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January 11, 2017

Mr. Daniel Ramras
Ramras Specialty Group
9032 42nd Ave NE
Seattle, Washington 98115
(206)-619-0560
dramras@comcast.net

Subject: ERH Status Report
Former Plastic Sales and Service Facility
6870 Woodlawn Ave NE
Seattle, WA 98115

Dear Mr. Ramras,

This letter report contains a brief description of the Electrical Resistance Heating (ERH) remediation operations performed at the former plastic sales and service facility located at 6870 Woodlawn Ave NE in Seattle, Washington. The time period addressed in this report is from January 03 through January 09, 2017. ERH power application was stopped on January 5, 2017 to accommodate the confirmatory sampling event.

ERH Application Summary

The ERH system operational parameters for this reporting period are presented in **Table 1.** Both the previous reporting period and baseline data (prior to startup on October 31, 2016) are included for comparison. All features referred to herein may be located on **sheet Y-1**.

Table 1. ERH System Operating Parameters

ERH System Parameters	October 31, 2016	January 03, 2017	January 05, 2017
Weekly Average Power (kW)	0	171	159
Cumulative Energy Applied (kWh)	424*	298,645	305,430
Average Subsurface Temperature (°C)	16.6	93.7	91.0
Average Vapor System Flow Rate (scfm)	0	250**	250**

*Energy consumed during start up testing
**Based on operation of blower at 30Hz (half speed)

TRS personnel were onsite for portions of the reporting period. Tasks accomplished during the reporting period included:

- Daily Collection of system operations data and optimization of system performance; Completion of surface voltage surveys and confirmation no exposed voltage potentials exist above the TRS administrative levels.
- Routine system maintenance and operation.

The ERH system operated within normal system parameters until January 5, 2017 when TRS manually shut down power application at approximately 0725 in preparation for the confirmatory sampling event. The condenser blowdown water valve along with the drip water valve was closed to coincide with de-energizing of the treatment area to prevent additional water generation. The vapor recovery (VR) system remained operational.

On January 6, 2017, Holocene Drilling, contracted under Sound Earth Strategies (SES) began soil sampling inside the heated treatment area. Samples were initially collected from location TRSB6. Sampling difficulty resulting from tooling issues caused a delay and soil sampling is scheduled to be resumed on Wednesday, January 11, 2017.

As TRS was preparing the site for daily departure on January 6, 2017, TRS discovered that water in the condensate line had frozen due to below freezing weather conditions. The VR system was turned off and the make-up water piping along with the condensate piping was shut off and drained to prevent further equipment damage.

Subsurface Temperatures

Treatment volume subsurface temperatures are monitored at four temperature monitoring point (TMP) locations each containing temperature sensors arrayed vertically. The average subsurface temperature within the treatment volume prior to the start of ERH power application was 16.7 degrees Celsius (°C). The average subsurface temperature within the treatment area on January 5, 2017 was 91.0°C, a decrease of 2.5°C since the last reporting period. The highest observed subsurface temperature for this reporting period was 108.0ºC, at a depth of 12 feet below grade surface (ft bgs) at TMP E6 on January 03, 2016.

Temperatures relative to depth for each TMP within the ERH treatment area are presented in **Figures 2a** through **2d.**

Temperatures outside of the ERH treatment zone are being monitored in four additional TMPs. These TMPs are located outside of the ERH treatment area and will be used to establish "ambient" subsurface soil temperatures. The purpose of this monitoring is to establish the temperature of the soil adjacent to the ERH treatment area post treatment. The site is to be excavated post ERH, and there is a regulatory requirement that the subsurface temperature be less than 30°C prior to excavation. The baseline average temperature for these TMPs was 16.7°C. The average weekly temperatures for each of the exterior TMPs are presented below in **Table 2**.

Table 2. Exterior TMP Data

Date	TMP 1	TMP 2	TMP 3	TMP 4
11/2/2016	16.7	17.0	16.8	17.3
11/14/2016	19.7	19.1	19.6	26.6
11/21/2016	22.0	21.3	22.3	34.3
11/28/2016	24.4	23.1	25.0	40.2
12/05/2016	26.9	25.5	27.2	52.9
12/12/2016	28.4	26.6	28.5	49.0
12/19/2016	29.8	28.0	30.0	51.4
12/27/2016	31.6	29.2	30.9	52.5
01/03/2017	35.0	33.0	31.3	54.3
01/09/2017	33.8	31.1	30.9	51.6

Power and Energy

The PCU averaged 159 kilowatts (kW) of applied power to the treatment volume during the reporting period through January 5, 2017. A total of 305,430 kilowatt-hours (kWh) of electrical energy have been applied to the subsurface as of January 5, 2017. This is approximately 117.5% of the estimated design energy of 260,000 kWh.

ERH Vapor Recovery and Treatment

The vapor stream flow rate after the vapor recovery blower averaged 250 standard cubic feet per minute (scfm) throughout the operating period. The average discharge temperature throughout the reporting period was 4.2°C, as measured at the blower discharge port.

Vapor samples are collected by SES on Tuesdays and Fridays of each week as part of the air discharge permit requirements until the average soil temperature reaches 77°C at which time collection will occur daily. An average soil temperature of 77°C was achieved on November 25, 2016. The photoionization data are contained in **Table 3**. The analytical data will be reported by Sound Earth Strategies and not included in this report. The data and information will be shared with and used to measure system performance (i.e. pounds of contaminant removed), air permit compliance, and to refine future system operations.

Table 3. Vapor Recovery Data

Date	Influent (ppmv)*	Midpoint (ppmv)*	Effluent (ppmv)*
11/4/1	315	0.3	0.4
11/8/1	352	0.5	0.9
11/11/	395.5	1.3	0.9
11/15/	247.3	0.5	0.5
11/18/	721.0	0.9	1.1
11/22/	>15,000	0.2	0.0
11/24/	472.9	0.5	0.4
11/25/	4,820	0.4	0.2
11/26/	343.4	0.2	0.1
11/27/	953.9	0.1	0.1
11/28/	1,871	0.2	0.1
11/29/	>15,000	>15,000	0.4
12/02/16	>15,000	0.4	0.4
12/03/16	513.4	0.3	0.0
12/04/16	443.4	0.1	0.0
12/05/16	>15,000	0.1	0.1
12/06/16	>15,000	0.1	0.0
12/07/16	384.0	0.1	0.1
12/08/16	560.5	0.2	0.2
12/09/16	393.3	0.2	0.2
12/10/16	394.7	0.3	0.3
12/11/16	240.3	0.4	0.2
12/12/16	415	0.5	0.1
12/13/16	401.5	0.5	0.2
12/14/16	409.9	0.6	0.1
12/15/16	>15,000	1.7	1.1
12/16/16	378	0.8	0.8
12/17/16	267.0	1.8	0.0
12/18/16	215.3	8.7	0.6
12/19/16	263.3	14.3	0.0
12/20/16	182.1	20.8	0.1

Date	Influent (ppmv)*	Midpoint (ppmv)*	Effluent (ppmv)*
12/21/16	262.0	0.3	0.1
12/22/16	183.0	0.1	0.0
12/23/16	258.5	0.2	0.1
12/24/16	77.1	0.2	0.1
12/25/16	90.9	0.2	0.0
12/26/16	91.8	0.0	0.0
12/27/16	127.0	0.1	0.0
12/28/16	57.5	2.5	2.1
12/29/16	200.3	0.1	0.0
12/30/16	No data	No data	No data
12/31/16	107.5	0.4	0.3
01/01/17	96.5	0.0	0.0
01/02/17	83.8	0.0	0.1
01/03/17	86.6	0.0	0.0
01/04/17	111.7	0.2	0.1
01/05/17	153.7	0.0	0.0
01/06/17	VR system off	VR system off	VR system off
01/07/17	VR system off	VR system off	VR system off
01/08/17	VR system off	VR system off	VR system off
01/09/17	VR system off	VR system off	VR system off

* collected with photoionization detector

Water Usage

A total of 78,976 gallons of condensate and recovered water has been transferred to the 6,900 gallon holding tank to date. SES began continuous discharge of the condensate on December 20, 2016. There is no longer batch discharge of the settling tank to drain. The remainder of the ERH system sampling protocol remains the same.

During ERH, the area immediately surrounding the electrode may potentially lose soil moisture. TRS adds water to the electrode to prevent dry-out and maintain an electrical connection between the electrodes and the surrounding formation. On November 14, the drip water was established to several electrodes showing signs of dry-out. A total of 9,422 gallons of drip water has been used to date.

Water is also consumed in the cooling loop used by the steam condenser. The cooling tower also requires a continuous blow down to reduce mineral build up. The makeup water (replaces water lost to evaporation, and tower blowdown to reduce mineral buildup) consumed to date is 45,950 gallons.

Table 4 contains a summary of the water discharge and consumption data.

Table 4. ERH System Water Usage Data

Water Parameters	January 03, 2017	January 09, 2017
Cumulative Condensate Generated (gallons)	75,464	78,976
Cumulative Condenser Makeup Water (gallons)	43,860	45,950
Electrode Wetting System Water Consumption (gallons)	9,009	9,442

Planned Activities

TRS reached it's 100% of the design energy at approximately 2am December 25, 2016. TRS continued operations in accordance with contract Exhibit B-5. The site will be de-energized on January 5, 2017 to allow for core drilling of the sampling locations. The site will remain de-energized until results of the soil sampling are returned and evaluated. Soil sampling was performed by SES on January 6, 2017 resulting in the B6 location samples completed and sent to lab. Five more locations are scheduled to be completed January 11, 2017 performed by SES. TRS will be on-site to assist in moving field wiring and piping for drilling access. The vapor recovery system was turned off on January 6, 2017 due to freezing weather conditions in attempt to prevent equipment and or system damage.

Should you have any questions concerning this report, or if you would like any additional information, please contact either me or Lynette Stauch by phone at (206) 234-7603 or (505)-281-9553 respectively.

Sincerely,
TRS Group, Inc.

Steve Pistoll
Assistant Construction Manager

Attachments: Figure 1 – Site Plan
Figure 2a through 2d –TMP Temperatures over time

cc: Lynette Stauch,
TRS Tim Warner, TRS

ATTACHMENTS

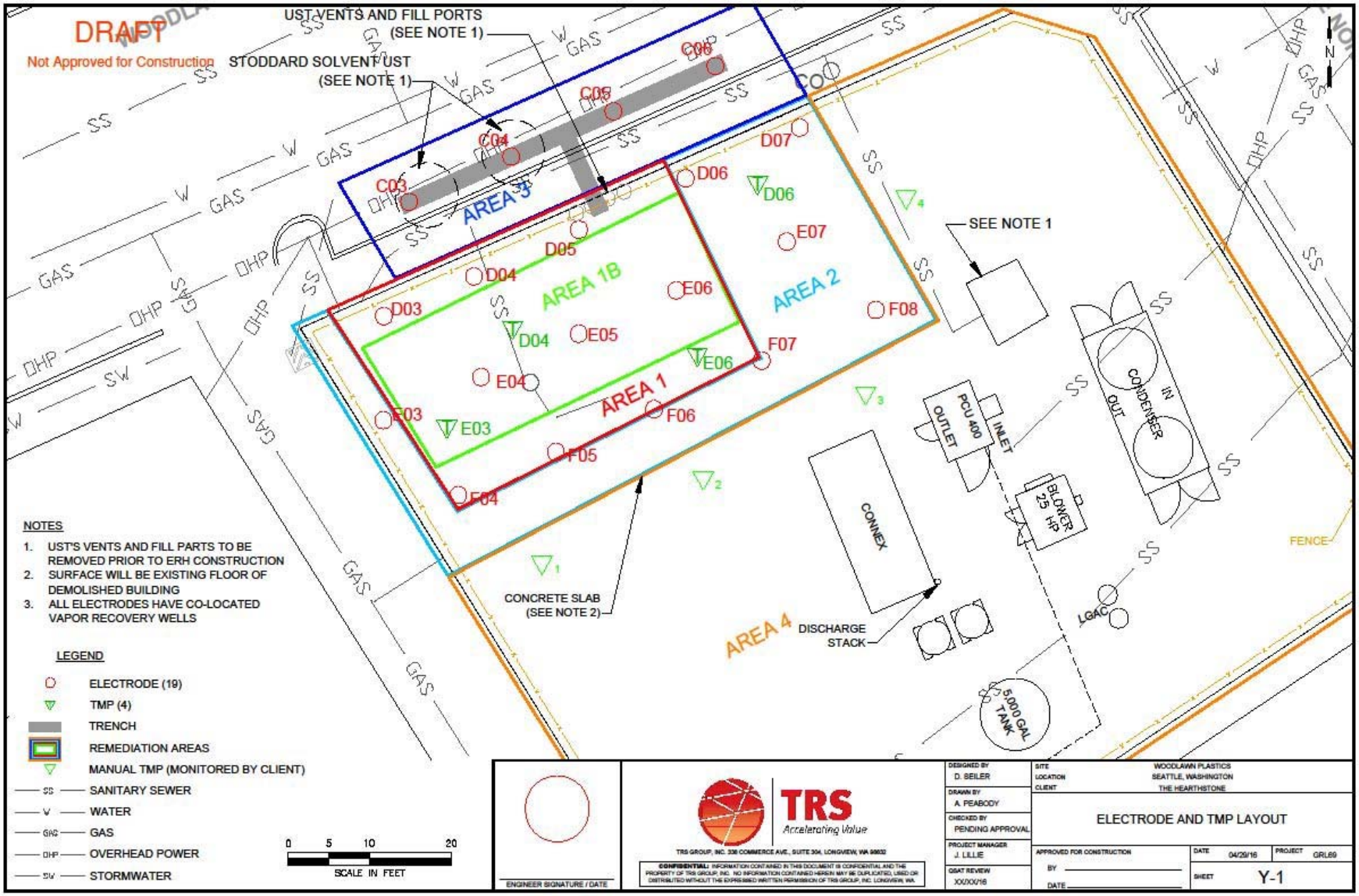

Figure 1 Site Plan

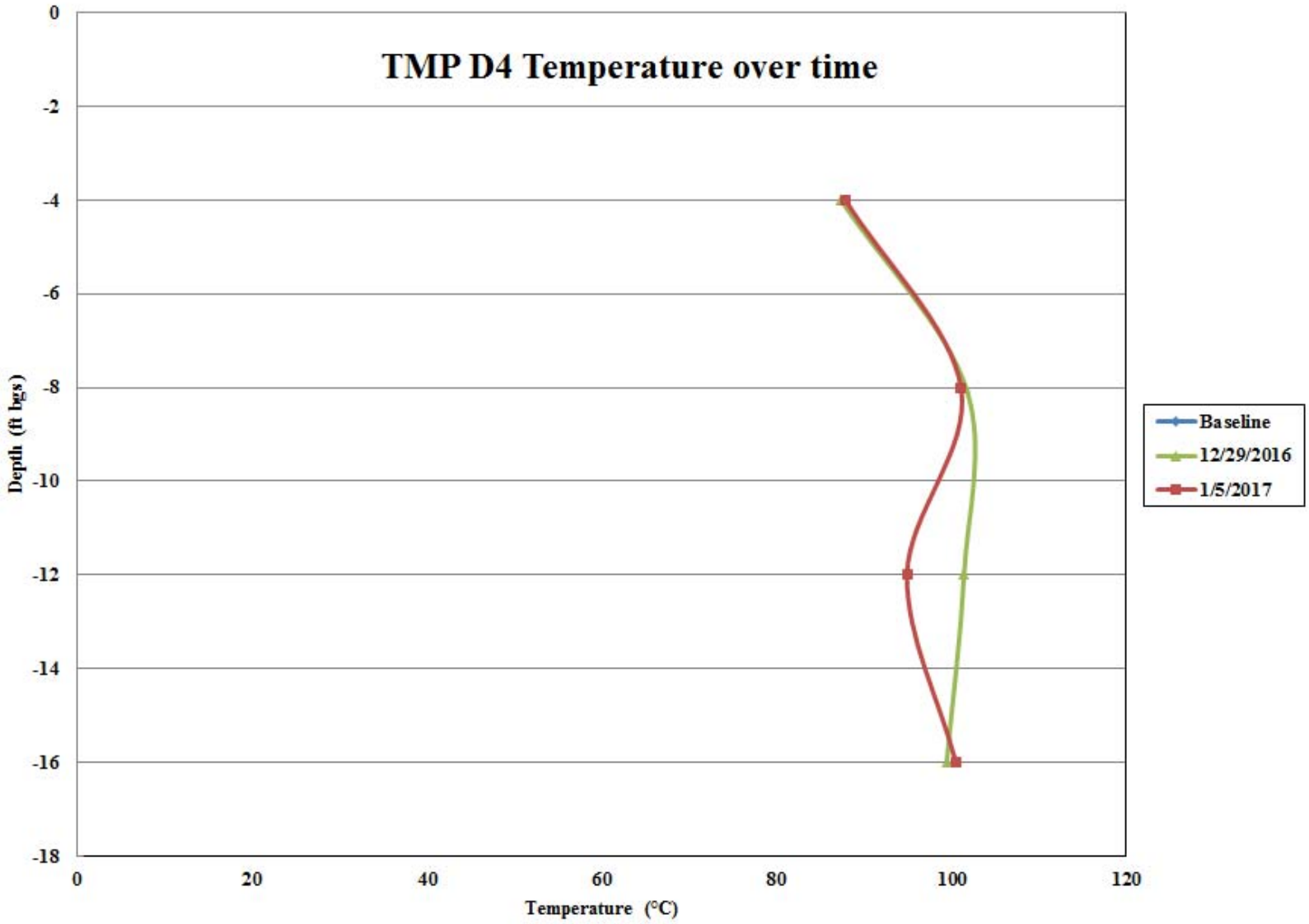

Figure 2a TMP D4

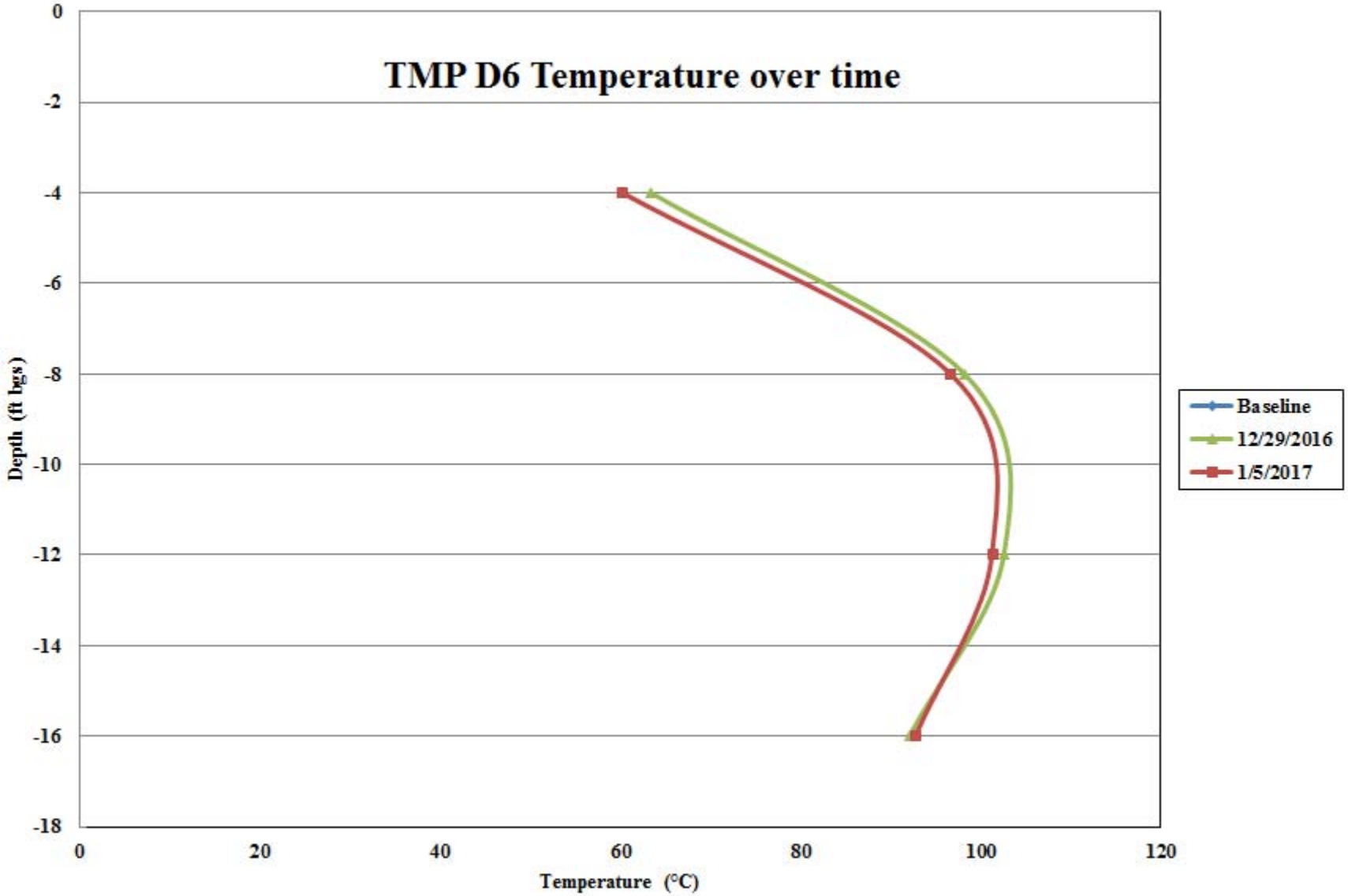

Figure 2b TMP D6

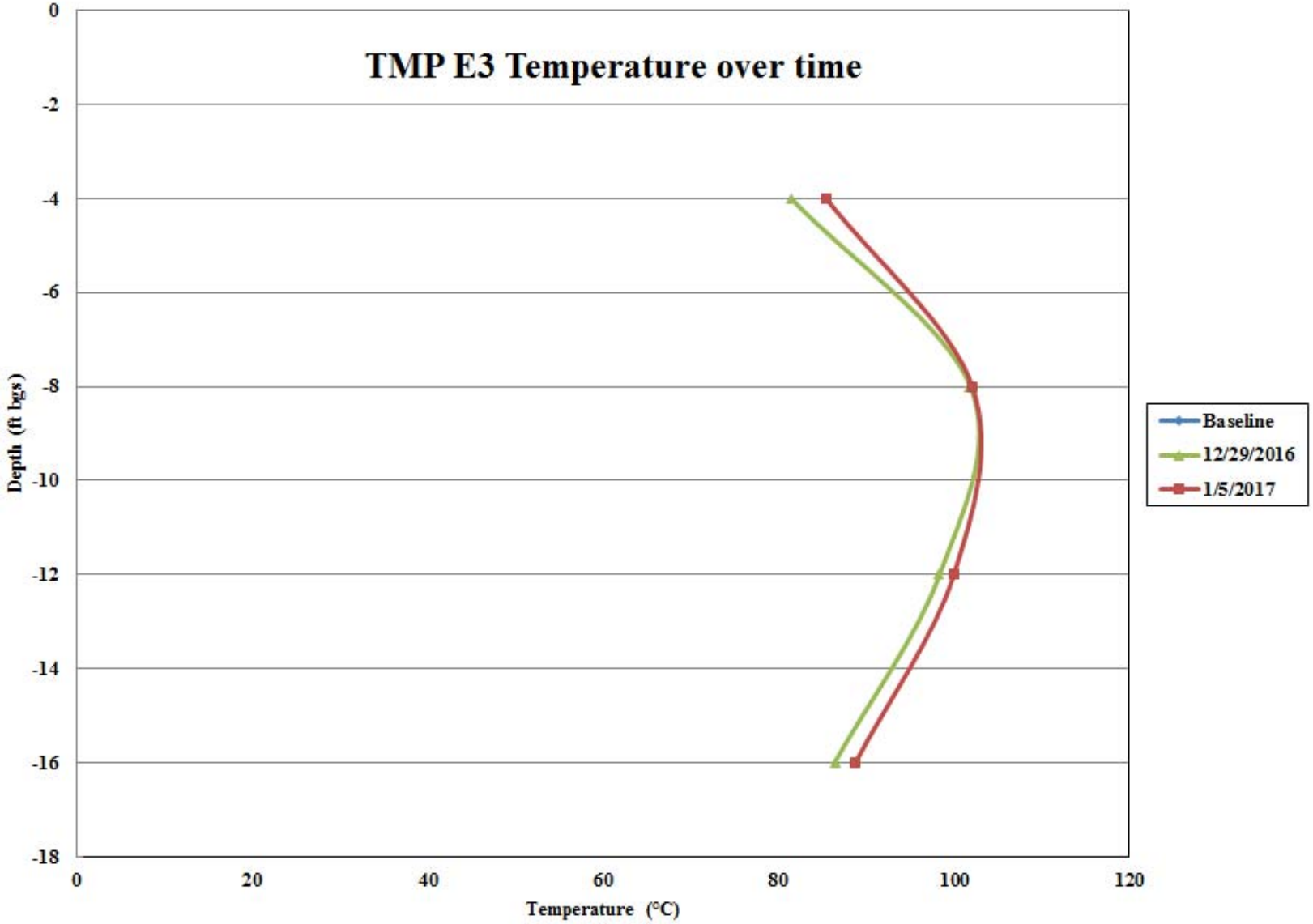

Figure 2c TMP E3

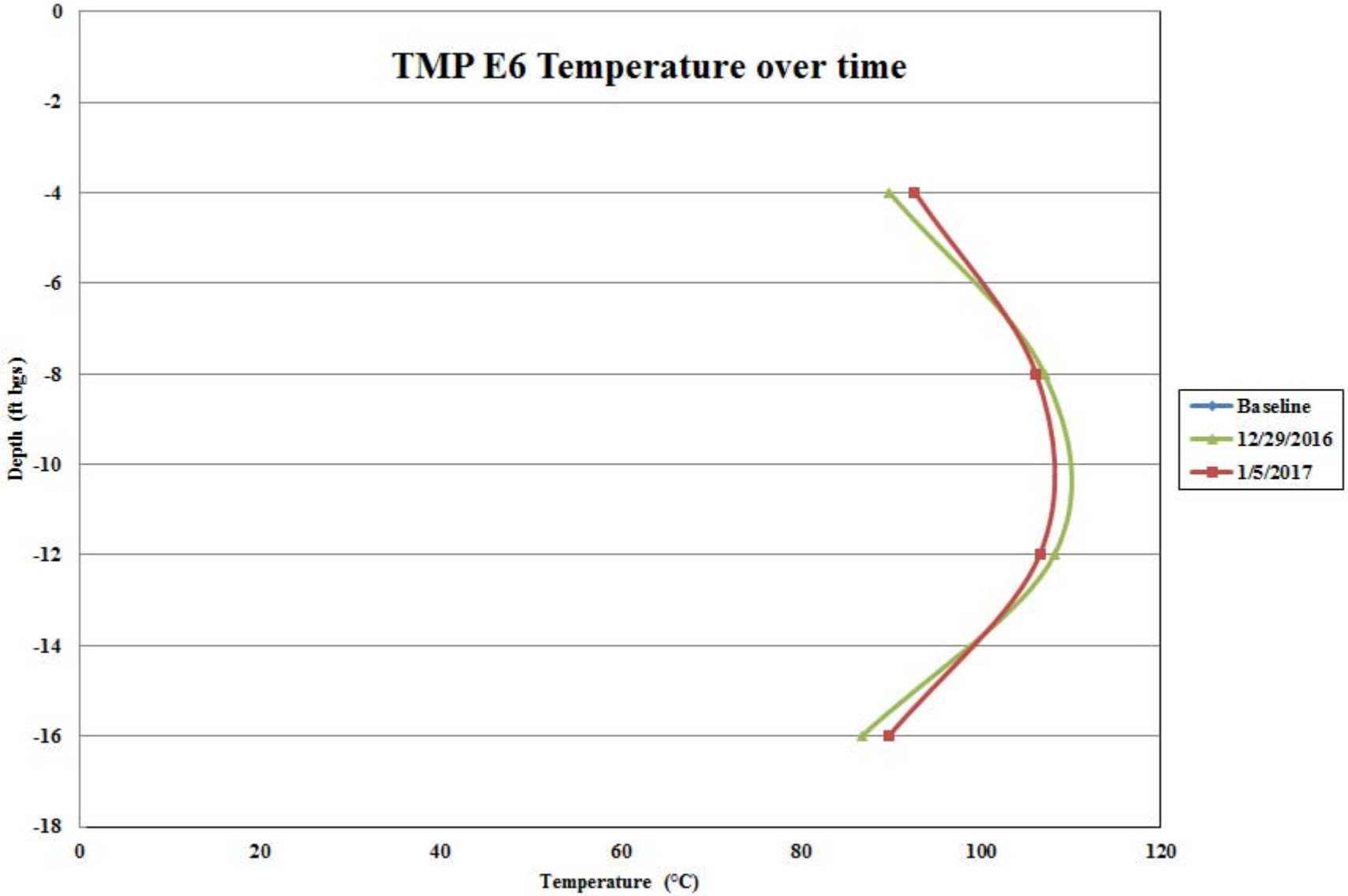

Figure 2d TMP E6