PACIFIC groundwater GROUP

REMEDIAL INVESTIGATION
ADDENDUM 2
EPHRATA LANDFILL

December 22, 2017

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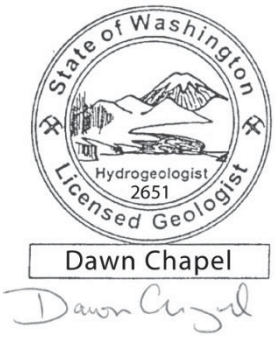
SIGNATURE

This report, and Pacific Groundwater Group's work contributing to this report, were reviewed by the undersigned and approved for release.



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1.0 INTRODUCTION

The Remedial Investigation (RI) Addendum 2 summarizes field investigative work performed at the Ephrata Landfill in Grant County, Washington (Figure 1) since completion of the RI (PGG, 2010) and the first RI Addendum (PGG, 2012). Specifically, this report summarizes well drilling, testing, and data collection performed in 2016 as part of the supplemental interim remedial action plan (Parametrix and PGG, 2015):

- Northern Conditional Point of Compliance (POC) well drilling, installation, sampling and hydraulic testing
- P1 pilot test well drilling, installation, sampling and hydraulic testing
- Site-wide synoptic measurement of static groundwater elevations in newly installed and existing monitoring wells

In addition to the interim action work, post-RI analytical data is presented from bi-annual groundwater sampling since completion of the first RI Addendum plus time-series trends in groundwater elevations and volatile organic compounds (VOCs) in the P2 zone, Roza aquifer, Interflow aquifer, and Frenchman Springs aquifer.

This addendum does not present data from the Outwash aquifer. Previous RI investigations indicate little to no impacts to the Outwash aquifer (PGG, 2010 and 2012) and no additional investigative work has been completed in the Outwash aquifer, aside from quarterly monitoring for solid waste compliance purposes (PGG, 2013).

The new data, together with the recent completion of the multi-phase extraction (MPE) pilot test (Parametrix and PGG, 2017), improve our understanding of the site as summarized in Section 8.0.

2.0 BACKGROUND

The results of the RI indicate groundwater in shallow basalt aquifers within the Wanapum basalt is impacted by contaminants originating from historic onsite sources near the original landfill and some of those contaminants are migrating offsite beyond the northern POC within the Northerly Plume (PGG and Parametrix, 2006; PGG and Parametrix, 2010; PGG, 2010; PGG, 2012).

A draft Feasibility Study (FS) was completed in 2012 and identified soil vapor extraction (SVE) in the P1 zone by the former drum area as a potential preferred remedial alternative for the site (Parametrix, 2012). Uncertainty in P1 zone responsiveness to SVE and uncertainty in the extent of the Northerly Plume along the east side of the northern POC led to the development of a supplemental interim remedial action plan (IRAP) in 2015 (Parametrix and PGG, 2015). The 2015 IRAP was planned in two phases. Phase 1 comprised the drilling, sampling, and hydraulic testing of new POC monitoring wells and new P1 zone extraction wells. A pre-treatment facility and evaporation pond in support of the MPE pilot test were also designed and constructed during this phase. Phase 2 of the 2015 IRAP comprised conducting a 4-month MPE pilot test in the P1 zone to assess SVE feasibility.

This report summarizes the results of the Phase 1 drilling, sampling, and hydraulic testing of the new wells. The results of the Phase 2 MPE pilot test, which was completed in the fall of 2017, will be summarized in a separate report (Parametrix and PGG, 2018 in prep.).

3.0 INSTALLATION OF NEW WELLS

Pacific Groundwater Group (PGG) subcontracted with Environmental West Exploration from Spokane, Washington, to drill and install new POC monitoring wells and P1 pilot test wells. Drilling and well installation occurred between late January and early March 2016. Geologic well logs are provided in Appendix A.

Short-term aquifer tests (< 1 hour) were performed on each well during sampling in April 2016. A single long-term aquifer test (6.5 hours) was also performed on one of the new P1 pilot test wells with drawdown monitored in several nearby P1 wells. Aquifer test results are summarized in Table 2 and a summary of aquifer transmissivities measured across the site is provided in Table 3.

With the installation of the new POC and P1 pilot test wells, over 70 monitoring wells have been drilled at the Ephrata Landfill (Table 1). Details of well installation and aquifer testing follows. Analytical results are presented in Section 6.0.

3.1 NORTHERN POINT OF COMPLIANCE (POC) WELLS

Seven new 2-inch monitoring wells were drilled using an air rotary drill rig in two nests along the east side of the northern POC (Figure 2):

- Four wells at the eastern well nest[1]: MW-57b, MW-58c, MW-59p0, and MW-60p2
- Three wells at the western well nest: MW-61p1, MW-62c, and MW-63b

Geology was interpreted based on drilling action and drill cuttings. See geologic well logs in Appendix A.

The aquifers and aquitards encountered at these locations generally fit into the prior hydrogeologic conceptual model. However, the P1 zone was not observed at the eastern well nest but a shallower wet zone was encountered at 13 feet depth and a well installed (MW-59p0). This shallow wet zone does not appear to be ephemeral in nature as water levels were measured in the well in spring (2016) and fall (2017). The P2 zone was not observed at the western nest (see cross section in Figure 3).

3.2 P1 PILOT TEST WELLS

Seven new 4-inch P1 zone extraction wells (MW-64p1-MW-70p1) were drilled south of the former drum area through the original landfill and into the underlying basalt using a

[1] Ephrata Landfill well nomenclature: a = outwash, p0 = above the p1 zone, p1 = p1 zone, p2 = p2 zone, b = Roza, c = Interflow, d = below the Interflow

sonic drill rig (Figure 2). The top of basalt varied from 24 to 34 feet below the top of the landfill liner (btl). Final well depths were purposely drilled 2 to 2.5 feet into the more competent basalt aquitard below the P1 zone to maximize P1 dewatering during extraction. Final well depths varied from 33 to 42 feet btl (see geologic well logs in Appendix A).

The new data were used with existing data to develop a detailed hydrogeologic cross section (Figure 4) and top-of-basalt elevation map in the vicinity of the P1 wells (Figure 5).

The P1 interval was interpreted based on drilling action, recovered cores, and video logging. Core recovery during drilling was poor and only partial core recovery was successful from MW-64p1 (37 to 38.2 feet btl), MW-65p1 (31 to 32.4 feet btl), and MW-68p1 (30 to 31 feet btl). These cores were submitted to PTS Laboratories in Santa Fe Springs, California, for white light and ultraviolet (UV) light imaging (see Appendix B). PTS reported that the cores had no chemical odor, minimal fractures, and no fluorescence with UV light, indicating little to no presence of LNAPL in the core [2]. Accumulation of LNAPL was not observed during any of the recent drilling, testing, and sampling of the P1 wells – including monitoring during the MPE pilot test (Parametrix and PGG 2018 in prep.), although a sheen in P1 water is sometimes observed.

Core collection attempts during drilling reduced the ability to make detailed field observations of basalt cuttings during drilling. This limitation was offset with observed drilling action (i.e. hard versus soft drilling and smooth versus chatter-like drilling) and borehole video logs collected from each boring prior to well installation. P1 wells were pumped prior to video logging to maximize borehole observations; however, some wells recovered before deployment of the video camera and observations below the water column were too murky to distinguish borehole characteristics. Video log observations are noted on the geologic well logs (Appendix A).

Based on field observations of cuttings, drilling action, and video logs, the P1 zone is a saturated, highly fractured and/or very soft, brown, weathered basalt layer with secondary mineralization. The zone has variable thickness ranging from about 1 to 5 feet and a variable vertical position; thus, the zone has an undulating profile (see Figure 4).

The basalt aquitards encountered above and below the P1 are relatively hard competent gray basalt having primary mineralization (plagioclase phenocrysts in an aphanitic basalt), and some weathering along fractures may represent limited secondary mineralization. In some wells, a basalt aquitard was not observed above the P1 (see well logs in Appendix A).

These observations are consistent with previous investigations of the P1 zone during the RI (PGG, 2010).

[2] PTS Labs indicates good fluorescence generally occurs at 1% LNAPL saturation and starts to see at least some fluorescence as low as 0.1 to 0.2% saturation.

4.0 GROUNDWATER ELEVATIONS AND FLOW DIRECTIONS

Site-wide synoptic measurements of static groundwater elevations were collected from the new and existing monitoring wells in June 2016. Groundwater elevation for the P1, P2, Roza aquifer, and Interflow aquifer are shown in Figures 6, 7, 8, and 9, respectively. Also plotted in the figures are the total detected VOCs during the 2016Q1 sampling event (see Section 6.0 for discussion of analytical results).

Groundwater hydrographs between 2008 and 2017 from select monitoring wells are shown in Figure 10 (P1 zone, P2 zone and Roza aquifer) and Figure 11 (Interflow aquifer).

Observations from each aquifer are discussed below.

4.1 P1 AND P2 ZONE

Groundwater elevations measured in the P1 zone during the June 2016 event varied from 1252.51 to 1257.06 feet with a horizontal flow direction towards the west-southwest (Figure 6). Groundwater elevations measured in the P2 zone during the June 2016 event were about 20 feet lower and varied from 1232.40 to 1239.26 feet with a horizontal flow direction towards the northeast (Figure 7). The 20-ft difference in groundwater elevations between the P1 and P2 indicated a downward vertical gradient between the P1 and P2 zones.

The horizontal gradient in the P2 was greatest in the vicinity of the former drum area (Figure 7); however, the variability in groundwater elevations in the P1 and P2 wells may be partly related to downward vertical flow not depicted on the figures (i.e., wells with lower groundwater elevations in the P1 or P2 zone tend to be completed at slightly deeper depths). Also, perched groundwater conditions likely occur in the P1 and P2 zones and the observed groundwater elevations and flow directions may be partly controlled by the elevation of the underlying basalt aquitard.

Monitoring of the P1 zone by the former drum area (MW-34p1 and MW-36p1) shows seasonal variations in groundwater elevations of about 3 to 4 feet with peak elevations generally occurring in spring and low elevations generally occurring in fall. Both 2016 and 2017 were relatively wet winters with corresponding high peak groundwater elevations in the P1 zone (Figure 10). The groundwater elevation above the basalt in the former drum excavation (MW-32a) is typically slightly higher or similar to MW-34p1 and MW-36p1 (Figure 10).

Groundwater elevations in the P2 zone by the former drum area (MW-33p2, MW-35p2, and MW-38p2) have much less seasonal variability than the overlying P1 zone and the underlying Roza aquifer (see below). Seasonal variations in groundwater elevation in the P2 zone are less than 0.3 feet (Figure 10). The minimum seasonal variability in groundwater elevations in the P2 zone suggests the zone is relatively isolated hydraulically. It could also suggest the presence of a subsurface structural feature, such as a drain, that acts to maintain fairly constant groundwater elevations in the P2 zone.

4.2 ROZA AQUIFER

Groundwater elevations in the Roza aquifer during the June 2016 event varied from 1232.02 and 1238.39 feet with horizontal flow direction towards the north-northwest (Figure 8). Like the P2 zone, the horizontal gradient in the Roza aquifer was greatest near the former drum area (Figure 8). In general, groundwater elevations in the Roza wells were a foot or more less than the P2 zone, indicating a downward gradient; however, at the eastern POC well nest the elevation in the Roza aquifer at well MW-57b (1232.39 feet) was nearly equal to the P2 zone at adjacent well MW-60p2 (1232.40 feet).

The variation in groundwater elevations in the Roza wells do not appear to be strongly related to vertical gradients within the aquifer (i.e., the wells with lower groundwater elevations are not necessarily completed at greater depths).

Groundwater elevations in the Roza aquifer at the northwest corner of the landfill (MW-3b, MW-7b, and MW-9b) and about 300 feet northwest of the former drum area (MW-42b) typically vary by about 1 to 2 feet seasonally with peak elevations generally occurring during the spring and early summer periods (Figure 10). In contrast, groundwater elevations in the Roza aquifer immediately south of the former drum area (MW-29b and MW-30b) have displayed up to 10 feet of seasonal variability since 2012 (Figure 10). Such large seasonal variability was not observed in these wells between 2008 (when monitoring first began in these wells) and 2012. The change in 2012 may be related to changes in nearby irrigation and/or groundwater pumping that doesn't affect the other Roza wells.

4.3 INTERFLOW AQUIFER

Groundwater elevations in the Interflow aquifer during the June 2016 event ranged from 1182.50 to 1177.92 feet. Horizontal groundwater flow in the Interflow on the landfill property has both a local northeast direction along the northeast corner of the landfill under a modest gradient, and a southerly component across most of the site under a very low gradient (Figure 9). The groundwater elevation in off-site well MW-20c to the northwest was about 50 feet higher (1229.81). That well is located near sources of groundwater recharge (i.e., Oasis Park, Irrigation[3], and Beezley Hills).

The lower groundwater elevations in wells MW-58c and MW-62c at the eastern boundary of the northern POC may be related in part to downward vertical flow. The completion depths of the other Interflow wells in Figure 9 range in elevation from 1107 feet to 1163 feet. The completion depth of MW-58c is 1115 feet elevation (low, but within the range of the other Interflow aquifer well screen elevations), but the completion depth of MW-62c is at 1100 feet elevation (about 7 feet deeper than other Interflow aquifer wells in Figure 9). Lower groundwater elevations in the Interflow aquifer have also been measured in monitoring wells north of the landfill (MW-45c, MW-47c, and MW-50c –

[3] Recharge from irrigation includes leakage from irrigation canals and application of canal water to large irrigation fields at the base of Beezley Hills.

see Figure 1 and Figure 11). This pattern may suggest stronger downward vertical gradients in the Interflow aquifer at the north end of the landfill, or larger off-site irrigation pumping effects.

Groundwater elevations in the Interflow aquifer along the east, west, and south perimeter of the landfill (MW-2c, MW-4c, MW-5c, MW-6c, and MW-21c) vary seasonally by about 2 to 3 feet, with seasonal lows occurring in spring/early summer and seasonal peaks occurring in fall/early winter (Figure 11). Between 2008 and 2012 groundwater elevations in these wells decreased by about 3 feet, possibly due to off-site irrigation operations. Since 2012, the groundwater elevations have been reasonably consistent each year.

5.0 AQUIFER TESTING

The following sections summarize results of short-term aquifer tests performed on the new POC and P1 pilot test wells and a long-term test performed on one of the new P1 pilot test wells. Aquifer test results are summarized in Table 2 and analyses for each well are provided in Appendix C.

5.1 SHORT-TERM AQUIFER TESTS OF NEW WELLS

Short-term aquifer tests (< 1 hour) were performed on each new well. POC wells MW-59p0 and MW-61p1 and several of the new P1 pilot test wells displayed well-bore storage effects and declining pumping rates during the test. Wells with well-bore storage effects and declining pumping rates were analyzed using the Dougherty-Babu solution in Aqtesolv[4]. Wells with no well-bore storage effects and relatively constant pumping rates were analyzed using the Cooper-Jacob semi-log method or the Theis method in Aqtesolv.

Test observations for each aquifer are summarized below:

P0 Zone Results

The transmissivity in the P0 zone at well MW-59p0 (eastern POC well nest) is low (2 ft^2/dy). Significant drawdown was observed in this well at a pumping rate of about 0.3 gpm, with much of the drawdown data dominated by well-bore storage (Figure C-1 in Appendix C).

P1 Zone Results

The transmissivity in the P1 zone at well MW-61p1 (western POC well nest) is also low, less than 1 ft^2/dy. Significant drawdown was observed at a pumping rate that progressively decreased from 0.4 to 0.05 gpm. Much of the drawdown was dominated by well-bore storage and the well was pumped dry within 20 minutes (Figure C-2 in Appendix C).

[4] Software package for design and analysis of aquifer tests: http://www.aqtesolv.com/

Similar low transmissivity with significant drawdown and decreasing pumping rates were observed in some of the new P1 pilot test wells during individual well testing. Transmissivity in the P1 pilot test wells ranged from < 1 ft^2/dy at MW-67p1 to 50 ft^2/dy at MW-65p1 (Table 2 and Figures C-3 through C-9 in Appendix C). The transmissivity at MW-65p1 is similar to the transmissivity previously estimated for MW-34p1 (Table 3).

P2 Zone Results

The transmissivity calculated from early time drawdown of the P2 zone at well MW-60p2 (eastern POC well nest) is 90 ft^2/dy (Figure C-10 in Appendix C). This is higher than the transmissivities previously estimated in the P2 by the former drum area in MW-33p2, MW-35p2, and MW-38p2 (< 0.5 ft^2/dy) and north of the POC in MW-46p2, MW-49p2, and MW-52p2 (~ 2 to 11 ft^2/dy). After 12 minutes of pumping, the rate of drawdown in MW-60p2 increased, possibly resulting from the influence of a no-flow (negative) boundary, or dewatering of a large fracture.

Roza Aquifer Results

The transmissivity in the Roza aquifer at the eastern and western POC well nests is 74 ft^2/dy (MW-57b) and 15 ft^2/dy (MW-63b) respectively (Appendix C, Figures C-11 and C-12). This is higher than the transmissivities previously measured in the Roza by the former drum area in MW-29b, MW-30b, and MW-31b and in well MW-44b located about 300 ft to the north (~ 0.5 to 1.5 ft^2/dy). However, it is lower than the transmissivity measured in MW-51b and MW-48b farther to the north and northwest (410 and 104 ft^2/dy, respectively) and significantly lower than the Roza transmissivities at the northwest corner of the landfill in EW-2 and MW-9b (1,444 and 1,183 ft^2/dy, respectively) and MW-3b[5] and MW-7b (23,660 and 8,421 ft^2/dy, respectively; see Table 3).

Interflow Aquifer Results

The transmissivities calculated for the Interflow aquifer at the eastern and western POC well nests are 10 ft^2/dy (MW-58c) and 4 ft^2/dy (MW-62c), respectively (Appendix C, Figures C-13 and C-14). This is lower than the transmissivities previously measured in the Interflow aquifer along the eastern, western, and southern boundary of the landfill (~ 25 to 700 ft^2/dy), but is within the range measured north of the POC in MW-45c, MW-47c, and MW-50c (0.6 to 31 ft^2/dy, respectively; see Table 3).

5.2 LONG-TERM AQUIFER TEST OF THE P1 ZONE

A long-term aquifer test was performed in the P1 zone by the former drum area on April 29, 2016. The test comprised pumping well MW-65p1 at a rate of about 1.5 gpm for 5.5 hours and then at 2 gpm for an hour. Groundwater drawdown was monitored throughout the test in MW-65p1 and eight observation wells (MW-34p1, 36p1, 64p1, 66p1, 67p1,

[5] MW-3b was recently decommissioned to accommodate the 2017 North End Soil (NES) removal work, along with wells MW-41a and MW-40p2. A replacement well for MW-3b will be drilled in the near future to continue monitoring the Roza aquifer at that location.

68p1, 69p1, and 70p1). The pump was then turned off and recovery was monitored in all wells.

Drawdown was observed in all the P1 wells (Figure 12) indicating hydraulic connections between the P1 wells during the test. A map of total drawdown in the P1 zone after 5 hours of pumping is shown in Figure 13 and the total drawdown in each well at the end of the pumping test is shown in Table 2.

The drawdown in the pumping well increased to the pump intake when the rate was increased from 1.5 to 2 gpm (Figure 12), indicating pumping at 2 gpm is not sustainable in this well.

The groundwater elevations and flow directions in the P1 zone at the end of 5 hours of pumping from MW-65p1 at 1.5 gpm are shown in Figure 14. The map shows groundwater flow directions towards MW-65p1 at the end of the test were dominantly from the north, east, and south (less from the west).

Aquifer transmissivities and storage coefficients were evaluated from the time-drawdown data at each observation well using the Theis confined solution, and time-drawdown data at the pumping well was used to estimate aquifer transmissivity using the Copper-Jacob semi-log method (Appendix C, Figures C-15 through C-23). Aquifer transmissivities and storage coefficients were also evaluated using the semi-log distance-drawdown method along five radial transects shown in Figure 13 (see Figures C-24 through C-28 in Appendix C).

Calculated transmissivities of the P1 zone ranged from 26 to 95 ft^2/dy and storage coefficients ranged from 0.0005 to 0.03 (Table 2).

The transmissivities derived from analysis of five P1 observation wells during the long-term pumping test (MW-64p1, MW-66p1, MW-67p1, MW-69p1, and MW-70p1) are notably higher than the transmissivities derived from analysis of individual short-term tests conducted on those same wells (Table 2). The discrepancy is most likely related to a combination of heterogeneities within the P1 zone and to well pumping factors. The drawdown measured in observation wells during pumping of MW-65p1 reflects influences of the pumped well and bulk aquifer properties between the pumping well and the observation wells, whereas the drawdown observed during individual well testing is more complex, reflecting aquifer properties within the immediate vicinity of the pumped well and pumped-well factors such as skin effects and well-bore storage. The multiple-well test data are the most reliable data for characterizing the bulk aquifer properties of the P1 zone in the pilot test area but are not sufficient to predict individual well yields because of local heterogeneities and the pumped-well factors noted above.

A groundwater analytical sample was collected from MW-65p1 after 5 hours of pumping (Table 4) for comparison to the analytical sample collected during the short-term test (see Section 6.0 and Table 6). The results show that the concentration of detected VOCs in MW-65p1 were higher after 5 hours of pumping compared to concentrations after less than 1 hour of pumping (18,845 ug/L total detected VOCs versus 12,661 ug/L total detected VOCs, respectively). This result suggests pumping of MW-65p1 over the 5-hour period captured higher concentrations from within the P1 zone (see Section 6.1.2 for a discussion of P1 VOC concentrations).

6.0 ANALYTICAL RESULTS

The following section summarizes groundwater analytical results from the newly installed wells in April 2016 together with other select monitoring wells sampled in May 2016 for comparison. Subsequent sections then summarize post-RI monitoring results and general organic chemical trends in each aquifer. All analytical results have been submitted to Ecology's EIM database.

6.1 NEW WELLS AND OTHER SELECT WELLS (SPRING 2016)

The newly installed POC and P1 pilot test wells were sampled in April 2016 for site contaminants of concern (COCs) identified in the RI (PGG 2010 and 2012). Results are shown in Tables 5 and 6, respectively. Analytical results from the POC wells are screened against RI groundwater screening levels using the same methodology established in the RI (PGG 2010 and 2012) and the number of VOCs exceeding RI screening levels is tabulated for each well in Table 5. P1 pilot test wells are not screened against RI screening levels due to previous observations of LNAPL in the P1 zone by the former drum area; thus, concentrations in these wells may not be reflective of dissolved phase concentrations.

For comparison, spring 2016 sampling results from routine sampling of P2, Roza, Interflow aquifer monitoring wells is presented in Table 7 and plotted with the results of the new wells on total detected VOC maps for the P2 zone (Figure 7), Roza aquifer (Figure 8), and Interflow aquifer (Figure 9).

Two newly constructed private off-site wells northeast and east of the landfill off of C.5 Rd NW were also sampled for site COCs in April 2016 (unique well ID's BIX662 and BIX830 - see Figure 1). Analytical results are tabulated in Table 8.

Arsenic groundwater concentrations are naturally elevated in the Ephrata area (PGG 2010) and all detections of arsenic in groundwater exceed the RI screening level (0.058 ug/L based on MTCA Method-B), however the concentrations are below the site-specific background concentration of 14.7 ug/L that was calculated based on regional data and reported in the FS (Parametrix 2012). The final FS will incorporate inorganics background concentrations, including arsenic, when developing cleanup levels for the site.

Analytical results for each aquifer are discussed further below followed by a summary of private well sampling results.

6.1.1 P0 Zone

VOCs were not detected in the shallow P0 zone at the POC (well MW-59p0, eastern well nest) and, except for arsenic, no COCs exceeded RI screening levels (Table 5).

6.1.2 P1 Zone

Four VOCs were detected at relatively low concentrations in the P1 zone at the POC (MW-61p1, western well nest): chloroethane (1.9 ug/L), ethylbenzene (0.34 ug/L), toluene (2 ug/L), and xylene M+P (0.42 ug/L). None of the detected concentrations exceeded RI screening levels (Table 5).

Several VOCs were detected in all P1 pilot test wells (Table 6), with total detected VOC concentrations ranging from 133 ug/L (MW-70p1) to 174,715 ug/L (MW-69p1). Concentrations were highest in P1 wells closest to the former drum area and decreased with distance from the former drum area (Figure 6).

Toluene, xylenes, and ethylbenzene comprised over 80 percent of the total detected VOCs in all new P1 pilot test wells except for MW-70p1, where they only comprised 23%.

Ketone concentration (2-butanone, 2-hexanone, MIBK, and acetone) in the new P1 pilot test wells were lower than was observed in MW-34p1 during the RI[6]. The highest concentration of total ketones in the new P1 wells was 8,700 ug/L (MW-69p1) and the concentration measured in MW-34p1 during the RI decreased between 2008 and 2010 from 176,000 to 24,000 ug/L (see PGG 2010 and 2012). This decreasing trend may indicate natural attenuation of ketone chemicals in the P1 zone.

The concentration of cis-1,2-dichloroethene in well MW-69p1 (10,000 ug/L) was an order of magnitude higher than was observed in P1 well MW-34p1 during monitoring for the RI. MW-69p1 is located closer than any of the previously installed P1 wells to the former drum area where concentrations are highest in the P1 zone; therefore, it is closer to the potential residual chemical releases (Figure 6).

Iron and manganese concentrations were elevated in all P1 pilot test wells. Total iron ranged from 15,600 to 39,400 ug/L and total manganese ranged from 3,050 to 10,700 ug/L. Site-specific background concentrations for dissolved iron and manganese were reported in the RI as 50 ug/L and 32 ug/L respectively (PGG 2010).

Arsenic concentrations in the new P1 pilot test wells ranging from 3 to 14 ug/L, which is below the site-specific background value of 14.7 ug/L (Parametrix 2012). Arsenic concentrations in the new POC wells were lower ranging from 0.2 to 2.6 ug/L. Arsenic groundwater concentrations in the Ephrata area are naturally higher compared to other places in Washington State and the higher concentrations in the P1 pilot test wells are likely caused by differences in groundwater redox conditions and not a local source of arsenic.

6.1.3 P2 Zone

A single detected concentration of toluene (0.31 ug/L) occurred in the P2 zone at the POC (MW-60p2, eastern well nest), but that concentration is well below the RI screening

[6] MW-34p1 and MW-36p1 were installed in the pilot test area during the original RI and only MW-34p1 was sampled for analysis of groundwater COCs.

level (640 ug/L). Except for arsenic, no COCs exceeded RI screening levels in the P2 zone at the POC (Table 5).

In contrast, several VOCs were detected in the P2 zone by the former drum area during the spring 2016 sampling event with total detected VOC concentrations ranging from 146 ug/L in MW-33p2 to 23,805 ug/L in MW-35p2 (Figure 7 and Table 7). VOCs exceeding RI screening levels in one or more P2 wells by the former drum area were:

- 1,1,1,2-tetrachlorethane (MW-38p2)
- 1,1,1-trichloroethane (MW-38p2)
- 1,1,2-trichloroethane (MW-38p2)
- 1,1-dichloroethane (MW-38p2, MW-35p2)
- 1,1-dichlroethene (MW-38p2)
- 1,2-dichloroethane (MW-38p2, MW-35p2)
- 1,2-dichloropropane (MW-38p2, MW-35p2)
- 1,3,5-trimethylbenzene (MW-35p2)
- 1,4-dichlorobenzene (MW-35p2, MW-33p2)
- benzene (MW-38p2, MW-35p2, MW-33p2)
- chloroform (MW-38p2)
- cis-1,2-dichlroethene (MW-38p2, MW-35p2)
- ethylbenzene (MW-35p2)
- methylene chloride (MW-38p2)
- o-xylene (MW-35p2)
- toluene (MW-35p2)
- trichloroethene (MW-38p2, MW-35p2)
- vinyl chloride (MW-38p2, MW-35p2)
- xylene m+p (MW-35p2)

6.1.4 Roza Aquifer

A single VOC detection of 1,2-dichloropropane (0.64 ug/L) occurred in the Roza aquifer at the POC in MW-57b (eastern well nest) and that concentration is below the RI screening level (1.22 ug/L). In contrast, 32 VOCs were detected in the Roza aquifer at the POC in MW-63b (western well nest) with a total detected VOC concentration of 6,293 ug/L (Figure 8 and Table 5). Seven of these 32 VOCs were detected at concentrations that exceeded RI screening levels:

- 1,1-dichloroethane
- 1,2-dichloroethane

- 1,4-dichlorobenzene
- benzene
- methylene chloride
- toluene
- vinyl chloride

For comparison, the total detected VOC concentrations in four other Roza aquifer wells at the north end of the landfill were less, ranging from 7.96 ug/L at MW-9b to 89.92 ug/L at MW-42b (Figure 8 and Table 7). VOC concentrations exceeding RI screening levels in these wells include:

- 1,1-dichloroethene (MW-42b)
- 1,2-dichloroethane (MW-3b, MW-7b, and MW-42b)
- 1,2-dichloropropane (MW-3b, MW-7b, and MW-42b)
- cis-1,2-dichloroethene (MW-3b and MW-42b)
- trichloroethene (MW-3b, MW-7b, and MW-42b)
- vinyl chloride (MW-3b, MW-7b, MW-9b, and MW-42b)

Although, the total detected VOC concentration at MW-63b is higher than previously observed in other Roza aquifer wells at the site, it is consistent with previous investigations indicating a plume migrating northward predominantly in the Roza aquifer.

6.1.5 Interflow Aquifer

Four VOCs were detected in the Interflow aquifer at the POC in MW-62c (western well nest): chloroethane (1.3 ug/L), ethylbenzene (0.2 ug/L), o-xylene (0.22 ug/L), and toluene (1.1ug/L). None of the detected concentrations exceeded RI screening levels (Table 5).

In contrast, 16 VOCs were detected in the Interflow aquifer at the POC in MW-58c (eastern well nest) with a total detected VOC concentration of 95 ug/L (Figure 9 and Table 5). Six VOCs exceeded RI screening levels in this well:

- 1,1-dichloroethane
- 1,2-dichloroethane
- 1,2-dichloropropane
- benzene
- trichloroethene
- vinyl chloride

For comparison, the total detected VOCs in other Interflow aquifer wells along the eastern, western, and southern POC were less, ranging from 1.33 ug/L at MW-6c to 20.91

ug/L at MW-5c (Figure 9 and Table 7). VOCs exceeding RI screening levels in these wells include:

- 1,2-dichloroethane (MW-5c)
- tetrachloroethene (MW-5c)
- trichloroethene (MW-5c and MW-22c)
- vinyl chloride (MW-2c and MW-5c)

These new results indicate the Interflow aquifer is impacted along the east side of the northern POC at well MW-58c and with total detected VOC concentrations higher than previously observed in the Interflow aquifer; but still significantly lower compared to concentrations in the P1 and P2 by the former drum area.

6.1.6 Private Off-Site Wells

VOCs were not detected in either of the two private off-site wells sampled in April 2016 (unique well ID's BIX662 and BIX830 – see Figure 1 and Table 8) and except for arsenic, all detected inorganic parameters were below RI screening levels.

Both wells are completed in basalt aquifers. Well BIX662 was constructed in April 2015 to a total depth of 180 feet below ground surface (bgs) as open hole below an 18-foot surface seal. Based on its depth, BIX662 is likely completed within the Interflow aquifer. Well BIX830 was constructed in June 2015 to a total depth of 320 feet bgs, with 99 feet of casing, then open hole. Based on its depth, BIX830 is likely completed within the Frenchman Springs aquifer. Analytical results were provided to both well owners.

6.2 POST RI MONITORING

Since completion of the RI in 2010 (PGG 2010 and PGG 2012), select RI wells have been sampled bi-annually:

- P2 wells by former drum area: MW-33p2, MW-35p2, and MW-38p2
- Roza aquifer 300 feet northeast of former drum area: MW-42b
- Roza aquifer 300 feet north of northern POC: MW-44b
- Frenchman Springs aquifer along western POC: MW-28d

Post-RI monitoring began with the first quarter 2011, though monitoring of MW-42b and MW-28d did not begin until the first quarter 2012 and monitoring of MW-44b stopped after the first quarter 2013 due to access restrictions on the parcel north of the landfill. The County recently purchased the parcel north of the landfill in 2016, but MW-44b has not been sampled since first quarter 2013.

Post-RI monitoring results up to the third quarter 2017 for each well are presented in Tables 9 through 14. Results for each sampling event are compared to RI screening levels.

6.3 ORGANIC CHEMICAL TRENDS

Time series of total detected VOCs in select wells between 2008 and 2017 in the P2 zone by the former drum area, Roza aquifer, Interflow aquifer, and Frenchman Springs aquifer are shown in Figures 15 through 17. Note the y-axis in the P2 time series (Figure 15) uses a log scale, while the other figures use a linear scale.

General trends are discussed below.

6.3.1 P2 Zone by Former Drum Area

The P2 zone by the former drum area is located directly below the impacted P1 zone and has elevated concentrations of VOCs. Trends in each of the three wells that monitor this area are discussed below.

MW-33p2:

The total detected VOCs in MW-33p2 are the lowest of the three P2 zone wells and this well is located farthest from the former drum area, about 100 feet to the south (Figure 2).

The total detected VOCs in MW-33p2 decreased between 2008 and 2013 from 1,274.31 ug/L to 65.68 ug/L (Figure 15). Between 2013 and 2015 concentrations were relatively stable, then in 2016, total detected VOCs increased slightly above 100 ug/L and have been relatively stable since then. The recent slight increase in total VOC concentrations may be related to wetter-than-average winters in 2016 and 2017 with corresponding higher water levels in the overlying P1 zone mobilizing residual sources (see hydrograph in Figure 10 and discussion for MW-35p2 below).

MW-35p2:

MW-35p2 is located about 80 feet west of the former drum area (Figure 2) and the total detected VOCs in this well initially decreased (with some variability) between 2008 and 2012 from 54,889 ug/L to 1,134 ug/L. Since 2012 the concentration of total VOCs in MW-35p2 has varied considerably between sampling events, ranging from as low as 347 ug/L to as high as 39,745 ug/L (Figure 15). The highest concentrations tend to occur during the first quarter sampling in spring, and the increase is mainly due to spikes in toluene and xylene concentrations. Toluene and xylene concentrations during these periods account for about 90% of the total detected VOCs. The spring spikes in this well may be caused by mobilization of contaminants in the overlying P1 zone during peak water levels in the P1 zone (see hydrograph in Figure 10).

Besides the seasonal variability observed between sampling events since 2012, there does not appear to be a decreasing or increasing trend over time in VOC concentrations. However, the total detected VOCs during the last sampling round in September 2017 were the lowest observed in this well. Whether this represents a new decreasing trend, possibly due to recent MPE pilot test activities, is unknown. Continued monitoring will be required to assess long-term trends and response to remedial actions.

MW-38p2:

MW-38p2 is located about 10 feet northwest of the former drum area (Figure 2), and total detected VOCs in this well decreased significantly between 2010 and 2014 from 42,727 ug/L to 1,104 ug/L (Figure 15). Since 2014, the total detected VOC concentrations have been relatively stable between about 1,000 to 3,000 ug/L.

Although MW-35p2 typically has the highest total detected VOC concentrations during spring-time spike events (see above), MW-38p2 has notably higher concentrations of chlorinated ethanes and ethenes, 1,2-dichlropropane, and benzene (see Table 10 and Table 11 for comparison).

During the last sampling round of MW-38p2 in September 2017, the concentrations of several chlorinated ethanes and ethenes, toluene, 1,2-dichloropropane, and chloroform were noticeably lower compared to previous sampling events (Table 11). Whether the decrease in these VOCs is related to the recent MPE pilot test activities is unknown. Continued monitoring will be required to assess long-term trends and response to remedial actions

All three P2 zone wells also have elevated iron and manganese above background. Chloride and total dissolved solid concentrations measured in MW-35p2 and MW-33p2 are higher than the concentrations measured in MW-38p2. These two wells are located below landfill refuse, which may contribute to elevated chloride and total dissolved solids in the P2 zone, while MW-38p2 is located just outside the footprint of the original landfill (see Figure 2).

6.3.2 Roza Aquifer

As a general trend, the total detected VOCs in Roza aquifer wells have slowly declined over time (Figure 16). Prior to the recent installation of MW-63b in 2016 at the northern POC (see above), the highest concentrations of total VOCs observed in the Roza aquifer was in offsite well MW-44b; about 300 feet north of the landfill property boundary (Figure 1). Over the period that MW-44b was sampled (2009 to 2013), the concentration of total VOCs slowly declined from about 650 ug/L to 500 ug/L (Figure 16). However, vinyl chloride slightly increased in MW-44b between 2009 and 2013 from 1.8 ug/L to 5.9 ug/L. The trend in vinyl chloride in MW-44b may represent residual effects from historic releases at the site. MW-44b has not been sampled since 2013, but monitoring of this well will resume in 2018 (see Section 7.0).

6.3.3 Interflow Aquifer

In general, the total detected VOC concentrations in Interflow aquifer wells have been either quasi-steady (not trending but some variability) or slightly decreasing (Figure 17). However, a few new low-concentration VOC occurrences were observed in MW-2c along the east boundary of the landfill:

- 1,4-dichlorobenzene was first detected in December 2011 at 0.2 ug/L and has since increased to about 1 ug/L

- Benzene was first detected in December 2013 at 0.21 ug/L and has since increased to about 0.4 ug/L.
- Vinyl chloride was first detected in September 2012 at 0.06 ug/L and has since increased to about 0.3 ug/L.
- Chlorobenzene was first detected in September 2014 at 0.2 ug/L and has since shown periodic detections at or slightly above the laboratory reporting limit (0.2 ug/L), with no apparent increasing trend.

In addition to the new low-level detections, cis-1,2-dichloroethene has slightly increased in MW-2c since 2012 from about 0.4 to 1 ug/L. Except for vinyl chloride, none of the low-level detected concentrations exceed RI screening levels. The new detections and trends are likely due to slight changes in groundwater flow paths between site contaminant sources and MW-2c. They may also represent residual effects from historic releases at the site.

Prior to the recent installation of MW-58c in 2016 at the northern POC (see above), the highest concentration of total VOCs observed in the Interflow aquifer was in MW-5c at the western POC (Figure 1).

6.3.4 Frenchman Springs Aquifer

The concentration of total detected VOCs in MW-28d has generally varied between 4 and 7 ug/L (Figure 17). A single concentration spike in March 2015 of 12 ug/L is likely related to laboratory errors (concentrations of acetone and chloromethane were flagged as being detected in the method blank; see Table 14).

In general, the concentration of VOCs has been consistent between sampling events; although slight increasing trends have been observed in the following three VOCs:

- Vinyl chloride increased from 0.028 to 0.06 ug/L between 2008 and 2017
- Trichloroethene increased from 0.3 to 0.67 ug/L between 2008 and 2015
- 1,1-dichloroethane increased from 0.3 to 0.59 ug/L between 2008 and 2017

Trichloroethene and vinyl chloride are the only two VOCs to exceed RI screening levels in this well (see Table 14).

7.0 CONTINUED VOLUNTARY POST-RI GROUNDWATER MONITORING

Quarterly sampling of solid waste monitoring wells will continue at the site in accordance with the Ephrata Landfill solid waste monitoring plan (PGG and Parametrix, 2013) with the exception that site-wide water level gauging of monitoring wells will be performed quarterly. In addition, voluntary post-RI monitoring will continue bi-annually at select wells until a final cleanup action plan and monitoring plan has been established for the original landfill. Post-RI monitoring will focus on performance monitoring and plume

monitoring at select wells as described below. All groundwater analytical data will be submitted to Ecology's EIM database.

7.1 ON-SITE PERFORMANCE MONITORING

Monitoring of the P2 wells by the former drum area (MW-33p2, MW-35p2, and MW-38p2) will continue to evaluate the effects of remedial measures (i.e., drum removal, landfill capping, and recent MPE pilot testing). Since the dominant pathway from the P1 zone is vertically downward to the P2 zone, and since the chemically-affected P1zone is limited to on-site in the vicinity of the former drum area (i.e., limited lateral spreading), performance monitoring will focus on monitoring groundwater quality in the underlying P2 zone.

7.2 PLUME MONITORING

Newly installed POC wells MW-63b (Roza aquifer) and MW-58c (Interflow aquifer) will be monitored to evaluate trends in Northerly Plume concentrations at the POC (Figure 2), and monitoring of off-site well M-44b (Roza aquifer) will resume to evaluate trends in off-site concentrations in the Northerly Plume.

On-site Roza well MW-42b will also continue to be monitored. This well is located in the Northerly Plume mid-way between the performance monitoring wells and the northern POC (see Figure 2).

The Frenchman Springs well (MW-28d) will no longer be sampled since monitoring of the overlying Interflow aquifer at MW-5c will continue quarterly for solid waste compliance and MW-5c is located upgradient of MW-28d at the western POC (see Figure 1).

8.0 SITE CONCEPTUAL MODEL

The new findings presented in this report confirm the site conceptual model developed in the RI (PGG 2010). The new findings also provide more detailed characteristics of the P1 zone by the former drum area. A summary follows.

Two groundwater plumes in the Wanapum basalt, a Northerly Plume and Landfill Plume, originate from historic on-site sources of contaminants at or adjacent to the original landfill. Potential on-site sources affecting groundwater quality include mobilization of contaminants released from the formerly buried drums at the north end of the original landfill, leaching of refuse from the original unlined landfill (including leaching from refuse into groundwater in the Hole[7]), diffusion of original landfill gas, and mobilization of potential historic incidental chemical releases (e.g., solvents) in the vicinity of the old maintenance shop and scale house in the northwest corner of the site (see Figures 1 and 2).

[7] The Hole (Figure 2) is a 20-foot depression in the basalt surface beneath the original landfill. The depression is filled with soil and refuse and the lower 5 to 7 feet is saturated with groundwater.

The *Northerly Plume* originates primarily from shallow sources in and near the P1 and P2 zones near the former drum area at the north end of the original landfill. Contaminants in the P1 and P2 zones attenuate significantly as they migrate vertically to the underlying Roza aquifer. Vertical leakage from the Hole also contributes contaminants to the Roza aquifer. Vertical migration of contaminants to the Roza aquifer occurs onsite near the overlying sources. Those contaminants that survive into the underlying Roza aquifer then migrate horizontally offsite beyond the northern POC with some vertical migration to the deeper Interflow aquifer (Figure 3).

The *Landfill Plume* is a diffuse plume that underlies the original landfill and extends radially outward (in the direction of groundwater flow) to the west, south, and east in the Interflow aquifer that then subcrops and discharges to the Outwash aquifer south of the original landfill. Vertical migration to the deeper Frenchman Springs aquifer also occurs along the west side of the original landfill. The dominant source of the Landfill Plume is assumed to be the original landfill but may include contributions from the former drum area.

Several interim remedial actions have been performed to address historic on-site contaminant sources:

- Removal and disposal of approximately 2,350 buried drums of industrial waste and associated contaminated liquids and soils in 2008
- Capping of original landfill and construction of landfill gas and surface water control systems in 2008
- North end soil removal and capping in vicinity of old maintenance shop - phased work occurring between 2012 and 2017
- Extraction of 85,325 gallons of groundwater from the Hole in 2008
- Extraction of 34,000 gallons of groundwater from the P1 zone (MW-34p1) in 2010
- Extraction of approximately 15.5 gallons of LNAPL from the P1 zone between 2009 and 2010
- LNAPL removal with passive adsorbent socks in the P1 zone from 2010 to 2017
- Four-month Multi-Phase Extraction Pilot Test in the P1 zone in 2017

Given the generally stable to declining trends observed in the long-term groundwater monitoring data and the above interim actions, the concentrations in the two groundwater plumes are expected to continue to decline over time.

8.1 P1 ZONE CHARACTERISTICS BY FORMERLY BURIED DRUMS

Observations during the drilling, sampling, and testing of nine new P1 zone wells and previous observations suggest the following about the P1 zone around the former drum area.

- The P1 zone is a shallow, highly fractured and/or soft, weathered, saturated layer within basalt. The zone is relatively thin (about 1 to 5 feet thick) and laterally continuous in

the vicinity of the former drum area with variable thickness and elevation. Elsewhere, it is discontinuous or absent. Because of its undulating profile the zone has both high and low areas. In some places the top of the P1 is in direct contact with the overlying landfill refuse/alluvium, and the coarse backfill in the former drum excavation. In other locations, an aquitard of hard basalt up to 7 feet thick occurs between the refuse/alluvium and the underlying P1 zone (Figure 4).

- VOC groundwater concentrations in the P1 zone are some of the highest measured on site and LNAPL has been observed in P1 wells in the past, though measurable LNAPL has not been observed since 2011. A concentration gradient exists in the zone, with wells located closest to the former drum area having much higher VOC concentrations in groundwater than those located farthest from the drum area (Figure 6). Observations to date suggest the lateral extent of the highly contaminated P1 zone is limited to the immediately area of the former drum area, within 300 feet or less (PGG 2010).
- Groundwater in the P1 zone is perched on a hard basalt aquitard up to 10 feet thick, separating it hydraulically from the underlying P2 zone; though vertical fractures through the aquitard provide leakage to the underlying P2 zone.
- Secondary mineralization in the weathered P1 zone likely include minerals such as clay that organic contaminants more readily adsorb to. In contrast, the bounding basalt aquitards are mainly composed of primary minerals that organic contaminants do not readily adsorb to.
- The permeability of the P1 zone is heterogeneous and likely contains preferential flow paths that may not be penetrated by each well. Thus, extraction of liquids and vapor will be predominantly drawn from the higher transmissivity areas within the P1 zone. Vapor can also be drawn through unsaturated fractures in the overlying aquitard or directly from refuse/alluvium where the aquitard is absent.
- Despite the heterogeneity of the P1 zone, the results of the long-term aquifer test (Section 5.2) indicates the P1 wells are hydraulically interconnected; however, as long-term active extraction and dewatering occurs in the P1 zone, low areas in the P1 zone may become hydraulically isolated from other areas and pockets of pooled water may remain despite continued pumping from extraction wells. This may limit vapor extraction in those areas.

9.0 REFERENCES

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Table 1. Ephrata Landfill Wells and Borings (NVD29 Elevation Datum)

Well or Boring Designation	MW-1a (outwash)	MW-2c (interflow)	MW-3b (Roza-decom.)	MW-4c (interflow)	MW-5c (interflow)	MW-6a (outwash)	MW-6c (interflow)	MW-7b (Roza)	MW-8b (Roza-decom.)	MW-9b (Roza)	MW-10a (outwash)	MW-11a (outwash)	MW-12 (decom.)	MW-13 (decom.)	MW-14a (outwash)	B-15 (well not built)	MW-16d (BIF)
Northing	10913	12237	13510	12739	12769	11496	11496	13548	13062	13284	9531	9555	11522	10870	10870	10884	11400
Easting	20087	20103	19137	20101	18789	20089	20089	18893	19406	18862	18796	20095	18807	18793	18813	19424	19484
Ground Elevation (atd)	1221.6	1239.8	1261.8	1255.3	1273.4	1227.7	1227.7	1261	1277	1267	1240	1211	1261	1255	1255	1240.9	1230.8
Scribe Elevation	1222.38	1241.41	1263.91	1256.92	1274.86	1228.63	1228.63	1262.93	N/A	1267.16	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Top of Steel Casing Elevation	1223.46	1242.51	1264.95	1258.01	1275.85	1229.68	1229.63	1263.97	N/A	1270.17	1242.75	1213.5			1258.44		1234.51
Top PVC Elevation - pre 10-1-89	1223.06	1241.88	1263.77	1257.46	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Top PVC Elevation - post 10-1-89	1222.36	1241.48	1263.77	1257.09	1274.895	1228.685	1228.645	1263.03	1279.02	1269.17	1242.56	1213.56			1258.58	N/A	1233.93
Top PVC Elevation - post 11-1-02	1222.44	1241.51	1263.83	1257.12	1274.9	1228.79	tbd	1263.02	N/A	1269.2	1242.7	1213.65			1258.58		1234.02
Well Seal Elevation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Control Hub Elevation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Basalt Surface Elevation	<1160	1226	1259	1247	1245	1165	1165	1251	1261	1247	1178	< 1173	1200		1178	1154	1176
top of screen depth (ft bgs)	35.0	96.0	56.0	122.0	142.0	38.0	68.0	49.0	70.0	56.0	47.5	19.5	N/A	N/A	65.0	N/A	98.5
bot of screen depth (ft bgs)	47.0	106.0	61.0	132.0	152.0	53.0	78.0	59.0	80.0	66.0	62.5	36.5	N/A	N/A	80.0	N/A	108.5
pump depth (ft below top of PVC)	42.0	96.0	57.0	123.0	143.0	46.0	69.0	50.0	N/A	55.0	65.5	38.0	N/A	N/A	78.0	N/A	111.0
Specific capacity (gpm/ft)	very high	moderate	1.4	<0.2	3.8	12.0	very high	N/A	N/A	0.3	high	very high	N/A	N/A	very high	N/A	very low
Target sample flow rate (gpm)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	N/A	1.0	1.0	1.0	N/A	N/A	1.0	N/A	pump dry

Well or Boring Designation	MW-17a (outwash)	MW-18a (outwash)	MW-19b (Roza)	MW-20c (interflow)	MW-21c (interflow)	MW-22c (interflow)	MW-23a (outwash)	MW-24a (outwash)	MW-25a (outwash)	MW-26a (outwash)	B-27 (well not built)	MW-28d (FS)	MW-29b (Roza)	MW-30b (Roza)	MW-31b (Roza)	MW-32a (Top of Rock)	MW-33p2 (P2)
Northing	12454	13364.3	13898	14707.9	12470.0	11397.1	9544.9	9615.88	9596.36	11464.93	13068.08	12689.25	12923.6	12981	13133.29	13011.62	12925.29
Easting	17983	18492.6	18109	18493.2	17984.0	19471.0	19458.5	20090.16	18796.79	20588.13	18678.75	18689.13	19748.84	19542.7	19573.43	19722	19591.21
Ground Elevation (atd)	1226.5	1238.5	1242.2	1254.3	1226.8	1231.2	1228.2	1211.59	1241.19	1206.12	1273.43	1274.95	1279	1284	1272.7	1272.2	1285.9
Scribe Elevation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Top of Steel Casing Elevation	1226.62	1238.79	1242.57	1254.50	1226.79	1234.18	1231.24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Top PVC Elevation - pre 10-1-89	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Top PVC Elevation - post 10-1-89	1226.26	1238.11	1241.94	1254.02	1226.33	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Top PVC Elevation - post 11-1-02	1226.31	1238.22	1242.16	1254.04	1226.50	1234.21	1231.23	1214.63	1244.81	1209.19	N/A	1278.17	1285.18	1288.12	1274.89	1276.47	1291.67
Well Seal Elevation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Control Hub Elevation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Basalt Surface Elevation	<1165	<1171	1231	1229	1139	1176.0	<1142	<1054	<1108	1141	1231	1246	1254	1253.5	1272.7	1252.2	1252.4
top of screen depth (ft bgs)	50.5	52.0	19.0	88.5	109.5	58.0	45.0	74.75	74	53.5	N/A	333	62.5	65	63	16	43
bot of screen depth (ft bgs)	60.5	62.0	29.0	98.5	119.5	68.0	60.0	84.75	89	63.5	N/A	353	67.5	75	73	20.7	53
pump depth (ft below top of PVC)	55.0	57.0	27.0	94.0	115.0	70.0	62.0	N/A	N/A	N/A	N/A	346	N/A	N/A	N/A	N/A	N/A
specific capacity (gpm/ft)	5.0	21.0	very low	0.04	0.6	very high	very high	very high	very high	very high	N/A	0.03	very low	very low	very low	high	very low
Target sample flow rate (gpm)	1.0	1.0	pump dry	0.5	1.0	1.0	1.0	1.0	1.0	1.0	N/A	0.5	0.5	0.5	0.2	1.0	0.25/bail

Table 1. Ephrata Landfill Wells and Borings (NVD29 Elevation Datum)

Well or Boring Designation	MW-34p1 (P1)	MW-35p2 (P2)	MW-36p1 (P1)	MW-37p1 (P1)	MW-38p2 (P2)	MW-39p2 (P2)	MW-40p2 (P2-decom.)	MW-41a (P1-decom.)	MW-42b (Roza)	MW-43p2 (P2)	MW-44b (Roza)	MW-45c (interflow)	MW-46p2 (P2)	MW-47c (interflow)	MW-48b (Roza)	MW-49p2 (P2)	MW-50c (interflow)
Northing	12959.45	13041.35	12985.64	13019.411	13070.7	12846.2	13552.3	13547.1	13317.64	13326	13946	13949	13942	14141	14135	14129	14849
Easting	19633.47	19503.9	19545.87	19796.59	19597.7	20080.1	19069.2	19067.6	19441.86	19428	19763	19757	19771	19200	19197	19195	19851
Ground Elevation (atd)	1280.3	1281	1283.8	1273.7	1272.4	1260.1	1260.3	1260.3	1277.96	1277.96	1263.8	1263.8	1263.8	1275.92	1275.92	1275.92	1256.02
Scribe Elevation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Top of Steel Casing Elevation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Top PVC Elevation - pre 10-1-89	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Top PVC Elevation - post 10-1-89	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Top PVC Elevation - post 11-1-02	1285.93	1286.97	1288.99	1275.58	1278.0	1262.6	1262.9	1263.38	1280.76	1281.07	1266.09	1266.47	1265.78	1278.27	1278.65	1278.47	1258.42
Well Seal Elevation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Control Hub Elevation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Basalt Surface Elevation	1255.8	1261	1257.8	1254.7	1259.9	1252.8	1252.8	1253.0	1270	1276	1264	1262	1261	1274	1274	1275	1256
top of screen depth (ft bgs)	28	43	32	17.5	33.0	25.0	21.0	4.5	55.0	43.0	47.5	147.5	26.0	150.0	62.0	42.8	103.0
bot of screen depth (ft bgs)	34	49	37	22.6	43.0	35.0	31.0	9.5	65.0	53.0	57.5	157.5	36.0	165.0	72.0	47.8	113.0
pump depth (ft below top of PVC)	N/A	N/A	N/A	N/A	No Pump	No Pump	No Pump	No Pump	64.0	No Pump	56.0	158.0	No Pump	163.0	71.0	No Pump	No Pump
specific capacity (gpm/ft)	high	very low	N/A	very low	very low	very low	very low	very high	low	very low	very low	very low	very low	moderate	moderate	very low	moderate
Target sample flow rate (gpm)	1.0	bail	N/A	bail	bail dry/return	0.25/bail	bail dry/return	1.0	0.8	bail dry/return	0.5	0.5	bail	1.0	1.0	0.5	1.0

Well or Boring Designation	MW-51b (Roza)	MW-52p2 (p2)	MW-53a (Top of Rock)	MW-54c (Interflow)	MW-55c (Interflow-dry)	MW-56c (IF, former Whitson)	MW-57b (Roza)	MW-58c (interflow)	MW-59p0 (P0)	MW-60p2 (P2)	MW-61p1 (P1)	MW-62c (interflow)	MW-63b (Roza)	MW-64p1 (P1)	MW-65p1 (P1)	MW-66p1 (P1)	MW-67p1 (P1)
Northing	14844	14840	14879	15215	15209.5	13977	13531.573	13535.793	13527.215	13522.534	13547.521	13543.138	13538.672	12939.673	12953.088	12968.517	12971.023
Easting	19849	19847	20558	21693	21692.9	20452	19922.936	19928.082	19917.649	19912.337	19616.331	19621.872	19628.35	19578.096	19602.171	19600.473	19586.124
Ground Elevation (atd)	1256.02	1256.02	1224.63	1230.77	1230.8	N/A	1275	1275	1275	1275	1278	1278	1278	1285.8	1283.46	1284.59	1283.21
Scribe Elevation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Top of Steel Casing Elevation	N/A	N/A	N/A	N/A	N/A	1231.22 (original)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Top PVC Elevation - pre 10-1-89	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Top PVC Elevation - post 10-1-89	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Top PVC Elevation - post 11-1-02	1258.6	1258.66	1227.05	1233.53	1233.4	N/A	1277.97	1277.28	1278.50	1278.61	1281.29	1281.59	1281.42	1289.67	1287.54	1286.83	1287.15
Well Seal Elevation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Control Hub Elevation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Basalt Surface Elevation	1256	1255	1211	1231	1231.0	1227.22	1273.5	1273.5	1273.0	1273.5	1277.0	1276.5	1277.0	1251.8	1255.46	1254.09	1252.21
top of screen depth (ft bgs)	42.0	32.5	8.5	142.0	65.0	111	65	150	12	41	31	168	50	35.5	27	32.5	31
bot of screen depth (ft bgs)	56.0	42.5 (38.6?)	13.5	152.0	75.0	131	80	160	17	51	41	178	60	40.5	34	36.5	40
pump depth (ft below top of PVC)	No Pump	No Pump	No Pump	No Pump	No Pump	No Pump	No Pump	No Pump	No Pump	No Pump	No pump	No Pump	No Pump	No Pump	No Pump	No Pump	No Pump
specific capacity (gpm/ft)	very high	very low	moderate	very low	dry well	very low	high	moderate	very low	High	very low	low	moderate	very low	high	very low	very low
Target sample flow rate (gpm)	1.0	0.25/bail	1.0	pump dry	dry well	0.5	1.0	0.8	0.3	1.0	bail dry/return	0.5	1.0	bail dry/return	1.0	bail dry/return	bail dry/return

Table 1. Ephrata Landfill Wells and Borings (NVD29 Elevation Datum)

Well or Boring Designation	MW-68p1 (P1)	MW-69p1 (P1)	MW-70p1 (P1)	W-9 (hole)	W-12 (hole)	EW-1 (hole)	EW-2 (Roza)	33M1 (supply well)	Section 4 Pond	33F1 (Paris/Abrams)	32R (Moore)	32A1 (Atkins'old)	32A2 (Atkins'new)	GP-1 (decom.)	GP-2 (decom.)	GP-3 (decom.)	GP-4
Northing	12980.447	12998.977	12959.32	13183.8	13190.7	13106.7	13323	N/A	N/A	13103	N/A	14663	Not Surveyed	12198	12903	12841	N/A
Easting	19610.249	19592.985	19685.828	19167.9	19270.7	19225.9	18931	N/A	N/A	21254	N/A	18503.9		19117	19012	19489	N/A
Ground Elevation (atd)	1280.43	1279.68	1279.5	1275.6	1282.0	1285.6	1260.85	1272	N/A	1221.8	N/A	N/A		1277.1	1284.7	1276.6	1272.4
Scribe Elevation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
Top of Steel Casing Elevation	N/A	N/A	N/A	N/A	N/A	1287.70	1263.35	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
Top PVC Elevation - pre 10-1-89	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
Top PVC Elevation - post 10-1-89	N/A	N/A	N/A	N/A	N/A	1287.70	1263.35	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
Top PVC Elevation - post 11-1-02	1284.36	1283.95	1283.01	1280.1	1286.5	1290.65		N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
Well Seal Elevation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1223.31	1250.03	1247.49		N/A	N/A	N/A	N/A
Control Hub Elevation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1184.78	N/A	N/A	N/A		N/A	N/A	N/A	N/A
Basalt Surface Elevation	1256.93	1255.18	1254.5	1228.6	1227.5	1227.6	1258	1211	N/A	1187	1150 ?	N/A		1242	1239	1257.60	<1252
top of screen depth (ft bgs)	26	27	27	37.0	44.0	55.6	55.5	N/A	N/A	N/A	N/A	N/A		32.0	33.0	14.0	14.0
bot of screen depth (ft bgs)	34	32	33	47.0	54.0	60.2	65.4	N/A	N/A	N/A	N/A	N/A		42.0	38.0	19.0	19.0
pump depth (ft below top of PVC)	No pump	No Pump	No Pump	No Pump	No Pump	No Pump	No Pump	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
specific capacity (gpm/ft)	high	very low	very low	N/A	N/A	very high	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
Target sample flow rate (gpm)	1.0	0.3	bail dry/return	N/A	N/A	1.0	1.0	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A

Well or Boring Designation	GP-5	GP-6	GP-7	GP-8	GP-9	GP-10	GP-11	GP-12	GE-1	GE-2	GE-3	GE-4	GE-5	GE-6	GE-7	GE-8	GE-9
Northing	13254	12842.66	11843	10843	9843	9537	10470	11470	12944	13019	13053	13180	12973	12825	12875	12676	12724
Easting	18829	20094.82	20100	20102	20102	19152	18791	18795	18905	19003	19142	19311	19404	19458	19653	19671	19865
Ground Elevation (atd)	1268.5	1256	1234.0	1222.0	1214.0	1234.0	1250.0	1263.0	1291.0	1289.0	1288.0	1286.0	1291.5	1299.0	1285.0	1294.5	1282.0
Basalt Surface Elevation	<1248	1250	<1218	<1200	<1200	<1200	<1200	<1200	<1258	<1259	<1248	<1246	<1246.5	<1264	<1250	<1259.5	1262
top of screen depth (ft bgs)	14.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
bot of screen depth (ft bgs)	19.0	15.0	16.0	22.0	14.0	34.0	50.0	63.0	33.0	30.0	40.0	40.0	45.0	35.0	35.0	35.0	25.0

Well or Boring Designation	GE-10	GE-11	GE-12	GE-13	GE-14	GE-15	GE-16	GE-17	GE-18	GE-19	GE-20	GE-21	GE-22	GE-23	GE-24	GE-25	GE-26
Northing	12587	12402	12188	11961	11812	11747	11896	11740	11743	11732	11746	11882	12019	12155	12291	12550	12809
Easting	19926	19927	19927	19881	19854	19765	19673	19614	19469	19319	19169	19107	19044	18982	18919	18943	18968
Ground Elevation (atd)	1274.0	1267.0	1265.0	1268.0	1270.0	1272.0	1279.5	1272.0	1244.0	1275.0	1279.5	1286.0	1293.0	1294.5	1290.0	1293.0	1295.5
Basalt Surface Elevation	<1254	<1234	<1240	<1243	<1235	<1244	<1234.5	<1238	<1204	<1233	<1229.5	<1231	<1248	<1254.5	<1240	<1240	<1267.5
top of screen depth (ft bgs)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	41.0	16.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
bot of screen depth (ft bgs)	20.0	33.0	25.0	25.0	35.0	28.0	45.0	34.0	40.0	42.0	50.0	55.0	45.0	40.0	50.0	53.0	28.0

Well or Boring Designation	GE-27	GE-28	GE-29	GE-30	GE-31	GE-32	GE-33	GE-34	GE-35	GE-36	GE-37	GE-38	GE-39	GE-40	GE-41	GE-42	GE-43
Northing	12854	12665	12703	12626	12532	12459	12336	12221	12075	12053	11909	12265	12445	12218	12485	12300	12027
Easting	19163	19107	19302	19477	19806	19644	19825	19662	19783	19553	19411	19509	19390	19302	19195	19119	19244
Ground Elevation (atd)	1302.0	1302.0	1305.0	1303.0	1287.0	1295.0	1281.0	1288.0	1281.5	1288.0	1284.5	1294.0	1302.00	1298.0	1305.5	1302.0	1294.0
Basalt Surface Elevation	<1252	<1259	<1255	<1268	<1250	1265	<1244	<1240	<1231.5	<1245	<1239.5	<1244	<1254	<1248	<1264.5	<1252	<1249
top of screen depth (ft bgs)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
bot of screen depth (ft bgs)	50.0	43.0	50.0	35.0	37.0	37.0	37.0	48.0	50.0	43.0	45.0	50.0	48.0	50.0	41.0	50.0	45.0

Table 2. Summary of Aquifer Pumping Test Results - Ephrata Landfill (April 2016)

			Individual Short Term Tests (< 1 hour)						Long Term Test of MW-65p1 with Multiple Observation Wells							
			Wells pumped at variable rates (see below)						MW-65p1 pumped at about 1.5 gpm for 5.5 hours and then 2 gpm for 1 hour							
Well ID	Aquifer	Location	T (ft^2/dy)	Well-bore Storage Effects[1]	Sustained Flow Rate when Water Level drawn down to Pump Intake (gpm)[2]	Range of Pumping Rates applied for Analysis (gpm)[3]	Analytical Solution[4]	See Figures in Appendix C	T (ft^2/dy)	S (unitless)	SWL, from TOC (ft)	Well Depth, from TOC (ft)	Max Avail. DD (before test)	Max DD (end of test)	Analytical Solution	See Figures in Appendix C
MW-59p0	P0	POC	2	Yes	0.3	0.2 to 0.4	Dougherty-Babu	Fig. C-1								
MW-61p1	P1	POC	<1	Yes	Pumped Dry (< 0.05)	<0.1 to 0.4	Dougherty-Babu	Fig. C-2								
MW-34p1	P1	Drum Area	NA	NA	NA	NA	NA	NA	80	0.0007	29.89	39.77	9.9	1.2	Theis	Fig. C-15
MW-36p1	P1	Drum Area	NA	NA	NA	NA	NA	NA	84	0.007	35.01	42.19	7.2	0.3	Theis	Fig. C-16
MW-64p1	P1	Drum Area	6	Yes	0.05 to 0.2	<0.1 to 0.9	Dougherty-Babu	Fig. C-3	95	0.07	35.13	44.45	9.3	0.2	Theis	Fig. C-17
MW-65p1	P1	Drum Area	50	No	NA	0.7 to 2.7	Theis	Fig. C-4	64	NA	31.56	38.39	6.8	4.9	Cooper-Jacob	Fig. C-18
MW-66p1	P1	Drum Area	4	Yes	Pumped Dry (< 0.2)	0.2 to 0.7	Dougherty-Babu	Fig. C-5	27	0.0005	30.85	40.08	9.2	3.7	Theis	Fig. C-19
MW-67p1	P1	Drum Area	<1	Yes	Pumped Dry (< 1 gpm)	0.3 to 1.9	Dougherty-Babu	Fig. C-6	53	0.008	32.24	43.31	11.1	0.9	Theis	Fig. C-20
MW-68p1	P1	Drum Area	20	No	NA	1	Cooper-Jacob	Fig. C-7	34	0.001	28.98	37.88	8.9	1.6	Theis	Fig. C-21
MW-69p1	P1	Drum Area	9	Yes	0.35	0.2 to 1	Dougherty-Babu	Fig. C-8	26	0.003	29.15	36.66	7.5	0.6	Theis	Fig. C-22
MW-70p1	P1	Drum Area	8	Yes	0.1	0.1 to 1	Dougherty-Babu	Fig. C-9	34	0.0007	27.88	37.03	9.2	0.4	Theis	Fig. C-23
Multiple	P1	Drum Area							59-85	0.0005-0.03					Cooper-Jacob (Dist. DD)	C-24 to C-28[5]
MW-60p2	P2	POC	90	No	NA	0.98	Cooper-Jacob	Fig. C-10								
MW-57b	Roza	POC	74	No	NA	1.7 to 1.9	Cooper-Jacob	Fig. C-11								
MW-63b	Roza	POC	15	No	NA	1	Cooper-Jacob	Fig. C-12								
MW-58c	IF	POC	10	No	NA	0.8	Cooper-Jacob	Fig. C-13								
MW-62c	IF	POC	4	No	NA	0.5	Cooper-Jacob	Fig. C-14								

T = Transmissivity

S = Storage Coefficient

DD = Drawdown

TOC = Top of Casing

SWL = Static Water Level

IF = Interflow

POC = Point of Compliance (Norhern Landfill Property Boundary)

NA = Not Analyzed or Not Observed

Notes

1. Several wells displayed well-bore storage effects, signficant drawdown, and decreasing pumping rates with drawdown, making analysis of individual short term tests challenging (see text)
2. Sustained rate that water flowed into well when drawdown at/or near pump intake (only observed in some wells)
3. Range of pumping rates applied for analysis of Transmissivity (T).
4. Different analytical solutions used to account for variable pumping rates and well-bore storage effects (see text)
5. Ommits MW-66p1 from Line E (outlier)

Table 3. Summary of Aquifer Transmissivities

Well	Aquifer	T ft^2/dy	T gpd/ft	Source
MW-6a	Outwash	15,000	112,200	Phase 2 Investigation Report (1990)
MW-23a	Outwash	very high	very high	RI Investigation (2010) - No measurable DD at 5gpm
MW-24a	Outwash	8,800	66,000	RI Investigation (2010)
MW-26a	Outwash	very high	very high	RI Investigation (2010) - No measurable DD at 5gpm
MW-41a	Outwash	2,700	20,000	RI Investigation (2010)
MW-53a	Alluvium	24	180	RI Investigation (2010)
MW-59p0	P0	2	15	RI Addendum II (2017)
MW-34p1	p1	51	380	RI Investigation (2010)
MW-37p1	p1	16	123	RI Investigation (2010)
MW-61p1	p1	<1	<7	RI Addendum II (2017) - Single Well Test
MW-64p1	p1	6	45	RI Addendum II (2017) - Single Well Test
MW-65p1	p1	50	374	RI Addendum II (2017) - Single Well Test
MW-66p1	p1	4	30	RI Addendum II (2017) - Single Well Test
MW-67p1	p1	<1	<7	RI Addendum II (2017) - Single Well Test
MW-68p1	p1	20	150	RI Addendum II (2017) - Single Well Test
MW-69p1	p1	9	67	RI Addendum II (2017) - Single Well Test
MW-70p1	p1	8	60	RI Addendum II (2017) - Single Well Test
MW-33p2	p2	0.3	2.6	RI Investigation (2010)
MW-35p2	p2	0.2	1.2	RI Investigation (2010)
MW-38p2	p2	0.2	1.8	RI Investigation (2010)
MW-39p2	p2	1.6	11.8	RI Investigation (2010)
MW-40p2	p2	0.3	2.44	RI Investigation (2010)
MW-43p2	p2	Very low	very low	RI Investigation (2010) - Pumped dry in 3 minutes at 0.5 gpm
MW-46p2	p2	2.7	20	RI Investigation (2010)
MW-49p2	p2	1.7	12.5	RI Investigation (2010)
MW-52p2	p2	11.4	85	RI Investigation (2010)
MW-60p2	p2	90	673	RI Addendum II (2017)
EW-2	Roza	1,444	10,800	Extraction Well Pump Test Report (2002)
MW-3b	Roza	23,660	177,000	Extraction Well Pump Test Report (2002)
MW-7b	Roza	8,421	63,000	Extraction Well Pump Test Report (2002)
MW-8b	Roza	0.1	0.5	Phase 2 Investigation Report (1990)
MW-9b	Roza	1,183	8,850	Extraction Well Pump Test Report (2002)
MW-29b	Roza	1.4	10.5	RI Investigation (2010)
MW-30b	Roza	0.9	7	RI Investigation (2010)
MW-31b	Roza	0.4	3	RI Investigation (2010)
MW-42b	Roza	3	25	RI Investigation (2010)
MW-44b	Roza	1	6.7	RI Investigation (2010)
MW-48b	Roza	104	780	RI Investigation (2010)
MW-51b	Roza	410	3,070	RI Investigation (2010)
MW-57b	Roza	74	578	RI Addendum II (2017)
MW-63b	Roza	15	117	RI Addendum II (2017)
MW-4c	Interflow	25	190	Phase 2 Investigation Report (1990)
MW-5c	Interflow	690	5,160	Phase 2 Investigation Report (1990)
MW-6c	Interflow	>270	>2,000	Phase 2 Investigation Report (1990)
MW-45c	Interflow	0.6	4.8	RI Investigation (2010)
MW-47c	Interflow	31	230	RI Investigation (2010)
MW-50c	Interflow	3.3	25	RI Investigation (2010)
MW-54c	Interflow	0.1	1	RI Investigation (2010)
MW-55c	Interflow	NA	NA	RI Investigation (2010) - Dry Well
MW-58c	Interflow	10	75	RI Addendum II (2017)
MW-62c	Interflow	4	30	RI Addendum II (2017)
MW-28d	Frenchman Springs	1.1	8	RI Investigation (2010)

T = Transmissitity (gallons-per-day per foot) or (cubic-feet-per-day per foot)

Wells without measured T-values are not shown

Table 4. Analytical Results - MW-65p1
(collected towards end of aquifer test April 2016)

Parameters By Group	Units	MW-65p1
Inorganic Parameters		
Chloride	mg/L	**189**
Nitrate as Nitrogen	mg/L as N	0.1 U
Nitrate+Nitrite as Nitrogen	mg/L as N	0.1 U
Nitrite as Nitrogen	mg/L as N	**0.022**
Sulfate	mg/L	**17.3**
Total Dissolved Solids	mg/L	**1290**
Arsenic, Dissolved	ug/L	**11**
Iron, Dissolved	ug/L	**13800**
Manganese, Dissolved	ug/L	**4680**
Iron, Total	ug/L	**37800**
Manganese, Total	ug/L	**4610**
Organic Parameters (VOCs)		
1,1,1,2-Tetrachloroethane	ug/L	10 U
1,1,1-Trichloroethane	ug/l	**27**
1,1,2,2-Tetrachloroethane	ug/L	10 U
1,1,2-Trichloroethane	ug/L	10 U
1,1,2-Trichlorotrifluoroethane	ug/L	10 U
1,1-Dichloroethane	ug/L	**36**
1,1-Dichloroethene	ug/L	10 U
1,1-Dichloropropene	ug/L	10 U
1,2,3-Trichlorobenzene	ug/L	25 U
1,2,3-Trichloropropane	ug/L	25 U
1,2,4-Trichlorobenzene	ug/L	25 U
1,2,4-Trimethylbenzene	ug/L	**820**
1,2-Dibromo-3-chloropropane	ug/L	25 U
1,2-Dibromoethane	ug/L	10 U
1,2-Dichlorobenzene	ug/L	**95**
1,2-Dichloroethane (EDC)	ug/L	10 U
1,2-Dichloropropane	ug/L	**11**
1,3,5-Trimethylbenzene	ug/L	**340**
1,3-Dichlorobenzene	ug/L	10 U
1,3-Dichloropropane	ug/L	10 U
1,4-Dichlorobenzene	ug/L	**42**
2,2-Dichloropropane	ug/L	10 U
2-butanone	ug/L	250 U
2-Chloroethylvinylether	ug/L	50 U
2-Chlorotoluene	ug/L	10 U
2-Hexanone	ug/L	250 U
4-Chlorotoluene	ug/L	10 U
4-Isopropyltoluene	ug/L	**16**

Table 4. Analytical Results - MW-65p1
(collected towards end of aquifer test April 2016)

Parameters By Group	Units	MW-65p1
4-Methyl-2-pentanone (MIBK)	ug/L	250 U
Acetone	ug/L	250 U
Acrolein	ug/L	250 U
Acrylonitrile	ug/L	50 U
Benzene	ug/L	10 U
Bromobenzene	ug/L	10 U
Bromochloromethane	ug/L	10 U
Bromodichloromethane	ug/L	10 U
Bromoethane	ug/L	10 U
Bromoform	ug/L	10 U
Bromomethane	ug/L	50 U
Carbon Disulfide	ug/L	10 U
Carbon Tetrachloride	ug/L	10 U
Chlorobenzene	ug/L	10 U
Chloroethane	ug/L	**19**
Chloroform	ug/L	10 U
Chloromethane	ug/L	25 U
cis-1,2-Dichloroethene	ug/L	**31**
cis-1,3-Dichloropropene	ug/L	10 U
Dibromochloromethane	ug/L	10 U
Dibromomethane	ug/L	10 U
Ethylbenzene	ug/L	**2100**
Hexachlorobutadiene	ug/L	25 U
Iodomethane	ug/L	50 U
Isopropylbenzene (Cumene)	ug/L	**88**
Methylene Chloride	ug/l	50 U
Naphthalene	ug/L	**300**
n-Butylbenzene	ug/L	**18**
n-Propylbenzene	ug/L	**200**
o-Xylene	ug/L	**1700**
sec-Butylbenzene	ug/L	10 U
Styrene	ug/L	**52**
tert-Butylbenzene	ug/L	10 U
Tetrachloroethene (PCE)	ug/L	10 U
Toluene	ug/L	**8200**
trans-1,2-Dichloroethene	ug/L	10 U
trans-1,3-Dichloropropene	ug/L	10 U
trans-1,4-Dichloro-2-butene	ug/L	**150**
Trichloroethene (TCE)	ug/L	10 U
Trichlorofluoromethane	ug/l	10 U
Vinyl Acetate	ug/L	10 U
Vinyl Chloride	ug/L	10 U

Table 4. Analytical Results - MW-65p1
(collected towards end of aquifer test April 2016)

Parameters By Group	Units	MW-65p1
Xylene Isomers, M+P	ug/L	**4600**
Organic Parameters (SVOC)		
4-Methylphenol	ug/L	**33**
Bis(2-ethylhexyl) Phthalate	ug/L	3 U
Total Detected VOCs	ug/L	**18,845**

Bold: parameter detected above lab reporting limit

U: parameter not detected at associated lab reporting limit (#)

Table 5. Analytical Results - Point of Compliance (POC) Wells (April 2016)

				East Nest				West Nest		
Parameters By Group	**Units**	**RI Screening Level**	**Screening Level Source**	**MW-57b**	**MW-58c**	**MW-59p0**	**MW-60p2**	**MW-61p1**	**MW-62c**	**MW-63b**
Field Parameters										
Depth to Water	feet			44.79	100.35	10.46	45.38	24.46	105.53	48.28
pH	std. units			8.08	7.65	7.27	8.02	8.07	8.17	6.81
Specific Conductance @ 25C	umhos/cm			435	1323	385	363	320	323	2570
Temperature, 0 F	0 F			59.5	63.3	57.6	59.7	63.1	65.3	61
Inorganic Parameters										
Chloride	mg/L	250	STATE	**8.8**	**372**	**9**	**4.1**	**5.6**	**9.6**	**496**
Nitrate as Nitrogen	mg/L as N	10	FED	**11.7**	**0.2**	**7.58**	**5.6**	**0.069**	0.01 U	0.01 U
Nitrate+Nitrite as Nitrogen	mg/L as N	10	FED	**11.7**	**0.2**	**7.58**	**5.6**	**0.097**	0.01 U	0.01 U
Nitrite as Nitrogen	mg/L as N	1	FED	0.01 U	0.01 U	0.01 U	0.01 U	**0.028**	0.01 U	0.01 U
Sulfate	mg/L	250	STATE	**31.5**	**19.5**	**41.5**	**23.4**	**42.4**	**22.5**	**12.8**
Total Dissolved Solids	mg/L	500	STATE	**308**	**2160**	**291**	**224**	**214**	**202**	**1720**
Arsenic, Dissolved	ug/L	0.058	MethB carc	**1.5**	**1.2**	**0.5**	**1.4**		**0.2**	**2.6**
Iron, Dissolved	ug/L	11200	MethB non-carc	20 U	20 U	**20**	20 U		**30**	**70**
Manganese, Dissolved	ug/L	2240	MethB non-carc.	**15**	**21**	**13.8**	**17.3**		**37.2**	**8630**
Iron, Total	ug/L	11200	MethB non-carc	**850**	**370**	**250**	**30**	**2270**	**70**	**14200**
Manganese, Total	ug/L	2240	MethB non-carc.	**17.1**	**18.6**	**29**	**16.8**	**225**	**54**	**11200**
Organic Parameters (VOCs)										
1,1,1,2-Tetrachloroethane	ug/L	1.68	MethB carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,1-Trichloroethane	ug/l	200	FED	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**3.6**
1,1,2,2-Tetrachloroethane	ug/L	0.22	MethB carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2-Trichloroethane	ug/L	0.77	MethB carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2-Trichlorotrifluoroethane	ug/L	240000	MethB non-carc.	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-Dichloroethane	ug/L	7.68	MethB carc	0.2 U	**19**	0.2 U	0.2 U	0.2 U	0.2 U	**140**
1,1-Dichloroethene	ug/L	7	FED	0.2 U	**0.52**	0.2 U	0.2 U	0.2 U	0.2 U	**1.2**
1,1-Dichloropropene	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2,3-Trichlorobenzene	ug/L			0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	ug/L	0.00146	MethB carc	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	ug/L	1.51	MethB carc	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.53**
1,2,4-Trimethylbenzene	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**140**

Table 5. Analytical Results - Point of Compliance (POC) Wells (April 2016)

				East Nest				West Nest		
Parameters By Group	Units	RI Screening Level	Screening Level Source	MW-57b	MW-58c	MW-59p0	MW-60p2	MW-61p1	MW-62c	MW-63b
1,2-Dibromo-3-chloropropane	ug/L	0.0547	MethB carc	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	ug/L	0.02188	MethB carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-Dichlorobenzene	ug/L	600	FED	0.2 U	**3.6**	0.2 U	0.2 U	0.2 U	0.2 U	**24**
1,2-Dichloroethane (EDC)	ug/L	0.48	MethB carc	0.2 U	**1.8**	0.2 U	0.2 U	0.2 U	0.2 U	**4.3**
1,2-Dichloropropane	ug/L	1.22	MethB carc	**0.64**	**12**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3,5-Trimethylbenzene	ug/L	80	MethB non-carc.	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**33**
1,3-Dichlorobenzene	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.4**
1,3-Dichloropropane	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,4-Dichlorobenzene	ug/L	8.1	MethB carc	0.2 U	**2**	0.2 U	0.2 U	0.2 U	0.2 U	**13**
2,2-Dichloropropane	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-butanone	ug/L	4800	MethB non-carc.	5 U	5 U	5 U	5 U	5 U	5 U	**40**
2-Chloroethylvinylether	ug/L			1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Chlorotoluene	ug/L	160	MethB non-carc.	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-Hexanone	ug/L			5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Chlorotoluene	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
4-Isopropyltoluene	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
4-Methyl-2-pentanone (MIBK)	ug/L	640	MethB non-carc.	5 U	5 U	5 U	5 U	5 U	5 U	**64**
Acetone	ug/L	7200	MethB non-carc.	5 U	5 U	5 U	5 U	5 U	5 U	**180 Q**
Acrolein	ug/L	4	MethB non-carc.	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acrylonitrile	ug/L	0.081	MethB carc	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Benzene	ug/L	0.8	MethB carc	0.2 U	**1.8**	0.2 U	0.2 U	0.2 U	0.2 U	**53**
Bromobenzene	ug/L			0.2 U	**0.82**	0.2 U	0.2 U	0.2 U	0.2 U	**3.1**
Bromochloromethane	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromodichloromethane	ug/L	0.71	MethB carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromoethane	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.28**
Bromoform	ug/L	5.5	MethB carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromomethane	ug/L	11.2	MethB non-carc.	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Disulfide	ug/L	800	MethB non-carc.	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.76**
Carbon Tetrachloride	ug/L	0.625	MethB carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chlorobenzene	ug/L	100	FED	0.2 U	**1.7**	0.2 U	0.2 U	0.2 U	0.2 U	**4.1**
Chloroethane	ug/L			0.2 U	**24**	0.2 U	0.2 U	**1.9**	**1.3**	**970**
Chloroform	ug/L	1.41	MethB carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U

Table 5. Analytical Results - Point of Compliance (POC) Wells (April 2016)

				East Nest				West Nest		
Parameters By Group	**Units**	**RI Screening Level**	**Screening Level Source**	**MW-57b**	**MW-58c**	**MW-59p0**	**MW-60p2**	**MW-61p1**	**MW-62c**	**MW-63b**
Chloromethane	ug/L			0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	ug/L	16	MethB non-carc.	0.2 U	**6.1 Q**	0.2 U	0.2 U	0.2 U	0.2 U	**6.6 Q**
cis-1,3-Dichloropropene	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Dibromochloromethane	ug/L	0.52	MethB carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Dibromomethane	ug/L	80	MethB non-carc.	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Ethylbenzene	ug/L	700	FED	0.2 U	0.2 U	0.2 U	0.2 U	**0.34**	**0.2**	**620**
Hexachlorobutadiene	ug/L	0.56	MethB carc	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Iodomethane	ug/L			1 U	1 U	1 U	1 U	1 U	1 U	1 U
Isopropylbenzene (Cumene)	ug/L	800	MethB non-carc.	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**39**
Methylene Chloride	ug/l	5	FED	1 U	**2.2**	1 U	1 U	1 U	1 U	**12**
Naphthalene	ug/L	160	MethB non-carc.	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**47**
n-Butylbenzene	ug/L	400	MethB non-carc.	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
n-Propylbenzene	ug/L	800	MethB non-carc.	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**44**
o-Xylene	ug/L	1600	MethB non-carc.	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.22**	**290**
sec-Butylbenzene	ug/L	800	MethB non-carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Styrene	ug/L	100	FED	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
tert-Butylbenzene	ug/L	800	MethB non-carc.	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Tetrachloroethene (PCE)	ug/L	5	FED	0.2 U	**0.66**	0.2 U	0.2 U	0.2 U	0.2 U	**0.35**
Toluene	ug/L	640	MethB non-carc.	0.2 U	0.2 U	0.2 U	**0.31**	**2**	**1.1**	**2900**
trans-1,2-Dichloroethene	ug/L	100	FED	0.2 U	**0.33**	0.2 U	0.2 U	0.2 U	0.2 U	**2.1 Q**
trans-1,3-Dichloropropene	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
trans-1,4-Dichloro-2-butene	ug/L			1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene (TCE)	ug/L	0.54	MethB carc	0.2 U	**0.88**	0.2 U	0.2 U	0.2 U	0.2 U	**0.4**
Trichlorofluoromethane	ug/l	2400	MethB non-carc.	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl Acetate	ug/L	8000	MethB non-carc.	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl Chloride	ug/L	0.029	MethB carc	0.2 U	**18**	0.2 U	0.2 U	0.2 U	0.2 U	**15**
Xylene Isomers, M+P	ug/L	1600	MethB non-carc.	0.4 U	0.4 U	0.4 U	0.4 U	**0.42**	0.4 U	**640**
Organic Parameters (VOCs), SIM Analysis										
Vinyl Chloride	ug/L	0.029	MethB carc	0.02 U	**22 E**	0.02 U		0.02 U	0.02 U	**16 E**
Organic Parameters (SVOC)										
4-Methylphenol	ug/L	800	MethB non-carc.	2 U	2 U	2 U	2 U		2 U	**35**

Table 5. Analytical Results - Point of Compliance (POC) Wells (April 2016)

				East Nest				West Nest		
Parameters By Group	**Units**	**RI Screening Level**	**Screening Level Source**	**MW-57b**	**MW-58c**	**MW-59p0**	**MW-60p2**	**MW-61p1**	**MW-62c**	**MW-63b**
Bis(2-ethylhexyl) Phthalate	ug/L	6	FED	3 U	**4.4**	3 U	3 U		3 U	3 U
Total Detected VOCs	ugL			**0.64**	**95.41**	**0.00**	**0.31**	**4.66**	**2.82**	**6,292.72**
Number of VOC Exceeding RI Screening Levels				**0**	**6**	**0**	**0**	**0**	**0**	**7**

Bold: parameter detected above lab reporting limit

Bold: concentration exceeds RI screening level

U: parameter not detected at associated lab reporting limit (#)

E: estimated concentration calculated for an analyte response above the valid instrument calibration range; a dilution is required to obtain an accurate quantification.

Q: indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria

Blank: Not sampled

Table 6. Analytical Results - P1 Pilot Test Wells (April 2016)

Parameters By Group	Units	MW-64p1	MW-65p1	MW-66p1	MW-67p1	MW-68p1	MW-69p1	MW-70p1
Field Parameters								
Depth to Water	feet	35.13	31.56	30.85	32.24	28.98	29.15	27.88
pH	std. units	6.98	6.74	6.81	6.83	6.79	6.78	6.85
Specific Conductance @ 25C	umhos/cm	1711	1795	2920	1488	1624	1901	1467
Temperature, 0 F	0 F	67.1	64.9	63.3	64.4	63.9	65.3	59.4
Inorganic Parameters								
Chloride	mg/L	**249**	**225**	**300**	**166**	**230**	**259**	**134**
Nitrate as Nitrogen	mg/L as N	0.05 U	0.5 U	0.01 U	0.5 U	0.01 U	0.01 U	0.02 U
Nitrate+Nitrite as Nitrogen	mg/L as N	0.05 U	0.5 U	0.01 U	0.5 U	0.01 U	**0.014**	0.02 U
Nitrite as Nitrogen	mg/L as N	**0.025**	**0.019**	0.01 U	**0.012**	**0.027**	**0.024**	0.01 U
Sulfate	mg/L	**19**	**18.4**	**23.6**	**17.8**	**20.2**	**22.8**	**15.9**
Total Dissolved Solids	mg/L	**1600**	**1370**	**1570**	**1390**	**1480**	**1810**	**1110**
Arsenic, Dissolved	ug/L	**4**	**5**	**7**	**4**	**7**	**14**	**3**
Iron, Dissolved	ug/L	**8840**	**6740**	**190**	**1780**	**2120**	**280**	**120**
Manganese, Dissolved	ug/L	**3400**	**3980**	**3460**	**5880**	**6450**	**10300**	**4060**
Iron, Total	ug/L	**35800**	**37400**	**23400**	**39400**	**28800**	**15600**	**16100**
Manganese, Total	ug/L	**3050**	**4120**	**3690**	**5590**	**7200**	**10700**	**4340**
Organic Parameters (VOCs)								
1,1,1,2-Tetrachloroethane	ug/L	10 U	0.2 U	0.2 U	0.2 U	0.2 U	10 U	0.2 U
1,1,1-Trichloroethane	ug/l	**50**	**7.3**	**6.1**	**1.7**	**730**	**6700**	0.2 U
1,1,2,2-Tetrachloroethane	ug/L	10 U	0.2 U	0.2 U	0.2 U	**0.44**	10 U	0.2 U
1,1,2-Trichloroethane	ug/L	10 U	**0.29**	0.2 U	0.2 U	0.2 U	**34**	0.2 U
1,1,2-Trichlorotrifluoroethane	ug/L	10 U	**0.62**	**1.2**	**0.3**	**26**	**140**	0.2 U
1,1-Dichloroethane	ug/L	**12**	**19**	**15**	**36**	**210**	**1700**	**24**
1,1-Dichloroethene	ug/L	10 U	**0.35**	**0.52**	0.2 U	**34**	**380**	0.2 U
1,1-Dichloropropene	ug/L	10 U	0.2 U	0.2 U	0.2 U	0.2 U	10 U	0.2 U
1,2,3-Trichlorobenzene	ug/L	25 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U	0.5 U
1,2,3-Trichloropropane	ug/L	25 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U	0.5 U
1,2,4-Trichlorobenzene	ug/L	25 U	**2.4**	**1.7**	**1.7**	**1.7**	25 U	0.5 U
1,2,4-Trimethylbenzene	ug/L	**54**	**610**	**610**	**610**	**1100**	**810**	**3.7**
1,2-Dibromo-3-chloropropane	ug/L	25 U	0.5 U	0.5 U	**9.8**	0.5 U	25 U	0.5 U
1,2-Dibromoethane	ug/L	10 U	0.2 U	0.2 U	0.2 U	0.2 U	10 U	0.2 U
1,2-Dichlorobenzene	ug/L	**12**	**63**	**64**	**64**	**170**	**16**	**1.3**
1,2-Dichloroethane (EDC)	ug/L	10 U	**1.4**	**2.1**	**1.3**	**12**	**160**	**0.71**
1,2-Dichloropropane	ug/L	10 U	0.2 U	0.2 U	**6.4**	**100**	**210**	**3**
1,3,5-Trimethylbenzene	ug/L	**20**	**250**	**250**	**240**	**470**	**370**	**0.78**
1,3-Dichlorobenzene	ug/L	10 U	**5**	**4.8**	**4.6**	**9.3**	10 U	0.2 U
1,3-Dichloropropane	ug/L	10 U	0.2 U	0.2 U	0.2 U	0.2 U	10 U	0.2 U
1,4-Dichlorobenzene	ug/L	**10**	**31**	**30**	**28**	**52**	10 U	**2.2**
2,2-Dichloropropane	ug/L	10 U	0.2 U	0.2 U	0.2 U	0.2 U	10 U	0.2 U
2-butanone	ug/L	250 U	5 U	5 U	**14**	**50**	**1200 Q**	5 U
2-Chloroethylvinylether	ug/L	50 U	1 U	1 U	1 U	1 U	50 U	1 U
2-Chlorotoluene	ug/L	10 U	0.2 U	0.2 U	0.2 U	0.2 U	10 U	0.2 U
2-Hexanone	ug/L	250 U	5 U	5 U	5 U	**22**	250 U	5 U
4-Chlorotoluene	ug/L	10 U	0.2 U	0.2 U	0.2 U	0.2 U	10 U	0.2 U
4-Isopropyltoluene	ug/L	10 U	**11**	**8.5**	**8.9**	**10**	10 U	**0.43**
4-Methyl-2-pentanone (MIBK)	ug/L	250 U	5 U	**5.1**	**7.5**	**80**	**2300 Q**	5 U
Acetone	ug/L	250 U	5 U	**6.1**	**22**	**100**	**5200 Q**	**25**
Acrolein	ug/L	250 U	5 U	5 U	5 U	5 U	250 U	5 U
Acrylonitrile	ug/L	50 U	1 U	1 U	1 U	1 U	50 U	1 U

Table 6. Analytical Results - P1 Pilot Test Wells
(April 2016)

Parameters By Group	Units	MW-64p1	MW-65p1	MW-66p1	MW-67p1	MW-68p1	MW-69p1	MW-70p1
Benzene	ug/L	10 U	**3.4**	**1.6**	**4.6**	**25**	**130**	**3.3**
Bromobenzene	ug/L	10 U	**2.4**	**3.4**	**2.5**	**8.1**	10 U	0.2 U
Bromochloromethane	ug/L	10 U	0.2 U	0.2 U	0.2 U	0.2 U	10 U	0.2 U
Bromodichloromethane	ug/L	10 U	0.2 U	0.2 U	0.2 U	0.2 U	10 U	0.2 U
Bromoethane	ug/L	10 U	0.2 U	0.2 U	0.2 U	0.2 U	10 U	0.2 U
Bromoform	ug/L	10 U	0.2 U	0.2 U	0.2 U	0.2 U	10 U	0.2 U
Bromomethane	ug/L	50 U	1 U	1 U	1 U	1 U	50 U	1 U
Carbon Disulfide	ug/L	10 U	0.2 U	0.2 U	0.2 U	0.2 U	10 U	0.2 U
Carbon Tetrachloride	ug/L	10 U	0.2 U	0.2 U	0.2 U	0.2 U	10 U	0.2 U
Chlorobenzene	ug/L	10 U	**5.3**	**1.8**	**2**	**5.3**	10 U	**0.43**
Chloroethane	ug/L	**23**	**5.1**	**3**	**3.6**	**2**	10 U	**26 Q**
Chloroform	ug/L	10 U	0.2 U	0.2 U	0.2 U	**3.3**	**120**	0.2 U
Chloromethane	ug/L	25 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U	0.5 U
cis-1,2-Dichloroethene	ug/L	**50**	**1.6 Q**	**1.1 Q**	**1.2 Q**	**360**	**10000**	**1.4**
cis-1,3-Dichloropropene	ug/L	10 U	0.2 U	0.2 U	0.2 U	0.2 U	10 U	0.2 U
Dibromochloromethane	ug/L	10 U	0.2 U	0.2 U	0.2 U	0.2 U	10 U	0.2 U
Dibromomethane	ug/L	10 U	0.2 U	0.2 U	0.2 U	0.2 U	10 U	0.2 U
Ethylbenzene	ug/L	**210**	**1700**	**1800**	**1800**	**5700**	**5000**	**7.6**
Hexachlorobutadiene	ug/L	25 U	0.5 U	0.5 U	0.5 U	0.5 U	25 U	0.5 U
Iodomethane	ug/L	50 U	1 U	1 U	1 U	1 U	50 U	1 U
Isopropylbenzene (Cumene)	ug/L	10 U	**57**	**77**	**53**	**150**	**130**	**0.84**
Methylene Chloride	ug/l	50 U	1 U	1 U	1 U	1 U	50 U	**1.3**
Naphthalene	ug/L	**30 Q**	**220**	**200**	**210**	**310**	**200**	**3.8**
n-Butylbenzene	ug/L	10 U	**12**	**8**	**7.8**	**9.4**	10 U	**0.37**
n-Propylbenzene	ug/L	**14**	**140**	**140**	**130**	**280**	**230**	**1.2**
o-Xylene	ug/L	**160**	**1400**	**1500**	**1500**	**4900**	**5200**	**3.5**
sec-Butylbenzene	ug/L	10 U	**6.6**	0.2 U	**4.9**	**7**	10 U	**0.37**
Styrene	ug/L	10 U	**2**	0.2 U	**2.2**	0.2 U	**120**	0.2 U
tert-Butylbenzene	ug/L	10 U	**1.1**	0.2 U	**1**	**1.4**	10 U	0.2 U
Tetrachloroethene (PCE)	ug/L	10 U	0.2 U	**0.61**	0.2 U	**15**	**210**	0.2 U
Toluene	ug/L	**2700**	**4600**	**5300**	**2000**	**55000**	**120000**	**11**
trans-1,2-Dichloroethene	ug/L	10 U	0.2 U	**0.33**	0.2 U	**0.64**	10 U	0.2 U
trans-1,3-Dichloropropene	ug/L	10 U	0.2 U	0.2 U	0.2 U	0.2 U	10 U	0.2 U
trans-1,4-Dichloro-2-butene	ug/L	50 U	1 U	1 U	1 U	1 U	50 U	1 U
Trichloroethene (TCE)	ug/L	10 U	**0.42**	**0.54**	**0.51**	**5.7**	**100**	0.2 U
Trichlorofluoromethane	ug/l	10 U	0.2 U	**0.66**	0.2 U	0.2 U	10 U	0.2 U
Vinyl Acetate	ug/L	10 U	0.2 U	0.2 U	0.2 U	0.2 U	10 U	0.2 U
Vinyl Chloride	ug/L	10 U	**2.4**	**2.6**	**1.5**	**10**	**55**	**2.3**
Xylene Isomers, M+P	ug/L	**480**	**3500**	**3600**	**3400**	**13000**	**14000**	**8.8**
Organic Parameters (SVOC)								
4-Methylphenol	ug/L	**150**	**20**	**28**	**15**	**120**	**190**	2 U
Bis(2-ethylhexyl) Phthalate	ug/L	3 U	3 U	3 U	6 U	3 U	3 U	3 U
Total Detected VOCs	ug/L	**3,825**	**12,661**	**13,646**	**10,181**	**82,970**	**174,715**	**133**

Bold: parameter detected above lab reporting limit

U: parameter not detected at associated lab reporting limit (#)

Q: indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria

Table 7. Analytical Results - Routine Monitoring of Select Wells (Spring 2016)

				North End of Landfill				Perimeter of Landfill						Former Drum Area		
				Roza Aquifer				Interflow Aquifer					FS Aquifer	P2 Zone		
Parameters by Group	Units	RI Screening Levels	Screening Level Source	MW-3b	MW-7b	MW-9b	MW-42b	MW-22c	MW-2c	MW-4c	MW-5c	MW-6c	MW-28d	MW-33p2	MW-35p2	MW-38p2
Field Parameters																
Depth to Water	feet			30.68	29.69	35.23	47.65	51.39	59.71	74.55	91.99	46.08	161.65	52.09	50.21	42.28
pH	std. units			6.79	7.04	6.96	7.01	7.64	7.36	8.53	7.54	7.5	7.88	6.61	6.62	7.06
Specific Conductance @ 25C	mhos/cm			3310	1866	1402	1347	971	2590	293	1625	1322	771	2910	1784	1441
Temperature, 0 F	0 F			60.26	59.72	63.14	65.7	63.14	64.76	62.78	66.56	59.9	70.2	63.7	63.3	61.3
Turbidity	NTU			0.31	0.58	0.4		0.83	0.13	0.82	0.3	0.44				
Inorganics																
Chloride	mg/L	250	STATE	**505**	**337**	**112**	**272**	**184**	**1000**	**10.2**	**636**	**267**	**205**	**804**	**750**	**372**
Nitrate as Nitrogen	mg/L as N	10	FED	0.01 U	**6.34**	**6.7**	0.01 U	**14.5**	**4.69**	0.01 U	**5.53**	**14.6**	**1.42**	0.01 U	**0.012**	0.01 U
Nitrate+Nitrite as Nitrogen	mg/L as N	10	FED	0.01 U	**6.67**	**6.74**	0.01 U	**14.5**	**4.71**	0.01 U	**5.53**	**14.6**	**1.63**	0.01 U	**0.012**	**0.012**
Nitrite as Nitrogen	mg/L as N	1	FED	0.01 U	**0.329**	**0.04**	0.01 U	0.01 U	0.022	0.01 U	0.01 U	0.01 U	0.205	**0.011**	0.01 U	**0.013**
Sulfate	mg/L	250	STATE	**974**	**528**	**218**	**129**	**19.3**	**51.5**	**23.5**	**116**	**60.6**	**48.5**	**24.1**	**18.4**	**38**
Total Dissolved Solids	mg/L	500	STATE	**3140**	**1910**	**1200**	**1250**	**748**	**820**	**195**	**1600**	**1100**	**648**	**2660**	**2120**	**1150**
Metals																
Arsenic, Dissolved	ug/L	0.058	MTCA-B Carc				**1.6**						**0.5**	**3**	**2.8**	**1.8**
Arsenic, Total	ug/L	0.058	MTCA-B Carc	**3.9**	**1.6**	**4.5**		**3.3**	**0.7**	**0.2**	**1.4**	**4.7**				
Iron, Dissolved	ug/L	11200	MTCA-B NON Carc	**4390**	**90**	50 U	**270**	50 U	50 U	50 U	50 U	50 U	50 U	**290**	**100**	50 U
Iron, Total	ug/L	11200	MTCA-B NON Carc				**360**						50 U	**10900**	**17100**	**18200**
Manganese, Dissolved	ug/L	2240	MTCA-B NON Carc	**11200**	**5460**	**1460**	**977**	1 U	**80**	**31**	**1**	**22**	**20**	**8550**	**7440**	**3710**
Manganese, Total	ug/L	2240	MTCA-B NON Carc				**1120**						**22**	**9780**	**8280**	**4160**
Organics																
1,1,1,2-Tetrachloroethane	ug/L	1.68	MTCA-B Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**11**
1,1,1-Trichloroethane	ug/l	200	FED	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**8.6**	**370 D1**
1,1,2,2-Tetrachloroethane	ug/L	0.22	MTCA-B Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2-Trichloroethane	ug/L	0.77	MTCA-B Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**3**
1,1,2-Trichlorotrifluoroethane	ug/L	240000	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.46**	**0.47**
1,1-Dichloroethane	ug/L	7.68	MTCA-B Carc	**4.3**	**4.9**	**0.53**	**18**	**1.6**	**2.3**	0.2 U	**1.2**	**0.55**	**0.45**	**3.3**	**420 D1**	**1100 D1**
1,1-Dichloroethene	ug/L	7	FED	**0.58**	**0.29**	0.2 U	**2.4**	**0.59**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.8**	**56**
1,1-Dichloropropene	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2,3-Trichlorobenzene	ug/L			0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	ug/L	0.00146	MTCA-B Carc	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	ug/L	1.51	MTCA-B Carc	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.53**	**0.95**	0.5 U
1,2,4-Trimethylbenzene	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**14**	**370 D1**	**5**
1,2-Dibromo-3-chloropropane	ug/L	0.0547	MTCA-B Carc	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	ug/L	0.02188	MTCA-B Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-Dichlorobenzene	ug/L	600	FED	**0.27**	**0.44**	0.2 U	**0.8**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**7.5**	**19**	**3.7**
1,2-Dichloroethane (EDC)	ug/L	0.48	MTCA-B Carc	**0.77**	**0.8**	0.2 U	**1.5**	0.2 U	0.2 U	0.2 U	**5.1**	0.2 U	**0.32**	**0.48**	**11**	**26**
1,2-Dichloropropane	ug/L	1.22	MTCA-B Carc	**8.4**	**4.9**	**1.1**	**10**	0.2 U	**0.51**	0.2 U	**0.76**	0.2 U	0.2 U	**0.82**	**24**	**180 D1**
1,3,5-Trimethylbenzene	ug/L	80	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**140 D1**	**3.1**
1,3-Dichlorobenzene	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.54**	**1**	**0.35**

Table 7. Analytical Results - Routine Monitoring of Select Wells (Spring 2016)

				North End of Landfill				Perimeter of Landfill						Former Drum Area		
				Roza Aquifer				Interflow Aquifer					FS Aquifer	P2 Zone		
Parameters by Group	Units	RI Screening Levels	Screening Level Source	MW-3b	MW-7b	MW-9b	MW-42b	MW-22c	MW-2c	MW-4c	MW-5c	MW-6c	MW-28d	MW-33p2	MW-35p2	MW-38p2
1,3-Dichloropropane	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,4-Dichlorobenzene	ug/L	8.1	MTCA-B Carc	**1**	**0.43**	0.2 U	**0.8**	0.2 U	**0.86**	0.2 U	0.2 U	0.2 U	0.2 U	**29**	**24**	**2**
2,2-Dichloropropane	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-butanone	ug/L	4800	MTCA-B NON Carc	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	**39**
2-Chloroethylvinylether	ug/L			1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Chlorotoluene	ug/L	160	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-Hexanone	ug/L			5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	**8.5**	5 U
4-Chlorotoluene	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
4-Isopropyltoluene	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.47**	**3.5**	0.2 U
4-Methyl-2-pentanone (MIBK)	ug/L	640	MTCA-B NON Carc	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	**35**
Acetone	ug/L	7200	MTCA-B NON Carc	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	**21**	**29 Q**	**240 Q**
Acrolein	ug/L	4	MTCA-B NON Carc	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acrylonitrile	ug/L	0.081	MTCA-B Carc	0.05 U	0.05 U	0.05 U	1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	1 U	1 U	1 U	1 U
Benzene	ug/L	0.8	MTCA-B Carc	**0.61**	**0.21**	0.2 U	**0.24**	0.2 U	**0.31**	0.2 U	0.2 U	0.2 U	0.2 U	**4.4**	**17**	**26**
Bromobenzene	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.57**	**1.1**	**0.77**
Bromochloromethane	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromodichloromethane	ug/L	0.71	MTCA-B Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromoethane	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromoform	ug/L	5.5	MTCA-B Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromomethane	ug/L	11.2	MTCA-B NON Carc	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Disulfide	ug/L	800	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Carbon Tetrachloride	ug/L	0.625	MTCA-B Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chlorobenzene	ug/L	100	FED	0.2 U	0.2 U	0.2 U	**0.28**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**8.6**	**6.5**	**0.48**
Chloroethane	ug/L			**3.1**	**2.8**	0.2 U	**25**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**16**	**58**	**11**
Chloroform	ug/L	1.41	MTCA-B Carc	0.2 U	0.2 U	0.2 U	0.2 U	**0.78**	0.2 U	0.2 U	**0.55**	0.2 U	0.2 U	0.2 U	0.2 U	**21**
Chloromethane	ug/L			0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**1.6**
cis-1,2-Dichloroethene	ug/L	16	MTCA-B NON Carc	**26**	**7.4**	**2.7**	**19**	**0.31**	**0.72**	0.2 U	**5.5**	0.2 U	**1.6**	**0.68**	**24**	**110 D1**
cis-1,3-Dichloropropene	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Dibromochloromethane	ug/L	0.52	MTCA-B Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Dibromomethane	ug/L	80	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Ethylbenzene	ug/L	700	FED	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**13**	**1500 D1**	**17**
Hexachlorobutadiene	ug/L	0.56	MTCA-B Carc	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Iodomethane	ug/L			1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Isopropylbenzene (Cumene)	ug/L	800	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.3**	**43**	**3.1**
Methylene Chloride	ug/l	5	FED	1 U	1 U	1 U	**1.6**	1 U	1 U	1 U	1 U	1 U	1 U	**1.2**	**2.7**	**8.1**
Naphthalene	ug/L	160	MTCA-B NON Carc	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**13**	**78 JD1**	**4.7**
n-Butylbenzene	ug/L	400	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.49**	**2.4**	0.2 U
n-Propylbenzene	ug/L	800	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.2**	**61**	**0.73**
o-Xylene	ug/L	1600	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**2.1**	**1800 D1**	**76 D1**
sec-Butylbenzene	ug/L	800	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.76**	**2.3**	0.2 U

Table 7. Analytical Results - Routine Monitoring of Select Wells (Spring 2016)

				North End of Landfill				Perimeter of Landfill						Former Drum Area		
				Roza Aquifer				Interflow Aquifer					FS Aquifer	P2 Zone		
Parameters by Group	Units	RI Screening Levels	Screening Level Source	MW-3b	MW-7b	MW-9b	MW-42b	MW-22c	MW-2c	MW-4c	MW-5c	MW-6c	MW-28d	MW-33p2	MW-35p2	MW-38p2
Styrene	ug/L	100	FED	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**2.5**	0.2 U
tert-Butylbenzene	ug/L	800	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.2**	**0.4**	0.2 U
Tetrachloroethene (PCE)	ug/L	5	FED	**0.62**	**0.75**	**2**	**5**	**2.2**	**1.2**	0.2 U	**5.8**	**0.54**	**1.4**	0.2 U	**1**	**2**
Toluene	ug/L	640	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.9**	**15000 D1**	**210 D1**
trans-1,2-Dichloroethene	ug/L	100	FED	**0.38**	0.2 U	0.2 U	**0.3**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.64	1.5
trans-1,3-Dichloropropene	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
trans-1,4-Dichloro-2-butene	ug/L			1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene (TCE)	ug/L	0.54	MTCA-B Carc	**0.98**	**0.7**	**0.53**	**3.1**	**0.68**	**0.47**	0.2 U	**1.8**	**0.24**	**0.57**	**0.27**	**0.65**	**17**
Trichlorofluoromethane	ug/l	2400	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	**1.6**	**1.3**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl Acetate	ug/L	8000	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl Chloride	ug/L	0.029	MTCA-B Carc	**12**	**4.4**	**1.1**	**1.9**	0.02 U	**0.21**	0.02 U	**0.2**	0.02 U	0.02 U	0.2 U	**43**	**100 D1**
Xylene Isomers, M+P	ug/L	1600	MTCA-B NON Carc	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	**4**	**4100 D1**	**61**
Total Detected VOCs	ug/L			**59.01**	**28.02**	**7.96**	**89.92**	**7.76**	**7.88**	**0**	**20.91**	**1.33**	**4.34**	**146.31**	**23,805**	**2,746.6**
Number of VOCs Exceeding RI Screening Levels				5	4	1	6	1	1	0	4	0	1	2	12	13

Bold: parameter detected above lab reporting limit

Bo concentration exceeds RI screening level

U: parameter not detected at associated lab reporting limit (#)

D: indicates sample diluted for analysis

M: indicates estimated value for analyte detected and confirmed by an analyst but with low spectral match parameters (flag used only for GC-MS analyses)

Q: indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria

B: indicates analyte detected in method blank, trip blank, or blind blank

J: indicates estimated value when value is less than lab's established reporting limits

Blank: not sampled

Xylenes represented in the "Number of VOCs Exceeding RI Screening Levels" count as a single exceedance (e.g. counted as 1 if O-Xylene and/or Xylene Isomers, M+P exceed screening levels; counted as 0 if no Xylenes exceed screening levels)

Wells MW-3b, 7b, 9b, MW-22c, MW-2c, MW-4c, MW-5c and MW-6c sampled March 2016

Wells MW-42b, MW-29d, MW-33p2, MW-35p2, and MW-38p2 sampled June 2016

Table 8. Analytical Results - Private Offsite Wells (April 2016)

Parameters By Group	Units	RI Screening Level	Screening Level Source	Unique Well ID BIX830	Unique Well ID BIX662
Field Parameters					
pH	std. units			**7.79**	**8.01**
Specific Conductance @ 25C	umhos/cm			**357**	**269**
Temperature, 0 F	0 F			**62.2**	**61.5**
Inorganic Parameters					
Chloride	mg/L	250	STATE	**12.1**	**5.6**
Nitrate as Nitrogen	mg/L as N	10	FED	**3.22**	**1.64**
Nitrate+Nitrite as Nitrogen	mg/L as N	10	FED	**3.22**	**1.64**
Nitrite as Nitrogen	mg/L as N	1	FED	0.01U	0.01U
Sulfate	mg/L	250	STATE	**27.8**	**14.2**
Total Dissolved Solids	mg/L	500	STATE	**276**	**208**
Arsenic, Dissolved	ug/L	0.058	MTCA-B Carc	**1.8**	**1.7**
Iron, Dissolved	ug/L	11200	MTCA-B NON Carc	20U	20U
Manganese, Dissolved	ug/L	2240	MTCA-B NON Carc	**2**	0.5U
Iron, Total	ug/L	11200	MTCA-B NON Carc	**20**	20U
Manganese, Total	ug/L	2240	MTCA-B NON Carc	**3.2**	**1.1**
Organic Parameters (VOCs)					
1,1,1,2-Tetrachloroethane	ug/L	1.68	MTCA-B Carc	0.2U	0.2U
1,1,1-Trichloroethane	ug/l	200	FED	0.2U	0.2U
1,1,2,2-Tetrachloroethane	ug/L	0.22	MTCA-B Carc	0.2U	0.2U
1,1,2-Trichloroethane	ug/L	0.77	MTCA-B Carc	0.2U	0.2U
1,1,2-Trichlorotrifluoroethane	ug/L	240000	MTCA-B NON Carc	0.2U	0.2U
1,1-Dichloroethane	ug/L	7.68	MTCA-B Carc	0.2U	0.2U
1,1-Dichloroethene	ug/L	7	FED	0.2U	0.2U
1,1-Dichloropropene	ug/L			0.2U	0.2U
1,2,3-Trichlorobenzene	ug/L			0.5U	0.5U
1,2,3-Trichloropropane	ug/L	0.00146	MTCA-B Carc	0.5U	0.5U
1,2,4-Trichlorobenzene	ug/L	1.51	MTCA-B Carc	0.5U	0.5U
1,2,4-Trimethylbenzene	ug/L			0.2U	0.2U
1,2-Dibromo-3-chloropropane	ug/L	0.0547	MTCA-B Carc	0.5U	0.5U
1,2-Dibromoethane	ug/L	0.02188	MTCA-B Carc	0.2U	0.2U
1,2-Dichlorobenzene	ug/L	600	FED	0.2U	0.2U
1,2-Dichloroethane (EDC)	ug/L	0.48	MTCA-B Carc	0.2U	0.2U
1,2-Dichloropropane	ug/L	1.22	MTCA-B Carc	0.2U	0.2U
1,3,5-Trimethylbenzene	ug/L	80	MTCA-B NON Carc	0.2U	0.2U
1,3-Dichlorobenzene	ug/L			0.2U	0.2U
1,3-Dichloropropane	ug/L			0.2U	0.2U
1,4-Dichlorobenzene	ug/L	8.1	MTCA-B Carc	0.2U	0.2U
2,2-Dichloropropane	ug/L			0.2U	0.2U
2-butanone	ug/L	4800	MTCA-B NON Carc	5U	5U
2-Chloroethylvinylether	ug/L			1U	1U
2-Chlorotoluene	ug/L	160	MTCA-B NON Carc	0.2U	0.2U
2-Hexanone	ug/L			5U	5U
4-Chlorotoluene	ug/L			0.2U	0.2U
4-Isopropyltoluene	ug/L			0.2U	0.2U
4-Methyl-2-pentanone (MIBK)	ug/L	640	MTCA-B NON Carc	5U	5U
Acetone	ug/L	7200	MTCA-B NON Carc	5U	5U
Acrolein	ug/L	4	MTCA-B NON Carc	5U	5U
Acrylonitrile	ug/L	0.081	MTCA-B Carc	1U	1U

Table 8. Analytical Results - Private Offsite Wells (April 2016)

Parameters By Group	Units	RI Screening Level	Screening Level Source	Unique Well ID BIX830	Unique Well ID BIX662
Benzene	ug/L	0.8	MTCA-B Carc	0.2U	0.2U
Bromobenzene	ug/L			0.2U	0.2U
Bromochloromethane	ug/L			0.2U	0.2U
Bromodichloromethane	ug/L	0.71	MTCA-B Carc	0.2U	0.2U
Bromoethane	ug/L			0.2U	0.2U
Bromoform	ug/L	5.5	MTCA-B Carc	0.2U	0.2U
Bromomethane	ug/L	11.2	MTCA-B NON Carc	1U	1U
Carbon Disulfide	ug/L	800	MTCA-B NON Carc	0.2U	0.2U
Carbon Tetrachloride	ug/L	0.625	MTCA-B Carc	0.2U	0.2U
Chlorobenzene	ug/L	100	FED	0.2U	0.2U
Chloroethane	ug/L			0.2U	0.2U
Chloroform	ug/L	1.41	MTCA-B Carc	0.2U	0.2U
Chloromethane	ug/L			0.5U	0.5U
cis-1,2-Dichloroethene	ug/L	16	MTCA-B NON Carc	0.2U	0.2U
cis-1,3-Dichloropropene	ug/L			0.2U	0.2U
Dibromochloromethane	ug/L	0.52	MTCA-B Carc	0.2U	0.2U
Dibromomethane	ug/L	80	MTCA-B NON Carc	0.2U	0.2U
Ethylbenzene	ug/L	700	FED	0.2U	0.2U
Hexachlorobutadiene	ug/L	0.56	MTCA-B Carc	0.5U	0.5U
Iodomethane	ug/L			1U	1U
Isopropylbenzene (Cumene)	ug/L	800	MTCA-B NON Carc	0.2U	0.2U
Methylene Chloride	ug/l	5	FED	1U	1U
Naphthalene	ug/L	160	MTCA-B NON Carc	0.5U	0.5U
n-Butylbenzene	ug/L	400	MTCA-B NON Carc	0.2U	0.2U
n-Propylbenzene	ug/L	800	MTCA-B NON Carc	0.2U	0.2U
o-Xylene	ug/L	1600	MTCA-B NON Carc	0.2U	0.2U
sec-Butylbenzene	ug/L	800	MTCA-B NON Carc	0.2U	0.2U
Styrene	ug/L	100	FED	0.2U	0.2U
tert-Butylbenzene	ug/L	800	MTCA-B NON Carc	0.2U	0.2U
Tetrachloroethene (PCE)	ug/L	5	FED	0.2U	0.2U
Toluene	ug/L	640	MTCA-B NON Carc	0.2U	0.2U
trans-1,2-Dichloroethene	ug/L	100	FED	0.2U	0.2U
trans-1,3-Dichloropropene	ug/L			0.2U	0.2U
trans-1,4-Dichloro-2-butene	ug/L			1U	1U
Trichloroethene (TCE)	ug/L	0.54	MTCA-B Carc	0.2U	0.2U
Trichlorofluoromethane	ug/l	2400	MTCA-B NON Carc	0.2U	0.2U
Vinyl Acetate	ug/L	8000	MTCA-B NON Carc	0.2U	0.2U
Xylene Isomers, M+P	ug/L	1600	MTCA-B NON Carc	0.4U	0.4U
Vinyl Chloride	ug/L	0.029	MTCA-B Carc	0.02U	0.02U

Bold: parameter detected above lab reporting limit

Bold: concentration exceeds RI screening level

U: parameter not detected at associated lab reporting limit (#)

Table 9. Analytical Results - MW-33p2 (2011 - 2017)

Parameters by Group	Units	RI Screening Level	Screening Level Source	Analytical Results (nominal date in parentheses)													
				2011Q1 (3/8/2011)	2011Q3 (9/27/2011)	2012Q1 (3/5/2012)	2012Q3 (9/4/2012)	2013Q1 (3/19/2013)	2013Q3 (9/18/2013)	2014Q1 (3/10/2014)	2014Q3 (9/25/2014)	2015Q1 (3/19/2015)	2015Q3 (9/3/2015)	2016Q1 (5/11/2016)	2016Q3 (9/14/2016)	2017Q1 (5/1/2017)	2017Q3 (9/27/2017)
Field Parameters																	
Depth to Water	feet			52.14	52.48	52.51	52.6	52.39	52.63	52.62	52.48	52.49	52.6	52.09	52.59	52.14	52.87
pH	std. units			6.67	6.48	6.66	6.54	6.57	6.71	6.63	7.01	6.76	6.79	6.61	6.76	6.69	6.86
Specific Conductance @ 25C	umhos/cm			3720	6380	4690	3390	5450	4730	4530	1410	4220	4280	2910	3080	1678	3740
Temperature, 0 F	0 F			63.68	64.94	61.16	65.84	65.3	65.3	63.32	64.58	63.68	64.76	63.7	65.48	63.32	62.96
Inorganics																	
Chloride	mg/L	250	STATE	**1550**	**1490**	**1410**	**1370**	**1290**	**989**	**857**	**898**	**944**	**841**	**804**	**644**	**599 D**	**639 D**
Nitrate as Nitrogen	mg/L as N	10	FED	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.015**	0.01 U	0.01 U	0.01 U	**0.048**	0.01 U	0.01 U	0.02 U	**0.0333**
Nitrate+Nitrite as Nitrogen	mg/L as N	10	FED	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.015**	0.01 U	0.01 U	0.01 U	**0.048**	0.01 U	0.033 U	0.033 U	**0.047**
Nitrite as Nitrogen	mg/L as N	1	FED	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.011**	0.002 U	0.033 U	**0.014**
Sulfate	mg/L	250	STATE	**13.9**	**20.3**	**78**	**152**	**34.6**	**12.7**	**45.1**	**54.1**	**26.6**	**16.5**	**24.1**	**23.7**	**20.8 D**	**41.4 D**
Total Dissolved Solids	mg/L	500	STATE	**4050**	**3480**	**3020**	**3760**	**3340**	**2960**	**2600**	**2840**	**2980**	**2630**	**2660**	**2170**	**2400**	**2030**
Metals																	
Arsenic, Dissolved	ug/L	0.058	MTCA-B Carc	**5.4**	**4.4**	**3.7**	**4.4**	**5**	**5.7**	**5.1**	**3.1**	**4.6**	**2.3**	**3**	**2.17**	**2.39 D**	
Iron, Dissolved	ug/L	11200	MTCA-B Non-Carc	**220**	**100**	**470**	**6040**	**300**	**380**	**190**	**180**	**140**	**130**	**290**	**1390**	**279 D, B**	**91.7**
Iron, Total	ug/L	11200	MTCA-B Non-Carc	**142000**	**85000**	**41600**	**263000**	**40200**	**115000**	**72000**	**392000**		**73900**	10900	**16000**	**10300 D**	
Manganese, Dissolved	ug/L	2240	MTCA-B Non-Carc	**15100**	**11700**	**10600**	**10600**	**11400**	**8210**	**8500**	**7020**	**8900**	**8270**	**8550**	**8010**	**7250 D**	**7530**
Manganese, Total	ug/L	2240	MTCA-B Non-Carc	**16000**	**13500**	**11700**	**13700**	**12300**	**10200**	**8360**	**12500**		**9510**	**9780**	**8760**	**8930 D**	
Organics																	
1,1,1,2-Tetrachloroethane	ug/L	1.68	MTCA-B Carc	1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.13 U	0.13 U	0.2 U
1,1,1-Trichloroethane	ug/l	200	FED	1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.14 U	0.2 U
1,1,2,2-Tetrachloroethane	ug/L	0.22	MTCA-B Carc	1 U	0.6 U	0.6 U	0.2 U	**0.12 M**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2-Trichloroethane	ug/L	0.77	MTCA-B Carc	1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.43 U	0.43 U	0.2 U
1,1,2-Trichlorotrifluoroethane	ug/L	240000	MTCA-B Non-Carc	1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.14 U	0.2 U
1,1-Dichloroethane	ug/L	7.68	MTCA-B Carc	**17**	**16**	**24**	**13**	**11**	**9.4**	**12**	**14**	**10**	**7.2**	**3.3**	**6.45**	**5.91**	**23.5**
1,1-Dichloroethene	ug/L	7	FED	1 U	0.6 U	0.6 U	0.2 U	**0.031**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.18 U	0.18 U	0.2 U
1,1-Dichloropropene	ug/L			1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.11 U	0.11 U	0.2 U
1,2,3-Trichlorobenzene	ug/L			2.5 U	1.5 U	1.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.37 U	0.37 U	0.5 U
1,2,3-Trichloropropane	ug/L	0.00146	MTCA-B Carc	2.5 U	1.5 U	1.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.44 U	0.44 U	0.5 U
1,2,4-Trichlorobenzene	ug/L	1.51	MTCA-B Carc	2.5 U	1.5 U	1.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.53**	**0.51**	0.36 U	0.5 U
1,2,4-Trimethylbenzene	ug/L			**14**	0.6 U	**0.7**	**0.51**	**0.5**	0.2 U	0.2 U	0.2 U	**0.69**	**0.44**	**14**	**2.64**	**6.42**	0.2 U
1,2-Dibromo-3-chloropropane	ug/L	0.0547	MTCA-B Carc	2.5 U	1.5 U	1.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.22 U	1.22 U	0.5 U
1,2-Dibromoethane	ug/L	0.02188	MTCA-B Carc	1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.25 U	0.25 U	0.2 U
1,2-Dichlorobenzene	ug/L	600	FED	**13**	**11**	**9.8**	**6.4**	**7.8**	**7.1**	**6.5**	**5.7**	**5.6**	**6.3**	**7.5**	**7.2**	**4.89**	**4.67**
1,2-Dichloroethane (EDC)	ug/L	0.48	MTCA-B Carc	**1.4**	**1.2**	**1.6**	**0.71**	**0.79**	**0.87**	**1.1**	**1.1**	**0.91**	**1.1**	**0.48**	**1.4**	**0.43**	**2.78**
1,2-Dichloropropane	ug/L	1.22	MTCA-B Carc	**2**	**0.9 M**	**3.9**	**0.61**	**1.4**	**1.1**	**3.3**	**2.7**	**2.6**	**1.4**	**0.82**	**2.13**	**0.94**	**2.97**
1,3,5-Trimethylbenzene	ug/L	80	MTCA-B Non-Carc	**2.2**	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.05 U	0.05 U	0.2 U

Table 9. Analytical Results - MW-33p2 (2011 - 2017)

Parameters by Group	Units	RI Screening Level	Screening Level Source	Analytical Results (nominal date in parentheses)													
				2011Q1 (3/8/2011)	2011Q3 (9/27/2011)	2012Q1 (3/5/2012)	2012Q3 (9/4/2012)	2013Q1 (3/19/2013)	2013Q3 (9/18/2013)	2014Q1 (3/10/2014)	2014Q3 (9/25/2014)	2015Q1 (3/19/2015)	2015Q3 (9/3/2015)	2016Q1 (5/11/2016)	2016Q3 (9/14/2016)	2017Q1 (5/1/2017)	2017Q3 (9/27/2017)
1,3-Dichlorobenzene	ug/L			1 U	0.6 U	0.6 U	**0.36**	**0.38**	**0.41**	**0.46**	**0.41**	**0.46**	**0.49**	**0.54**	**0.52**	**0.37**	**0.34**
1,3-Dichloropropane	ug/L			1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.21 U	0.2 U
1,4-Dichlorobenzene	ug/L	8.1	MTCA-B Carc	**28**	**25**	**19**	**13**	**15**	**13**	**11**	**9.9**	**10**	**12**	**29**	**21.1**	**15.6**	**12.1**
2,2-Dichloropropane	ug/L			1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.17 U	0.17 U	0.2 U
2-butanone	ug/L	4800	MTCA-B Non-Carc	25 U	15 U	15 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2.71 U	2.71 U	5 U
2-Chloroethylvinylether	ug/L			5 U	3 U	3 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.83 U	0.83 U	1 U
2-Chlorotoluene	ug/L	160	MTCA-B Non-Carc	1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.08 U	0.08 U	0.2 U
2-Hexanone	ug/L			25 U	15 U	15 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	3 U	3 U	5 U
4-Chlorotoluene	ug/L			1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.05 U	0.05 U	0.2 U
4-Isopropyltoluene	ug/L			1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.47**	0.09 U	**0.4**	0.2 U
4-Methyl-2-pentanone (MIBK)	ug/L	640	MTCA-B Non-Carc	25 U	15 U	15 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	3.24 U	3.24 U	5 U
Acetone	ug/L	7200	MTCA-B Non-Carc	25 U	**19**	15 U	**14**	**7.2**	5 U	**6.6 Q**	**19**	**5.6**	5 U	**21**	**21.1**	**65.5**	**47.9**
Acrolein	ug/L	4	MTCA-B Non-Carc	25 U	15 U	15 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	8.25 U	8.26 U	5 U
Acrylonitrile	ug/L	0.081	MTCA-B Carc	5 U	3 U	3 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2.01 U	2.01 U	1 U
Benzene	ug/L	0.8	MTCA-B Carc	**16**	**12**	**8.9**	**6.5**	**5.3**	**4**	**4.5**	**4.4**	**3.1**	**3.3**	**4.4**	**4.68**	**3.31**	**2.7**
Bromobenzene	ug/L			**1.4**	**1.4**	**1.1**	**0.81**	**0.89**	**0.72**	0.2 U	**0.53**	**0.47**	**0.6**	**0.57**	**0.56**	**0.41**	**0.59**
Bromochloromethane	ug/L			1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromodichloromethane	ug/L	0.71	MTCA-B Carc	1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.17 U	0.17 U	0.2 U
Bromoethane	ug/L			**7**	0.6 U	0.6 U	**0.24**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.14 U	0.2 U
Bromoform	ug/L	5.5	MTCA-B Carc	1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.21 U	0.2 U
Bromomethane	ug/L	11.2	MTCA-B Non-Carc	5 U	3 U	3 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.84 U	0.84 U	1 U
Carbon Disulfide	ug/L	800	MTCA-B Non-Carc	1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.12 U	0.12 U	0.2 U
Carbon Tetrachloride	ug/L	0.625	MTCA-B Carc	1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.15 U	0.15 U	0.2 U
Chlorobenzene	ug/L	100	FED	**5.8**	**6.3**	**4.2**	**2.7**	**3.6**	**2.4**	**1.9**	**1.6**	**1.8**	**2.4**	**8.6**	**5.41**	**4.87**	**2.46**
Chloroethane	ug/L			**140**	**93**	**58**	**34**	**25**	**20**	**17**	**17**	**13 Q**	**17**	**16**	**38.6**	**11.7**	**25.7**
Chloroform	ug/L	1.41	MTCA-B Carc	1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.09 U	0.09 U	0.2 U
Chloromethane	ug/L			2.5 U	1.5 U	1.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.32 U	0.32 U	0.5 U
cis-1,2-Dichloroethene	ug/L	16	MTCA-B Non-Carc	**1.2**	**2.4**	**3.4**	**0.98**	**0.82**	**1.2**	**1.8**	**1.7**	**1.2**	**1.8**	**0.68**	**2.72**	**0.45**	**3.95**
cis-1,3-Dichloropropene	ug/L			1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Dibromochloromethane	ug/L	0.52	MTCA-B Carc	1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.16 U	0.16 U	0.2 U
Dibromomethane	ug/L	80	MTCA-B Non-Carc	1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.48 U	0.48 U	0.2 U
Dichlorodifluoromethane (CFC 12)	ug/L	1600	MTCA-B NON Carc												**0.52**	**0.2**	
Ethylbenzene	ug/L	700	FED	**27**	**2**	**1.8**	**2.2**	**1.8**	**0.38**	**0.29**	**0.24**	**0.72**	**0.31**	**13**	**1.51**	**9.58**	**0.25**
Hexachlorobutadiene	ug/L	0.56	MTCA-B Carc	2.5 U	1.5 U	1.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.24 U	0.24 U	0.5 U
Iodomethane	ug/L							1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.76 U	0.76 U	1 U
Isopropylbenzene (Cumene)	ug/L	800	MTCA-B Non-Carc	1 U	0.6 U	0.6 U	**0.22**	0.2 U	0.2 U	0.2 U	0.2 U	**0.21**	0.2 U	**1.3**	**0.35**	**1.47**	0.2 U
Methylene Chloride	ug/L	5	FED	**9.4**	**7.3**	**4.3**	**2.8**	**2.2**	**2.2**	**1.7**	**1.5**	1 U	**1.2**	**1.2**	**1.31**	1.62 U	**1.21**
Naphthalene	ug/L	160	MTCA-B Non-Carc	**7.5**	1.5 U	1.5 U	**0.9**	**1.8**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**13**	**6.43**	**7.96**	**0.56**
n-Butylbenzene	ug/L	400	MTCA-B Non-Carc	1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.49**	0.08 U	**0.7**	0.2 U

Table 9. Analytical Results - MW-33p2 (2011 - 2017)

Parameters by Group	Units	RI Screening Level	Screening Level Source	Analytical Results (nominal date in parentheses)													
				2011Q1 (3/8/2011)	2011Q3 (9/27/2011)	2012Q1 (3/5/2012)	2012Q3 (9/4/2012)	2013Q1 (3/19/2013)	2013Q3 (9/18/2013)	2014Q1 (3/10/2014)	2014Q3 (9/25/2014)	2015Q1 (3/19/2015)	2015Q3 (9/3/2015)	2016Q1 (5/11/2016)	2016Q3 (9/14/2016)	2017Q1 (5/1/2017)	2017Q3 (9/27/2017)
n-Propylbenzene	ug/L	800	MTCA-B Non-Carc	**1.4**	0.6 U	0.6 U	0.2 U	**0.22**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.2**	**0.2**	**1.41**	0.2 U
o-Xylene	ug/L	1600	MTCA-B Non-Carc	**24**	0.6 U	0.6 U	**0.38 M**	**1.2**	0.2 U	0.2 U	0.2 U	**0.38**	**0.27**	**2.1**	**0.59**	**0.83**	0.2 U
sec-Butylbenzene	ug/L	800	MTCA-B Non-Carc	1 U	0.6 U	0.6 U	0.2 U	**0.37 M**	0.2 U	0.2 U	0.2 U	0.2 U	**0.28**	**0.76**	**0.53**	**0.94**	**0.33**
Styrene	ug/L	100	FED	1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.15 U	0.15 U	0.2 U
tert-Butylbenzene	ug/L	800	MTCA-B Non-Carc	1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.2**	0.09 U	**0.21**	0.2 U
Tetrachloroethene (PCE)	ug/L	5	FED	1 U	0.6 U	0.6 U	0.2 U	**0.047**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.16 U	0.16 U	0.2 U
Toluene	ug/L	640	MTCA-B Non-Carc	**3.4**	**0.7**	0.6 U	**0.22**	**0.4**	0.2 U	**0.29**	0.2 U	**0.3**	**0.52**	**0.9**	**0.87**	**1.1**	**0.24**
Total Xylenes	ug/L	1600	MTCA-B Non-Carc												1.45 U	**4.33**	0.6 U
trans-1,2-Dichloroethene	ug/L	100	FED	**1**	**0.7**	0.6 U	**0.31**	**0.33**	**0.27**	**0.33**	**0.23**	0.2 U	**0.22**	0.2 U	**0.25**	0.16 U	**0.25**
trans-1,3-Dichloropropene	ug/L			1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.27 U	0.27 U	0.2 U
trans-1,4-Dichloro-2-butene	ug/L			5 U	3 U	3 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.08 U	1.08 U	1 U
Trichloroethene (TCE)	ug/L	0.54	MTCA-B Carc	1 U	**0.6**	**1.4**	**0.23**	**0.33**	**0.43**	**1**	**0.78**	**1.1**	**0.45**	**0.27**	**0.45**	0.16 U	**0.79**
Trichlorofluoromethane	ug/l	2400	MTCA-B Non-Carc	1 U	0.6 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.12 U	0.12 U	0.2 U
Vinyl Acetate	ug/L	8000	MTCA-B Non-Carc	5 U	3 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.23 U	0.23 U	0.2 U
Vinyl Chloride	ug/L	0.029	MTCA-B Carc	**3.8**	**4.2**	**6.5**	**1.8**	**3**	**2.2**	**2.3**	**2.1**	**1.6**	**2.7**	0.2 U	**2.79**	**1.73**	**5.61**
Xylene Isomers, M+P	ug/L	1600	MTCA-B Non-Carc	**31**	1.2 U	**1.3**	0.4 U	**0.71**	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	**4**	**0.75**	**3.5**	0.4 U
Total Detected VOCs	**ug/L**			**357.50**	**203.70**	**149.90**	**102.88**	**92.24**	**65.68**	**72.07**	**82.89**	**59.74**	**59.98**	**146.31**	**131.57**	**150.83**	**138.90**
Number of VOCs Exceeding RI Screening Levels				**7**	**7**	**7**	**5**	**6**	**5**	**7**	**7**	**7**	**5**	**2**	**5**	**3**	**7**

Bold: parameter detected above lab reporting limit

Bold: concentration exceeds RI screening level

U: parameter not detected at associated lab reporting limit (#)

D: indicates sample diluted for analysis

M: indicates estimated value for analyte detected and confirmed by an analyst but with low spectral match parameters (flag used only for GC-MS analyses)

Q: indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria

B: indicates analyte detected in method blank, trip blank, or blind blank

Blank: not sampled

Xylenes represented in the "Total Detected VOCs" calculation as the sum of O-Xylene and Xylene Isomers, M+P. Total Xylene concentrations (analyzed only in 2016Q3, 2017Q1, and 2017Q3) not included in the calculation

Xylenes represented in the "Number of VOCs Exceeding RI Screening Levels" count as a single exceedance (e.g. counted as 1 if any OR all O-Xylene, Xylene Isomers, M+P, or Total Xylenese exceed screening levels; counted as 0 if no Xylenes exceed screening levels)

Table 10. Analytical Results - MW-35p2 (2011 - 2017)

Parameters by Group	Units	RI Screening Level	Screening Level Source	Analytical Results (nominal date in parentheses)													
				2011Q1 (3/8/2011)	2011Q3 (9/27/2011)	2012Q1 (3/5/2012)	2012Q3 (9/4/2012)	2013Q1 (3/19/2013)	2013Q3 (9/18/2013)	2014Q1 (3/10/2014)	2014Q3 (9/25/2014)	2015Q1 (3/19/2015)	2015Q3 (9/3/2015)	2016Q1 (5/11/2016)	2016Q3 (9/14/2016)	2017Q1 (5/1/2017)	2017Q3 (9/27/2017)
Field Parameters																	
Depth to Water	feet			50.11	50.4	50.33	50.44	50.33	50.44	50.5	50.51	50.89	50.47	50.21	51.01	49.68	50.49
pH	std. units			6.56	6.58	6.66	6.61	6.57	6.61	6.48	6.8	6.7	6.79	6.62	6.63	6.52	6.78
Specific Conductance @ 25C	umhos/cm			1656	4006	3520	3770	5570	3770	4190	1630	3600	4006	1784	3330	1416	4060
Temperature, 0 F	0 F			62.24	63.14	60.8	63.32	62.6	63.3	62.06	63.32	63.68	64.4	63.3	63.14	60.98	62.24
Inorganics																	
Chloride	mg/L	250	STATE	**903**	**746**	**885**	**954**	**803**	**790**	**741**	**852**	**756**	**915**	**750**	**793**	**579 D**	**1020 D**
Nitrate as Nitrogen	mg/L as N	10	FED	**0.117**	**0.03**	0.05 U	0.01 U	**0.011**	**0.011**	**0.011**	0.01 U	0.01 U	0.01 U	**0.012**	0.01 U	0.04 U	**0.041**
Nitrate+Nitrite as Nitrogen	mg/L as N	10	FED	**0.13**	**0.03**	0.05 U	0.01 U	**0.011**	**0.011**	**0.011**	0.01 U	0.01 U	0.01 U	**0.012**	0.033 U	0.067 U	**0.066**
Nitrite as Nitrogen	mg/L as N	1	FED	**0.013**	0.01 U	0.01 U	**0.01**	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.002 U	**0.053 D**	**0.025**
Sulfate	mg/L	250	STATE	**11.1**	**9.8**	**73.9**	**54.9**	**28.2**	**17.9**	**75.6**	**82.8**	**22.5**	**20.9**	**18.4**	**14.9**	**13.3 D**	**160 D**
Total Dissolved Solids	mg/L	500	STATE	**2280**	**2000**	**2040**	**2780**	**2020**	**2080**	**2100**	**2440**	**2140**	**2200**	**2120**	**2160**	**2050**	**2370**
Metals																	
Arsenic, Dissolved	ug/L	0.058	MTCA-B Carc	**8.6**	**4.7**	**4**	**4.2**	**5.9**	**5.3**	**4.6**	**2.4**	**5.2**	**1.4**	**2.8**	**2.35**	**2.84**	
Iron, Dissolved	ug/L	11200	MTCA-B Non-Carc	**12500**	50 U	**9680**	**5570**	**100**	50 U	50 U	50 U	**60**	**5920**	**100**	**93.8**	**3150 D, B**	50 U
Iron, Total	ug/L	11200	MTCA-B Non-Carc	**41800**	**81700**	**24600**	**18700**	**8570**	**3430**	**4920**	**10600**		**17000**	**17100**	**16400**	**8140**	
Manganese, Dissolved	ug/L	2240	MTCA-B Non-Carc	**10600**	**6780**	**9720**	**9910**	**9240**	**8820**	**9210**	**8490**	**8650**	**9540**	**7440**	**8530**	**7470 D**	**8520**
Manganese, Total	ug/L	2240	MTCA-B Non-Carc	**10500**	**7970**	**9960**	**10000**	**9560**	**8490**	**8690**	**9230**		**9470**	**8280**	**9580**	**8080 D**	
Organics																	
1,1,1,2-Tetrachloroethane	ug/L	1.68	MTCA-B Carc	40 U	10 U	4 U	4 U	0.2 U	1 U	1 U	0.2 U	1 U	0.94 Y	0.2 U	0.13 U	**9.58**	**2.09**
1,1,1-Trichloroethane	ug/l	200	FED	40 U	10 U	4 U	4 U	**3.8**	1 U	1 U	0.2 U	**55**	0.2 U	**8.6**	**0.33**	**10.4**	0.2 U
1,1,2,2-Tetrachloroethane	ug/L	0.22	MTCA-B Carc	40 U	10 U	4 U	4 U	**0.36 M**	1 U	1 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2-Trichloroethane	ug/L	0.77	MTCA-B Carc	40 U	10 U	4 U	4 U	0.2 U	1 U	1 U	0.2 U	1 U	0.2 U	0.2 U	0.43 U	0.43 U	0.2 U
1,1,2-Trichlorotrifluoroethane	ug/L	240000	MTCA-B Non-Carc	40 U	10 U	4 U	4 U	**0.29**	1 U	1 U	**0.31**	**1**	**0.61**	**0.46**	0.14 U	**0.8**	0.2 U
1,1-Dichloroethane	ug/L	7.68	MTCA-B Carc	**500**	**32**	**130**	**130**	**590**	**130**	**86**	**140**	1 U	**97**	**420 D1**	**149**	**358**	**60.8**
1,1-Dichloroethene	ug/L	7	FED	40 U	10 U	4 U	4 U	**1.8**	**2**	1 U	**1.2**	**3.9**	**1.1**	**0.8**	**0.88**	**1.08**	**0.69**
1,1-Dichloropropene	ug/L			40 U	10 U	4 U	4 U	0.2 U	1 U	1 U	0.2 U	1 U	0.2 U	0.2 U	0.11 U	0.11 U	0.2 U
1,2,3-Trichlorobenzene	ug/L			100 U	25 U	10 U	10 U	0.5 U	2.5 U	2.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.37 U	0.37 U	0.5 U
1,2,3-Trichloropropane	ug/L	0.00146	MTCA-B Carc	100 U	25 U	10 U	10 U	0.5 U	2.5 U	2.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.44 U	0.44 U	0.5 U
1,2,4-Trichlorobenzene	ug/L	1.51	MTCA-B Carc	100 U	25 U	10 U	10 U	**0.68**	2.5 U	2.5 U	0.5 U	2.5 U	0.5 U	**0.95**	**0.85**	**1.05**	0.5 U
1,2,4-Trimethylbenzene	ug/L			**270**	**90**	**93**	**40**	**340**	**15**	**4.9**	**9.7**	**280**	**25**	**370 D1**	**188**	**418**	**0.68**
1,2-Dibromo-3-chloropropane	ug/L	0.0547	MTCA-B Carc	100 U	25 U	10 U	10 U	0.5 U	2.5 U	2.5 U	0.5 U	2.5 U	0.5 U	0.5 U	1.22 U	1.22 U	0.5 U
1,2-Dibromoethane	ug/L	0.02188	MTCA-B Carc	40 U	10 U	4 U	4 U	0.2 U	1 U	1 U	0.2 U	1 U	0.2 U	0.2 U	0.25 U	0.25 U	0.2 U
1,2-Dichlorobenzene	ug/L	600	FED	40 U	10 U	**9.6**	**9.4**	**16**	**12**	**7.2**	**6.3**	**15**	**9.2**	**19**	**12.2**	**15.7**	**4.07**
1,2-Dichloroethane (EDC)	ug/L	0.48	MTCA-B Carc	40 U	10 U	**8.8**	**11**	**22**	**11**	**6.9**	**8.9**	**16**	**9**	**11**	**6.31**	**6.16**	**4.49**
1,2-Dichloropropane	ug/L	1.22	MTCA-B Carc	40 U	10 U	**9.4**	**11**	**32**	**12**	**7.6**	**9.4**	**29**	**8.6**	**24**	**11.2**	**17.3**	**4.38**
1,3,5-Trimethylbenzene	ug/L	80	MTCA-B Non-Carc	**100**	**33**	**46**	4 U	**140**	**10**	**1.3**	**0.96**	**120**	**4.8**	**140 D1**	**67.2**	**164**	0.2 U

Table 10. Analytical Results - MW-35p2 (2011 - 2017)

Parameters by Group	Units	RI Screening Level	Screening Level Source	Analytical Results (nominal date in parentheses)													
				2011Q1 (3/8/2011)	2011Q3 (9/27/2011)	2012Q1 (3/5/2012)	2012Q3 (9/4/2012)	2013Q1 (3/19/2013)	2013Q3 (9/18/2013)	2014Q1 (3/10/2014)	2014Q3 (9/25/2014)	2015Q1 (3/19/2015)	2015Q3 (9/3/2015)	2016Q1 (5/11/2016)	2016Q3 (9/14/2016)	2017Q1 (5/1/2017)	2017Q3 (9/27/2017)
1,3-Dichlorobenzene	ug/L			40 U	10 U	4 U	4 U	**0.76**	1 U	1 U	**0.39**	1 U	**0.49**	**1**	**0.63**	**0.85**	**0.25**
1,3-Dichloropropane	ug/L			40 U	10 U	4 U	4 U	0.2 U	1 U	1 U	0.2 U	1 U	0.2 U	0.2 U	0.21 U	0.21 U	0.2 U
1,4-Dichlorobenzene	ug/L	8.1	MTCA-B Carc	40 U	10 U	**13**	**15**	**19**	**17**	**13**	**11**	**19**	**19**	**24**	**17.6**	**22.2**	**11.1**
2,2-Dichloropropane	ug/L			40 U	10 U	4 U	4 U	0.2 U	1 U	1 U	0.2 U	1 U	0.2 U	0.2 U	0.17 U	0.17 U	0.2 U
2-butanone	ug/L	4800	MTCA-B Non-Carc	1000 U	250 U	100 U	100 U	**16**	25 U	25 U	5 U	**67**	5 U	5 U	2.71 U	2.71 U	5 U
2-Chloroethylvinylether	ug/L			200 U	50 U	20 U	20 U	1 U	5 U	5 U	1 U	5 U	1 U	1 U	0.83 U	0.83 U	1 U
2-Chlorotoluene	ug/L	160	MTCA-B Non-Carc	40 U	10 U	4 U	4 U	0.2 U	1 U	1 U	0.2 U	1 U	0.2 U	0.2 U	0.08 U	0.08 U	0.2 U
2-Hexanone	ug/L			1000 U	250 U	100 U	100 U	5 U	25 U	25 U	5 U	25 U	5 U	**8.5**	3 U	3 U	5 U
4-Chlorotoluene	ug/L			40 U	10 U	4 U	4 U	0.2 U	1 U	1 U	0.2 U	1 U	0.2 U	0.2 U	0.05 U	0.05 U	0.2 U
4-Isopropyltoluene	ug/L			40 U	10 U	4 U	4 U	0.2 U	1 U	1 U	**0.31**	1 U	**0.82**	**3.5**	**1.57**	**3.67**	**0.2**
4-Methyl-2-pentanone (MIBK)	ug/L	640	MTCA-B Non-Carc	1000 U	250 U	100 U	100 U	**75**	25 U	25 U	5 U	**91**	5 U	5 U	3.24 U	3.24 U	5 U
Acetone	ug/L	7200	MTCA-B Non-Carc	1000 U	250 U	100 U	100 U	**90**	25 U	25 U	**16**	**210**	**30**	**29 Q**	**33.5**	**40**	**36.5**
Acrolein	ug/L	4	MTCA-B Non-Carc	1000 U	250 U	100 U	100 U	5 U	25 U	25 U	5 U	25 U	5 U	5 U	8.25 U	8.26 U	5 U
Acrylonitrile	ug/L	0.081	MTCA-B Carc	200 U	50 U	20 U	20 U	1 U	5 U	5 U	1 U	5 U	1 U	1 U	2.01 U	2.01 U	1 U
Benzene	ug/L	0.8	MTCA-B Carc	**62**	**42**	**25**	**17**	**32**	**5.2**	**5.6**	**7.4**	**31**	**12**	**17**	**15.4**	**16**	**1.77**
Bromobenzene	ug/L			40 U	10 U	4 U	4 U	**1.3**	1 U	1 U	0.2 U	**1.2**	**0.53 M**	**1.1**	0.2 U	**1.01**	0.2 U
Bromochloromethane	ug/L			40 U	10 U	4 U	4 U	0.2 U	1 U	1 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromodichloromethane	ug/L	0.71	MTCA-B Carc	40 U	10 U	4 U	4 U	0.2 U	1 U	1 U	0.2 U	1 U	0.2 U	0.2 U	0.17 U	0.17 U	0.2 U
Bromoethane	ug/L			**40**	10 U	4 U	4 U	0.2 U	1 U	1 U	0.2 U	1 U	0.2 U	0.2 U	**0.57**	**0.29**	**0.25**
Bromoform	ug/L	5.5	MTCA-B Carc	40 U	10 U	4 U	4 U	0.2 U	1 U	1 U	0.2 U	1 U	0.2 U	0.2 U	0.21 U	0.21 U	0.2 U
Bromomethane	ug/L	11.2	MTCA-B Non-Carc	200 U	50 U	20 U	20 U	1 U	5 U	5 U	1 U	5 U	1 U	1 U	0.84 U	0.84 U	1 U
Carbon Disulfide	ug/L	800	MTCA-B Non-Carc	40 U	10 U	4 U	4 U	0.2 U	1 U	1 U	0.2 U	1 U	0.2 U	0.2 U	0.12 U	0.12 U	0.2 U
Carbon Tetrachloride	ug/L	0.625	MTCA-B Carc	40 U	10 U	4 U	4 U	0.2 U	1 U	1 U	0.2 U	1 U	0.2 U	0.2 U	0.15 U	0.15 U	0.2 U
Chlorobenzene	ug/L	100	FED	40 U	10 U	4 U	4 U	0.2 U	**1.8**	**2**	**2.1**	**5.9**	**4.1**	**6.5**	**3.71**	**6.24**	**1.35**
Chloroethane	ug/L			**440**	**490**	**420**	**270**	**240**	**200**	**110**	**140**	**120 Q**	**190**	**58**	**334**	**149**	**65.7**
Chloroform	ug/L	1.41	MTCA-B Carc	40 U	10 U	4 U	4 U	**0.91**	**2**	1 U	**1.3**	1 U	**1.4**	0.2 U	**0.89**	0.09 U	**0.8**
Chloromethane	ug/L			100 U	25 U	10 U	10 U	0.5 U	2.5 U	2.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.32 U	0.32 U	0.5 U
cis-1,2-Dichloroethene	ug/L	16	MTCA-B Non-Carc	**48**	10 U	**20**	**22**	**46**	**24**	**16**	**21**	**200**	**18**	**24**	**11.8**	**17.4**	**10.5**
cis-1,3-Dichloropropene	ug/L			40 U	10 U	4 U	4 U	0.2 U	1 U	1 U	0.2 U	1 U	0.2 U	0.2 U	**90**	0.2 U	0.2 U
Dibromochloromethane	ug/L	0.52	MTCA-B Carc	40 U	10 U	4 U	4 U	0.2 U	1 U	1 U	0.2 U	1 U	0.2 U	0.2 U	0.16 U	0.16 U	0.2 U
Dibromomethane	ug/L	80	MTCA-B Non-Carc	40 U	10 U	4 U	4 U	0.2 U	1 U	1 U	0.2 U	1 U	0.2 U	0.2 U	0.48 U	0.48 U	0.2 U
Dichlorodifluoromethane (CFC 12)	ug/L	1600	MTCA-B NON Carc												**0.43**	**0.2**	
Ethylbenzene	ug/L	700	FED	**1100**	**540**	**470**	**320**	**1300**	**74**	**39**	**68**	**1700**	**210**	**1500 D1**	**538**	**1610**	**16.9**
Hexachlorobutadiene	ug/L	0.56	MTCA-B Carc	100 U	25 U	10 U	10 U	0.5 U	2.5 U	2.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.24 U	0.24 U	0.5 U
Iodomethane	ug/L							1 U	5 U	5 U	1 U	5 U	1 U	1 U	0.76 U	0.76 U	1 U
Isopropylbenzene (Cumene)	ug/L	800	MTCA-B Non-Carc	40 U	10 U	**12**	**11**	**31**	**2.4**	1 U	0.2 U	**37**	**9.4**	**43**	**12.4**	**43.7**	**0.78**
Methylene Chloride	ug/L	5	FED	100 U	25 U	20 U	20 U	**12**	**10**	**5**	**6**	**11**	**6.5**	**2.7**	**3.48**	**2.03**	**2.02**
Naphthalene	ug/L	160	MTCA-B Non-Carc	100 U	25 U	**13**	**12**	**65**	**47**	**10**	**3.6 Q**	**81**	**16**	**78 JD1**	**301**	**79.9**	**2.8**
n-Butylbenzene	ug/L	400	MTCA-B Non-Carc	40 U	10 U	4 U	4 U	**1.5**	1 U	1 U	0.2 U	**1.8**	**0.66**	**2.4**	**1.09**	**3.1**	0.2 U

Table 10. Analytical Results - MW-35p2 (2011 - 2017)

Parameters by Group	Units	RI Screening Level	Screening Level Source	Analytical Results (nominal date in parentheses)													
				2011Q1 (3/8/2011)	2011Q3 (9/27/2011)	2012Q1 (3/5/2012)	2012Q3 (9/4/2012)	2013Q1 (3/19/2013)	2013Q3 (9/18/2013)	2014Q1 (3/10/2014)	2014Q3 (9/25/2014)	2015Q1 (3/19/2015)	2015Q3 (9/3/2015)	2016Q1 (5/11/2016)	2016Q3 (9/14/2016)	2017Q1 (5/1/2017)	2017Q3 (9/27/2017)
n-Propylbenzene	ug/L	800	MTCA-B Non-Carc	40 U	**17**	**19**	**14**	**40**	**3.5**	**2**	**2.6**	**57**	**12**	**61**	**18.5**	**69.9**	**0.83**
o-Xylene	ug/L	1600	MTCA-B Non-Carc	**1400**	**420**	**210**	**83**	**1500**	**78**	**5.4**	**11**	**1700**	**56**	**1800 D1**	**741**	**1610**	**0.45**
sec-Butylbenzene	ug/L	800	MTCA-B Non-Carc	40 U	10 U	4 U	4 U	0.2 U	1 U	1 U	0.2 U	1 U	**0.79**	**2.3**	**160**	**2.6**	0.2 U
Styrene	ug/L	100	FED	40 U	10 U	4 U	4 U	0.2 U	1 U	1 U	0.2 U	1 U	0.2 U	**2.5**	0.15 U	0.15 U	0.2 U
tert-Butylbenzene	ug/L	800	MTCA-B Non-Carc	40 U	10 U	4 U	4 U	0.2 U	1 U	1 U	0.2 U	1 U	**0.32**	**0.4**	**0.26**	**0.42**	0.2 U
Tetrachloroethene (PCE)	ug/L	5	FED	40 U	10 U	4 U	4 U	**3.3**	**3.9**	**2.5**	**3.5**	**2.6**	**3.6**	**1**	**3.15**	**0.73**	**2.32**
Toluene	ug/L	640	MTCA-B Non-Carc	**16000**	**1700**	**200**	**4**	**24000**	**28**	**1.8**	**2.7**	**30000**	**79**	**15000 D1**	**4170**	**14100**	**1.22**
Total Xylenes	ug/L	1600	MTCA-B Non-Carc												**2060**	**4450**	**2.49**
trans-1,2-Dichloroethene	ug/L	100	FED	40 U	10 U	4 U	4 U	**1.7**	**1.2**	1 U	**0.89**	**1**	**1.1**	**0.64**	**0.98**	**0.75**	**0.46**
trans-1,3-Dichloropropene	ug/L			40 U	10 U	4 U	4 U	0.2 U	1 U	1 U	0.2 U	1 U	0.2 U	0.2 U	0.27 U	0.27 U	0.2 U
trans-1,4-Dichloro-2-butene	ug/L			200 U	50 U	20 U	20 U	1 U	5 U	5 U	1 U	5 U	1 U	1 U	1.08 U	1.08 U	1 U
Trichloroethene (TCE)	ug/L	0.54	MTCA-B Carc	40 U	10 U	4 U	**5.2**	**3**	**5.8**	**2.8**	**3.7**	**2.2**	**3.1**	**0.65**	**2.46**	**0.43**	**1.77**
Trichlorofluoromethane	ug/l	2400	MTCA-B Non-Carc	40 U	10 U	4 U	4 U	0.2 U	1 U	1 U	0.2 U	1 U	0.2 U	0.2 U	0.12 U	0.12 U	0.2 U
Vinyl Acetate	ug/L	8000	MTCA-B Non-Carc	200 U	50 U	4 U	4 U	0.2 U	1 U	1 U	0.2 U	1 U	0.2 U	0.2 U	0.23 U	0.23 U	0.2 U
Vinyl Chloride	ug/L	0.029	MTCA-B Carc	**100**	10 U	**18**	**19**	**120**	**17**	**6.9**	**18**	**86**	**14**	**43**	**8.22**	**30.6**	**6.44**
Xylene Isomers, M+P	ug/L	1600	MTCA-B Non-Carc	**3300**	**910**	**340**	**140**	**3900**	**80**	**11**	**20**	**4800**	**100**	**4100 D1**	**1320**	**2840**	**2.04**
Total Detected VOCs	**ug/L**			**23,360.00**	**4,274.00**	**2,056.80**	**1,133.60**	**32,645.40**	**792.80**	**346.90**	**516.26**	**39,744.60**	**944.12**	**23,805.00**	**8,226.61**	**21,653.09**	**243.65**
Number of VOCs Exceeding RI Screening Levels				**8**	**3**	**7**	**8**	**14**	**10**	**7**	**9**	**12**	**9**	**12**	**10**	**12**	**8**

Bold: parameter detected above lab reporting limit

Bold: concentration exceeds RI screening level

U: parameter not detected at associated lab reporting limit (#)

D: indicates sample diluted for analysis

J: indicates estimaged concentration when value is less than lab's established reporting limits

M: indicates estimated value for analyte detected and confirmed by an analyst but with low spectral match parameters (flag used only for GC-MS analyses)

Q: indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria

B: indicates analyte detected in method blank, trip blank, or blind blank

Blank: not sampled

Xylenes represented in the "Total Detected VOCs" calculation as the sum of O-Xylene and Xylene Isomers, M+P. Total Xylene concentrations (analyzed only in 2016Q3, 2017Q1, and 2017Q3) not included in the calculation

Xylenes represented in the "Number of VOCs Exceeding RI Screening Levels" count as a single exceedance (e.g. counted as 1 if any OR all O-Xylene, Xylene Isomers, M+P, or Total Xylenese exceed screening levels; counted as 0 if no Xylenes exceed screening levels)

Table 11. Analytical Results - MW-38p2 (2011 - 2017)

Parameters by Group	Units	RI Screening Level	Screening Level Source	Analytical Results (nominal date in parentheses)												
				2011Q1 (3/8/2011)	2011Q3 (9/27/2011)	2012Q1 (3/5/2012)	2012Q3 (9/4/2012)	2013Q1 (3/19/2013)	2013Q3 (9/18/2013)	2014Q1 (3/10/2014)	2014Q3 (9/25/2014)	2015Q1 (3/19/2015)	2015Q3 (9/3/2015)	2016Q1 (5/11/2016)	2016Q3 (9/14/2016)	2017Q1 (5/1/2017)	2017Q3 (9/27/2017)
Field Parameters																	
Depth to Water	feet			43.04	43.12	42.9	43.2	42.95	43.16	43.13	43.13	43.06	43.1	42.28	43.08	42.63	43.24
pH	std. units			6.73	6.86	6.85		7.22	6.98	6.85	7.08	7.05	6.97	7.06	7.02	6.63	7.18
Specific Conductance @ 25C	umhos/cm			926	1788	1288		1693	1529	1510	1157	1584	1444	1441	1683	1111	2580
Temperature, 0 F	0 F			60.08	60.8	59.72		61.34	61.7	60.62	61.52	61.7	62.06	61.3	61.16	59.9	60.98
Inorganics																	
Chloride	mg/L	250	STATE	**223**	**221**	**260**	**259**	**275**	**270**	**250**	**282**	**306**	**296**	**372**	**330**	**372 D**	**366 D**
Nitrate as Nitrogen	mg/L as N	10	FED	**0.013**	0.02 U	0.01 U	**0.018**	0.01 U	**0.036**	**0.053**	**0.03**	**0.032**	**0.025**	0.01 U	**0.014**	0.02 U	0.02 U
Nitrate+Nitrite as Nitrogen	mg/L as N	10	FED	**0.026**	**0.085**	0.01 U	**0.018**	0.01 U	**0.036**	**0.071**	**0.03**	**0.032**	**0.025**	**0.012**	**0.019**	0.033 U	0.01 U
Nitrite as Nitrogen	mg/L as N	1	FED	**0.013**	**0.087**	0.01 U	0.01 U	0.01 U	0.01 U	**0.018**	0.01 U	0.01 U	0.01 U	**0.013**	0.002 U	0.033 U	0.01 U
Sulfate	mg/L	250	STATE	**52.3**	**194**	**168**	**120**	**62.1**	**119**	**173**	**119**	**63.6**	**110**	**38**	**54 D**	**51.5 D**	**42.3 D**
Total Dissolved Solids	mg/L	500	STATE	**929**	**1060**	**1140**	**1040**	**869**	**1020**	**968**	**1010**	**1210**	**927**	**1150**	**1130**	**1270**	**1230**
Metals																	
Arsenic, Dissolved	ug/L	0.058	MTCA-B Carc	**1.7**	**1.2**	**1**	**1.4**	**1.6**	**1.7**	**1.4**	**1.6**	**1.9**	**1.2**	**1.8**	**2.44**	**2.18**	
Iron, Dissolved	ug/L	11200	MTCA-B Non-Carc	50 U	50 U	**630**	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	**38.9**	**27.7**	**50.2**
Iron, Total	ug/L	11200	MTCA-B Non-Carc	**26300**	**108000**	**13200**	**30100**	**4910**	**6260**	**22200**	**51900**		**9990**	**18200**	**4090**	**1920**	
Manganese, Dissolved	ug/L	2240	MTCA-B Non-Carc	**2490**	**1870**	**2910**	**1480**	**1180**	**2100**	**1580**	**1850**	**2260**	**1890**	**3710**	**4220**	**5160 D**	**3870**
Manganese, Total	ug/L	2240	MTCA-B Non-Carc	**3050**	**3390**	**3310**	**2200**	**1980**	**2270**	**1870**	**1930**		**1680**	**4160**	**4850**	**5950 D**	
Organics																	
1,1,1,2-Tetrachloroethane	ug/L	1.68	MTCA-B Carc	20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	1.2 Y	**11**	**1.2**	0.13 U	2 U
1,1,1-Trichloroethane	ug/l	200	FED	**1700**	**1700**	**1600**	**350**	**360**	**61**	**97**	**27**	**18**	**8**	**370 D1**	**34**	**185**	**3.79**
1,1,2,2-Tetrachloroethane	ug/L	0.22	MTCA-B Carc	20 U	20 U	20 U	10 U	**0.065 M**	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.2 U	0.2 U	2 U
1,1,2-Trichloroethane	ug/L	0.77	MTCA-B Carc	**23**	**25**	20 U	**12**	**11**	4 U	20 U	**3.3**	10 U	**2.2**	**3**	**2.02**	**2.56**	2 U
1,1,2-Trichlorotrifluoroethane	ug/L	240000	MTCA-B Non-Carc	20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	**0.47**	**0.2**	**0.87**	2 U
1,1-Dichloroethane	ug/L	7.68	MTCA-B Carc	**2800**	**2800**	**1800**	**880**	**1300**	**830**	**1300**	**580**	**570**	**780**	**1100 D1**	**738**	**943**	**602**
1,1-Dichloroethene	ug/L	7	FED	**290**	**270**	**290**	**87**	**80**	**30**	**38**	**18**	**10**	**15**	**56**	**13.6**	**43.6**	**3.71**
1,1-Dichloropropene	ug/L			20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.11 U	0.11 U	2 U
1,2,3-Trichlorobenzene	ug/L			50 U	50 U	50 U	25 U	10 U	10 U	50 U	0.5 U	25 U	0.5 U	0.5 U	0.37 U	0.37 U	5 U
1,2,3-Trichloropropane	ug/L	0.00146	MTCA-B Carc	50 U	50 U	50 U	25 U	10 U	10 U	50 U	0.5 U	25 U	0.5 U	0.5 U	0.44 U	0.44 U	5 U
1,2,4-Trichlorobenzene	ug/L	1.51	MTCA-B Carc	50 U	50 U	50 U	25 U	10 U	10 U	50 U	0.5 U	25 U	0.5 U	0.5 U	0.36 U	0.36 U	5 U
1,2,4-Trimethylbenzene	ug/L			**41**	**37**	**48**	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	**5**	**0.66**	**2.61**	**7.84**
1,2-Dibromo-3-chloropropane	ug/L	0.0547	MTCA-B Carc	50 U	50 U	50 U	25 U	10 U	10 U	50 U	0.5 U	25 U	0.5 U	0.5 U	1.22 U	1.22 U	5 U
1,2-Dibromoethane	ug/L	0.02188	MTCA-B Carc	20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.25 U	0.25 U	2 U
1,2-Dichlorobenzene	ug/L	600	FED	20 U	20 U	20 U	10 U	4 U	**4.2**	20 U	**2.6**	10 U	**2.2**	**3.7**	**3.62**	**3.04**	**4.81**
1,2-Dichloroethane (EDC)	ug/L	0.48	MTCA-B Carc	**290**	**330**	**170**	**96**	**110**	**43**	**59**	**22**	**18**	**19**	**26**	**21.8**	**18.3**	**3.54**
1,2-Dichloropropane	ug/L	1.22	MTCA-B Carc	**720**	**760**	**680**	**570**	**620**	**390**	**560**	**230**	**210**	**190**	**180 D1**	**194**	**167**	**30.7**
1,3,5-Trimethylbenzene	ug/L	80	MTCA-B Non-Carc	**23**	**22**	**27**	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	**3.1**	0.05 U	**1.2**	2 U
1,3-Dichlorobenzene	ug/L			20 U	20 U	20 U	10 U	4 U	4 U	20 U	**0.27**	10 U	**0.31**	**0.35**	**0.29**	**0.29**	2 U
1,3-Dichloropropane	ug/L			20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.21 U	0.21 U	2 U
1,4-Dichlorobenzene	ug/L	8.1	MTCA-B Carc	20 U	20 U	20 U	10 U	4 U	4 U	20 U	**1.7**	10 U	**1.8**	**2**	**1.63**	**1.66**	**2.02**

Table 11. Analytical Results - MW-38p2 (2011 - 2017)

Parameters by Group	Units	RI Screening Level	Screening Level Source	Analytical Results (nominal date in parentheses)												
				2011Q1 (3/8/2011)	2011Q3 (9/27/2011)	2012Q1 (3/5/2012)	2012Q3 (9/4/2012)	2013Q1 (3/19/2013)	2013Q3 (9/18/2013)	2014Q1 (3/10/2014)	2014Q3 (9/25/2014)	2015Q1 (3/19/2015)	2015Q3 (9/3/2015)	2016Q1 (5/11/2016)	2016Q3 (9/14/2016)	2017Q1 (5/1/2017)	2017Q3 (9/27/2017)
2,2-Dichloropropane	ug/L			20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.17 U	0.17 U	2 U
2-butanone	ug/L	4800	MTCA-B Non-Carc	500 U	500 U	500 U	250 U	100 U	100 U	500 U	5 U	250 U	5 U	**39**	2.71 U	**19.4**	50 U
2-Chloroethylvinylether	ug/L			100 U	100 U	100 U	50 U	20 U	20 U	100 U	1 U	50 U	1 U	1 U	0.83 U	0.83 U	10 U
2-Chlorotoluene	ug/L	160	MTCA-B Non-Carc	20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.08 U	0.08 U	2 U
2-Hexanone	ug/L			500 U	500 U	500 U	250 U	100 U	100 U	500 U	5 U	250 U	5 U	5 U	3 U	3 U	50 U
4-Chlorotoluene	ug/L			20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.05 U	0.05 U	2 U
4-Isopropyltoluene	ug/L			20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.09 U	0.09 U	2 U
4-Methyl-2-pentanone (MIBK)	ug/L	640	MTCA-B Non-Carc	500 U	500 U	500 U	250 U	100 U	100 U	500 U	5 U	250 U	5 U	**35**	3.24 U	**19.5**	50 U
Acetone	ug/L	7200	MTCA-B Non-Carc	500 U	500 U	500 U	250 U	100 U	100 U	500 U	**25**	250 U	5 U	**240 Q**	**21.7**	**113**	50 U
Acrolein	ug/L	4	MTCA-B Non-Carc	500 U	500 U	500 U	250 U	100 U	100 U	500 U	5 U	250 U	5 U	5 U	8.25 U	8.26 U	50 U
Acrylonitrile	ug/L	0.081	MTCA-B Carc	100 U	100 U	100 U	50 U	20 U	20 U	100 U	1 U	50 U	1 U	1 U	2.01 U	2.01 U	10 U
Benzene	ug/L	0.8	MTCA-B Carc	**100**	**66**	**50**	**29**	**46**	**28**	**55**	**24**	**24**	**26**	**26**	**18.8**	**20.9**	**21.2**
Bromobenzene	ug/L			20 U	20 U	20 U	10 U	4 U	4 U	20 U	**0.4**	10 U	**0.31**	**0.77**	0.2 U	**0.65**	2 U
Bromochloromethane	ug/L			20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.2 U	0.2 U	2 U
Bromodichloromethane	ug/L	0.71	MTCA-B Carc	20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.17 U	0.17 U	2 U
Bromoethane	ug/L			20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.14 U	0.14 U	2 U
Bromoform	ug/L	5.5	MTCA-B Carc	20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.21 U	0.21 U	2 U
Bromomethane	ug/L	11.2	MTCA-B Non-Carc	100 U	100 U	100 U	50 U	20 U	20 U	100 U	1 U	50 U	1 U	1 U	0.84 U	0.84 U	10 U
Carbon Disulfide	ug/L	800	MTCA-B Non-Carc	20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.12 U	**0.27**	2 U
Carbon Tetrachloride	ug/L	0.625	MTCA-B Carc	20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.15 U	0.15 U	2 U
Chlorobenzene	ug/L	100	FED	20 U	20 U	20 U	10 U	4 U	4 U	20 U	**0.32**	10 U	**0.27**	**0.48**	0.08 U	**0.4**	2 U
Chloroethane	ug/L			20 U	20 U	20 U	10 U	4 U	4 U	20 U	**1.7**	10 U	**3.4**	**11**	**25.3**	**21.4**	**641**
Chloroform	ug/L	1.41	MTCA-B Carc	**160**	**170**	**120**	**72**	**66**	**39**	**54**	**28**	**20**	**24**	**21**	**13**	**13.1**	**3.61**
Chloromethane	ug/L			50 U	50 U	50 U	25 U	10 U	10 U	50 U	0.5 U	25 U	0.5 U	**1.6**	0.32 U	0.32 U	5 U
cis-1,2-Dichloroethene	ug/L	16	MTCA-B Non-Carc	**490**	**730**	**440**	**150**	**87**	**43**	**49**	**23**	**16**	**21**	**110 D1**	**21**	**43.5**	**5.41**
cis-1,3-Dichloropropene	ug/L			20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.2 U	**2.33**	2 U
Dibromochloromethane	ug/L	0.52	MTCA-B Carc	20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.16 U	0.16 U	2 U
Dibromomethane	ug/L	80	MTCA-B Non-Carc	20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.48 U	0.48 U	2 U
Dichlorodifluoromethane (CFC 12)	ug/L	1600	MTCA-B NON Carc												**0.33**	**0.4**	
Ethylbenzene	ug/L	700	FED	**340**	**130**	**100**	10 U	**9.6**	4 U	20 U	**0.7**	10 U	**0.21**	**17**	**1.17**	**9.11**	**11**
Hexachlorobutadiene	ug/L	0.56	MTCA-B Carc	50 U	50 U	50 U	25 U	10 U	10 U	50 U	0.5 U	25 U	0.5 U	0.5 U	0.24 U	0.24 U	5 U
Iodomethane	ug/L							20 U	20 U	100 U	1 U	50 U	1 U	1 U	0.76 U	0.76 U	10 U
Isopropylbenzene (Cumene)	ug/L	800	MTCA-B Non-Carc	20 U	20 U	20 U	10 U	**4.2**	4 U	20 U	0.2 U	10 U	**0.21**	**3.1**	**0.5**	**2.61**	**2.21**
Methylene Chloride	ug/L	5	FED	50 U	50 U	100 U	50 U	20 U	20 U	100 U	1 U	50 U	1 U	**8.1**	**3.08**	**5.26**	**10.2**
Naphthalene	ug/L	160	MTCA-B Non-Carc	50 U	50 U	50 U	25 U	10 U	10 U	50 U	0.5 U	25 U	0.5 U	**4.7**	**1.6**	**15.8**	5 U
n-Butylbenzene	ug/L	400	MTCA-B Non-Carc	20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.08 U	0.08 U	2 U
n-Propylbenzene	ug/L	800	MTCA-B Non-Carc	20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	**0.73**	0.08 U	**0.44**	2 U
o-Xylene	ug/L	1600	MTCA-B Non-Carc	**550**	**450**	**430**	**64**	**99**	**36**	20 U	**6.6**	10 U	**1.9**	**76 D1**	**8.61**	**37.8**	**10.8**
sec-Butylbenzene	ug/L	800	MTCA-B Non-Carc	20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.08 U	0.08 U	2 U
Styrene	ug/L	100	FED	20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.15 U	0.15 U	2 U

Table 11. Analytical Results - MW-38p2 (2011 - 2017)

Parameters by Group	Units	RI Screening Level	Screening Level Source	Analytical Results (nominal date in parentheses)												
				2011Q1 (3/8/2011)	2011Q3 (9/27/2011)	2012Q1 (3/5/2012)	2012Q3 (9/4/2012)	2013Q1 (3/19/2013)	2013Q3 (9/18/2013)	2014Q1 (3/10/2014)	2014Q3 (9/25/2014)	2015Q1 (3/19/2015)	2015Q3 (9/3/2015)	2016Q1 (5/11/2016)	2016Q3 (9/14/2016)	2017Q1 (5/1/2017)	2017Q3 (9/27/2017)
tert-Butylbenzene	ug/L	800	MTCA-B Non-Carc	20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.09 U	0.09 U	2 U
Tetrachloroethene (PCE)	ug/L	5	FED	20 U	20 U	20 U	10 U	**2.4**	4 U	20 U	**1.4**	10 U	**1.4**	**2**	**1.78**	**0.86**	2 U
Toluene	ug/L	640	MTCA-B Non-Carc	**3000**	**840**	**590**	**38**	**63**	**34**	**35**	**22**	**53**	**11**	**210 D1**	**7.18**	**121**	**3.62**
Total Xylenes	ug/L	1600	MTCA-B Non-Carc												**11.1**	**64.4**	**14.8**
trans-1,2-Dichloroethene	ug/L	100	FED	20 U	20 U	20 U	10 U	**4**	4 U	20 U	0.2 U	10 U	**1.2**	**1.5**	**1.39**	**1.39**	2 U
trans-1,3-Dichloropropene	ug/L			20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.27 U	0.27 U	2 U
trans-1,4-Dichloro-2-butene	ug/L			100 U	100 U	100 U	50 U	20 U	20 U	100 U	1 U	50 U	1 U	1 U	1.08 U	1.08 U	10 U
Trichloroethene (TCE)	ug/L	0.54	MTCA-B Carc	20 U	**39**	**61**	**34**	**27**	**30**	**39**	**18**	**16**	**18**	**17**	**16**	**10.2**	**4.41**
Trichlorofluoromethane	ug/l	2400	MTCA-B Non-Carc	20 U	20 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.12 U	0.12 U	2 U
Vinyl Acetate	ug/L	8000	MTCA-B Non-Carc	100 U	100 U	20 U	10 U	4 U	4 U	20 U	0.2 U	10 U	0.2 U	0.2 U	0.23 U	0.23 U	2 U
Vinyl Chloride	ug/L	0.029	MTCA-B Carc	**890**	**460**	**490**	**160**	**450**	**130**	**160**	**66**	**47**	**53**	**100 D1**	**48.1**	**101**	**6.72**
Xylene Isomers, M+P	ug/L	1600	MTCA-B Non-Carc	**1000**	**690**	**560**	20 U	**23**	**11**	40 U	**1.8**	20 U	**0.57**	**61**	**2.13**	**26.6**	4 U
Total Detected VOCs	**ug/L**			**12,417.00**	**9,519.00**	**7,456.00**	**2,542.00**	**3,362.27**	**1,709.20**	**2,446.00**	**1,103.79**	**1,002.00**	**1,180.98**	**2,746.60**	**1,202.69**	**1,956.05**	**1,378.59**
Number of VOCs Exceeding RI Screening Levels				**11**	**12**	**10**	**11**	**11**	**9**	**9**	**10**	**8**	**10**	**13**	**10**	**11**	**8**

Bold: parameter detected above lab reporting limit

Bold: concentration exceeds RI screening level

U: parameter not detected at associated lab reporting limit (#)

D: indicates sample diluted for analysis

M: indicates estimated value for analyte detected and confirmed by an analyst but with low spectral match parameters (flag used only for GC-MS analyses)

Q: indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria

B: indicates analyte detected in method blank, trip blank, or blind blank

Blank: not sampled

Xylenes represented in the "Total Detected VOCs" calculation as the sum of O-Xylene and Xylene Isomers, M+P. Total Xylene concentrations (analyzed only in 2016Q3, 2017Q1, and 2017Q3) not included in the calculation

Xylenes represented in the "Number of VOCs Exceeding RI Screening Levels" count as a single exceedance (e.g. counted as 1 if any OR all O-Xylene, Xylene Isomers, M+P, or Total Xylenese exceed screening levels; counted as 0 if no Xylenes exceed screening levels)

Table 12. Analytical Results - MW-42b (2012 - 2017)

Parameters by Group	Units	RI Screening Level	Screening Level Source	Analytical Results (nominal date in parentheses)											
				2012Q1 (3/5/2012)	2012Q3 (9/4/2012)	2013Q1 (3/19/2013)	2013Q3 (9/18/2013)	2014Q1 (3/10/2014)	2014Q3 (9/25/2014)	2015Q1 (3/19/2015)	2015Q3 (9/3/2015)	2016Q1 (5/11/2016)	2016Q3 (9/14/2016)	2017Q1 (5/1/2017)	2017Q3 (9/27/2017)
Field Parameters															
Depth to Water	feet			49.29	47.51	48.23	48.85	49.21	49.19	47.04	48.95	47.65	48.99	47.4	49.12
pH	std. units			7.02	6.89	7	6.98	6.96	7.18	7.02	7	7.01	7	7.12	7.19
Specific Conductance @ 25C	umhos/cm			1885	1439	3130	1815	1855	1056	1995	1618	1347	1652	935	1887
Temperature, 0 F	0 F			59.54	62.24	62.96	64.6	61.7	63.32	61.34	65.48	65.7	66.02	63.32	64.58
Turbidity	NTU										0.74				
Inorganics															
Chloride	mg/L	250	STATE	**324**	**365**	**289**	**308**	**277**	**309**	**293**	**265**	**272**	**256**	**227 D**	**234 D**
Nitrate as Nitrogen	mg/L as N	10	FED	0.01 U	**0.017**	**0.048**	**0.03**	**0.01**	**0.016**	**0.034**	**0.018**	0.01 U	0.01 U	0.02 U	0.02 U
Nitrate+Nitrite as Nitrogen	mg/L as N	10	FED	0.01 U	**0.017**	**0.048**	**0.03**	**0.01**	**0.016**	**0.034**	**0.018**	0.01 U	0.033 U	0.033 U	0.01 U
Nitrite as Nitrogen	mg/L as N	1	FED	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.002 U	0.033 U	0.01 U
Sulfate	mg/L	250	STATE	**157**	**490**	**252**	**201**	**161**	**159**	**159**	**138**	**129**	**108 D**	**109 D**	**93 D**
Total Dissolved Solids	mg/L	500	STATE	**1340**	**1810**	**1360**	**1120**	**1260**	**1270**	**1500**	**1280**	**1250**	**1240**	**1220**	**1200**
Metals															
Arsenic, Dissolved	ug/L	0.058	MTCA-B Carc	**1.1**	**1.7**	**1.2**	**1.7**	**2**	**1.8**	**2.4**	**1.4**	**1.6**	**1.66**	**1.62 D**	
Iron, Dissolved	ug/L	11200	MTCA-B Non-Carc	**260**	**300**	**360**	**240**	**260**	**280**	**240**	50 U	**270**	**312**	**245 D, B**	**179**
Iron, Total	ug/L	11200	MTCA-B Non-Carc	**1100**	**440**	**3190**	**690**	**980**	**630**		**330**	**360**	**307**	**421 D**	
Manganese, Dissolved	ug/L	2240	MTCA-B Non-Carc	**1130**	**1780**	**1360**	**831**	**953**	**1220**	**960**	**1080**	**977**	**911**	**745 D**	**531**
Manganese, Total	ug/L	2240	MTCA-B Non-Carc	**1030**	**1770**	**1280**	**772**	**677**	**1250**		**773**	**1120**	**769**	**990 D**	
Organics															
1,1,1,2-Tetrachloroethane	ug/L	1.68	MTCA-B Carc	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.13 U	0.13 U	0.2 U
1,1,1-Trichloroethane	ug/l	200	FED	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.14 U	0.14 U	0.2 U
1,1,2,2-Tetrachloroethane	ug/L	0.22	MTCA-B Carc	0.02 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2-Trichloroethane	ug/L	0.77	MTCA-B Carc	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.43 U	0.43 U	0.2 U
1,1,2-Trichlorotrifluoroethane	ug/L	240000	MTCA-B Non-Carc	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.14 U	0.14 U	0.2 U
1,1-Dichloroethane	ug/L	7.68	MTCA-B Carc	**45**	**38**	**39**	**40**	**25**	**29**	**21**	**23**	**18**	**22.3**	**16.7**	**25.2**
1,1-Dichloroethene	ug/L	7	FED	**4.6**	**3.6**	**4.3**	**4.8**	**3**	**4.2**	**2.9**	**3.4**	**2.4**	**3.26**	**2.17**	**4.07**
1,1-Dichloropropene	ug/L			1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.11 U	0.11 U	0.2 U
1,2,3-Trichlorobenzene	ug/L			2.5 U	2.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.37 U	0.37 U	0.5 U
1,2,3-Trichloropropane	ug/L	0.00146	MTCA-B Carc	2.5 U	2.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.44 U	0.44 U	0.5 U
1,2,4-Trichlorobenzene	ug/L	1.51	MTCA-B Carc	2.5 U	2.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.36 U	0.36 U	0.5 U
1,2,4-Trimethylbenzene	ug/L			1 U	**1.6**	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.08 U	0.08 U	0.2 U
1,2-Dibromo-3-chloropropane	ug/L	0.0547	MTCA-B Carc	2.5 U	2.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1.22 U	1.22 U	0.5 U
1,2-Dibromoethane	ug/L	0.02188	MTCA-B Carc	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.25 U	0.25 U	0.2 U
1,2-Dichlorobenzene	ug/L	600	FED	**1.4**	**4.6**	**1.9**	**1.6**	**0.93**	**1.1**	**1.3**	**0.78**	**0.8**	**0.69**	**0.58**	**0.55**
1,2-Dichloroethane (EDC)	ug/L	0.48	MTCA-B Carc	**3.6**	**3.2**	**3.6**	**3.3**	**2.2**	**2.2**	**1.7**	**2**	**1.5**	**1.64**	**1.2**	**1.57**
1,2-Dichloropropane	ug/L	1.22	MTCA-B Carc	**20**	**18**	**21**	**22**	**16**	**18**	**13**	**15**	**10**	**13.5**	**10.3**	**13.7**

Table 12. Analytical Results - MW-42b (2012 - 2017)

Parameters by Group	Units	RI Screening Level	Screening Level Source	Analytical Results (nominal date in parentheses)											
				2012Q1 (3/5/2012)	2012Q3 (9/4/2012)	2013Q1 (3/19/2013)	2013Q3 (9/18/2013)	2014Q1 (3/10/2014)	2014Q3 (9/25/2014)	2015Q1 (3/19/2015)	2015Q3 (9/3/2015)	2016Q1 (5/11/2016)	2016Q3 (9/14/2016)	2017Q1 (5/1/2017)	2017Q3 (9/27/2017)
1,3,5-Trimethylbenzene	ug/L	80	MTCA-B Non-Carc	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.05 U	0.05 U	0.2 U
1,3-Dichlorobenzene	ug/L			1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.12 U	0.12 U	0.2 U
1,3-Dichloropropane	ug/L			1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.21 U	0.21 U	0.2 U
1,4-Dichlorobenzene	ug/L	8.1	MTCA-B Carc	**1.5**	**3.5**	**1.7**	**1.7**	**0.88**	**1.4**	**1.2**	**0.8**	**0.8**	**0.84**	**0.64**	**0.57**
2,2-Dichloropropane	ug/L			1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.17 U	0.17 U	0.2 U
2-butanone	ug/L	4800	MTCA-B Non-Carc	25 U	25 U	5 U	10 U	5 U	5 U	10 U	5 U	5 U	2.71 U	2.71 U	5 U
2-Chloroethylvinylether	ug/L			5 U	5 U	1 U	2 U	1 U	1 U	2 U	1 U	1 U	0.83 U	0.83 U	1 U
2-Chlorotoluene	ug/L	160	MTCA-B Non-Carc	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.08 U	0.08 U	0.2 U
2-Hexanone	ug/L			25 U	25 U	5 U	10 U	5 U	5 U	10 U	5 U	5 U	3 U	3 U	5 U
4-Chlorotoluene	ug/L			1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.05 U	0.05 U	0.2 U
4-Isopropyltoluene	ug/L			1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.09 U	0.09 U	0.2 U
4-Methyl-2-pentanone (MIBK)	ug/L	640	MTCA-B Non-Carc	25 U	25 U	5 U	10 U	5 U	5 U	10 U	5 U	5 U	3.24 U	3.24 U	5 U
Acetone	ug/L	7200	MTCA-B Non-Carc	25 U	25 U	5 U	10 U	5 U	5 U	10 U	5 U	5 U	6.85 U	6.86 U	5 U
Acrolein	ug/L	4	MTCA-B Non-Carc	25 U	25 U	5 U	10 U	5 U	5 U	10 U	5 U	5 U	8.25 U	8.26 U	5 U
Acrylonitrile	ug/L	0.081	MTCA-B Carc	5 U	5 U	0.05 U	2 U	1 U	1 U	2 U	1 U	1 U	2.01 U	2.01 U	1 U
Benzene	ug/L	0.8	MTCA-B Carc	1 U	**3.9**	**0.48**	**0.48**	**0.24**	**0.46**	**0.5**	**0.28**	**0.24**	**0.31**	0.09 U	0.2 U
Bromobenzene	ug/L			1 U	1 U	**0.24**	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromochloromethane	ug/L			1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromodichloromethane	ug/L	0.71	MTCA-B Carc	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.17 U	0.17 U	0.2 U
Bromoethane	ug/L			1 U	**1.2**	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	**1.3**	0.2 U	**0.23**	0.14 U	0.2 U
Bromoform	ug/L	5.5	MTCA-B Carc	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.21 U	0.21 U	0.2 U
Bromomethane	ug/L	11.2	MTCA-B Non-Carc	5 U	5 U	1 U	2 U	1 U	1 U	2 U	1 U	1 U	0.84 U	0.84 U	1 U
Carbon Disulfide	ug/L	800	MTCA-B Non-Carc	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.12 U	0.12 U	0.2 U
Carbon Tetrachloride	ug/L	0.625	MTCA-B Carc	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.15 U	0.15 U	0.2 U
Chlorobenzene	ug/L	100	FED	1 U	**1**	**0.54**	**0.56**	**0.37**	**0.38**	0.4 U	**0.32**	**0.28**	**0.3**	**0.21**	**0.25**
Chloroethane	ug/L			**120**	**190**	**100**	**81**	**40**	**46**	**60 Q**	**36**	**25**	**24.5**	**16.5**	**36.3**
Chloroform	ug/L	1.41	MTCA-B Carc	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.09 U	0.09 U	0.2 U
Chloromethane	ug/L			2.5 U	2.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.32 U	0.32 U	0.5 U
cis-1,2-Dichloroethene	ug/L	16	MTCA-B Non-Carc	**34**	**28**	**32**	**41**	**25**	**31**	**23**	**23**	**19**	**25.1**	**18.3**	**27.3**
cis-1,3-Dichloropropene	ug/L			1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Dibromochloromethane	ug/L	0.52	MTCA-B Carc	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.16 U	0.16 U	0.2 U
Dibromomethane	ug/L	80	MTCA-B Non-Carc	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.48 U	0.48 U	0.2 U
Dichlorodifluoromethane (CFC 12)	ug/L	1600	MTCA-B NON Carc										**1.32**	**0.68**	
Ethylbenzene	ug/L	700	FED	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.12 U	0.12 U	0.2 U
Hexachlorobutadiene	ug/L	0.56	MTCA-B Carc	2.5 U	2.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.24 U	0.24 U	0.5 U
Iodomethane	ug/L					1 U	2 U	1 U	1 U	2 U	1 U	1 U	0.76 U	0.76 U	1 U
Isopropylbenzene (Cumene)	ug/L	800	MTCA-B Non-Carc	1 U	**1.2**	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.07 U	0.07 U	0.2 U
Methylene Chloride	ug/L	5	FED	5 U	5 U	**3.7**	**4**	**2.1**	**2.1**	**2**	**1.8**	**1.6**	**1.62**	**1.08**	**1.72**
Naphthalene	ug/L	160	MTCA-B Non-Carc	2.5 U	2.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.39 U	**0.95**	0.5 U

Table 12. Analytical Results - MW-42b (2012 - 2017)

Parameters by Group	Units	RI Screening Level	Screening Level Source	Analytical Results (nominal date in parentheses)											
				2012Q1 (3/5/2012)	2012Q3 (9/4/2012)	2013Q1 (3/19/2013)	2013Q3 (9/18/2013)	2014Q1 (3/10/2014)	2014Q3 (9/25/2014)	2015Q1 (3/19/2015)	2015Q3 (9/3/2015)	2016Q1 (5/11/2016)	2016Q3 (9/14/2016)	2017Q1 (5/1/2017)	2017Q3 (9/27/2017)
n-Butylbenzene	ug/L	400	MTCA-B Non-Carc	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.08 U	0.08 U	0.2 U
n-Propylbenzene	ug/L	800	MTCA-B Non-Carc	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.08 U	0.08 U	0.2 U
o-Xylene	ug/L	1600	MTCA-B Non-Carc	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.12 U	0.12 U	0.2 U
sec-Butylbenzene	ug/L	800	MTCA-B Non-Carc	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.08 U	0.08 U	0.2 U
Styrene	ug/L	100	FED	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.15 U	0.15 U	0.2 U
tert-Butylbenzene	ug/L	800	MTCA-B Non-Carc	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.09 U	0.09 U	0.2 U
Tetrachloroethene (PCE)	ug/L	5	FED	**5.7**	**4.4**	**6**	**7.6**	**6.6**	**7.8**	**6.2**	**6.2**	**5**	**6.05**	**3.54**	**6.39**
Toluene	ug/L	640	MTCA-B Non-Carc	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.13 U	0.13 U	0.2 U
Total Xylenes	ug/L	1600	MTCA-B Non-Carc										0.29 U	0.29 U	0.6 U
trans-1,2-Dichloroethene	ug/L	100	FED	**0.62**	1 U	**0.64**	**0.64**	**0.43**	**0.51**	**0.42**	**0.36**	**0.3**	**0.37**	**0.27**	**0.33**
trans-1,3-Dichloropropene	ug/L			1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.27 U	0.27 U	0.2 U
trans-1,4-Dichloro-2-butene	ug/L			5 U	5 U	1 U	2 U	1 U	1 U	2 U	1 U	1 U	1.08 U	1.08 U	1 U
Trichloroethene (TCE)	ug/L	0.54	MTCA-B Carc	**3.4**	**3.1**	**3.6**	**4.8**	**3.5**	**3.9**	**3.3**	**3.4**	**3.1**	**3.64**	**2.63**	**3.58**
Trichlorofluoromethane	ug/l	2400	MTCA-B Non-Carc	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.12 U	0.12 U	0.2 U
Vinyl Acetate	ug/L	8000	MTCA-B Non-Carc	1 U	1 U	0.2 U	0.4 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.23 U	0.23 U	0.2 U
Vinyl Chloride	ug/L	0.029	MTCA-B Carc	**5.8**	**6.1**	**5.8**	**5.9**	**2.2**	**5.1 Q**	**3.1**	**3.5**	**1.9**	**3.24**	**1.52**	**2.6**
Xylene Isomers, M+P	ug/L	1600	MTCA-B Non-Carc	2 U	2 U	0.4 U	0.8 U	0.4 U	0.4 U	0.8 U	0.4 U	0.4 U	0.17 U	0.17 U	0.4 U
Total Detected VOCs	**ug/L**			**245.62**	**311.4**	**224.5**	**219.38**	**128.45**	**153.15**	**139.62**	**121.14**	**89.92**	**108.91**	**77.27**	**124.13**
Number of VOCs Exceeding RI Screening Levels				**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**6**	**7**	**6**	**7**

Bold: parameter detected above lab reporting limit

Bold: concentration exceeds RI screening level

U: parameter not detected at associated lab reporting limit (#)

D: indicates sample diluted for analysis

M: indicates estimated value for analyte detected and confirmed by an analyst but with low spectral match parameters (flag used only for GC-MS analyses)

Q: indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria

B: indicates analyte detected in method blank, trip blank, or blind blank

Blank: not sampled

Xylenes represented in the "Total Detected VOCs" calculation as the sum of O-Xylene and Xylene Isomers, M+P. Total Xylene concentrations (analyzed only in 2016Q3, 2017Q1, and 2017Q3) not included in the calculation

Xylenes represented in the "Number of VOCs Exceeding RI Screening Levels" count as a single exceedance (e.g. counted as 1 if any OR all O-Xylene, Xylene Isomers, M+P, or Total Xylenese exceed screening levels; counted as 0 if no Xylenes exceed screening levels)

Table 13. Analytical Results - MW-44b (2011 - 2013)

Parameters by Group	Units	RI Screening Level	Screening Level Source	Analytical Results (nominal date in parentheses)				
				2011Q1 (3/8/2011)	2011Q3 (9/27/2011)	2012Q1 (3/5/2012)	2012Q3 (9/4/2012)	2013Q1 (3/19/2013)
Field Parameters								
Depth to Water	feet			33.79	34.82	35.2	32.86	33.81
pH	std. units			6.93	6.82	7.2	6.91	7.01
Specific Conductance @ 25C	umhos/cm			1179	1795	1685	1492	2800
Temperature, 0 F	0 F			59.18	59.54	58.1	60.98	59.54
Inorganics								
Chloride	mg/L	250	STATE	**431**	**390**	**426**	**529**	**459**
Nitrate as Nitrogen	mg/L as N	10	FED	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Nitrate+Nitrite as Nitrogen	mg/L as N	10	FED	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Nitrite as Nitrogen	mg/L as N	1	FED	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Sulfate	mg/L	250	STATE	**40**	**39.7**	**34.5**	**187**	**108**
Total Dissolved Solids	mg/L	500	STATE	**1380**	**1240**	**1350**	**1850**	**1450**
Metals								
Arsenic, Dissolved	ug/L	0.058	MTCA-B Carc	**4**	**3.6**	**3.2**	**3.1**	**4**
Iron, Dissolved	ug/L	11200	MTCA-B Non Carc	**870**	**2870**	**900**	**1050**	**1090**
Iron, Total	ug/L	11200	MTCA-B Non Carc	**880**	**9190**	**3180**	**1160**	**1290**
Manganese, Dissolved	ug/L	2240	MTCA-B Non Carc	**2660**	**1330**	**2660**	**3760**	**2900**
Manganese, Total	ug/L	2240	MTCA-B Non Carc	**2640**	**2250**	**2450**	**3550**	**2870**
Organics								
1,1,1,2-Tetrachloroethane	ug/L	1.68	MTCA-B Carc	2 U	2 U	2 U	0.2 U	0.2 U
1,1,1-Trichloroethane	ug/l	200	FED	2 U	2 U	2 U	0.2 U	0.2 U
1,1,2,2-Tetrachloroethane	ug/L	0.22	MTCA-B Carc	0.02 U	0.02 U	0.02 U	0.2 U	**0.023 M**
1,1,2-Trichloroethane	ug/L	0.77	MTCA-B Carc	2 U	2 U	2 U	0.2 U	0.2 U
1,1,2-Trichlorotrifluoroethane	ug/L	240000	MTCA-B Non Carc	2 U	2 U	2 U	0.2 U	0.2 U
1,1-Dichloroethane	ug/L	7.68	MTCA-B Carc	**92**	**95**	**92**	**52**	**79**
1,1-Dichloroethene	ug/L	7	FED	**1.7**	**1.5**	**1.6**	**1**	**1.6**
1,1-Dichloropropene	ug/L			2 U	2 U	2 U	0.2 U	0.2 U
1,2,3-Trichlorobenzene	ug/L			5 U	5 U	5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	ug/L	0.00146	MTCA-B Carc	5 U	5 U	5 U	0.5 U	0.5 U

Table 13. Analytical Results - MW-44b (2011 - 2013)

Parameters by Group	Units	RI Screening Level	Screening Level Source	Analytical Results (nominal date in parentheses)				
				2011Q1 (3/8/2011)	2011Q3 (9/27/2011)	2012Q1 (3/5/2012)	2012Q3 (9/4/2012)	2013Q1 (3/19/2013)
1,2,4-Trichlorobenzene	ug/L	1.51	MTCA-B Carc	5 U	5 U	5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	ug/L			2 U	2 U	2 U	0.2 U	0.2 U
1,2-Dibromo-3-chloropropane	ug/L	0.0547	MTCA-B Carc	5 U	5 U	5 U	0.5 U	0.5 U
1,2-Dibromoethane	ug/L	0.02188	MTCA-B Carc	2 U	2 U	2 U	0.2 U	0.2 U
1,2-Dichlorobenzene	ug/L	600	FED	**16**	**16**	**16**	**13**	**15**
1,2-Dichloroethane (EDC)	ug/L	0.48	MTCA-B Carc	**4.6**	**5.2**	**3.9**	**3.4**	**4.4**
1,2-Dichloropropane	ug/L	1.22	MTCA-B Carc	**56**	**53**	**32**	**31**	**41**
1,3,5-Trimethylbenzene	ug/L	80	MTCA-B Non Carc	2 U	2 U	2 U	0.2 U	0.2 U
1,3-Dichlorobenzene	ug/L			2 U	2 U	2 U	**0.7**	**0.85**
1,3-Dichloropropane	ug/L			2 U	2 U	2 U	0.2 U	0.2 U
1,4-Dichlorobenzene	ug/L	8.1	MTCA-B Carc	**7.4**	**7**	**6.9**	**6.3**	**7.4**
2,2-Dichloropropane	ug/L			2 U	2 U	2 U	0.2 U	0.2 U
2-butanone	ug/L	4800	MTCA-B Non Carc	50 U	50 U	50 U	5 U	5 U
2-Chloroethylvinylether	ug/L			10 U	10 U	10 U	1 U	1 U
2-Chlorotoluene	ug/L	160	MTCA-B Non Carc	2 U	2 U	2 U	0.2 U	0.2 U
2-Hexanone	ug/L			50 U	50 U	50 U	5 U	5 U
4-Chlorotoluene	ug/L			2 U	2 U	2 U	0.2 U	0.2 U
4-Isopropyltoluene	ug/L			2 U	2 U	2 U	0.2 U	0.2 U
4-Methyl-2-pentanone (MIBK)	ug/L	640	MTCA-B Non Carc	50 U	50 U	50 U	5 U	5 U
Acetone	ug/L	7200	MTCA-B Non Carc	50 U	50 U	50 U	6.1	5 U
Acrolein	ug/L	4	MTCA-B Non Carc	50 U	50 U	50 U	5 U	5 U
Acrylonitrile	ug/L	0.081	MTCA-B Carc	10 U	10 U	10 U	1 U	1 U
Benzene	ug/L	0.8	MTCA-B Carc	**25**	**18**	**17**	**9.7**	**13**
Bromobenzene	ug/L			**3**	**3.1**	**2.7**	**2.2**	**2.8**
Bromochloromethane	ug/L			2 U	2 U	2 U	0.2 U	0.2 U
Bromodichloromethane	ug/L	0.71	MTCA-B Carc	2 U	2 U	2 U	0.2 U	0.2 U
Bromoethane	ug/L			**16**	2 U	2 U	1.1	0.2 U
Bromoform	ug/L	5.5	MTCA-B Carc	2 U	2 U	2 U	0.2 U	0.2 U
Bromomethane	ug/L	11.2	MTCA-B Non Carc	10 U	10 U	10 U	1 U	1 U

Table 13. Analytical Results - MW-44b (2011 - 2013)

Parameters by Group	Units	RI Screening Level	Screening Level Source	Analytical Results (nominal date in parentheses)				
				2011Q1 (3/8/2011)	2011Q3 (9/27/2011)	2012Q1 (3/5/2012)	2012Q3 (9/4/2012)	2013Q1 (3/19/2013)
Carbon Disulfide	ug/L	800	MTCA-B Non Carc	2 U	2 U	2 U	0.2 U	0.2 U
Carbon Tetrachloride	ug/L	0.625	MTCA-B Carc	2 U	2 U	2 U	0.2 U	0.2 U
Chlorobenzene	ug/L	100	FED	2 U	2 U	2 U	**1.9**	**2**
Chloroethane	ug/L			**330**	**290**	**360**	**300**	**310**
Chloroform	ug/L	1.41	MTCA-B Carc	2 U	2 U	2 U	0.2 U	0.2 U
Chloromethane	ug/L			5 U	5 U	5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	ug/L	16	MTCA-B Non Carc	**13**	**14**	**14**	**9**	**13**
cis-1,3-Dichloropropene	ug/L			2 U	2 U	2 U	0.2 U	0.2 U
Dibromochloromethane	ug/L	0.52	MTCA-B Carc	2 U	2 U	2 U	0.2 U	0.2 U
Dibromomethane	ug/L	80	MTCA-B Non Carc	2 U	2 U	2 U	0.2 U	0.2 U
Ethylbenzene	ug/L	700	FED	2 U	2 U	2 U	0.2 U	**0.28**
Hexachlorobutadiene	ug/L	0.56	MTCA-B Carc	5 U	5 U	5 U	0.5 U	0.5 U
Iodomethane	ug/L							1 U
Isopropylbenzene (Cumene)	ug/L	800	MTCA-B Non Carc	2 U	2 U	2 U	0.2 U	0.2 U
Methylene Chloride	ug/l	5	FED	**12**	**10**	**11**	**6.6**	**7.7**
Naphthalene	ug/L	160	MTCA-B Non Carc	5 U	5 U	5 U	0.5 U	0.5 U
n-Butylbenzene	ug/L	400	MTCA-B Non Carc	2 U	2 U	2 U	0.2 U	0.2 U
n-Propylbenzene	ug/L	800	MTCA-B Non Carc	2 U	2 U	2 U	0.2 U	0.2 U
o-Xylene	ug/L	1600	MTCA-B Non Carc	2 U	2 U	2 U	**0.34 M**	**0.49 M**
sec-Butylbenzene	ug/L	800	MTCA-B Non Carc	2 U	2 U	2 U	**0.29**	**0.35**
Styrene	ug/L	100	FED	2 U	2 U	2 U	0.2 U	0.2 U
tert-Butylbenzene	ug/L	800	MTCA-B Non Carc	2 U	2 U	2 U	**0.25**	**0.32**
Tetrachloroethene (PCE)	ug/L	5	FED	0.02 U	0.02 U	0.02 U	0.2 U	0.02 U
Toluene	ug/L	640	MTCA-B Non Carc	2 U	2 U	2 U	0.2 U	**0.22**
trans-1,2-Dichloroethene	ug/L	100	FED	**1.8**	**1.4**	**2.1**	**1.4**	**1.8**
trans-1,3-Dichloropropene	ug/L			2 U	2 U	2 U	0.2 U	0.2 U
trans-1,4-Dichloro-2-butene	ug/L			10 U	10 U	10 U	1 U	1 U
Trichloroethene (TCE)	ug/L	0.54	MTCA-B Carc	**0.089**	**0.072**	**0.085**	0.2 U	**0.073**
Trichlorofluoromethane	ug/l	2400	MTCA-B Non Carc	2 U	2 U	2 U	0.2 U	0.2 U

Table 13. Analytical Results - MW-44b (2011 - 2013)

Parameters by Group	Units	RI Screening Level	Screening Level Source	Analytical Results (nominal date in parentheses)				
				2011Q1 (3/8/2011)	2011Q3 (9/27/2011)	2012Q1 (3/5/2012)	2012Q3 (9/4/2012)	2013Q1 (3/19/2013)
Vinyl Acetate	ug/L	8000	MTCA-B Non Carc	10 U	10 U	2 U	0.2 U	0.2 U
Vinyl Chloride	ug/L	0.029	MTCA-B Carc	**3.6**	**3.5**	**4.7**	**4.1**	**5.9**
Xylene Isomers, M+P	ug/L	1600	MTCA-B Non Carc	4 U	4 U	4 U	0.4 U	0.4 U
Total Detected VOCs	**ug/L**			**582.19**	**517.77**	**563.99**	**450.38**	**507.21**
Number of VOCs Exceeding RI Screening Levels				**6**	**6**	**6**	**6**	**6**

Bold: parameter detected above lab reporting limit

Bold:

U: parameter not detected at associated lab reporting limit (#)

D: indicates sample diluted for analysis

M: indicates estimated value for analyte detected and confirmed by an analyst but with low spectral match parameters (flag used only for GC-MS analyses)

Q: indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria

B: indicates analyte detected in method blank, trip blank, or blind blank

Blank: not sampled

Table 14. Analytical Results - MW-28d (2012 - 2017)

Parameters by Group	Units	RI Screening Level	Screening Level Source	Analytical Results (nominal date in parentheses)											
				2012Q1 (3/5/2012)	2012Q3 (9/4/2012)	2013Q1 (3/19/2013)	2013Q3 (9/18/2013)	2014Q1 (3/10/2014)	2014Q3 (9/25/2014)	2015Q1 (3/19/2015)	2015Q3 (9/3/2015)	2016Q1 (5/11/2016)	2016Q3 (9/14/2016)	2017Q1 (5/1/2017)	2017Q3 (9/26/2017)
Field Parameters															
Depth to Water	feet			158.87	158.85	163.5	161.98	162	161.47	161.06	160.71	161.65	161.33	161.09	161.91
pH	std. units			7.88	7.88	7.89	7.84	7.83	7.92	7.25	7.73	7.88	7.72	7.27	7.89
Specific Conductance @ 25C	umhos/cm			812	666	826	894	860	636	941	781	771	917.2	626	1019
Temperature, 0 F	0 F			66.56	70.34	68.18	69.8	67.28	68.72	68.72	70.16	70.2	70.34	68.72	70.34
Turbidity	NTU							0.53		0.03	0.46				
Inorganics															
Chloride	mg/L	250	STATE	**164**	**151**	**158**	**166**	**161**	**191**	**193**	**217**	**205**	**207**	**197 D**	**199 D**
Nitrate as Nitrogen	mg/L as N	10	FED	**1.4**	**1.36**	**1.34**	**1.53**	**1.45**	**1.47**	**1.39**	**1.45**	**1.42**	**1.34 D**	**1.38**	**1.31**
Nitrate+Nitrite as Nitrogen	mg/L as N	10	FED	**1.7**	**1.57**	**1.59**	**1.75**	**1.69**	**1.68**	**1.63**	**1.67**	**1.63**	**1.52 D**	**1.56 D**	**1.47 D**
Nitrite as Nitrogen	mg/L as N	1	FED	**0.301**	**0.213**	**0.251**	**0.217**	**0.238**	**0.209**	**0.24**	**0.217**	**0.205**	**0.185**	**0.175**	**0.15**
Sulfate	mg/L	250	STATE	**49**	**45**	**40.1**	**58.6**	**55.7**	**59.8**	**51.9**	**50.9**	**48.5**	**53.7 D**	**52.8 D**	**47.7 D**
Total Dissolved Solids	mg/L	500	STATE	**480**	**560**	**504**	**529**	**520**	**586**	**788**	**592**	**648**	**640**	**653**	**650**
Metals															
Arsenic, Dissolved	ug/L	0.058	MTCA-B Carc	0.5 U	0.5 U	**0.8**	**0.7**	**0.8**	0.5 U	**0.9**	**0.5**	**0.5**	**0.594**	**0.526**	
Iron, Dissolved	ug/L	11200	MTCA-B NON Carc	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	41.8 U	20.9 U	50 U
Iron, Total	ug/L	11200	MTCA-B NON Carc	50 U	50 U	50 U	50 U	50 U	50 U		50 U	50 U	**62.8**	20.9 U	
Manganese, Dissolved	ug/L	2240	MTCA-B NON Carc	**20**	**16**	**25**	**18**	**21**	**21**	**20**	**20**	**20**	**18.4**	**15.9**	**19**
Manganese, Total	ug/L	2240	MTCA-B NON Carc	**51**	**16**	**24**	**17**	**19**	**21**		**21**	**22**	**22.5**	**16.9**	
Organics															
1,1,1,2-Tetrachloroethane	ug/L	1.68	MTCA-B Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.13 U	0.13 U	0.2 U
1,1,1-Trichloroethane	ug/l	200	FED	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.14 U	0.2 U
1,1,2,2-Tetrachloroethane	ug/L	0.22	MTCA-B Carc	0.02 U	0.02 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2-Trichloroethane	ug/L	0.77	MTCA-B Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.43 U	0.43 U	0.2 U
1,1,2-Trichlorotrifluoroethane	ug/L	240000	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.14 U	0.2 U
1,1-Dichloroethane	ug/L	7.68	MTCA-B Carc	**0.3**	**0.32**	**0.44**	**0.35**	**0.42**	**0.46**	**0.48**	**0.43**	**0.45**	**0.42**	**0.47**	**0.59**
1,1-Dichloroethene	ug/L	7	FED	0.02 U	0.02 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.18 U	0.18 U	0.2 U
1,1-Dichloropropene	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.11 U	0.11 U	0.2 U
1,2,3-Trichlorobenzene	ug/L			0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.37 U	0.37 U	0.5 U
1,2,3-Trichloropropane	ug/L	0.00146	MTCA-B Carc	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.44 U	0.44 U	0.5 U
1,2,4-Trichlorobenzene	ug/L	1.51	MTCA-B Carc	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.36 U	0.36 U	0.5 U
1,2,4-Trimethylbenzene	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.08 U	0.08 U	0.2 U
1,2-Dibromo-3-chloropropane	ug/L	0.0547	MTCA-B Carc	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.22 U	1.22 U	0.5 U
1,2-Dibromoethane	ug/L	0.02188	MTCA-B Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.25 U	0.25 U	0.2 U
1,2-Dichlorobenzene	ug/L	600	FED	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.12 U	0.12 U	0.2 U
1,2-Dichloroethane (EDC)	ug/L	0.48	MTCA-B Carc	0.2 U	0.2 U	0.2 U	**0.22**	**0.21**	**0.32**	**0.34**	**0.32**	**0.32**	**0.32**	**0.3**	**0.36**
1,2-Dichloropropane	ug/L	1.22	MTCA-B Carc	**0.3**	**0.27**	**0.34**	0.2 U	**0.28**	**0.32**	**0.3**	**0.25**	0.2 U	**0.25**	**0.28**	**0.26**

Table 14. Analytical Results - MW-28d (2012 - 2017)

Parameters by Group	Units	RI Screening Level	Screening Level Source	Analytical Results (nominal date in parentheses)											
				2012Q1 (3/5/2012)	2012Q3 (9/4/2012)	2013Q1 (3/19/2013)	2013Q3 (9/18/2013)	2014Q1 (3/10/2014)	2014Q3 (9/25/2014)	2015Q1 (3/19/2015)	2015Q3 (9/3/2015)	2016Q1 (5/11/2016)	2016Q3 (9/14/2016)	2017Q1 (5/1/2017)	2017Q3 (9/26/2017)
1,3,5-Trimethylbenzene	ug/L	80	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.05 U	0.05 U	0.2 U
1,3-Dichlorobenzene	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.12 U	0.12 U	0.2 U
1,3-Dichloropropane	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.21 U	0.2 U
1,4-Dichlorobenzene	ug/L	8.1	MTCA-B Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.13 U	0.13 U	0.2 U
2,2-Dichloropropane	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.17 U	0.17 U	0.2 U
2-butanone	ug/L	4800	MTCA-B NON Carc	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2.71 U	2.71 U	5 U
2-Chloroethylvinylether	ug/L			1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.83 U	0.83 U	1 U
2-Chlorotoluene	ug/L	160	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.08 U	0.08 U	0.2 U
2-Hexanone	ug/L			5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	3 U	3 U	5 U
4-Chlorotoluene	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.05 U	0.05 U	0.2 U
4-Isopropyltoluene	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.09 U	0.09 U	0.2 U
4-Methyl-2-pentanone (MIBK)	ug/L	640	MTCA-B NON Carc	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	3.24 U	3.24 U	5 U
Acetone	ug/L	7200	MTCA-B NON Carc	5 U	5 U	5 U	5 U	5 U	5 U	**5.3 B**	5 U	5 U	6.85 U	6.86 U	5 U
Acrolein	ug/L	4	MTCA-B NON Carc	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	8.25 U	8.26 U	5 U
Acrylonitrile	ug/L	0.081	MTCA-B Carc	1 U	1 U	0.05 U	0.05 U	1 U	1 U	1 U	0.05 U	1 U	2.01 U	2.01 U	0.05 U
Benzene	ug/L	0.8	MTCA-B Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.09 U	0.09 U	0.2 U
Bromobenzene	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromochloromethane	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromodichloromethane	ug/L	0.71	MTCA-B Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.17 U	0.17 U	0.2 U
Bromoethane	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.14 U	0.2 U
Bromoform	ug/L	5.5	MTCA-B Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.21 U	0.21 U	0.2 U
Bromomethane	ug/L	11.2	MTCA-B NON Carc	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.84 U	0.84 U	1 U
Carbon Disulfide	ug/L	800	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.12 U	0.12 U	0.2 U
Carbon Tetrachloride	ug/L	0.625	MTCA-B Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.15 U	0.15 U	0.2 U
Chlorobenzene	ug/L	100	FED	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.08 U	0.08 U	0.2 U
Chloroethane	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.29 U	0.29 U	0.2 U
Chloroform	ug/L	1.41	MTCA-B Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.09 U	0.09 U	0.2 U
Chloromethane	ug/L			0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**1.3 QB**	0.5 U	0.5 U	0.32 U	0.32 U	0.5 U
cis-1,2-Dichloroethene	ug/L	16	MTCA-B NON Carc	**1.8**	**1.5**	**1.7**	**1.4**	**1.6**	**1.5**	**1.9**	**1.5**	**1.6**	**1.58**	**1.63**	**1.7**
cis-1,3-Dichloropropene	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Dibromochloromethane	ug/L	0.52	MTCA-B Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.16 U	0.16 U	0.2 U
Dibromomethane	ug/L	80	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.48 U	0.48 U	0.2 U
Dichlorodifluoromethane (CFC 12)	ug/L	1600	MTCA-B NON Carc										0.17 U	0.17 U	
Ethylbenzene	ug/L	700	FED	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.12 U	0.12 U	0.2 U
Hexachlorobutadiene	ug/L	0.56	MTCA-B Carc	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.24 U	0.24 U	0.5 U
Iodomethane	ug/L					1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.76 U	0.76 U	1 U
Isopropylbenzene (Cumene)	ug/L	800	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.07 U	0.07 U	0.2 U
Methylene Chloride	ug/L	5	FED	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.62 U	1.62 U	1 U
Naphthalene	ug/L	160	MTCA-B NON Carc	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.39 U	0.39 U	**2.24**

Table 14. Analytical Results - MW-28d (2012 - 2017)

Parameters by Group	Units	RI Screening Level	Screening Level Source	Analytical Results (nominal date in parentheses)											
				2012Q1 (3/5/2012)	2012Q3 (9/4/2012)	2013Q1 (3/19/2013)	2013Q3 (9/18/2013)	2014Q1 (3/10/2014)	2014Q3 (9/25/2014)	2015Q1 (3/19/2015)	2015Q3 (9/3/2015)	2016Q1 (5/11/2016)	2016Q3 (9/14/2016)	2017Q1 (5/1/2017)	2017Q3 (9/26/2017)
n-Butylbenzene	ug/L	400	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.08 U	0.08 U	0.2 U
n-Propylbenzene	ug/L	800	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.08 U	0.08 U	0.2 U
o-Xylene	ug/L	1600	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.12 U	0.12 U	0.2 U
sec-Butylbenzene	ug/L	800	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.08 U	0.08 U	0.2 U
Styrene	ug/L	100	FED	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.15 U	0.15 U	0.2 U
tert-Butylbenzene	ug/L	800	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.09 U	0.09 U	0.2 U
Tetrachloroethene (PCE)	ug/L	5	FED	**1.4**	**1.2**	**1.4**	**0.95**	**1.1**	**1.1**	**1.2**	**1.2**	**1.4**	**1.27**	**1.29**	**1.16**
Toluene	ug/L	640	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.13 U	0.13 U	0.2 U
Total Xylenes	ug/L	1600	MTCA-B NON Carc										0.29 U	0.29 U	0.6 U
trans-1,2-Dichloroethene	ug/L	100	FED	0.02 U	0.02 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.16 U	0.16 U	0.2 U
trans-1,3-Dichloropropene	ug/L			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.27 U	0.27 U	0.2 U
trans-1,4-Dichloro-2-butene	ug/L			1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.08 U	1.08 U	1 U
Trichloroethene (TCE)	ug/L	0.54	MTCA-B Carc	**0.46**	**0.37**	**0.55**	**0.46**	**0.46**	**0.45**	**0.67**	**0.51**	**0.57**	**0.49**	**0.55**	**0.52**
Trichlorofluoromethane	ug/l	2400	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.12 U	0.12 U	0.2 U
Vinyl Acetate	ug/L	8000	MTCA-B NON Carc	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.23 U	0.23 U	0.2 U
Vinyl Chloride	ug/L	0.029	MTCA-B Carc	**0.032**	**0.02**	**0.032**	**0.048**	**0.035**	**0.034**	**0.047**	**0.035 M**	0.02 U	**0.0505**	**0.0612**	**0.049**
Xylene Isomers, M+P	ug/L	1600	MTCA-B NON Carc	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.17 U	0.17 U	0.4 U
Total Detected VOCs	**ug/L**			**4.29**	**3.68**	**4.46**	**3.43**	**4.11**	**4.18**	**11.54**	**4.25**	**4.34**	**4.38**	**4.58**	**6.88**
Number of VOCs Exceeding RI Screening Levels				**1**	**0**	**2**	**1**	**1**	**1**	**2**	**1**	**1**	**1**	**2**	**1**

Bold: parameter detected above lab reporting limit

Bold: concentration exceeds RI screening level

U: parameter not detected at associated lab reporting limit (#)

D: indicates sample diluted for analysis

M: indicates estimated value for analyte detected and confirmed by an analyst but with low spectral match parameters (flag used only for GC-MS analyses)

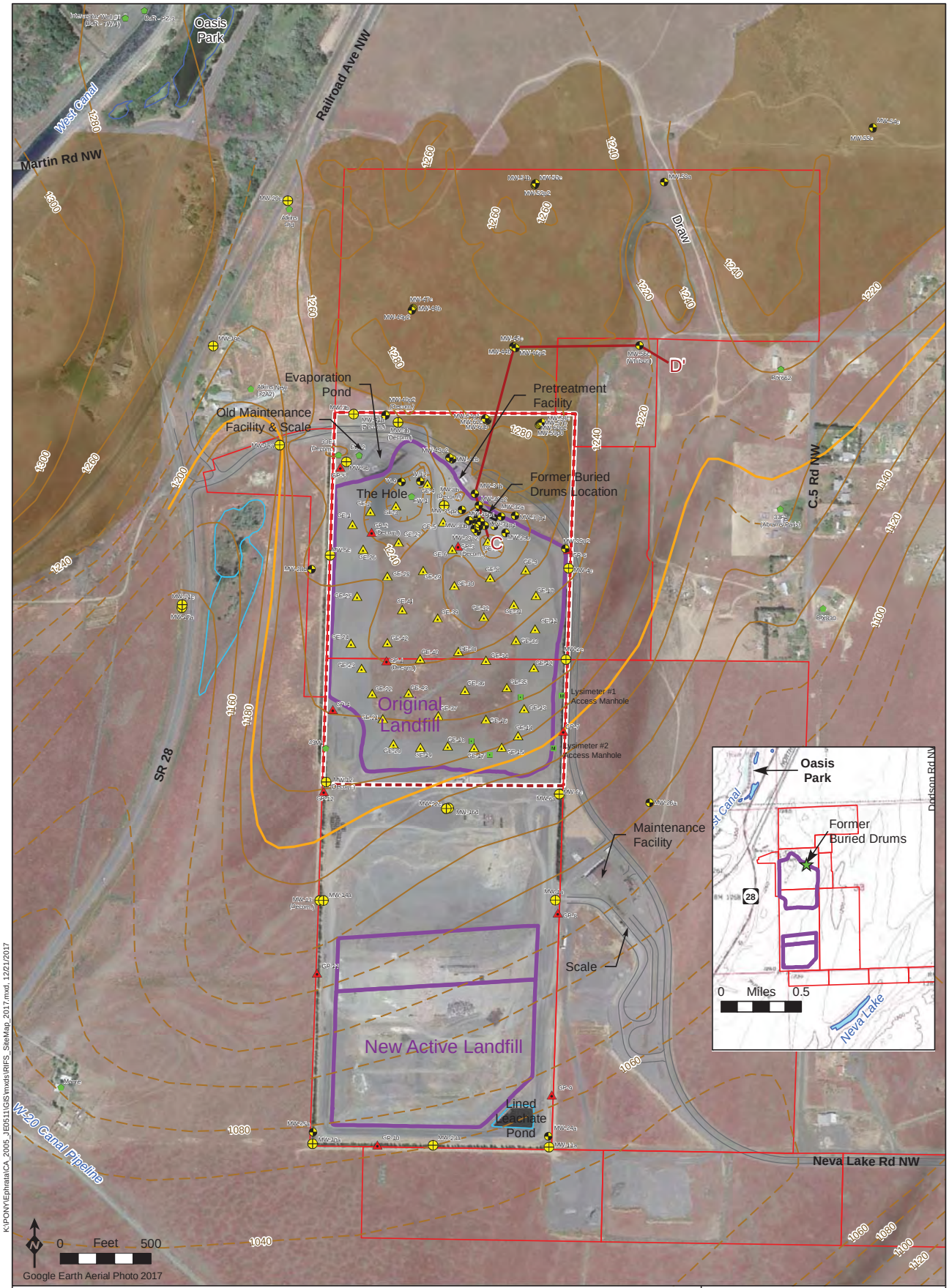
Q: indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria

B: indicates analyte detected in method blank, trip blank, or blind blank

Blank: not sampled

Xylenes represented in the "Total Detected VOCs" calculation as the sum of O-Xylene and Xylene Isomers, M+P. Total Xylene concentrations (analyzed only in 2016Q3, 2017Q1, and 2017Q3) not included in the calculation

Xylenes represented in the "Number of VOCs Exceeding RI Screening Levels" count as a single exceedance (e.g. counted as 1 if any OR all O-Xylene, Xylene Isomers, M+P, or Total Xylenese exceed screening levels; counted as 0 if no Xylenes exceed screening levels)

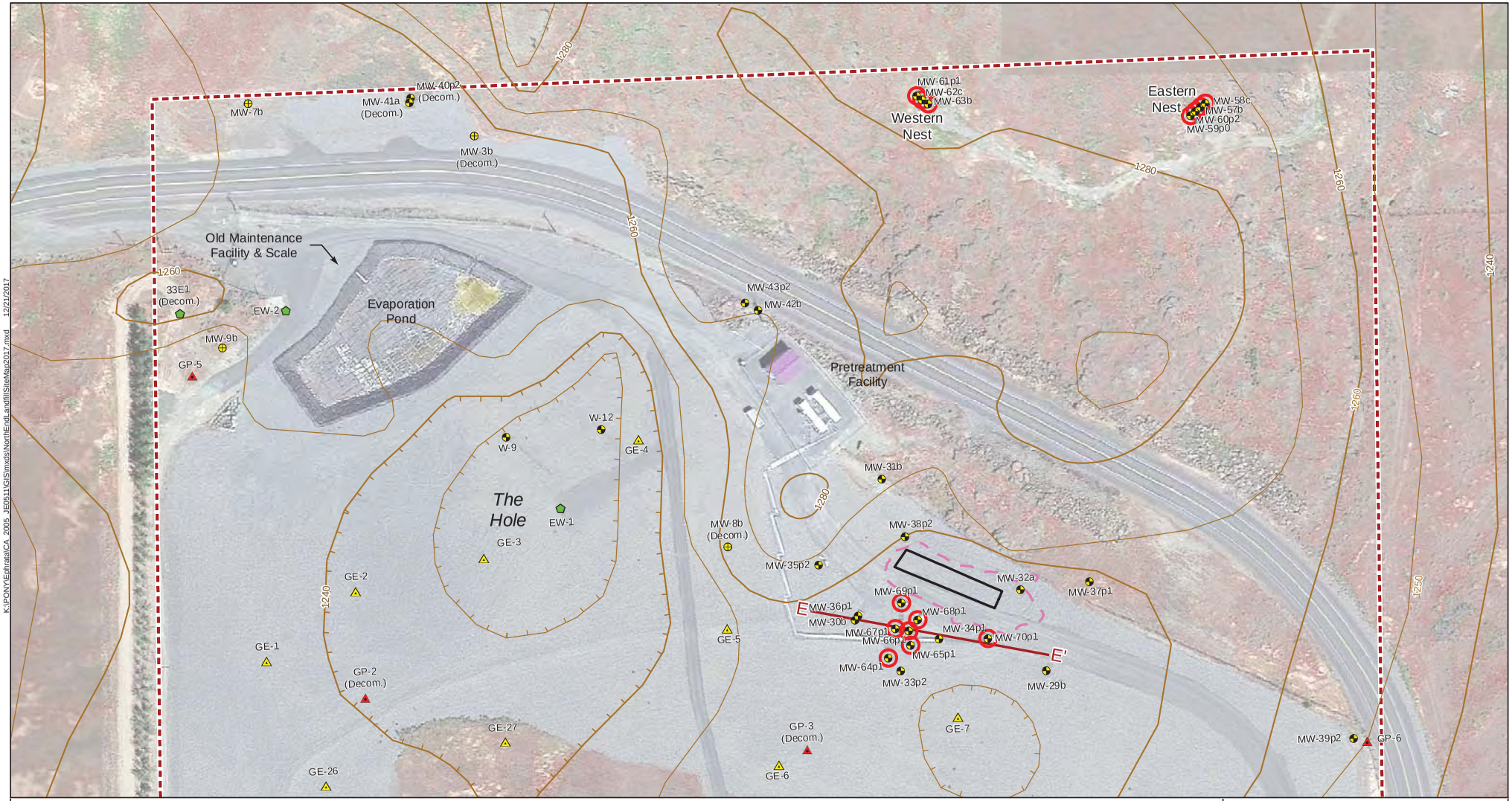


Existing Wells
- Quarterly Monitoring Well (MW)
- Remedial Investigation Monitoring Well (MW)
- Gas Extraction (GE)
- Gas Probe (GP)
- Other Well
- Leachate Lysimeter
- Access Manhole

Top of Basalt Elevation Contours
(dashed where inferred)
- 20-ft Contour Interval
- Depression (10-ft Contour Interval)
- Outwash Water Table / Top of Basalt Contact
- Basalt Outcrops
- County Owned Parcels
- Landfill Extents
- Groundwater Point of Compliance
- Cross Section Alignment

Figure 1
Ephrata Landfill
Site Map

PgG



Existing Wells

- Quarterly Monitoring Well (MW)
- Remedial Investigation Monitoring Well (MW)
- Gas Extraction (GE)
- Gas Probe (GP)
- Other Well
- Newly Installed Remedial Investigation Wells (2016)

- Former Drum
- Extent of Soil Removal to Bedrock 2008
- Groundwater Point of Compliance
- Cross Section

Top of Basalt Elevation Contours

- 20-foot Contour
- 10-foot Contour
- 20-foot Depression Contour
- 10-foot Depression Contour

0 Feet 100

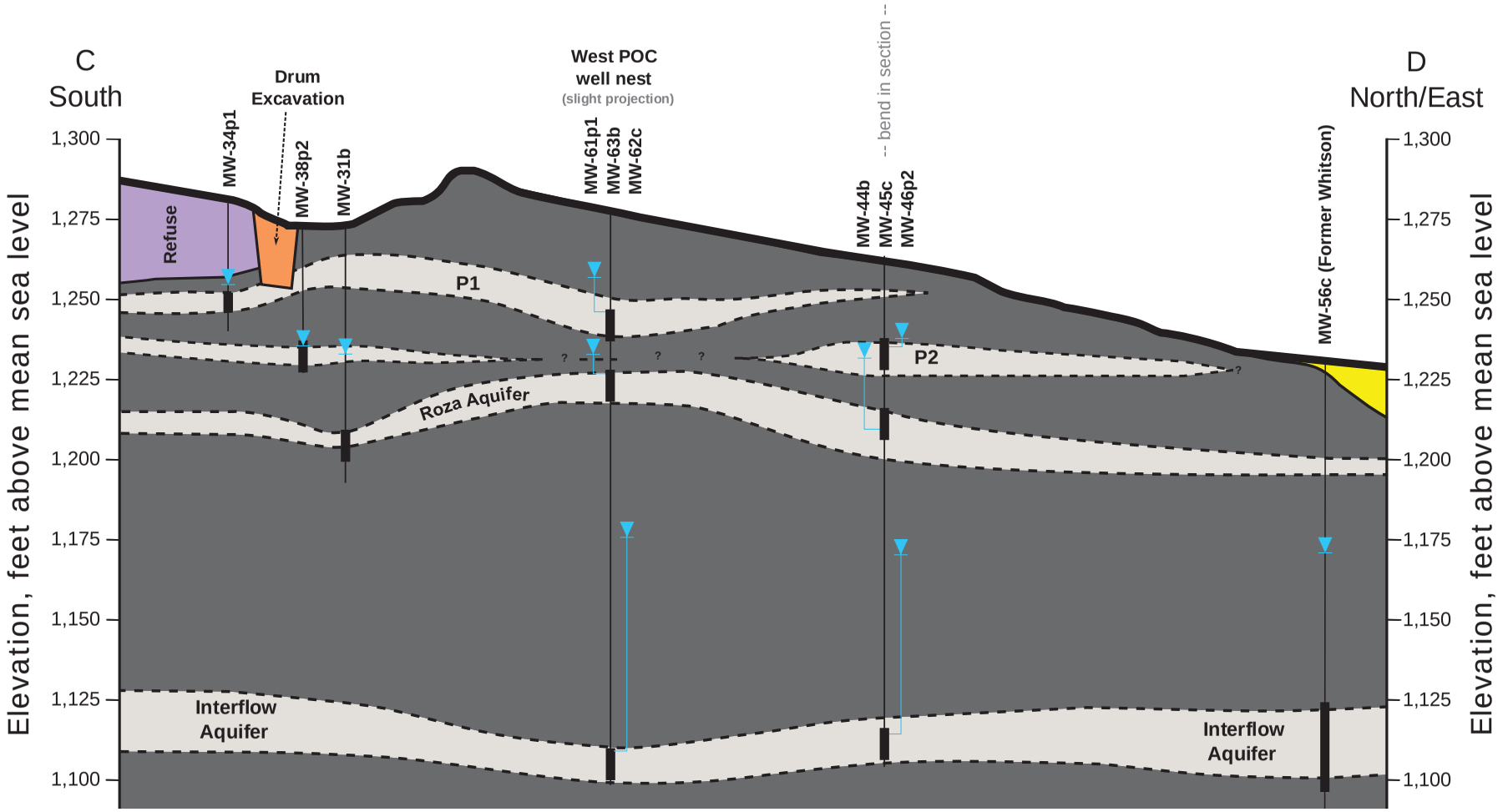
Google Earth Aerial Photo 2017

Figure 2

North End of Ephrata Landfill Map

Ephrata Landfill

PgG



Details of p1 and basalt top at former drum cache not shown.
See ranges of contacts disclosed in new p1 borings near former drum cache.

Vertical Exaggeration ~5x
0 Feet 250

Refuse
Outwash
Sand and Gravel
Soft,Weathered Basalt
Basalt

Well ID
Static Water Level
Screen Interval

Figure 3
South-North Hydrogeologic Cross Section (C-D)

See Figure 1 for Section Alignment

Ephrata Landfill RI/FS

Filename: X-section C-D.svg

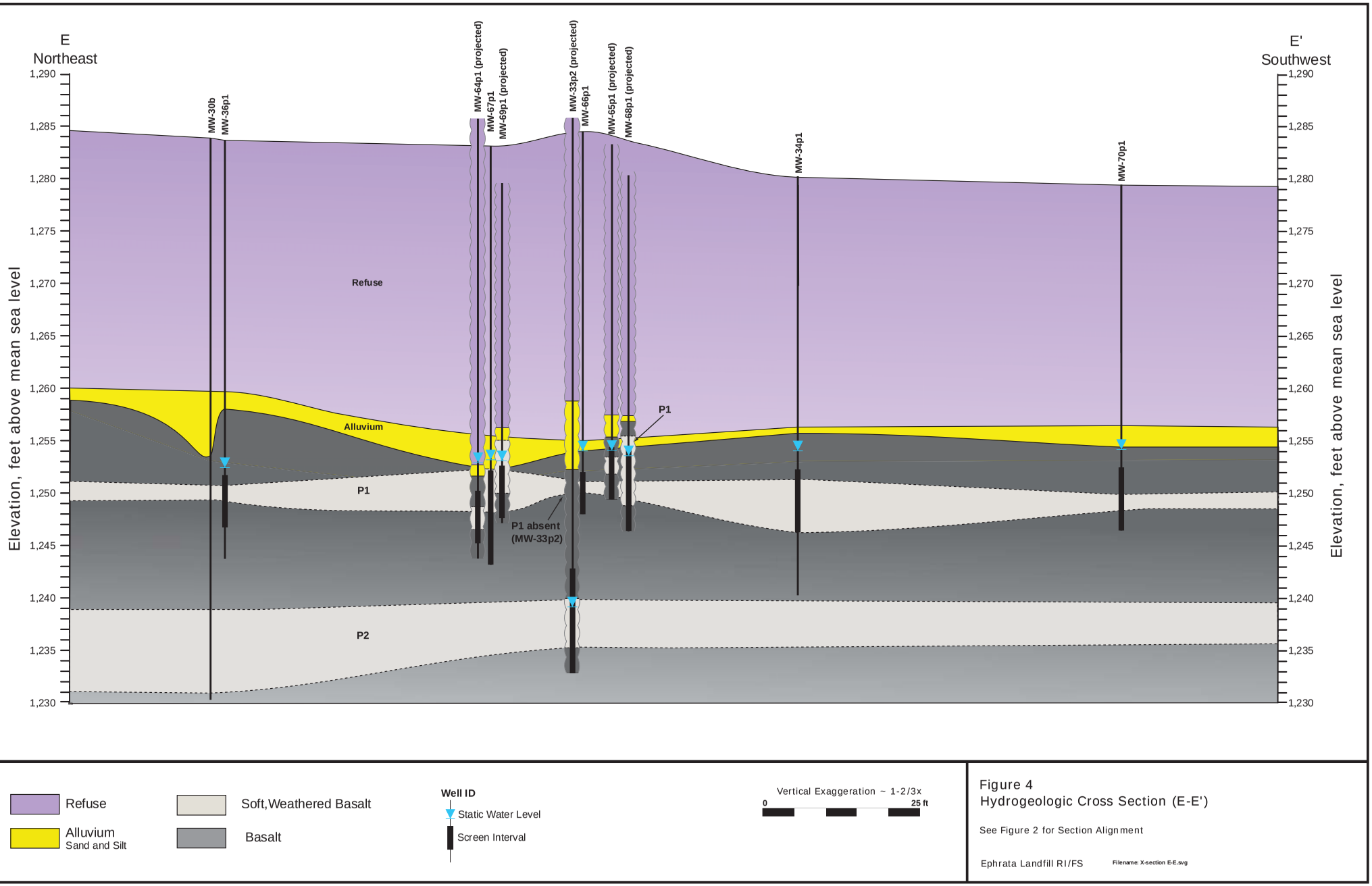


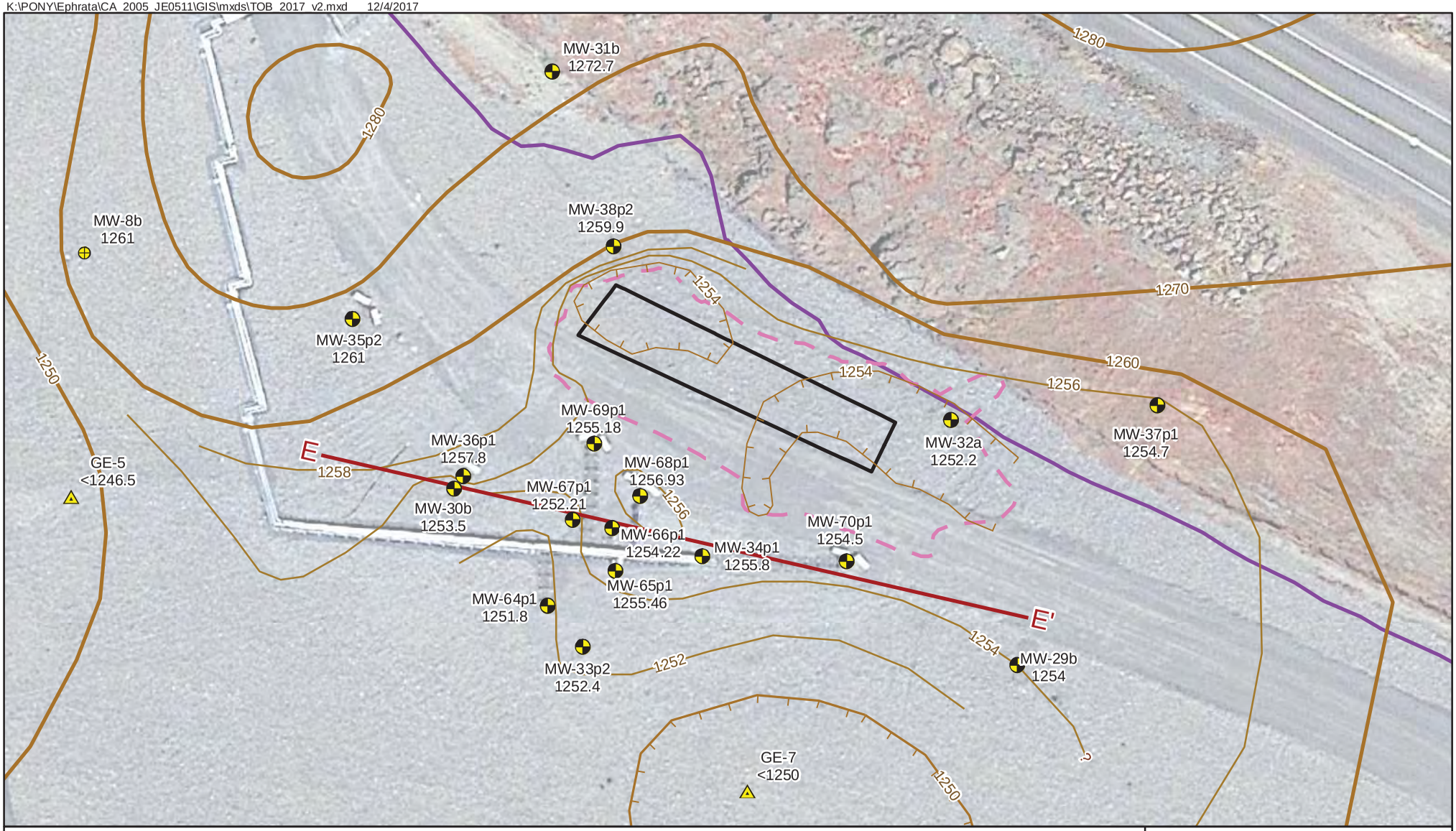
Figure 4
Hydrogeologic Cross Section (E-E')

See Figure 2 for Section Alignment

Ephrata Landfill RI/FS

Filename: X-section E-E.svg

K:\PONY\Ephrata\CA_2005_JE0511\GIS\mxds\TOB_2017_v2.mxd 12/4/2017



Existing Wells
- Quarterly Monitoring Well (MW)
- Remedial Investigation Monitoring Well (MW)
- Gas Extraction (GE)

Top of Basalt Elevation Contour
- 10-ft Contours
- 2-ft Contours

- Capped Unlined Landfill Extent
- Former Drum
- Extent of Soil Removal to Bedrock
- Cross Section Alignment

0 Feet 50

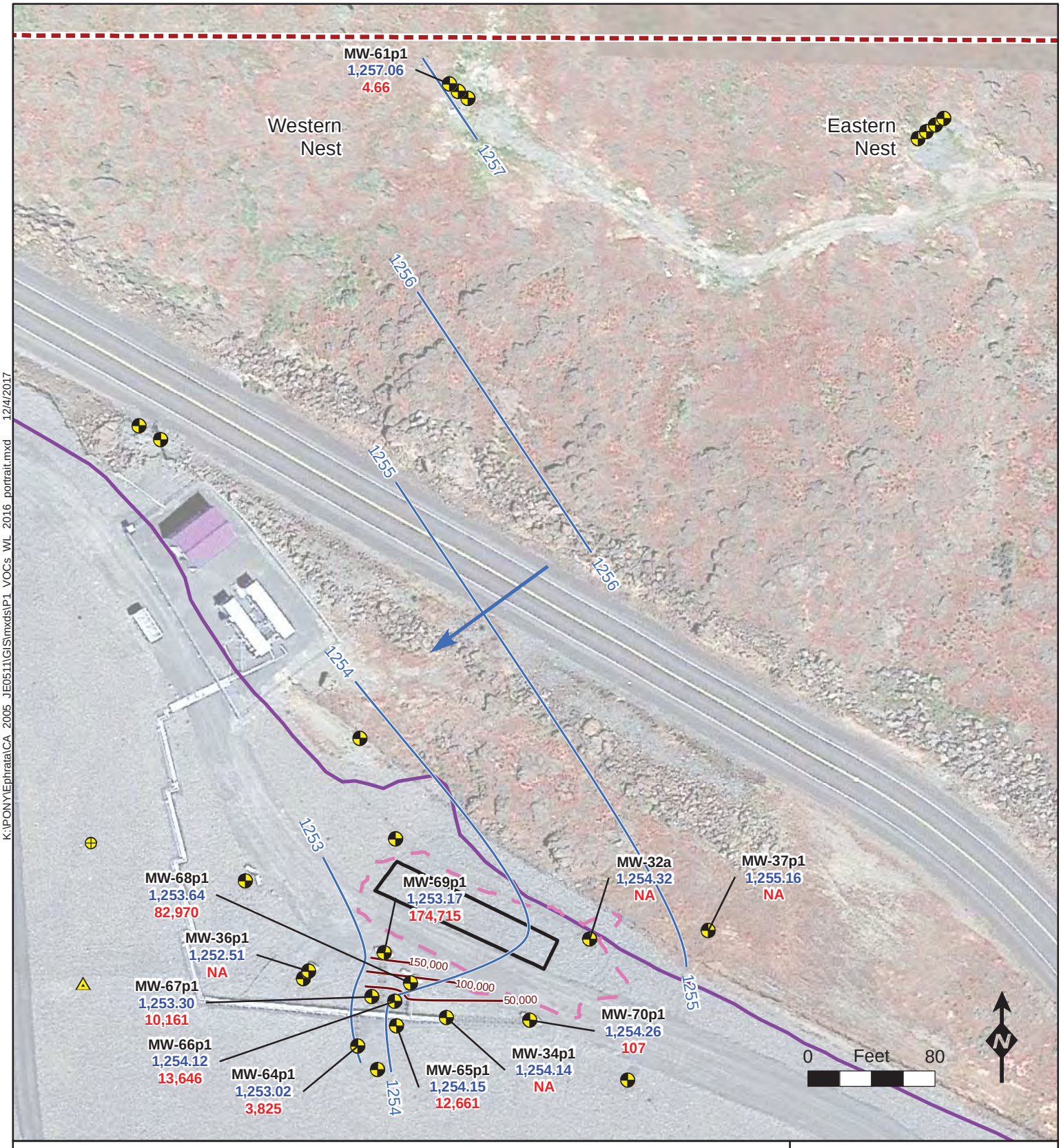
2017 Aerial photo from Google Earth

N

Figure 5
Top of Basalt Elevation in Vicinity of P1 Wells

Ephrata Landfill

PgG



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P1 Water Level Contour

Flow Direction

P1 Total VOC Contours (µg/L)

Existing Wells

Quarterly Monitoring Well (MW)

Remedial Investigation Monitoring Well (MW)

Gas Extraction (GE)

Capped Unlined Landfill Extent

Former Drum Area

Extent of Soil Removal to Bedrock

Groundwater Point of Compliance

Google Earth Aerial Photo 2017

1232.40 - Groundwater Elevation (June 21-22, 2016) (feet NGVD29)
12,661 - Total detected VOCs, April 2016 (µg/L)
NA = Not Analyzed

Figure 6

P1 Groundwater Elevation Map and Total Detected VOCs

Ephrata Landfill

PgG

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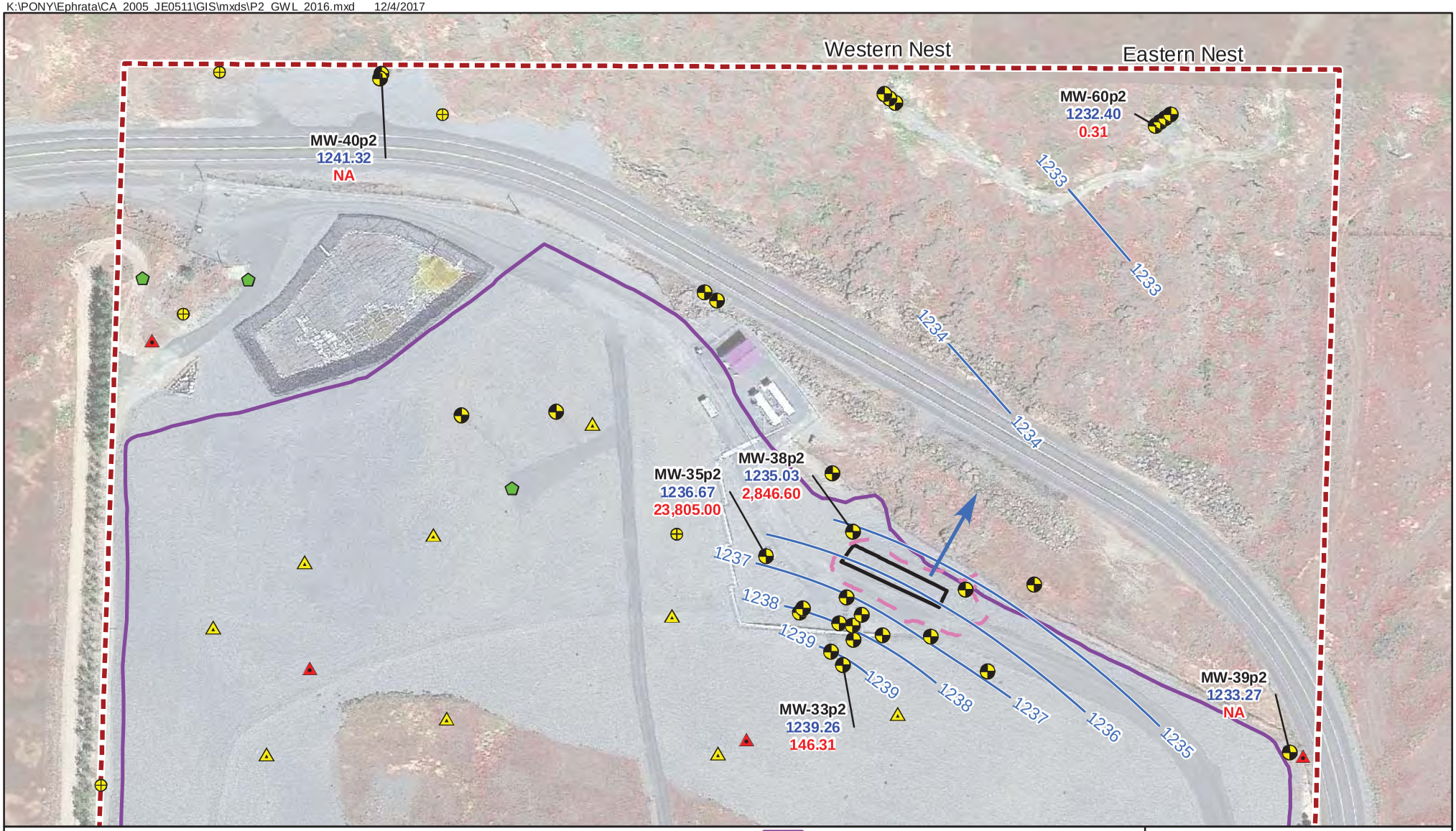


P2 Water Level Contour

Flow Direction

Existing Wells

Quarterly Monitoring Well (MW)

Remedial Investigation Monitoring Well (MW)

Gas Extraction (GE)

Gas Probe (GP)

Other Well

Capped Unlined Landfill Extent

Former Drum

Extent of Soil Removal to Bedrock

Groundwater Point of Compliance

0 Feet 150

Google Earth Aerial Photo 2017

1232.40 - Groundwater Elevation, June 21-22, 2016 (feet NGVD29)
0.31 - Total detected VOCs, April and May 2016 (µg/L)
NA = Not Analyzed

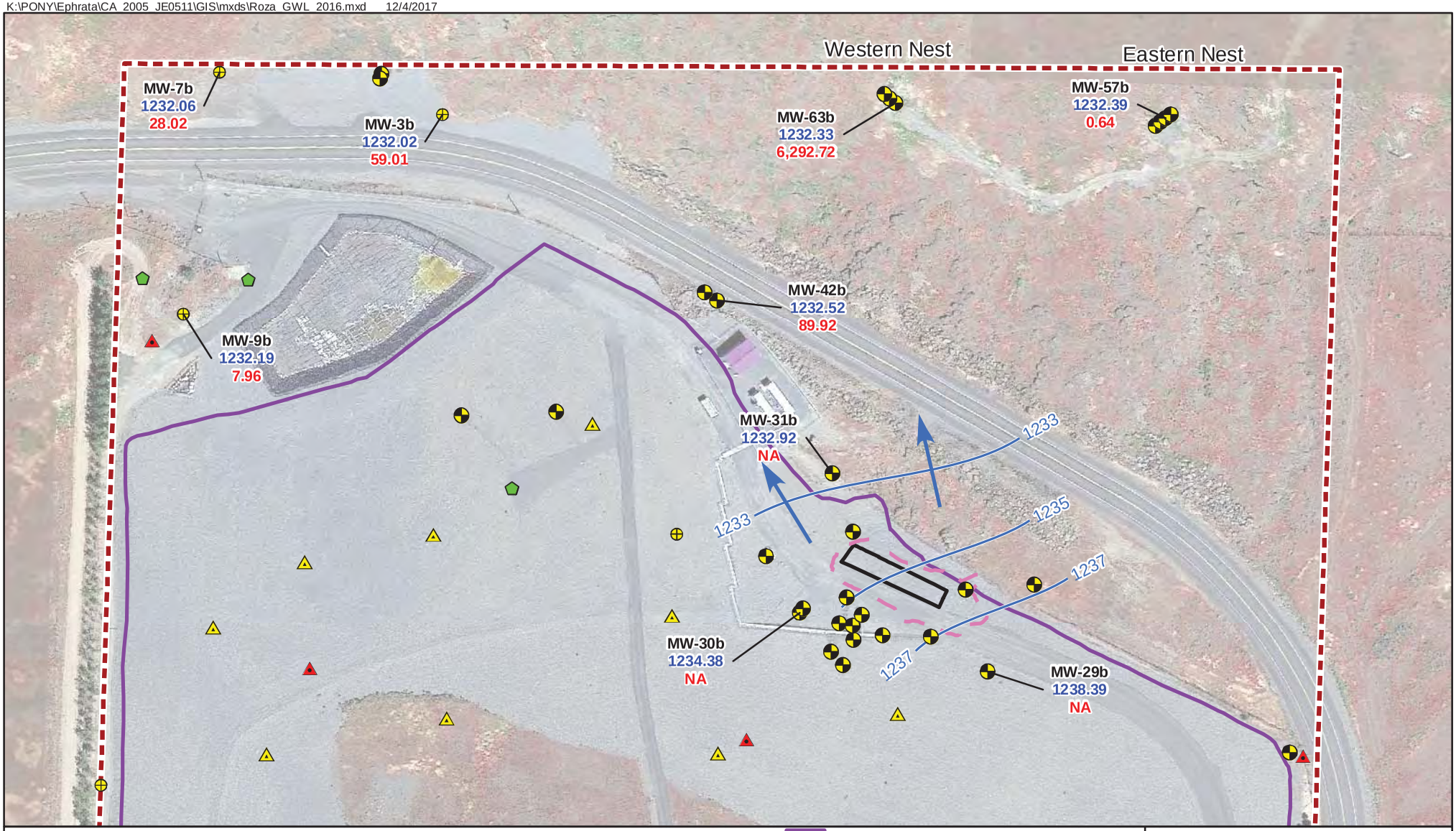
Figure 7

P2 Groundwater Elevation Map and Total Detected VOCs

Ephrata Landfill

PGG

K:\PONY\Ephrata\CA_2005_JE0511\GIS\mxds\Roza_GWL_2016.mxd 12/4/2017



Roza Water Level Contour

Flow Direction

Existing Wells

Quarterly Monitoring Well (MW)

Remedial Investigation Monitoring Well (MW)

Gas Extraction (GE)

Gas Probe (GP)

Other Well

Capped Unlined Landfill Extent

Former Drum Area

Extent of Soil Removal to Bedrock

Groundwater Point of Compliance

0 Feet 150

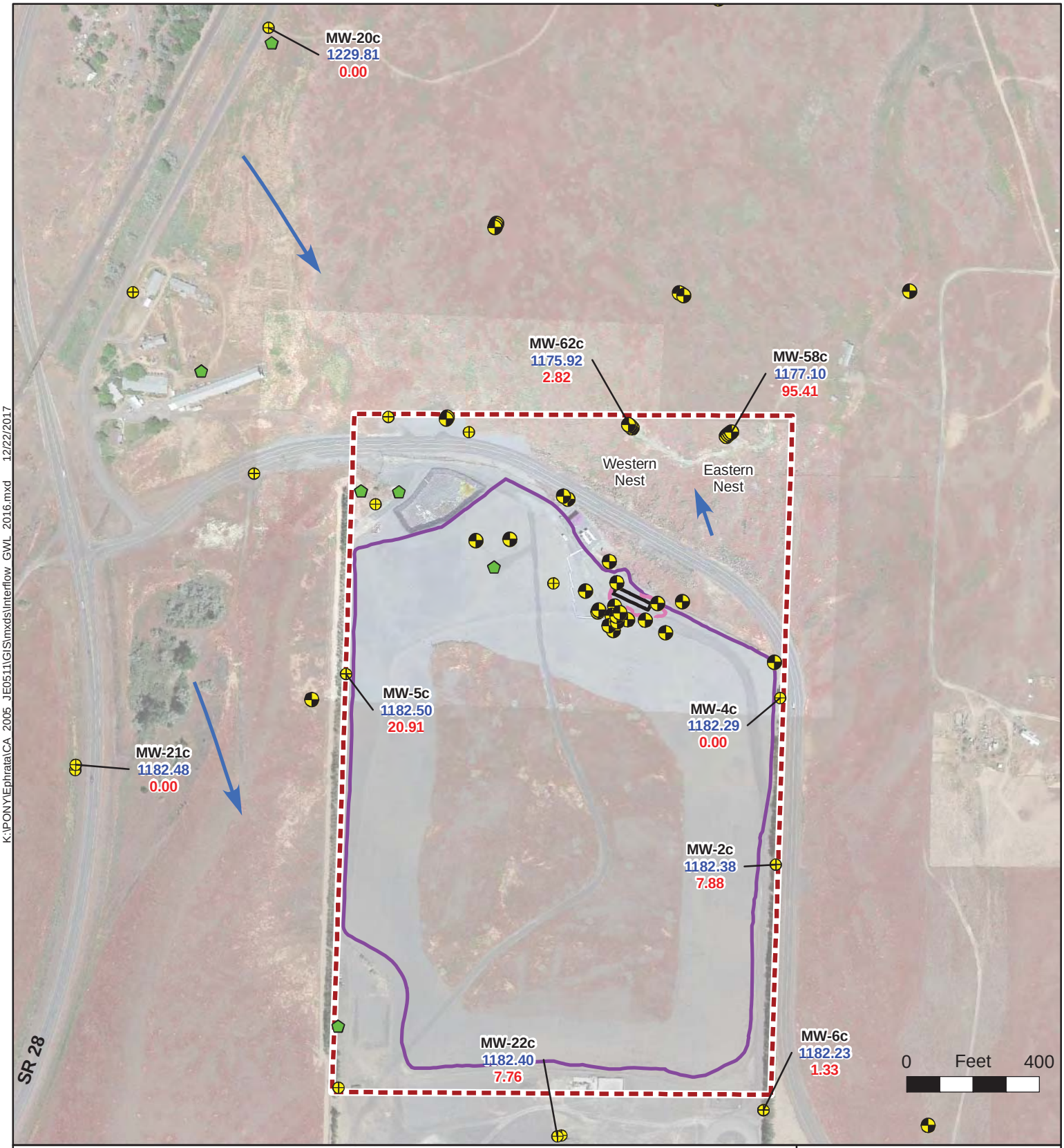
Google Earth Aerial Photo 2017

1232.40 - Groundwater Elevation, June 21-22, 2016 (feet NGVD29)
59.01 - Total detected VOCs, March, April and May 2016 (µg/L)
NA = Not Analyzed

Figure 8
Roza Aquifer Groundwater Elevation Map and Total Detected VOCs

Ephrata Landfill

PgG



Flow Direction

Existing Wells

- Quarterly Monitoring Well (MW)
- Remedial Investigation Monitoring Well (MW)
- Other Well

Capped Unlined Landfill Extent

Former Drum Area

Extent of Soil Removal to Bedrock

Groundwater Point of Compliance

1182.38 - Groundwater Elevation, June 21-22, 2016 (feet NGVD29)
7.88 - Total detected VOCs, March and April 2016 (µg/L)

Google Earth Aerial Photo 2017

Figure 9

Interflow Aquifer Groundwater Elevation Map and Total Detected VOCs

Ephrata Landfill

PgG

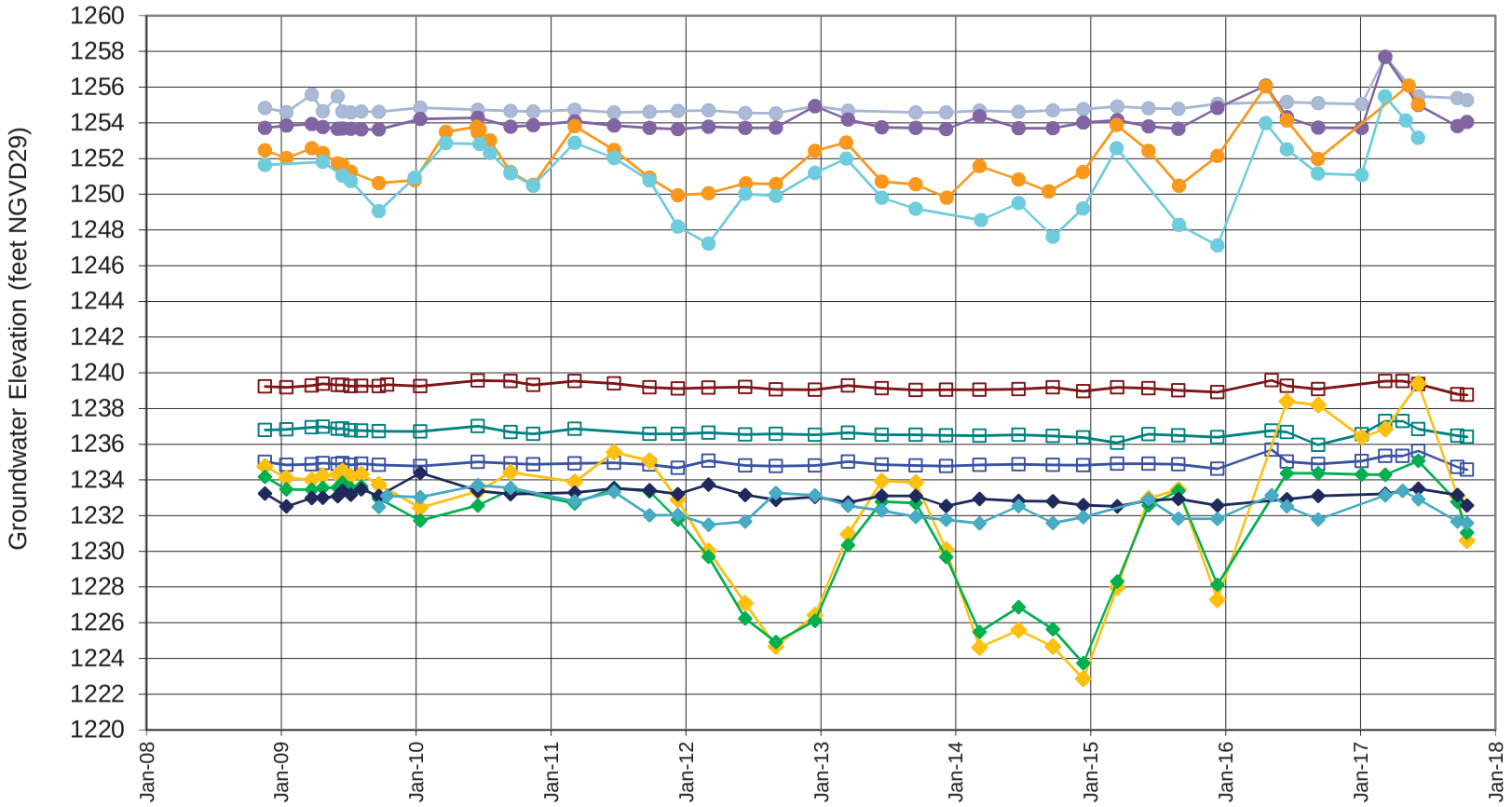
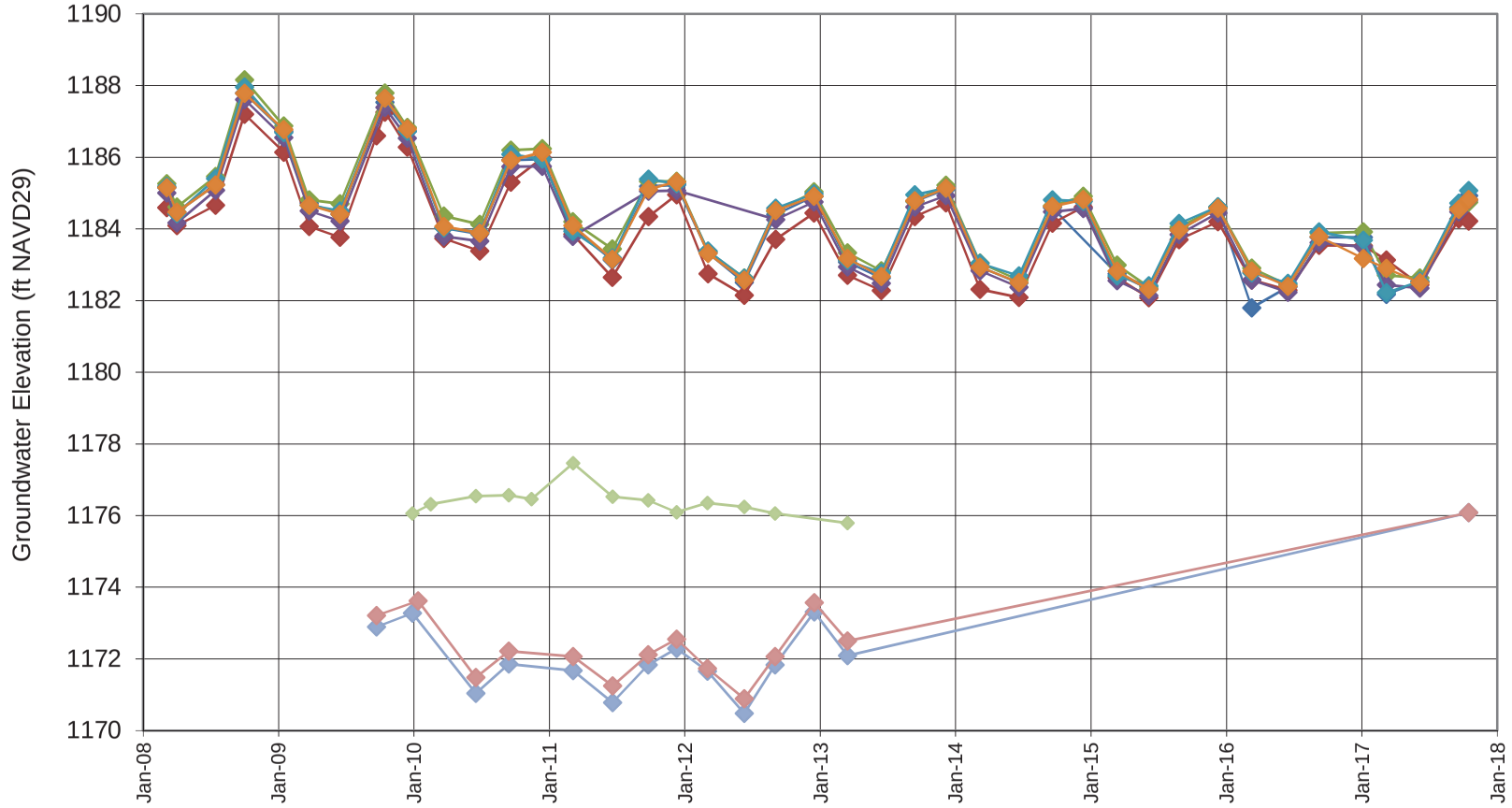


Figure 10
Groundwater Elevation Time Series
(P1, P2 and Roza - Select Wells)

Ephrata Landfill

PgG



MW-2c MW-4c MW-5c MW-6c MW-21c

MW-22c MW-45c MW-47c MW-50c

Figure 11
Groundwater Elevation Time Series
(Interflow Aquifer- Select Wells)

Ephrata Landfill

PgG

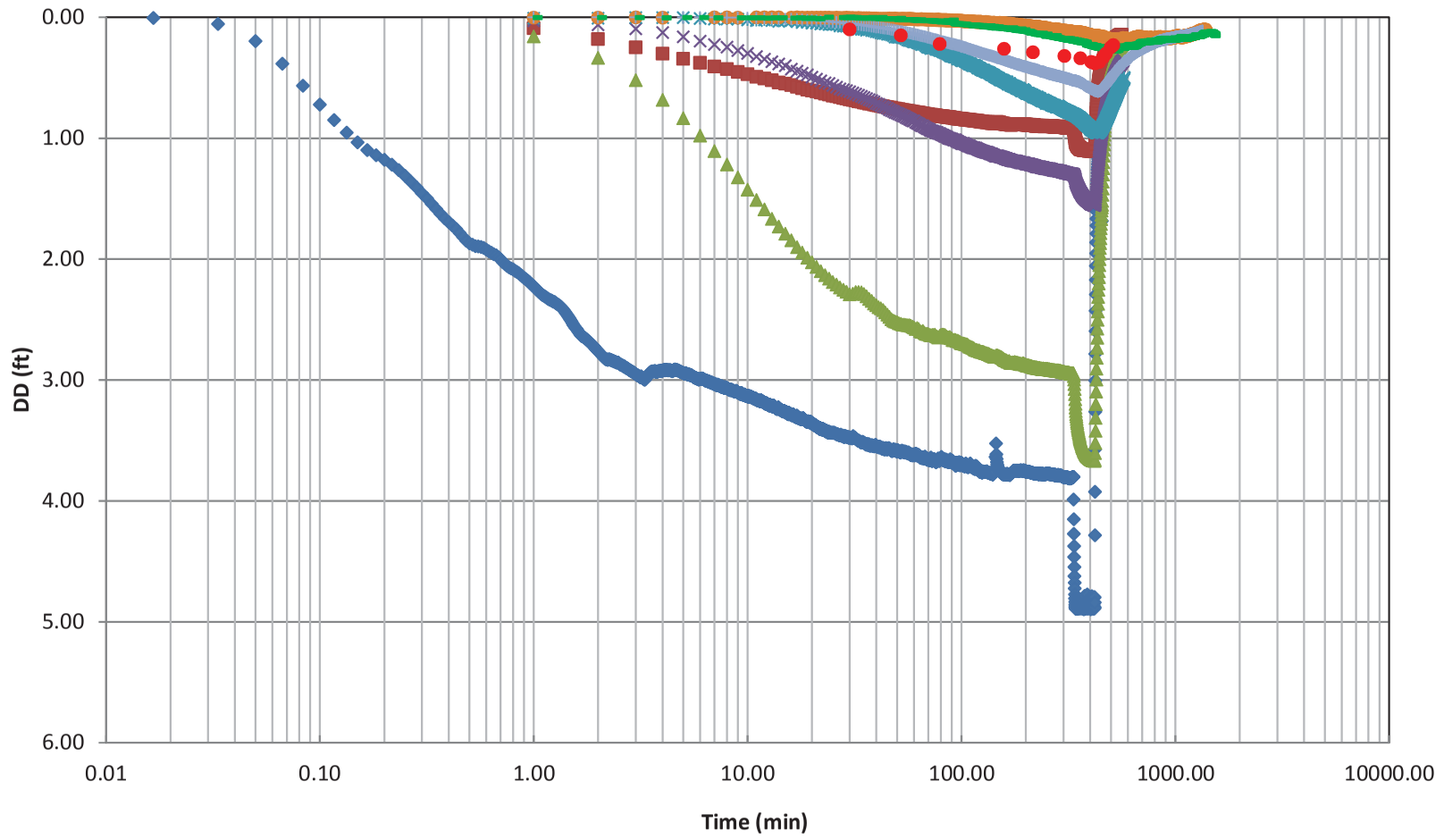
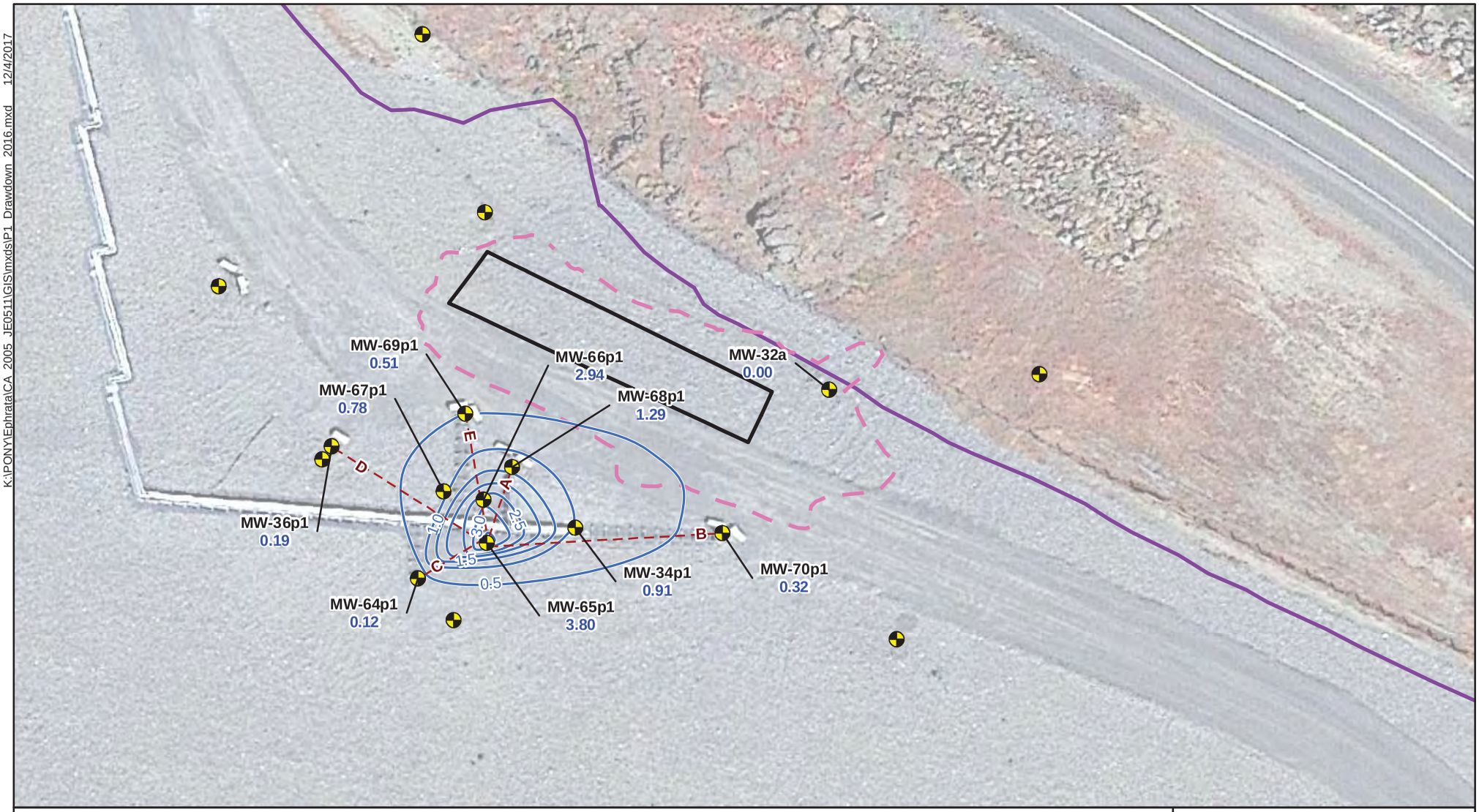


Figure 12
Observed Drawdown and Recovery in P1 Wells during Long-Term Aquifer Test

Ephrata Landfill
JE0714

PgG



P1 Drawdown Contours in Feet

Distance Drawdown Analysis
(See Figures C-24 to C-28 Appendix C)

Remedial Investigation Monitoring Well (MW)

MW-65p1 pumped at 1.5 gpm for 5 hours

Capped Unlined Landfill Extent

Former Drum Area

Extent of Soil Removal to Bedrock

N

0 Feet 50

Google Earth Aerial Photo 2017

Figure 13

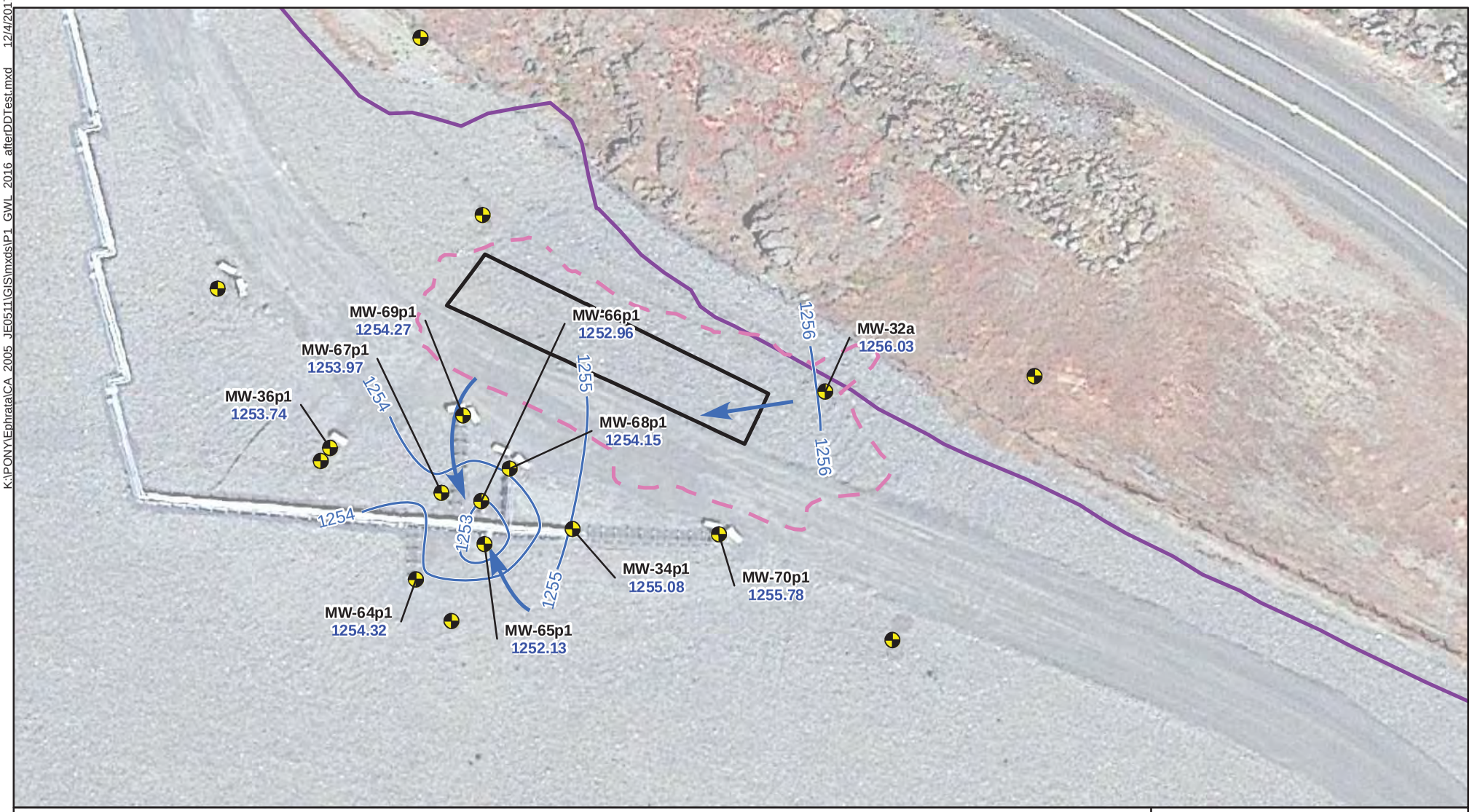
Total Drawdown in P1 Zone at End of Long Term Aquifer Test

Ephrata Landfill

PGG

K:\PONY\Ephrata\CA 2005 JE0511\GIS\mxds\P1 Drawdown 2016.mxd 12/4/2017

K:\PONY\Ephrata\CA 2005 JE0511\GIS\mxds\P1 GWL 2016 afterDDTest.mxd 12/4/2017



P1 Water Level Contour

Flow Direction

Remedial Investigation Monitoring Well (MW)

MW-65p1: P1 Pumping Well (Q = 1.5 gpm)

Capped Unlined Landfill Extent

Former Drum Area

Extent of Soil Removal to Bedrock

N

0 Feet 50

Google Earth Aerial Photo 2017

Figure 14
Groundwater Elevations and Flow Directions in P1 Zone at End of Long Term Aquifer Test

Ephrata Landfill

PgG

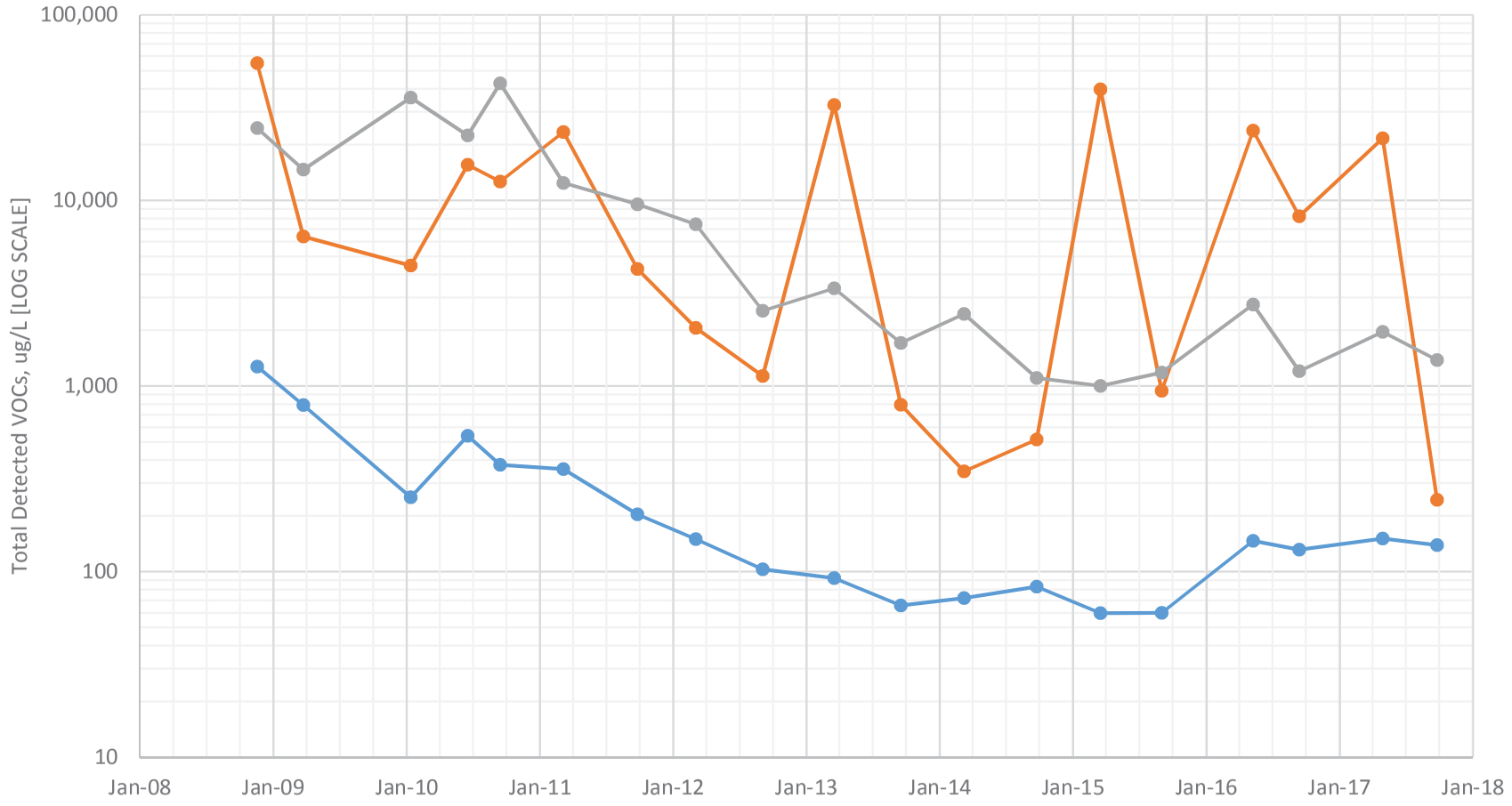


Figure 15
Time Series of Total Detected VOCs (P2 Zone)

Ephrata Landfill
JE0714

PgG

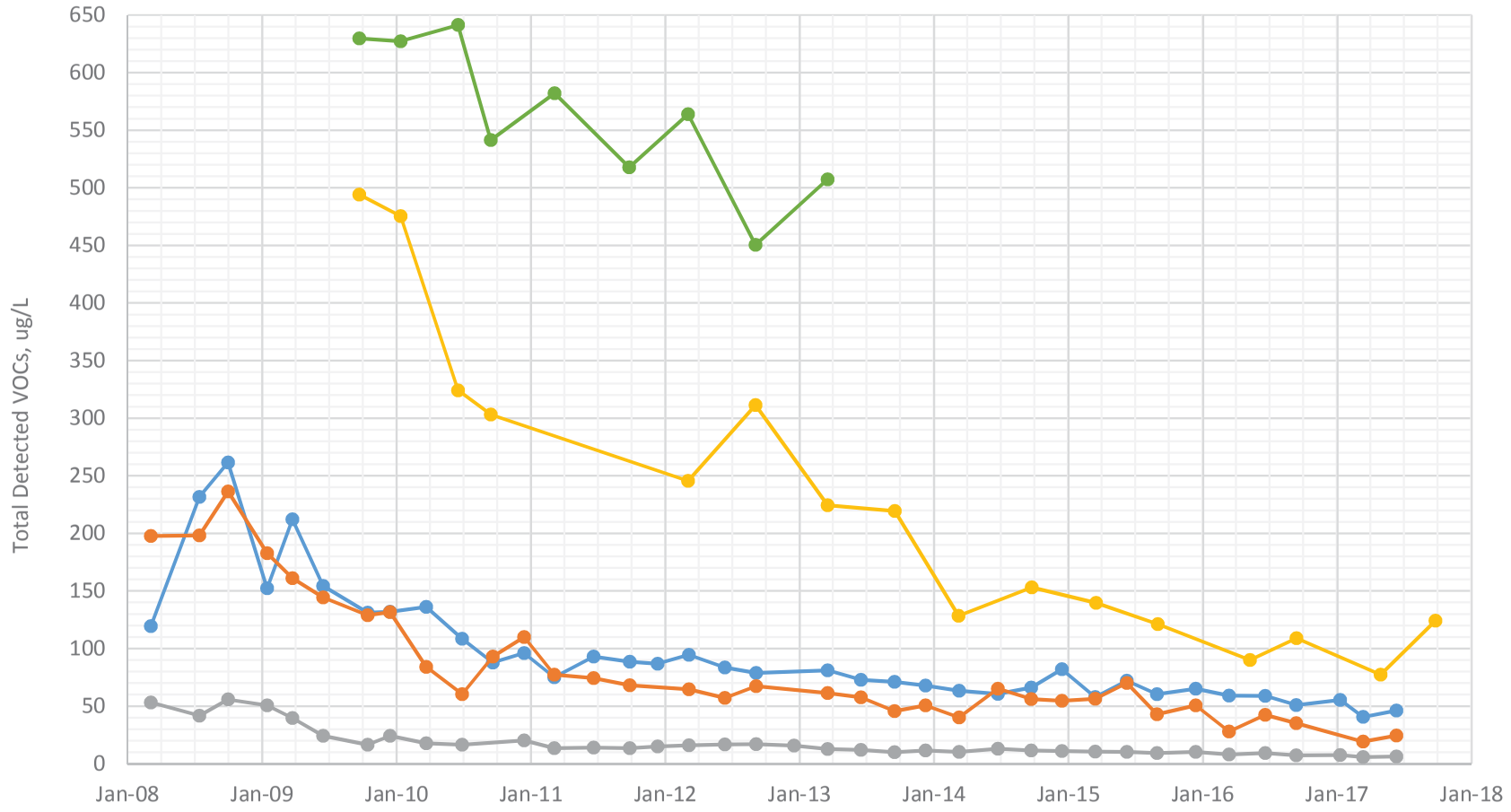


Figure 16
Time Series of Total Detected VOCs (Roza Aquifer)

Ephrata Landfill
JE0714

PgG

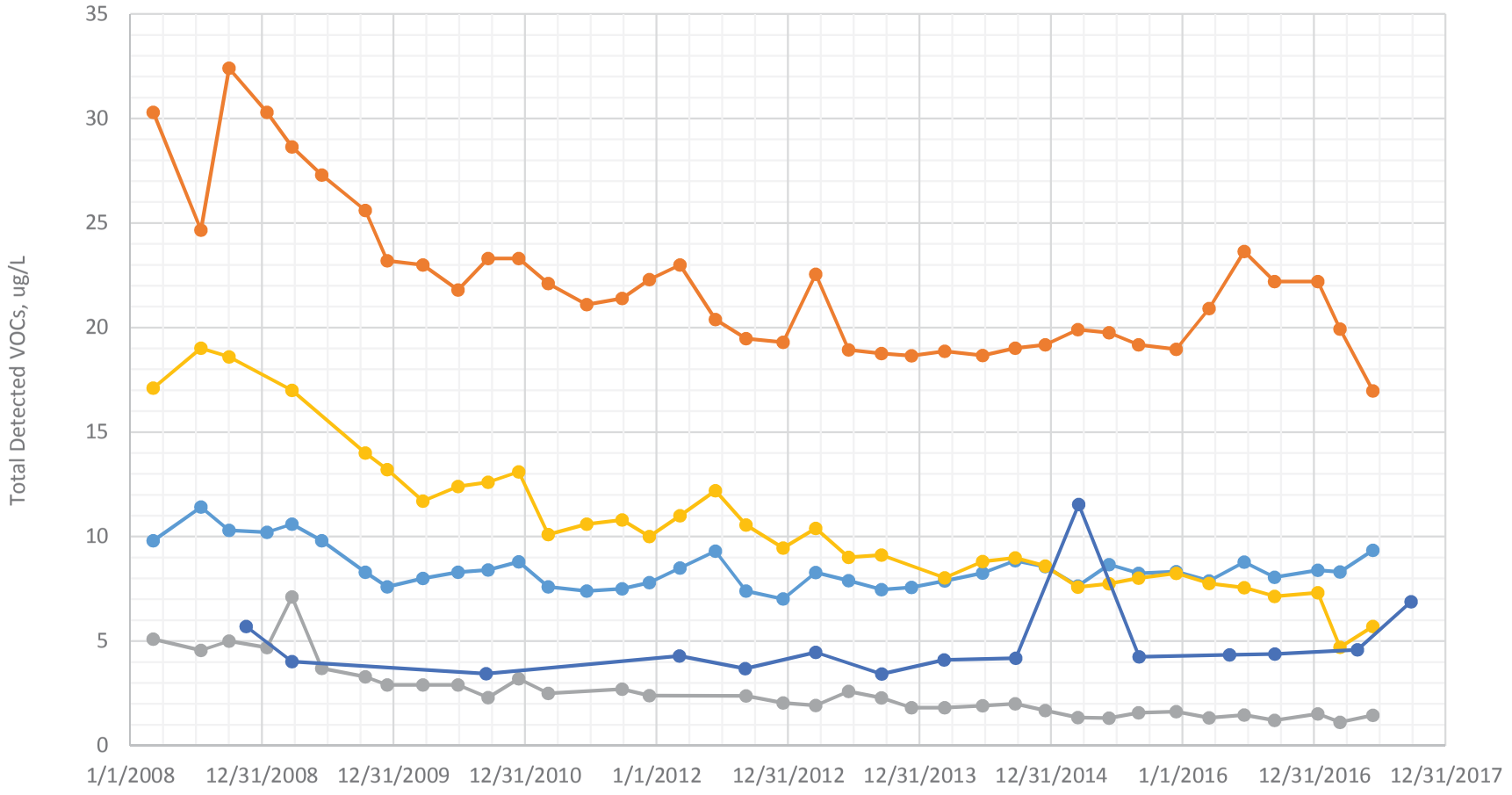
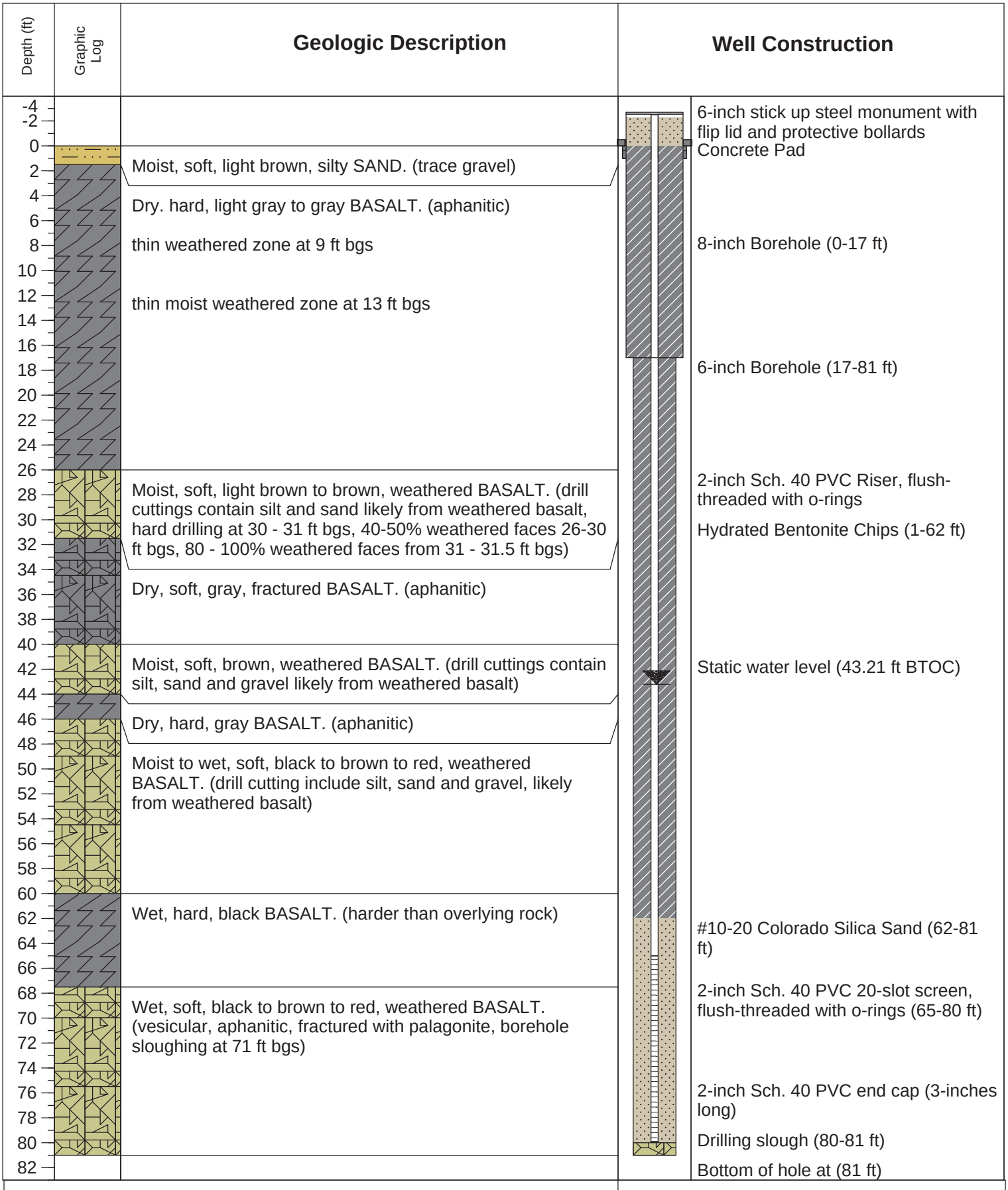


Figure 17
Time Series of Total Detected VOCs (Interflow and Frenchman Springs Aquifers)

Ephrata Landfill
JE0714

PgG

APPENDIX A
WELL LOG



Note: all depths are below ground surface.

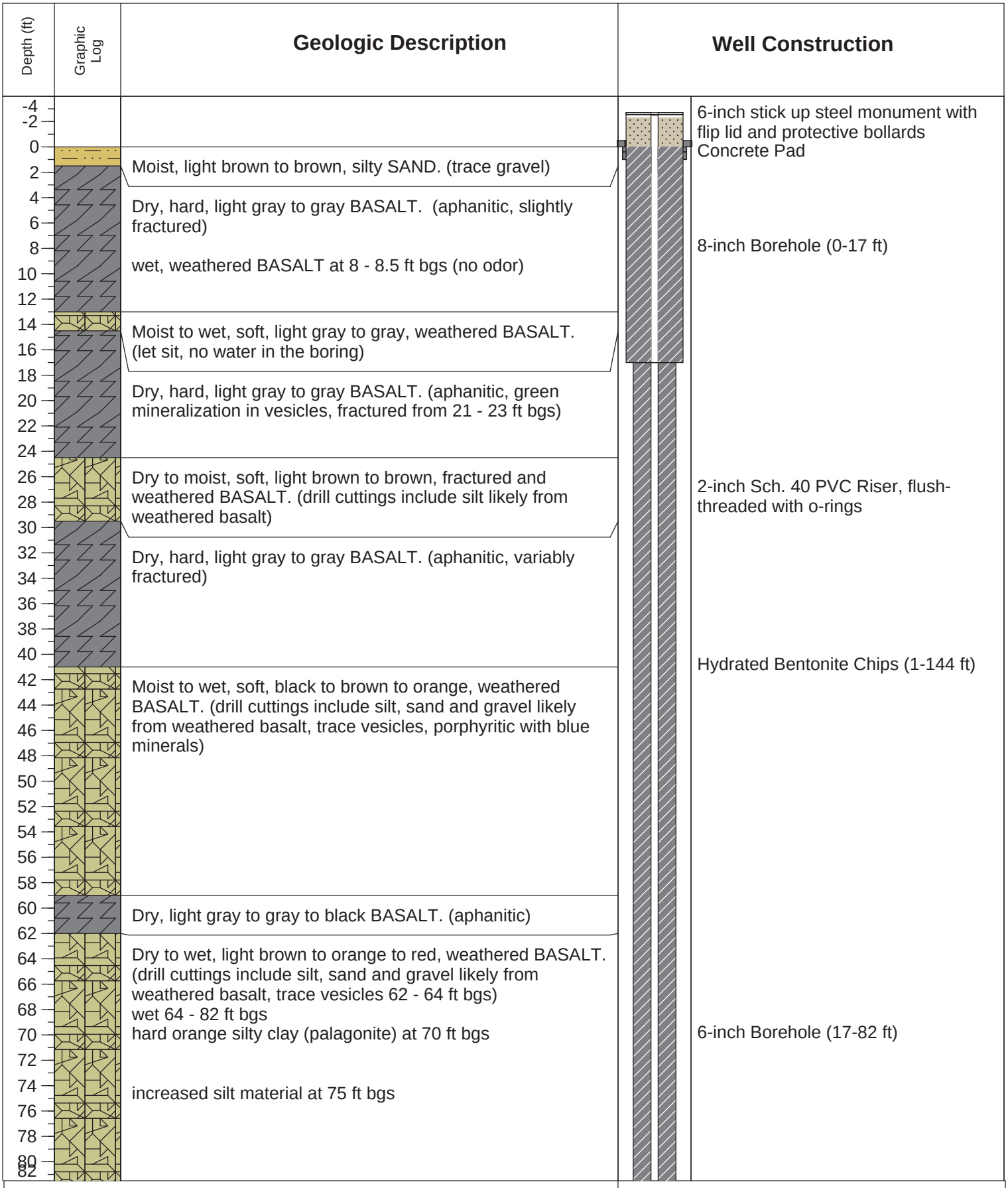
Ground Elevation ATD: 1275
Township Range: SW1/4, NW 1/4, Sec.33, T21N, R26E
Drilling Method: Air Rotary
Drilling Firm/Driller: Environmental West/Ron Sink
Consulting Firm: Pacific Groundwater Group
Logged by: Travis Klaas

Ecology ID: BIU-776
Install Date: 1/28/2016
Vert. Datum: NGVD 29
MP Elevation: 1277.97
WL Depth: 44.79 feet BTOC
WL Date: 4/26/2016

MW-57b (B-46)
Boring Log and As-Built

Grant County Landfill
Ephrata, WA
JE0714

PgG



Note: all depths are below ground surface.

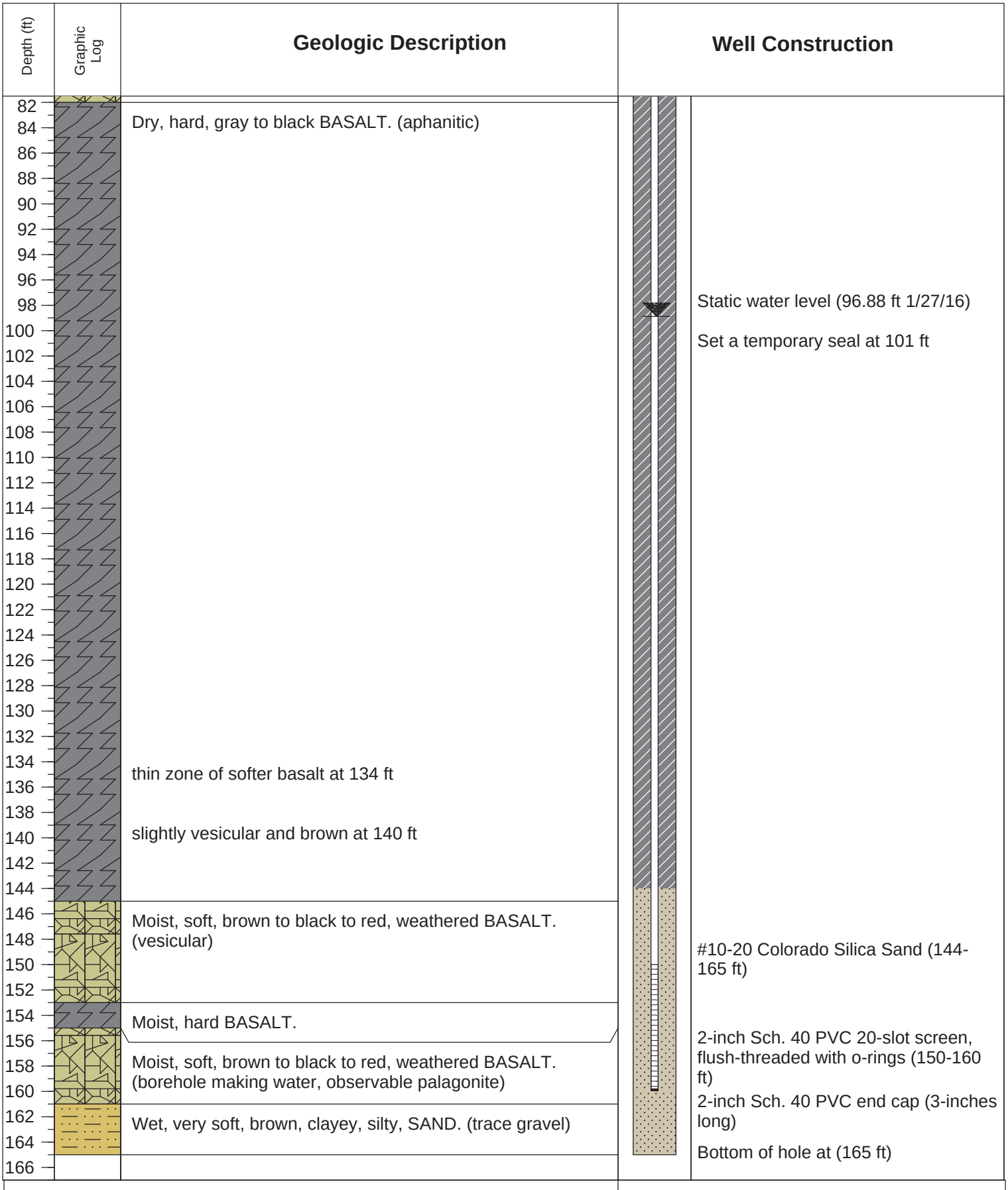
Ground Elevation ATD: 1275
Township Range: SW1/4, NW 1/4, Sec.33, T21N, R26E
Drilling Method: Air Rotary
Drilling Firm/Driller: Environmental West/Ron Sink
Consulting Firm: Pacific Groundwater Group
Logged by: Travis Klaas

Ecology ID: BIU-777
Install Date: 1/27/2016
Vert. Datum: NGVD 29
MP Elevation: 1277.28
WL Depth: 100.35 ft BTOC
WL Date: 4/26/2016

MW-58c (B-47)
Boring Log and As-Built

Grant County Landfill
Ephrata, WA
JE0714

PgG



Note: all depths are below ground surface.

Ground Elevation ATD: 1275
Township Range: SW1/4, NW 1/4, Sec.33, T21N, R26E
Drilling Method: Air Rotary
Drilling Firm/Driller: Environmental West/Ron Sink
Consulting Firm: Pacific Groundwater Group
Logged by: Travis Klaas

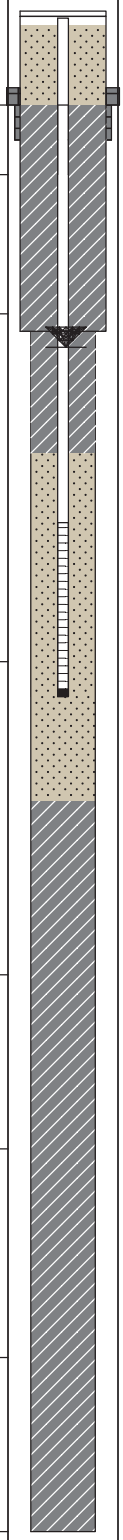
Ecology ID: BIU-777
Install Date: 1/27/2016
Vert. Datum: NGVD 29
MP Elevation: 1277.28
WL Depth: 100.35 ft BTOC
WL Date: 4/26/2016

MW-58c (B-47)
Boring Log and As-Built

Grant County Landfill
Ephrata, WA
JE0714

PgG

Depth (ft)	Graphic Log	Geologic Description
-4 to 0		
0 to 2		Moist, brown, silty, sandy, GRAVEL. (fill)
2 to 6		Dry, hard, black to gray to brown to red, fractured BASALT. (aphanitic, 5% weathered faces, trace olivine phenocrysts)
6 to 16		Dry, soft, red to brown, fractured, slightly weathered BASALT. (aphanitic, 10 - 15% weathered faces) wet, increased weathering at 14 ft bgs
16 to 24		Dry, hard, black to gray BASALT. (aphanitic) softer 20.5 - 21 ft bgs
24 to 30		Dry to moist, soft, brown to red to gray, weathered BASALT. (drill cuttings include silt, likely from weathered basalt, increasing silt with depth)
30 to 36		Dry, moderately hard, black to gray BASALT. (porphyritic, round blue minerals)
36 to 42		Dry, soft, light brown to gray, weathered BASALT. (70-80% weathered faces, observable palagonite)



Well Construction

- 6-inch stick up steel monument with flip lid and protective bollards
- Concrete Pad
- 8-inch Borehole (0-6.5 ft)
- 2-inch Sch. 40 PVC Riser, flush-threaded with o-rings
- Static water level 10.42 ft BTOC
- Hydrated Bentonite Chips (1-10 ft)
- #10-20 Colorado Silica Sand (10-19.67 ft)
- 2-inch Sch. 40 PVC 20-slot screen, flush-threaded with o-rings (12-17 ft)
- 2-inch Sch. 40 PVC end cap (3-inches long)
- Set a temporary seal at 19 ft
- 6-inch Borehole (6.5-41 ft)
- Bentonite Chips bottom seal (19.67-41 ft)
- Bottom of hole at (41 ft)

Note: all depths are below ground surface.

Ground Elevation ATD: 1275
Township Range: SW1/4, NW 1/4, Sec.33, T21N, R26E
Drilling Method: Air Rotary
Drilling Firm/Driller: Environmental West/Ron Sink
Consulting Firm: Pacific Groundwater Group
Logged by: Travis Klaas

Ecology ID: BIU-778
Install Date: 1/29/2016
Vert. Datum: NGVD 29
MP Elevation: 1278.50
WL Depth: 10.46 ft BTOC
WL Date: 4/26/2016

MW-59p0 (B-48)
Boring Log and As-Built

Grant County Landfill
Ephrata, WA
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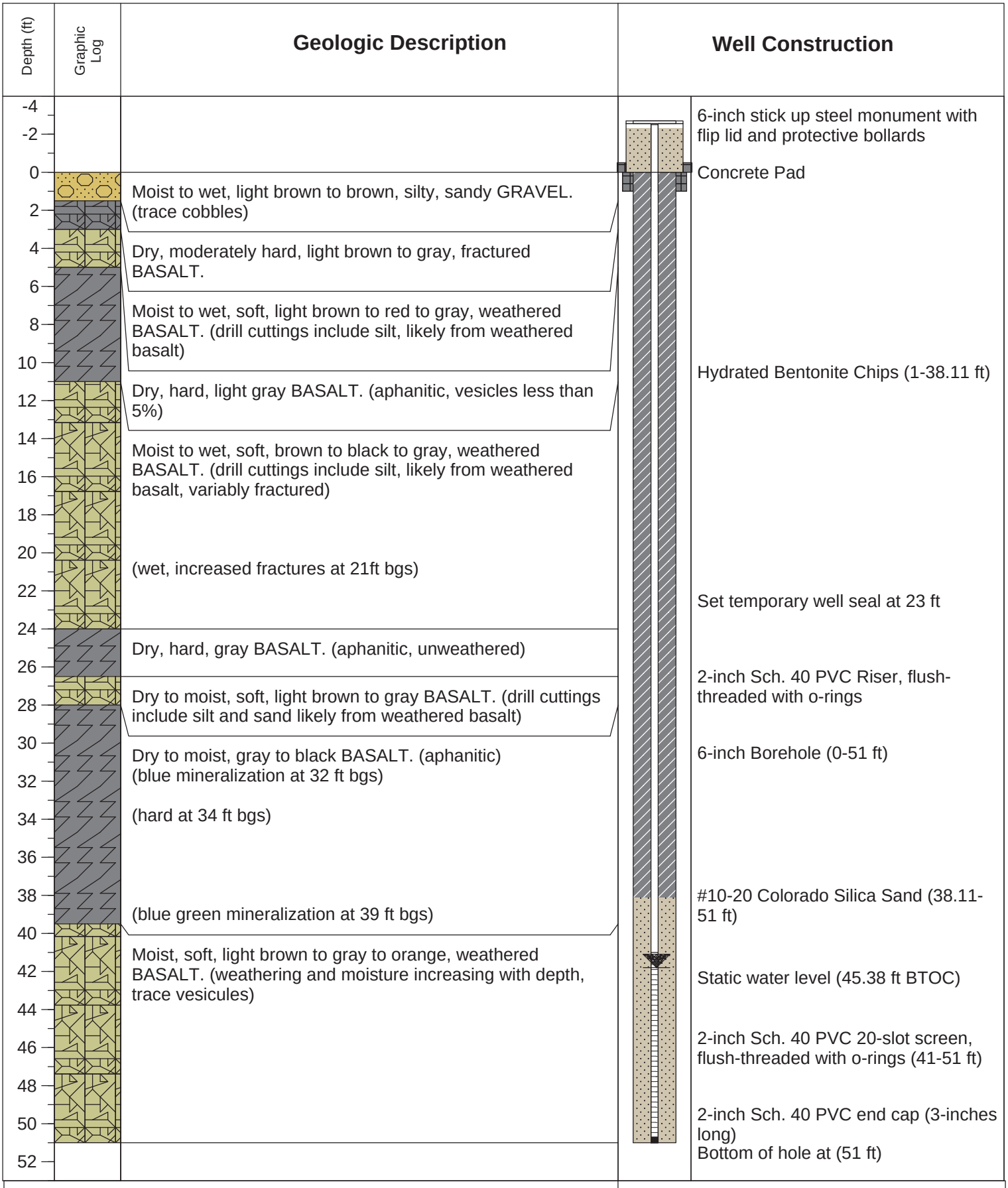

Note: all depths are below ground surface.

Ground Elevation ATD: 1275
Township Range: SW1/4, NW 1/4, Sec.33, T21N, R26E
Drilling Method: Air Rotary
Drilling Firm/Driller: Environmental West/Ron Sink
Consulting Firm: Pacific Groundwater Group
Logged by: Travis Klaas

Ecology ID: BIU-779
Install Date: 1/29/2016
Vert. Datum: NGVD 29
MP Elevation: 1278.61
WL Depth: 45.38 ft BTOC
WL Date: 4/29/2016

MW-60p2 (B-49)
Boring Log and As-Built

Grant CountyLandfill
Ephrata, WA
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Depth (ft)	Graphic Log	Geologic Description	Well Construction
-4			6-inch stick up steel monument with flip lid and protective ecology blocks
-2			
0			Concrete pad
2		Moist to wet, brown, silty, fine sandy GRAVEL. (trace cobbles)	
4		Dry to moist, soft, gray to black, weathered BASALT. (aphanitic)	
6		Dry, hard, gray to black BASALT. (unweathered, aphanitic)	
8			
10		Moist to wet, soft to hard, black to light brown to gray, variably weathered, fractured BASALT. (aphanitic)	Hydrated Bentonite Chips (1-29 ft)
12			6-inch Borehole (17-41.5 ft)
14		Dry, hard, black, moderately weathered BASALT. (drill cuttings include silt, likely from weathered basalt, porphyritic, round blue minerals)	
16			8-inch Borehole (0-17 ft)
18		softer at 18 ft bgs	
20		harder at 20 ft bgs	
22			Static water level (24.46 ft BTOC)
24			2-inch Sch. 40 PVC Riser, flush-threaded with o-rings
26			
28			
30		Moist to wet, soft, black, weathered BASALT. (drill cuttings include silt and sand, likely from weathered basalt, trace blue phenocrysts)	#10-20 Colorado Silica Sand (29-41.5 ft)
32			
34			2-inch Sch. 40 PVC 20-slot screen, flush-threaded with o-rings (31-41 ft)
36			
38		(increased silt in drill cuttings at 38 ft bgs)	
40			2-inch Sch. 40 PVC end cap (3-inches long)
42			Bottom of hole at (41.5 ft)

Note: all depths are below ground surface.

Ground Elevation ATD: 1278
Township Range: SW1/4, NW 1/4, Sec.33, T21N, R26E
Drilling Method: Air Rotary
Drilling Firm/Driller: Environmental West/Ron Sink
Consulting Firm: Pacific Groundwater Group
Logged by: Travis Klaas

Ecology ID: BIU-781
Install Date: 2/3/2016
Vert. Datum: NGVD 29
MP Elevation: 1281.29
WL Depth: 24.46 BTOC
WL Date: 4/25/2016

MW-61p1 (B-50)
Boring Log and As-Built

Grant County Landfill
Ephrata, WA
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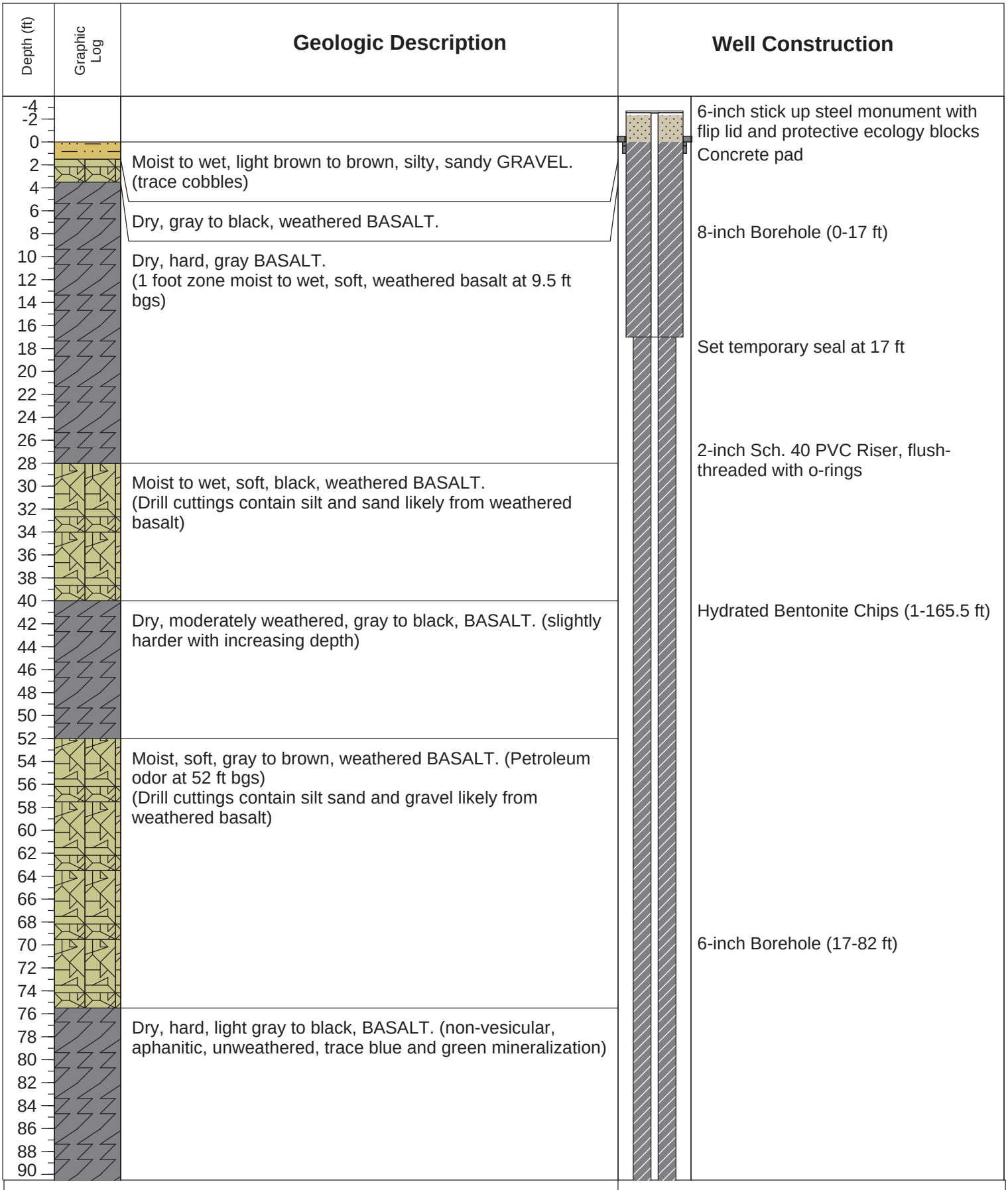

Note: all depths are below ground surface.

Ground Elevation ATD: 1278
Township Range: SW1/4, NW 1/4, Sec.33, T21N, R26E
Drilling Method: Air Rotary
Drilling Firm/Driller: Environmental West/Ron Sink
Consulting Firm: Pacific Groundwater Group
Logged by: Travis Klaas/Dawn Chapel

Ecology ID: BIU-780
Install Date: 2/8/2016
Vert. Datum: NGVD 29
MP Elevation: 1281.59
WL Depth: 105.53 BTOC
WL Date: 4/25/2016

MW-62c (B-51)
Boring Log and As-Built

Grant County Landfill
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Depth (ft)	Graphic Log	Geologic Description	Well Construction
90			
92			
94		Drilling open hole from 95 ft	
96			
98			
100			
102			Static water level (105.53 ft BTOC)
104			
106			
108			
110			
112			
114			
116		Dry to moist, moderately hard, brown, gray, black, weathered BASALT. (non-vesicular, aphanitic, no phenocrysts)	
118			
120		40-100% weathered faces from 114 to 118 ft bgs, borehole making very little water.	
122			
124		Dry to moist, hard, gray, BASALT.	
126			
128		Increased moisture at 131 ft bgs	
130		Green mineralization at 132 ft bgs	
132			
134			
136			
138		Harder drilling at 138 ft bgs	
140			
142			
144			
146			
148			
150		weathered zone at 150 ft bgs, drill cuttings contain soft clay	
152			
154		moist to wet with trace blue mineralization at 154 ft bgs	
156			
158			
160			
162		Moist, soft, gray to black, weathered BASALT. (Drill cuttings contain silt likely from weathered basalt)	#10-20 Colorado Silica Sand (165.5-180 ft)
164			
166		increased silt from 165-168 ft bgs	
168			2-inch Sch. 40 PVC 20-slot screen, flush-threaded with o-rings (168-178 ft)
170		Wet, moderately soft, gray to black, fractured BASALT. (Wet at 169 ft bgs and making water)	
172			
174			
176			2-inch Sch. 40 PVC end cap (3-inches long)
178			
180			Bottom of hole at (180 ft)
182			
184			

Note: all depths are below ground surface.

Ground Elevation ATD: 1278
Township Range: SW1/4, NW 1/4, Sec.33, T21N, R26E
Drilling Method: Air Rotary
Drilling Firm/Driller: Environmental West/Ron Sink
Consulting Firm: Pacific Groundwater Group
Logged by: Travis Klaas/Dawn Chapel

Ecology ID: BIU-780
Install Date: 2/8/2016
Vert. Datum: NGVD 29
MP Elevation: 1281.59
WL Depth: 105.53 BTOC
WL Date: 4/25/2016

MW-62c (B-51)
Boring Log and As-Built

Grant County Landfill
Ephrata, WA
JE0714

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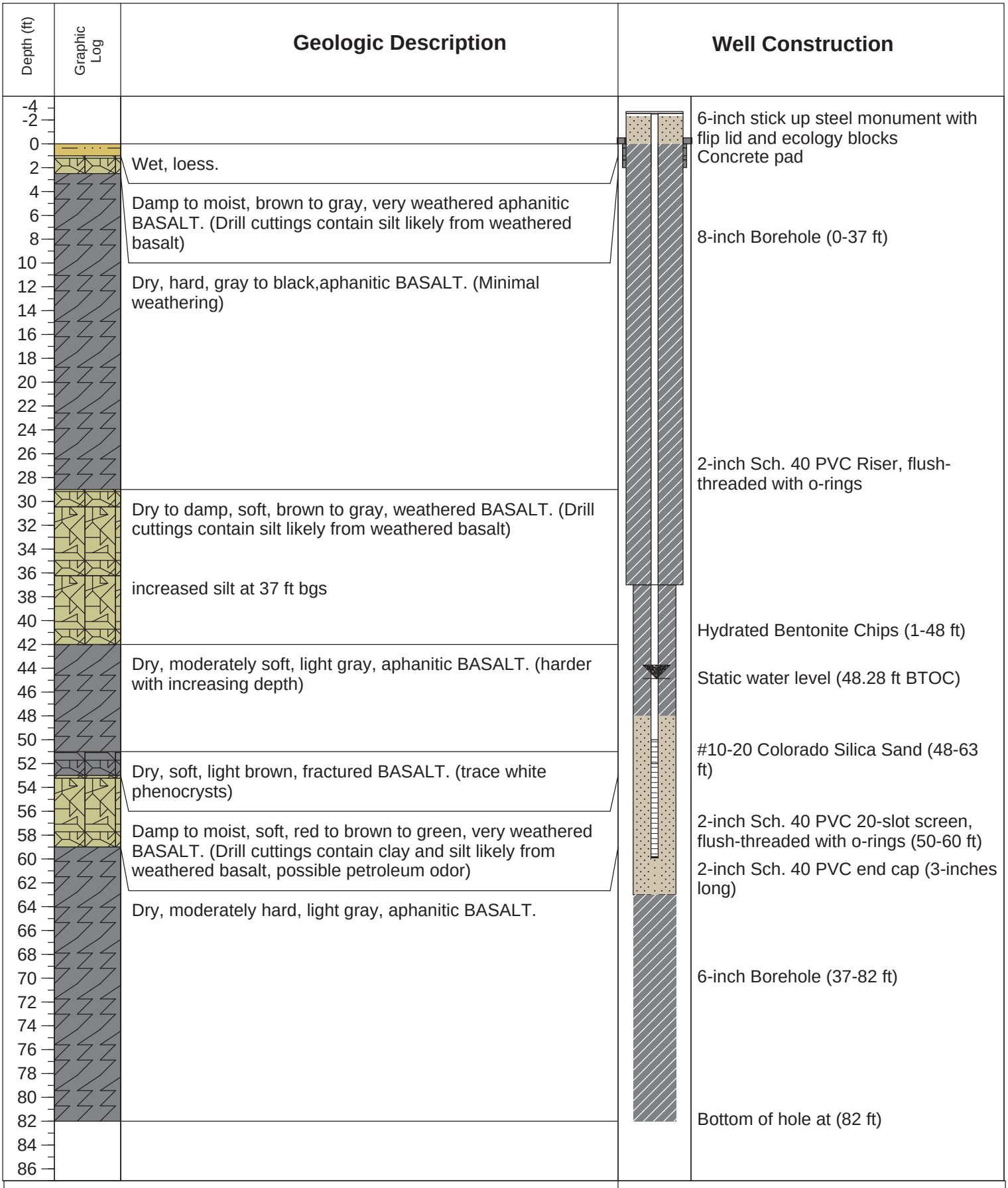

Note: all depths are below ground surface.

Ground Elevation ATD: 1278
Township Range: SW1/4, NW 1/4, Sec.33, T21N, R26E
Drilling Method: Air Rotary
Drilling Firm/Driller: Environmental West/Ron Sink
Consulting Firm: Pacific Groundwater Group
Logged by: Travis Klaas

Ecology ID: BIU-726
Install Date: 2/12/2016
Vert. Datum: NGVD 29
MP Elevation: 1281.42
WL Depth: 48.28 ft BTOC
WL Date: 4/25/2016

MW-63b (B-52)
Boring Log and As-Built

Grant County Landfill
Ephrata, WA
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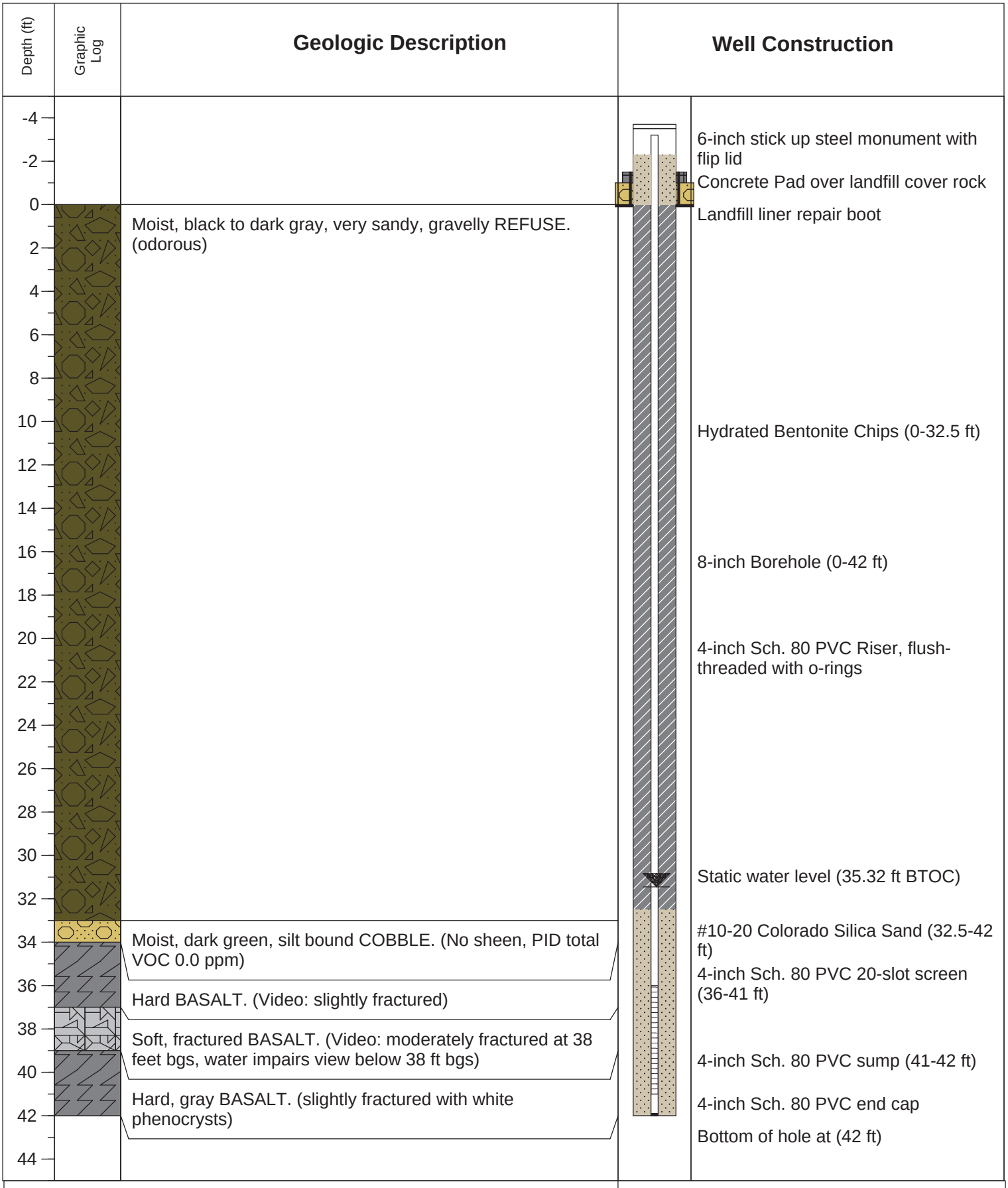

Note: all depths are below ground surface.

Ground Elevation ATD: 1285.80
Township Range: SW1/4, NW 1/4, Sec. 33, T21N, R26E
Drilling Method: Sonic
Drilling Firm/Driller: Environmental West/Greg Walston
Consulting Firm: Pacific Groundwater Group
Logged by: Dawn Chapel

Ecology ID: BIU-745
Install Date: 2/17/2016
Vert. Datum: NGVD 29
MP Elevation: 1289.67
WL Depth: 35.32 ft BTOC
WL Date: 4/27/2016

MW-64p1 (B-53)
Boring Log and As-Built

Grant County Landfill
Ephrata, WA
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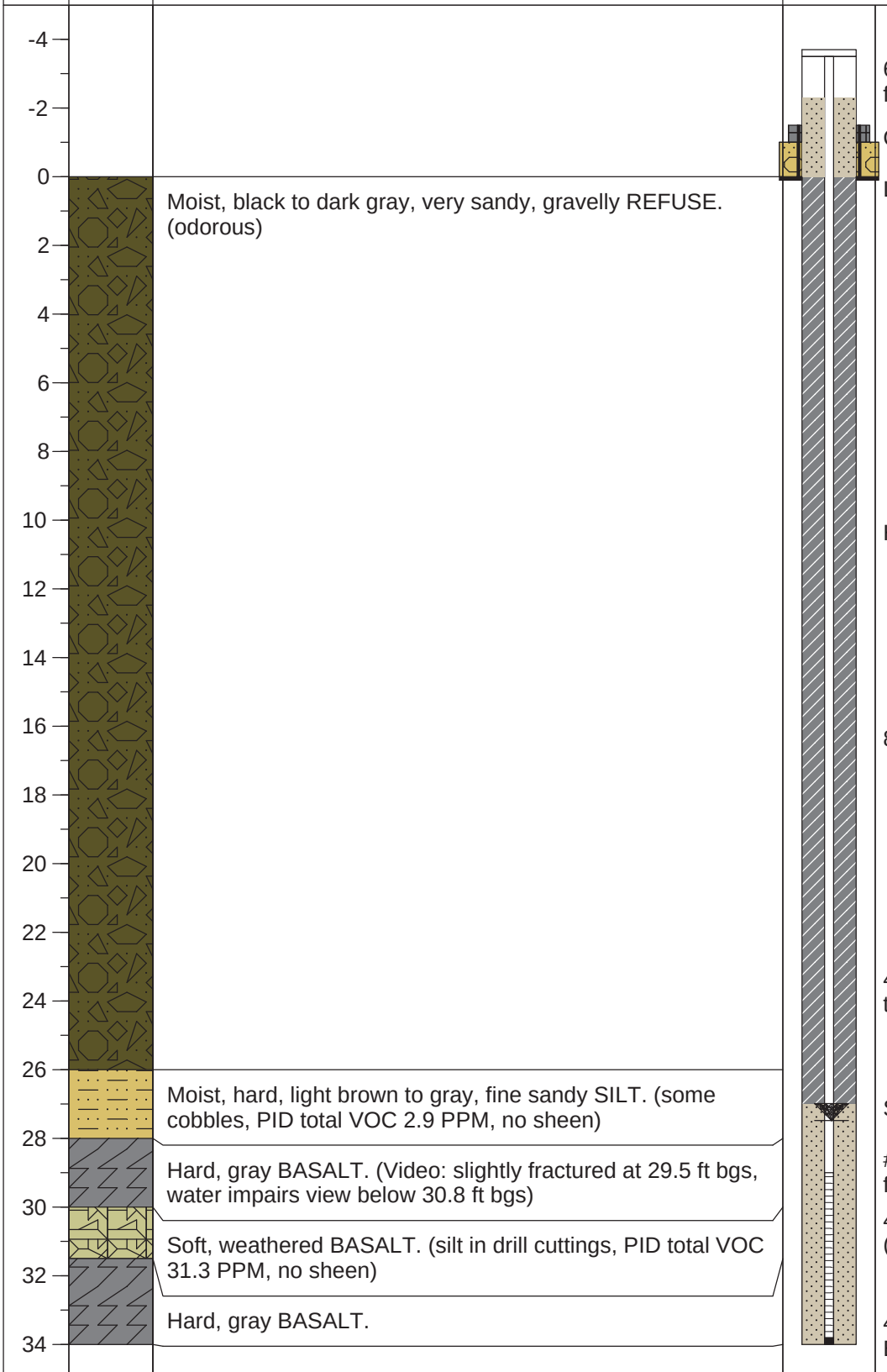

Geologic Description

Moist, black to dark gray, very sandy, gravelly REFUSE. (odorous)

Moist, hard, light brown to gray, fine sandy SILT. (some cobbles, PID total VOC 2.9 PPM, no sheen)

Hard, gray BASALT. (Video: slightly fractured at 29.5 ft bgs, water impairs view below 30.8 ft bgs)

Soft, weathered BASALT. (silt in drill cuttings, PID total VOC 31.3 PPM, no sheen)

Hard, gray BASALT.

Well Construction

6-inch stick up steel monument with flip lid

Concrete Pad over landfill cover rock

Landfill liner repair boot

Hydrated Bentonite Chips (0-27 ft)

8-inch Borehole (0-34 ft)

4-inch Sch. 80 PVC Riser, flush-threaded with o-rings

Static water level (31.56 ft BTOC)

#10-20 Colorado Silica Sand (27-34 ft)

4-inch Sch. 80 PVC 20-slot screen (29-34 ft)

4-inch Sch. 80 PVC end cap
Bottom of hole at (34ft)

Note: all depths are below ground surface.

Ground Elevation ATD: 1283.46
Township Range: SW1/4, NW 1/4, Sec. 33, T21N, R26E
Drilling Method: Sonic
Drilling Firm/Driller: Environmental West/Greg Walston
Consulting Firm: Pacific Groundwater Group
Logged by: Travis Klaas

Ecology ID: BIU-747
Install Date: 2/19/2016
Vert. Datum: NGVD 29
MP Elevation: 1287.54
WL Depth: 31.56 ft BTOC
WL Date: 4/27/2016

MW-65p1 (B-54)
Boring Log and As-Built

Grant County Landfill
Ephrata,WA
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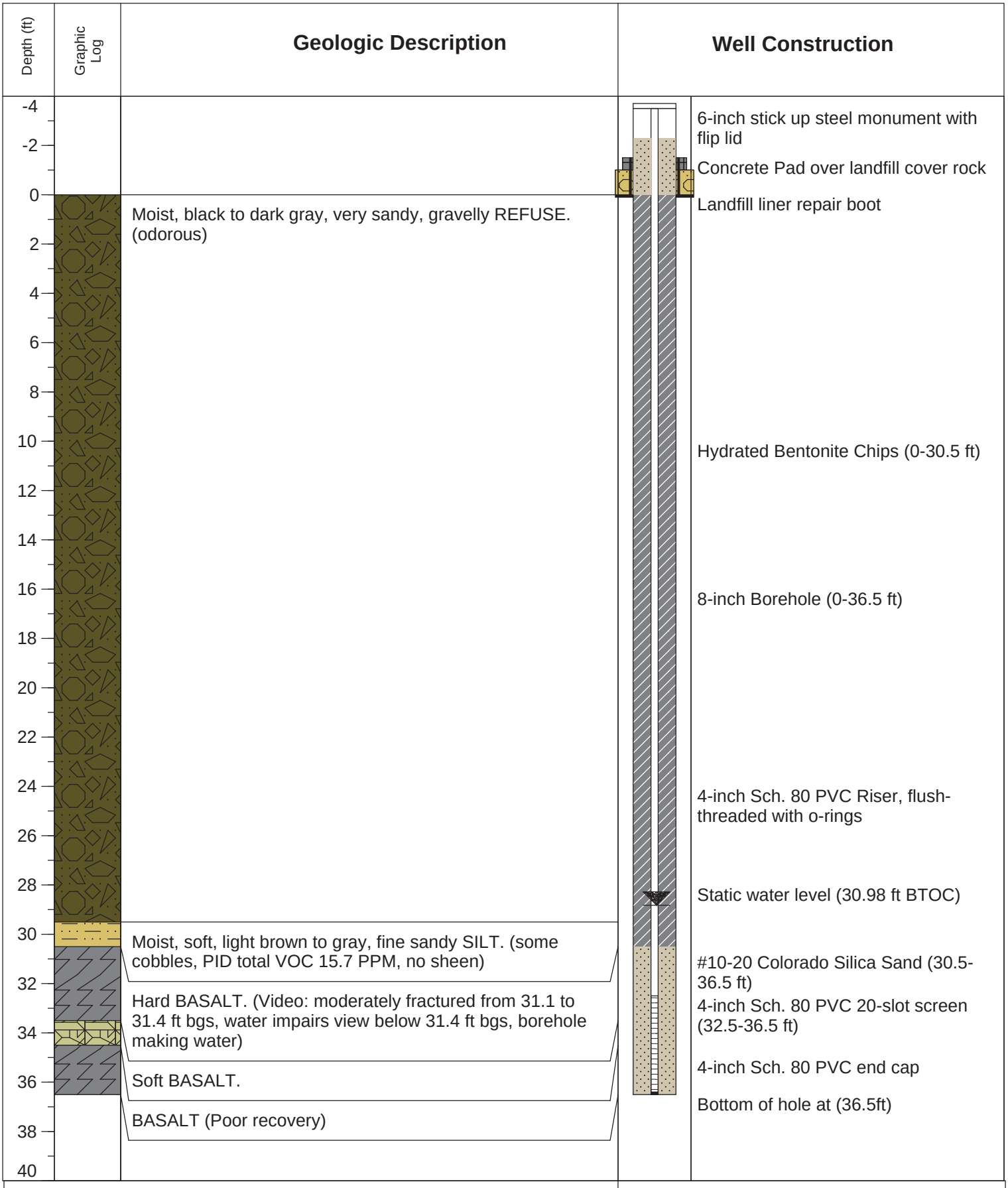

Note: all depths are below ground surface.

Ground Elevation ATD: 1284.59
Township Range: SW1/4, NW 1/4, Sec. 33, T21N, R26E
Drilling Method: Sonic
Drilling Firm/Driller: Environmental West/Greg Walston
Consulting Firm: Pacific Groundwater Group
Logged by: Travis Klaas

Ecology ID: BIU-793
Install Date: 2/23/2016
Vert. Datum: NGVD 29
MP Elevation: 1286.83
WL Depth: 30.98 ft BTOC
WL Date: 4/29/2016

MW-66p1 (B-55)
Boring Log and As-Built

Grant County Landfill
Ephrata,WA
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PgG

Depth (ft)	Graphic Log	Geologic Description	Well Construction
-4 to 0			6-inch stick up steel monument with flip lid Concrete Pad over landfill cover rock
0 to 26		Moist, black to dark gray, very sandy, gravelly REFUSE. (odorous)	Landfill liner repair boot Hydrated Bentonite Chips (0-29 ft) 8-inch Borehole (0-40 ft) 4-inch Sch. 80 PVC Riser, flush-threaded with o-rings
26 to 30		Moist to wet, soft, green to gray. fine sandy SILT. (PID total VOC 13.9 PPM, no sheen)	Static water level (32.40 ft BTOC)
30 to 40		Fractured, gray BASALT. (Video: moderately to highly fractured to 35 ft bgs, slightly fractured below 35 ft bgs.)	#10-20 Colorado Silica Sand (29-40 ft) 4-inch Sch. 80 PVC 20-slot screen (31-40 ft) 4-inch Sch. 80 PVC end cap Bottom of hole at (40 ft)
40 to 42			

Note: all depths are below ground surface.

Ground Elevation ATD: 1283.21
Township Range: SW1/4, NW 1/4, Sec. 33, T21N, R26E
Drilling Method: Sonic
Drilling Firm/Driller: Environmental West/Greg Walston
Consulting Firm: Pacific Groundwater Group
Logged by: Travis Klaas

Ecology ID: BIU-791
Install Date: 2/24/2016
Vert. Datum: NGVD 29
MP Elevation: 1287.15
WL Depth: 32.40 ft BTOC
WL Date: 4/28/2016

MW-67p1 (B-56)
Boring Log and As-Built

Grant County Landfill
Ephrata,WA
JE0714

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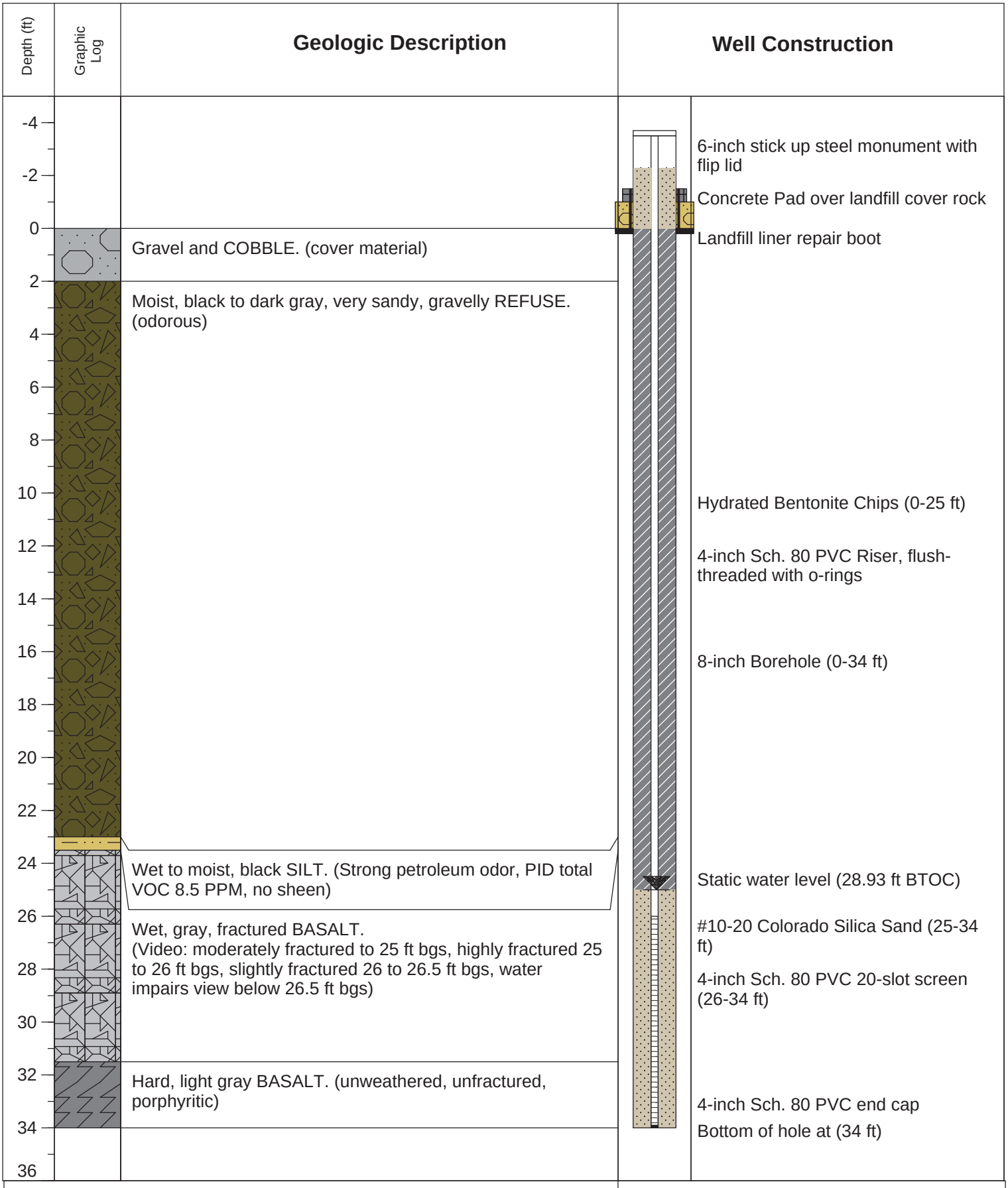

Note: all depths are below ground surface.

Ground Elevation ATD: 1280.43
Township Range: SW1/4, NW 1/4, Sec. 33, T21N, R26E
Drilling Method: Sonic
Drilling Firm/Driller: Environmental West/Greg Walston
Consulting Firm: Pacific Groundwater Group
Logged by: Travis Klaas

Ecology ID: BIU-790
Install Date: 2/25/2016
Vert. Datum: NGVD 29
MP Elevation: 1284.36
WL Depth: 28.93 ft BTOC
WL Date: 4/28/2016

MW-68p1 (B-57)
Boring Log and As-Built

Grant County Landfill
Ephrata,WA
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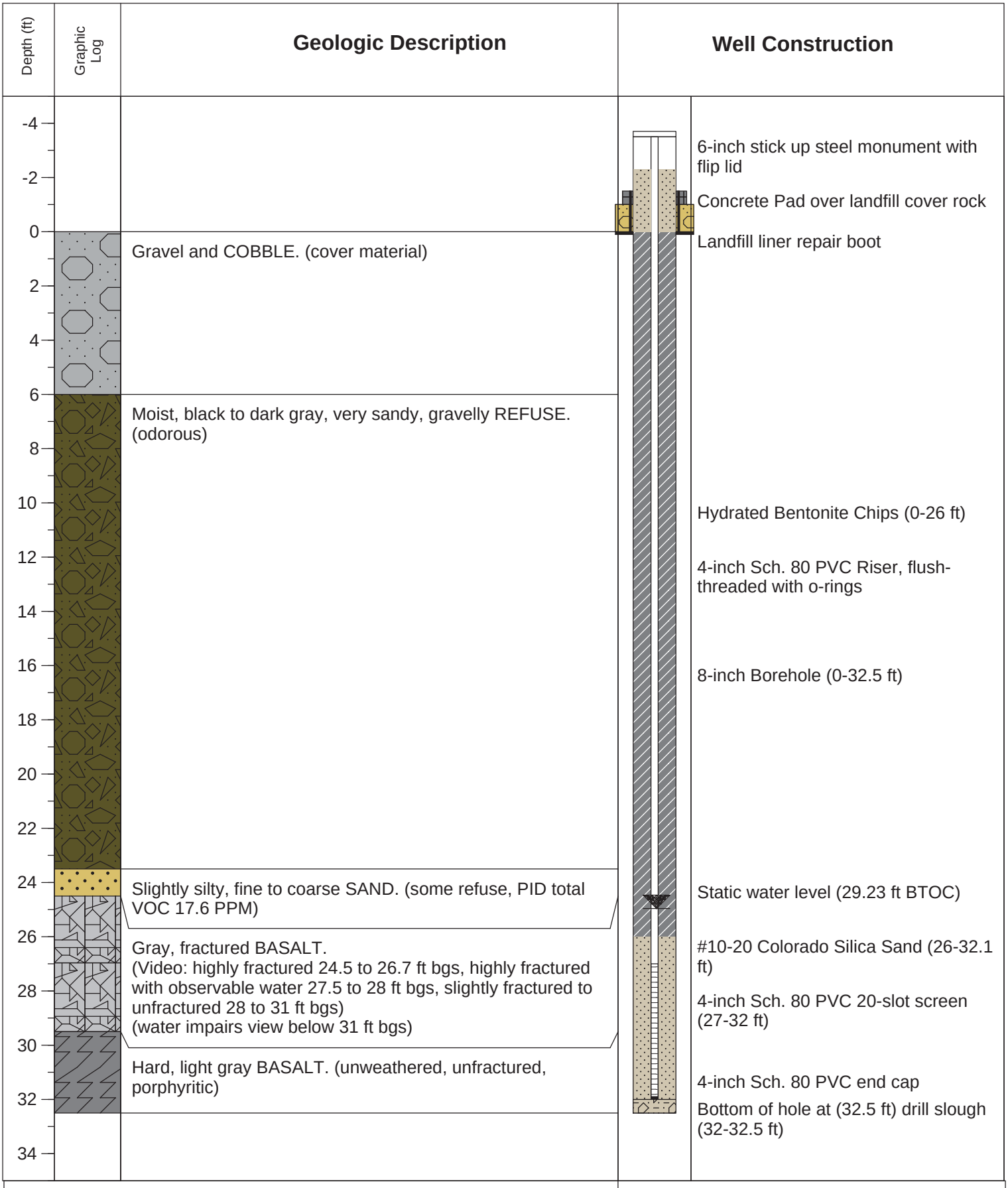

Note: all depths are below ground surface.

Ground Elevation ATD: 1279.68
Township Range: SW1/4, NW 1/4, Sec. 33, T21N, R26E
Drilling Method: Sonic
Drilling Firm/Driller: Environmental West/Greg Walston
Consulting Firm: Pacific Groundwater Group
Logged by: Travis Klaas

Ecology ID: BIU-738
Install Date: 2/29/2016
Vert. Datum: NGVD 29
MP Elevation: 1283.95
WL Depth: 29.23 ft BTOC
WL Date: 4/29/2016

MW-69p1 (B-58)
Boring Log and As-Built

Grant County Landfill
Ephrata,WA
JE0714

PgG

Depth (ft)	Graphic Log	Geologic Description	Well Construction
-4			6-inch stick up steel monument with flip lid
-2			Concrete Pad over landfill cover rock
0			Landfill liner repair boot
2		Moist, black to dark gray, very sandy, gravelly REFUSE. (odorous)	
4			
6			
8			
10			Hydrated Bentonite Chips (0-25.5 ft)
12			4-inch Sch. 80 PVC Riser, flush-threaded with o-rings
14			
16			8-inch Borehole (0-33 ft)
18			
20			
22			
24		Moist to wet, soft, silty, sandy GRAVEL. (fining upward, PID total VOC 7.2 PPM, no sheen, fill?)	Static water level (26.98 ft BTOC)
26		Dry, hard, light gray to light brown BASALT. (aphanitic) (Video: unfractured to 29.5 ft bgs)	#10-20 Colorado Silica Sand (25.5-33 ft)
28			4-inch Sch. 80 PVC 20-slot screen (27-33 ft)
30		Wet, soft, weathered BASALT. (silt and fine sand in drill cuttings. Video: highly fractured with observable water at 29.5 and 30.5 ft bgs)	
32			4-inch Sch. 80 PVC end cap
34		Hard, light gray BASALT. (unweathered, minimal fractures, aphanitic) (Video: unfractured below 30.5 ft bgs)	Bottom of hole at (33 ft)
36			

Note: all depths are below ground surface.

Ground Elevation ATD: 1279.50
Township Range: SW1/4, NW 1/4, Sec. 33, T21N, R26E
Drilling Method: Sonic
Drilling Firm/Driller: Environmental West/Greg Walston
Consulting Firm: Pacific Groundwater Group
Logged by: Travis Klaas

Ecology ID: BIU-740
Install Date: 3/3/2016
Vert. Datum: NGVD 29
MP Elevation: 1283.01
WL Depth: 26.98 ft BTOC
WL Date: 4/29/2016

MW-70p1 (B-59)
Boring Log and As-Built

Grant County Landfill
Ephrata,WA
JE0714

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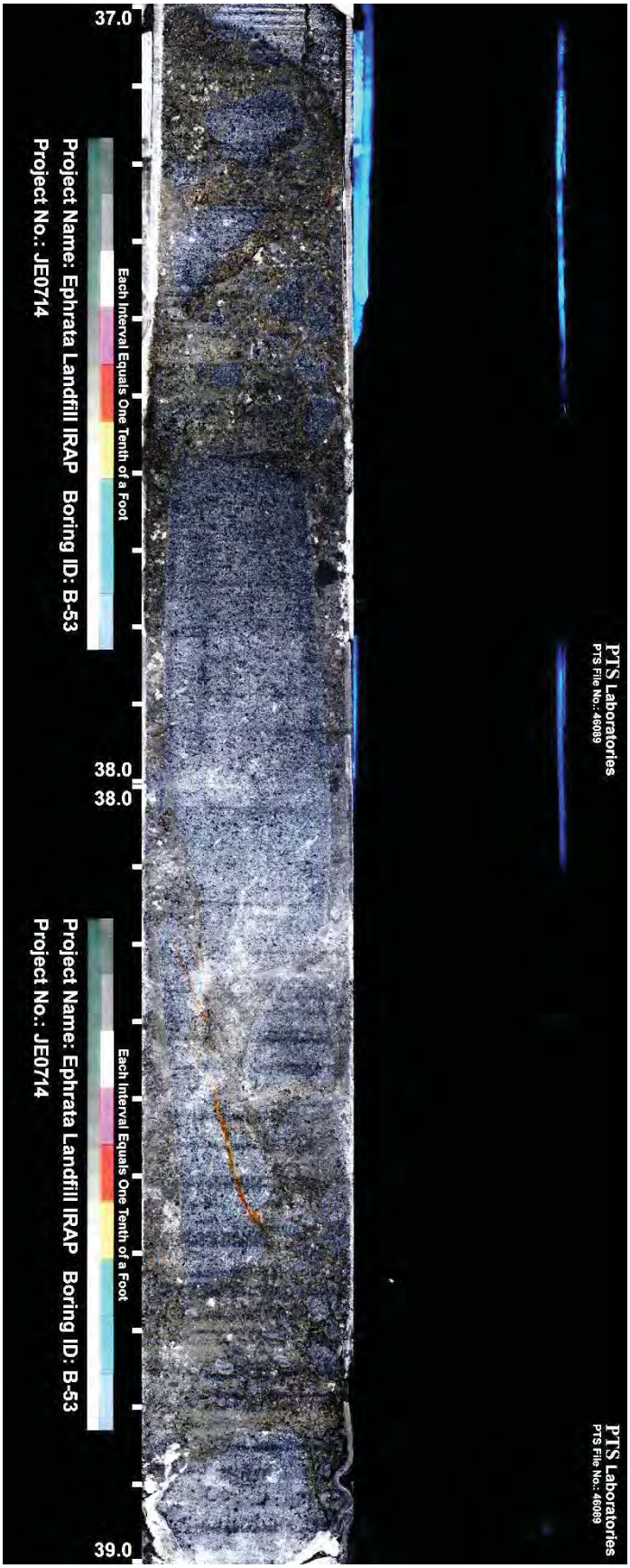
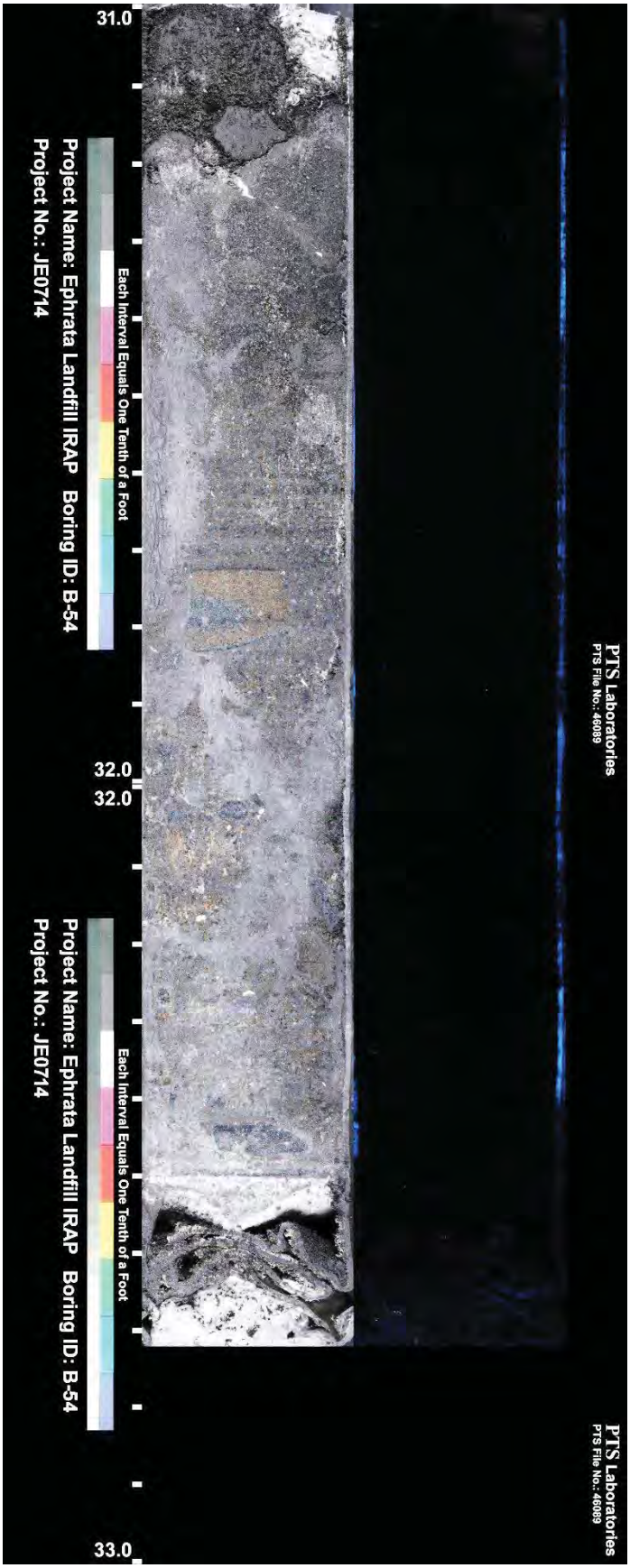
APPENDIX B
P1 ZONE CORE IMAGE



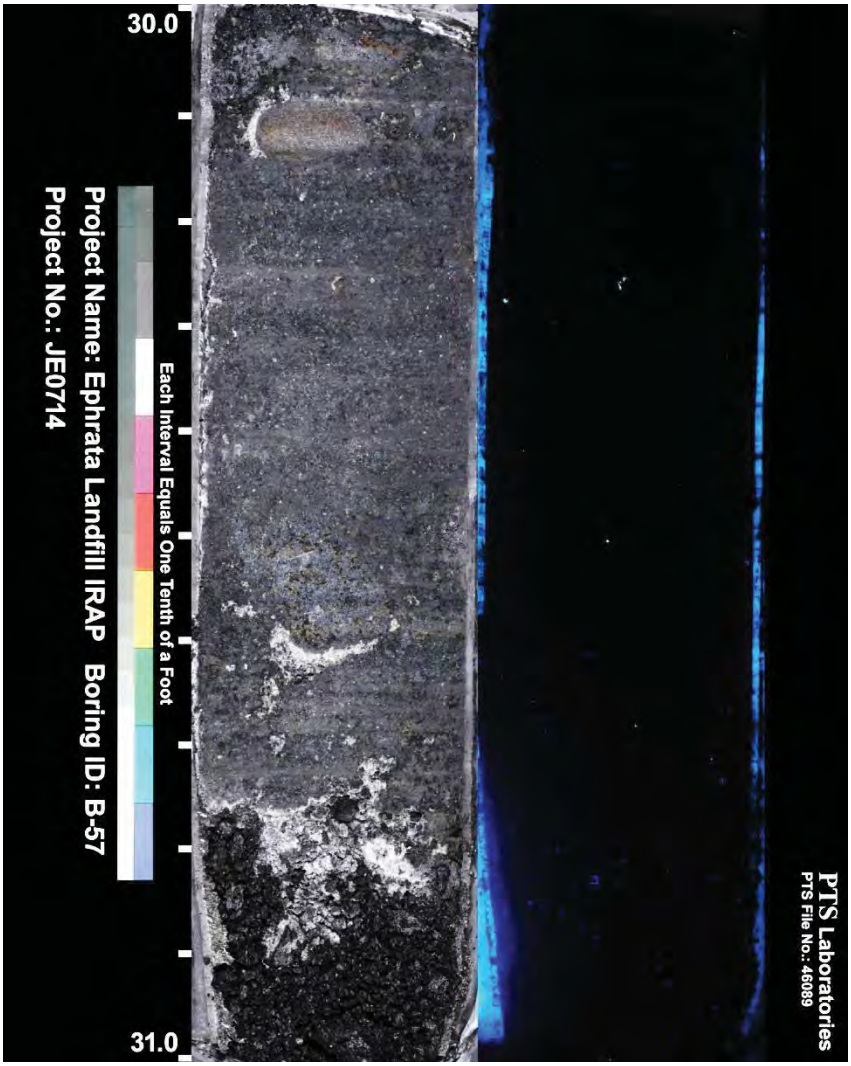
B-53 Core (MW-64p1)

White Light and UV Image



B-54 Core (MW-65p1)

White Light and UV Image

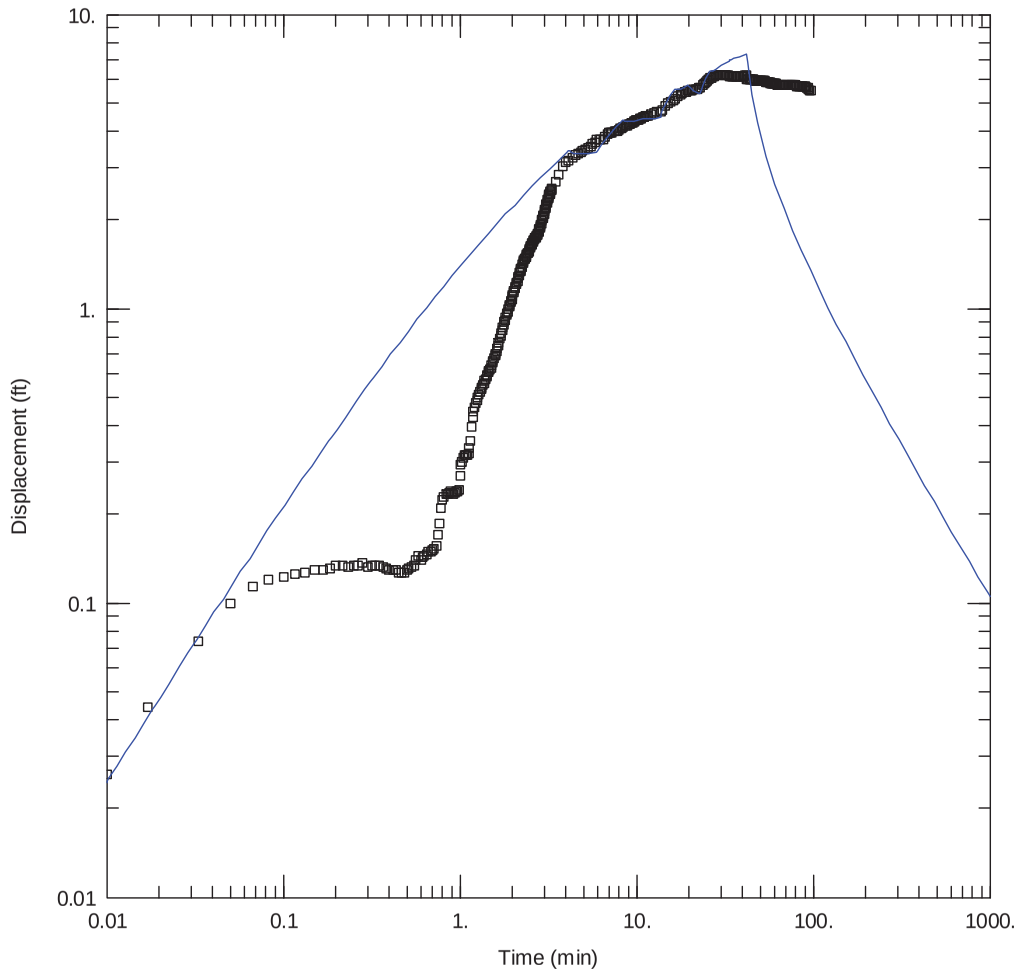


B-57 Core (MW-68p1)

White Light and UV

Much of core material may be sluff, not intact.

APPENDIX C
AQUIFER TEST ANALYSES



Obs. Wells
- MW-59p0

Aquifer Model
Confined

Solution
Dougherty-Babu

Parameters
T = 2.013 ft^2/day
S = 0.1102
Kz/Kr = 0.1
Sw = 0.
r(w) = 0.25 ft
r(c) = 0.08 ft

The storativity value (S) reported for single well tests in Atesolv is unreliable and should not be used.

Observations:
Well pumped at variable rates between 0.2 and 0.4 gpm
DD and Recovery include well-bore storage effects
At 6.2-ft DD, water level in well was likey at pump intake and water supplied at sustained rate (0.32 gpm)
Total volume pumped from well = 13.5 gallons
Availabe water in well prior to test = 1.5 gallons

Figure C-1
MW-59p0 Short Term Aquifer Test (Dougherty-Babu Analysis)

Ephrata Landfill
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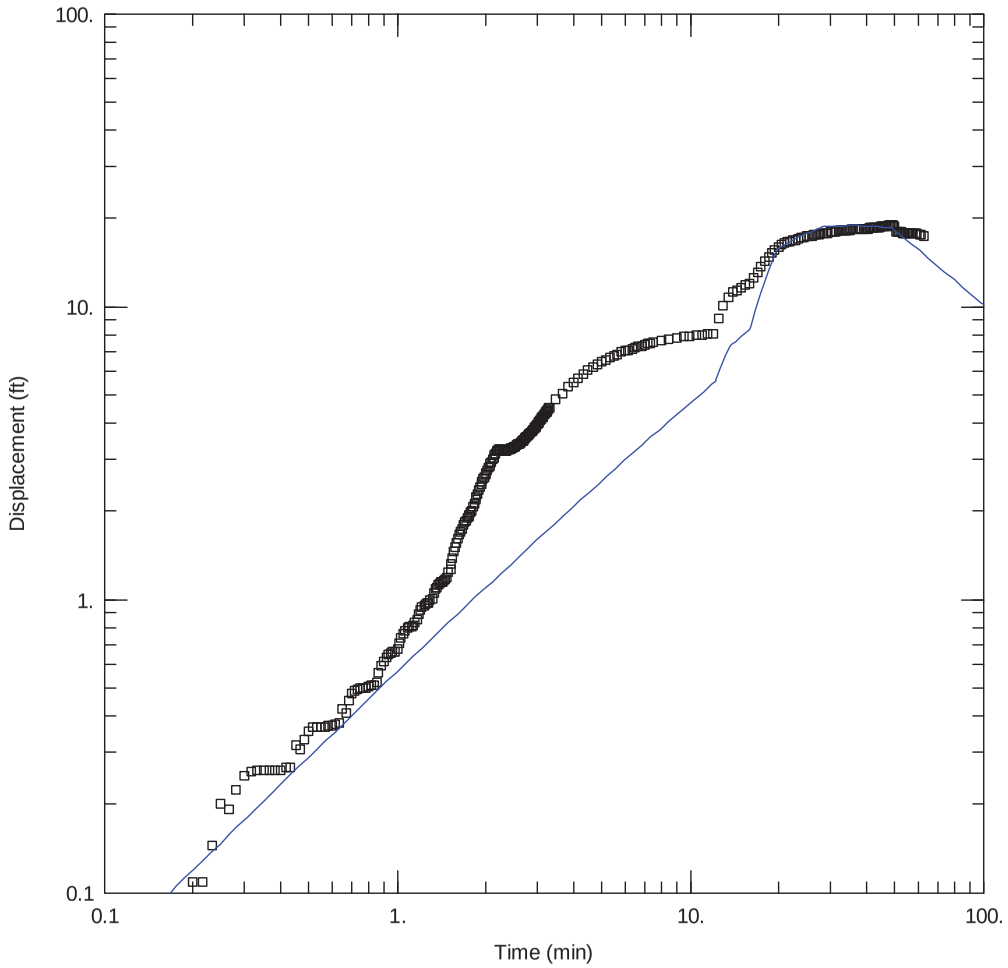

Obs. Wells
- MW-61p1

Aquifer Model
Confined

Solution
Dougherty-Babu

Parameters
T = 0.1224 ft^2/day
S = 0.02386
Kz/Kr = 0.1
Sw = 0.
r(w) = 0.25 ft
r(c) = 0.0833 ft

The storativity value (S) reported for single well tests in Atesolv is unreliable and should not be used.

Observations:
Well pumped at variable rates between < 0.1 and 0.40 gpm
DD and Recovery include well-bore strage effects
Well pumped dry after 20 minutes (unsustainable at 0.05 gpm)
Total volume pumped from well = 5.9 gallons
Availabe water in well prior to test = 3.3 gallons

Figure C-2
MW-61p1 Short Term Aquifer Test (Dougherty-Babu Analysis)

Ephrata Landfill
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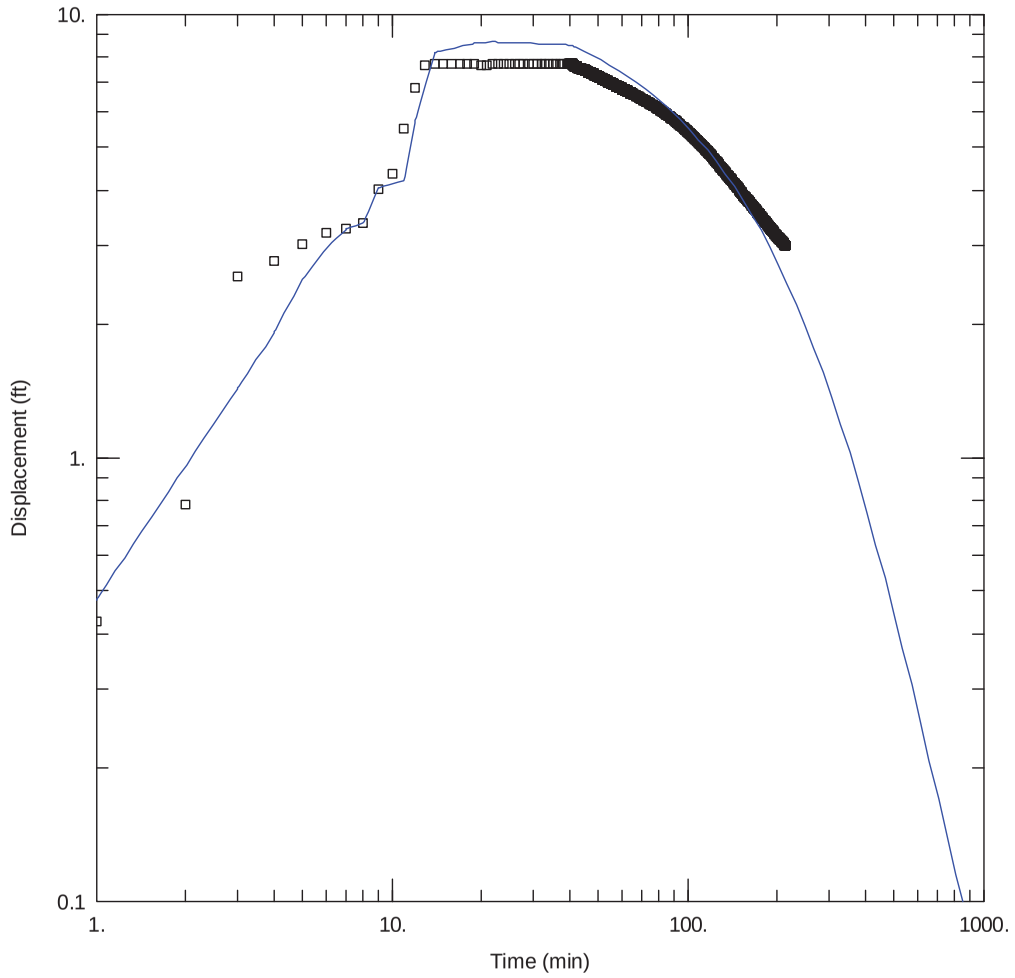

Obs. Wells
- MW-64p1

Aquifer Model
Confined

Solution
Dougherty-Babu

Parameters
T = 5.827 ft^2/day
S = 0.0001666
Kz/Kr = 0.1
Sw = 16.
r(w) = 0.33 ft
r(c) = 0.23 ft

The storativity value (S) reported for single well tests in Atesolv is unreliable and should not be used.

Observations:
Well pumped at variable rates between <0.1 and 0.9 gpm
DD and Recovery includes well-bore storage effects
At 8-ft DD, water level in well was likely at pump intake and water supplied at sustained rate (0.05 - 0.2 gpm)
Total volume pumped = 12.8 gallons
Available water in well prior to test = 6.8 gallons

Figure C-3
MW-64p1 Short Term Aquifer Test
(Dougherty-Babu Analysis)

Ephrata Landfill
JE0714

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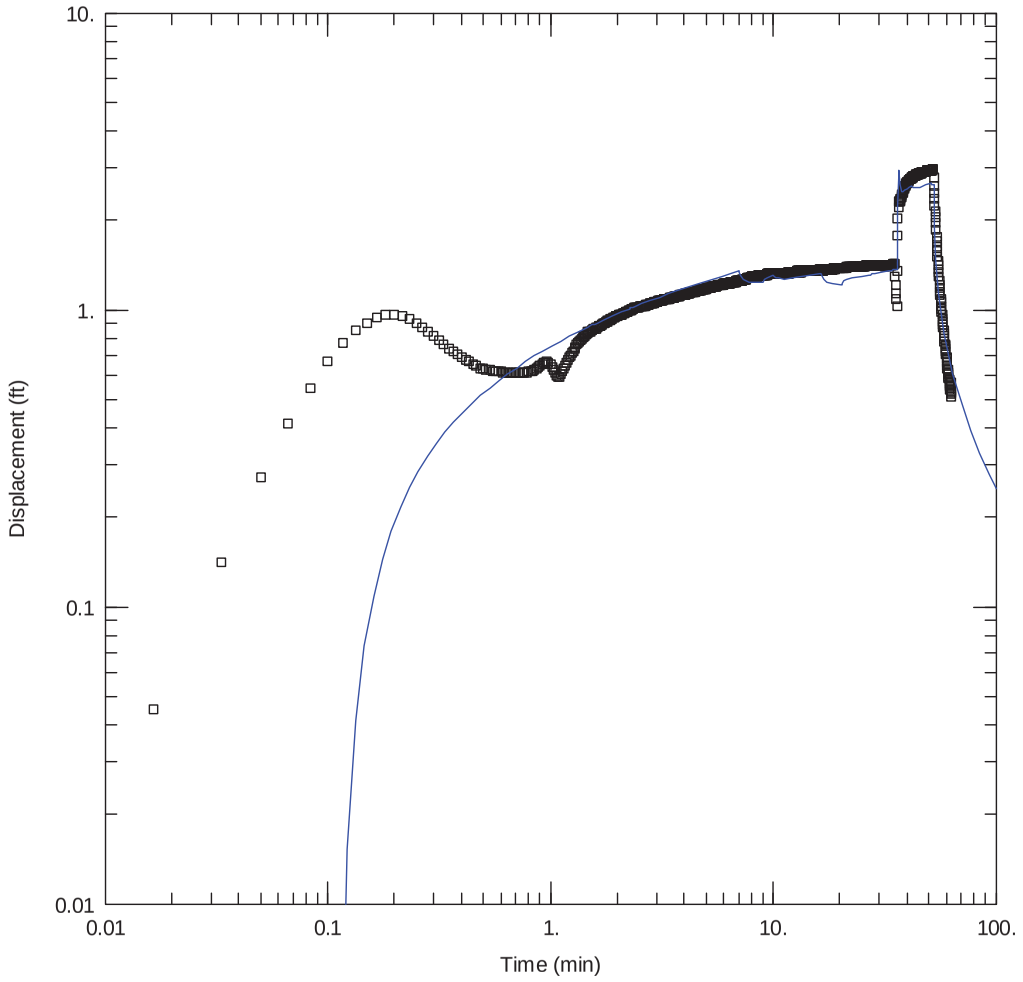


Obs. Wells
- MW-65p1

Aquifer Model
Confined

Solution
Theis

Parameters
T = 50.28 ft^2/day
S = 0.05656
Kz/Kr = 0.1
b = 5. ft

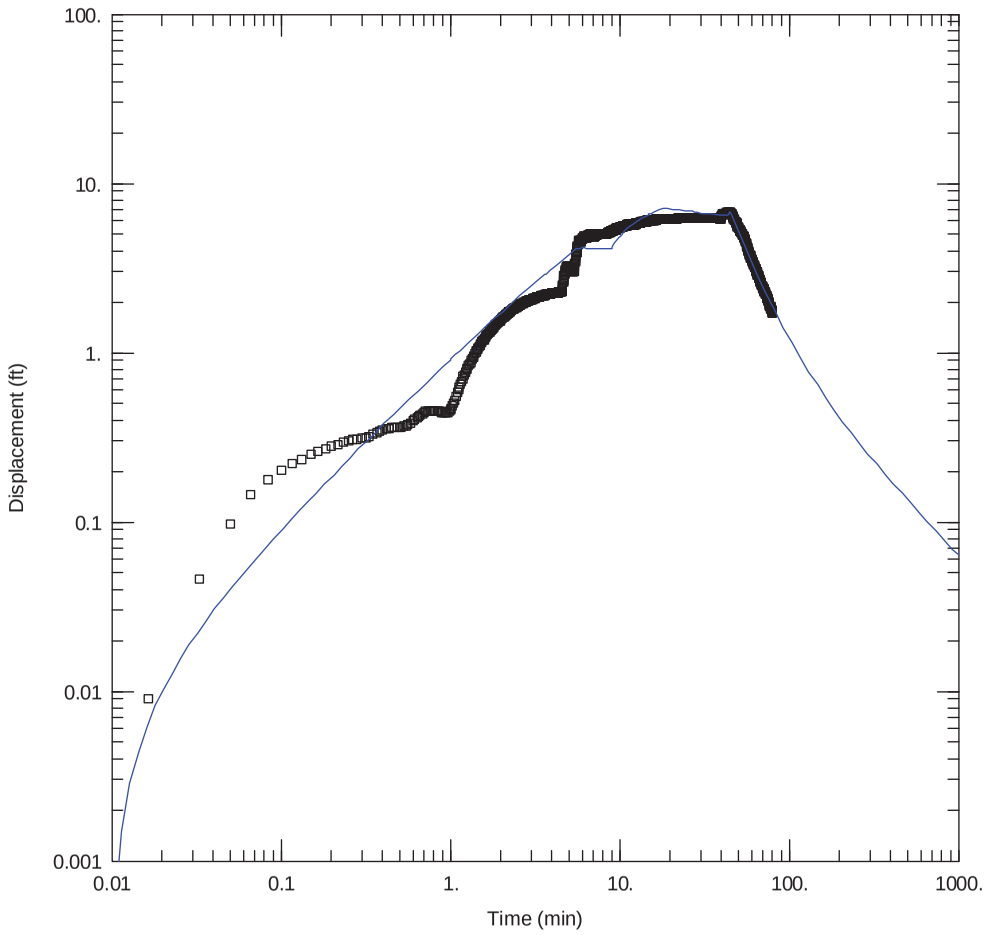
The storativity value (S) reported for single well tests in Atesolv is unreliable and should not be used.

Observations:
Well pumped at variable rates between 0.7 to 2.7 gpm

Figure C-4
MW-65p1 Short Term Aquifer Test (Theis Analysis)

Ephrata Landfill
JE0714

PgG



Obs. Wells
- MW-66p1

Aquifer Model
Confined

Solution
Dougherty-Babu

Parameters

T	= 4.388 ft^2/day
S	= 0.00282
Kz/Kr	= 0.01
Sw	= 0.
r(w)	= 0.33 ft
r(c)	= 0.167 ft

The storativity value (S) reported for single well tests in Atesolv is unreliable and should not be used.

Observations:
Well pumped at variable rates between 0.2 and 0.7 gpm
DD and Recovery include well-bore storage effects
Pumped dry after 45 minutes
Total volume pumped = 17.2 gallons
Available water in well prior to test = 5.5 gallons

Figure C-5
MW-66p1 Short Term Aquifer Test
(Dougherty-Babu Analysis)

Ephrata Landfill
JE0714

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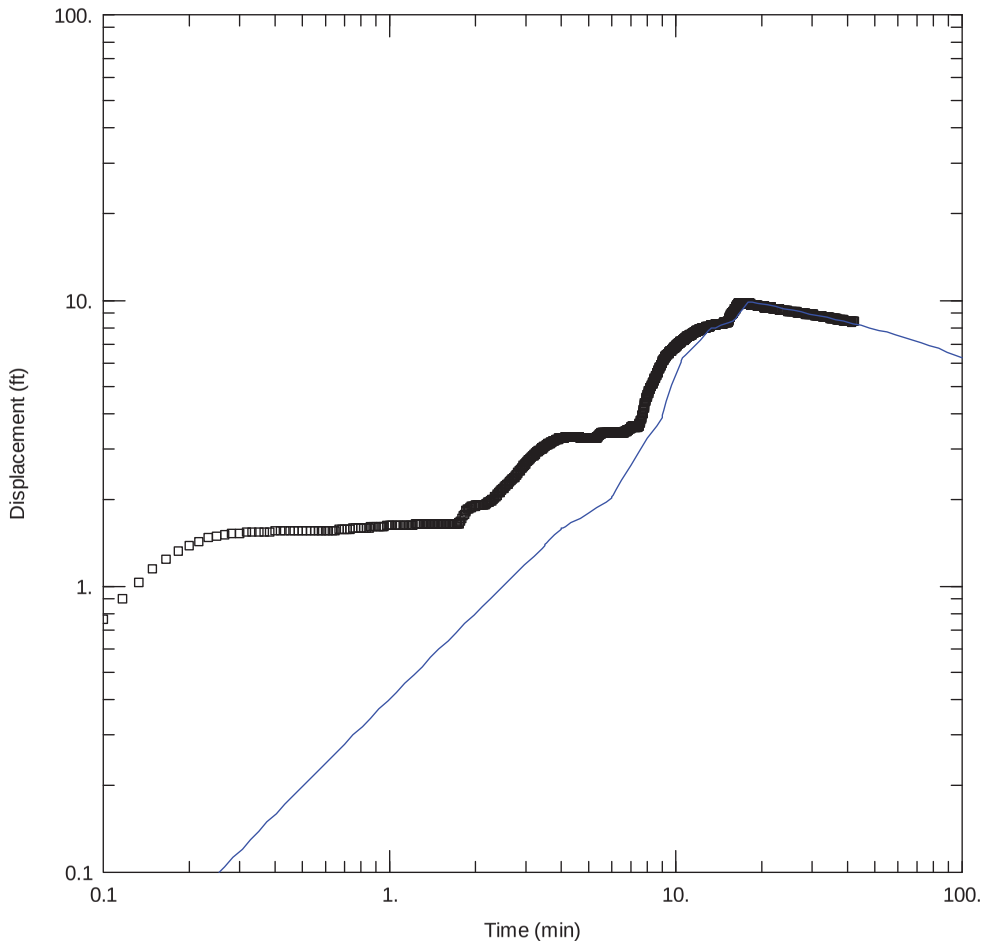

Obs. Wells
□ MW-67p1

Aquifer Model
Confined

Solution
Dougherty-Babu

Parameters
T = 0.2036 ft^2/day
S = 0.123
Kz/Kr = 0.1
Sw = 0.225
r(w) = 0.33 ft
r(c) = 0.226 ft

The storativity value (S) reported for single well tests in Atesolv is unreliable and should not be used.

Observations:
Well pumped at variable rates between 0.3 and 1.9 gpm
DD and Recovery includes well-bore storage effectss
Well pumped dry after after 18 minutes
Total volume pumped = 14.5 gallons
Available water in well prior to test = 7 gallons

Figure C-6
MW-67p1 Short Term Aquifer Test (Dougherty-Babu Analysis)

Ephrata Landfill
JE0714

PgG

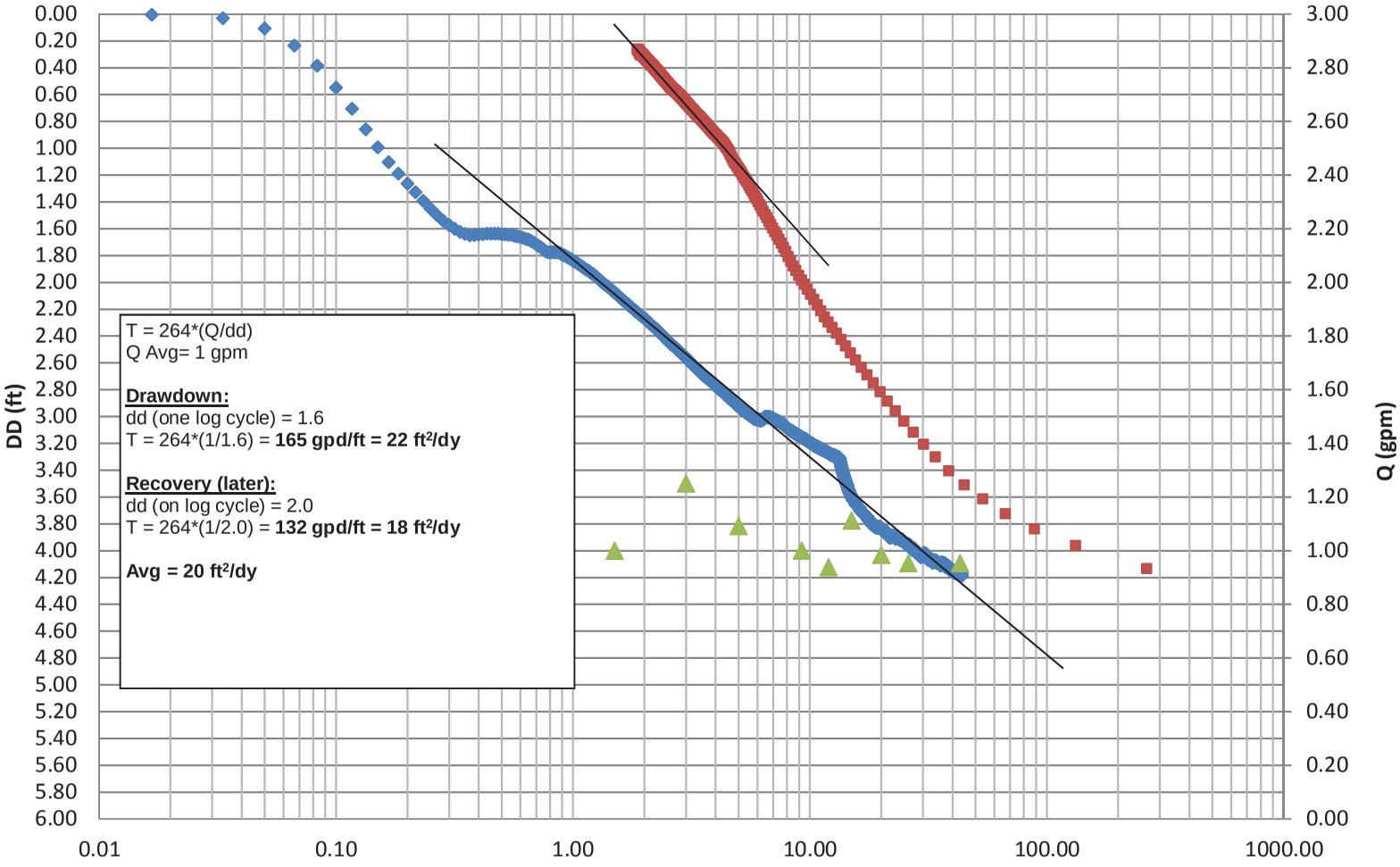

Figure C-7
MW-68p1 Short Term Aquifer Test
(Cooper-Jacob Analysis)

Ephrata Landfill
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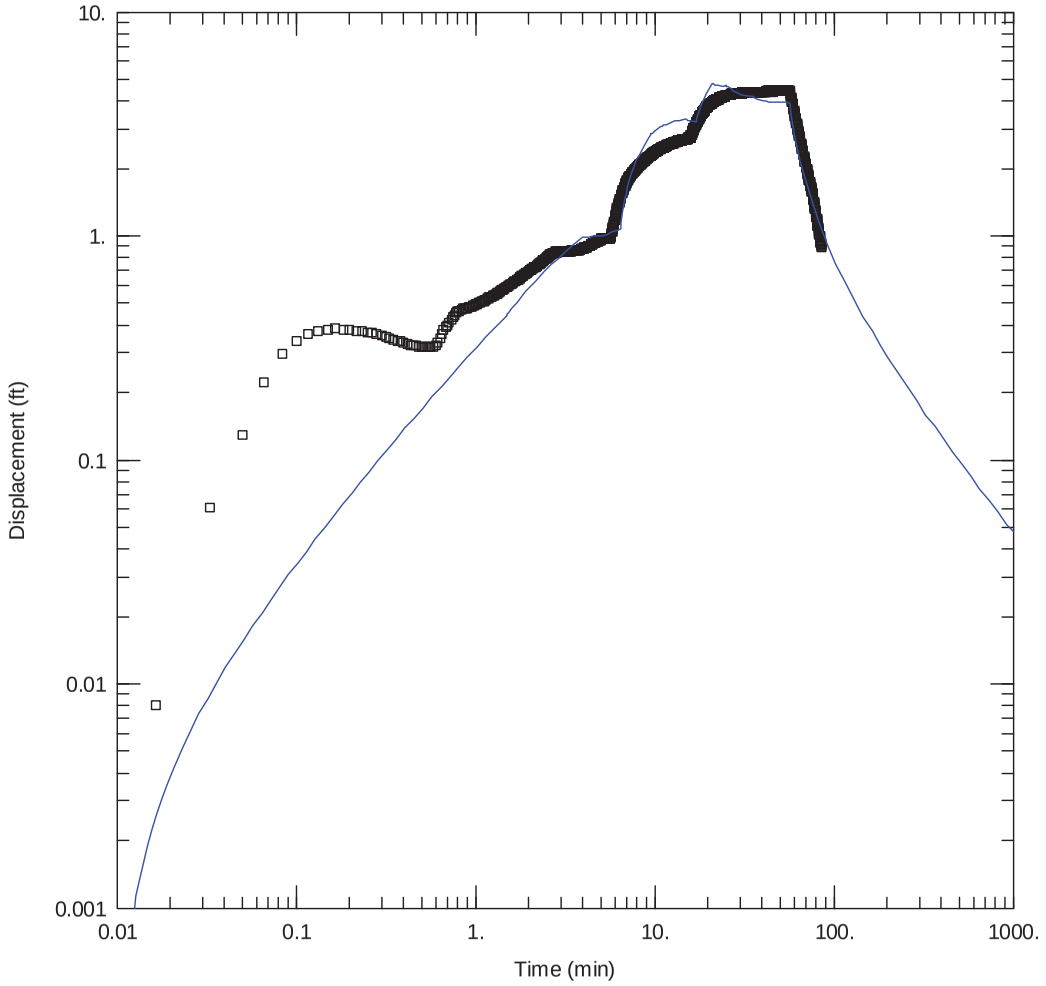
PgG



Obs. Wells
- MW-69p1

Aquifer Model
Confined

Solution
Dougherty-Babu

Parameters
T = 8.856 ft^2/day
S = 0.02239
Kz/Kr = 0.1
Sw = 0.
r(w) = 0.308 ft
r(c) = 0.1789 ft

The storativity value (S) reported for single well tests in Atesolv is unreliable and should not be used.

Observations:
Well pumped at variable rates between 0.2 and 1 gpm
DD and Recovery include well-bore storage effects
At 4.4 ft DD, water level in well likely at pump intake and water supplied at sustained rate (0.35 gpm)
Total volume pumped from well = 26 gallons
Available water in well prior to test = 5 gallons

Figure C-8
MW-69p1 Short Term Aquifer Test (Dougherty-Babu Analysis)

Ephrata Landfill
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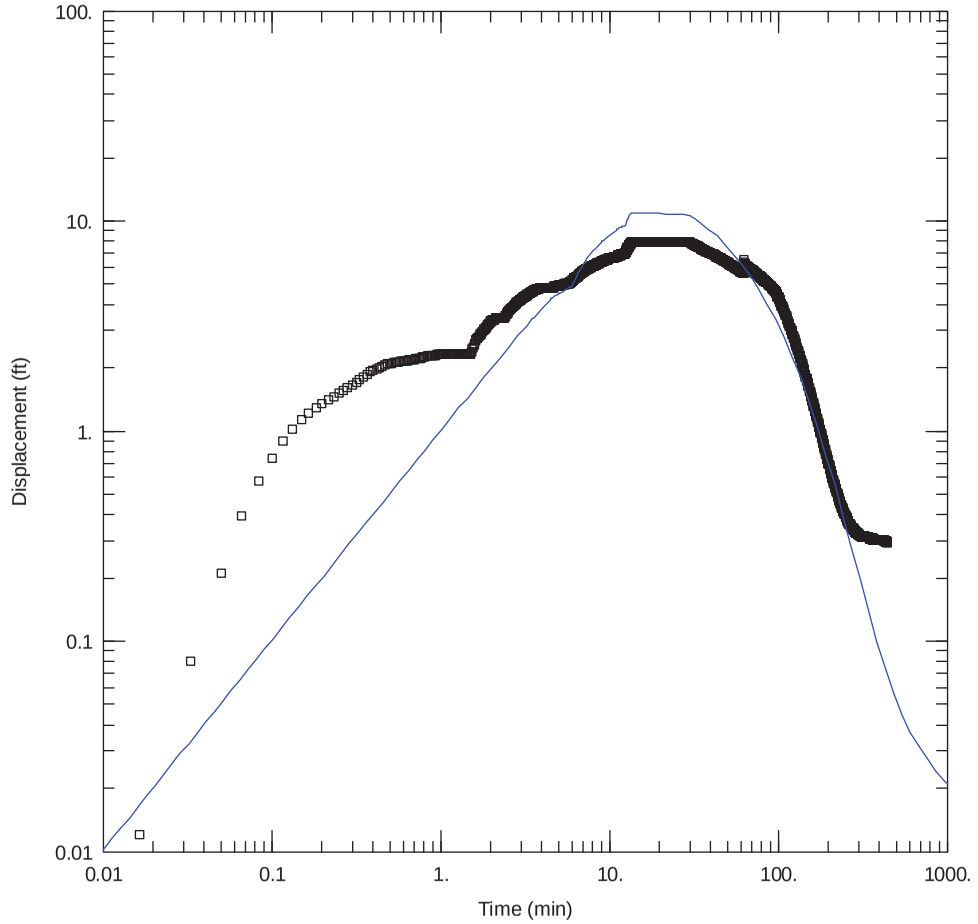
PgG



Obs. Wells
- MW-70p1

Aquifer Model
Confined

Solution
Dougherty-Babu

Parameters

T	= 7.774 ft^2/day
S	= 0.8919
Kz/Kr	= 0.1
Sw	= 21.4
r(w)	= 0.3326 ft
r(c)	= 0.1667 ft

The storativity value (S) reported for single well tests in Atesolv is unreliable and should not be used.

Observations:
Well pumped at variable rates between 0.1 and 1 gpm
DD and Recovery includes well-bore storage effects
At 8-ft DD, water level in well was likely at pump intake and water supplied at sustained rate (0.1 gpm)
Dip in recovery curve from pump removal
Total volume of water pumped from well = 9 gallons
Available water in well prior to test = 6 gallons

Figure C-9
MW-70p1 Short Term Aquifer Test (Dougherty-Babu Analysis)

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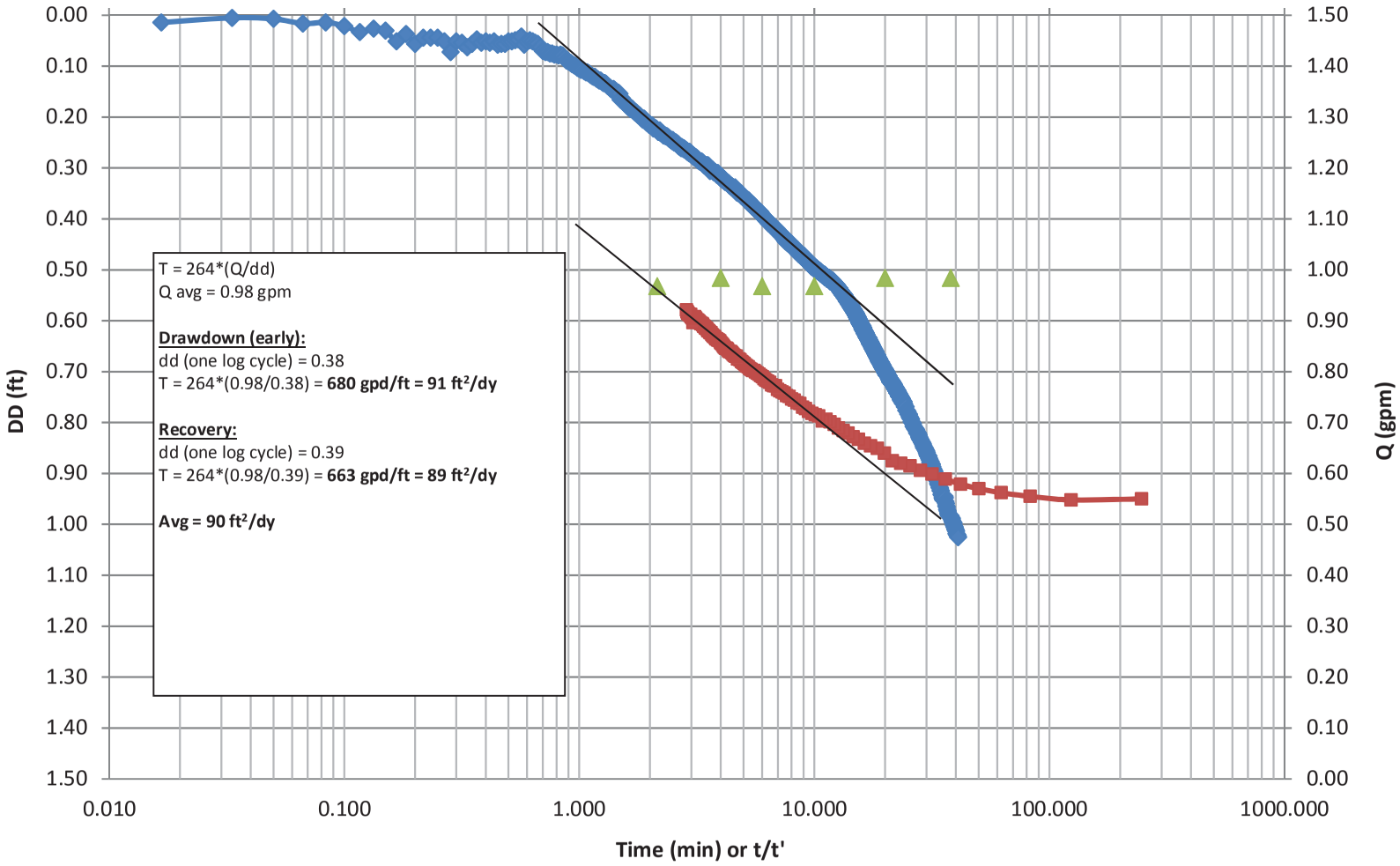

Drawdown
Recovery
Q (gpm)

Observations:
Boundary effect in drawdown after 12 minutes

Figure C-10
MW-60p2 Short Term Aquifer Test
(Cooper-Jacob Analysis)

Ephrata Landfill
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PgG

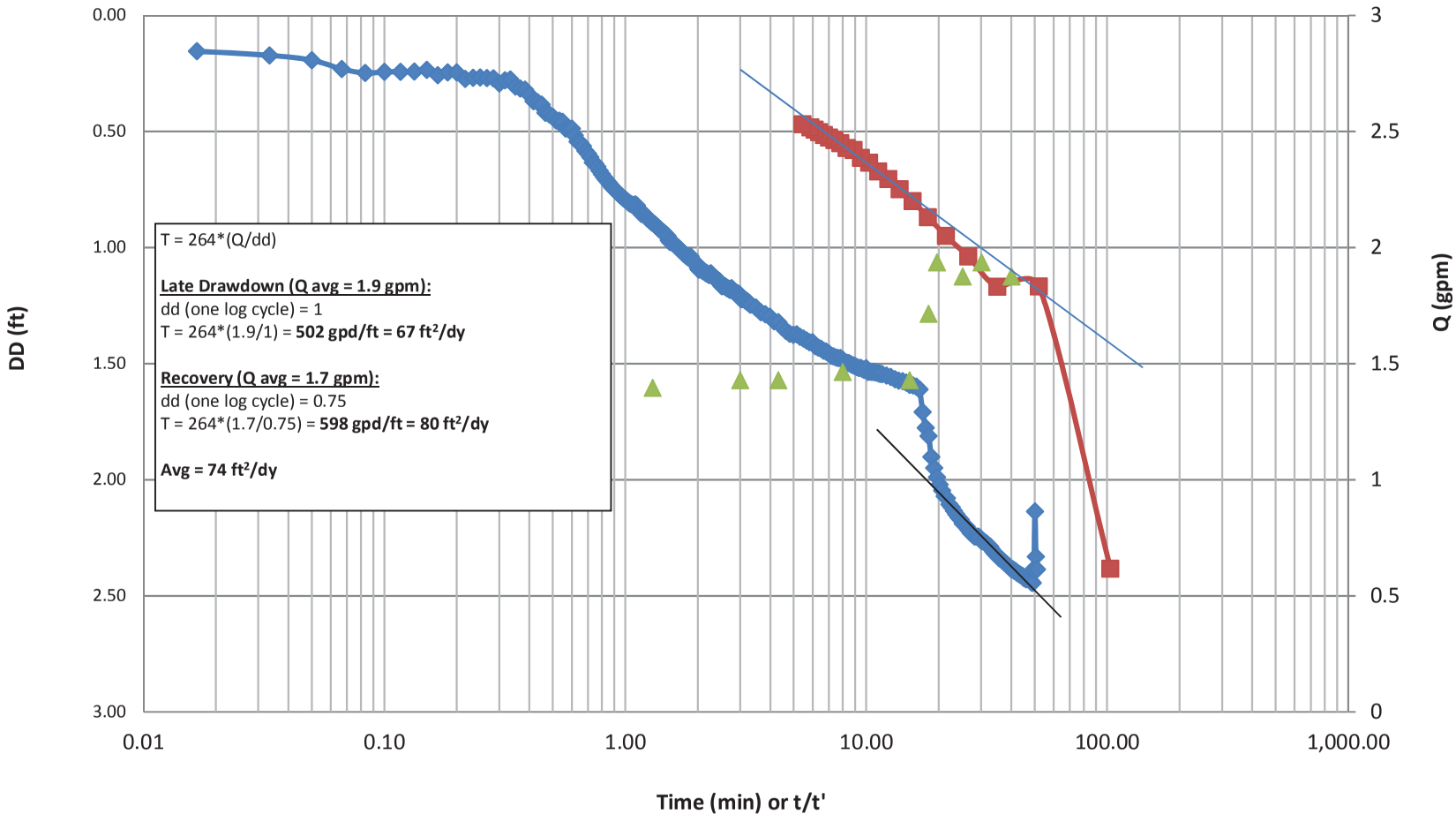

Figure C-11
MW-57b Short Term Aquifer Test
(Cooper-Jacob Analysis)

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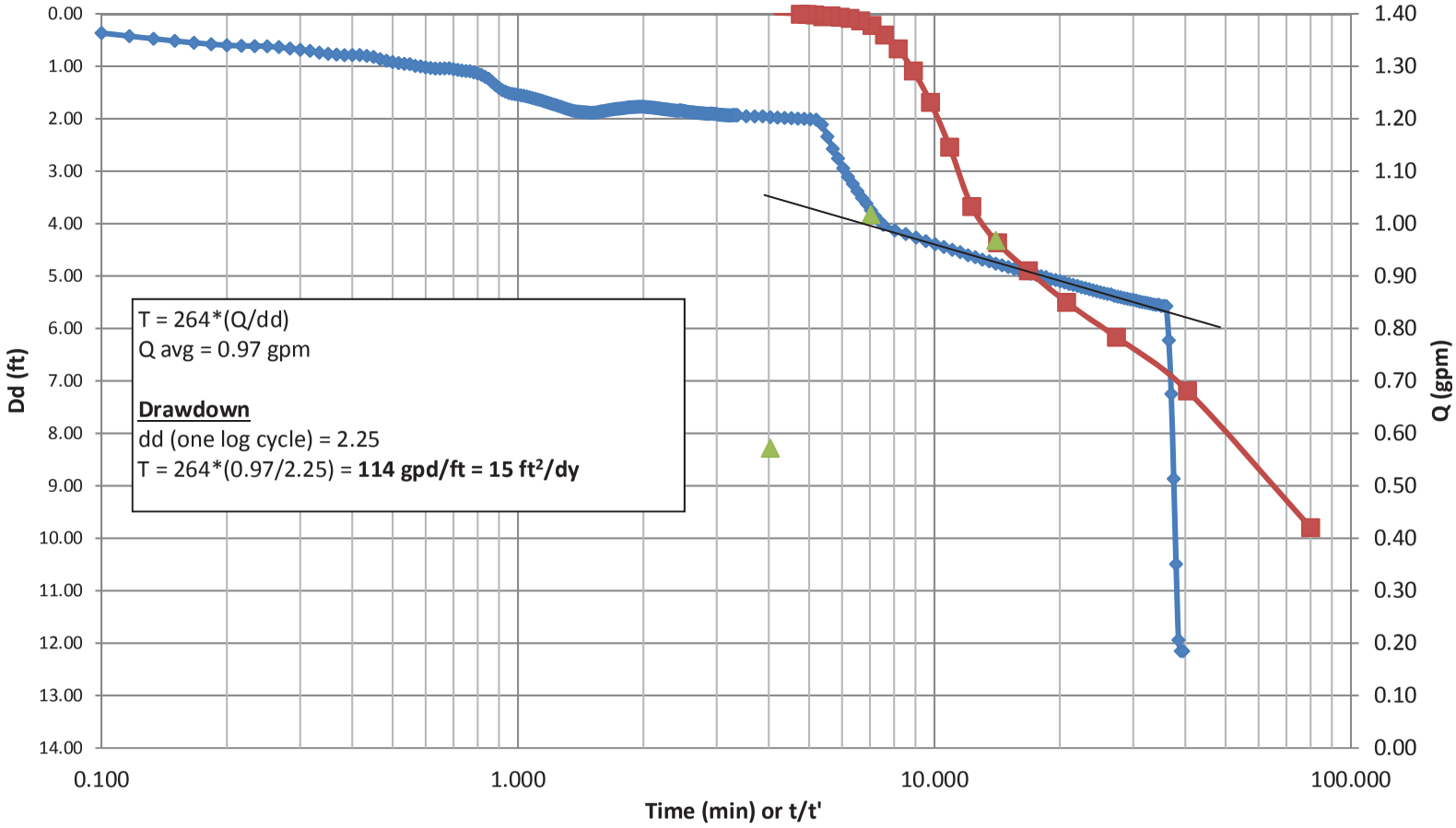
PgG



Drawdown
Recovery
Q (gpm)

Observations
Discharge pipe cut at 35 min to filtered for sample - resulted in high Q and pump cavitation.

Quick recovery may indicate leaky aquitard.

Figure C-12
MW-63b Short Term Aquifer Test
(Cooper-Jacob Analysis)

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PgG

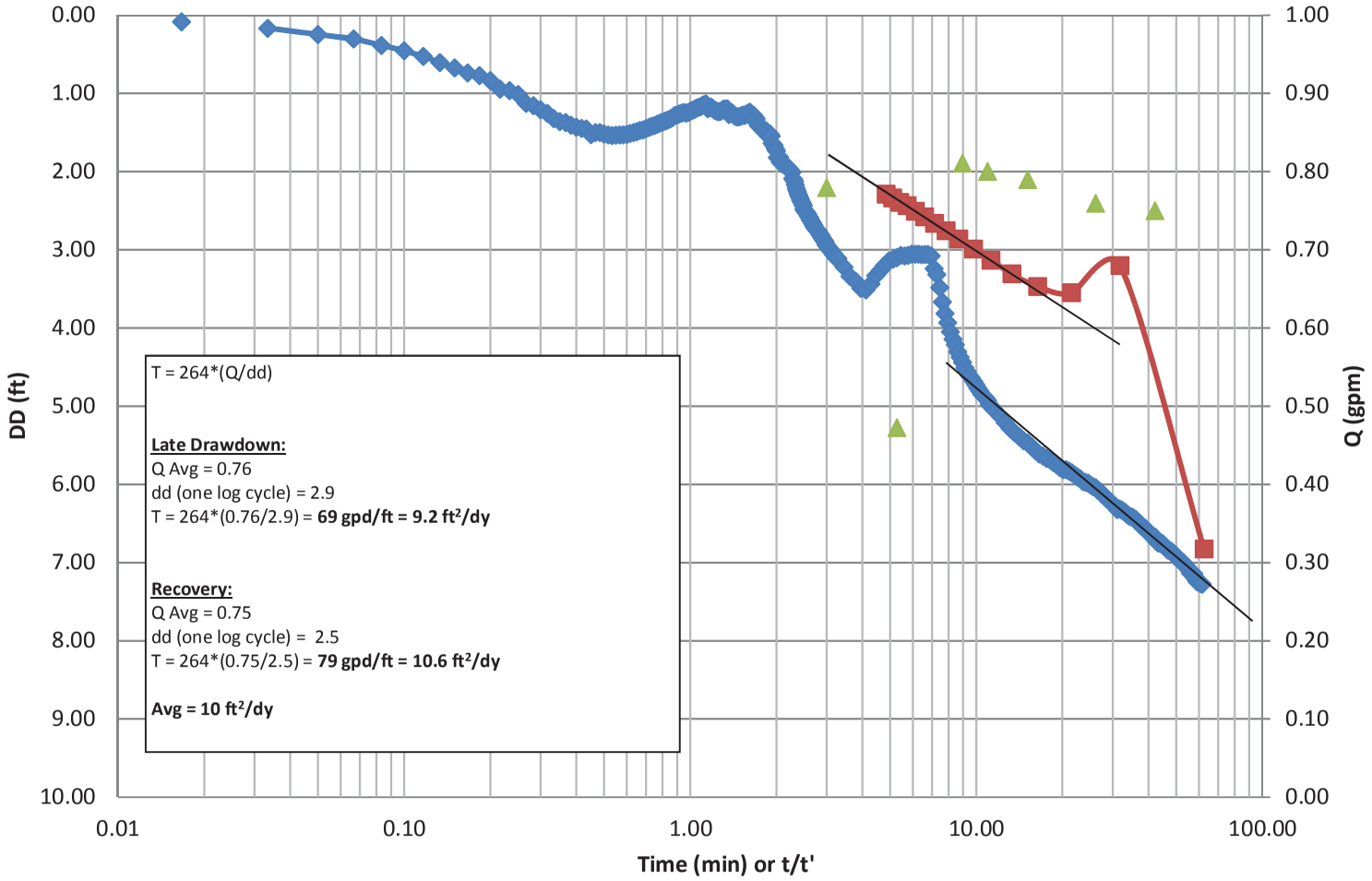

Figure C-13
MW-58c Short Term Aquifer Test
(Cooper-Jacob Analysis)

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PgG

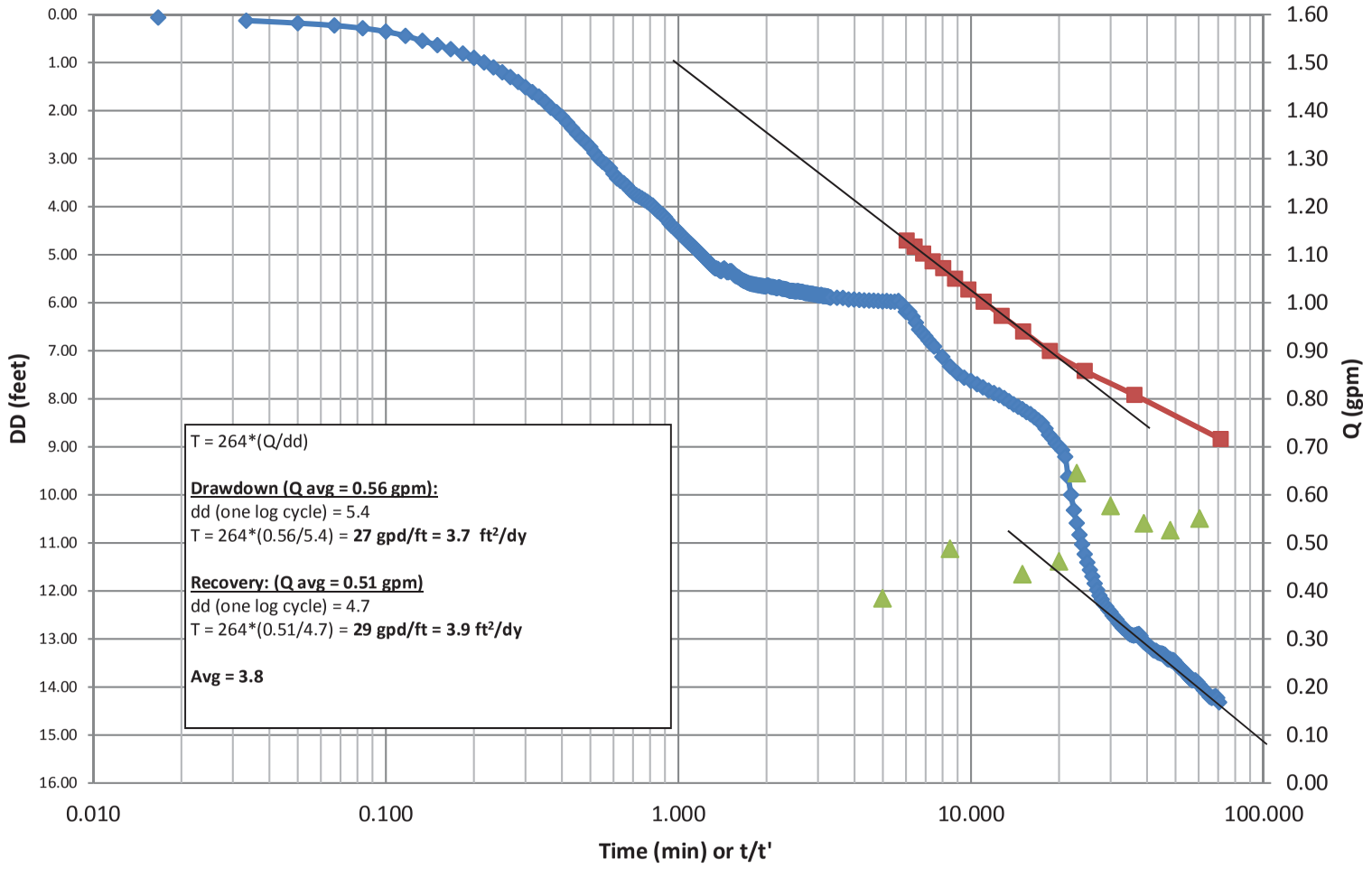

Figure C-14
MW-62c Short Term Aquifer Test
(Cooper-Jacob Analysis)

Ephrata Landfill
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PgG

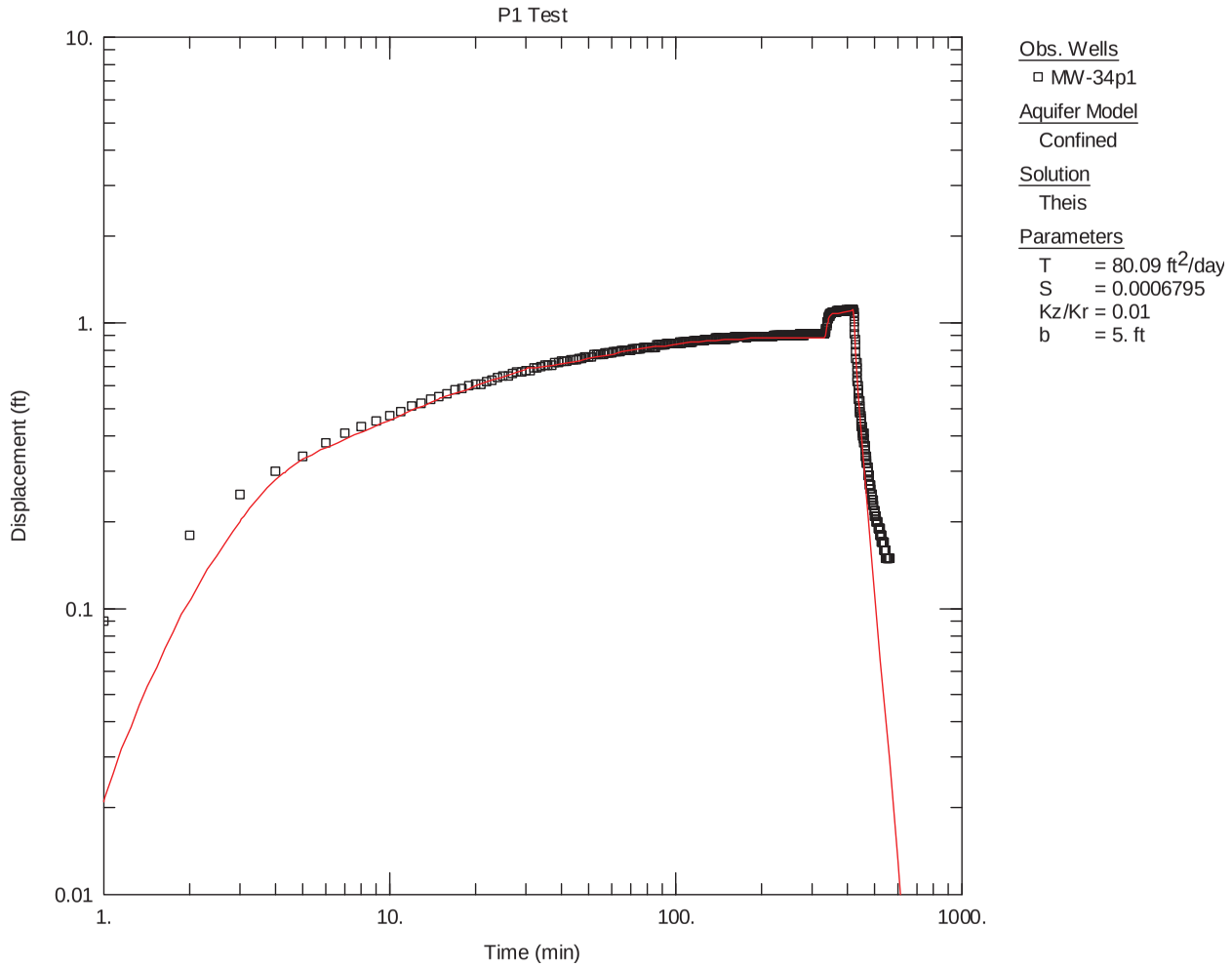

Figure C-15
MW-34p1 (Obs) - Long Term Pumping Test of MW-65p1 (Theis Analysis)

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PgG

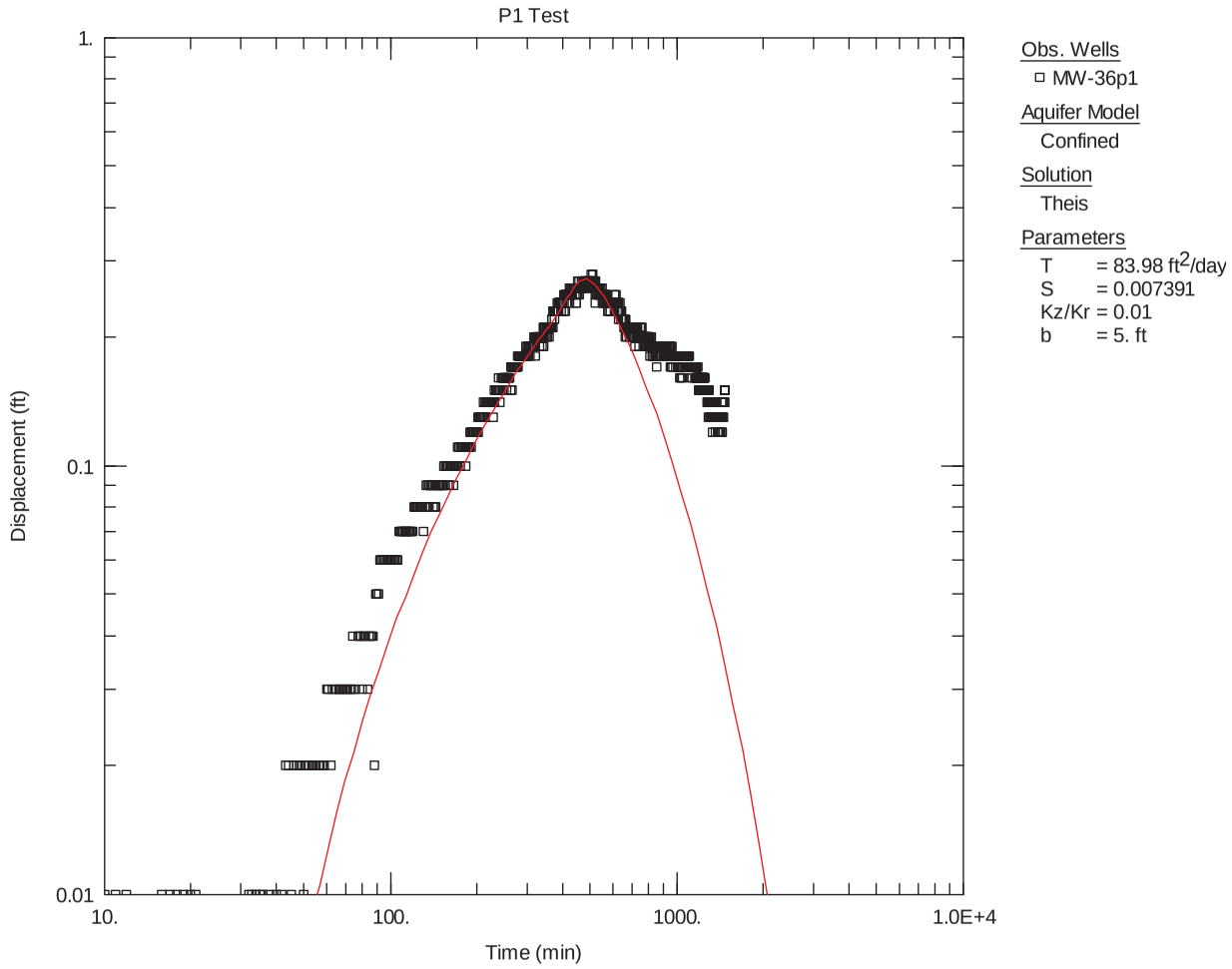

Figure C-16
MW-36p1 (Obs) - Long Term Pumping Test of MW-65p1 (Theis Analysis)

Ephrata Landfill
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PgG

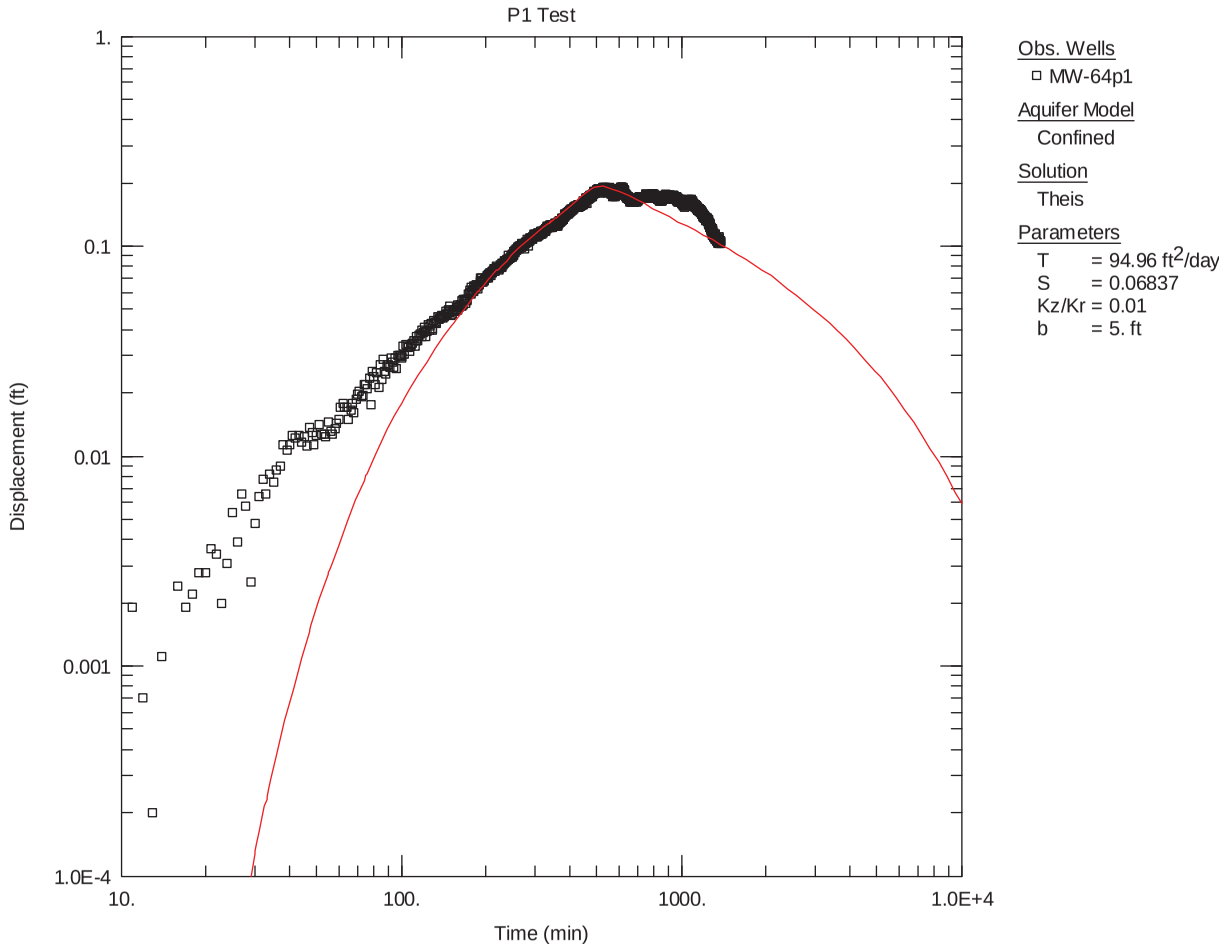

Figure C-17
MW-64p1 (Obs) - Long Term Pumping Test of MW-65p1 (Theis Analysis)

Ephrata Landfill
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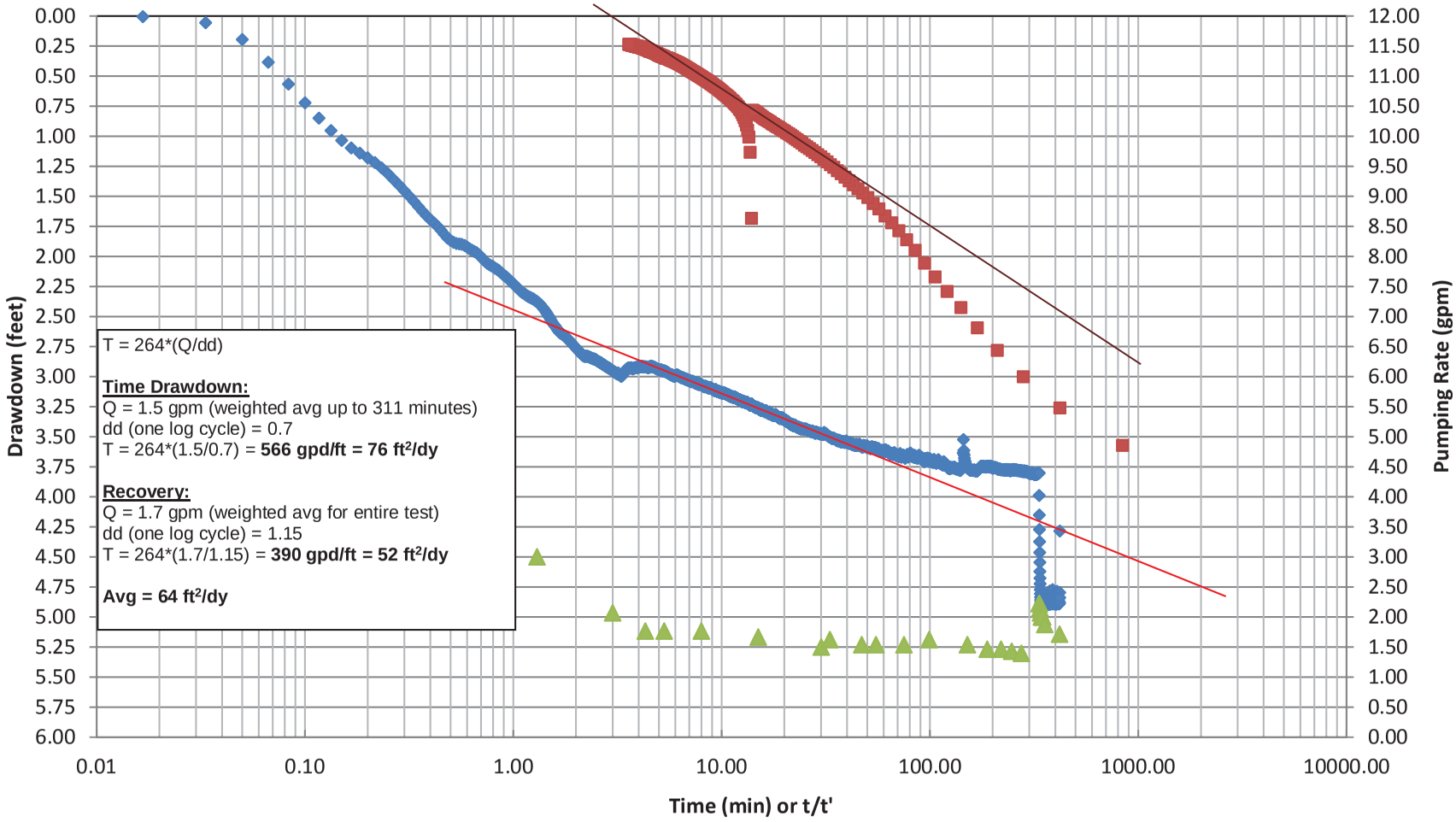
PgG



◆ Drawdown (pumping)

■ Recovery (not pumping)

▲ Pumping Rate (gpm)

Observations:
Dip in recovery from removal of pump.

Figure C-18
MW-65p1 Long Term Aquifer Test
(Cooper-Jacob Analysis)

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JE0714

PgG

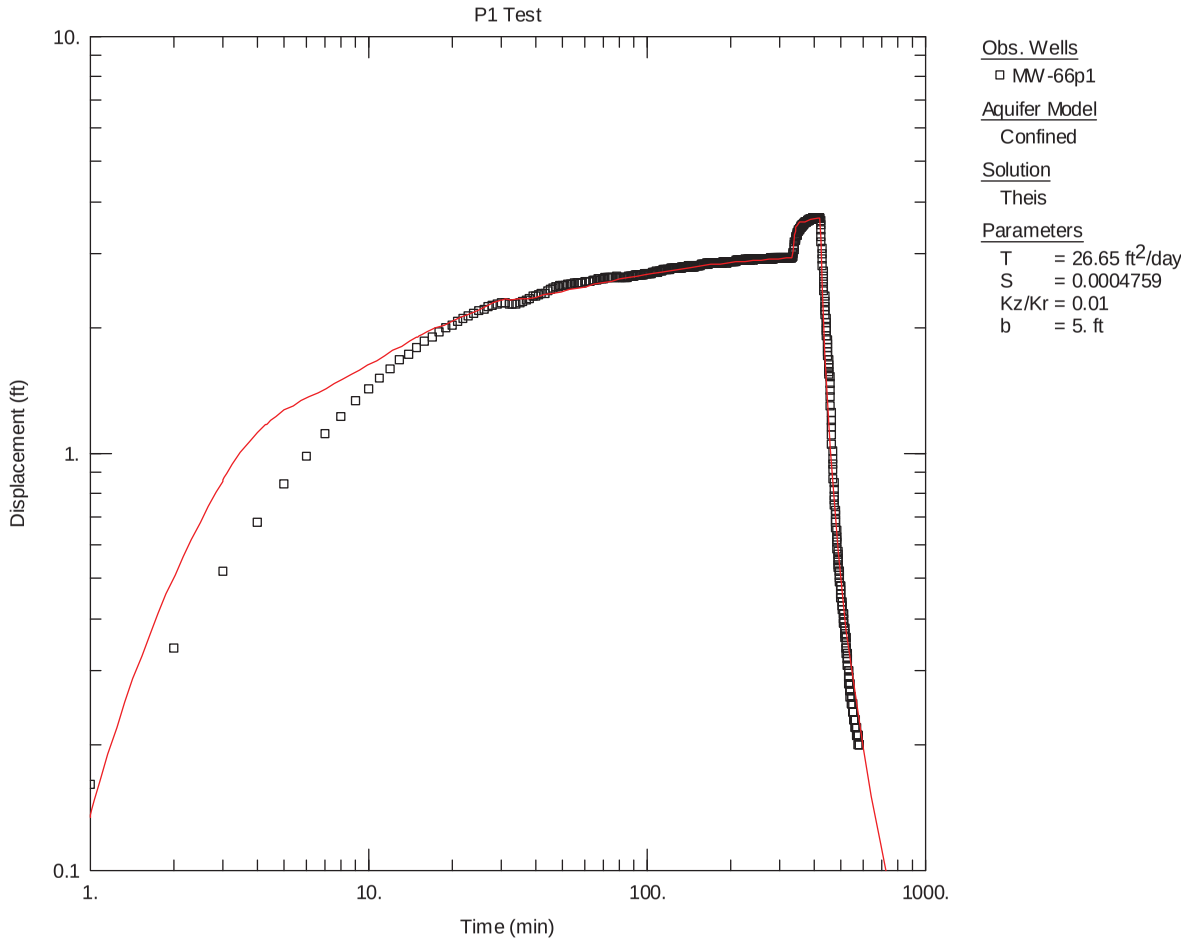

Figure C-19
MW-66p1 (Obs) - Long Term Pumping Test of MW-65p1 (Theis Analysis)

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PgG

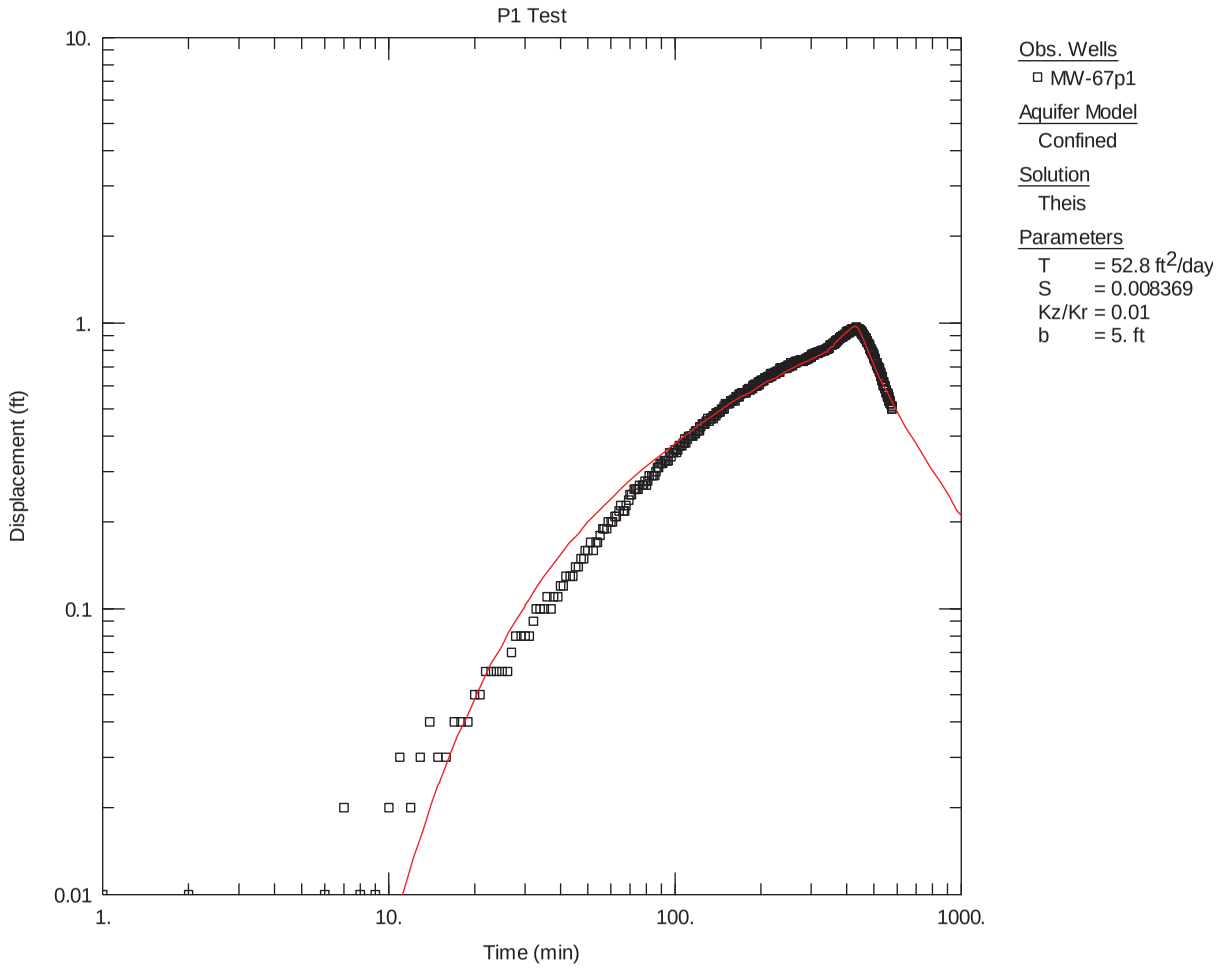

Figure C-20
MW-67p1 (Obs) - Long Term Pumping Test of MW-65p1 (Theis Analysis)

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PgG

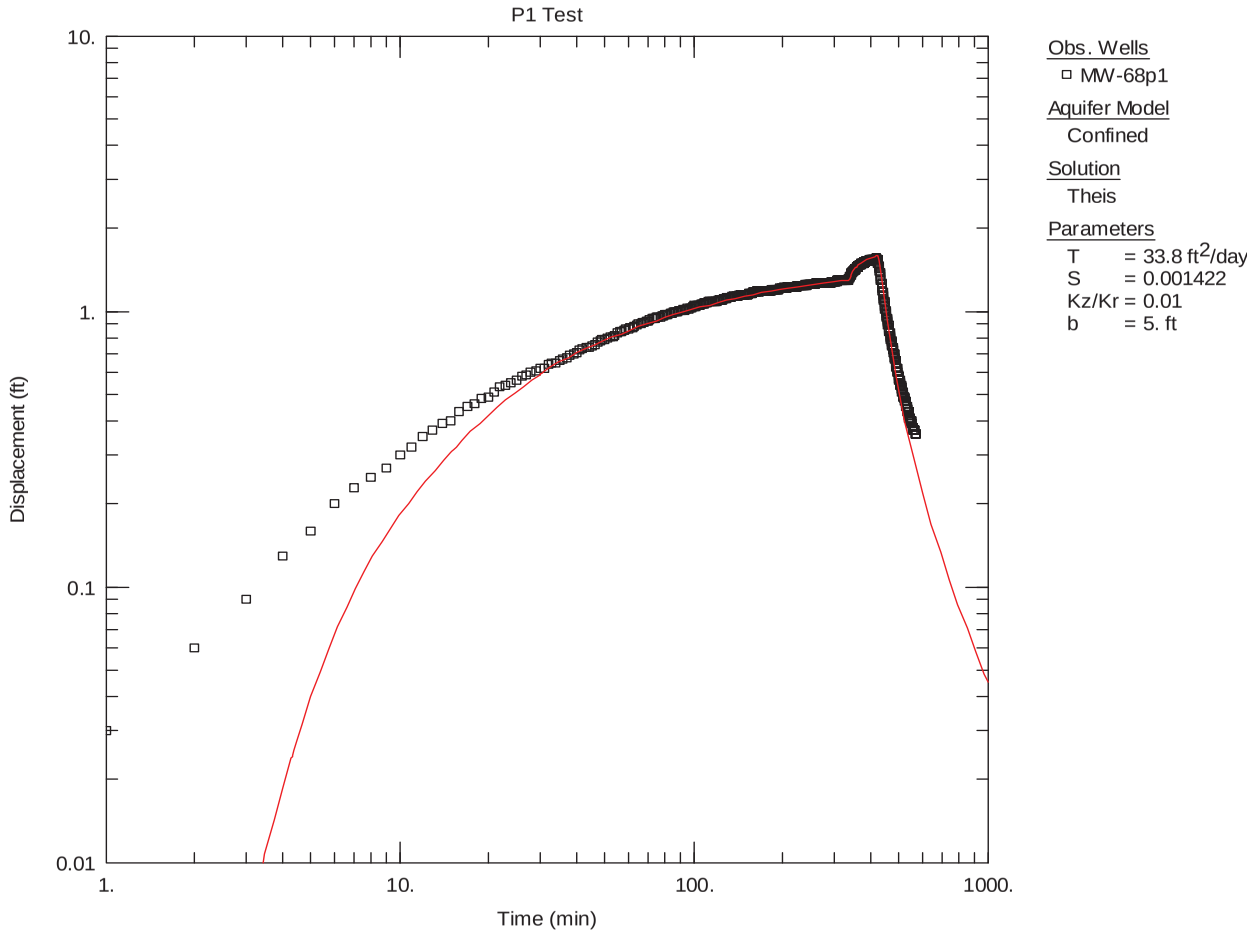

Figure C-21
MW-68p1 (Obs) - Long Term Pumping Test of MW-65p1 (Theis Analysis)

Ephrata Landfill
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PgG

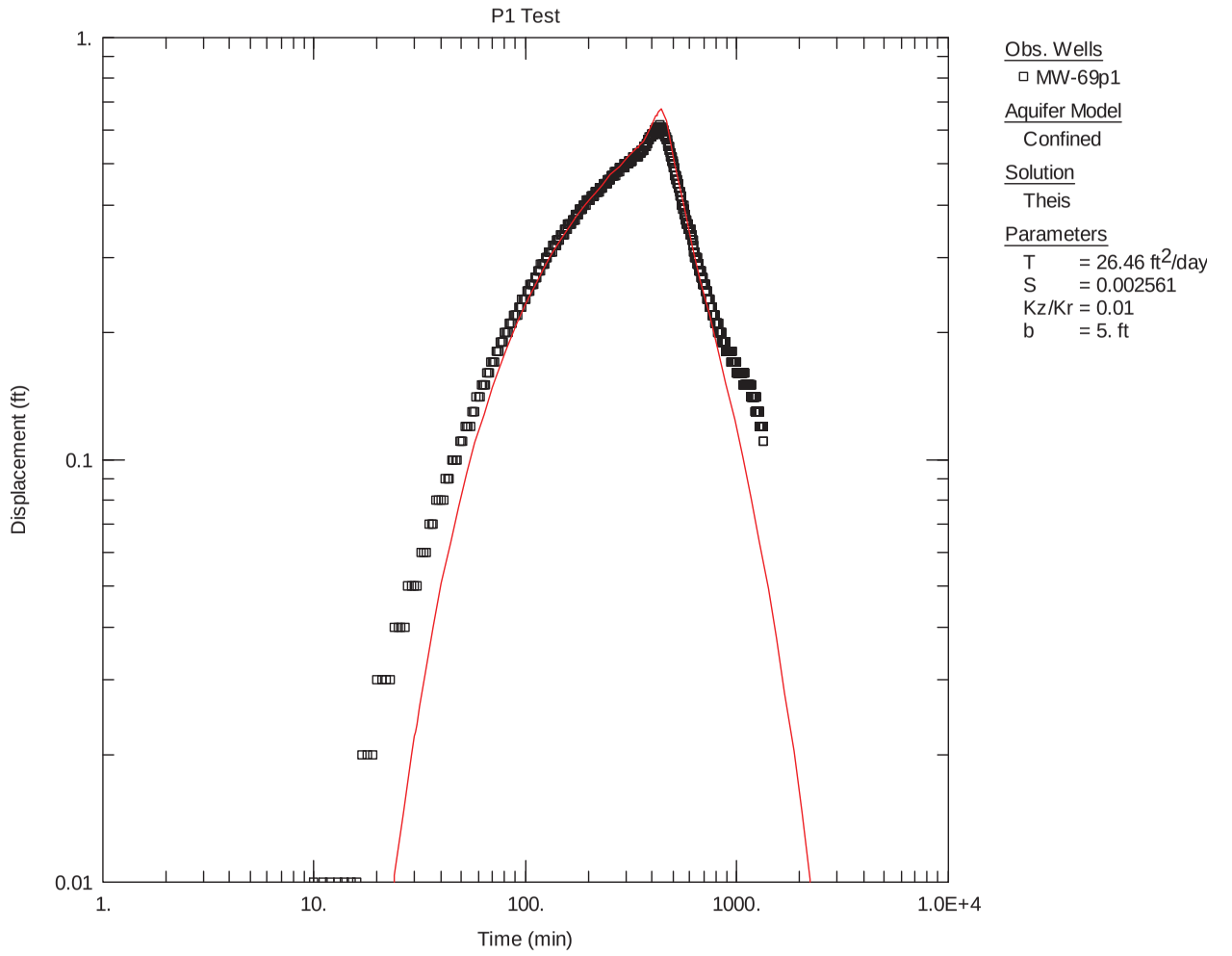


Figure C-22
MW-69p1 (Obs) - Long Term Pumping Test of MW-65p1 (Theis Analysis)

Ephrata Landfill
JE0714

PgG

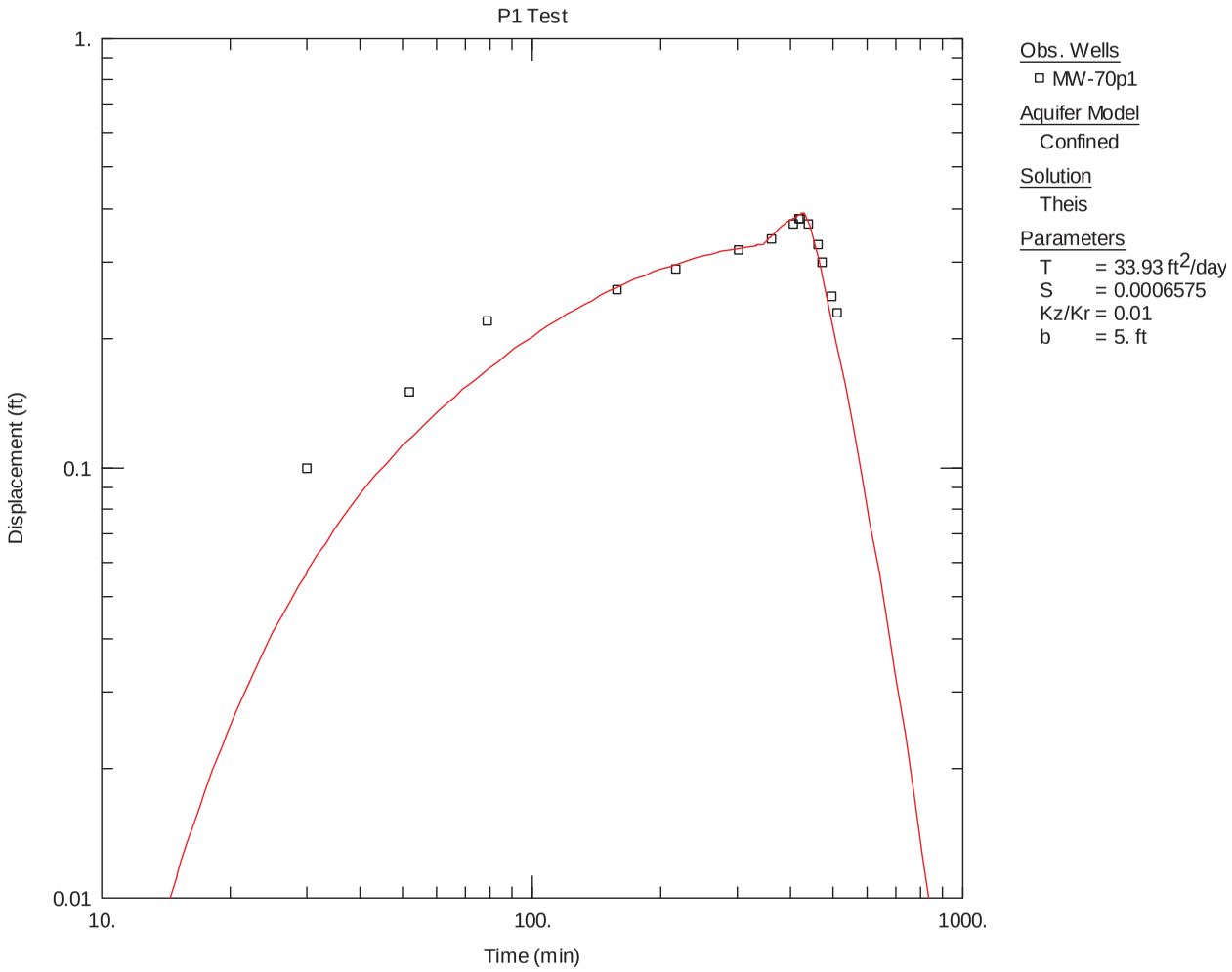
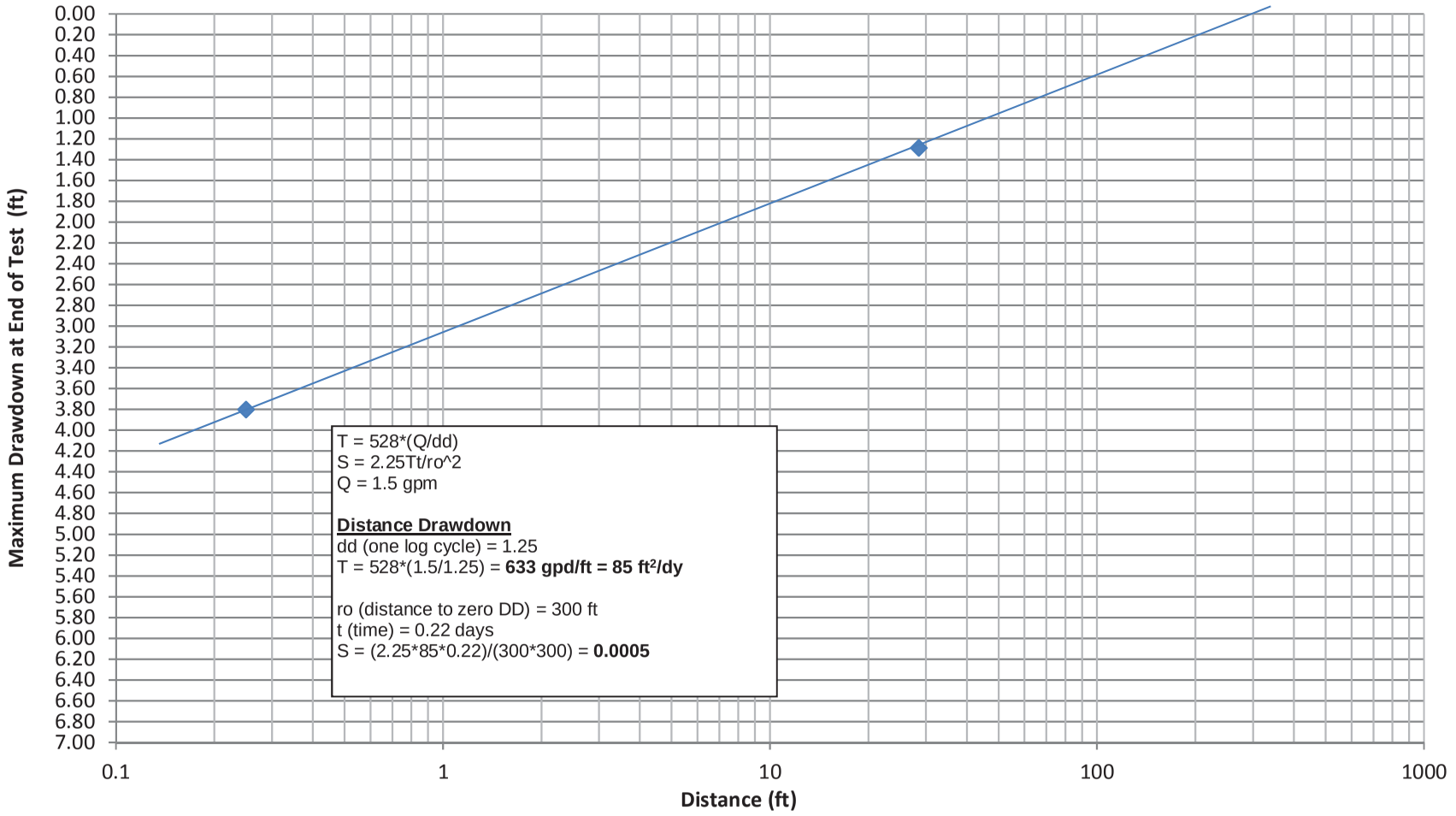


Figure C-23
MW-70p1 (Obs) - Long Term Pumping Test of MW-65p1 (Theis Analysis)

Ephrata Landfill
JE0714

PgG



LEGEND

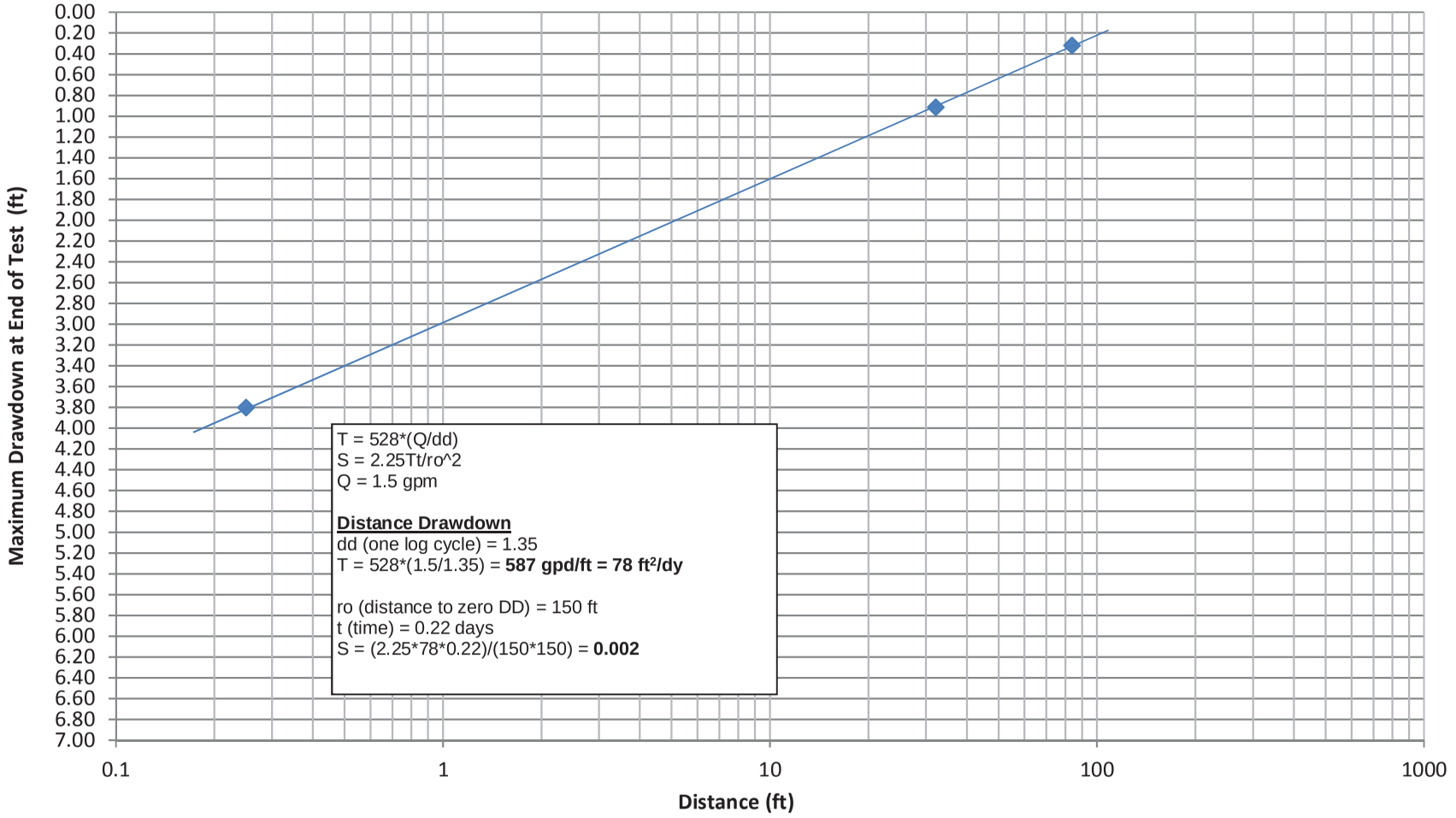
t = time at end of test (311 min, 0.22 day)

◆ Line A

Figure C-24
MW-65p1 Long Term Aquifer Test
(Distance Drawdown Analysis - Line A)

Ephrata Landfill
JE0714

PgG



LEGEND

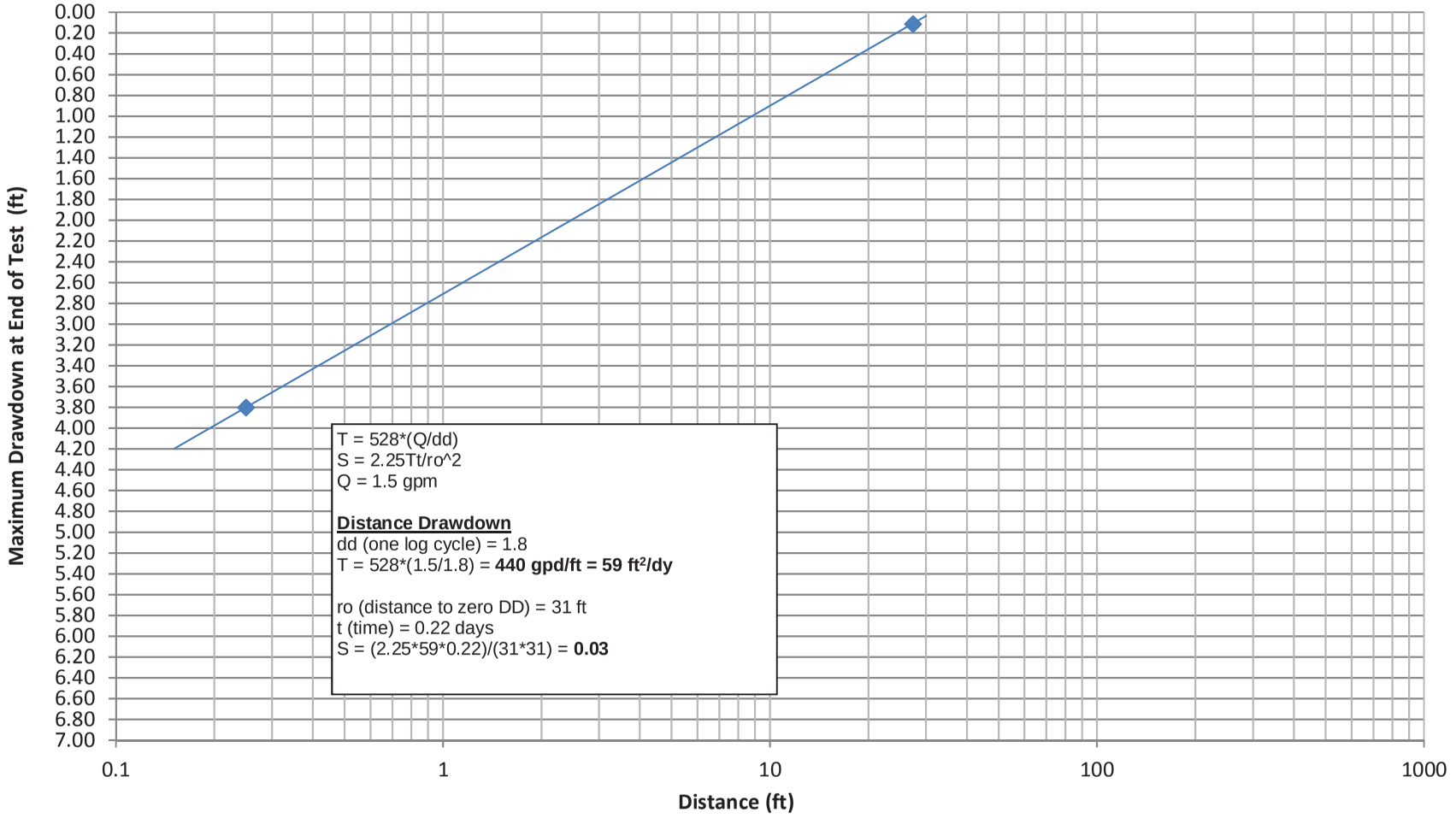
t = time at end of test (311 min, 0.22 day)

◆ Line B

Figure C-25
MW-65p1 Long Term Aquifer Test
(Distance Drawdown Analysis - Line B)

Ephrata Landfill
JE0714

PgG



LEGEND

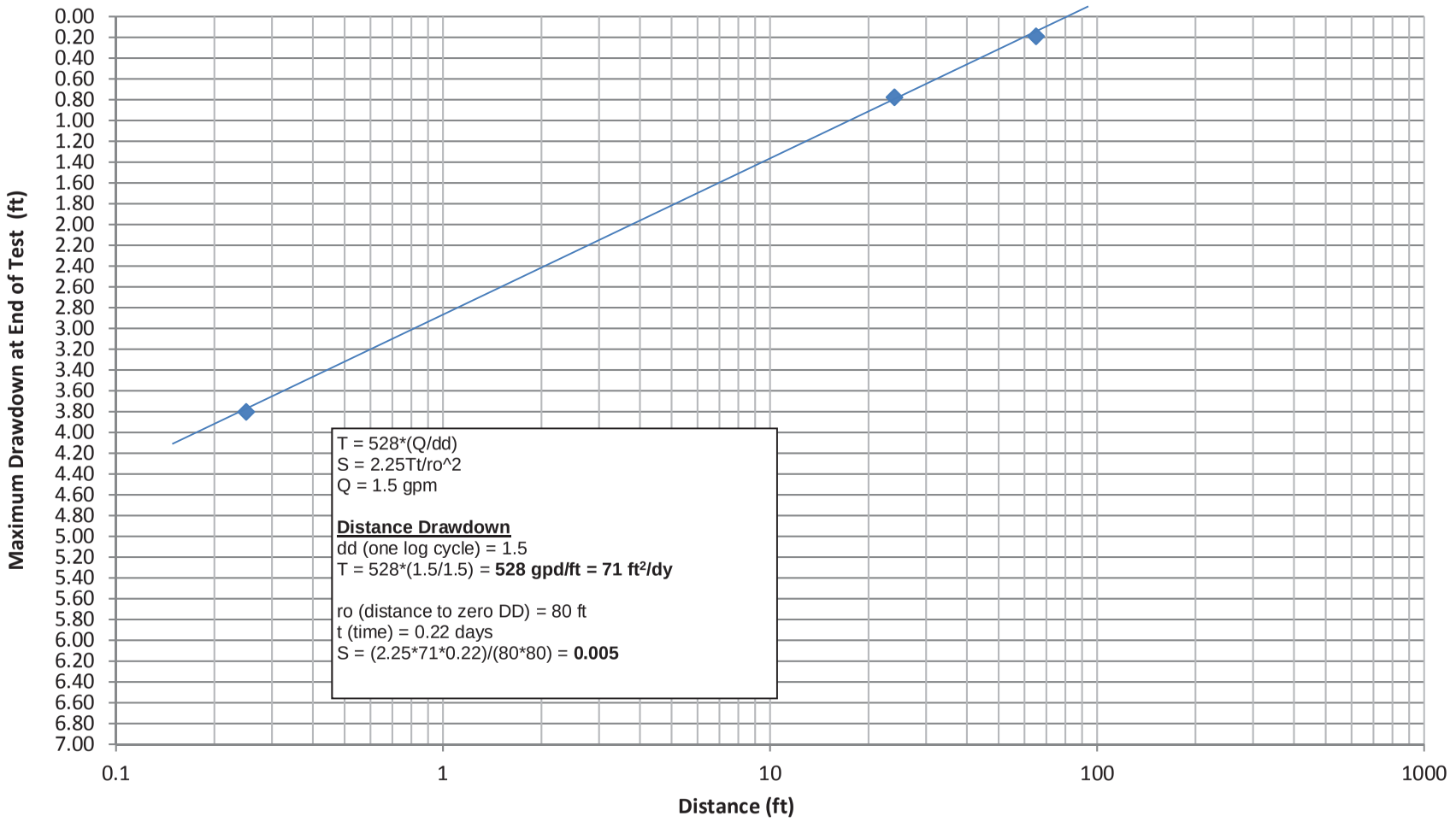
t = time at end of test (311 min, 0.22 day)

◆ Line C

Figure C-26
MW-65p1 Long Term Aquifer Test
(Distance Drawdown Analysis - Line C)

Ephrata Landfill
JE0714

PgG



LEGEND

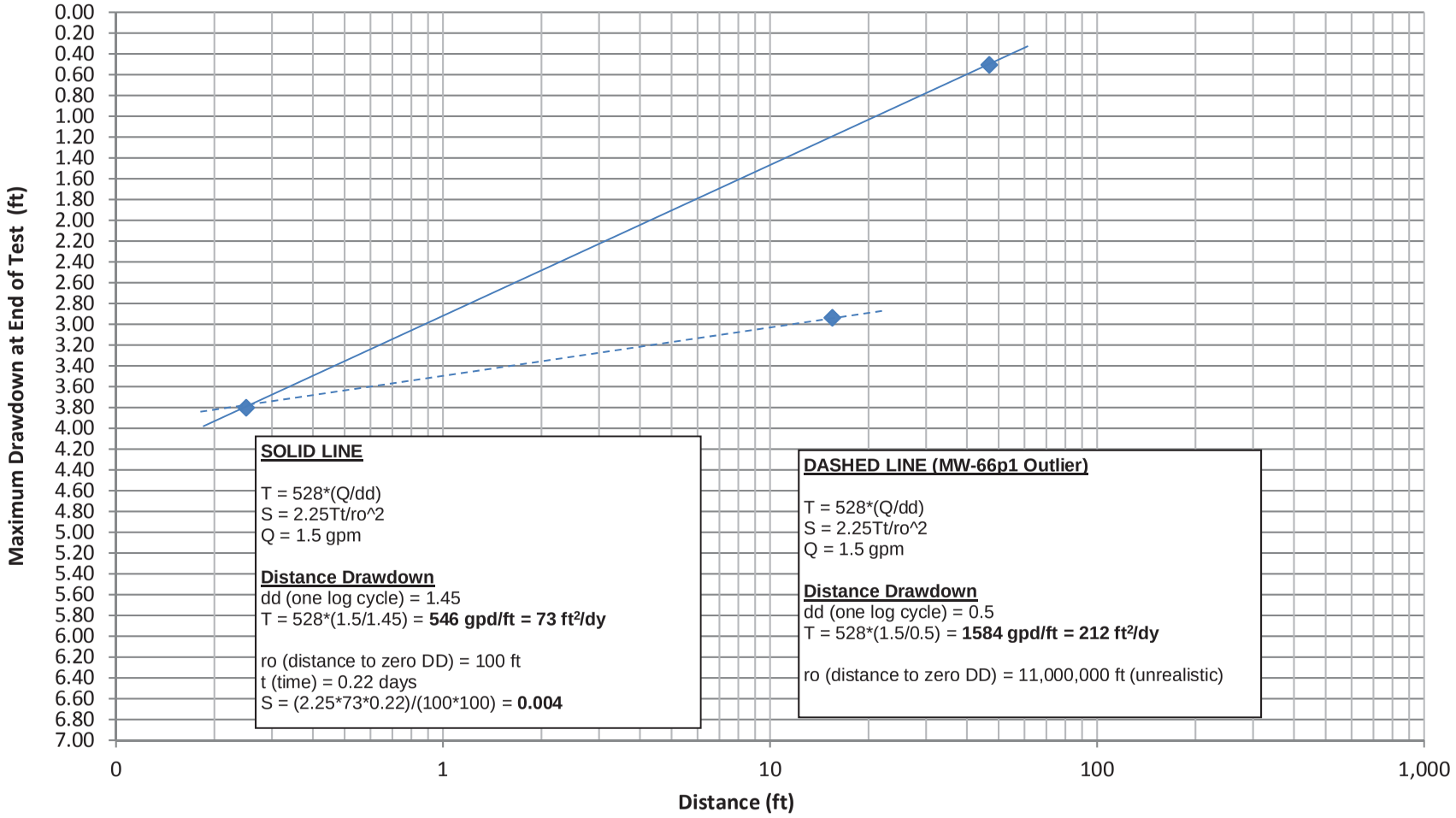
t = time at end of test (311 min, 0.22 day)

◆ Line D

Figure C-27
MW-65p1 Long Term Aquifer Test
(Distance Drawdown Analysis - Line D)

Ephrata Landfill
JE0714

PgG



LEGEND

t = time at end of test (311 min, 0.22 day)

◆ Line E

Figure C-28
MW-65p1 Long Term Aquifer Test
(Distance Drawdown Analysis - Line E)

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JE0714

PgG