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July 2, 2020

Joshua Haugh

Project Manager

Division of Environmental Remediation

NYSDEC – Region 4 Headquarters

1130 North Westcott Road

Schenectady, NY 12306-2014

Subject: Richardson Hill Road Landfill

Annual PCB Report for Calendar Year 2019

NYSDEC Site No. 4-13-008

Wood Environment and Infrastructure Solutions, Inc., Project No. 3616196086

Dear Mr. Haugh:

On behalf of Amphenol Corporation and Honeywell International (Honeywell), Wood Environment and Infrastructure Solutions, Inc. (Wood E&IS) is submitting the Annual Polychlorinated Biphenyl (PCB) Monitoring Report for Calendar Year 2019 for the Groundwater Treatment Plant (GWTP) at the Richardson Hill Road Landfill (RHRL) Site, Sidney Center, Delaware County, New York (Figure 1 – Location Map).

In accordance with the May 23, 2017 New York State Department of Environmental Conservation (NYSDEC) letter for the RHRL GWTP Effluent Discharge Criteria, this letter report includes a summary of:

- A description of known PCB sources;
- PCB monitoring results for calendar year 2019;
- Actions undertaken pursuant to the strategy during calendar year 2019;
- Actions planned for calendar year 2020, and
- Progress towards the goal of achieving the calculated Water Quality Based Effluent Limit (WQBEL).

Included within this report are the following:

- Figure 1 – Location Map
- Figure 2 – RHRL GWTP Process Schematic

BACKGROUND

The RHRL GWTP is designed to treat groundwater recovered from the RHRL Site. The primary groundwater constituents of concern are volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and PCBs. The system is designed to remove oils (if present), total suspended solids (TSS), iron and dissolved metals, VOCs, SVOCs, and PCBs through a series of physical-chemical treatment processes, to meet the discharge criteria as outlined in the letter dated May 23, 2017 from the NYSDEC regarding the RHRL GWTP Effluent Discharge Criteria. The discharge criteria establishes the effluent limitations and monitoring frequency for each parameter. The discharge criteria are in effect from November 1, 2017 through October 31, 2022.

The RHRL GWTP meets these criteria by extracting groundwater from the recovery wells and the extraction trench sumps and pumping the groundwater to the treatment plant where it enters the Equalization Tank for flow balancing. From the Equalization Tank, the groundwater is pumped to an Oil Water Separator (OWS) where concentrated sulfuric acid (93 percent) is added to the first chamber to lower pH. Groundwater then flows to the second chamber for oil/water separation. After oil/ water separation in the second chamber occurs, groundwater flows to the third chamber where the pH is adjusted with the addition of caustic (50 percent sodium hydroxide).

From the OWS, groundwater flows to the Reaction Treatment Unit (RTU) consisting of a polyaluminum chloride (PAC) mix tank, a polymer flash mix tank, and a flocculation tank for solids separation. After the RTU, groundwater flows to the inclined plate clarifier (IPC-1) where the suspended particles settle.

Clarified groundwater is then pumped through bag filters for additional particle removal prior to the treatment in the shallow tray Air Stripper (AS-1). AS-1 removes volatile compounds prior to the groundwater being pumped through additional bag filters.

Two granular activated carbon (GAC) beds (GAC-1 and GAC-2) are arranged in series to remove residual organic contamination. The bag filters before carbon treatment minimizes particle fouling of the units. Effluent from the GAC beds is pumped through another bag filter prior to entering the Effluent Tank.

Treated effluent is discharged to Herrick Hollow Creek (Outfall 001) by gravity from the Effluent Tank. The Effluent Tank is followed by an open-channel flow element (Parshall flume) that serves as the primary discharge flow element. Effluent is periodically sampled from a slip stream using an autosampler (e.g., ISCO sampler).

Sludge is collected and processed through a filter press. Diatomaceous earth is applied to the filter to aid in the filtration of fine solids. The dewatered sludge is collected in a roll-off for off-site disposal. Filtrate from the filter press is collected and pumped to the Equalization Tank for treatment.

A process schematic is presented as Figure 2. The system is designed to treat up to 100 gallons per minute.

SUMMARY OF CONTROL MEASURES AND MONITORING ACTIVITIES

The objectives of the remediation at the RHRL site, as stated in the Record of Decision effective September 30, 1997 are to:

- Reduce/eliminate contaminant leaching to groundwater;
- Control surface water runoff and erosion;
- Mitigate the off-site migration of contaminated groundwater;
- Restore groundwater quality to levels which meet state and federal drinking water standards;
- Prevent human contact with contaminated soils, sediments and groundwater; and
- Minimize exposure of fish and wildlife to contaminants in surface water, sediments and soils.

GWTP effluent monitoring is conducted in accordance with a letter dated May 23, 2017 from the NYSDEC. Effluent monitoring consists of daily pH and flow measurement; weekly sampling for TSS, oil and grease, and PCBs; monthly sampling of biochemical oxygen demand (BOD), total dissolved solids (TDS), VOCs, and select metals; and quarterly sampling of SVOCs, select metals, and whole effluent toxicity (WET) Analysis. WET Analysis was completed in conformance with the following:

- U.S. Environmental Protection Agency. 2002. Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. 4th Ed. EPA/821/R-02/013. Office of Water, Washington D.C.
- NYSDEC. 2007. Division of Water Technical and Operational Guidance Series (TOGS), 1.3.2., Acute and Chronic Toxicity Testing in the SPDES Program Guidance (appearing at: http://www.dec.ny.gov/docs/water_pdf/togs132.pdf)

Effluent sampling results are forwarded to the NYSDEC Regional Water Engineer and the New York City Department of Environmental Protection (NYCDEP) per the approval letter.

In addition to effluent monitoring, influent monitoring is performed and includes: monthly sampling of VOCs, PCBs, select metals, oil and grease, BOD, TSS, and TDS; and quarterly sampling of SVOCs, and select metals. Performance sampling on the liquid phase GAC units consists of monthly VOC and PCB sampling. All sampling results are maintained on site and are forwarded to the NYSDEC Division of Environmental Remediation Project Manager and NYCDEP as required. The NYCDEP performed inspections on June 11, 2019 and December 11, 2019. The subsequent NYCDEP inspection reports indicated that site operations were satisfactory.

Calendar Year 2019 PCB Results Summary

In accordance with the May 23, 2017 NYSDEC letter for the RHRL GWTP Effluent Discharge Criteria, weekly effluent samples were analyzed using USEPA Method 608. The discharge limit for each Aroclor is 0.20 micrograms per liter (µg/L) with a discharge goal of non-detect for each Aroclor. Each Aroclor is considered non-detect if below the lowest standard reporting limit (RL). PCBs were not detected in the effluent (Outfall 001) samples for the 2019 calendar year. Therefore, PCB aroclor discharge limits were not exceeded in the effluent samples.

During calendar year 2019, PCBs were detected in the influent to the RHRL GWTP. Table 1 lists the results from influent sampling and summarizes the corresponding effluent sampling activities for calendar year 2019.

PCB Minimization Program

In accordance with the May 23, 2017 NYSDEC letter for the RHRL GWTP Effluent Discharge Criteria, PCB congeners were analyzed quarterly using the EPA Method 1668C. Quarterly samples are taken at the influent and effluent locations of the treatment facility. These samples are taken to track the minimization of PCBs in pursuit of the WQBEL of 0.001 ng/L Total PCBs and are not part of the effluent discharge criteria requirements. Table 2 provides the Total PCBs for each quarter.

Table 1: Calendar Year 2019 Influent and Effluent Results Summary

PCB results (µg/L)

Sample Date	Influent														Effluent*
	Aroclor 1016		Aroclor 1221		Aroclor 1232		Aroclor 1242		Aroclor 1248		Aroclor 1254		Aroclor 1260		Results
	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	
1/6/2019	ND	0.05	ND	0.05	ND	0.05	ND	0.05	**0.14**	0.05	ND	0.05	ND	0.05	ND for all PCBs
2/6/2019	ND	0.05	ND	0.05	ND	0.05	ND	0.05	**0.11**	0.05	ND	0.05	ND	0.05	ND for all PCBs
3/6/2019	ND	0.05	ND	0.05	ND	0.05	ND	0.05	**0.12**	0.05	ND	0.05	ND	0.05	ND for all PCBs
4/3/2019	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND for all PCBs
5/1/2019	ND	0.05	ND	0.05	ND	0.05	ND	0.05	**0.08**	0.05	ND	0.05	ND	0.05	ND for all PCBs
6/5/2019	ND	0.05	ND	0.05	ND	0.05	ND	0.05	**0.16**	0.05	ND	0.05	ND	0.05	ND for all PCBs
7/2/2019	ND	0.05	ND	0.05	ND	0.05	ND	0.05	**0.18**	0.05	ND	0.05	ND	0.05	ND for all PCBs
8/7/2019	ND	0.05	ND	0.05	ND	0.05	ND	0.05	**0.16**	0.05	ND	0.05	ND	0.05	ND for all PCBs
9/4/2019	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND	0.05	ND for all PCBs
10/2/2019	ND	0.05	ND	0.05	ND	0.05	ND	0.05	**0.13**	0.05	ND	0.05	ND	0.05	ND for all PCBs
11/6/2019	ND	0.05	ND	0.05	ND	0.05	ND	0.05	**0.13**	0.05	ND	0.05	ND	0.05	ND for all PCBs
12/4/2019	ND	0.05	ND	0.05	ND	0.05	ND	0.05	**0.19**	0.05	ND	0.05	ND	0.05	ND for all PCBs

Notes:

PCB Concentration in µg/L

ND = Not detected above the reporting limit

RL = Reporting Limit

*Effluent column summarizes the weekly sample results for that month.

Table 2: Calendar Year 2019 Influent and Effluent Results Summary

Total PCB Congener results (ng/L)

Sample Date	Influent	Effluent	Reporting Limit
	Total PCBs (ng/L)	Total PCBs (ng/L)	(ng/L)
01/2/2019	116.046	0.119	0.001
04/3/2019	86.077	0.146	0.001
07/2/2019	167.758	0.046	0.001
10/2/2019	138.202	0.021	0.001

CONCLUSIONS AND RECOMMENDATONS

Evaluation of the control measures was based on comparison of effluent PCB data to the effluent PCB criteria established by the NYSDEC. The effluent discharge criteria are identified in the May 23, 2017 NYSDEC letter for Effluent Limitations and Monitoring Requirements for the RHRL Site. The effluent concentrations were in compliance with the effluent limitation requirements throughout the calendar year 2019.

If there are any questions, please contact Sara Wright at 207-775-5401.

Sincerely,

Wood E&I Solutions, Inc.

Sara Wright
Senior Project Manager

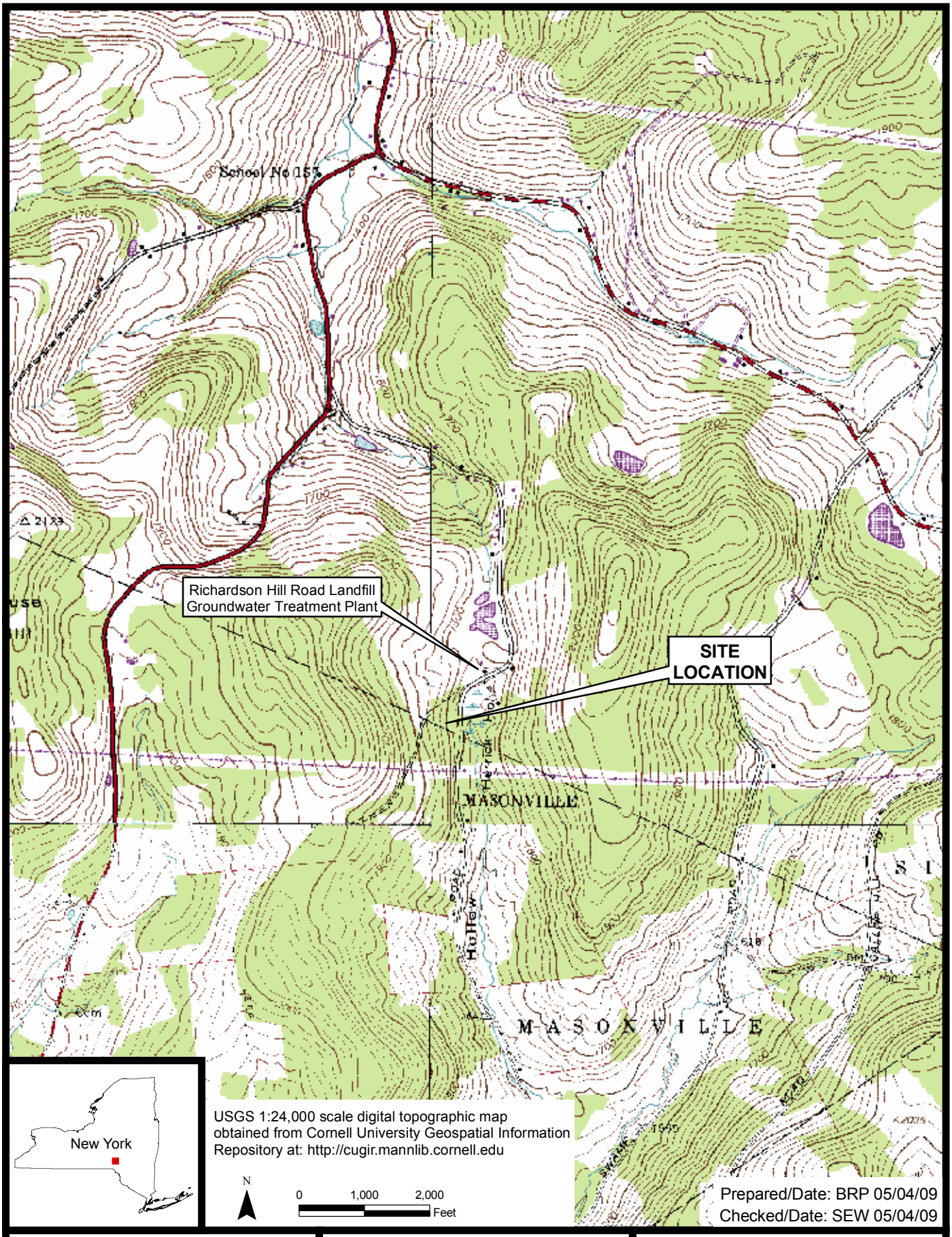
Christian Ricardi
Senior Chemist

Enclosures (2)

Figure 1 – Location Map

Figure 2 – RHRL GWTP Process Schematic

cc: Mr. Matt Davidson, Jacobs
Mr. John Formoza, Jacobs
Mr. Joe Bianchi, Amphenol Corporation
Mr. Eric Christodoulatos, Honeywell



Amphenol Corporation
Richardson Hill Road Landfill
Sidney Center, New York

wood.

Site Location

Project 3612172370 Figure 1

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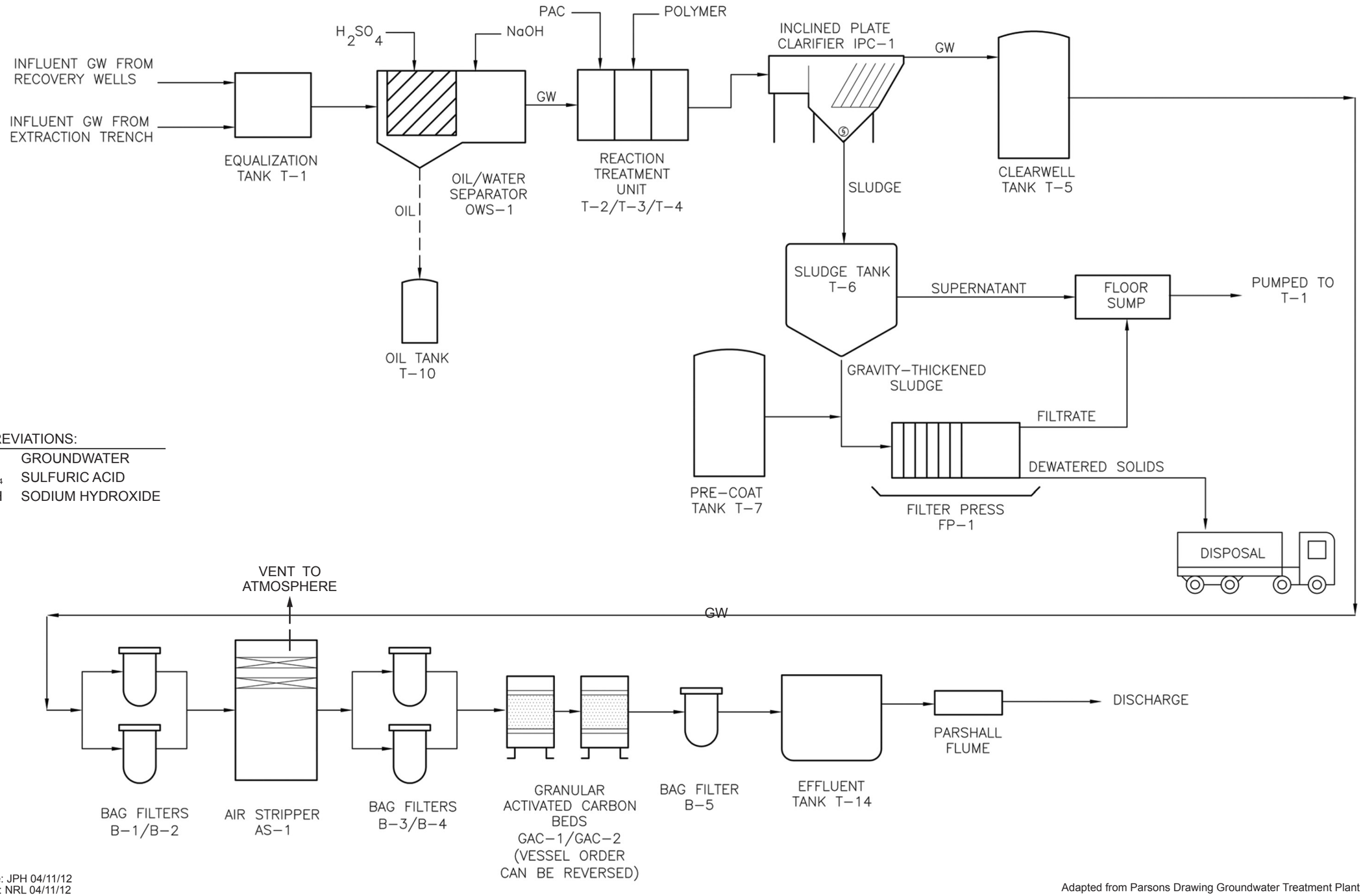

ABBREVIATIONS:

GW	GROUNDWATER
H_2SO_4	SULFURIC ACID
NaOH	SODIUM HYDROXIDE

Prepared/Date: JPH 04/11/12
Checked/Date: NRL 04/11/12

Adapted from Parsons Drawing Groundwater Treatment Plant Process Schematic

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Groundwater Treatment Plant Process Schematic

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Figure 2

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