nork Order; (112189 / 612202
	11			Date I	Received: 2125123
eive	d By:		7	Date	FedEx Express FedEx Ground UPS Field Services Courier Other
Car	rrier and Tracking Number				7713 7511 9411
pect	ed Hazard Information	Yes	<sup>o</sup> Z	*If No	t Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
	oed as a DOT Hazardous?	/		Hazar	d Class Shipped:  If UN2910, Is the Radioactive Shipment Survey Compliant? Yes No
Did	the client designate the samples are to be d as radioactive?	/			notation or radioactive stickers on containers equal client designation.
Did	the RSO classify the samples as tive?	/		Maxi	mum Net Counts Observed (Observed Counts - Area Background Counts):CPM / mR/Hr Classified as Rad 1 Rad 2 Rad 3
	the client designate samples are hazardous:		/		notation or hazard labels on containers equal client designation.
	the RSO identify possible hazards?		1	If D	or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:
Dic	Sample Receipt Criteria	Yes	ž	°Z	Comments/Qualifiers (Required for Non-Conforming Items)
1 5	Shipping containers received intact and calcd?	/	1		Circle Applicable: Seals broken Damaged container Leaking container Other (describe)  Circle Applicable: Client contacted and provided COC COC created upon receipt
. 0	Chain of custody documents included with shipment?	/			Preservation Method: Wet Ice Packs Dry ice None Other:
3	Samples requiring cold preservation within $(0 \le 6 \text{ deg. C})$ ?*	1	1		*all temperatures are recorded in Celsius  Temperature Device Serial #:   Temperature Device Serial #:
	Daily check performed and passed on Il temperature gun?	R			Temperature Device Serial # (If Applicable): Secondary Temperature Device Serial # (If Applicable): Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
	Sample containers intact and sealed?	¥	A HE	76 76	Sample ID's and Containers Affected:
6	Samples requiring chemical preservation at proper pH?	n		0.70	If Preservation added, Lot#:  No NA (If yes, take to VOA Freezer)
7	Do any samples require Volatile Analysis?		A PART HE SHALL	)	If Yes, are Encores or Soil Kits present to soins? Yes No NA(If unknown, select No)  Do liquid VOA vials contain acid preservation? Yes No NA(If unknown, select No)  Are liquid VOA vials free of headspace? Yes No NA  Sumple ID's and containers affected:
8	Samples received within holding time	?	_		ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?		X	Ser.	1D's and containers affected:  Circle Applicable: No dates on containers  No times on containers  COC missing info  Other (describe)
10	Date & time on COC match date & ti	me	X		Circle Applicable: No container count on COC Other (describe)
1	Number of containers received match		X		Спек Аррисков.
1	Are sample containers identifiable as GEL provided by use of GEL labels?		X		Circle Applicable: Not relinquished Other (describe)
1	COC form is properly signed in relinquished/received sections?		X		cooler that was missing 2/24.

PM (or PMA) review: Initials

Date 2 2 2 Page 3 \_ 0, 3 \_

List of current GEL Certifications as of 22 March 2023

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012 SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kansas NELAT  Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	90129 LA024
Louisiana NELAP	03046 (AI33904)
Maine	1
· · ·	2019020
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122023-4
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2022-160
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-22-20
Utah NELAP	SC000122022-37
Vermont	VT87156
Virginia NELAP	460202
Washington	C780



a member of The GEL Group INC



2040 Savage Road Charleston, SC 29407





P 843.556.8171 F 843.766.1178

gel.com

March 08, 2023

Laura Hageman HDI, Inc. 1 Holtec Blvd. Camden, New Jersey 08104

Re: Pilgrim NPDES Permit Modification

Work Order: 612202

Dear Laura Hageman:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on February 24, 2023. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

The sample was delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4504.

Sincerely,

Anna Johnson for
Erin Trent
Project Manager

Purchase Order: 98000918

Enclosures



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# Certificate of Analysis Report for

CDEC001 Holtec Decommissioning International, LLC Client SDG: 612202 GEL Work Order: 612202

#### The Qualifiers in this report are defined as follows:

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- H Analytical holding time was exceeded
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- d 5-day BOD--The 2:1 depletion requirement was not met for this sample

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Erin Trent.

Reviewed by

Page 2 of 26 SDG: 612202

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### **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Report Date: March 8, 2023

Contact: Laura Hageman

Project: **Pilgrim NPDES Permit Modification** 

> Client Sample ID: Sample ID: Matrix: CDEC00107 CDEC001 Treated Water Tank A Proiect: 612202001 Client ID:

Water

Collect Date: 22-FEB-23 08:15 Receive Date: 24-FEB-23 Collector: Client

Parameter Qualifier Result DL RL Units PF DF Analyst Date Time In Micro-biology  SM 5210B BOD, 5DAY "As Received"	Batch Mtd.
3.	23892211
SM 5210B BOD, 5DAY "As Received"	23892211
	23892211
BOD, 5 DAY dUH ND 1.00 2.00 mg/L JW2 02/24/23 1553 2	
Spectrometric Analysis	
SM4500CL_G Total Residual Chlorine "As Received"	
Chlorine, Residual HJ 0.0449 0.0170 0.0500 mg/L 1 HH2 02/27/23 1139 2	23903202
Titration and Ion Analysis	
EPA 150.1 pH "As Received"	
pH at Temp 14.0C H 6.87 0.0100 0.100 SU 1 JW2 03/01/23 1546 2	23920323
Volatile Organics	
EPA 624.1 Volatiles Method List "As Received"	
1,1,1-Trichloroethane U ND 0.333 1.00 ug/L 1 JM6 02/27/23 1121 2	23903404
71-55-6	
1,1,2,2-Tetrachloroethane U ND 0.333 1.00 ug/L 1 79-34-5	
1,1,2-Trichloroethane U ND 0.333 1.00 ug/L 1 79-00-5	
1,1-Dichloroethane U ND 0.333 1.00 ug/L 1 75-34-3	
1,1-Dichloroethylene U ND 0.333 1.00 ug/L 1	
75-35-4	
1,2-Dichloroethane U ND 0.333 1.00 ug/L 1 107-06-2	
1,2-Dichloropropane U ND 0.333 1.00 ug/L 1 78-87-5	
1,3-Dichloropropylene U ND 0.500 2.00 ug/L 1	
542-75-6	
2-Chloroethylvinyl ether U ND 1.67 5.00 ug/L 1	
110-75-8	
Acrolein HU ND 1.67 5.00 ug/L 1 107-02-8	
Acrylonitrile HU ND 1.67 5.00 ug/L 1 107-13-1	

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### **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

Report Date: March 8, 2023

	Client Sample Sample ID:	e ID:	Treated Water Tank A 612202001			Proiect: Client ID:	CDEC00107 CDEC001		
Parameter	Qualifier	Result	DL	RL	Units	PF	DF Analyst Date	Time	Batch Mtd.
Volatile Organics									
EPA 624.1 Volatiles Met	thod List "As Red	ceived"							
Benzene 71-43-2	U	ND	0.333	1.00	ug/L		1		
Bromodichloromethane 75-27-4	U	ND	0.333	1.00	ug/L		1		
Bromoform 75-25-2	U	ND	0.333	1.00	ug/L		1		
Bromomethane 74-83-9	U	ND	0.337	1.00	ug/L		1		
Carbon tetrachloride 56-23-5	U	ND	0.333	1.00	ug/L		1		
Chlorobenzene 108-90-7	U	ND	0.333	1.00	ug/L		1		
Chloroethane 75-00-3	U	ND	0.333	1.00	ug/L		1		
Chloroform 67-66-3	U	ND	0.333	1.00	ug/L		1		
Chloromethane 74-87-3	U	ND	0.333	1.00	ug/L		1		
Dibromochloromethane 124-48-1	U	ND	0.333	1.00	ug/L		1		
Ethylbenzene 100-41-4	U	ND	0.333	1.00	ug/L		1		
Methylene chloride 75-09-2	J	0.580	0.500	2.00	ug/L		1		
Tetrachloroethylene 127-18-4	U	ND	0.333	1.00	ug/L		1		
Toluene 108-88-3	U	ND	0.333	1.00	ug/L		1		
Trichloroethylene 79-01-6	U	ND	0.333	1.00	ug/L		1		
Vinyl chloride 75-01-4	U	ND	0.333	1.00	ug/L		1		
trans-1,2-Dichloroethyle 156-60-5	ene U	ND	0.333	1.00	ug/L		1		

The following Analytical Methods were performed:

Method Description Analyst Comments

1 SM 5210B 2 SM 4500-Cl G

Page 4 of 26 SDG: 612202

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### **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

Report Date: March 8, 2023

	Client Sample Sample ID:	e ID:	Treated Water T 612202001	ank A			Project: Client ID	CDEC0010 CDEC001	7		
Parameter	Qualifier	Result		DL	RL	Unit	s PF	DF Analys	t Date	Time	Batch Mtd.
3	EPA 150.1										
4	EPA 624.1										
Surrogate/Tracer recover	ry Test				Result		Nominal	Recovery%	Acce	ptable	Limits
Bromofluorobenzene	EPA 624	.1 Volatile	s Method List "As		48 4	. 11g/L	50.0	97	(7	2%-125	(%)

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Bromofluorobenzene	EPA 624.1 Volatiles Method List "As Received"	48.4 ug/L	50.0	97	(72%-125%)
1,2-Dichloroethane-d4	EPA 624.1 Volatiles Method List "As Received"	55.8 ug/L	50.0	112	(73%-129%)
Toluene-d8	EPA 624.1 Volatiles Method List "As Received"	50.9 ug/L	50.0	102	(75%-123%)

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QC Summary

Report Date: March 8, 2023

Page 1 of 12

HDI, Inc. 1 Holtec Blvd. Camden, New Jersey

Contact: Laura Hageman

Workorder: 612202

Parmname	NO	М	Sample	Qual	QC	Units	RPD/D%	REC%	Range A	Anlst	Date Time
Micro-biology Batch 2389221											
QC1205330005 612040002 I BOD, 5 DAY	DUP		305		305	mg/L	0 ^		(+/-120)	JW2	02/24/23 13:15
QC1205329971 LCS BOD, 5 DAY	198				195	mg/L		98.4	(85%-115%)		02/24/23 13:30
QC1205329970 MB BOD, 5 DAY					0.165	mg/L					02/24/23 13:30
QC1205329972 SEED BOD, 5 DAY					0.688	mg/L					02/24/23 13:30
Spectrometric Analysis Batch 2390320											
QC1205331691 612202001 I Chlorine, Residual	DUP	НЈ	0.0449	Н	0.0544	mg/L	19 ^		(+/-0.0500)	НН2	02/27/23 11:39
QC1205331690 LCS Chlorine, Residual	0.500				0.554	mg/L		111	(74%-112%)		02/27/23 11:39
QC1205331689 MB Chlorine, Residual				U	ND	mg/L					02/27/23 11:39
QC1205331692 612202001 F Chlorine, Residual	PS 0.500	НЈ	0.0449	Н	0.638	mg/L		119	(67%-128%)		02/27/23 11:39
<b>Titration and Ion Analysis</b> Batch 2392032											
QC1205334358 612158001 I pH	DUP	Н	8.10	Н	8.10	SU	0		(0%-5%)	JW2	03/01/23 15:37

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### QC Summary

Workorder: 612202 Page 2 of 12 Sample Qual Parmname NOM QC Units RPD/D% REC% Range Anlst Date Time **Titration and Ion Analysis** 2392032 Batch QC1205334357 LCS 7.00 SU7.00 100 (99%-101%) JW2 03/01/23 15:36 pН Volatile-GC/MS 2390340 Batch QC1205331722 LCS 1,1,1-Trichloroethane 50.0 50.5 101 ug/L (75%-136%) JM6 02/27/23 08:38 1,1,2,2-Tetrachloroethane 50.0 44.6 ug/L 89 (68%-126%) 1,1,2-Trichloroethane 50.0 47.0 ug/L 94 (73%-120%) 1,1-Dichloroethane 50.0 52.0 ug/L 104 (76%-123%) 1,1-Dichloroethylene 50.0 51.8 104 (67%-133%) ug/L 50.8 50.0 102 1,2-Dichloroethane ug/L (68%-124%) 1,2-Dichloropropane 50.0 50.7 ug/L 101 (74%-121%) 100 92.9 93 1,3-Dichloropropylene ug/L (75%-129%) 2-Chloroethylvinyl ether 250 206 ug/L 82 (62%-126%) 50.0 54.1 Benzene 108 (74%-118%) ug/L Bromodichloromethane 50.0 50.7 ug/L 101 (73% - 133%)Bromoform 50.0 44.7 ug/L 89 (69%-130%) Bromomethane 50.0 66.5 ug/L 133 (68%-140%)

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## QC Summary

Workorder: 612202 Page 3 of 12

Parmname	NOM	Sample Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date T	ime
Volatile-GC/MS										
Batch 2390340										
Carbon tetrachloride	50.0		49.6	ug/L		99	(73%-140%)	JM6	02/27/23	08:38
Chlorobenzene	50.0		47.3	ug/L		95	(76%-120%)			
Chloroethane	50.0		64.9	ug/L		130	(70%-131%)			
Chloroform	50.0		51.3	ug/L		103	(77%-126%)			
Chloromethane	50.0		53.8	ug/L		108	(60%-139%)			
Dibromochloromethane	50.0		46.6	ug/L		93	(75%-133%)			
Ethylbenzene	50.0		45.8	ug/L		92	(75%-121%)			
Methylene chloride	50.0		47.5	ug/L		95	(69%-120%)			
Tetrachloroethylene	50.0		48.3	ug/L		97	(74%-124%)			
Toluene	50.0		47.4	ug/L		95	(74%-118%)			
Trichloroethylene	50.0		50.6	ug/L		101	(76%-124%)			
Vinyl chloride	50.0		60.5	ug/L		121	(67%-134%)			
trans-1,2-Dichloroethylene	50.0		49.4	ug/L		99	(71%-127%)			
**1,2-Dichloroethane-d4	50.0		53.0	ug/L		106	(73%-129%)			
**Bromofluorobenzene	50.0		48.4	ug/L		97	(72%-125%)			

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### QC Summary

612202 Page 4 of 12 QC Parmname NOM Sample Qual Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2390340 Batch \*\*Toluene-d8 50.0 49.4 ug/L (75%-123%) JM6 02/27/23 08:38 QC1205331723 LCS 250 184 02/27/23 09:32 Acrolein ug/L 74 (63%-141%) Acrylonitrile 250 286 ug/L 114 (67%-128%) \*\*1,2-Dichloroethane-d4 50.0 54.3 ug/L 109 (73%-129%) \*\*Bromofluorobenzene 50.0 49.6 ug/L (72%-125%) \*\*Toluene-d8 50.0 49.0 ug/L 98 (75%-123%) QC1205331724 MB U 02/27/23 09:59 1,1,1-Trichloroethane ND ug/L 1,1,2,2-Tetrachloroethane U ND ug/L U ND 1,1,2-Trichloroethane ug/L U ND 1,1-Dichloroethane ug/L U ND 1,1-Dichloroethylene ug/L U ND 1,2-Dichloroethane ug/L 1,2-Dichloropropane U ND ug/L U ND 1,3-Dichloropropylene ug/L

Workorder:

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### QC Summary

Workorder: 612202 Page 5 of 12 NOM QC RPD/D% REC% Parmname Sample Qual Units Range Anlst Date Time Volatile-GC/MS 2390340 Batch U 2-Chloroethylvinyl ether ND ug/L JM6 02/27/23 09:59 U Acrolein ND ug/L U Acrylonitrile ND ug/L U ND Benzene ug/L U Bromodichloromethane ND ug/L U ND Bromoform ug/L U Bromomethane ND ug/L Carbon tetrachloride U ND ug/L U ND Chlorobenzene ug/L Chloroethane ND ug/L U ND Chloroform ug/L Chloromethane U ND ug/L U ND Dibromochloromethane ug/L Ethylbenzene U ND ug/L

U

ND

ug/L

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Methylene chloride

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### QC Summary

Workorder: 612202 Page 6 of 12 Parmname NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2390340 Batch Tetrachloroethylene U ND ug/L JM6 02/27/23 09:59 Toluene U ND ug/L Trichloroethylene U ND ug/L U ND Vinyl chloride ug/L trans-1,2-Dichloroethylene U ND ug/L 54.6 (73% - 129%)\*\*1,2-Dichloroethane-d4 50.0 ug/L 109 50.0 49.5 \*\*Bromofluorobenzene ug/L 99 (72%-125%) \*\*Toluene-d8 50.0 50.2 100 ug/L (75%-123%) QC1205331725 611447003 PS ND 53.1 02/27/23 16:50 1,1,1-Trichloroethane 50.0 U ug/L 106 (67%-135%) 1,1,2,2-Tetrachloroethane 50.0 U ND 49.3 99 (58%-138%) ug/L 1,1,2-Trichloroethane 50.0 U ND 50.6 ug/L 101 (70%-126%) 1,1-Dichloroethane ND 55.0 50.0 U ug/L 110 (70%-126%) 1,1-Dichloroethylene 50.0 U ND 55.9 112 (61%-137%) ug/L U ND 54.6 50.0 109 1,2-Dichloroethane ug/L (64%-129%) 1,2-Dichloropropane 50.0 U ND 53.2 ug/L 106 (68%-127%)

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## QC Summary

Workorder: 612202 Page 7 of 12

Parmname	NOM	Sample Qual	QC	Units RPD/D%	REC%	Range Anlst Date Time
Volatile-GC/MS Batch 2390340						
1,3-Dichloropropylene	100		95.6	ug/L	96	(74%-123%) JM6 02/27/23 16:5
2-Chloroethylvinyl ether	250 U	ND U	ND	ug/L	0*	(64%-123%)
Benzene	50.0 U	ND	55.1	ug/L	110	(65%-122%)
Bromodichloromethane	50.0 U	ND	53.7	ug/L	107	(68%-137%)
Bromoform	50.0 U	ND	47.3	ug/L	95	(62%-138%)
Bromomethane	50.0 U	ND	71.6	ug/L	143*	(61%-142%)
Carbon tetrachloride	50.0 U	ND	52.8	ug/L	106	(63%-144%)
Chlorobenzene	50.0 U	ND	50.5	ug/L	101	(63%-123%)
Chloroethane	50.0 U	ND	71.4	ug/L	143*	(64%-134%)
Chloroform	50.0 U	ND	54.6	ug/L	109	(69%-133%)
Chloromethane	50.0 U	ND	60.2	ug/L	120	(45%-142%)
Dibromochloromethane	50.0 U	ND	49.5	ug/L	99	(68%-142%)
Ethylbenzene	50.0 U	ND	48.5	ug/L	97	(65%-124%)
Methylene chloride	50.0 J	0.720	50.8	ug/L	100	(62%-125%)
Tetrachloroethylene	50.0 U	ND	49.9	ug/L	100	(64%-129%)

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### **QC** Summary

Workorder: 612202 Page 8 of 12 Sample Qual Parmname NOM QC Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2390340 Batch Toluene 50.0 U ND 50.0 ug/L 100 (63%-121%) JM6 02/27/23 16:50 Trichloroethylene 50.0 U ND 52.3 105 (66%-126%) ug/L (58%-139%) Vinyl chloride 50.0 U ND 66.7 ug/L 133 50.0 U ND 52.3 trans-1,2-Dichloroethylene ug/L 105 (65%-130%) \*\*1,2-Dichloroethane-d4 50.0 55.7 54.3 ug/L 109 (73%-129%) \*\*Bromofluorobenzene 50.5 49.8 50.0 ug/L 100 (72% - 125%)\*\*Toluene-d8 50.0 50.6 50.7 ug/L 101 (75% - 123%)QC1205331726 612202001 PS ND 153 Acrolein 250 HU Η ug/L 61 (51%-142%) 02/27/23 17:44 Acrylonitrile 250 HU ND Η 273 109 (60%-135%) ug/L \*\*1,2-Dichloroethane-d4 50.0 55.8 55.9 ug/L 112 (73%-129%) 48.4 51.7 \*\*Bromofluorobenzene 50.0 ug/L 103 (72%-125%) 50.6 \*\*Toluene-d8 50.0 50.9 ug/L 101 (75%-123%) QC1205331727 611447003 PSD 50.0 U ND 3 103 02/27/23 17:17 1,1,1-Trichloroethane 51.6 (0% - 20%)ug/L 50.0 U ND 46.3 93 1,1,2,2-Tetrachloroethane ug/L 6 (0%-20%)1,1,2-Trichloroethane 50.0 U ND 49.4 2 99 (0%-20%)ug/L

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**GEL LABORATORIES LLC** 2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

Workorder: 612202 Page 9 of 12

Parmname	NOM	Sample Qual	QC	Units R	PD/D%	REC%	Range Anlst	Date Time
Volatile-GC/MS Batch 2390340								
1,1-Dichloroethane	50.0 U	ND	52.6	ug/L	5	105	(0%-20%) JM6	02/27/23 17:17
1,1-Dichloroethylene	50.0 U	ND	55.4	ug/L	1	111	(0%-20%)	
1,2-Dichloroethane	50.0 U	ND	53.2	ug/L	3	106	(0%-20%)	
1,2-Dichloropropane	50.0 U	ND	51.4	ug/L	3	103	(0%-20%)	
1,3-Dichloropropylene	100		93.8	ug/L	2	94	(0%-20%)	
2-Chloroethylvinyl ether	250 U	ND U	ND	ug/L	N/A	0*	(0%-20%)	
Benzene	50.0 U	ND	54.4	ug/L	1	109	(0%-20%)	
Bromodichloromethane	50.0 U	ND	51.9	ug/L	3	104	(0%-20%)	
Bromoform	50.0 U	ND	45.5	ug/L	4	91	(0%-20%)	
Bromomethane	50.0 U	ND	68.5	ug/L	4	137	(0%-20%)	
Carbon tetrachloride	50.0 U	ND	50.7	ug/L	4	101	(0%-20%)	
Chlorobenzene	50.0 U	ND	48.7	ug/L	4	97	(0%-20%)	
Chloroethane	50.0 U	ND	68.6	ug/L	4	137*	(0%-20%)	
Chloroform	50.0 U	ND	52.1	ug/L	5	104	(0%-20%)	
Chloromethane	50.0 U	ND	56.7	ug/L	6	113	(0%-20%)	

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### **QC** Summary

Workorder: 612202 Page 10 of 12 **Parmname** NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2390340 Batch Dibromochloromethane 50.0 U ND 48.1 ug/L 3 96 (0%-20%)JM6 02/27/23 17:17 Ethylbenzene 50.0 U ND 46.7 93 (0%-20%)ug/L 4 Methylene chloride 50.0 J 0.720 49.7 ug/L 2 98 (0%-20%)50.0 U ND (0%-20%)Tetrachloroethylene 48.7 ug/L 3 97 Toluene 50.0 U ND 48.7 ug/L 3 97 (0%-20%)50.0 U ND 51.3 103 (0%-20%)Trichloroethylene ug/L 2 Vinyl chloride 50.0 U ND 5 63.6 ug/L 127 (0% - 20%)50.0 U ND 50.6 ug/L 3 101 (0%-20%)trans-1,2-Dichloroethylene 55.7 54.4 \*\*1,2-Dichloroethane-d4 50.0 ug/L 109 (73%-129%) 50.0 50.5 48.5 \*\*Bromofluorobenzene ug/L 97 (72% - 125%)50.0 50.6 50.1 100 (75%-123%) \*\*Toluene-d8 ug/L QC1205331728 612202001 PSD 137 02/27/23 18:11 Acrolein 250 HU ND Η ug/L 11 (0%-20%)55 Acrylonitrile 250 HU ND Η 257 6 103 (0% - 20%)ug/L 55.8 55.3 \*\*1,2-Dichloroethane-d4 50.0 ug/L 111 (73%-129%) \*\*Bromofluorobenzene 50.0 48.4 50.3 ug/L 101 (72% - 125%)

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### **QC** Summary

Workorder: 612202 Page 11 of 12 **Parmname** NOM Sample Qual  $\mathbf{OC}$ Units RPD/D% REC% Range Anlst Date Time Volatile-GC/MS 2390340 Batch \*\*Toluene-d8 50.0 50.9 49.5 ug/L (75% - 123%)JM6 02/27/23 18:11

#### **Notes:**

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, the difference is >70%.
- C Analyte has been confirmed by GC/MS analysis
- B The target analyte was detected in the associated blank.
- E Concentration of the target analyte exceeds the instrument calibration range
- A The TIC is a suspected aldol-condensation product
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- N Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
- H Analytical holding time was exceeded
- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- h Preparation or preservation holding time was exceeded
- R Sample results are rejected
- Z Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
- d 5-day BOD--The 2:1 depletion requirement was not met for this sample
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
- D Results are reported from a diluted aliquot of the sample
- N/A RPD or %Recovery limits do not apply.
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- JNX Non Calibrated Compound
- UJ Compound cannot be extracted
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- N1 See case narrative
- Y QC Samples were not spiked with this compound

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### **QC** Summary

Workorder: 612202

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Parmname NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time

- R Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
- N Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
- e 5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes
- J See case narrative for an explanation

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

- ^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
- \* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

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#### Technical Case Narrative Holtec Decommissioning International, LLC SDG #: 612202

### **GC/MS Volatile**

**Product:** Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer

**Analytical Method:** EPA 624.1

**Analytical Procedure:** GL-OA-E-026 REV# 29

**Analytical Batch:** 2390340

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612202001	Treated Water Tank A
1205331722	Laboratory Control Sample (LCS)
1205331723	Laboratory Control Sample (LCS)
1205331724	Method Blank (MB)
1205331725	611447003(NonSDG) Post Spike (PS)
1205331726	612202001(Treated Water Tank A) Post Spike (PS)
1205331727	611447003(NonSDG) Post Spike Duplicate (PSD)
1205331728	612202001(Treated Water Tank A) Post Spike Duplicate (PSD)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Quality Control (QC) Information**

#### Matrix Spike/Matrix Spike Duplicate Recovery Statement

Preservation by acidification causes 2-Chloroethylvinyl ether to degrade resulting in poor recoveries in samples (See Below).

Sample	Analyte	Value
1205331725 (Non SDG 611447003PS)	2-Chloroethylvinyl ether	0* (64%-123%)
1205331727 (Non SDG 611447003PSD)	2-Chloroethylvinyl ether	0* (64%-123%)

The spike and/or spike duplicate (See Below) recoveries were not all within the acceptance limits. The recoveries were similar. It is believed possible matrix interference has been demonstrated.

Sample	Analyte	Value
1205331725 (Non SDG 611447003PS)	Chloroethane	143* (64%-134%)
1205331727 (Non SDG 611447003PSD)	Chloroethane	137* (64%-134%)

The spike and/or spike duplicate (See Below) recoveries were not all within the acceptance limits. The

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associated spike and/or spike duplicate passed recoveries near the lower/upper end of the limits.

Sample	Analyte	Value
1205331725 (Non SDG 611447003PS)	Bromomethane	143* (61%-142%)

#### **Technical Information**

#### **Holding Time Specifications**

GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration. Samples (See Below) were not analyzed within holding because greater than 50% of the holding time had expired upon receipt of the samples. The results are qualified accordingly.

Sample	Analyte	Value
1205331726 (Treated Water Tank APS)		Received 24-FEB-23, within holding, analyzed 27-FEB-23, out of holding 25-FEB-23
1205331728 (Treated Water Tank APSD)		Received 24-FEB-23, within holding, analyzed 27-FEB-23, out of holding 25-FEB-23
612202001 (Treated Water Tank A)		Received 24-FEB-23, within holding, analyzed 27-FEB-23, out of holding 25-FEB-23

### **General Chemistry**

**Product:** Biochemical Oxygen Demand

**Analytical Method:** SM 5210B

Analytical Procedure: GL-GC-E-045 REV# 28

**Analytical Batch:** 2389221

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612202001	Treated Water Tank A
1205329970	Method Blank (MB)
1205329971	Laboratory Control Sample (LCS)
1205329972	BOD Seed (SEED)
1205330005	612040002(NonSDG) Sample Duplicate (DUP

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Technical Information**

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#### **Holding Times**

Sample (See Below) was received by the laboratory outside of the method specified holding time. The data is qualified.

Sample	Analyte	Value
612202001 (Treated Water Tank A)		Received 24-FEB-23, out of holding 24-FEB-23

#### 2:1 Depletion Requirement

The following samples in this batch did not meet the 2:1 depletion requirement. 612202001 (Treated Water Tank A).

**Product: Total Residual Chlorine Analytical Method:** SM 4500-Cl G

**Analytical Procedure:** GL-GC-E-076 REV# 17

**Analytical Batch:** 2390320

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
612202001	Treated Water Tank A
1205331689	Method Blank (MB)
1205331690	Laboratory Control Sample (LCS)
1205331691	612202001(Treated Water Tank A) Sample Duplicate (DUP)
1205331692	612202001(Treated Water Tank A) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Technical Information**

#### **Holding Times**

Samples (See Below) were received by the laboratory outside of the method specified holding time. The data is qualified.

Sample	Analyte	Value
1205331691 (Treated Water Tank ADUP)		Received 24-FEB-23, out of holding 22-FEB-23
1205331692 (Treated Water Tank APS)		Received 24-FEB-23, out of holding 22-FEB-23
612202001 (Treated Water Tank A)		Received 24-FEB-23, out of holding 22-FEB-23

Product: pH

**Analytical Method:** EPA 150.1

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Analytical Procedure: GL-GC-E-008 REV# 26

**Analytical Batch:** 2392032

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID# Client Sample Identification

612202001 Treated Water Tank A

1205334357 Laboratory Control Sample (LCS)

1205334358 612158001(NonSDG) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Technical Information**

#### **Holding Times**

Samples (See Below) were received by the laboratory outside of the method specified holding time. The data is qualified.

Sample	Analyte	Value
1205334358 (Non SDG 612158001DUP)		Received 24-FEB-23, out of holding 21-FEB-23
612202001 (Treated Water Tank A)		Received 24-FEB-23, out of holding 22-FEB-23

#### **Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

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GEL Laboratories, LLC 2040 Savage Road Charleston, SC 29407 Phone: (843) 556-8171 Fax: (843) 766-1178	(Fill in the number of containers for each test)	< Preservative Type (6)		Comments Note: extra sample is	required for sample specific QC	Short hold time					Rush: X Specify:		[ ] level 1 [ ] Level 2 [ ] Level 3 [ ] Level 4		[ ] No Cooler	[ ] Central [ ] Mountain [ ] Other:		F=Fecal, N=Nasal		Please provide any additional details below regarding handling and/or disposal				
Laboratories LLC (1) DDD Chemistry   Radioblosssay   Specialty Analytics   Foustody and Analytical Request GEL Project Manager: Katherine Cates	alysis Requested (5)			H L of con	yes, prease su (7) Known or possible Hazz  Total numbe  VC  BC	Y x x x x					TAT Requested: Normal:	Fax Results: [ ] Yes [ x] No	Select Deliverable: [ ] C of A [ ] QC Summary	Additional Remarks:	For Lab Receiving Use Only: Custody Seal Intact? [ ] Yes	Sample Collection Time Zone: [X] Eastern [ ] Pacific [ ] Central	plicate Sample, $G = Grab$ , $C = Composite$	Liquid, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal	3/7470A - 1). Sodium Thiosulfate, If no preservative is added = leave field blank	OT= Other / Unknown	(i.e.: High/low pH, asbestos, beryllium, irritants, other misc. health hazards, etc.)	Description:		
GEL Work Order Number:    GEL Work Order Number:   Chemistry   Radiochemistry   Radiobloassay   Specification   Chain of Custody and Analytical Request   GEL Project Manager: Katherine C	Phone # (508)830-81	Fax#	00	Send Results To: I.hageman@CDI-decom.com	*Date Collected Collected (Military) QC Field Sample dioractive (mm-dd-yy) (hhmm) Code (2) Filtered (9) Matrix (4) Et yes	N 8:15 N					Chain of Custody Signatures	Received by (signed) Date Time	1N 2/24/23 1000	2			B = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Dup as field filtered or - N - for sample was not field filtered.	rr, WW=Waste Water, W=Water, ML=Misc Liquid, SO=Soil, SD=Sediment	$B/7470A$ ) and number of containers provided for each (i.e. $8260B \cdot 3$ , $6010B$ ) Hydroxide, $SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = S$	Characteristic Hazards Listed Waste  FI. = Flammahle/fonitable LW= Listed Waste	(F,K,P and U Waste code(s	ulated	Polychlorinated biphenyls	
Page         of           Profect #         Of           GE Quote #:         Of           COCNumber (1):         Of           PO Pumber: EPA-SUB         GEL World	Clien Name: Comprehensive Decommissioning International (CDI)	Profet/Site Name: Pilgrim Station	Addess: 600 Rocky Hill Road, Plymouth, Ma 02360	sted By: Site Chemistry	Sample ID * For composites - indicate start and stop date time	Treated Water Tank A			**		Chain of Cust	Relinquished By (Signed) Date Time	1 May 24/23 1106	2	3 (	> For sample shipping and delivery details, see Sample Receipt & Review form (SRR.)	<ol> <li>Chain of Custody Number = Client Determined</li> <li>Chain of Custody Number = Client Determined</li> <li>QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite</li> <li>Field Filtered: For Itouid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was field filtered or - N - for sample was field filtered.</li> </ol>	4.) Matrix Codes. DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, ML=Misc	5.) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B/7470A - 1).  6.) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank	7) KNOWN OR POSSIBLE HAZARDS Characteris	Is Hg= Mercury	Ba = Barrum Se= Selenium Cd = Cadmium Ag= Silver TSCA Regulated		

Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Clien	: CDI Inc			SDG/AR/COC/Work Order: (012189) (12202									
Recei	ved By: Alex Almes			Date Received: 2/24/23									
	Carrier and Tracking Number			FedEx Express FedEx Ground UPS Field Services Courier Other  7713 7511 9640  7713 7511 9043									
Suspe	cted Hazard Information	Yes	No	*If N	let Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.								
A)Shi	pped as a DOT Hazardous?	/		Haza	Hazard Class Shipped:  UN#: DNO 5  If UN2910, Is the Radioactive Shipment Survey Compliant? Yes No								
	d the client designate the samples are to be ed as radioactive?	/		coc	notation or radioactive stickers on containers equal client designation.								
	d the RSO classify the samples as active?	1		Max	imum Net Counts Observed* (Observed Counts - Area Background Counts): 120 CPM mR/Hr Classified as: (Rad 1) Rad 2 Rad 3								
D) D	id the client designate samples are hazardous?		/	,	C notation or hazard labels on containers equal client designation.								
E) Di	d the RSO identify possible hazards?		/		or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:								
	Sample Receipt Criteria	Yes	Z	No	Comments/Qualifiers (Required for Non-Conforming Items)  Circle Applicable: Seals broken Damaged container Leaking container Other (describe)								
1	Shipping containers received intact and scaled?	/			9								
	Chain of custody documents included with shipment?	/		Circle Applicable: Client contacted and provided COC COC created upon receipt  Preservation Methody Wet Ice Packs Dry ice None Other:									
	Samples requiring cold preservation within $(0 \le 6 \text{ deg. C})$ ?*	/		*all temperatures are recorded in Celsius TEMP:									
	Daily check performed and passed on IR temperature gun?	1		Temperature Device Serial #: <u>JL2-23</u> Secondary Temperature Device Serial # (If Applicable):									
5	Sample containers intact and sealed?	1		Circle Applicable: Seals broken Damaged container Leaking container Other (describe)									
6	Samples requiring chemical preservation at proper pH?	X			Sample ID's and Containers Affected:  If Preservation added, Lot#:								
	Do any samples require Volatile	,			If Yes, are Encores or Soil Kits present for solids? Yes No NA (If yes, take to VOA Freezer)  Do liquid VOA vials contain acid preservation? Yes No NA (If unknown, select No)  Are liquid VOA vials free of headspace? Yes No NA								
7	Analysis?	)	\ 		Sample ID's and containers affected:								
8	Samples received within holding time?	X			ID's and tests affected:								
9	Sample ID's on COC match ID's on bottles?	X			ID's and containers affected:								
10	Date & time on COC match date & time on bottles?	X			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)								
11	Number of containers received match number indicated on COC?			X	Circle Applicable: No container count on COC Other (describe) Below								
12	Are sample containers identifiable as	X											
13	COC form is properly signed in relinquished/received sections?	Y	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		Circle Applicable: Not relinquished Other (describe)								
Cor	noments (Use Continuation Form if needed): Note: M. 35mg leader 3 (See Hash z/e4	of the	3.	ast	this time.								
					M(00 - 1)1112 Page 1 of 3								

Laboratories LLC SAMPLE RECEIPT & REVIEW FORM Date Received: BedEx Ground UPS Field Services Courier Other Carrier and Tracking Number \*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. å Suspected Hazard Information UN#: 2918 Hazard Class Shipped: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes No\_ A)Shipped as a DOT Hazardous? COC notation or radioactive stickers on containers equal client designation. B) Did the client designate the samples are to be received as radioactive? Maximum Net Counts Observed (Observed Counts - Area Background Counts): \_\_\_\_\_CPM mR/Hr C) Did the RSO classify the samples as Classified as: Rad 1 Rad 2 Rad 3 radioactive? COC notation or hazard labels on containers equal client designation. D) Did the client designate samples are hazardous? If D or E is yes, select Hazards below. Beryllium Flammable Foreign Soil RCRA E) Did the RSO identify possible hazards? Comments/Qualifiers (Required for Non-Conforming Items) NA Sample Receipt Criteria Circle Applicable: Seals broken Damaged container. Leaking container Ciber (describe) Shipping containers received intact and Circle Applicable: Client contacted and provided COC. COC created upon receipt Chain of custody documents included with shipment? Preservation Method Wet los lee Packs Dry ice None
\*all temperatures are recorded in Celsius Other: Samples requiring cold preservation within  $(0 \le 6 \text{ deg. } \mathbb{C})$ ? Temperature Device Serial #: TR 3 - 73 Daily check performed and passed on IR Secondary Temperature Device Serial # (If Applicable): temperature gun? Circle Applicable: Seals broken Damaged container Leaking container Other (describe) Sample containers intact and sealed? Sample ID's and Containers Affected: Samples requiring chemical preservation If Preservation added, Lot#; at proper pH? If Yes, are Encores or Soil Kits present for solids? Yes\_\_\_No\_\_\_NA\_\_\_(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes No NA (If unknown, select No) Do any samples require Volatile Are liquid VOA vials free of headspace? Yes\_\_\_ No\_\_ NA\_ Analysis? Sample ID's and containers affected: ID's and tests affected: 8 |Samples received within holding time? 1D's and containers affected: Sample ID's on COC match ID's on Circle Applicable: No dates on containers No times on containers COC missing info Other (describe) bottles? Date & time on COC match date & time on bottles? Circle Applicable: No container count on COC Other (describe) Number of containers received match number indicated on COC? Are sample containers identifiable as GEL provided by use of GEL labels? Circle Applicable: Not relinquished Other (describe) COC form is properly signed in relinquished/received sections? Comments (Use Continuation Form if needed):

GL-CHL-SR-001 Rev 7

Date 2 2 1 2 3 Page 2 of 3

PM (or PMA) review: Initials \_

			T			MPLE RECEIPT & REVIEW FORM
nt:	CDEC		7			1125/23
eived	By:		4	Date	e R	Circle Applicable:  Circle
			-			FedEx Express FedEx Orbina Crs Field Set (1881)
	No common and American American					7713 7511 9411
Car	rier and Tracking Number					P713 1011 1111
		Yes	o <sub>N</sub>	*If	Net	Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
pecto	d Hazard Information	>	_	-	_	
				Haz	ard	Class Shipped:  If UN2910, Is the Radioactive Shipment Survey Compliant? Yes No
hipp	ed as a DOT Hazardous?		_	$\vdash$		
Did (	he client designate the samples are to be			co	KC n	ntation or radioactive stickers on containers equal client designation.
cived	as radioactive?	/		M	oxin	um Net Counts Observed (Observed Counts - Area Background Counts):CPM / mR/Hr
	the RSO classify the samples as	1		1,,,,		Classified as Rad 1 Rad 2 Rad 3
dioact	ive?		1	C	X r	otation or hazard labels on containers equal client designation.
Did	the client designate samples are hazardous?		1			E is yes, select Hazards below.
			1	li .	D or	PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:
Did	the RSO identify possible hazards?	1 10	3	+	=	Comments/Qualifiers (Required for Non-Conforming Items)
	Sample Receipt Criteria	Yes	2	2	=	irele Applicable: Seals broken Damaged container Leaking container Other (describe)
s	hipping containers received intact and	/			1	
ISC	caled? Chain of custody documents included	1	1		1	ircle Applicable: Client contacted and provided COC COC created upon receipt
	vith shipment?	/				Preservation Method: Wet Ice Packs Dry ice None Other: TEMP: 5
-	samples requiring cold preservation	1	1		1	*all temperatures are-recorded in Celsius
1	vithin (0 < 6 deg. C)?*	1	133	200	-	Temperature Device Serial #: That and
I	Daily check performed and passed on IR	1	1		1	Secondary Temperature Device Serial # (If Applicable).
_	emperature gun?	V	1	對	1	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Sample containers intact and sealed?	1	CHES.	1		
$\dashv$	Samples requiring chemical preservation	1	,	T		Sample ID's and Containers Affected:
6	at proper pH?		(	278		If Preservation added, Lot#:  If Yes, are Encores or Soil Kits present for solids? YesNoNA (If yes, take to VOA Freezer)  If Yes, are Encores or Soil Kits present for solids? YesNoNA (If yes, take to VOA Freezer)
			2.2			- " 14 VOA viule contain acid preservation? 165 10 170
7	Do any samples require Volatile				X	Are liquid VOA vials free of headspace? Yes No NA
,	Analysis?				V	Sample ID's and containers affected:
		+	-	1		ID's and tests affected:
8	Samples received within holding time?	3	X			1D's and containers affected:
-	Sample ID's on COC match ID's on		1			2
9	bottles?	1	$\Delta$	7	-	Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
70	Date & time on COC match date & tin	ne .	X			
10	IOU DOUGES.					Circle Applicable: No container count on COC Other (describe)
11	Number of containers received match number indicated on COC?		X			
-	A summele containers identifiable as		X		1	
13	GEL provided by use of GEL labels.	-	,	W.	1	Circle Applicable: Not relinquished Other (describe)
1.	COC form is properly signed in relinquished/received sections?		X		3	cooler that was missing 2/24.
C	omments (Use Continuation Form if needed)		,	1		1 that was mission 2/24.
	-		1	1.		anden that wow into the

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List of current GEL Certifications as of 08 March 2023

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2019020
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122023-4
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2022-160
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-22-20
Utah NELAP	SC000122022-37
Vermont	VT87156
Virginia NELAP	460202
Washington	C780



a member of The GEL Group INC







PO Box 30712 Charleston, SC 29417 2040 Savage Road Charleston, SC 29407 P 843.556.8171 F 843.766.1178

gel.com

March 22, 2023

Laura Hageman HDI, Inc. 1 Holtec Blvd. Camden, New Jersey 08104

Re: Pilgrim NPDES Permit Modification

Work Order: 611601

Dear Laura Hageman:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on February 21, 2023. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

The sample was delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. The following additional comments were noted at receipt: (insert text box).. Sample was preserved upon arrival. Client was notified via email..

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4504.

Sincerely,

Erin Trent

Project Manager

grie & Trent

Purchase Order: 98000918

Enclosures



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# Certificate of Analysis Report for

CDEC001 Holtec Decommissioning International, LLC Client SDG: 611601 GEL Work Order: 611601

#### The Qualifiers in this report are defined as follows:

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- H Analytical holding time was exceeded
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- h Preparation or preservation holding time was exceeded

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Erin Trent.

	Exic &	Trent		
Reviewed by				

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### **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Report Date: March 22, 2023

Contact: Laura Hageman

Project: **Pilgrim NPDES Permit Modification** 

> Client Sample ID: Sample ID: Matrix: CDEC00107 CDEC001 Intake 611601001 Proiect: Client ID:

Water Collect Date:

20-FEB-23 08:00 Receive Date: 21-FEB-23 Collector: Client

	Conector.		Client					
Parameter	Qualifier	Result		DL	RL	Units	PF	DF Analyst Date Time Batch Mtd.
Carbon Analysis								
SM 5310 B Total Organi	ic/Inorganic Car	bon "As Rec	eived"					
Total Organic Carbon A	verage J	0.509		0.330	1.00	mg/L		1 TSM 02/23/23 0639 23877281
Flow Injection Analysis								
EPA 335.4 Cyanide, Tota	al "As Received"	,						
Cyanide, Total 57-12-5	U	ND		1.67	5.00	ug/L	1.00	1 AXH3 02/28/23 0956 23907532
EPA 420.4 Total Phenol.	s "As Received"							
Total Phenol	J	4.04		1.67	5.00	ug/L	1.00	1 AXH3 02/28/23 0707 23843153
Ion Chromatography								
SW846 9056 Anions, Liq	uid "As Receive	d''						
Bromide 24959-67-9		63.9	+/-4.95	13.4	40.0	mg/L		200 LXA2 02/21/23 1959 23875704
Sulfate		2470	+/-82.8	26.6	80.0	mg/L		200
14808-79-8 Chloride		19100	+/-643	268	800	mg/L		4000 LXA2 02/22/23 0158 23875705
16887-00-6		19100	+/-043	200	800	IIIg/L		4000 LAA2 02/22/23 0138 238/3/03
Fluoride 16984-48-8	U	ND	+/-0.550	1.65	5.00	mg/L		50 LXA2 02/22/23 0128 23875706
Mercury Analysis-CVAA								
EPA 245 Mercury "As R								
Mercury Mercury	UHh	ND	+/-0.0223	0.0670	0.200	ug/L	1.00	1 JP2 03/22/23 0935 24013917
7439-97-6	OIIII	112	., 0.0225	0.0070	0.200	"B' Z	1.00	1 41 2 00, 22, 20 0, 00 2 1010, 11
Metals Analysis-ICP-MS								
200.8/200.2 Priority Pol	lutant "As Recei	ved"						
Selenium	U	ND	+/-10.0	30.0	100	ug/L	1.00	20 SKJ 02/24/23 2136 23874278
7782-49-2								
Zinc	U	ND	+/-22.0	66.0	400	ug/L	1.00	20
7440-66-6		N.T.D.	. / 10 4	40.0	100	/T	1.00	20 01/1 02/27/22 1220 2227/270
Arsenic 7440-38-2	U	ND	+/-13.4	40.0	100	ug/L	1.00	20 SKJ 02/27/23 1338 23874279
7440-38-2 Boron		4290	+/-231	260	750	ug/L	1.00	50 SKJ 02/27/23 1122 238742710
7440-42-8		4270	1/-231	200	750	ug/L	1.00	30 SIM 02/27/23 1122 230/42/10
							1.00	

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## **Certificate of Analysis**

Report Date: March 22, 2023

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

	Client Sample Sample ID:	e ID:	Intake 611601001				Proiect: Client ID:	CDEC00107 CDEC001	
Parameter	Qualifier	Result		DL	RL	Units	PF	DF Analyst Date Time	Batch Mtd.
Metals Analysis-ICP-M	S								
200.8/200.2 Priority Po	ollutant "As Recei	ved"							
Antimony 7440-36-0	U	ND	+/-1.67	5.00	15.0	ug/L		5 SKJ 02/24/23 2157	238742711
Beryllium 7440-41-7	U	ND	+/-0.333	1.00	2.50	ug/L	1.00	5	
Cadmium 7440-43-9	U	ND	+/-0.500	1.50	5.00	ug/L	1.00	5	
Chromium 7440-47-3	U	ND	+/-5.00	15.0	50.0	ug/L	1.00	5	
Copper 7440-50-8	J	1.69	+/-0.507	1.50	10.0	ug/L	1.00	5	
Lead 7439-92-1	U	ND	+/-0.833	2.50	10.0	ug/L	1.00	5	
Nickel 7440-02-0	U	ND	+/-1.00	3.00	10.0	ug/L	1.00	5	
Silver 7440-22-4	U	ND	+/-0.500	1.50	5.00	ug/L	1.00	5	
Thallium 7440-28-0	U	ND	+/-1.00	3.00	10.0	ug/L	1.00	5	
Nutrient Analysis									
EPA 350.1 Nitrogen, A	mmonia "As Rece	ived"							
Nitrogen, Ammonia 7664-41-7		0.196	+/-0.00865	0.0170	0.0500	mg/L	1.00	1 KLP1 03/01/23 1527	239058912
Oil & Grease Analysis									
EPA 1664A/B n-Hexan	e Extractable Mai	terial (O&G	) "As Received"	,					
Oil and Grease	U	ND		1.11	3.97	mg/L		DXB7 03/02/23 0524	239176313
Solids Analysis									
SM 2540D Total Suspe			ed"						
Total Suspended Solids	5	4.10		0.570	2.50	mg/L		CH6 02/22/23 0759	2387645 14
Spectrometric Analysis									
EPA 410.4 Chemical C COD	Oxygen Demand "A	As Received 531	''	44.8	100	mg/L		5 HH2 02/27/23 1444	239032115

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.4	EPA 335.4 Total Cyanide	ES2	02/28/23	0733	2390752

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## **Certificate of Analysis**

Company: HDI, Inc. 1 Holtec Blvd. Address:

Camden, New Jersey 08104

Report Date: March 22, 2023

Contact: Laura Hageman

Project: **Pilgrim NPDES Permit Modification** 

	- · · · · · · · · · · · · · · · · · · ·	ntake 11601001					CDEC00107 CDEC001		
Parameter	Qualifier Result		DL	RL	Units	PF	DF Analyst Date	Time	Batch Mtd.
EPA 420.4	EPA 420.4 Phenols, Total in	liquid PREP		ES2	02/27/23	1205	2384314		
EPA 350.1 Prep	EPA 350.1 Ammonia Nitrog	gen Prep		ES2	03/01/23	1331	2390587		
EPA 200.2	ICP-MS 200.2 PREP			EM2	02/21/23	1555	2387426		
EPA 245.1/245.2 Prep	EPA 245 Mercury			RM4	03/21/23	1134	2401389		

alytical Methods were performed:		
Description	<b>Analyst Comments</b>	
SM 5310 B		
EPA 335.4		
EPA 420.4		
SW846 9056		
SW846 9056		
SW846 9056		
EPA 245.1/245.2		
EPA 200.8		
EPA 350.1		
EPA 1664A/1664B		
SM 2540D		
EPA 410.4		
	Description  SM 5310 B  EPA 335.4  EPA 420.4  SW846 9056  SW846 9056  SW846 9056  EPA 245.1/245.2  EPA 200.8  EPA 200.8  EPA 200.8  EPA 200.8  EPA 350.1  EPA 1664A/1664B  SM 2540D	Description       Analyst Comments         SM 5310 B       EPA 335.4         EPA 420.4       SW846 9056         SW846 9056       SW846 9056         EPA 245.1/245.2       EPA 200.8         EPA 200.8       EPA 200.8         EPA 200.8       EPA 200.8         EPA 350.1       EPA 1664A/1664B         SM 2540D       SM 2540D

Page 5 of 32 SDG: 611601

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QC Summary

Report Date: March 22, 2023

Page 1 of 11

HDI, Inc. 1 Holtec Blvd. Camden, New Jersey

**Contact:** Laura Hageman

Workorder: 611601

Parmname	NOM	I Sample	Qual	QC	Units	RPD/D%	REC%	Range A	nlst	Date	Time
Carbon Analysis Batch 2387728											
QC1205327606 611282002 DUP Total Organic Carbon Average		3.66		3.60	mg/L	1.57 ^		(+/-1.00)	TSM	02/23/2	3 00:27
QC1205327605 LCS Total Organic Carbon Average	10.0			9.89	mg/L		98.9	(80%-120%)		02/22/2	3 23:56
QC1205327604 MB Total Organic Carbon Average			U	ND	mg/L					02/22/2	23 23:46
QC1205327608 611282002 PS Total Organic Carbon Average	10.0	3.66		9.11	mg/L		54.5*	(65%-120%)		02/23/2	3 00:47
Flow Injection Analysis Batch 2384315 ———											
QC1205321759 LCS Total Phenol	50.0			47.3	ug/L		94.7	(90%-110%) A	AXH3	02/28/2	3 08:19
QC1205321758 MB Total Phenol			U	ND	ug/L					02/28/2	3 06:54
QC1205321760 610757003 MS Total Phenol	50.0	U ND		48.9	ug/L		97.8	(90%-110%)		02/28/2	3 06:57
QC1205321761 610757003 MSD Total Phenol	50.0	U ND		51.1	ug/L	4.39	102	(0%-20%)		02/28/2	3 06:58
Batch 2390753 ————————————————————————————————————		U ND	U	ND	ug/L	N/A		A	AXH3	02/28/2	.3 09:58

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## QC Summary

		QC Du	<i></i>	y				
Workorder: 611601								Page 2 of 11
Parmname	NOM	Sample Qual	QC	Units	RPD/D%	REC%	Range Anlst	Date Time
Flow Injection Analysis Batch 2390753								
QC1205332474 LCS Cyanide, Total	50.0		52.0	ug/L		104	(90%-110%) AXH3	02/28/23 09:55
QC1205332473 MB Cyanide, Total		U	ND	ug/L				02/28/23 10:04
QC1205332476 612160012 MS Cyanide, Total	100 U	ND	104	ug/L		104	(90%-110%)	02/28/23 10:05
QC1205332477 612160012 MSD Cyanide, Total	100 U	ND	104	ug/L	0	104	(0%-20%)	02/28/23 10:06
Ion Chromatography Batch 2387570								
QC1205327353 610979003 DUP Bromide	U	ND U	ND	mg/L	N/A		LXA2	02/21/23 20:29
Chloride		250	252	mg/L	0.446		(0%-20%)	
Fluoride		1.30	1.34	mg/L	2.62 ^		(+/-0.500)	02/21/23 23:28
Sulfate		1870	1840	mg/L	1.39		(0%-20%)	02/21/23 20:29
QC1205327352 LCS Bromide	1.25		1.28	mg/L		103	(90%-110%)	02/21/23 16:30
Chloride	5.00		4.91	mg/L		98.1	(90%-110%)	
Fluoride	2.50		2.64	mg/L		106	(90%-110%)	
Sulfate	10.0		10.2	mg/L		102	(90%-110%)	

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### **QC** Summary

Workorder: 611601 Page 3 of 11 Parmname NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Ion Chromatography Batch 2387570 QC1205327351 MB U ND LXA2 02/21/23 16:01 mg/L Bromide Chloride U ND mg/LFluoride U ND mg/L U ND Sulfate mg/L QC1205327354 610979003 PS Bromide 1.25 U ND 1.28 mg/L 102 (90%-110%) 02/21/23 22:29 Chloride 5.00 1.25 6.22 99.3 (90%-110%) mg/L Fluoride 2.50 0.260 2.81 mg/L 102 (90%-110%) 02/21/23 23:58 Sulfate 10.0 9.33 19.9 105 (90%-110%) 02/21/23 22:29 mg/LMetals Analysis - ICPMS 2387427 QC1205327141 611601001 DUP U ND U ND N/A SKJ 02/24/23 22:01 Antimony ug/L Arsenic U ND U ND ug/L N/A 02/27/23 13:41 U ND U ND Beryllium ug/L N/A 02/24/23 22:01 Boron 4290 4260 ug/L 0.733 (0%-20%)02/27/23 11:25 U ND U ND 02/24/23 22:01 Cadmium ug/L N/A ND U Chromium U ND ug/L N/A

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### QC Summary

Workorder: 611601 Page 4 of 11 QC Range Parmname NOM Sample Qual Units RPD/D% REC% Anlst Date Time Metals Analysis - ICPMS 2387427 Batch Copper J 1.69 ND ug/L 200 ^ SKJ 02/24/23 22:01 U Lead ND U ND ug/L N/A Nickel U ND U ND ug/L N/A U ND U ND 02/24/23 21:40 Selenium ug/L N/A 02/24/23 22:01 Silver U ND U ND ug/L N/A U Thallium ND U ND ug/L N/A U Zinc ND U ND 02/24/23 21:40 ug/L N/A QC1205327140 LCS 51.9 104 02/24/23 21:33 Antimony 50.0 ug/L (85%-115%) 50.0 52.3 105 02/27/23 13:35 ug/L (85%-115%) Arsenic Beryllium 50.0 53.2 106 (85%-115%) 02/24/23 21:33 ug/L 100 101 101 02/27/23 11:20 Boron ug/L (85%-115%) 50.0 53.2 02/24/23 21:33 Cadmium ug/L 106 (85%-115%) Chromium 50.0 53.3 107 (85%-115%) ug/L 55.8 50.0 Copper ug/L 112 (85%-115%) Lead 50.0 53.9 ug/L 108 (85%-115%)

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## QC Summary

		QC D	umminu,	y				
Workorder: 611601								Page 5 of 11
Parmname Metals Analysis - ICPMS	NOM	Sample Qual	QC	Units RPD/D	% REC%	Range	Anlst	Date Time
Batch 2387427								
Nickel	50.0		54.0	ug/L	108	(85%-115%)	SKJ	02/24/23 21:33
Selenium	50.0		52.6	ug/L	105	(85%-115%)		
Silver	50.0		52.4	ug/L	105	(85%-115%)		
Thallium	50.0		52.2	ug/L	104	(85%-115%)		
Zinc	50.0		52.3	ug/L	105	(85%-115%)		
QC1205327139 MB Antimony		U	ND	ug/L				02/24/23 21:29
Arsenic		U	ND	ug/L				02/27/23 13:32
Beryllium		U	ND	ug/L				02/24/23 21:29
Boron		U	ND	ug/L				02/27/23 11:17
Cadmium		U	ND	ug/L				02/24/23 21:29
Chromium		U	ND	ug/L				
Copper		U	ND	ug/L				
				_				
Lead		U	ND	ug/L				
N' 1 1		<b>T</b> 1	MD	Л				
Nickel		U	ND	ug/L				
C-l-ui		<b>T</b> T	ME	/T				
Selenium		U	ND	ug/L				

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## QC Summary

		QC 51		y				
Workorder: 611601								Page 6 of 11
Parmname Matala Amalania ICBMS	NOM	Sample Qual	QC	Units R	PD/D% REC	C% Range	Anlst	Date Time
Metals Analysis - ICPMS Batch 2387427								
Silver		U	ND	ug/L			SKJ	02/24/23 21:29
Thallium		U	ND	ug/L				
				C				
Zinc		U	ND	ug/L				
2				-8-				
QC1205327142 611601001 MS								
Antimony	50.0 U	ND	47.2	ug/L	93	3 (75%-125%)	)	02/24/23 22:04
Arsenic	50.0 U	ND	51.9	ug/L	10-	4 (75%-125%)	)	02/27/23 13:43
Beryllium	50.0 U	ND	44.7	ug/L	89.	4 (75%-125%)	)	02/24/23 22:04
Boron	100	4290	4500	ug/L	N/A	A (75%-125%)	)	02/27/23 11:27
				C				
Cadmium	50.0 U	ND	40.2	ug/L	80	3 (75%-125%)	)	02/24/23 22:04
				C		(1111		
Chromium	50.0 U	ND	47.9	ug/L	95.	8 (75%-125%)	)	
Cin oillium	20.0	TVD	17.5	ug/12	,,,,	0 (7570 12570)	,	
Copper	50.0 J	1.69	41.2	ug/L	79.	1 (75%-125%)	1	
Соррсі	30.0	1.07	41.2	ug/L	1).	1 (75/0-125/0)	,	
TJ	50.0 U	ND	43.3	па/І	96	0 (750/ 1250/)		
Lead	30.0	ND	43.3	ug/L	86.	2 (75%-125%)	)	
N. 1 1	50.0 H	ND	41.4	/T	20.	2 (750) 1250)		
Nickel	50.0 U	ND	41.4	ug/L	80.2	2 (75%-125%)	)	
Selenium	50.0 U	ND	47.3	ug/L	88.5	8 (75%-125%)	)	02/24/23 21:43
Silver	50.0 U	ND	39.1	ug/L	78.	1 (75%-125%)	)	02/24/23 22:04
Thallium	50.0 U	ND	44.3	ug/L	88.	3 (75%-125%)	)	

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### **QC** Summary

Workorder: 611601 Page 7 of 11 QC REC% **Parmname** NOM Sample Qual Units RPD/D% Range Anlst Date Time Metals Analysis - ICPMS Batch 2387427 Zinc 50.0 U ND U ND ug/L (75%-125%) SKJ 02/24/23 21:43 QC1205327143 611601001 SDILT U ND U ND (0%-10%)02/24/23 22:08 Antimony ug/L N/A U ND U ND ug/L N/A (0%-10%)02/27/23 13:46 Arsenic U Beryllium ND U ND ug/L N/A (0%-10%)02/24/23 22:08 Boron 85.8 19.5 ug/L 13.5 (0%-10%)02/27/23 11:29 U ND U ND ug/L Cadmium N/A (0%-10%)02/24/23 22:08 U ND U ND (0%-10%)Chromium ug/L N/A J 0.338 ND Copper U ug/L N/A (0%-10%)U ND U ND ug/L (0%-10%)Lead N/A Nickel U ND U ND N/A (0%-10%)ug/L U 02/24/23 21:47 ND ND Selenium U ug/L N/A (0%-10%)Silver U ND U ND ug/L N/A (0%-10%)02/24/23 22:08 Thallium U ND U ND ug/L N/A (0%-10%)U Zinc ND U ND ug/L N/A (0%-10%)02/24/23 21:47

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### **QC** Summary

611601 Page 8 of 11 **Parmname** NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Metals Analysis-Mercury Batch 2401391 QC1205351468 611601001 DUP UHh ND UHh ND ug/L N/A JP2 03/22/23 09:37 Mercury QC1205351467 LCS 2.00 2.02 101 Mercury ug/L (85%-115%) 03/22/23 09:34 QC1205351466 MB U ND 03/22/23 09:32 Mercury ug/L QC1205351469 611601001 MS 2.00 UHh ND Hh 1.42 71.1\* (75%-125%) 03/22/23 09:39 Mercury ug/L QC1205351471 611601001 PS 2.00 UHh ND Η 1.46 ug/L 72.8\* (80%-120%) 03/22/23 09:42 Mercury QC1205351470 611601001 SDILT UHh ND UHh ND ug/L N/A (0%-10%) 03/22/23 09:40 Mercury **Nutrient Analysis** Batch 2390589 QC1205332249 611005022 DUP 0.0549 0.128 Nitrogen, Ammonia mg/L 79.9\*^ (+/-0.0500) KLP1 03/01/23 15:15 QC1205332246 LCS 1.00 0.962 96.2 (90%-110%) 03/01/23 14:45 Nitrogen, Ammonia mg/L QC1205332245 MB J 0.0177 03/01/23 14:44 Nitrogen, Ammonia mg/LQC1205332250 611005022 MS 99.5 1.00 0.0549 1.05 03/01/23 15:16 Nitrogen, Ammonia (90%-110%) mg/L

Workorder:

**GEL LABORATORIES LLC** 2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

## QC Summary

			ge sai	"""""	,						
Workorder: 611601										Page	9 of 11
Parmname	NON	M Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Oil & Grease Analysis Batch 2391763											
QC1205334078 LCS Oil and Grease	40.0			37.7	mg/L		94.3	(78%-114%)	DXB7	03/02/2	3 05:24
QC1205334079 LCSD Oil and Grease	40.0			36.4	mg/L	3.51	91	(0%-18%)		03/02/2	3 05:24
QC1205334077 MB Oil and Grease			U	ND	mg/L					03/02/2	3 05:24
QC1205334080 610507001 M Oil and Grease	1S 38.8	U ND		30.5	mg/L		76*	(78%-114%)		03/02/2	3 05:24
Solids Analysis Batch 2387645											
QC1205327461 611553001 E Total Suspended Solids	OUP	U ND	U	ND	mg/L	N/A			СН6	02/22/2	3 07:59
QC1205327459 LCS Total Suspended Solids	500			501	mg/L		100	(95%-105%)		02/22/2	3 07:59
QC1205327460 LCSD Total Suspended Solids	500			504	mg/L	0.597	101	(0%-5%)		02/22/2	3 07:59
QC1205327458 MB Total Suspended Solids			U	ND	mg/L					02/22/2	3 07:59
Spectrometric Analysis Batch 2390321											
QC1205331695 611601001 D COD	DUP	531		492	mg/L	7.74 ^		(+/-100)	НН2	02/27/2	3 14:44
QC1205331694 LCS COD	500			518	mg/L		104	(90%-110%)		02/27/2	3 14:44

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### **QC** Summary

Workorder: 611601 Page 10 of 11 **Parmname** NOM Sample Qual  $\mathbf{OC}$ Units RPD/D% REC% Range Anlst Date Time Spectrometric Analysis Batch 2390321 QC1205331693 18.1 mg/L HH2 02/27/23 14:44 COD OC1205331696 611601001 MS 500 531 COD 1140 mg/L 24.4\* (90%-110%) 02/27/23 14:44

#### **Notes:**

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- N Metals--The Matrix spike sample recovery is not within specified control limits
- H Analytical holding time was exceeded
- < Result is less than value reported
- > Result is greater than value reported
- h Preparation or preservation holding time was exceeded
- R Sample results are rejected
- Z Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
- d 5-day BOD--The 2:1 depletion requirement was not met for this sample
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
- N/A RPD or %Recovery limits do not apply.
- ND Analyte concentration is not detected above the detection limit
- E %difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- E General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- FB Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
- N1 See case narrative
- Y Other specific qualifiers were required to properly define the results. Consult case narrative.
- R Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
- B The target analyte was detected in the associated blank.
- e 5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes
- J See case narrative for an explanation

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### QC Summary

Page 11 of 11 Parmname NOM Sample Qual QC Units RPD/D% REC% Range Anlst Date Time

Workorder:

611601

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

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N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

<sup>^</sup> The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

<sup>\*</sup> Indicates that a Quality Control parameter was not within specifications.

# Technical Case Narrative Holtec Decommissioning International, LLC SDG #: 611601

#### **Metals**

**Product:** Determination of Metals by ICP-MS

**Analytical Method:** EPA 200.8

**Analytical Procedure:** GL-MA-E-014 REV# 35

**Analytical Batch:** 2387427

**Preparation Method:** EPA 200.2

**Preparation Procedure:** GL-MA-E-016 REV# 18

**Preparation Batch:** 2387426

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
611601001	Intake
1205327139	Method Blank (MB) <b>ICP-MS</b>
1205327140	Laboratory Control Sample (LCS)
1205327143	611601001(Intake L) Serial Dilution (SD)
1205327141	611601001(Intake D) Sample Duplicate (DUP)
1205327142	611601001(Intake S) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Calibration Information**

#### **ICSA/ICSAB Statement**

For the ICP-MS analysis, the ICSA solution contains analyte concentrations which are verified trace impurities indigenous to the purchased standard.

#### **Quality Control (QC) Information**

#### Matrix Spike (MS/MSD) Recovery Statement

The percent recoveries (%R) obtained from the MS/MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS/MSD (See Below) did not meet the recommended quality control acceptance criteria for percent recoveries for the following applicable analyte.

Sample	Analyte	Value
1205327142 (Intake MS)	Zinc	0* (75%-125%)

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#### **Technical Information**

#### **Sample Dilutions**

Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range. Sample 611601001 (Intake) was diluted to ensure that the analyte concentration was within the linear calibration range of the instrument. Per the SOP, sample 611601001 (Intake) was diluted due to internal standard recoveries outside the acceptable control limits.

A 1 . 4 .	611601		
Analyte	001		
Antimony	5X		
Arsenic	20X		
Beryllium	5X		
Boron	50X		
Cadmium	5X		
Chromium	5X		
Copper	5X		
Lead	5X		
Nickel	5X		
Selenium	20X		
Silver	5X		
Thallium	5X		
Zinc	20X		

**Product:** Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer

**Analytical Method:** EPA 245.1/245.2

**Analytical Procedure:** GL-MA-E-010 REV# 39

**Analytical Batch:** 2401391

<u>Preparation Method:</u> EPA 245.1/245.2 Prep <u>Preparation Procedure:</u> GL-MA-E-010 REV# 39

**Preparation Batch:** 2401389

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
611601001	Intake
1205351466	Method Blank (MB)CVAA
1205351467	Laboratory Control Sample (LCS)
1205351470	611601001(Intake L) Serial Dilution (SD)
1205351468	611601001(Intake D) Sample Duplicate (DUP)
1205351469	611601001(Intake S) Matrix Spike (MS)
1205351471	611601001(Intake PS) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Quality Control (QC) Information**

#### Matrix Spike (MS/MSD) Recovery Statement

The percent recoveries (%R) obtained from the MS/MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS/MSD (See Below) did not meet the recommended quality control acceptance criteria for percent recoveries for the following applicable analyte. The post spike also did not meet the required control limits; thus, confirming matrix interferences and/or sample non-homogeneity.

Sample	Analyte	Value
1205351469 (Intake MS)	Mercury	71.1* (75%-125%)

#### Post Spike (PS) Recovery Statement

The percent recoveries (%R) obtained from the PS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The PS did not meet the recommended quality control acceptance criteria for percent recoveries for all applicable analytes and verifies the presence of matrix interferences.

Sample	Analyte	Value
1205351471 (Intake PS)	Mercury	72.8* (80%-120%)

#### **Technical Information**

#### **Holding Time Specifications**

GEL assigns holding times based on the associated methodology. Holding time is measured by comparison of the date and time of sample collection to the date and time of sample preparation and analysis. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. Samples (See Below) did not meet the specified holding time requirements. Samples were logged in beyond the required holding time.

Sample	Analyte	Value
1205351468 (Intake DUP)		Received 21-FEB-23, within holding, analyzed 22-MAR-23, out of holding 20-MAR-23
		Received 21-FEB-23, within holding, prepped 21-MAR-23, out of holding 20-MAR-23
1205351469 (Intake MS)		Received 21-FEB-23, within holding, analyzed 22-MAR-23, out of holding 20-MAR-23
		Received 21-FEB-23, within holding, prepped 21-MAR-23, out of holding 20-MAR-23
1205351470 (Intake SDILT)		Received 21-FEB-23, within holding, analyzed 22-MAR-23, out of holding 20-MAR-23
		Received 21-FEB-23, within holding, prepped 21-MAR-23, out of holding 20-MAR-23

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1205351471 (Intake PS)	Received 21-FEB-23, within holding, analyzed 22-MAR-23, out of holding 20-MAR-23
611601001 (Intake )	Received 21-FEB-23, within holding, analyzed 22-MAR-23, out of holding 20-MAR-23
	Received 21-FEB-23, within holding, prepped 21-MAR-23, out of holding 20-MAR-23

### **General Chemistry**

**Product: Carbon, Total Organic Analytical Method:** SM 5310 B

Analytical Procedure: GL-GC-E-093 REV# 21

**Analytical Batch:** 2387728

The following samples were analyzed using the above methods and analytical procedure(s).

611282002(NonSDG) Post Spike (PS)

GEL Sample ID#	Client Sample Identification
611601001	Intake
1205327604	Method Blank (MB)
1205327605	Laboratory Control Sample (LCS)
1205327606	611282002(NonSDG) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

1205327608

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Quality Control (QC) Information**

#### Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity.

Analyte	Sample	Value
Total Organic Carbon Average	1205327608 (Non SDG 611282002PS)	54.5* (65%-120%)

#### **Technical Information**

#### Sample Re-analysis

Samples 1205327606 (Non SDG 611282002DUP) and 1205327608 (Non SDG 611282002PS) were reanalyzed due to PS failure. The reanalysis data was reported. The following sample with QC's was re-analyzed to verify matrix interference caused Post Spike failure, however one of the check standards failed on the reanalysis and the spike recovery also failed, therefore the first run results are being reported. 1205327606 (Non SDG

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**Product:** Total Phenols

**Analytical Method:** EPA 420.4

Analytical Procedure: GL-GC-E-102 REV# 10 Analytical Batches: 2384315 and 2384314

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
611601001	Intake
1205321758	Method Blank (MB)
1205321759	Laboratory Control Sample (LCS)
1205321760	610757003(NonSDG) Matrix Spike (MS)
1205321761	610757003(NonSDG) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Technical Information**

#### Sample Re-analysis

Sample 1205321759 (LCS) was re-analyzed to verify the result.

**Product:** Cyanide, Total **Analytical Method:** EPA 335.4

**Analytical Procedure:** GL-GC-E-095 REV# 23

**Analytical Batch:** 2390753

**Preparation Method:** EPA 335.4

Preparation Procedure: GL-GC-E-067 REV# 24

**Preparation Batch:** 2390752

The following samples were analyzed using the above methods and analytical procedure(s).

<b>GEL Sample ID#</b>	Client Sample Identification
611601001	Intake
1205332473	Method Blank (MB)
1205332474	Laboratory Control Sample (LCS)
1205332475	612160012(NonSDG) Sample Duplicate (DUP)
1205332476	612160012(NonSDG) Matrix Spike (MS)
1205332477	612160012(NonSDG) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Technical Information**

#### Sample Re-analysis

Sample 1205332473 (MB) was re-analyzed due to instrument failure. The results from the reanalysis are reported.

#### **Miscellaneous Information**

#### **Additional Comments**

Sample was missed during the scanning process. The sample was in the analyst's custody at the time of analysis: 611601001 (Intake ).

**Product: Ion Chromatography Analytical Method:** SW846 9056

Analytical Procedure: GL-GC-E-086 REV# 30

**Analytical Batch:** 2387570

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
611601001	Intake
1205327351	Method Blank (MB)
1205327352	Laboratory Control Sample (LCS)
1205327353	610979003(NonSDG) Sample Duplicate (DUP)
1205327354	610979003(NonSDG) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Technical Information**

#### **Sample Dilutions**

The following samples 1205327353 (Non SDG 610979003DUP), 1205327354 (Non SDG 610979003PS) and 611601001 (Intake ) were diluted because target analyte concentrations exceeded the calibration range. Samples 1205327353 (Non SDG 610979003DUP), 1205327354 (Non SDG 610979003PS) and 611601001 (Intake ) were diluted to minimize matrix effects on instrument performance. Samples 1205327353 (Non SDG 610979003DUP), 1205327354 (Non SDG 610979003PS) and 611601001 (Intake ) were diluted based on historical data. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	611601	
	001	

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Bromide	200X
Chloride	4000X
Fluoride	50X
Sulfate	200X

#### **Miscellaneous Information**

#### **Manual Integrations**

Samples 1205327353 (Non SDG 610979003DUP) and 1205327354 (Non SDG 610979003PS) were manually integrated to correctly position the baseline as set in the calibration standards.

<u>Product:</u> Ammonia Nitrogen <u>Analytical Method:</u> EPA 350.1

**Analytical Procedure:** GL-GC-E-106 REV# 10

**Analytical Batch:** 2390589

**Preparation Method:** EPA 350.1 Prep

**Preparation Procedure:** GL-GC-E-072 REV# 18

**Preparation Batch:** 2390587

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
611601001	Intake
1205332245	Method Blank (MB)
1205332246	Laboratory Control Sample (LCS)
1205332249	611005022(NonSDG) Sample Duplicate (DUP)
1205332250	611005022(NonSDG) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Quality Control (QC) Information**

#### **Duplicate Relative Percent Difference (RPD) Statement**

The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample:

Analyte	Sample	Value
Nitrogen, Ammonia	1205332249 (Non SDG 611005022DUP)	abs(.1280549)* (+/05 mg/L)

#### **Technical Information**

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#### Sample Re-analysis

Samples 1205332245 (MB) and 1205332246 (LCS) were re-analyzed due to instrument failure. The results from the reanalysis are reported. Samples 1205332245 (MB), 1205332246 (LCS), 1205332249 (Non SDG 611005022DUP) and 1205332250 (Non SDG 611005022MS) were re-analyzed due to CCV failure. The reanalysis data with passing instrument QC was reported.

<u>Product:</u> n-Hexane Extractable Material <u>Analytical Method:</u> EPA 1664A/1664B <u>Analytical Procedure:</u> GL-GC-E-094 REV# 18

**Analytical Batch:** 2391763

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
611601001	Intake
1205334077	Method Blank (MB)
1205334078	Laboratory Control Sample (LCS)
1205334079	Laboratory Control Sample Duplicate (LCSD)
1205334080	610507001(NonSDG) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Quality Control (QC) Information**

#### Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity.

Analyte	Sample	Value
Oil and Grease	1205334080 (Non SDG 610507001MS)	76* (78%-114%)

As specified in EPA Method 1664A/1664B, this data is considered rejected if it is being used for Regulatory Reporting. Please contact your PM to establish a recollection, if required. 1205334080 (Non SDG 610507001MS).

#### **Technical Information**

#### Sample Re-analysis

Sample was reanalyzed due to MS failure. The reanalysis data was reported. 1205334080 (Non SDG 610507001MS).

#### **Miscellaneous Information**

#### **Additional Comments**

Sample had some sediment in the bottom of the container, therefore two speedisks had to be used in order to

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filter the whole amount. 1205334080 (Non SDG 610507001MS).

**Product: Solids, Total Suspended Analytical Method:** SM 2540D

**Analytical Procedure:** GL-GC-E-012 REV# 18

**Analytical Batch:** 2387645

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
611601001	Intake
1205327458	Method Blank (MB)
1205327459	Laboratory Control Sample (LCS)
1205327460	Laboratory Control Sample Duplicate (LCSD)
1205327461	611553001(NonSDG) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Miscellaneous Information**

#### **Additional Comments**

A reduced aliquot was used due to limited volume. The client did not provide an entire 1 liter aliquot. 1205327461 (Non SDG 611553001DUP).

**Product:** COD

**Analytical Method:** EPA 410.4

**Analytical Procedure:** GL-GC-E-061 REV# 21

**Analytical Batch:** 2390321

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
611601001	Intake
1205331693	Method Blank (MB)
1205331694	Laboratory Control Sample (LCS)
1205331695	611601001(Intake ) Sample Duplicate (DUP)
1205331696	611601001(Intake ) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

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#### **Quality Control (QC) Information**

#### Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity.

Analyte	Sample	Value
COD	1205331696 (Intake MS)	24.4* (90%-110%)

#### **Technical Information**

#### **Sample Dilutions**

The following samples 1205331695 (Intake DUP), 1205331696 (Intake MS) and 611601001 (Intake) in this sample group were diluted due to matrix interference. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

A a la a	611601
Analyte	001
COD	5X

#### **Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

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O		(Fill in the number of containers for each test)	H < Preservative Type (6)			Oil and o specific QC	×			14.5°		Specify:		2 [ ] Level 3 [ ] Level 4		Cooler Temp: °C	[ ] Mountain [ ] Other:	, and		Please provide any additional details below regarding handling and/or disposal concerns. (i.e.: Origin of sample(s), type of site collected from, odd matrices, etc.)
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LLC obioassa	r: Kati		I this	le be ered:		(7) Known or possible Haza							Fax Results: [ 1 Yes	Select Deliverable: [	Additional Remarks.	For Lab Receiving Use Only: Custody Seal Intact?	ollectio	=Sludge,	um Thio	Other OT= Other / Unknown (i.e.: High/low pH, asbestos, beryllium, irritants, other misc. health hazards, etc.) Description:
DOPATORIES LLC strong readionness strong and Analytical Re	GEL Project Manager: Katherine Cates		Should this	sample be considered:	ylqq	yes, please sur isotopic info.)	Z							2		, and a	Sample Collection Time Zone: [X] Eastern Spike Duplicate Sample, G = Grab, C = Composite	ment, SL 5010B/74	T = Sodi	
ttOr chemistr	Ject M				11)	Sample Matrix (4)	W		+					Ä			San atrix Spik	SD=Sedii 0B - 3, 6	lexane, S	
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Chain of Custody and Analytical Request	5	8184			Ę.	Field Filtered (3)	z						Time	331.		(Control of the	ample, M	Liquid, S I for each	rbic Acid	
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		Phone # (508)830-8184	Fax#		n@CDI-de	*Time Collected (Military)	8:00						_	A A	1	SACOBORON CALL	SRR.)  MS = Matrix  - for sample w	W=Water, M	furic Acid, AA	Listed Waste LW= Listed Waste (F. K.P and U-listed Waste code(s):
	GEL Work Order Number:	DI)			Send Results To: 1.hageman@CDI-decom.com	*Date Collected (mm-dd-yy)	2/20/2023					dy Signatures	Received by (signed		2	3	& Review form (  B = Equipment Blank as field filtered or - N	r, WW=Waste Water, B/7470A) and numbe	Hydroxide, SA = Sul	Characteristic Hazards FL = Flammable/Ignitable CO = Corrosive RE = Reactive TSCA Regulated PCB = Polychlorinated biphenyls
	GEL WOTA	g International (C	i	02360	Send Resul	date/time						Chain of Custody Signatures	Time	02//		CAN COMPANY OF THE PARK OF THE	re Sample Receipt  = Field Duplicate, E.  - for yes the sample w	ter, SW=Surface Wate sted (i.e. 8260B, 6010)	ric Acid, SH = Sodium	Characteristic Hazards FL = Flammable/Ignitabl CO = Corrosive RE = Reactive TSCA Regulated PCB = Polychlorinated biphenyls
Paged Proget # GELOuote #: COCNumber (0)	PO Kumber: EPA-SUB	Clicochame: Comprehensive Decommissioning International (CDI)	Project/Site Name: Pilgrim Station	Addess: 600 Rocky Hill Road, Plymouth, Ma 02360	Coloreted By: Site Chemistry	Sample ID * For composites - indicate start and stop date time	Intake						Relinquipped By Signed) / Date T	1 May 2/20/2)	2	3 /	> For sample shipping and delivery details, see Sample Receipt & Review form (SRR.)  1.) Chain of Custody Number = Client Determined  2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite 3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered.	4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, ML=Misc Liquid, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal S). Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B/7470A - 1).	6.) Preservative Type. HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank	7) KNOWN OR POSSIBLE HAZARDS  RCRA Metals As = Arsenic Hg= Mercury Ba = Barium Se= Selenium Cd = Cadmium Ag= Silver Cr = Chromium MR= Misc. RCRA metals Pb = Lead

611601

	GEL Laboratories LLC				SAMPLE RECEIPT & REVIEW FORM					
Cli	ent:			SD	C/AR/COC/Work Order:					
Re	ceived By: MVH									
	Carrier and Tracking Number			-	Fodex Express Fedex Ground UPS Field Services Courier Other  1350256632-5:  1350255178-6571350256614.					
Sus	pected Hazard Information	Yes	ž	*If	Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.					
A)S	hipped as a DOT Hazardous?		v	Maz	zard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes No					
	Did the client designate the samples are to be sived as radioactive?	:	v	СО	C notation or radioactive stickers on containers equal client designation:					
	Did the RSO classify the samples as oactive?		<b>V</b>	Ma	ximum Net Counts Observed* (Observed Counts - Area Background Counts): CPM/pR/Hr Classified as: Rad 1 Rad 2 Rad 3					
	Did the client designate samples are hazardous?		<b>Y</b>	2	C notation or hazard labels on containers equal client designation.  O or E is yes, select Hazards below.  PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:					
13) 1	Did the RSO identify possible hazards?	1 35		<u></u>						
1	Sample Receipt Criteria Shipping containers received intact and scaled?	Yes	NA	ĝ	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)					
2	Chain of custody documents included with shipment?	<b>V</b>			Circle Applicable: Client contacted and provided COC COC created upon receipt					
3	Samples requiring cold preservation within $(0 \le 6 \text{ deg. C})$ ?*	V	7		Preservation Method Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Colsius TEMP:					
4	Daily check performed and passed on IR temperature gun?	V			Temperature Device Serial #: IR2-21 Secondary Temperature Device Serial # (If Applicable):					
5	Sample containers intact and sealed?	٧			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)					
6	Samples requiring chemical preservation at proper pH?			V	Sample ID's and Containers Affected: The Taylor Containers Aff					
7	Do any samples require Volatile Analysis?			~	If Yes, are Encores or Soil Kits present for solids? YesNoNA(If yes, take to VOA Freezer)  Do liquid VOA vials contain acid preservation? YesNoNA (If unknown, select No)  Are liquid VOA vials free of headspace? YesNoNA Sample ID's and containers affected:					
8	Samples received within holding time?	V			ID's and tests affected:					
9	Sample ID's on COC match ID's on bottles?	~			ID's and containers affected;					
10	Date & time on COC match date & time on bottles?	<b>✓</b>	_		Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)					
11	Number of containers received match number indicated on COC? Are sample containers identifiable as	7			Circle Applicable: No container count on COC Other (describe)					
12	GBL provided by use of GEL labels? COC form is properly signed in relinquished/received sections?	Y			Circle Applicable: Not relinquished Other (describe)					
Con	ments (Use Continuation Form if needed):			•	als					

List of current GEL Certifications as of 22 March 2023

State	Certification				
Alabama	42200				
Alaska	17-018				
Alaska Drinking Water	SC00012				
Arkansas	88-0651				
CLIA	42D0904046				
California	2940				
Colorado	SC00012				
Connecticut	PH-0169				
DoD ELAP/ ISO17025 A2LA	2567.01				
Florida NELAP	E87156				
Foreign Soils Permit	P330-15-00283, P330-15-00253				
Georgia	SC00012				
Georgia SDWA	967				
Hawaii	SC00012				
Idaho	SC00012 SC00012				
Illinois NELAP	200029				
Indiana	C-SC-01				
Kansas NELAP	E-10332				
Kentucky SDWA	90129				
Kentucky Wastewater	90129				
Louisiana Drinking Water	LA024				
Louisiana NELAP	03046 (AI33904)				
Maine	2019020				
· · ·	270				
Maryland					
Massachusetts	M-SC012				
Massachusetts PFAS Approv	Letter				
Michigan	9976				
Mississippi	SC00012				
Nebraska	NE-OS-26-13				
Nevada	SC000122023-4				
New Hampshire NELAP	2054				
New Jersey NELAP	SC002				
New Mexico	SC00012				
New York NELAP	11501				
North Carolina	233				
North Carolina SDWA	45709				
North Dakota	R-158				
Oklahoma	2022-160				
Pennsylvania NELAP	68-00485				
Puerto Rico	SC00012				
S. Carolina Radiochem	10120002				
Sanitation Districts of L	9255651				
South Carolina Chemistry	10120001				
Tennessee	TN 02934				
Texas NELAP	T104704235-22-20				
Utah NELAP	SC000122022-37				
Vermont	VT87156				
Virginia NELAP	460202				
Washington	C780				



a member of The GEL Group INC







PO Box 30712 Charleston, SC 29417 2040 Savage Road Charleston, SC 29407 P 843.556.8171 F 843.766.1178

gel.com

March 30, 2023

Laura Hageman HDI, Inc. 1 Holtec Blvd. Camden, New Jersey 08104

Re: Pilgrim NPDES Permit Modification

Work Order: 615639

Dear Laura Hageman:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on March 24, 2023. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4504.

Sincerely,

Erin Trent

Project Manager

grie & Trent

Purchase Order: 98000918

Enclosures



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## Certificate of Analysis Report for

CDEC001 Holtec Decommissioning International, LLC Client SDG: 615639 GEL Work Order: 615639

#### The Qualifiers in this report are defined as follows:

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Erin Trent.

	Exil &	Trent
Reviewed by		

Page 2 of 15 SDG: 615639

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### **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Report Date: March 30, 2023

CDEC00107

CDEC001

Project:

Client ID:

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

Client Sample ID: Intake Sample ID: 615639001 Matrix: Water

Collect Date: 23-MAR-23 12:35 Receive Date: 24-MAR-23

Collector: Client

Parameter	Qualifier	Result	DL	RL	Units PF	DF Analyst Date	Time Batch Mtd.
Semi-Volatile-GC/MS							
EPA 625.1 SVOA, Liquid "A	As Received"						
2,4,6-Trichlorophenol 88-06-2	U	ND	2.78	9.26	ug/L 0.000926	1 EG2 03/29/	23 2205 24050601
2,4-Dichlorophenol 120-83-2	U	ND	2.78	9.26	ug/L0.000926	1	
2,4-Dimethylphenol	U	ND	2.78	9.26	ug/L 0.000926	1	
2,4-Dinitrophenol 51-28-5	U	ND	4.63	18.5	ug/L 0.000926	1	
2-Chlorophenol 95-57-8	U	ND	2.78	9.26	ug/L 0.000926	1	
2-Methyl-4,6-dinitrophenol 534-52-1	U	ND	2.78	9.26	ug/L 0.000926	1	
2-Nitrophenol 88-75-5	U	ND	2.78	9.26	ug/L 0.000926	1	
4-Chloro-3-methylphenol 59-50-7	U	ND	2.78	9.26	ug/L 0.000926	1	
4-Nitrophenol 100-02-7	U	ND	2.78	9.26	ug/L 0.000926	1	
Pentachlorophenol 87-86-5	U	ND	2.78	9.26	ug/L 0.000926	1	
Phenol 108-95-2	U	ND	2.78	9.26	ug/L 0.000926	1	

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 625.1	BNA Liq. Prep-EPA 625 Analysis	DG3	03/29/23	1143	2405059

The following Analytical Methods were performed:

MethodDescriptionAnalyst Comments1EPA 625.1

Recovery% **Acceptable Limits** Test Surrogate/Tracer recovery Nominal Result Nitrobenzene-d5 EPA 625.1 SVOA, Liquid "As Received" 36.1 ug/L 46.3 78 (39%-112%) 2-Fluorobiphenyl EPA 625.1 SVOA, Liquid "As Received" 39.0 ug/L 46.3 84 (39%-112%)

Page 3 of 15 SDG: 615639

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### **Certificate of Analysis**

Report Date: March 30, 2023

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

	Client Sample ID: Sample ID:	Intake 615639001			Project: Client ID:	CDEC00107 CDEC001	
Parameter	Qualifier Result	DL	RL	Units	PF	DF Analyst Da	te Time Batch Mtd.
p-Terphenyl-d14	EPA 625.1 SVOA	, Liquid "As Received"	26.	1 ug/L	46.3	56	(24%-129%)
2,4,6-Tribromophenol	EPA 625.1 SVOA	, Liquid "As Received"	75.	9 ug/L	92.6	82	(37%-132%)
Phenol-d5	EPA 625.1 SVOA	, Liquid "As Received"	40.	3 ug/L	92.6	44	(15%-85%)
2-Fluorophenol	EPA 625.1 SVOA	, Liquid "As Received"	45.	1 ug/L	92.6	49	(11%-79%)

Page 4 of 15 SDG: 615639

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### **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Report Date: March 30, 2023

CDEC00107

CDEC001

Project: Client ID:

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

Client Sample ID: TWT A
Sample ID: 615639002
Matrix: Water

Collect Date: 23-MAR-23 14:00 Receive Date: 24-MAR-23

Collector: Client

Parameter Qualifier Result DL RL Units PF DF Analyst Date Time Batch Mtd.

Flow Injection Analysis

EPA 420.4 Total Phenols "As Received"

Total Phenol U ND 1.67 5.00 ug/L 1.00 1 AXH3 03/28/23 0737 24039561

The following Prep Methods were performed:

MethodDescriptionAnalystDateTimePrep BatchEPA 420.4EPA 420.4 Phenols, Total in liquid PREPES203/27/2313402403955

The following Analytical Methods were performed:

Method Description Analyst Comments

1 EPA 420.4

**GEL LABORATORIES LLC** 2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

### QC Summary

Report Date: March 30, 2023

Page 1 of 5

HDI, Inc. 1 Holtec Blvd. Camden, New Jersey

**Contact:** 

Laura Hageman

Workorder:

615639

Parmname	NOM	Sample Qual	QC	Units RPD	/D% REC%	Range Anlst	Date Time
Flow Injection Analysis Batch 2403956 ———							
QC1205356496 LCS Total Phenol	50.0		48.0	ug/L	96	(90%-110%) AXH3	03/28/23 07:36
QC1205356495 MB Total Phenol		U	ND	ug/L			03/28/23 07:35
QC1205356497 615639002 MS Total Phenol	50.0 U	ND	46.2	ug/L	92.3	(90%-110%)	03/28/23 07:38
QC1205356498 615639002 MSD Total Phenol	50.0 U	ND	63.8	ug/L 3	32.1* 128*	(0%-20%)	03/28/23 07:39
Semi-Volatile-GC/MS Batch 2405060 ———							
QC1205358686 LCS 2,4,6-Trichlorophenol	50.0		40.3	ug/L	81	(50%-127%) EG2	03/29/23 21:05
2,4-Dichlorophenol	50.0		35.5	ug/L	71	(50%-119%)	
2,4-Dimethylphenol	50.0		28.9	ug/L	58	(46%-99%)	
2,4-Dinitrophenol	50.0		36.6	ug/L	73	(28%-151%)	
2-Chlorophenol	50.0		31.5	ug/L	63	(46%-107%)	
2-Methyl-4,6-dinitrophenol	50.0		44.4	ug/L	89	(42%-149%)	
2-Nitrophenol	50.0		38.3	ug/L	77	(50%-115%)	
4-Chloro-3-methylphenol	50.0		35.9	ug/L	72	(50%-118%)	

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### **QC** Summary

Workorder: 615639 Page 2 of 5 **Parmname NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Semi-Volatile-GC/MS 2405060 Batch 4-Nitrophenol 50.0 18.1 ug/L 36 (21%-110%) EG2 03/29/23 21:05 Pentachlorophenol 50.0 37.8 (42%-132%) ug/L 76 35 Phenol 50.0 17.3 ug/L (12%-90%) 78.1 \*\*2,4,6-Tribromophenol 100 ug/L 78 (37%-132%) \*\*2-Fluorobiphenyl 50.0 44.1 ug/L 88 (39%-112%) 100 39.3 \*\*2-Fluorophenol ug/L 39 (11%-79%) \*\*Nitrobenzene-d5 50.0 40.9 ug/L 82 (39%-112%) \*\*Phenol-d5 100 29.8 30 ug/L (15%-85%) 32.8 \*\*p-Terphenyl-d14 50.0 ug/L 66 (24%-129%) QC1205358687 LCSD 50.0 48.2 18 96 (0%-28%)03/29/23 21:35 2,4,6-Trichlorophenol ug/L 43.5 2,4-Dichlorophenol 50.0 ug/L 20 87 (0%-30%)33.3 2,4-Dimethylphenol 50.0 ug/L (0%-30%)14 67 2,4-Dinitrophenol 50.0 44.3 19 89 (0%-30%)ug/L 50.0 40.1 80 2-Chlorophenol ug/L 24 (0%-30%)2-Methyl-4,6-dinitrophenol 50.0 49.4 ug/L 11 99 (0%-30%)

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### QC Summary

615639 Page 3 of 5 **Parmname NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Semi-Volatile-GC/MS 2405060 Batch 2-Nitrophenol 50.0 43.2 ug/L 12 86 (0%-30%)EG2 03/29/23 21:35 4-Chloro-3-methylphenol 50.0 44.9 ug/L 22 90 (0%-30%)4-Nitrophenol 50.0 20.4 ug/L 12 41 (0%-30%)9 (0%-33%)Pentachlorophenol 50.0 41.6 ug/L 83 Phenol 50.0 19.3 ug/L 11 39 (0%-30%)100 88.0 \*\*2,4,6-Tribromophenol ug/L 88 (37%-132%) 50.0 \*\*2-Fluorobiphenyl 46.1 ug/L 92 (39%-112%) 100 47.4 47 (11%-79%) \*\*2-Fluorophenol ug/L 50.0 41.5 \*\*Nitrobenzene-d5 ug/L 83 (39%-112%) \*\*Phenol-d5 100 34.9 ug/L 35 (15%-85%) \*\*p-Terphenyl-d14 50.0 42.4 (24%-129%) ug/L 85 MB QC1205358685 U ND 03/29/23 20:35 2,4,6-Trichlorophenol ug/L 2,4-Dichlorophenol U ND ug/L U ND ug/L 2,4-Dimethylphenol 2,4-Dinitrophenol U ND ug/L

Workorder:

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### **QC** Summary

Workorder: 615639 Page 4 of 5 **Parmname NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Semi-Volatile-GC/MS 2405060 Batch 2-Chlorophenol U ND ug/L EG2 03/29/23 20:35 2-Methyl-4,6-dinitrophenol U ND ug/L 2-Nitrophenol U ND ug/L U ND 4-Chloro-3-methylphenol ug/L 4-Nitrophenol U ND ug/L U ug/L ND Pentachlorophenol U ND Phenol ug/L \*\*2,4,6-Tribromophenol 100 79.7 ug/L (37%-132%) 80 42.9 \*\*2-Fluorobiphenyl 50.0 ug/L 86 (39%-112%) 100 47.3 \*\*2-Fluorophenol ug/L 47 (11%-79%)\*\*Nitrobenzene-d5 50.0 39.4 79 (39%-112%) ug/L \*\*Phenol-d5 100 32.2 ug/L 32 (15%-85%) 37.0 \*\*p-Terphenyl-d14 50.0 ug/L 74 (24% - 129%)

#### **Notes:**

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, the difference is >70%.

Page 9 of 15 SDG: 615639

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### **QC** Summary

Page 5 of 5 **Parmname** NOM Sample Qual  $\mathbf{OC}$ Units RPD/D% REC% Range Anlst Date Time C Analyte has been confirmed by GC/MS analysis В The target analyte was detected in the associated blank. Е Concentration of the target analyte exceeds the instrument calibration range

- Α The TIC is a suspected aldol-condensation product
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Ν Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
- Η Analytical holding time was exceeded
- \*\* Analyte is a surrogate compound

615639

Workorder:

- Result is less than value reported
- Result is greater than value reported
- h Preparation or preservation holding time was exceeded
- R Sample results are rejected
- Z Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
- d 5-day BOD--The 2:1 depletion requirement was not met for this sample
- ٨ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
- D Results are reported from a diluted aliquot of the sample
- RPD or %Recovery limits do not apply.
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Ε General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
- JNX Non Calibrated Compound
- UJ Compound cannot be extracted
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- N1See case narrative
- Y QC Samples were not spiked with this compound
- R Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance
- Ν Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
- 5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes
- See case narrative for an explanation

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable. ^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

\* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Page 10 of 15 SDG: 615639

# Technical Case Narrative Holtec Decommissioning International, LLC SDG #: 615639

#### **GC/MS Semivolatile**

**Product:** Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

**Analytical Method:** EPA 625.1

**Analytical Procedure:** GL-OA-E-009 REV# 46

Analytical Batch: 2405060

**Preparation Method:** EPA 625.1

**Preparation Procedure:** GL-OA-E-013 REV# 35

**Preparation Batch:** 2405059

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID# Client Sample Identification

615639001 Intake

1205358685 Method Blank (MB)

1205358686 Laboratory Control Sample (LCS)

1205358687 Laboratory Control Sample Duplicate (LCSD)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Quality Control (QC) Information**

#### **Laboratory Control Sample Duplicate (LCSD)**

An LCSD was used in place of matrix QC due to limited sample volume.

#### **Miscellaneous Information**

#### **Additional Comments**

#### **Diphenylamine Statement**

Diphenylamine has superseded the reporting of N-Nitroso-diphenylamine. As per the EPA,

N-Nitroso-diphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine. Studies of these two compounds at GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine are therefore reported as Diphenylamine on all reports and forms.

### **General Chemistry**

**Product:** Total Phenols

**Analytical Method: EPA 420.4** 

Page 11 of 15 SDG: 615639

Analytical Procedure: GL-GC-E-102 REV# 10 Analytical Batches: 2403956 and 2403955

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
615639002	TWT A
1205356495	Method Blank (MB)
1205356496	Laboratory Control Sample (LCS)
1205356497	615639002(TWT A) Matrix Spike (MS)
1205356498	615639002(TWT A) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Quality Control (QC) Information**

#### Matrix Spike (MS)/Post Spike (PS) Recovery Statement

The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity.

Analyte	Sample	Value
Total Phenol	1205356498 (TWT AMSD)	128* (90%-110%)

#### MS/MSD Relative Percent Difference (RPD) Statement

The Relative Percent Difference (RPD) between the spike and spike duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample:

Sample	Analyte	Value
1205356497MS and 1205356498MSD (TWT A)	Total Phenol	32.1* (0%-20%)

#### **Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Page 12 of 15 SDG: 615639

Page of	C				10+0			10)	5	4	2	GEI	Labora	GEL Laboratories, LLC	CIC				
Project # GEPQuote #:	<b>)</b>	gel.com	Ghemis Chemis	itry   Radic	ochemistry	Charlety Haddochanstry Haddochansay Specialty Analytics	ssay I Speci	ialty Analy	dics (	)   	-	Cha	Charleston, SC 294	Charleston, SC 29407	7.				
COGNumber U.S. PO@Lumber: EPA-SUB GEL Work Order Number:	· Number:	Chain	Suo To	EL Pro	ject Ma	Chain of Custody and Analytical Request GEL Project Manager: Katherine Cates	therine (	Cates				Pho	ne: (843 (843) 7	Phone: (843) 556-8171 Fax: (843) 766-1178	17				
Client Name: Comprehensive Decommissioning International (CDI)	Ph	Phone # (508)830-8184	830-8184					Sampl	Sample Analysis Requested (5)	sis Req	uested		in the	number	(Fill in the number of containers for each test)	ners for	each tes	t)	
Project/Site Name: Pilgrim Station	Fa	Fax#				Should this			AS								Ÿ	< Preservative Type (6)	e (6)
Adorss: 600 Rocky Hill Road, Plymouth, Ma 02360						sample be considered:												(	
Courset By: Site Chemistry Send Results To: 1.hageman@CDI-decom.com	1.hageman@	CDI-decor	n.com		11)	) bbjà			OC								ž	Comments Note: extra sample is	le is
Sample ID *Pare C * Par composites - indicate start and stop date/time (mm-	*Date Collected (if (mm-dd-yy) (	*Time Collected (Military) (hhmm)	QC Filte	Field Sa Filtered (3) Ma	Sample Matrix (4)	yes, please sur isotopic info.) (7) Known or	possible Haza		2AS								21	required for sample specific QC	ple
	3/23/2023	12:35	Z	,	W	N	2		×										
TWT.A	3/23/2023	14:00	z	z	M	Y	-		×										
					$\dashv$				-			-							
									17			VA.		155					
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Chain of Custody Signatures	gnatures								TAT	TAT Requested:		Normal:		Rush:	X Sp	Specify:			
Relinquished by (Steped) Date Time Receiv	Received by (signed)	) Date		Time		Fax	Fax Results: [ ] Yes	[ ] Yes	oN [x]	0									
1 My 3/13/15 /1900:	14/2	- 31	241	23	92	4	Select Deliverable: [	able: [ ]	CofA	[ ] QC Summary	Summs	Н	] level 1	[ ] Level 2		[] Level 3	[ ] Level	el 4	
2 2						Add	Additional Remarks	marks:					- 13						
3   3	iew form (Sk	2R.)			Sai	Sample Collection Time Zone: [X] Eastern	For Lab Receiving Use Only: Custody Seal Intact? [ ] Yes ollection Time Zone: [X] Eastern [ ] Pacific [ ] Centr	e Zone:	[X] Eas	Custody em [	dy Seal Inta	tact? [ c [ ]	77	[ ] No [ ] M	] No Cooler Temp:	[] Othe	ي: ا		
1.) Chain of Custody Number = Client Determined 2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite	ment Blank, MS	= Matrix Spik	e Sample, P	ASD = Mat	trix Spike I	Suplicate Sam	ple, G = Gra	ıb, C = Cor	nposite										
<ol> <li>Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered.</li> <li>Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Water, WL=Misc Liquid, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal</li> <li>Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B/7470A - 1).</li> </ol>	'aste Water, W=\ and number of c	sample was no Vater, ML=M ontainers prov	isc Liquid,	sO=Soil, S h (i.e. <i>8260</i>	D=Sedime	nt, SL=Sludge 0B/7470A - 1)	, SS=Solid	Waste, O=	Oil, F=Filt	er, P=Wip	e, U=Urir	e, F=Feca	I, N=Nasa	_					
(6) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank	le, SA = Sulfuric	Acid, AA = A	scorbic Aci	d, HX = H	exane, ST:	= Sodium Thic	sulfate, If n	o preservat	ive is adde	i = leave f	ield blank								
7.) KNOWN OR POSSIBLE HAZARDS   Characteristic Hazards FL = Flammable/Ignitable RCRA Metals   CO = Corrosive	zards mitable	Listed Waste LW= Listed Waste (F,K,P and U-listed wastes.)	ed Waste	ł wastes.,		Other OT= C (i.e.: H	Other  OT= Other / Unknown (i.e.: Highlow pH, asbestos, beryllium, irritants, other	Jnknowr v pH, asi	n Sestos, be	nyllium,	, irritan	s, other		Please p handling sample(s	rovide any g and/or di s), type of s	site colle	nal detail oncerns. cted from	Please provide any additional details below regarding handling and/or disposal concerns. (i.e.: Origin of sample(s), type of site collected from, odd matrices, etc.)	r, C.)
Hg= Mercury Se= Selenium		Waste code(s):	le(s):			misc Desc	misc. health hazards, etc.) Description:	azards, e	etc.)										
Cr = Chromium AR= Misc. RCRA metals PCB = Polychlorinated Pb = Lead biphenyls	ated												1 1 1						

[리크] Laboratories LLC			SAN	APLE RECEIPT & REVIEW FORM
Client: CDEC		T <sub>S</sub>	DG/AR/C	COCAYork Ordey: (015 (059
1111		,	Date Rec	cived: 3/24/23 Circle Applicable:
Corrier and Tracking Number				FO FEDEX Express FedEx Ground UPS Field Services Courier Other  7716 4433 0270
Suspected Hazard Information	Ϋ́С	Š	*If Not Co	punts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A)Shipped as a DOT Hazardous?	/	, 	<u> </u>	tass Shipped:  UN#: 2910  If UN2910, Is the Radioactive Shipment Survey Compliant? Yes No
B) Did the client designate the samples are to be received as indioactive?	/		COC non	m Not Counts Observed® (Observed Counts - Area Background Counts):(CP) mR/Hr Cleselfied ast/Rad 1 DRad 2 Rad 3
C) Did the RSO classify the samples as tradicactive?	/			Chicarite
D) Did the client designate samples are hazardous	,	V	1f D or F	tation or hazard labels on containors equal client designation.  Its yes, select Hazards below.  CB's Plammable Foreign Soil RCRA Asbestos Beryllium Other:
E) Did the RSO identify possible hazards?	<u> </u>	T	2	Comments/Qualifiers (Required for Non-Conforming Items)
Sample Receipt Criteria Shipping containers received intact and			Cir	Comments Quantities (Companies Other (describe)  Clear (describe)  Comments Quantities (Companies Other (describe))
scaled? Chain of custody documents included	+		- I	rele Applicable: Client contacted and provided COC COC created upon receipt
with shipment?	$\dashv'$		Pr	reservation Method: Wet least the Packs Dry ice None Other: TEMP: 2°
3 Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	<u> </u>		T E	emperature Device Serial #:
Daily check performed and passed on I temperature gun?		_		condary 1 cmperature December Damaged container Leaking container (Other (describe)
5 Sample containers intact and sealed?	<u> </u>	_		iample (D's and Containers Affected;
Samples requiring chemical preservation proper pH?	on	4	1	f Preservation added, Lottl:  Preservation added, Lottl:  (If yes, take to VOA Freezer)
Do any samples require Volntile Analysis?				Do liquid VOA viuls contain actor preservation  Are liquid VOA viuls free of headspace? Yes No NA  Sumple ID's and containers affected:
8 Samples received within holding tinx	.,	/		D's und tests affected:
9 Sample 1D's on COC match 1D's on bottles?		/		1D's and containers affected:  Circle Applicable: No dutes on containers No times on containers COC missing info Other (describe)
Date & time on COC match date & to on bottles?	ime	/	1  _	Circle Applicable: No container count on COC Other (describe)
Number of containers received mate		/		Chickery
Are sample containers identifiable at GEL provided by use of GEL label	s 57			Circle Applicable: Not relinquished Other (describe)
relinquished/received sections?  Comments (Use Continuation Form if needs	d):	_Ľ_		
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\				2 DIALOS Page Lof

List of current GEL Certifications as of 30 March 2023

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kansas NELAI  Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2019020
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
	9976
Michigan	9976 SC00012
Mississippi Nebraska	NE-OS-26-13
Nevada	SC000122023-4
New Hampshire NELAP	2054
New Jersey NELAP New Mexico	SC002
	SC00012
New York NELAP  North Carolina	11501
North Carolina SDWA	233
	45709
North Dakota	R-158
Oklahoma  Danasakasais NELAR	2022-160
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-22-20
Utah NELAP	SC000122022-37
Vermont	VT87156
Virginia NELAP	460202
Washington	C780



a member of The GEL Group INC







PO Box 30712 Charleston, SC 29417 2040 Savage Road Charleston, SC 29407 P 843,556,8171

gel.com

F 843.766.1178

March 30, 2023

Laura Hageman HDI, Inc. 1 Holtec Blvd. Camden, New Jersey 08104

Re: Pilgrim NPDES Permit Modification

Work Order: 615647

Dear Laura Hageman:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on February 21, 2023. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

The sample was delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4504.

Sincerely,

Erin Trent

Project Manager

grie & Trent

Purchase Order: 98000918

Enclosures



2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

# Certificate of Analysis Report for

CDEC001 Holtec Decommissioning International, LLC Client SDG: 615647 GEL Work Order: 615647

#### The Qualifiers in this report are defined as follows:

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a Tracer compound
- \*\* Analyte is a surrogate compound
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- h Preparation or preservation holding time was exceeded

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Erin Trent.

Reviewed by

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

### **Certificate of Analysis**

Company: HDI, Inc. Address: 1 Holtec Blvd.

Camden, New Jersey 08104

Report Date: March 30, 2023

CDEC00107

CDEC001

Project:

Client ID:

Contact: Laura Hageman

Project: Pilgrim NPDES Permit Modification

Client Sample ID: Intake
Sample ID: 615647001
Matrix: Water

Collect Date: 20-FEB-23 08:00
Receive Date: 21-FEB-23
Collector: Client

	Concess.	CHEII	L						
Parameter	Qualifier	Result	DL	RL	Units PF	DF Analyst	Date	Time	Batch Mtd.
Semi-Volatiles-PCB									
EPA 608.3 PCB, Liqu	uid (SPE) "As Recei	ived"							
Aroclor-1016	hU	ND	0.0309	0.0928	ug/L 0.000928	1 YS1	03/29/2	23 1724	24050701
12674-11-2									
Aroclor-1221	hU	ND	0.0309	0.0928	ug/L 0.000928	1			
11104-28-2									
Aroclor-1232	hU	ND	0.0309	0.0928	ug/L 0.000928	1			
11141-16-5									
Aroclor-1242	hU	ND	0.0309	0.0928	ug/L 0.000928	1			
53469-21-9									
Aroclor-1248	hJ	0.0455	0.0309	0.0928	ug/L 0.000928	1			
12672-29-6									
Aroclor-1254	hU	ND	0.0309	0.0928	ug/L 0.000928	1			
11097-69-1									
Aroclor-1260	hU	ND	0.0309	0.0928	ug/L 0.000928	1			
11096-82-5									
Aroclor-Total	hJ	0.0455	0.0309	0.0928	ug/L 0.000928	1			
PCBTOT									

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch	
EPA 608.3	EPA 608.3 PCB Prep Liquid (SPE)	JM12	03/29/23	1000	2405069	

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	FPA 608 3	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Decachlorobiphenyl	EPA 608.3 PCB, Liquid (SPE) "As Received"	0.183 ug/L	0.186	99	(38%-133%)
4cmx	EPA 608.3 PCB, Liquid (SPE) "As Received"	0.107 ug/L	0.186	57	(33%-109%)

Page 3 of 11 SDG: 615647

**GEL LABORATORIES LLC** 2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: March 30, 2023

Page 1 of 3

HDI, Inc. 1 Holtec Blvd. Camden, New Jersey

**Contact:** Laura Hageman

Workorder: 615647

Parmname		NOM	Sample Qual	QC	Units	RPD/D%	REC%	Range A	nlst	Date Time
Semi-Volatiles-PCB Batch 24050	)70 -									
QC1205358695 Aroclor-1016	LCS	1.00		0.696	ug/L		70	(50%-101%)	YS1	03/29/23 17:13
Aroclor-1260		1.00		0.750	ug/L		75	(46%-108%)		
**4cmx		0.200		0.116	ug/L		58	(33%-109%)		
**Decachlorobiphenyl		0.200		0.172	ug/L		86	(38%-133%)		
QC1205358694 Aroclor-1016	MB		U	ND	ug/L					03/29/23 17:02
Aroclor-1221			U	ND	ug/L					
Aroclor-1232			U	ND	ug/L					
Aroclor-1242			U	ND	ug/L					
Aroclor-1248			U	ND	ug/L					
Aroclor-1254			U	ND	ug/L					
Aroclor-1260			U	ND	ug/L					
Aroclor-Total			U	ND	ug/L					
**4cmx		0.200		0.112	ug/L		56	(33%-109%)		

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### **QC** Summary

Workorder: 615647 Page 2 of 3 **Parmname NOM** Sample Qual QC Units RPD/D% REC% Range Anlst Date Time Semi-Volatiles-PCB 2405070 Batch \*\*Decachlorobiphenyl 0.200 0.156 ug/L 78 (38% - 133%)YS1 03/29/23 17:02 QC1205358696 615835001 MS ND 72 Aroclor-1016 1.00 U 0.720 ug/L (32%-112%)03/29/23 18:10 Aroclor-1260 U ND 0.823 (32%-126%) 1.00 ug/L 82 \*\*4cmx 0.200 0.119 0.123 62 ug/L (33%-109%)\*\*Decachlorobiphenyl 0.200 0.193 0.195 98 (38% - 133%)ug/L QC1205358697 615835001 MSD ug/L Aroclor-1016 1.00 U ND 0.696 3 70 (0%-27%)03/29/23 18:22 Aroclor-1260 1.00 U ND 0.782 ug/L 5 78 (0%-29%)\*\*4cmx 0.200 0.119 0.119 ug/L 59 (33%-109%) ug/L 0.193 \*\*Decachlorobiphenyl 0.200 0.184 92 (38% - 133%)

#### **Notes:**

The Qualifiers in this report are defined as follows:

- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- J Value is estimated
- P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, the difference is >70%.
- C Analyte has been confirmed by GC/MS analysis
- B The target analyte was detected in the associated blank.
- E Concentration of the target analyte exceeds the instrument calibration range
- A The TIC is a suspected aldol-condensation product
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- N Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor

Page 5 of 11 SDG: 615647

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

### **QC** Summary

Page 3 of 3 **Parmname NOM** Sample Qual  $\mathbf{OC}$ Units RPD/D% REC% Range Anlst Date Time Η Analytical holding time was exceeded Analyte is a surrogate compound Result is less than value reported Result is greater than value reported Preparation or preservation holding time was exceeded h R Sample results are rejected Λ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry. D Results are reported from a diluted aliquot of the sample

- N/A RPD or %Recovery limits do not apply.
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- JNX Non Calibrated Compound
- UJ Compound cannot be extracted

615647

- One or more quality control criteria have not been met. Refer to the applicable narrative or DER. Q
- N1 See case narrative

Workorder:

- QC Samples were not spiked with this compound Y
- N Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
- See case narrative for an explanation

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

\* Indicates that a Quality Control parameter was not within specifications.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Page 6 of 11 SDG: 615647

# GC Semivolatile PCB Technical Case Narrative Holtec Decommissioning International, LLC SDG #: 615647

**Product:** Analysis of The Analysis of Polychlorinated Biphenyls by GC/ECD by ECD

**Analytical Method:** EPA 608.3

**Analytical Procedure:** GL-OA-E-040 REV# 25

**Analytical Batch:** 2405070

**Preparation Method:** EPA 608.3

**Preparation Procedure:** GL-OA-E-070 REV# 11

**Preparation Batch:** 2405069

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
615647001	Intake
1205358694	Method Blank (MB)
1205358695	Laboratory Control Sample (LCS)
1205358696	615835001(NonSDG) Matrix Spike (MS)
1205358697	615835001(NonSDG) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

#### **Data Summary:**

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

#### **Technical Information**

#### **Holding Time Specifications**

Sample (See Below) was logged for PCB analysis after holding time expired. The data were reported with proper qualifier.

Sample	Analyte	Value
615647001 (Intake)		Logged 24-MAR-23, out of holding 27-FEB-23

#### Preparation/Analytical Method Verification

All reported analyte detections in client and quality control samples were within the established retention time windows. Reported analyte concentrations were confirmed on dissimilar columns.

#### **Miscellaneous Information**

#### **Additional Comments**

The column 1 has been chosen as the primary column. The data are reported from the column 1 for all samples in this batch.

Page 7 of 11 SDG: 615647

#### **Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Page 8 of 11 SDG: 615647

ss, LLC ad 9407 5-8171	(Fill in the number of containers for each test)	SA SA C Preservative Type (6)		Grease	Amm Phen required for sample specific QC	× ×			W.F.	Specify:		]Level 2 [ ]Level 3 [ ]Level 4	O Conter Tomn:	fountain [ ] Other:				sa a	Please provide any additional details below regarding handling and/or disposal concerns. (i.e.: Origin of sample(s), type of site collected from, odd matrices, etc.)	
GEL Laboratories, LLC 2040 Savage Road Charleston, SC 29407 Phone: (843) 556-8171 Eav. (843) 746,1178	Fill in the number	IN		suc O	OT binA nod	× ×				ial: X Rush:		[ ] level 1 [ ] I	17. 1 Vos [ 1 No	Central			ne, F=Fecal, N=Nasal	-24	ther	
109	3	VS	(	əbir	Met Cyan	×				ested: Normal:		J QC Summary	ody Seal Intag	[ ] Pacific			, P=Wipe, U=Uri	= leave field blan	um, irritants, e	
alytics (L 1 (	Sample Analysis Requested	VS		S	CO	×				TAT Requested:	oN [x ]	]C of A []	Isp Only: Cust	: [X] Eastern	= Composite		, O=Oil, F=Filter,	servative is added	n rbestos, berylli etc.)	
say I Specialty Angequest	Sample	S	E INST	. ot con	Total number	x 61					Fax Results: [ ] Yes	Select Deliverable: [	Additional Remarks: For Lab Receiving Use Only: Custody Seal Intact? [	ion Time Zone	nple, G = Grab, C		e, SS=Solid Waste	<ol> <li>I).</li> <li>iosulfate, If no pres</li> </ol>	Other OT = Other / Unknown f.e.: High/low pH, asbestos, beryllium, irritants, other misc. health hazards, etc.) Description:	
SOCATOTIES LLC istry   Radiochemistry   Radiobioassay   Speciatry Anstody and Analytical Request GEL Project Manager: Katherine Cates		Should this	sample be considered:	) Aldq	Radioactive yes, please sur isotopic info.) (7) Known or						Fax R	Select	Addit.	Sample Collection Time Zone: [X] Eastern	spike Duplicate Sar		ediment, SL=Sludg	3, 6010B/7470A - e, ST = Sodium Th	Other OT=C (i.e.: h misc. h Descrip	
Chain of Custody and Analytical Request  GET Project Manager: Katherine Cates	184				Field Sample Filtered (3) Matrix (4)	N W					Time	3000			ple, MSD = Matrix §	filtered.	quid, SO=Soil, SD=S	or each (i.e. <i>8260B</i> - c Acid, <b>HX</b> = Hexan	te ed wastes.)	
gel.com Che	Phone # (508)830-8184	#		DI-decom.con	*Time Collected QC (Military) Code (2)	N 00					Date	3		)	= Matrix Spike Sam	ample was not field	/ater, ML=Misc Lic	ntainers provided fo Acid, AA = Ascorbi	Listed Waste LW=Listed Waste (F,K,P and U-listed Waste code(s):	
GEL Work Order Number:		Fax #		Send Results To: 1.hageman@CDI-decom.com	*Date Collected Coll (Mil) (mm-dd-yy)	123				dy Signatures	Received by (signed)	P > 1		& Review form (SRR.	= Equipment Blank, MS	s field filtered or - N - for s	WW=Waste Water, W=W	//7470A) and number of co Hydroxide, SA = Sulfuric /	C Hazards L ble/Ignitable L c Hazards ve l de l d	
	ng International (CI		02360	Send Result	date/time					Chain of Custody Signatures	Time	1/80/	3 2	e Sample Receipt	D = Field Duplicate, EB	- for yes the sample wa	er, SW=Surface Water,	sted (i.e. <b>8260B, 6010B</b> ric Acid, <b>SH</b> = Sodium I	Characteristic Hazards FL = Flammable/Ignitable CO = Corrosive RE = Reactive TSCA Regulated PCB = Polychlorinated	4
Paged Proget # GELOuote #: COCNumber (D).	Clione Name: Comprehensive Decommissioning International (CDI)	Projec/Site Name: Pilgrim Station	Addess: 600 Rocky Hill Road, Plymouth, Ma 02360	Colrected By: Site Chemistry	259 Sample ID * For composites - indicate start and stop date time	Intake					Relinquisted By Signed) Date T	1 Jan 2 100/23	2 2 3	> For sample shipping and delivery details, see Sample Receipt & Review form (SRR.)	1.) Chain of Custody Number = Client Determined 2.) OC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite	3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered.	4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, ML=Misc Liquid, SO=Soil, SD=Sediment, SL=Sludge, SS=Soild Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal	5.) Sample Analysis Requested: Analytical method requested (i.e. 82608, 6010B/7470A) and number of containers provided for each (i.e. 82608 - 3, 6010B/7470A - 1).  (b.) Preservative Type: HA = Hydrochloric Acid, IN = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfaric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank	RCRA Metals  RA = Arsenic Hg= Mercury  Ba = Barium Se= Selenium  Cd = Cadmium Ag= Silver  Cr = Chromium MR= Misc. RCRA metals  Pb = Lead	

611601

	Laboratories LLC SAMPLE RECEIPT & REVIEW FORM						
Client:				SD	C/AR/COC/Work Order:		
Received By: MVH				Date Received: 0 . 01.			
Carrier and Tracking Number				-	Polex Express FedEx Ground UPS Field Services Courier Other  1350256632-5.  1350256178-677135025614		
Suspected Hazard Information			ž	*If	Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.		
A)Shipped as a DOT Hazardous?			v	Maz	zard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes No		
B) Did the client designate the samples are to be received as radioactive?		:	v	СО	C notation or radioactive stickers on containers equal client designation:		
C) Did the RSO classify the samples as radioactive?			<b>V</b>	Ma	ximum Net Counts Observed* (Observed Counts - Area Background Counts): CPM/pR/Hr Classified as: Rad 1 Rad 2 Rad 3		
	Did the client designate samples are hazardous?		<b>Y</b>	2	C notation or hazard labels on containers equal client designation.  O or E is yes, select Hazards below.  PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:		
13) 1	Did the RSO identify possible hazards?	1 35		<u></u>			
1	Sample Receipt Criteria Shipping containers received intact and scaled?	Yes	NA	ĝ	Circle Applicable: Seals broken Damaged container Leaking container Other (describe)		
2	Chain of custody documents included with shipment?	<b>V</b>			Circle Applicable: Client contacted and provided COC COC created upon receipt		
3	Samples requiring cold preservation within $(0 \le 6 \text{ deg. C})$ ?*	V	7		Preservation Method Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Colsius TEMP:		
4	Daily check performed and passed on IR temperature gun?	V			Temperature Device Serial #: IR2-21 Secondary Temperature Device Serial # (If Applicable):		
5	Sample containers intact and sealed?	٧			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)		
6	Samples requiring chemical preservation at proper pH?			V	Sample ID's and Containers Affected: The Taylor Containers Aff		
7	Do any samples require Volatile Analysis?			~	If Yes, are Encores or Soil Kits present for solids? YesNoNA(If yes, take to VOA Freezer)  Do liquid VOA vials contain acid preservation? YesNoNA (If unknown, select No)  Are liquid VOA vials free of headspace? YesNoNA Sample ID's and containers affected:		
8	Samples received within holding time?	V			ID's and tests affected:		
9	Sample ID's on COC match ID's on bottles?	~			ID's and containers affected;		
10	Date & time on COC match date & time on bottles?	<b>✓</b>	_		Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)		
11	Number of containers received match number indicated on COC? Are sample containers identifiable as	7			Circle Applicable: No container count on COC Other (describe)		
12	GBL provided by use of GEL labels? COC form is properly signed in relinquished/received sections?	Y			Circle Applicable: Not relinquished Other (describe)		
Con	ments (Use Continuation Form if needed):			•	als		

List of current GEL Certifications as of 30 March 2023

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012 SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kansas NELAT  Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	1
· · ·	2019020
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122023-4
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2022-160
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-22-20
Utah NELAP	SC000122022-37
Vermont	VT87156
Virginia NELAP	460202
Washington	C780