Hydrogeologic Characterization Report

Pickles Butte Sanitary Landfill

Volume 1: Report and Appendices A, B, D, and E

Prepared for **Pickles Butte Sanitary Landfill**
Canyon County, Idaho

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Executive Summary

This report describes work conducted to characterize the geology in and around the Pickles Butte Sanitary Landfill (PBSL) to aid in evaluating the potential for landfill leachate to impact groundwater. Extensive hydrogeologic characterization has been conducted within the immediate vicinity of PBSL, including the completion of 15 borings, determination of hydraulic properties of 67 undisturbed ring samples, water quality analyses, and infiltration modeling by several methods. Investigations conducted by Holladay Engineering Company (HEC) in the mid-1990s and a recent investigation conducted by Daniel B. Stephens & Associates, Inc. (DBS&A) in 2011 are in close agreement regarding geologic conditions, including the nature and occurrence of groundwater.

The geology beneath the site is characterized by a sequence of sedimentary deposits, primarily of the Glenns Ferry Formation. The sediments are heterogeneous, composed of varying quantities of sand, silt, and clay-sized particles. Varying degrees of cementation and compaction occur, generally increasing with depth. A very low permeability siltstone and claystone layer is first encountered at depths of between approximately 150 and 550 feet below ground surface (bgs) beneath the entire site. The siltstone/claystone is a regional confining layer that exerts a strong influence on the movement of groundwater.

There are two water-bearing zones within the vicinity of the landfill: an upper unconfined aquifer and a lower confined aquifer. The siltstone/claystone is the lower confining layer of the unconfined aquifer and the upper confining layer of the confined aquifer. The siltstone/claystone is hundreds of feet thick, and dips to the northeast at approximately 3.6 degrees.

The unconfined aquifer exists in only the northeastern corner of the site. The hydraulic gradient is about 3.5 degrees to the northeast, mimicking closely the gradient of the top of the siltstone/claystone. The saturated thickness of the unconfined aquifer in the vicinity of the landfill is on the order of tens of feet. The southwestern extent of the unconfined water-bearing zone is immediately northeast of a series of northwest-trending faults, which may be coincidental; there is no geologic information that supports interpretation of the fault zone as either a barrier or source to flow in the unconfined aquifer. The source of water in the unconfined aquifer is unknown, but it is chemically different from the water in the confined aquifer. Percolation of water from large areas of irrigated agriculture to the east and north of the landfill may have created the unconfined aquifer; however, this has not been confirmed.

The confined aquifer exists beneath the entire site, and is the first groundwater encountered beneath most of the landfill. The confined aquifer is first encountered in fractures within the siltstone/claystone at depths ranging from about 350 to 900 feet bgs. Water is under artesian head, and static water levels are between approximately 290 and 735 feet bgs in wells completed in the confined aquifer. Based on core samples collected during this investigation, it appears that the siltstone/claystone is better indurated at depth and can support fractures; whereas, at shallower depths the unit is more plastic and unlikely to support open fractures. The portion of the siltstone/claystone that is less indurated (does not support fractures) ranged from 150 to 350 feet thick, with an average thickness of 279 feet for wells PB-11 through PB-15. The average saturated hydraulic conductivity of the siltstone/claystone confining layer as determined from 43 core samples was determined to be 3.99×10^{-8} centimeters per second (cm/s).

Infiltration modeling was conducted using three different models. Saturated flux modeling estimated a travel time from the bottom of landfill deposits to first groundwater (confined aquifer) of 3,158 years. The HELP model predicted an unsaturated travel time of 7,255 years. The HYDRUS model estimated a travel time of 52,040 years. The difference between the HELP and HYDRUS models is due to the method used to solve unsaturated flow; the Richards equation used by HYDRUS is widely recognized as being more accurate than the Campbell equation method used by the HELP model. Both the HELP and HYDRUS models show a very small amount of migration of atmospheric water through the landfill deposits due to the low water content of MSW emplaced in the landfill and the low precipitation relative to potential evapotranspiration for the Nampa, Idaho area.

Based on the geologic data collected during this investigation, we conclude that there is essentially zero risk of impact to groundwater beneath the landfill within the next 3,000 years. This time period vastly exceeds the remaining operational life (~200 years) and post-closure monitoring period (30 years) of the landfill (~230 years total). The primary reasons for this are the low hydraulic conductivity of the siltstone/claystone confining layer (average of 3.99×10^{-8} cm/s) and the thickness of this unit overlying the first occurrence of groundwater (average of 297 feet). We conservatively estimate that migration of leachate to first groundwater in the middle aquifer would take thousands of years. This interpretation is based on boring logs, inspection of continuous core samples, laboratory analysis of hydraulic properties, and modeling results. The confining properties of the siltstone/claystone unit are supported by the fact that strong artesian conditions are present in water-bearing fractures within the siltstone/claystone confining layer.

DBS&A recommends that when future landfill expansion is applied for, Canyon County prepare a petition for no migration to seek exemption from a composite liner as described under 40 CFR Section 258.40(d).

1. Introduction

The Pickles Butte Sanitary Landfill (PBSL) is an active landfill that has been accepting solid waste since 1983. Canyon County is planning to laterally expand the existing permitted waste boundary at the PBSL. Figure 1 is a site location map showing the current active landfill, site certification, and Canyon County property boundaries. Based on known and favorable hydrogeologic conditions (HEC, 1994), the current permit for PBSL grants exemptions from groundwater monitoring and liner requirements.

Daniel B. Stephens & Associates, Inc. (DBS&A) has prepared this report to summarize the results of hydrogeologic investigations conducted at PBSL between 1993 and 2011, and to provide data to support characterization of the vadose zone and uppermost groundwater zone in support of a planned “no potential for migration” petition in accordance with Idaho Statutes 39-7409(2)(c) and 39-7410(1)(b).

1.1 Previous Investigations

Between 1992 and 1994, Holladay Engineering Company (HEC) conducted a comprehensive hydrogeologic study at the PBSL. The investigation, summarized in the document *Hydrogeologic Characterization, Groundwater Monitoring Plan, and Facility Design, Pickles Butte Sanitary Landfill, Canyon County, Idaho*, dated July 1994 (HEC, 1994), included characterization of the regional geology and hydrogeology, installation of 8 monitor wells at PBSL, borehole geophysics, hydraulic properties analysis of core samples from boreholes, mapping of surficial geology, and modeling of potential leachate infiltration rates.

HEC installed 2 additional monitor wells at the PBSL in 1995. Water levels and water quality are monitored semiannually at all existing monitor wells on the PBSL site. Historical water level and water quality data are provided in Appendix A. PBSL voluntarily conducts groundwater monitoring to provide added assurance of continuing groundwater quality protection.

1.2 Current Investigation

DBS&A conducted an additional hydrogeologic investigation between May and December 2011. Field investigations were to further delineate the hydrogeologic conditions underlying the proposed landfill expansion area and to develop the information needed for consistent exemptions under a permit modification for the proposed landfill expansion. A secondary objective was to expand the voluntary groundwater monitoring network, primarily to the west, to complement existing monitor wells at the site.

Field activities in 2011 included drilling and installation of 5 new monitor wells and hydraulic properties analysis of 56 core samples. Results of the 2011 investigation are summarized in the following sections of this report. A detailed summary of field activities associated with the 2011 investigation is provided in the well completion report (DBS&A, 2014).

2. Geology

2.1 Regional Geology

PBSL is located in the western part of the Snake River Plain, an arcuate basin over 400 miles in length encompassing a significant portion of southern Idaho. In the vicinity of PBSL, the western Snake River Plain is a northwest-trending structural depression approximately 40 miles wide and bounded by northwest-trending normal faults. Basin-fill sediments and layered volcanic deposits extend to at least 14,000 feet below ground surface (bgs) under the western plain. The upper several thousand feet of this sequence are predominantly composed of the clastic sediments of the Pliocene-Pleistocene age Idaho Group. Exposed in the vicinity of PBSL are the Glenns Ferry Formation, Tuana Gravel, and Bruneau Formation of the upper Idaho Group.

In the vicinity of PBSL, the Idaho Group may be up to 4,000 feet thick, with the Glenns Ferry Formation comprising most of the upper 2,300 feet. The Glenns Ferry Formation is predominantly a fine-grained clastic unit, consisting of deepwater lacustrine sediments grading upward into interbedded sand, silt, and clay deposited in a deltaic setting. Locally, the Glenns Ferry Formation is unconformably overlain by the coarse-grained sediments of the Tuana Gravel and Pleistocene-age lacustrine deposits and basalt of the Bruneau Formation.

Additional data and comprehensive discussion regarding the regional geology in the vicinity of PBSL are presented by Wood and Anderson (1981).

2.2 Local Geology

Almost 500 vertical feet of stratigraphy are exposed in the slopes of Pickles Butte and the adjacent Deadhorse Canyon. Mapping of the surface geology was presented by HEC (1994). Descriptions of geologic units are based primarily on those found in previous studies (HEC, 1994) and field description of continuous core samples retrieved from boreholes. Subsurface investigation methods and significant subsurface hydrologic features are described and discussed in Section 3.

2.2.1 Stratigraphy

The exposed slopes of Deadhorse Canyon, Pickles Butte, and the area surrounding the active landfill are composed primarily of fine-grained clastic sediments of the upper Glenns Ferry Formation. Overlying the Glenns Ferry Formation on Pickles Butte and along the northeastern rim of Deadhorse Canyon is up to 90 feet of interbedded sand and gravel of the Tuana Gravel. In these locations, the Tuana Gravel is commonly capped by a thin veneer of basalt of the Pleistocene-age Bruneau Formation.

2.2.1.1 Bruneau Formation

The Bruneau Formation consists of fine-grained sediments of lacustrine origin and interbedded basalt flows of Pleistocene age, which unconformably overlie the Tuana Gravel. The fine-grained facies is present along the northeastern rim of Deadhorse Canyon, while on Pickles Butte, the basalt flows appear to directly overlie the Tuana Gravel. The fine-grained Bruneau Formation strata north of the landfill range in thickness from a few feet to over 40 feet. The basalt caprock of Pickles Butte ranges in thickness from 0 to approximately 20 feet.

2.2.1.2 Tuana Gravel

The Tuana Gravel unconformably overlies and truncates the upper Glenns Ferry Formation. The contact is described as an angular unconformity along the northeastern rim of Deadhorse Canyon (HEC, 1994). The Tuana Gravel is present at PBSL only on the upper part of Pickles Butte and the northeastern rim of Deadhorse Canyon. The thickness of the unit ranges from less than 10 feet along parts of the northeastern rim of Deadhorse Canyon to 90 to 100 feet on Pickles Butte.

The gravel deposits are unlithified to locally moderately lithified, poorly sorted and coarse-grained with generally well-rounded clasts up to several inches in diameter, and contain significant interbedded sand and silt layers. Sandy and silty intervals may locally constitute the majority of the Tuana Gravel section.

2.2.1.3 Glenns Ferry Formation

The upper Glenns Ferry Formation is composed predominantly of tan to light olive-brown interbedded sand and silt of likely fluvial and lacustrine origin.

Sedimentary character of the sand beds is highly variable. Sand beds range from moderately well-sorted to poorly sorted, and from very fine-grained to coarse-grained. The most commonly encountered texture is moderately poorly sorted, fine- to medium-grained particles. The degree of lithification varies from loose, unlithified sand to locally well-lithified sandstone; weak to moderate lithification is typical. Intervals of unlithified, moderately well-sorted medium-grained sands tens of feet thick are common in the upper several hundred feet of the Glenns Ferry sequence. Lithified fine-grained sandstones are common in the upper Glenns Ferry section, and are typically interbedded with sandy silts and clays. Fine-grained sandstones are commonly finely laminated, and may display small-scale cross-bedding and mud rip-up clasts. Individual beds have proved difficult to correlate with certainty between boreholes and outcrop locations.

Lacustrine sediments of the upper Glenns Ferry Formation consist primarily of weakly lithified, pale yellow to light olive-brown siltstones with varying amounts of fine-grained sand and clay. The clay-sized fraction is typically composed of non-mineral clays. Based on grain size analysis of core samples, fine-grained intervals are predominantly silty, but may be identified in field and drillers' logs as either siltstone or claystone. Siltstones and claystones may be structureless or finely laminated; fine-grained intervals may be continuous for tens to hundreds of feet, or interbedded with sand layers several to tens of feet thick. In the stratigraphic sections recorded at PBSL, the upper Glens Ferry Formation generally becomes increasingly dominated by finer-grained sediments with depth.

Underlying the interbedded fine sands and silts of the upper Glenns Ferry Formation is an abrupt contact with a greenish-gray fine-grained unit referred to in this report as the "siltstone/claystone confining layer". The siltstone/claystone confining layer is considered part of the middle Glenns Ferry Formation and appears to be regionally extensive. At PBSL, the siltstone/claystone confining layer consists of massive to finely laminated, moderately to well-lithified siltstones with varying amounts of fine-grained sand and clay. Within the siltstone/claystone confining layer is a redox boundary below which sediments are in a reduced state. The siltstone/claystone below this boundary is referred to locally as the blue clay. The color is the result of sulfides present in the sediment, and is indicative of a reducing environment (HEC, 1994). The boundary does not appear to be related to sediment texture or time of deposition. Samples from the blue clay oxidize and change color to olive-brown when exposed to air. Intervals or lenses of well-sorted medium-grained sand, several to tens of feet in thickness, also greenish- or bluish-gray, have been noted in some boreholes (Appendix B). The siltstone/claystone unit is the lowest part of the stratigraphic section encountered during hydrogeologic investigations at PBSL.

2.2.2 Structural Geology

The western Snake River Plain is a northwest-trending tectonic basin bounded by normal faults that have been active since Miocene time (Mabey, 1976; Wood, 1994). The exposed geology at PBSL reflects this regional setting. The principal faults exposed at PBSL are northwest-trending, high-angle normal faults, displaying several to tens of feet of offset at the surface. Minor faults of varying orientation are observed in the northern part of the PBSL certification area; these faults typically display several inches to several feet of displacement.

Two main northwest-trending fault zones are noted on geologic mapping of the area (HEC, 1994): (1) in the area of PBSL along the northeastern rim of Deadhorse Canyon, and (2) along Pickles Butte. The fault zone near PBSL displays about 35 feet of vertical displacement. Fractures exposed at the surface appear resealed with limonite precipitate (HEC, 1994).

Faults are noted on both the north and south flanks of Pickles Butte. The fault on the north flank of Pickles Butte is poorly exposed on steep slopes, but an aligned fault appears to have about 20 feet of displacement where it cuts the basalt caprock. Other northwest-trending faults extend south of Pickles Butte, outside of the PBSL certification area (Figure 2).

The slight apparent angular unconformity between the Glenns Ferry Formation and the Tuana Gravel reported by HEC (1994) indicates that faulting had occurred prior to the deposition of the Tuana Gravel and Bruneau Formation; however, faults do appear to offset the Pleistocene-age basalt of the Bruneau Formation on and to the south of Pickles Butte. No evidence of Holocene fault activity has been noted in the vicinity of PBSL.

In the vicinity of PBSL, bedding generally dips gently to the east-northeast or northeast at an angle typically less than 10 degrees. Structural dips appear to be greater in the immediate vicinity of the fault zone northeast of Deadhorse Canyon, possibly due to drag along the fault. Although the orientation of strata is locally somewhat variable, geologic mapping by HEC (1994) did not reveal any evidence of large-scale tilting or block rotation associated with faulting in proximity to PBSL. Correlation of borehole data across the site is consistent with a regional dip of 3 to 8 degrees to the northeast (HEC, 1994).

Additional information relating to the regional and site-specific geology can be found in Wood and Anderson (1981), Mabey (1982), and HEC (1994).

2.3 Subsurface Geology at the Pickles Butte Sanitary Landfill

Current and previous investigations at the site have produced detailed boring logs for the area immediately beneath and around the PBSL. A total of 15 boring logs (PB-01 through PB-15) have been developed. Detailed descriptions of the stratigraphy encountered in boreholes PB-01 through PB-10 are provided in HEC (1994). Detailed descriptions of the stratigraphy encountered in boreholes PB-11 through PB-15 are provided with the well logs in Appendix B.

The boreholes drilled on Pickles Butte itself included stratigraphic sections not encountered at other locations, including 20 feet of basalt caprock at PB-13 (likely correlative to the Bruneau Formation), and 80 to 100 feet of Tuana Gravel at PB-13 and PB-14, with a lesser thickness of Tuana Gravel encountered at PB-15. Particularly at PB-14, fine-grained material (clay, silt, and very-fine-grained sand) constituted the bulk of the “gravel” section, the base of which is defined by the lowest occurrence of gravel lenses. Gravel intervals typically yielded poor recovery during coring, and descriptions of these intervals were aided by examination of air-rotary cuttings during reaming of the boreholes.

The Glenns Ferry Formation makes up the majority of the stratigraphic section encountered in boreholes across the site. In general, the upper part of the Glenns Ferry Formation at the site consists of a sequence of fine-grained siltstone and claystone intervals interbedded with weakly lithified to loose, medium-grained olive-brown sands and silty sands. The loose olive-brown sands are characteristic of this interval. This sedimentary sequence is approximately 350 to 400 feet thick, and is capped by the interbedded gravel and silty clays of the Tuana Gravel. This upper sequence of the Glenns Ferry Formation is exposed on the slopes of Pickles Butte, and the complete section is identified in the subsurface in boreholes on Pickles Butte (PB-13, PB-14, and PB-15) and at boreholes near the northeastern rim of Deadhorse Canyon (PB-5, PB-6, PB-7, PB-9, and PB-10). Partial sections of this upper sequence were observed in other boreholes, with the exception of PB-11 and PB-12.

Below this distinctive upper section is a transitional sequence characterized by weakly to moderately lithified, fine-grained, tan- to olive-colored silty sandstones interbedded with moderately lithified siltstones and claystones. Although lithologies are variable through this interval, the sequence generally becomes finer-grained and more lithified with depth, a trend noted in both the recent investigation (DBS&A, 2014) and previous investigations (HEC, 1994). Core samples recovered from this interval display horizontal laminations with small-scale trough cross-bedding in the coarser-grained deposits. Fine-grained sediments ranged from massive to finely laminated. Organic debris is locally abundant. Distinctive light gray, well-cemented, medium-grained sandstones were present in borehole PB-11 and in outcrops surrounding that site, although these beds did not appear to be laterally continuous. This transitional sequence is generally about 200 feet thick, although the upper and lower contacts are in gradational and locally interfingering contact with the poorly lithified sands and silts above and the predominantly moderately lithified fine-grained deposits below.

At or near the base of this transitional zone, a notable color change was encountered in each borehole, from tan or olive-brown to bluish- or greenish-gray. This color change indicates a transition from an oxidizing environment to a reducing environment with depth. The bluish or greenish color results from reduction of disseminated sulfides within the formation (HEC, 1994). Samples collected from below the oxidation/reduction (redox) boundary changed color to olive-brown over a period of days to weeks, with exposure to oxidizing conditions at the surface.

Abundant organic material in the fine-grained sediments at depth results in a detectable amount of natural methane production, and the occasional formation of a greenish-black biofilm on core samples brought to the surface. The redox boundary does not coincide with a textural change, and does not appear to be a depositional environment boundary. The physical and hydraulic properties of the siltstone/claystone above the redox boundary are essentially the same as below, the only difference being the color of the sediments.

At increasing depth, the Glenns Ferry Formation becomes dominated by moderately lithified siltstone and claystone. Field descriptions typically identify this unit as a claystone, although laboratory grain size analyses from boreholes PB-11, PB-12, PB-13, PB-14, and PB-15 indicate that this lower interval is almost entirely siltstone or clayey siltstone. Lithification was observed to typically increase with depth. This lower, fine-grained interval, considered part of the Middle Glenns Ferry Formation of Wood and Anderson (1981), is typified by generally monotonous fine-grained lithology to the total depth of the boreholes installed at PBSL, although intervals or lenses of sandy shale and weakly lithified sand are noted in boreholes PB-1 and PB-15, respectively. The deepest stratigraphic interval encountered in boreholes at PBSL is a sand layer at the base of borehole PB-3, interpreted by HEC (1994) to be a confined aquifer unit. The deepest stratigraphic interval intersected during the current investigation is the regional siltstone/claystone portion of the Glenns Ferry Formation, where the middle aquifer is first encountered within fractures.

3. Hydrogeology

The information presented in this section summarizes known hydrogeologic conditions at the site based on previous investigations, and provides additional detailed characterization of the site hydrogeology within the proposed expansion area based on the findings of the 2011 field investigation.

3.1 Regional Hydrogeology

Wood and Anderson (1981) and HEC (1994) provide detailed synopses of the regional hydrogeology. HEC (1994) also provides documentation of hydrologic data from registered wells in the vicinity of PBSL (Table 1 of HEC, 1994). This section provides a summary overview of information provided in those documents.

Three water-bearing zones are noted in the region surrounding PBSL, although only the deepest appears to be ubiquitous. The shallowest water-bearing zone, termed the “uppermost aquifer” refers to any and all water-bearing zones above the regionally extensive siltstone/claystone confining layer of the Glenns Ferry Formation. Groundwater within this hydrologic unit may be hosted in sands and silts of the upper Glenns Ferry Formation, sand and gravel of the Tuana Gravel, or basalt and cinder deposits of the Bruneau Formation. The zone may include multiple connected or semiconnected aquifer units and discontinuous aquitards. This aquifer is locally and regionally discontinuous, variable in thickness, and produces highly variable yields from one well location to another. Aquifer conditions are typically unconfined, and recharge is primarily from surface water sources such as reservoirs, irrigation canals, and to a lesser extent, rainfall infiltration. Where present, this aquifer can represent a significant source of non-thermal groundwater (Wood and Anderson, 1981). The thickness of the uppermost aquifer varies regionally from less than 100 feet to more than 500 feet.

HEC (1994) defines the “middle aquifer” as water-bearing strata and fractures present within the regional siltstone/claystone confining layer. The middle aquifer unit is typically several hundred feet thick, but yields are generally very low, and recharge to wells slow. The presence of water-bearing zones within the siltstone/claystone does not appear to be regionally ubiquitous, although very low-yielding aquifer zones may escape notice during drilling. Middle aquifer groundwater, where documented, is typically present under confined conditions, with several tens of feet to several hundred feet of positive artesian pressure observed prior to pumping (HEC, 1994).

The “bottom aquifer” comprises water-bearing sedimentary rocks of the lower Glenns Ferry Formation and underlying volcanic and sedimentary deposits. The boundary between the aquifers is indeterminate based on well log information; HEC (1994) placed the top of the bottom aquifer at the base of the siltstone/claystone confining layer. The bottom aquifer is laterally extensive and constitutes a significant groundwater resource for the region. Although Wood and Anderson (1981) did not differentiate the middle aquifer from the underlying bottom aquifer, where wells have penetrated the siltstone/claystone confining layer, non-water-bearing strata separate the two aquifer units (HEC, 1994). Waters of both aquifers tends to be 5 to 15°C warmer than groundwater in the uppermost aquifer, and both are likely recharged by circulating, deep-sourced thermal waters.

3.2 Site Hydrogeology

The hydrogeologic conditions at PBSL have been characterized through two field investigations and monitoring of a network of wells installed in the regional aquifer under the site.

A total of 11 wells had been installed at PBSL previous to the 2011 field investigation: 1 water supply well (PB-PROD), 1 former domestic well (PB-01), 1 corehole (PB-02), and 8 monitor wells (Figure 3). Between 1992 and 1994, HEC conducted a comprehensive hydrogeologic study at the PBSL, which included advancing the PB-02 corehole and installing 6 4-inch-diameter monitor wells (PB-03 through PB-08) (HEC, 1994). Monitor wells PB-09 and PB-10 were installed in 1995. An additional 5 monitor wells (PB-11 through PB-15) were installed as part of the 2011 hydrogeologic investigation (Figure 3). Wells PB-01 and PB-02 have been plugged and abandoned. All 13 existing monitor wells are completed in uppermost water-bearing zones at their respective locations. Well completion information is summarized in Table 1. Wells PB-03 through PB-15 are monitored semiannually. Water level elevation data for the April 2012 monitoring event are presented in Figure 4. Figure 5 shows the locations of the hydrogeologic cross sections provided in Figures 6 through 9b.

During HEC's investigations, the first occurrence of groundwater was identified during drilling by continuing to periodically purge drilling fluids from the borehole and monitor for fluid inflow. By this method, the interval in which first groundwater occurs may be determined. The approximate depths of the first-encountered regional groundwater at each well are provided in Table 1 and shown on Figures 6 through 9b.

DBS&A field investigation activities were conducted from May 4, 2011 to December 16, 2011. During this investigation, the first occurrence of groundwater was identified during drilling by periodically purging fluids from the borehole, and monitoring for inflow of water for a time period ranging from 4 to 24 hours. A pressure transducer was placed near the bottom of the borehole and monitored for the duration of the monitoring period. Continued inflow of water after the initial draindown of residual drilling fluids indicated where the borehole had intersected a zone of groundwater production. Purging was typically conducted at intervals of approximately 50 feet, and the boring was left uncased over the interval being tested for groundwater. In no borehole was the presence of measurable perched groundwater observed to be present above the regional water table in the unconfined aquifer or above the first occurrence of the confined groundwater of the middle aquifer.

3.2.1 Upper Unconfined Aquifer

First groundwater beneath the northeast portion of the site was identified during previous investigations to be unconfined, and is believed to be separated from groundwater to the southwest by a divide that is nearly coincident with northwest-southeast trending faults located between the two groundwater zones (Figure 4). Unconfined groundwater flows away from the fault zone to the northeast, in the same general direction as the regional structural dip. Depth to groundwater at the 5 monitor wells (PB-4, PB-6, PB-7, PB-9, and PB-10) where unconfined groundwater conditions are present ranges from approximately 504 to 546 feet bgs. Based on conditions encountered elsewhere at the site, confined conditions would be expected to occur at a depth of approximately 700 to 800 feet bgs in these wells. The source of water in the unconfined aquifer is unknown; however, as discussed in Section 3.2.4, it appears to be chemically distinct from the middle aquifer.

3.2.2 Middle Confined Aquifer

The unconfined aquifer is not present under the majority of the landfill area, including the entire proposed expanded certification area (Figure 4). South of the fault zone, first groundwater is encountered stratigraphically lower than the unconfined zone, and exists under confined conditions in fractures within the siltstone/claystone confining layer of the Glenns Ferry Formation. This confined zone is the middle aquifer of HEC (1994). The depth to the middle aquifer at monitor wells PB-03, PB-04, PB-08, PB-11, and PB-12 ranged from approximately 385 to 500 feet bgs. The middle aquifer was encountered between 800 and 900 feet bgs at well locations PB-13, PB-14, and PB-15.

Positive hydrostatic pressure is observed in wells completed in the middle aquifer underlying the study area. For the wells completed in this current investigation, the depth to first groundwater and the static water table are described below.

- *PB-11:* The top of the siltstone/claystone confining layer was encountered at approximately 200 feet bgs. First water was encountered between 350 and 400 feet bgs. After piercing the water-bearing zone, water levels rose to a static water level of approximately 295 feet bgs, indicating a positive head of between 55 and 105 feet.

- *PB-12:* The top of the siltstone/claystone confining layer was encountered at approximately 140 feet bgs. First water was encountered between 500 and 560 feet bgs during drilling. After piercing the water-bearing zone, water levels rose to a static water level of approximately 315 feet bgs, indicating a positive head of between 185 and 245 feet.

- *PB-13:* The top of the siltstone/claystone confining layer was encountered at a depth of approximately 545 feet bgs. First groundwater was encountered between 850 and 900 feet bgs. After piercing the water-bearing zone, water levels rose to a static water level of approximately 735 feet bgs, indicating a positive head of between 115 and 165 feet.

- *PB-14:* The top of the siltstone/claystone confining layer was encountered at a depth of approximately 520 feet bgs. First groundwater was encountered between 800 and 840 feet bgs. The static water level was approximately 721 feet bgs, indicating a positive head of between 80 and 120 feet.

- *PB-15:* The siltstone/claystone confining layer was encountered at approximately 565 feet bgs. First groundwater was encountered between 800 and 860 feet bgs. The static water level was approximately 661 feet bgs, indicating a positive head of between 140 and 200 feet.

The presence of fractures at depth and the absence of fractures at higher elevations are thought to be a function of cementation. There do not appear to be significant differences in clay content of other textural conditions that would in themselves explain the difference in properties. Similarly, there does not appear to be a significant difference in density suggesting higher compaction. However, visual inspection of core samples suggested that at depths where fractures occur, the siltstone/claystone is harder and more brittle than in the overlying area where fractures are not found. A possible explanation for this may be that at greater depth, the relatively warm waters of the middle aquifer (approximately 71.5 to 84.6°F) may have caused hardening of the siltstone/claystone, allowing it to support fractured conditions. At greater distances from the heat source, the formation has remained more elastic and fractures do not form.

Regardless of the explanation for why the fractures exist where they do, it is clear from this investigation that the confined aquifer is under artesian pressure and exerts a strong upward gradient on the non-fractured portion of the siltstone/claystone. The importance of this observation is paramount to the current investigation and should be emphasized; the siltstone/claystone confining layer represents an essentially impermeable boundary between the landfill and first groundwater.

3.2.3 Hydraulic Properties

During the current investigation, 56 core samples were selected from PB-11 through PB-15 for hydraulic properties analyses (Table 2). An additional 11 samples were collected during previous investigations (HEC, 1994). Results, analytical data, and interpretations are discussed in this section.

Testing for initial properties, saturated hydraulic conductivity, moisture retention properties, particle size analysis, Atterberg limits, and specific gravity was requested for each sample collected during the 2011 investigation. These data, as well as full laboratory analytical results, are presented in Appendix C. Hydraulic conductivity values are summarized in Table 3.

Previously, HEC (1994) presented initial properties, saturated and unsaturated hydraulic conductivity, and moisture retention properties for the 11 samples collected in the earlier investigation. These data are summarized in Table 5 of HEC (1994).

Grain size analyses indicate that the fine-grained sediments of the Glenns Ferry Formation are predominantly silty, with approximately 15 to 30 percent clay, although field classifications commonly identified these intervals as clay or claystone, particularly at depth. Plasticity indices and Atterberg limits determined in the laboratory in some cases supported the “clay” field classification, particularly in boreholes PB-11 and PB-12.

Initial moisture content of the samples collected from boreholes PB-11 through PB-15 ranged from approximately 60 percent of the total calculated porosity (sample PB-14, 304 to 305 feet bgs) to nearly 100 percent (PB-15, 524 to 525 feet bgs). The average volumetric moisture content was approximately 90 percent of the calculated porosity. Samples were collected with a rock coring system that used pressurized fluids to transport cuttings from the borehole, and compaction of the sediment core within the acetate liner sleeve may have, in some cases, resulted in trapped pressurized fluids being in contact with the sediment core for an extended period. For these reasons, the initial moisture content calculated in the laboratory may not be representative of field conditions.

Samples for hydraulic properties analysis were generally selected to target fine-grained and well-indurated zones that would form the principal barriers to vertical migration of water in the subsurface. The loose sands of the upper Glenns Ferry Formation were not sampled for analysis, and it is assumed that the saturated hydraulic conductivity (K_{sat}) of these sediments is relatively high, as is typical for unlithified, well-sorted sand.

Field observations indicated that the sediments of the Glenns Ferry Formation are increasingly indurated with depth, and this apparent trend is supported by the hydraulic properties analysis. K_{sat} values determined for samples collected in the upper several hundred feet of the cored section are highly variable, ranging from approximately 10^{-4} to 10^{-8} cm/s, reflecting the heterogeneity of the section. Variations in K_{sat} values appear to be driven primarily by cementation and/or induration, rather than compaction or grain size. For example, relatively higher conductivities (10^{-4} cm/s to 10^{-5} cm/s) were typically calculated from samples taken from the middle and upper parts of the cored interval in each borehole, while analyses from the stratigraphically lowest samples in each borehole consistently yielded lower values (typically 10^{-7} to 10^{-9} cm/s) despite largely similar grain size characteristics.

Core samples were available from the interval at or near the first occurrence of groundwater in borehole PB-11 from the 2011 investigation, and in boreholes PB-2 and PB-4 from the previous investigation (HEC, 1994). In instances where data were available, K_{sat} values near the first occurrence of groundwater were on the order of 10^{-8} to 10^{-9} cm/s. Based on the observed lithologic character and available analytical data from these and other boreholes, throughout the PBSL site there appears to be approximately 100 to 300 feet of moderately to well-indurated, largely homogeneous, fine-grained sediments with K_{sat} values on the order of 10^{-7} cm/s or less overlying the location of the first groundwater occurrence.

3.2.4 Water Quality

Water quality samples are collected quarterly from all monitor wells. Total dissolved solids (TDS) concentrations are somewhat elevated, largely due to sulfate, but water in both the upper unconfined and middle confined aquifers is generally potable. Water quality has not fluctuated or changed significantly over time, and there has never been evidence of impacts from the landfill. The most recent results of water quality sampling are provided in Appendix A2 and are summarized in Table 4.

The water quality characteristics of each of the wells are presented graphically in Figures 10 and 11. Water in the unconfined aquifer has a somewhat different chemical signature than water in the confined aquifer. On average, wells in the upper aquifer contain 400 percent more sodium, calcium, and magnesium than wells in the unconfined aquifer. As can be seen in Figures 10 and 11, water quality characteristics in wells PB-04, PB-07, PB-07, PB-09, and PB-10 are similar to each other, and distinct from those observed at the other site wells. These wells are all completed in the unconfined aquifer, while all other wells at the site are completed in the confined aquifer.

3.3 Infiltration Modeling

This section describes calculations and modeling conducted to characterize the infiltration and percolation of atmospheric water and landfill leachate from the active landfill through the subsurface. The primary purpose of this section is to estimate how long it would take for water/leachate emanating from the landfill to reach the closest body of groundwater.

Several modeling methods were used to provide a system of checks and balances. The first method uses Darcian flux calculations to calculate travel times under saturated conditions. The second method uses the HELP model to estimate unsaturated travel time and flux volumes using a bucket-model-based calculation. The third method uses the HYDRUS model to estimate unsaturated travel time and flux volumes using a Richards equation based calculation. All three models evaluated one-dimensional (vertical) infiltration from ground surface to first groundwater.

Previous investigations (HEC, 1994) modeled flux rates in the northeastern portion of the landfill site using hydraulic parameter information obtained from borings PB-2 through PB-8. That investigation modeled potential infiltration rates using Darcian flux calculations and the HELP model. The saturated travel time from ground surface to the unconfined groundwater-bearing zone in the northeasternmost corner of the site ranged from 94 to 565 years. The saturated travel time to the regional confined aquifer underlying the majority of the site ranged from 1,465 to 33,914 years. Unsaturated travel times to the unconfined aquifer were not presented in that report, but unsaturated travel times to the confined aquifer ranged from 26,200 years to 1.3 billion years.

3.3.1 Conceptual Model

The cross sections presented in Section 3.2.3 (Figures 6 through 9b) were used to develop a generalized hydrogeologic modeling framework. Seven hydrogeologic modeling layers were delineated, based on sediment texture, hydraulic properties (porosity, hydraulic conductivity), geochemical conditions, and proximity to the water table. The seven layers are termed:

- Layer 1: Basalt cap
- Layer 2: Tuana Gravel
- Layer 3: Tan sand
- Layer 4: Tan silty sandstone
- Layer 5: Tan clayey, sandy siltstone
- Layer 6: Tan siltstone
- Layer 7: Gray siltstone

Textural variability occurs within each layer; they are not completely homogeneous. The layers are not intended to account for all subsurface variability, but rather to delineate reasonably similar geologic deposits. For example, Layer 3 (tan sand) is composed predominantly of unconsolidated sand; however, it does contain some areas of sandy silt and silty sand. While sand, silty sand, and sandy silt are all slightly different from one another, as a group they are distinctly different than the overlying Tuana Gravel (Layer 2) and the underlying consolidated silty sandstone (Layer 4).

Hydraulic properties for each layer were determined by averaging the results of laboratory analyses conducted on core samples collected during the 2011 investigation. All hydraulic properties results obtained from samples within each model layer were used to determine an average. In this manner, the effect of heterogeneity is accounted for in assignment of hydraulic properties. Tables 5 through 11 and 13 list the soil properties of each layer that were used for modeling. The thickness of each layer was determined by averaging the thicknesses depicted on the cross sections (Figures 6 through 9b). These average thicknesses are depicted on Figure 12.

For all three models, the landfill deposits were assumed to be placed on top of Layer 3, and Layers 1 and 2 were not included. Layer 3 occurs at ground surface throughout the majority of the current and future active landfill boundary. Although landfill deposits may contact Layer 2 on the side of Pickles Butte and other slopes, the vast majority of landfill deposits do not lie above it. Layer 1 only occurs at the top of Pickles Butte, and will never have landfill deposits emplaced on top of it. In the HELP and HYDRUS models, there are model layers added above Layer 3 to represent landfill deposits and cover material. These additional layers are discussed for each model in the following subsections.

3.3.2 Saturated Flux Model

Calculations of saturated flux were made to provide a simple and transparent method of estimating the rate of percolation from ground surface to first groundwater. Percolation is faster under saturated conditions than it is under undersaturated conditions. Because the deposits underlying the landfill are known to be undersaturated, saturated flux calculations produce an overestimate of actual percolation rates, which is useful for providing a "worst-case scenario" or lower bound on travel time to first groundwater.

Saturated flux calculations were made for each individual boring location, and for the site average conditions determined from all borings, according to the following calculation:

$$q = K_{sat} * (d_h/d_l) \qquad (1)$$

where q = flux rate (feet per day [ft/d])

K_{sat} = saturated hydraulic conductivity (ft/d)

d_h/d_l = hydraulic gradient (ft/ft)

The travel rate or velocity was determined by dividing q by the porosity of the materials:

$$v = q / n_e \qquad (2)$$

where v = velocity (ft/d)
n_e = effective porosity (v/v)

Travel times were estimated by dividing the thickness of each unit by the travel rate:

$$T = d / v \qquad (3)$$

where T = time (years)
d = thickness (feet)

For the above calculations, average K_{sat} values were determined using a harmonic mean (Domenico and Schwartz, 1990). Average porosity and thickness values were determined using a normal mean. Model values for each calculation are listed in Tables 5 through 10.

The use of the harmonic mean for estimating conductivity results in a conservative estimate (underestimate) of infiltration time to first groundwater. The presence of even very thin layers of lower conductivity (10^{-9} cm/s) material will limit the rate of movement to significantly lower than the average conductivity.

3.3.2.1 PB-11 Saturated Flux

The saturated travel time to first groundwater at PB-11 was estimated to be 19,456 years. All but 17 years of this travel time occurs within the very low permeability siltstone/claystone that is first encountered at 195 feet bgs. First groundwater is encountered at approximately 360 feet bgs, so there is 165 feet of siltstone/claystone above first water at this location. A total of 8 core samples from the siltstone/claystone were analyzed for hydraulic properties, with a mean hydraulic conductivity of 2.0 x 10^{-8} cm/s, and mean porosity of 40.9 percent. Under saturated conditions, the rate of travel was determined to be 0.01 foot per year (ft/yr) for the siltstone/claystone. Hydraulic properties and results for each layer are provided in Table 5.

3.3.2.2 PB-12 Saturated Flux

The saturated travel time to first groundwater at PB-12 was estimated to be 42,071 years. All but 13 years of this travel time occurs within the very low permeability siltstone/claystone that is first encountered at 140 feet bgs. First groundwater is encountered at approximately 500 feet bgs, so there is 360 feet of siltstone/claystone above first water at this location. A total of 10 core samples from the siltstone/claystone were analyzed for hydraulic properties, with a mean hydraulic conductivity of 1.92×10^{-8} cm/s and mean porosity of 43.12 percent. Under saturated conditions, the rate of travel was determined to be 0.01 ft/yr for the siltstone/claystone. Hydraulic properties and results for each layer are provided in Table 6.

3.3.2.3 PB-13 Saturated Flux

The saturated travel time to first groundwater at PB-13 was estimated to be 3,875 years. All but 498 years of this travel time occurs within the very low permeability siltstone/claystone that is first encountered at 545 feet bgs. First groundwater is encountered at approximately 850 feet bgs, so there is 305 feet of siltstone/claystone above first water at this location. A total of 7 core samples from the siltstone/claystone were analyzed for hydraulic properties, with a mean hydraulic conductivity of 1.93×10^{-7} cm/s and mean porosity of 45.20 percent. Under saturated conditions, the rate of travel was determined to be 0.09 ft/yr for the siltstone/claystone. Hydraulic properties and results for each layer are provided in Table 7.

3.3.2.4 PB-14 Saturated Flux

The saturated travel time to first groundwater at PB-14 was estimated to be 12,923 years. All but 653 years of this travel time occurs within the very low permeability siltstone/claystone that is first encountered at 520 feet bgs. First groundwater is encountered at approximately 850 feet bgs, so there is 330 feet of siltstone/claystone above first water at this location. A total of 7 core samples from the siltstone/claystone were analyzed for hydraulic properties, with a mean hydraulic conductivity of 5.69×10^{-8} cm/s and mean porosity of 45.70 percent. Under saturated conditions, the rate of travel was determined to be 0.03 ft/yr for the siltstone/claystone. Hydraulic properties and results for each layer are provided in Table 8.

3.3.2.5 PB-15 Saturated Flux

The saturated travel time to first groundwater at PB-15 was estimated to be 5,075 years. Only 291 years of this travel time occurs within the very low permeability siltstone/claystone that is first encountered at 565 feet bgs. The overlying “tan siltstone” (Layer 6) had a lower permeability in this location than in the other borings, while the siltstone/claystone had a higher permeability than in other locations. This may be due to the fact that only one core sample was from the siltstone/claystone was analyzed for hydraulic properties; this sample had a hydraulic conductivity of 51.78 x 10^{-6} cm/s and mean porosity of 43.9 percent. The overlying “tan siltstone” had 4 samples analyzed for hydraulic properties, with a mean hydraulic conductivity of 3.48 x 10^{-8} cm/s. Under saturated conditions, the rate of travel was determined to be 0.81 ft/yr for the siltstone/claystone, and 0.02 ft/yr for the tan siltstone. Hydraulic properties and results for each layer are provided in Table 9.

3.3.2.6 Site Average Saturated Flux

Average site conditions were determined by averaging (harmonic mean) the K_{sat} and porosity of samples from each modeling layer for all of the 5 borings completed. The saturated travel time to first groundwater was estimated to be 3,158 years. All but 199 years of this travel time occurs within the siltstone/claystone. The average thickness of the siltstone/claystone above first groundwater across the site is 279 feet. A total of 7 core samples from the siltstone/claystone were analyzed for hydraulic properties, with a mean hydraulic conductivity of 3.99 x 10^{-8} cm/s and mean porosity of 45.70 percent. Under saturated conditions, the rate of travel was determined to be 0.09 ft/yr for the siltstone/claystone. Hydraulic properties and results for each layer are provided in Table 10.

3.3.3 HELP Model

The HELP model (version 3.07) (Schroeder et al., 1994) used to estimate seepage is the standard model recognized by the Idaho Department of Environmental Quality (IDEQ) and the U.S. Environmental Protection Agency (EPA) for landfill cover and liner performance modeling and design. Although this report does not model a cover design, we have included its use due to its familiarity within the regulatory community. The HELP model is a quasi-two-dimensional model that simulates water movement into, through, and out of landfill profiles (Schroeder et al., 1994). The model requires climatological, soils, and landfill cover design data, and accounts for several environmental factors that affect seepage through landfill covers, such as runoff, evapotranspiration, vegetative growth, and initial soil moisture content.

The HELP model was run in accordance with an EPA-approved modeling guidance document for cover and liner design that was developed in New Mexico (NMED, 1998), where the climate is similar to the climate of Nampa, Idaho. Although the HELP modeling of leachate generation presented in this report is not intended for liner design, the approach generally follows the guidance for liner performance to quantify leachate migration beneath the landfill.

3.3.3.1 Model Layers

For both simulations, the landfill deposits are assumed to be 350 feet thick, which represents the maximum possible thickness above current ground surface at the end of waste accepting landfill operations. The 350 feet of deposits would comprise roughly eleven 31-foot lifts, with each lift containing 30 feet of municipal landfill deposits and 1 foot of soil cover. Because HELP limits the number of model layers to 20, we conducted the modeling with seven 31-foot lifts, and one 133-foot lift to obtain the 350-foot total (Table 11).

Beneath the landfill deposits are geologic layers that correlate to Layers 4 through 7 described in Section 3.3, and as shown in Table 11. These layers are those that exist between ground surface at the lowest elevations within the area of the landfill site and first groundwater encountered within the area of future expansion.

Simulations for each profile were run for a total of 100 years, which was selected as a time period of adequate length to characterize initial draindown and long-term equilibrium drainage from landfill deposits and underlying geologic formations.

3.3.3.2 Soils Data

For each model layer, HELP requires the following hydrologic data: porosity, field capacity, wilting point, initial moisture content, and saturated hydraulic conductivity. Table 11 provides the data for these parameters that were input for each of the HELP model layers.

The thickness, hydraulic conductivity, and porosity were determined using the same methods described in Section 3.3.2. Field capacity and wilting point for each layer were determined from laboratory results as the moisture contents at –300 and –15,000 centimeters (cm) of soil tension, respectively. These values were determined by calculating the values for each soil sample using the van Genuchten parameters determined in the laboratory and the van Genuchten model for predicting water content as a function of pressure head (van Genuchten, 1980):

$$\theta = \theta_r + (\theta_s - \theta_r)/[1+\alpha h)^N]^M \qquad (4)$$

where θ = water content (v/v)

θ_r = residual water content (v/v)

θ_s = saturated water content (v/v)

h = pressure head (cm)

α, N, M = empirical van Genuchten constants

According to the EPA-approved guidance document (NMED, 1998), the initial moisture content of the intermediate cover and municipal solid waste that comprises each 31-foot lift should be set to 20.0 percent. This value is exceptionally high for municipal waste deposits in the arid western states. Geotechnical testing of PBSL deposits (HEC, 1994) determined soil moisture values ranging from 2.93 to 12.82 percent in 14 samples collected between 1.5 and 41.5 feet bgs. The average soil moisture for these samples, 9.83 percent, was selected for use in modeling. For the intermediate cover, a value of 8 percent was selected, which is higher than the wilting point (4.7 percent) and less than the field capacity (10.5 percent).

3.3.3.3 Climate, Vegetation, and Runoff Data

Climatological data required by the HELP model include daily precipitation, maximum and minimum temperature, and solar radiation data. Daily precipitation values were synthetically generated within the HELP model based on database values for Boise, Idaho. Precipitation values averaged 11.68 inches per year (in/yr) over the 100-year modeling period. This is an overestimate of actual precipitation at the PBSL site, as the average rainfall in Nampa, Idaho is lower than in Boise, Idaho by approximately 0.8 in/yr.

Vegetation characteristics are needed by the model to calculate evapotranspiration (ET). Table 12 provides the climatological and vegetation data and values used in the HELP modeling.

The HELP model requires a Soil Conservation Service (SCS) curve number to determine the amount of precipitation that fails to infiltrate the surface of a landfill and is lost as runoff. For this model, an SCS curve number of 88.0 was selected using Table 2-2d in Natural Resources Conservation Service (NRCS) Technical Release 55 (USDA NRCS, 1986). The value of 88.0 was determined by assuming a desert shrub vegetation, poor hydrologic condition (<30 percent ground coverage), and hydrologic soil group D (K_{sat} ~ 3.5 x 10^{-5} cm/s).

3.3.3.4 Results

Two different HELP modeling scenarios were run: one to evaluate the migration of leachate to first groundwater, and another to evaluate migration of leachate to the bottom of landfill deposits. Model output files are provided in Appendix D. Both modeling scenarios were exactly the same, except for the number of model layers. Layers 16 through 20 (existing geology, non-municipal solid waste [MSW] material) were excluded from the scenario used to evaluate the amount of leachate emanating from the landfill deposits because model output indicates percolation through the bottom layer of the model only, and not percolation from individual layers.

Percolation through the bottom of landfill deposits is predicted to occur at an average rate of 1.19 x 10^{-8} in/yr (9.92 x 10^{-10} ft/yr), indicating essentially zero migration of leachate from the landfill deposits into underlying geology. There are three reasons for this: (1) the MSW is very dry at the time of deposition and no (very minimal) initial draindown occurs, (2) almost all precipitation that infiltrates at the surface is lost to evapotranspiration before it can percolate beneath the root zone, and (3) the precipitation that is not lost to evapotranspiration is retained (stored) within the available pore space of the deposits.

The average annual change in storage is predicted to be 1.047 in/yr (0.087 ft/yr). This increase in storage results from precipitation that passes through the root zone before it is lost to evapotranspiration. The initial water content of the landfill deposits (including both trash and cover material) was 9.83 percent, and the water content at the end of year 100 was 12.31 percent. As the amount of water in storage increases over time, so will the rate of drainage, until a point of equilibrium is reached where inflows equal outflow and storage remains constant. This equilibrium point would occur at approximately the field capacity of the MSW, which is 29.20 percent by volume. At that rate of storage increase, it would take over 700 years to reach field capacity (assuming no drainage prior to field capacity), at which point an average annual percolation rate of 1.047 in/yr (the amount of precipitation not lost to evaporation) would occur. This would be the long-term equilibrium drainage rate from landfill deposits to native materials.

Percolation to the depth of first groundwater was determined to occur at an average rate of 0.202 in/yr (0.017 ft/yr) over the 100-year modeling period. At this average rate, and adjusting for porosity, it would take approximately 7,255 years for leachate to travel from the top of the siltstone/claystone to first groundwater (average thickness of siltstone/claystone of 279 feet).

The average annual change in storage predicted for the native materials over the 100-year modeling period was –0.0035 percent. Because there is essentially no drainage from the overlying MSW, all of the percolation to first groundwater occurs from internal drainage of the native geologic deposits. This occurs largely because the initial moisture content of the native materials is greater than the field capacity. This could be partially explained by drilling fluid increasing the moisture content of core samples retrieved during the investigation, and also because the first groundwater-bearing zone exists under artesian conditions, which exert a strong upward gradient on the siltstone/claystone.

3.3.4 HYDRUS Model

The HYDRUS program is a finite element model for simulating the one-dimensional movement of water, heat, and multiple solutes in variably saturated media. The program numerically solves the Richards equation for saturated-unsaturated water flow and Fickian-based advection dispersion equations for vapor transport. The flow equation also includes a sink term to account for water uptake by plant roots as a function of both water and salinity stress. The unsaturated soil hydraulic properties can be described using van Genuchten, Brooks and Corey, modified van Genuchten, Kosugi, and Durner type analytical functions. For these simulations, the van Genuchten (1980) model was used, which calculates hydraulic conductivity as a function of pressure head using the following equation:

$$K(h) = K_s S_e[1-(1-S_e^{1/M})^M]^2 \quad (5)$$

where $K(h)$ = unsaturated hydraulic conductivity at pressure head h (L/T)

K_s = saturated hydraulic conductivity (L/T)

S_e = effective water content (dimensionless)

M = empirical van Genuchten parameter

HYDRUS model simulations that included vapor-phase transport and that did not include vapor-phase transport were conducted for comparison. It has been postulated that vapor-phase transport of moisture within landfill profiles can be significant, especially in dry climates where the near-surface materials approach residual moisture content and a strong upward gradient develops. Scanlon et al. (2003) reported that water fluxes in vadose zone profiles of the arid and semiarid regions of the western U.S. are often dominated by thermal vapor fluxes. In our model simulations, there was essentially no difference in flux between simulations that considered vapor-phase transport and those that did not. These results are more in line with the findings of Walvoord et al. (2004), who found vapor phase fluxes of only 0.01 millimeter per year (mm/yr) in the vadose zone of the arid Amargosa Desert of Nevada. Consequently, we present only the results for the non-vapor-phase transport modeling scenarios, which provide the more conservative (higher) estimate of downward moisture migration.

Model simulations were run for 100 years. Flux from the bottom of the landfill deposits and at the elevation of first groundwater was determined from a single simulation rather than separate simulations as with the HELP model. The bottom of the model was set as a free drainage boundary, with a pressure head of zero. It was not possible to set the lower boundary with an upward pressure gradient to simulate the head exerted by the artesian conditions within the confined middle aquifer.

3.3.4.1 Model Layers

The HYDRUS model was configured the same as the HELP model to maintain consistency between the two models. As with the HELP model, there are 20 model layers. The first 16 layers consist of alternating layers of MSW and daily cover material. The bottom 4 layers consist of native geologic materials that underlie the landfill. Model layers and their hydraulic properties are listed in Table 13.

3.3.4.2 Soils Data

The van Genuchten model used in HYDRUS simulations requires K_{sat}, initial moisture content, θ_s, θ_r, α, and N. All of these values were determined from results of hydraulic properties analyses, by averaging values from all samples collected in each layer. K_{sat}, porosity, and initial moisture content values are the same as those used in the HELP model. θ_s, θ_r, α, and N are used in the van Genuchten calculations in place of the θ_{wp} and θ_{fc} values used in the HELP model. Soils data used in the HYDRUS model are listed in Table 13.

3.3.4.3 Climate, Vegetation, and Runoff Data

Climate data for 1960 through 2000 were obtained from a weather station at the Boise Airport (WRCC, 2013) to determine average annual precipitation. The average annual precipitation over that period was 11.56 inches. For input into the model, we used the precipitation from a near-average year (2012, 11.50 inches) and repeated the record 100 times for the 100-year simulation. This is an overestimate of actual precipitation at the PBSL site, as the average rainfall in Nampa, Idaho is lower than in Boise, Idaho by approximately 0.8 in/yr.

The HYDRUS model can calculate ET using either the Hargreaves formula or the Penman-Monteith formula, or ET can be specified if values are known. For this study, daily average values for potential evapotranspiration (PET) for Boise, Idaho were obtained from a U.S. Bureau of Reclamation Agrimet station and specified within the model. PET represents the amount of evapotranspiration that can occur if it is not limited by soil water availability. Actual evapotranspiration (AET) is determined within the model based on PET, the amount of water available within the root zone, and vegetation characteristics. The PET was divided into the two components of evaporation and transpiration for input to the model by partitioning according to the leaf area index (LAI). An LAI value of 0.35 was used to determine that the potential transpiration would account for 35 percent of the PET, and the potential evaporation would account for 65 percent of the PET. The model was not sensitive to this partitioning, as both the potential evaporation and potential transpiration far exceed precipitation.

Vegetation characteristics are needed by the model to calculate ET. The vegetation characteristics determine the rate of transpiration, the soil potential at which transpiration begins to decrease due to stress, and the point at which transpiration can no longer extract water from the soil. HYDRUS has a limited data set of vegetation that can be used, or the user can specify these values independently. For this model, the values for wheat (Wesseling et al., 1991) were used. For this plant type, soil water stress begins at –500 cm of tension, and ceases completely at -16,000 cm.

Runoff is calculated as precipitation in excess of infiltration capacity. The model assumes that 100 percent of the landfill area can generate runoff.

3.3.4.4 Results

Two different HYDRUS modeling scenarios were run: one to evaluate the migration of leachate to first groundwater, and another to evaluate migration of leachate to the bottom of landfill deposits. Model output files are provided in Appendix E. Model results are summarized in Figures 13 through 15. Both modeling scenarios were exactly the same, except for the number of model layers. Layers 16 through 20 (existing geology, non-MSW material) were excluded from the scenario used to evaluate the amount of leachate emanating from the landfill deposits because model output indicates percolation through the bottom layer of the model only, and not percolation from individual layers. These model scenarios are the same as those evaluated by the HELP model.

Percolation through the bottom of landfill deposits is predicted to occur at an average rate of 1.09×10^{-7} in/yr (9.09×10^{-9} ft/yr). There is essentially no drainage from the bottom of the landfill deposits over the 100-year modeling period.

The average annual change in storage of landfill deposits is predicted to be 2.76 in/yr (0.23 ft/yr). This increase in storage results from precipitation that passes through the root zone before it is lost to evapotranspiration. The initial water content of the entire 350-foot profile of MSW and daily cover material was 9.83 percent, and the water content at the end of year 100 was 16.40 percent. As the amount of water in storage increases over time, so will the rate of drainage, until a point of equilibrium is reached where inflows equal outflow and storage remains constant. This equilibrium point would occur at approximately the field capacity of the MSW, which is 29.20 percent by volume. Based on the rate of storage increase predicted by the model (0.065 percent per year), it would take over 200 years to reach field capacity, at which point an average annual percolation rate of 2.79 in/yr (the amount of precipitation not lost to evaporation) would be expected to occur. This is equivalent to a continuous flux rate of 6.27×10^{-7} cm/s.

Percolation to the depth of first groundwater was determined to occur at an average rate of 0.0282 in/yr (0.00235 ft/yr) over the 100-year modeling period. At this average rate, and adjusting for porosity (43.77 percent), it would take approximately 52,040 years for leachate to travel from the top of the siltstone/claystone to first groundwater (average thickness of siltstone/claystone of 279 feet).

The average change in water content of the entire profile (trash and geologic deposits) over the 100-year modeling period was 2.90 in/yr (0.24 ft/yr).

3.3.5 Comparison of Results

Model results are summarized in Table 14. The saturated travel time model provides a "worst-case scenario" for travel time of landfill leachate to first groundwater, assuming saturated conditions. Under this worst-case scenario, it would take approximately 3,158 years for landfill leachate to reach first groundwater.

The HELP and HYDRUS models provide a more likely estimate of travel time, as they estimate flow rate using unsaturated hydraulic conductivity. The HELP model estimates travel time from the landfill to first groundwater to be 7,255 years, while HYDRUS estimates travel time at 52,040 years. The large difference between the HELP and HYDRUS models is due to a combination of differences between the two models. One difference is the method of calculating percolation; HYDRUS uses the more rigorous Richards equation, while HELP uses a linear interpolation between field capacity and wilting point. The Richards equation is more accurate at all soil moistures, but especially near saturation, where the HELP model would tend to overestimate percolation relative to the Richards equation.

Both the HELP and HYDRUS models show minimal percolation from the landfill deposits over the 100-year modeling period. Both models show an increase in moisture stored within landfill deposits roughly equal to the amount of precipitation that passes the root zone before it can be removed by evapotranspiration. The HELP model predicts 1.047 in/yr of water passing the root zone, while the HYDRUS model predicts 2.79 in/yr. This difference is due to the use of different climate datasets and methods of calculating evapotranspiration. The help model uses a 100-year precipitation dataset that is synthetically generated. It contains years of low rainfall where no deep percolation occurs, and years of exceptionally high precipitation where significant surface runoff occurs. The use of an average precipitation year repeated 100 times in the HYDRUS model likely results in more deep percolation than would occur in a typical 100-year period consisting of various amounts of precipitation.

Additionally, both model scenarios included a 12-inch-thick interim soil cover layer at the surface rather than an ET cover design. We suspect both methods to be overestimates of the deep percolation that would occur in a properly designed evapotranspiration cover. Based on our experience with an alternative evapotranspiration landfill cover in nearby Mountain Home, Idaho, we would not expect to see atmospheric water pass below a depth of 24 inches before being removed by evapotranspiration (Kelsey et al., 2006).

4. Summary and Conclusions

This report describes work conducted to characterize the geology in and around PBSL to aid in evaluating the potential for landfill leachate to impact groundwater. Extensive hydrogeologic characterization has been conducted within the immediate vicinity of PBSL, including the completion of 15 borings, determination of hydraulic properties of 67 undisturbed ring samples, water quality analyses, and infiltration modeling by several methods. Investigations conducted by HEC in the mid-1990s and a recent investigation conducted by DBS&A in 2011 are in close agreement regarding geologic conditions, including the nature and occurrence of groundwater.

The geology beneath the site is characterized by a sequence of sedimentary deposits, primarily of the Glenns Ferry Formation. The sediments are heterogeneous, composed of varying quantities of sand, silt, and clay-sized particles. Varying degrees of cementation and compaction occur, generally increasing with depth. A very low permeability siltstone and claystone layer referred to in this document as the “siltstone/claystone confining layer” is first encountered at depths of between approximately 150 and 550 feet bgs beneath the entire site. The siltstone/claystone is a regional confining layer that exerts a strong influence on the movement of groundwater.

There are two water-bearing zones within the vicinity of the landfill: an upper unconfined aquifer and a lower confined aquifer. The siltstone/claystone is the lower confining layer of the unconfined aquifer and the upper confining layer of the confined aquifer. The siltstone/claystone is hundreds of feet thick, and dips to the northeast at approximately 5 degrees.

The unconfined aquifer exists in only the northeastern corner of the site. The hydraulic gradient is about 3.5 degrees to the northeast, mimicking closely the gradient of the top of the siltstone/claystone. The saturated thickness is on the order of tens of feet in the vicinity of the landfill. The southwestern extent of the unconfined water-bearing zone is immediately northeast of a series of northwest-trending faults, which may be coincidental; there is no geologic information that supports interpretation of the fault zone as either a barrier or source to flow in the unconfined aquifer. The source of water in the unconfined aquifer is unknown, but it is chemically different from the water in the confined aquifer, and also has a different hydraulic head. Percolation of water from large areas of irrigated agriculture to the east and north of the landfill may have created the unconfined aquifer; however, this has not been confirmed.

The confined aquifer exists beneath the entire site, and is the first groundwater encountered beneath most of the landfill. The confined aquifer is first encountered in fractures within the siltstone/claystone confining layer at depths ranging from about 350 to 900 feet bgs. Water is under artesian head, and static water levels are between approximately 290 and 735 feet bgs in wells completed in the confined aquifer. Based on core samples collected during this investigation, it appears that the siltstone/claystone is better indurated at depth and can support fractures; whereas, at shallower depths the unit is more plastic and unlikely to support open fractures. The portion of the siltstone/claystone that is less indurated (does not support fractures) ranged from 150 to 350 feet thick, with an average thickness of 279 feet for wells PB-11 through PB-15.

The average saturated hydraulic conductivity of the siltstone/claystone confining layer as determined from 43 core samples was determined to be 3.99 x 10^{-8} cm/s. This average value produces an overestimate of actual infiltration time to first groundwater because the zones of extremely low (10^{-9} cm/s or lower) conductivity will slow infiltrating water by a factor of 10 or more over those intervals. Infiltration rates are typically limited by the lowest hydraulic conductivity zones, rather than by the average value. We used the average value as a conservative estimation method.

Infiltration modeling was conducted using three different models. Saturated flux modeling estimated a travel time from the bottom of landfill deposits to first groundwater (confined aquifer) of 3,158 years. The HELP model predicted an unsaturated travel time of 7,255 years. The HYDRUS model estimated a travel time of 52,040 years. The difference between the HELP and HYDRUS models is due to the method used to solve unsaturated flow; the Richards equation used by HYDRUS is widely recognized as being more accurate than the Campbell equation method used by the HELP model. Both the HELP and HYDRUS models show a very small amount of migration of atmospheric water through the landfill deposits due to the low water content of MSW emplaced in the landfill and the low precipitation relative to potential evapotranspiration for the Nampa, Idaho area.

Based on the geologic data collected during this investigation, we conclude that there is essentially zero risk of impact to groundwater beneath the landfill. The primary reasons for this are the low hydraulic conductivity of the siltstone/claystone confining layer (average of 3.99×10^{-8} cm/s), and the thickness of this unit overlying the first occurrence of groundwater (average of 297 feet). We conservatively estimate that migration of leachate to first groundwater in the middle aquifer would take thousands of years. This interpretation is based on boring logs, laboratory analysis of hydraulic properties, and modeling results. The confining properties of the siltstone/claystone unit are supported by the fact that strong artesian conditions are present in water-bearing fractures within the siltstone/claystone confining layer.

Based on the multiple lines of evidence described above, this report concludes that there is no potential for migration of moisture from PBSL to the first underlying saturated zone within the next 3,000 years. This time period vastly exceeds the remaining operational life (~200 years) and post-closure monitoring period (30 years) of the landfill (~230 years total). DBS&A recommends that when future landfill expansion is applied for, Canyon County prepare a petition for no migration to seek exemption from a composite liner as described under 40 CFR Section 258.40(d).

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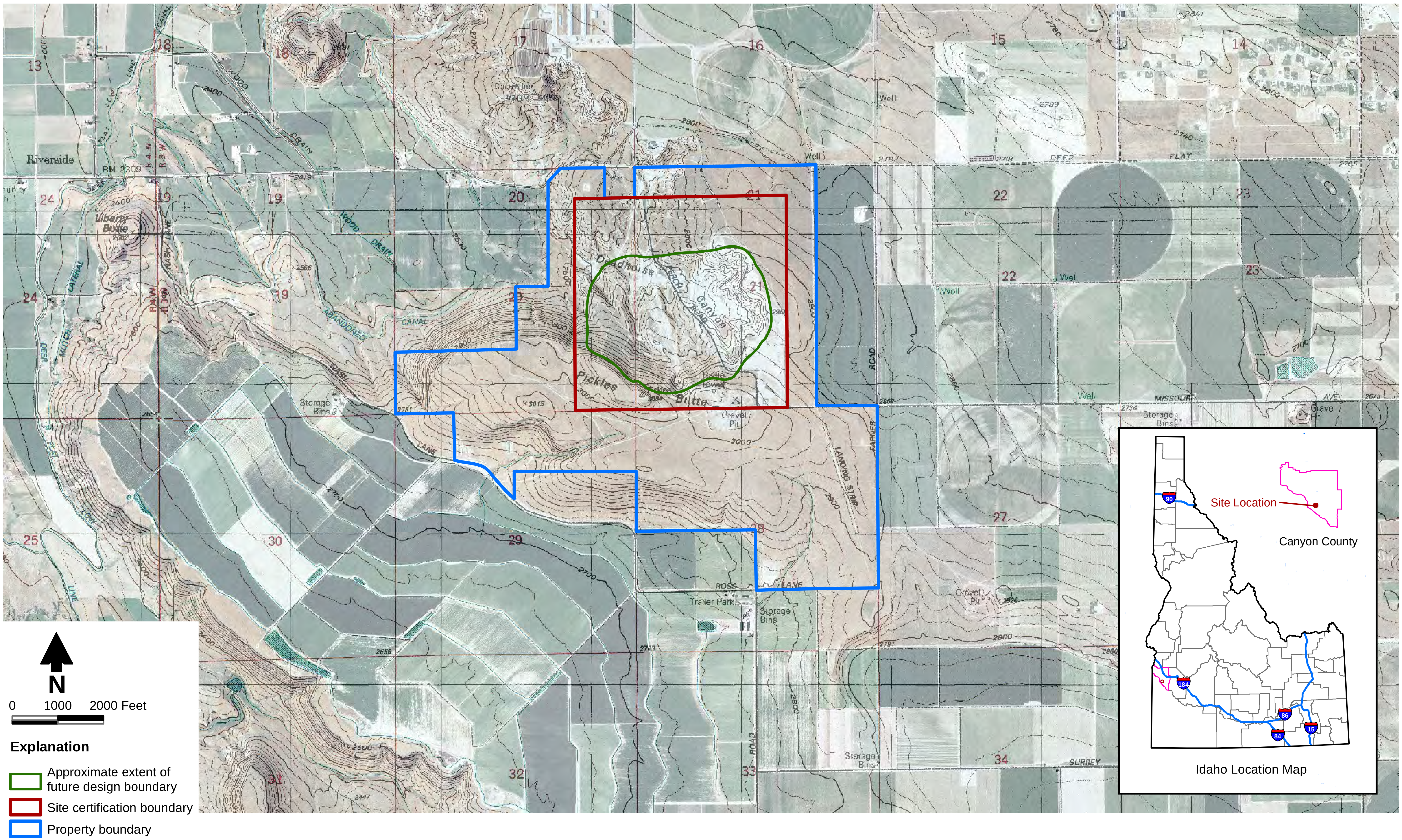
Figures



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PICKLES BUTTE SANITARY LANDFILL

Site Location Map

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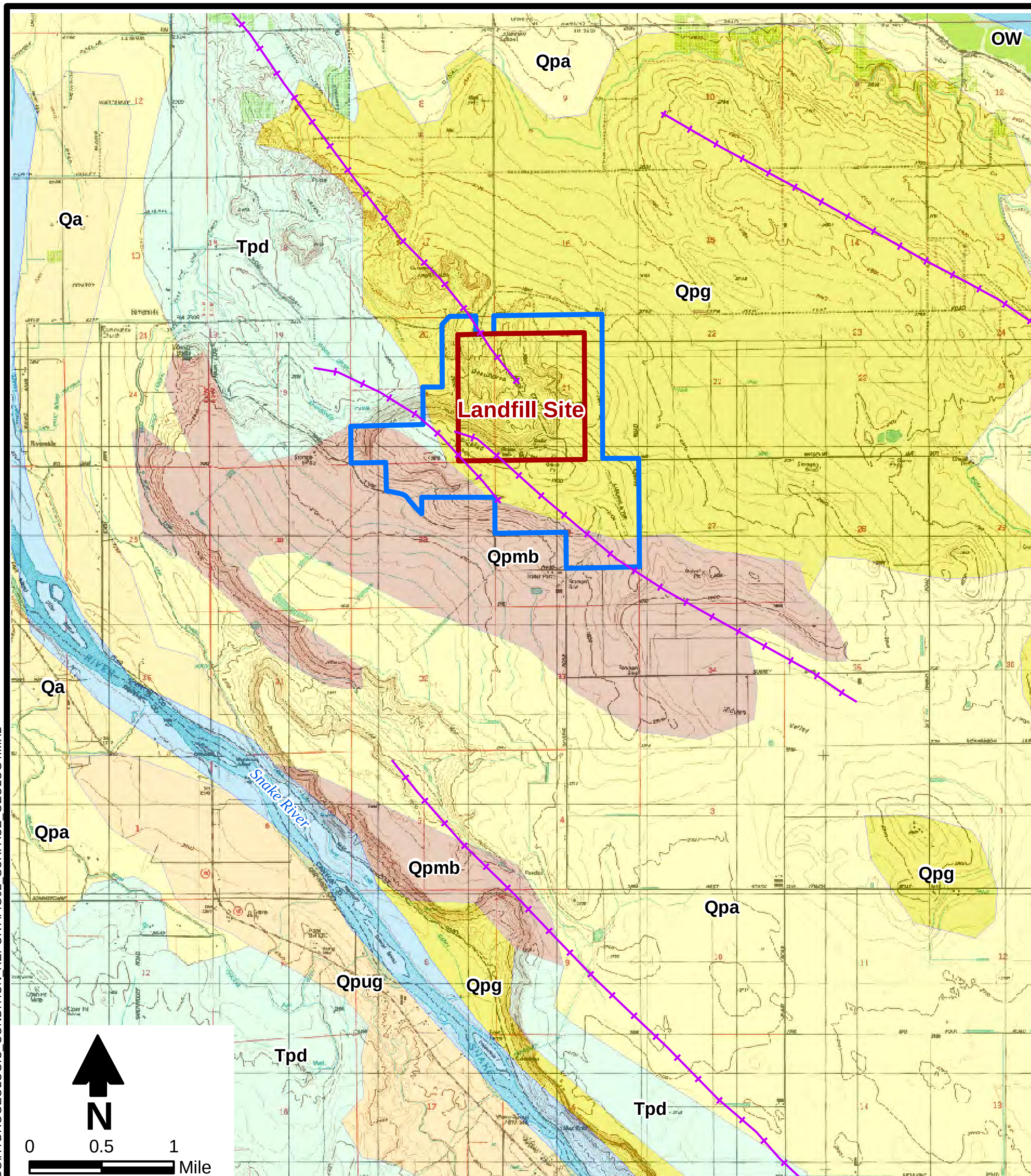
4/21/2014 JN ES09.0154

Figure 1



Explanation

Sources: Mineral Resources On-Line Spatial Data (USGS 2006)

- Fault
- Property boundary
- Site certification boundary

Geologic description

- OW (snake river)
- Qa (alluvium)
- Qpg (stratified glacial sediment)
- Qpmb (tholeiite)
- Qpa (stratified glacial sediment)
- Qpug (outwash)
- Tpd (sandstone)

PICKLES BUTTE SANITARY LANDFILL

Surface Geology

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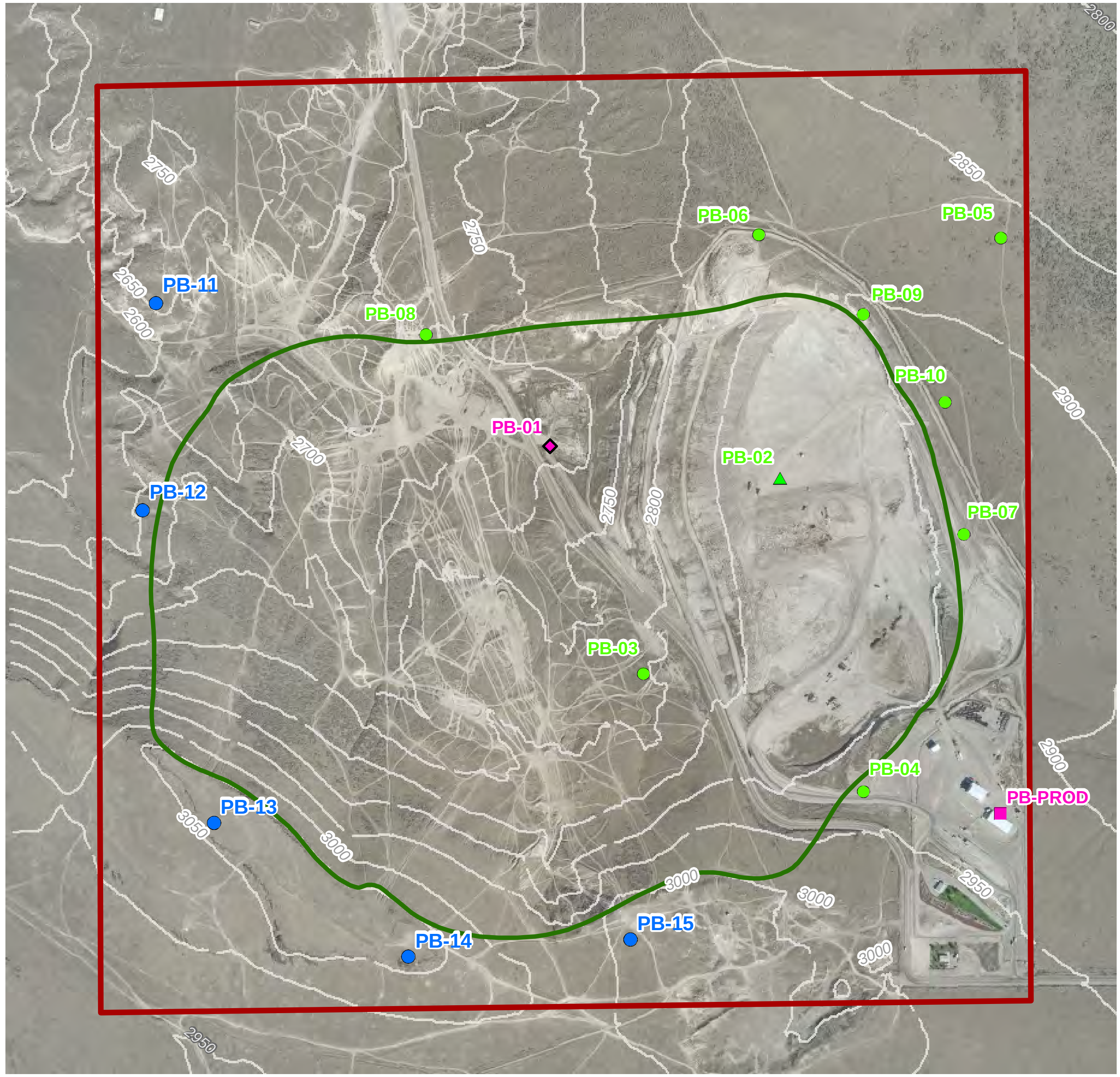
Figure 2

S:\PROJECTS\ES09.0154_PICKLES\GIS\MXDS\HYDROGEOLOGIC_CONDITION_REPORT\FIG02_SURFACE_GEOLOGY.MXD

S:\PROJECTS\ES09.0154_PICKLES\GIS\MXDS\HYDROGEOLOGIC_CONDITION_REPORT\FIG03_MONITOR_WELL_LOCATIONS.MXD



N

0 400 800 Feet

Explanation

- 2011 well
- Corehole
- Former domestic well
- Monitor well
- Supply well
- Approximate extent of future design boundary
- Site certification boundary
- 3000 50-ft contour

Note: PB-01 and PB-02 have been plugged and abandoned.

Source: Aerial photograph and topography by Aero-metric, Inc., Seattle, Washington, September 27, 2008.

PICKLES BUTTE SANITARY LANDFILL

Monitor Well Locations

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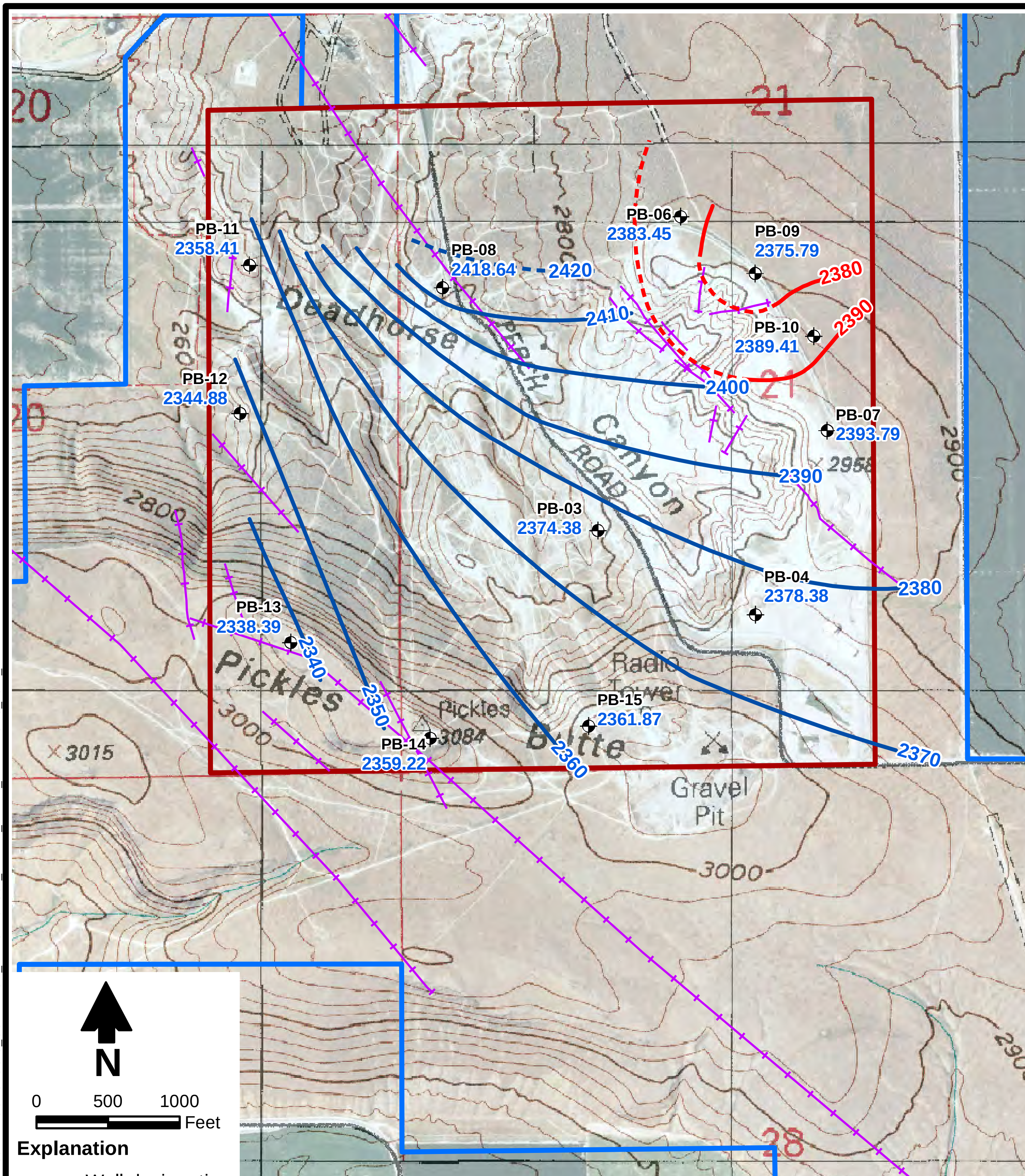
Figure 3



Explanation

PB-08 Well designation
2418.64 Water level elevation (ft msl)

Note: Contours are dashed where inferred

Pickles Butte monitor well
Water level elevation (confined aquifer)
Water level elevation (unconfined aquifer)
Fault
Site certification boundary
Property boundary

S:\PROJECTS\ES09.0154_PICKLES\GIS\MXDS\HYDROGEOLOGIC_CONDITION_REPORT\FIG04_WATER_LEVEL_ELEVATIONS_2012_4.MXD

PICKLES BUTTE SANITARY LANDFILL
Water Level Elevations, April 2012

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JN ES09.0154

Figure 4

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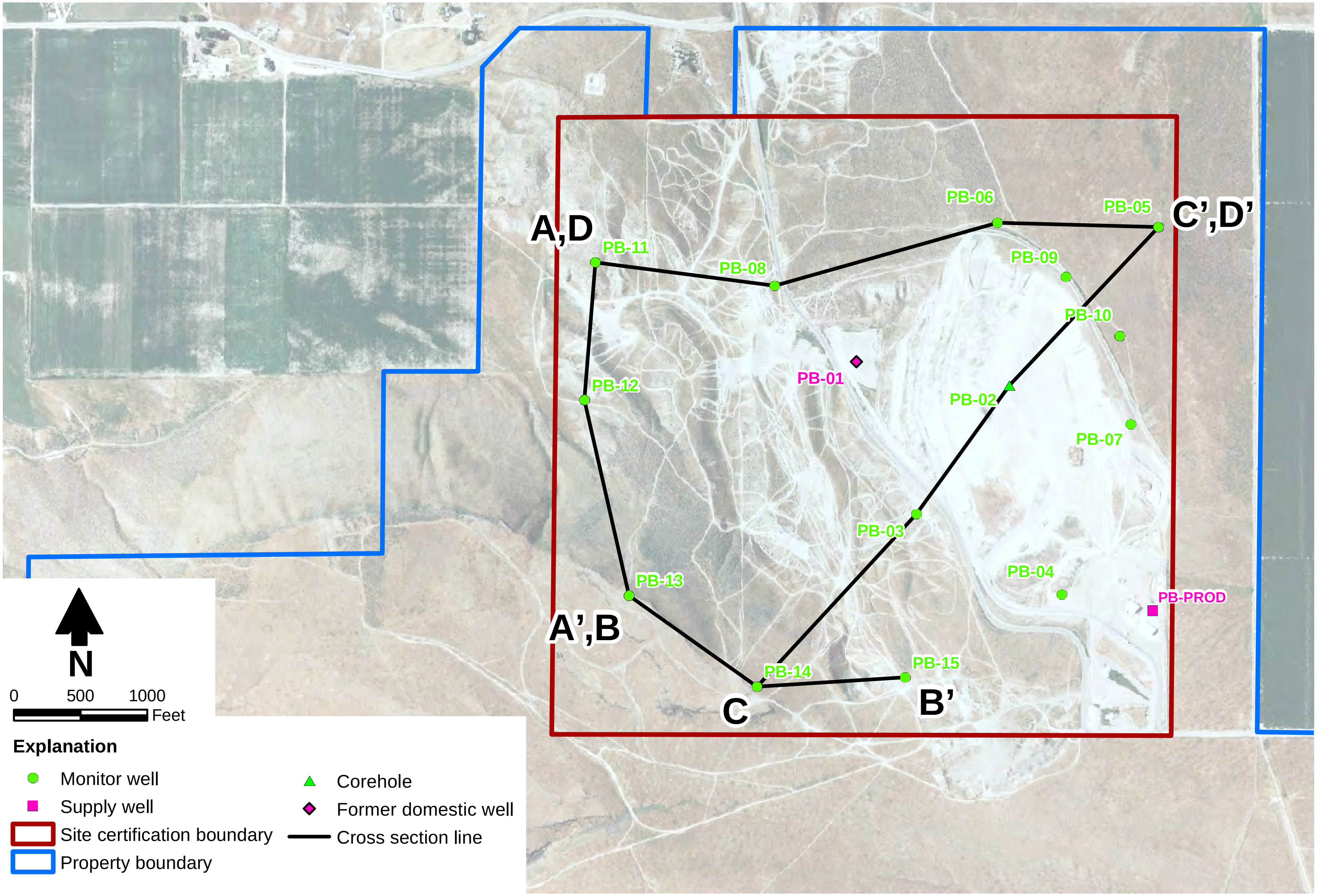

Note: PB-01 and PB-02 have been plugged and abandoned.

PICKLES BUTTE SANITARY LANDFILL

Cross Section Locations

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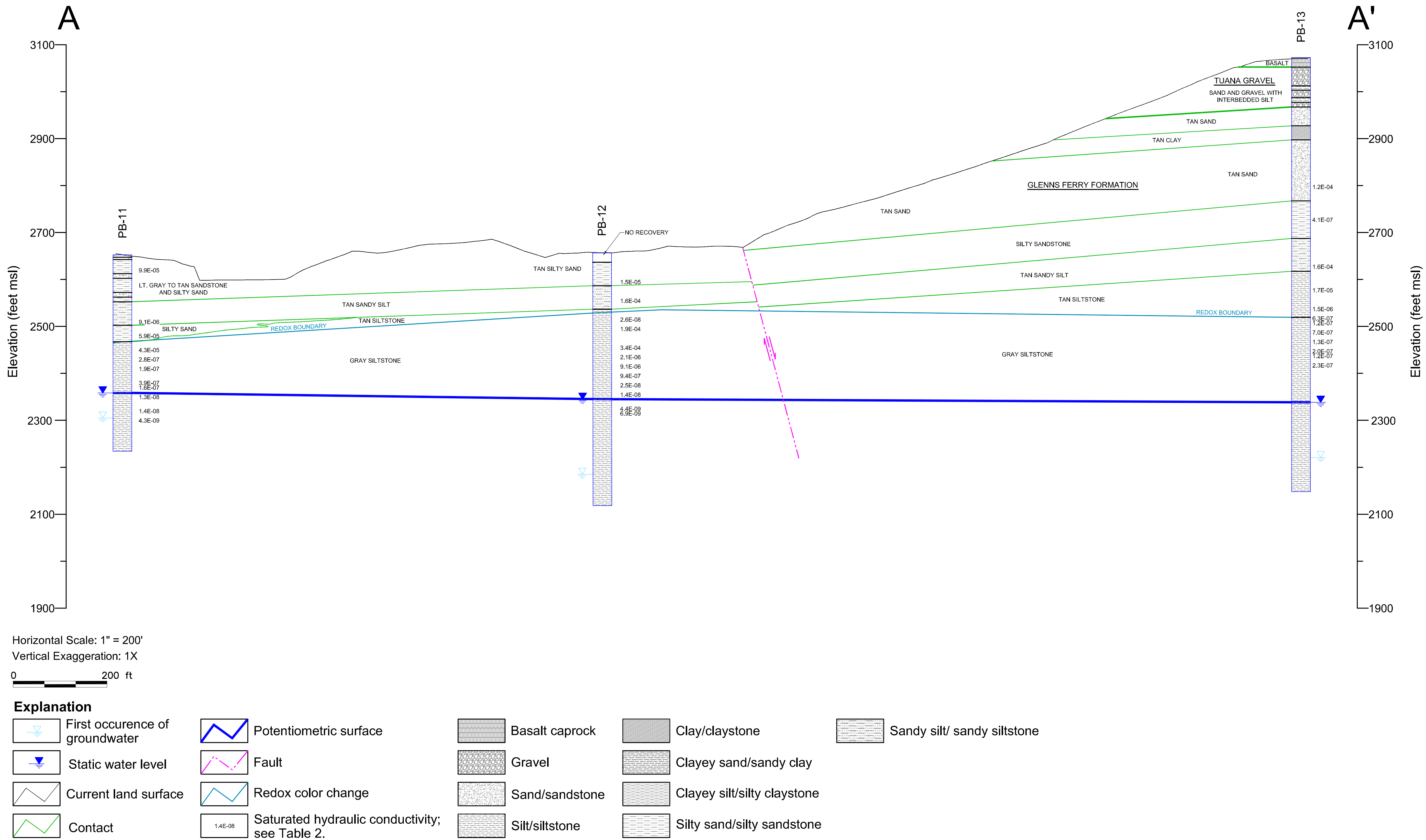
Figure 5



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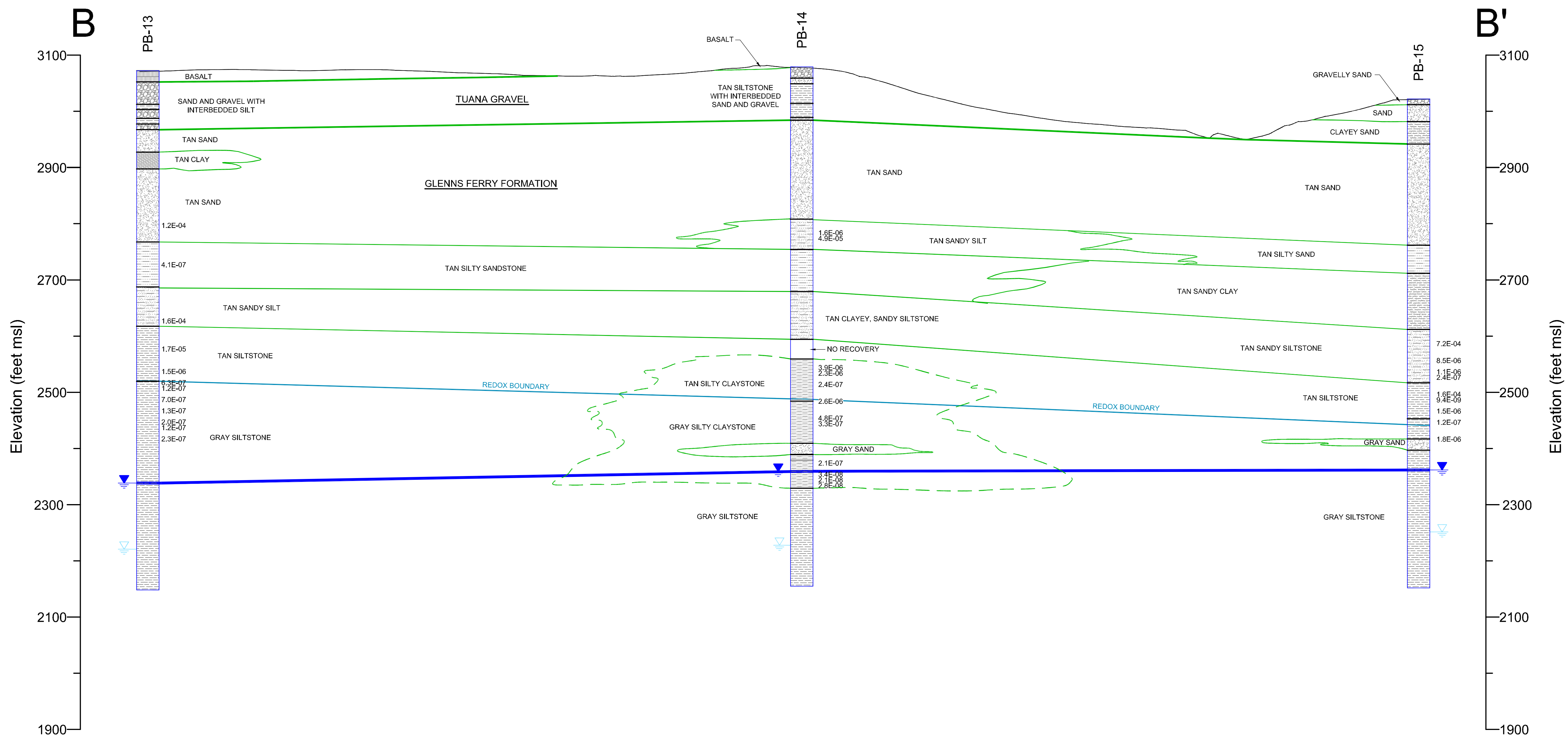
PICKLES BUTTE SANITARY LANDFILL
Cross Section A-A' North to South

Figure 6



Horizontal Scale: 1" = 200'
Vertical Exaggeration: 1X
0 200 ft

Explanation

- First occurence of groundwater
- Static water level
- Current land surface
- Contact
- Potentiometric surface
- Fault
- Redox color change
- 1.4E-08 Saturated hydraulic conductivity; see Table 2.
- Basalt caprock
- Gravel
- Sand/sandstone
- Silt/siltstone
- Clay/claystone
- Clayey sand/sandy clay
- Clayey silt/silty claystone
- Silty sand/silty sandstone
- Sandy silt/ sandy siltstone

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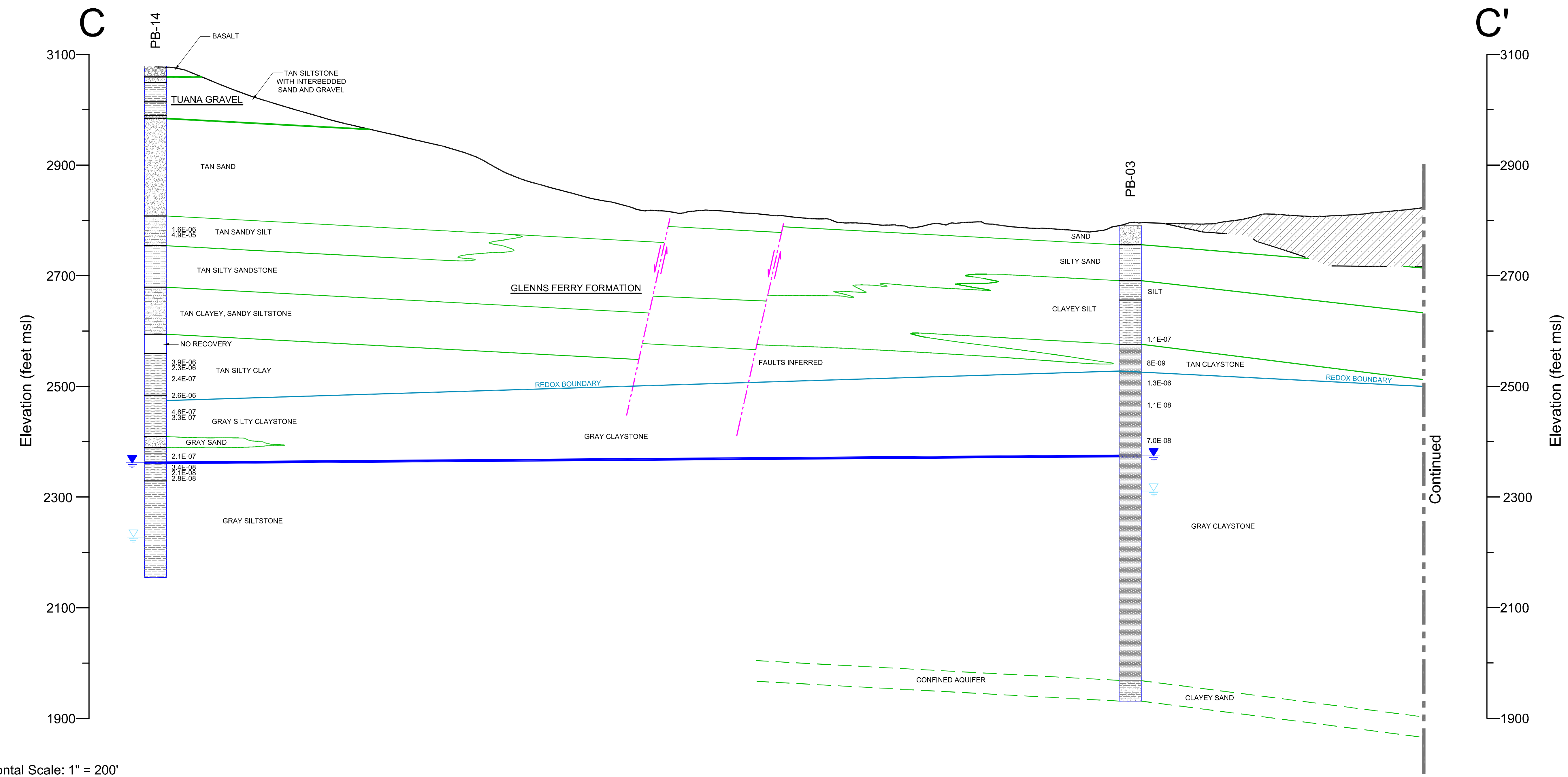
PICKLES BUTTE SANITARY LANDFILL
Cross Section B-B' West to East

Figure 7



Horizontal Scale: 1" = 200'
Vertical Exaggeration: 1X
0 200 ft

Explanation

- First occurence of groundwater
- Static water level
- Current land surface
- Contact
- Potentiometric surface
- Fault
- Redox color change
- 1.4E-08 Saturated hydraulic conductivity; see Table 2.
- Basalt caprock
- Gravel
- Sand/sandstone
- Silt/siltstone
- Clay/claystone
- Clayey sand/sandy clay
- Clayey silt/silty claystone
- Silty sand/silty sandstone
- Sandy silt/ sandy siltstone

PICKLES BUTTE SANITARY LANDFILL
Cross Section C-C' Southwest to Northeast

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Figure 8a

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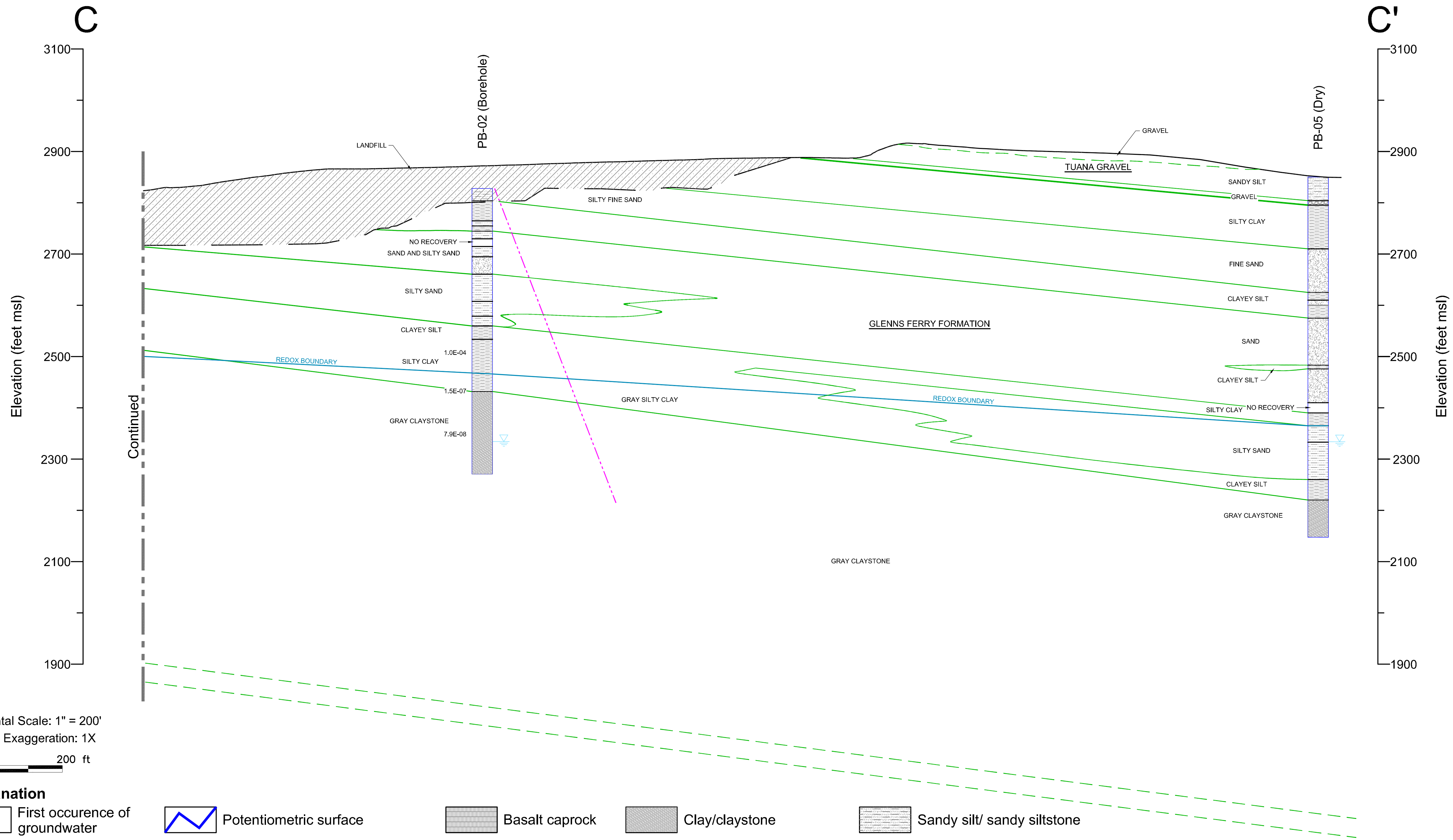

Horizontal Scale: 1" = 200'
Vertical Exaggeration: 1X
0 200 ft

Explanation

First occurence of groundwater	Potentiometric surface	Basalt caprock	Clay/claystone
Static water level	Fault	Gravel	Clayey sand/sandy clay
Current land surface	Redox color change	Sand/sandstone	Clayey silt/silty claystone
Contact	1.4E-08 Saturated hydraulic conductivity; see Table 2.	Silt/siltstone	Silty sand/silty sandstone
			Sandy silt/ sandy siltstone

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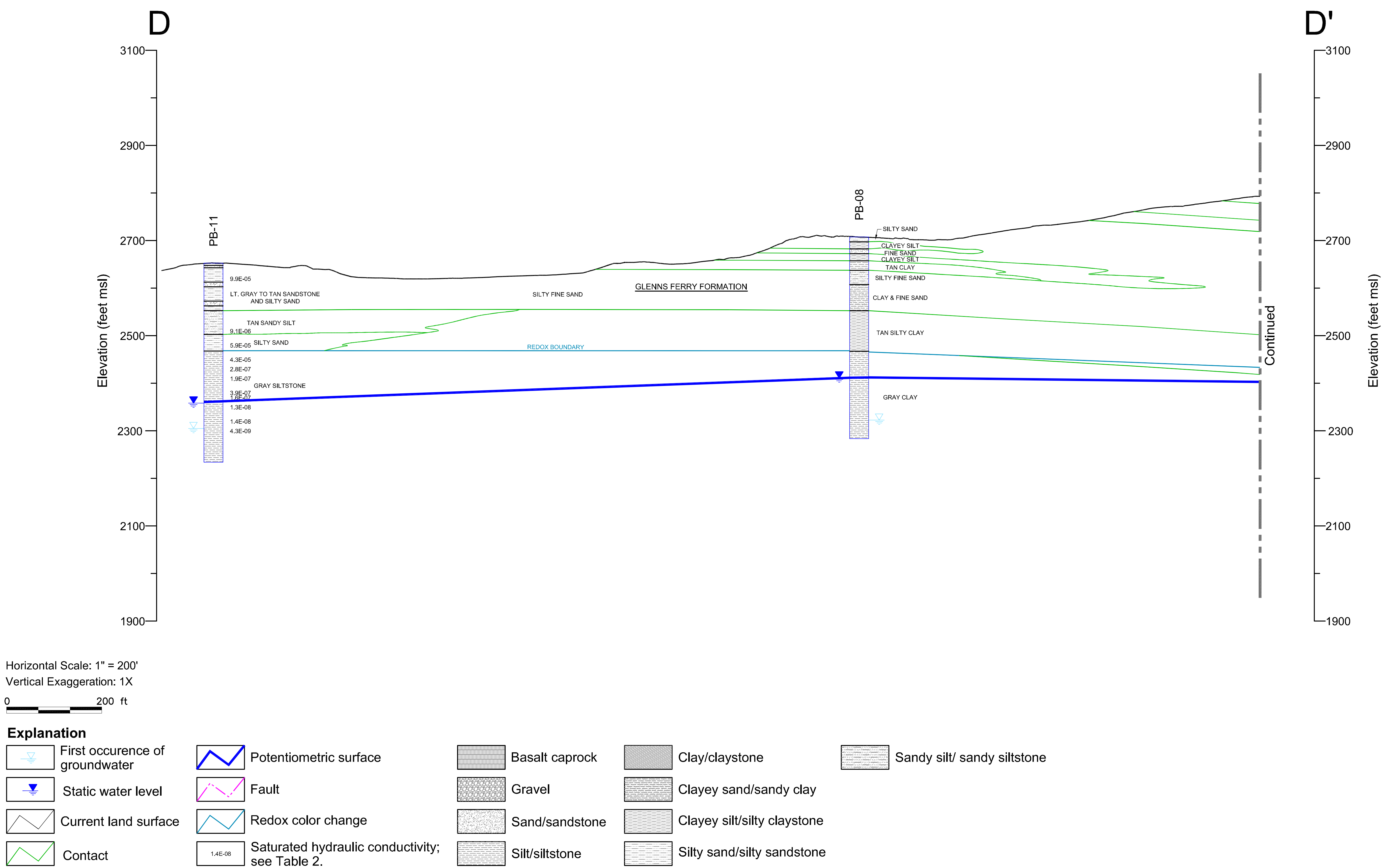
PICKLES BUTTE SANITARY LANDFILL
Cross Section C-C' Southwest to Northeast

Figure 8b



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PICKLES BUTTE SANITARY LANDFILL

Cross Section D-D' West to East

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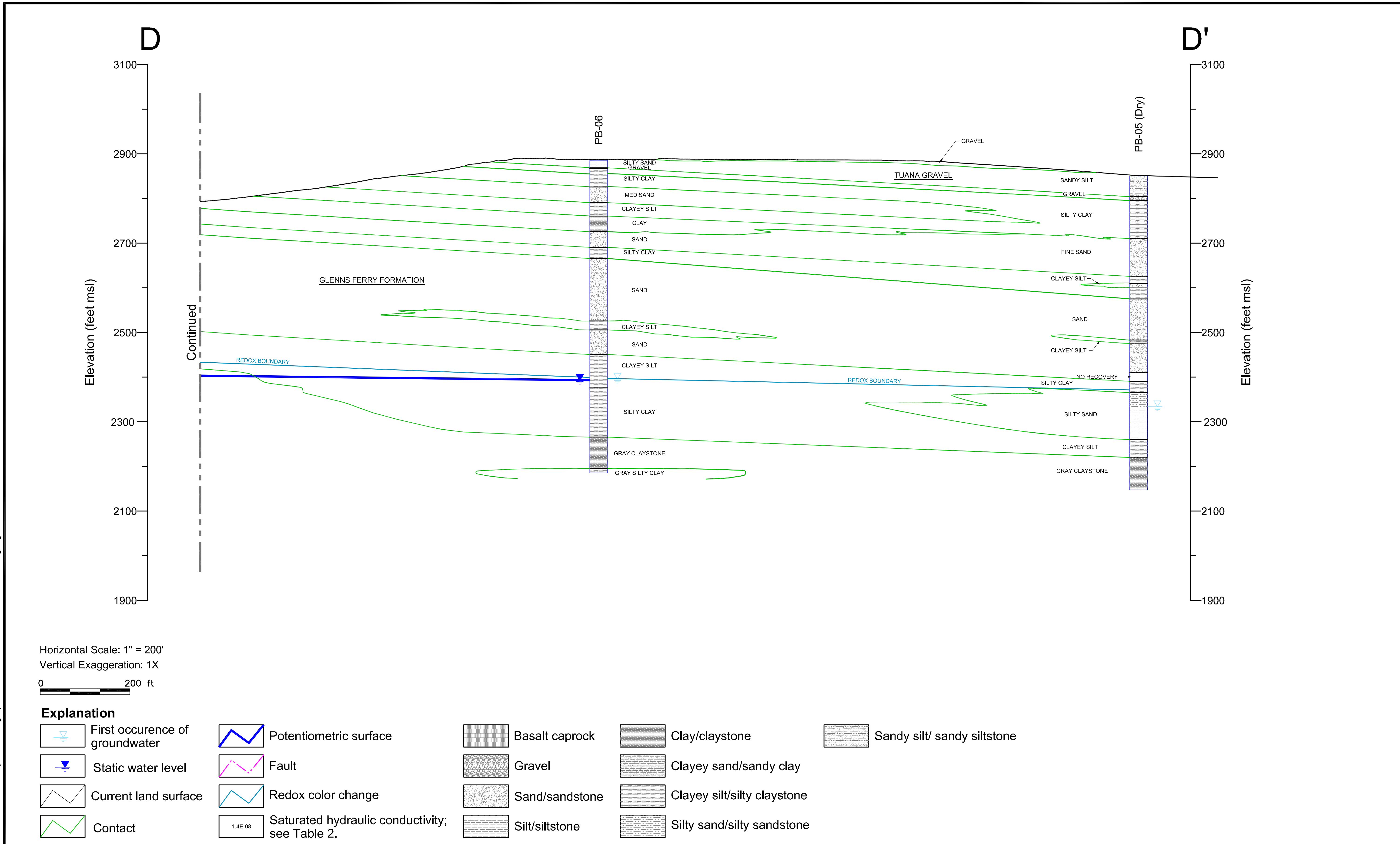
Figure 9a



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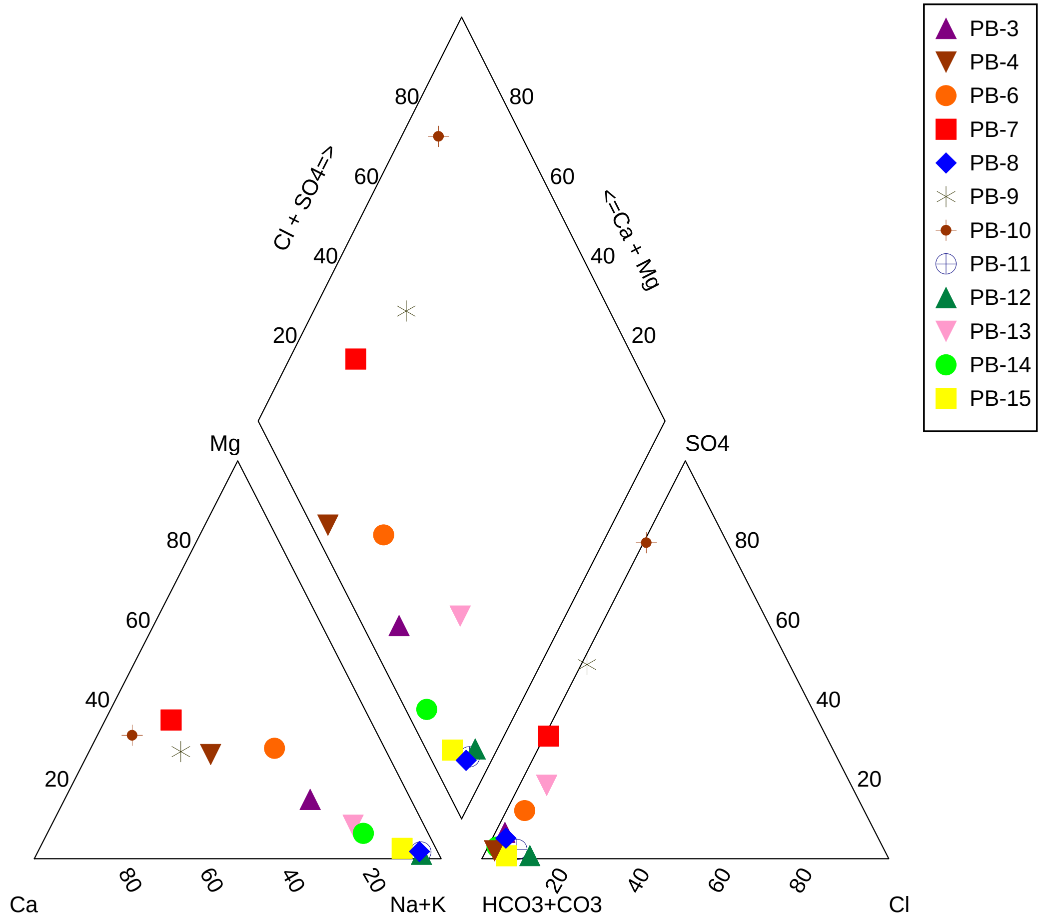
PICKLES BUTTE SANITARY LANDFILL
Cross Section D-D' West to East

Figure 9b



PICKLES BUTTE SANITARY LANDFILL

Piper Diagram

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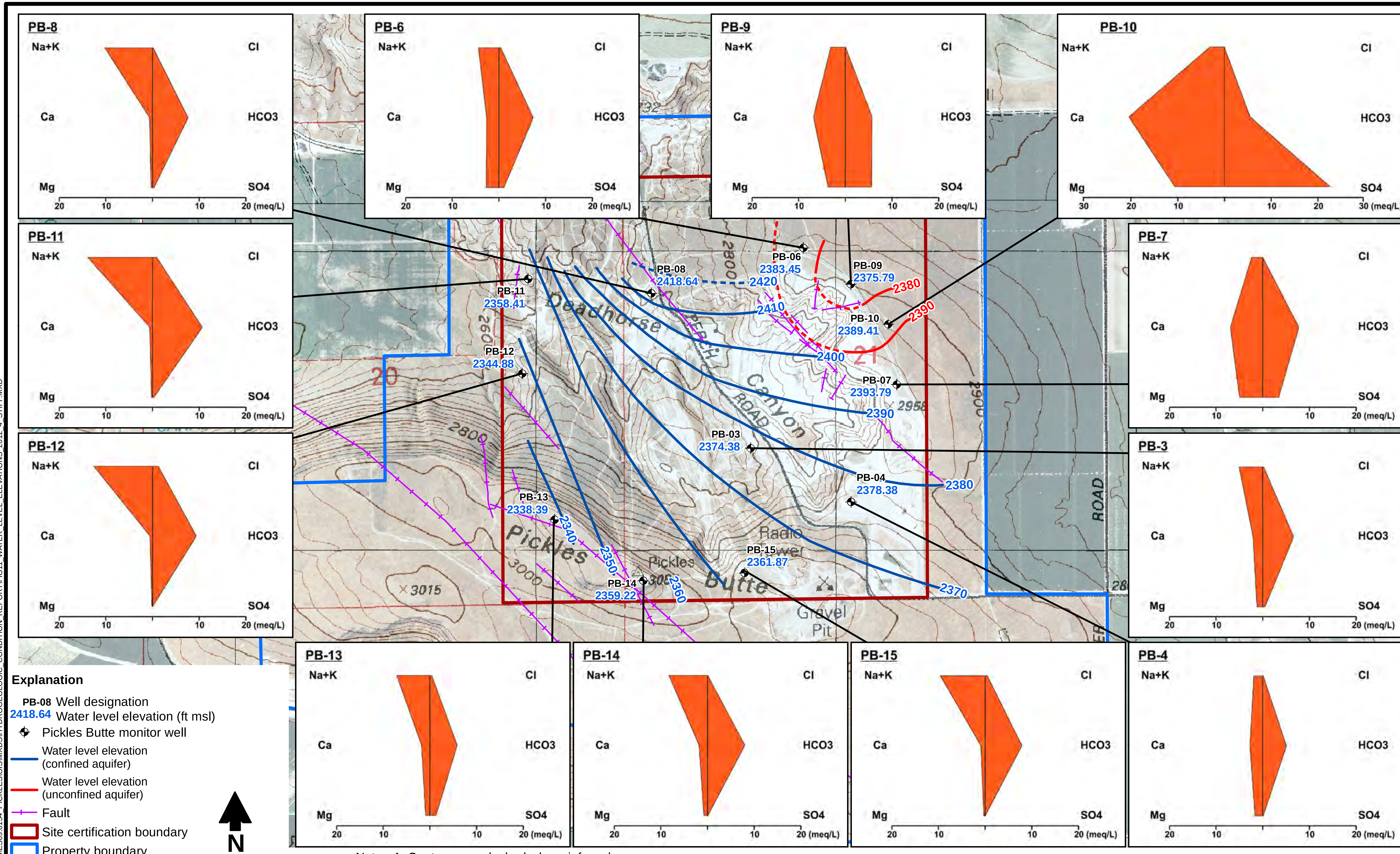
Figure 10



Notes: 1. Contours are dashed where inferred
2. Water level elevations are from April 2012

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4/21/2014
JN ES09.0154

PICKLES BUTTE SANITARY LANDFILL
Water Quality Stiff Diagrams

Figure 11

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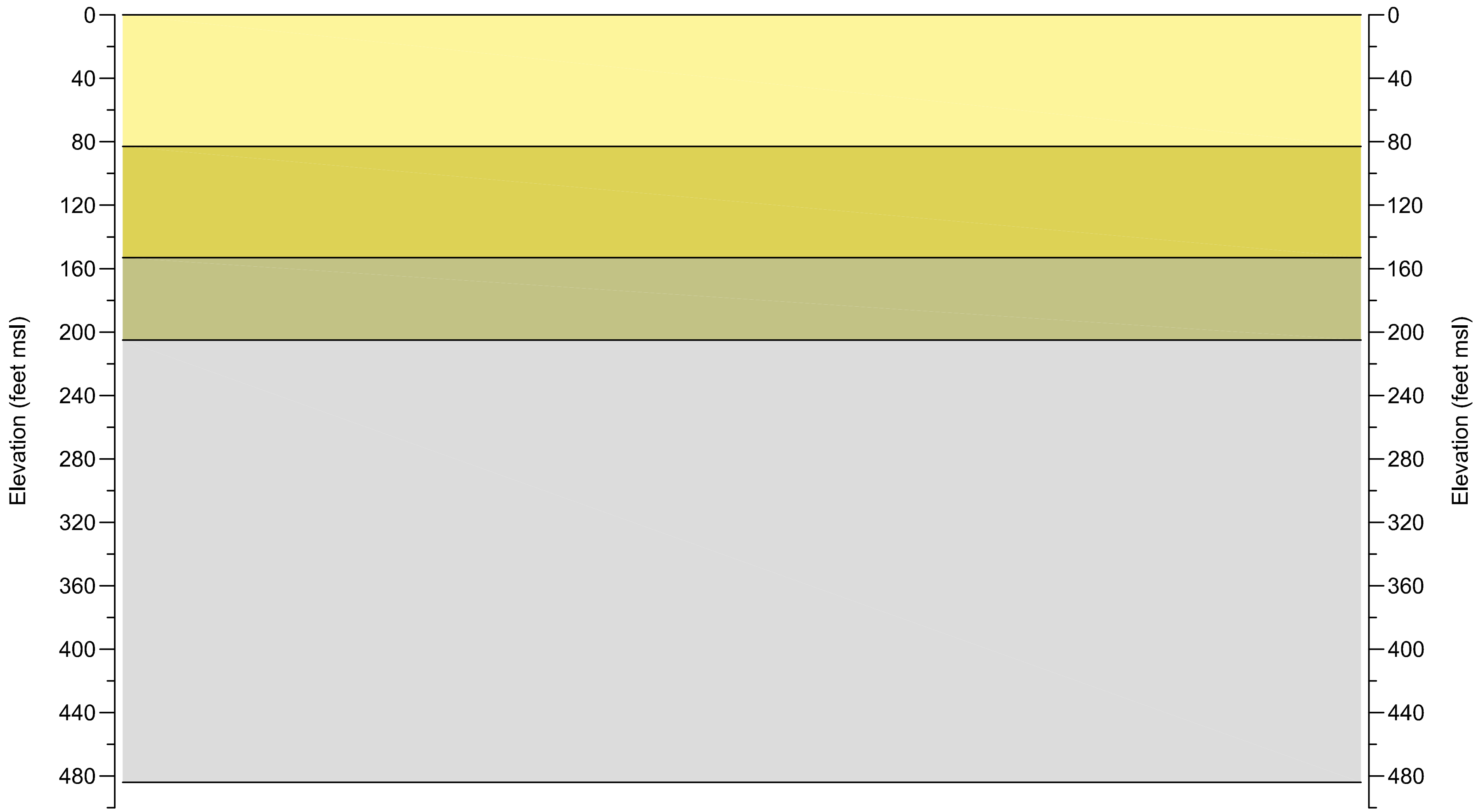

Explanation

Tan silty sand (K_{sat} = 4.1 x 10^{-7} cm/s)

Tan sandy silt (K_{sat} = 1.6 x 10^{-4} cm/s)

Tan siltstone (K_{sat} = 6.20 x 10^{-7} cm/s)

Gray siltstone/claystone (K_{sat} = 5.69 x 10^{-8} cm/s)

PICKLES BUTTE SANITARY LANDFILL

Infiltration Modeling Layers

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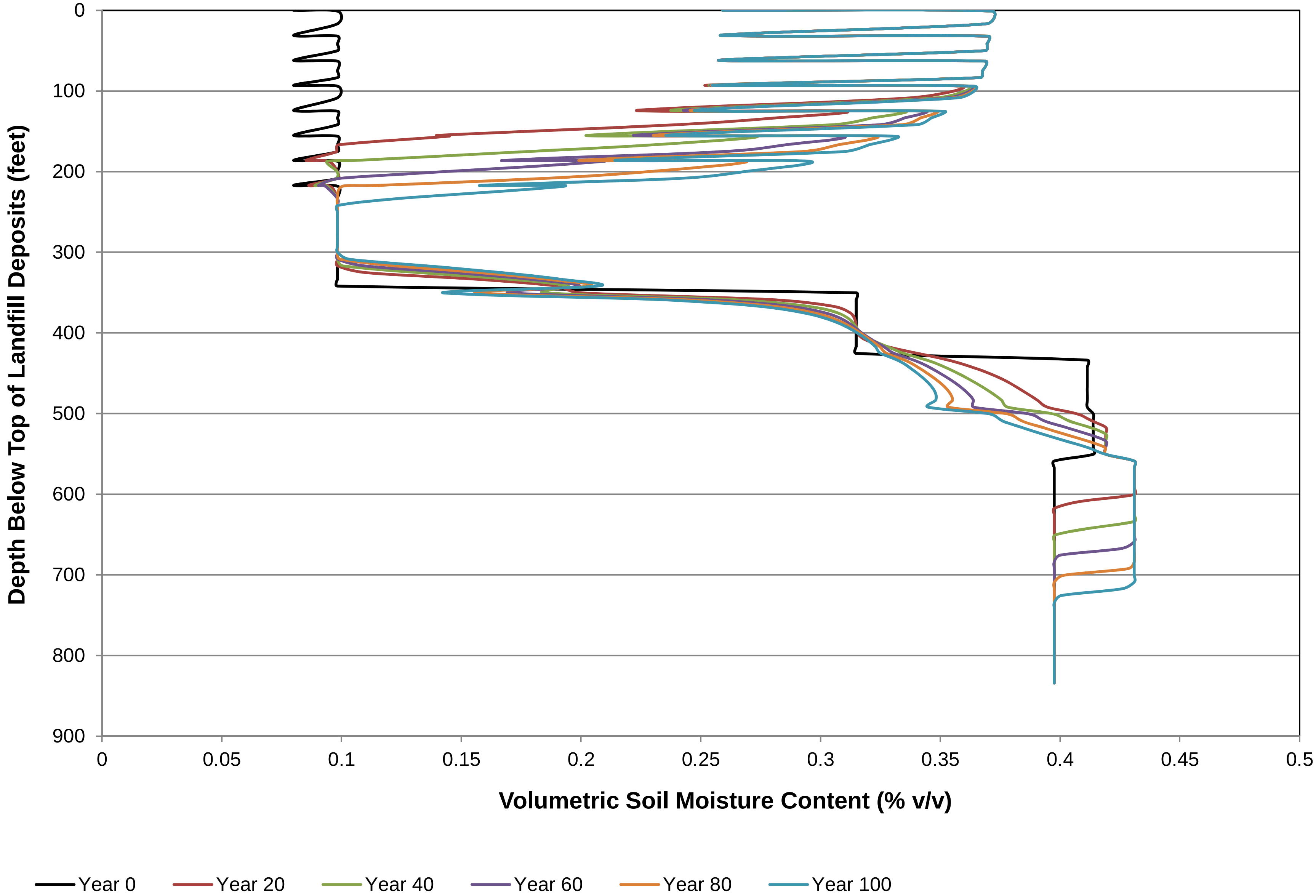
Figure 12



PICKLES BUTTE SANITARY LANDFILL

Soil Moisture Profile Over Time, HYDRUS Model

Figure 13

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4/18/14

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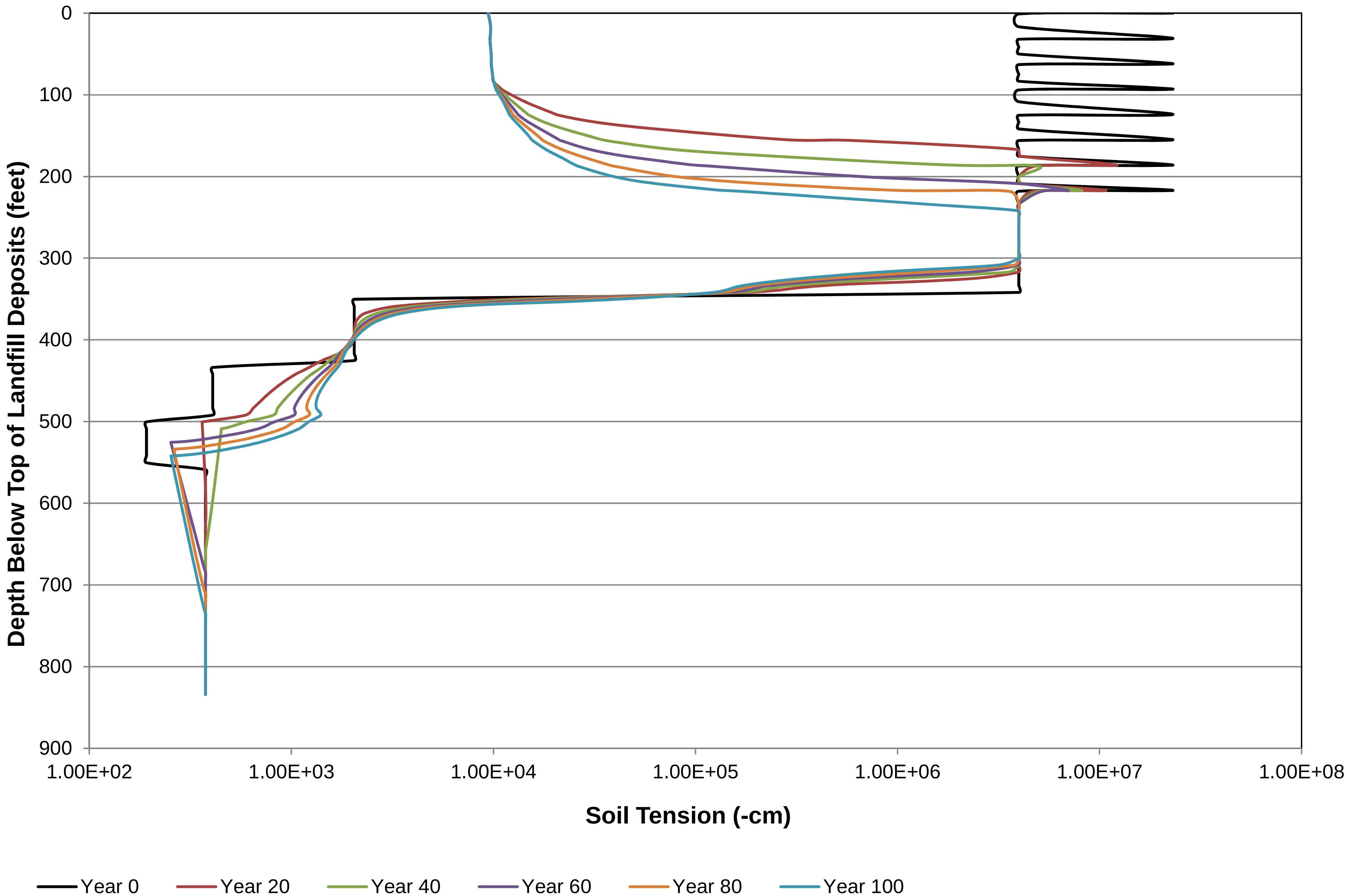

Figure 14

PICKLES BUTTE SANITARY LANDFILL

Soil Tension Profile Over Time, HYDRUS Model

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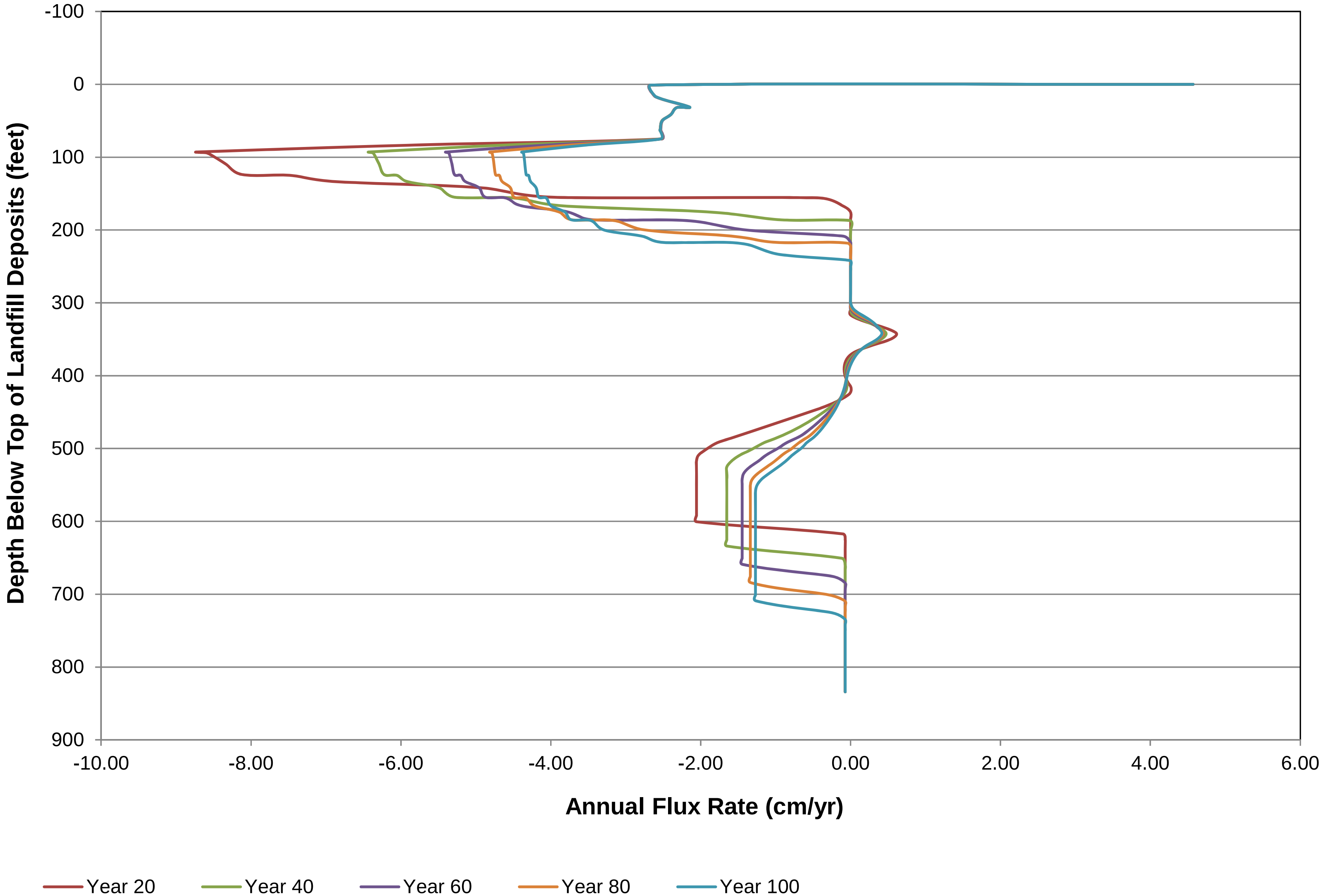
4/18/14



PICKLES BUTTE SANITARY LANDFILL

Flux Profile Over Time, HYDRUS Model

Figure 15

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Tables

Table 1. Monitor Well Completion Information

Well Designation	Completion Date	Survey Data [a]			Screen Interval (feet bgs)		Total Well Depth (feet bgs)	Total Borehole Depth (feet bgs)
		Northing (feet)	Easting (feet)	TOC Elevation (feet msl)	Top	Bottom		
PB-11	6/30/2011	668731.199	243735.206	2654.1	340	400	405	420
PB-12	7/15/2011	667697.966	243653.665	2657.2	480	540	545	555
PB-13	12/15/2011	666231.696	243986.781	3073.9	840	900	905	920
PB-14	10/11/2011	665549.182	244947.947	3080.9	845	905	910	923
PB-15	10/26/2011	665617.168	246058.254	3023.3	790	850	855	870

[a] Northing and easting coordinates provided in NAD27, Idaho State Plane West, FIPS 1103.
Surveyed points are 2 feet north of the protective well vault. Casing stick-up was approximately 2 feet above ground surface at time of well completion.
TOC = Top of casing
msl = Above mean sea level
bgs = Below ground surface

Table 2. Core Samples for Laboratory Analysis

Well Designation	Total Depth (feet bgs)	Cored Interval(s) [a] (feet bgs)	No. of Core Samples Analyzed	Sample Intervals Analyzed (feet bgs)
PB-11	420	0–400	11	39–40, 154–155, 184–185, 209–210, 229–230, 248–249, 274–275, 294–295, 309–310, 334–335, 359–360
PB-12	555	0–350	12	69–70, 109–110, 154–155, 179–180, 204–205, 224–225 249–250, 264–265, 284–285, 309–210, 334–335, 349–350
PB-13	920	0–666	12	279–280, 349–350, 444–445, 499–500, 534–353, 554–555 563–564, 585–586, 604–605, 625–626, 639–640, 660–661
PB-14	923	0–385 520–750 [b]	12	294–295, 304–305, 532–533, 549–550, 569–570, 594–595 620–621, 635–636, 709–710, 727–728, 741–742, 749–750
PB-15	870	425–625	9	435–436, 464–465, 483–484, 502–503, 524–525, 539–540 559–560, 574–575, 604–605

[a] Unless otherwise noted, core sampling was conducted using an HQ (2.4-inch-diameter) wireline coring system.
[b] From 600 to 750 feet bgs, core was collected using an NQ (1.87-inch-diameter) wireline coring system.
bgs = Below ground surface

Table 3. Hydraulic Properties Testing Results
Page 1 of 2

Sample Number	ASTM Classification	Volumetric Moisture Content (%)	Dry Bulk Density (g/cm^3)	Porosity (%)	K_{sat} (cm/s)
PB-11 (39-40)	Lean clay (CL)	35.0	1.51	43.5	9.91×10^{-5}
PB-11 (154-155)	Lean clay (CL)	30.2	1.49	44.6	9.11×10^{-6}
PB-11 (184-185)	Lean clay (CL)	36.8	1.55	41.8	5.94×10^{-5}
PB-11 (209-210)	Lean clay (CL)	39.6	1.56	42.0	4.26×10^{-5}
PB-11 (229-230)	Lean clay with sand (CL)s	34.5	1.64	38.2	2.75×10^{-7}
PB-11 (248-249)	Fat clay (CH)	39.8	1.54	42.9	1.89×10^{-7}
PB-11 (274-275)	Lean clay with sand (CL)s	36.4	1.59	40.8	3.87×10^{-7}
PB-11 (294-295)	Lean clay (CL)	39.1	1.55	42.0	1.60×10^{-7}
PB-11 (309-310)	Lean clay (CL)	39.4	1.57	41.7	1.32×10^{-8}
PB-11 (334-335)	Lean clay (CL)	35.8	1.68	38.1	1.38×10^{-8}
PB-11 (359-360)	Lean clay (CL)	38.3	1.58	41.8	4.29×10^{-9}
PB-12 (69-70)	Silt (ML)	40.4	1.51	43.9	1.54×10^{-5}
PB-12 (109-110)	Fat clay (CH)	43.2	1.47	46.3	1.57×10^{-4}
PB-12 (154-155)	Silt (ML)	29.6	1.62	39.9	2.56×10^{-8}
PB-12 (179-180)	Lean clay (CL)	27.5	1.52	43.4	1.92×10^{-4}
PB-12 (204-205)	Silt (ML)	39.8	1.52	42.9	3.42×10^{-4}
PB-12 (224-225)	Lean clay (CL)	38.7	1.56	42.0	2.06×10^{-6}
PB-12 (249-250)	Lean clay (CL)	40.1	1.55	42.6	9.11×10^{-6}
PB-12 (264-265)	Lean clay (CL)	34.5	1.52	43.2	9.43×10^{-7}
PB-12 (284-285)	Lean clay (CL)	40.8	1.52	44.3	2.52×10^{-8}
PB-12 (309-310)	Fat clay (CH)	41.6	1.51	43.6	1.44×10^{-8}
PB-12 (334-335)	Fat clay (CH)	39.7	1.55	42.6	4.43×10^{-9}
PB-12 (349-350)	Fat clay (CH)	44.7	1.44	46.8	6.86×10^{-9}
PB-13 (279-280)	Sandy silt s(ML)	39.7	1.52	42.7	1.17×10^{-4}
PB-13 (349-350)	Silt with sand (ML)s	37.1	1.48	45.0	4.12×10^{-7}
PB-13 (444-445)	Lean clay (CL)	42.3	1.45	46.7	1.58×10^{-4}
PB-13 (499-500)	Lean clay (CL)	41.0	1.50	44.6	1.73×10^{-5}
PB-13 (534-535)	Silt (ML)	38.7	1.49	44.3	1.47×10^{-6}
PB-13 (554-555)	Lean clay (CL)	37.9	1.46	45.2	6.27×10^{-7}
PB-13 (563-564)	Lean clay (CL)	39.3	1.47	44.6	1.21×10^{-7}
PB-13 (585-586)	Silt (ML)	43.4	1.45	45.8	7.00×10^{-7}
PB-13 (604-605)	Silt (ML)	44.4	1.42	46.6	1.34×10^{-7}
PB-13 (625-626)	Silt (ML)	41.9	1.46	44.2	2.04×10^{-7}

ASTM = American Society for Testing and Materials
g/cm^3 = Grams per cubic centimeter
K_{sat} = Saturated hydraulic conductivity
cm/s = Centimeters per second

Table 3. Hydraulic Properties Testing Results
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Sample Number	ASTM Classification	Volumetric Moisture Content (%)	Dry Bulk Density (g/cm^3)	Porosity (%)	K_{sat} (cm/s)
PB-13 (639-640)	Silt with sand (ML)s	43.5	1.43	45.7	1.22×10^{-7}
PB-13 (660-661)	Silt (ML)	42.2	1.47	44.7	2.26×10^{-7}
PB-14 (294-295)	Lean clay (CL)	43.9	1.38	49.1	1.61×10^{-6}
PB-14 (304-305)	Lean clay (CL)	29.6	1.38	48.7	4.87×10^{-5}
PB-14 (532-533)	Silt (ML)	42.5	1.39	47.9	3.94×10^{-6}
PB-14 (549-550)	Silt (ML)	42.4	1.44	45.5	2.28×10^{-6}
PB-14 (569-570)	Silt (ML)	41.9	1.47	45.2	2.41×10^{-7}
PB-14 (594-595)	Silt (ML)	44.1	1.37	47.8	2.57×10^{-6}
PB-14 (620-623)	Silt (ML)	38.8	1.48	43.8	4.85×10^{-7}
PB-14 (635-636)	Silt (ML)	42.5	1.41	46.9	3.31×10^{-7}
PB-14 (709-710)	Silt (ML)	45.6	1.41	47.4	2.15×10^{-7}
PB-14 (727-728)	Silt (ML)	40.4	1.48	44.3	3.36×10^{-8}
PB-14 (741-742)	Silt (ML)	42.2	1.47	44.4	2.13×10^{-8}
PB-14 (749-750)	Silt (ML)	41.1	1.46	45.1	2.75×10^{-8}
PB-15 (435-436)	Silt with sand (ML)s	42.8	1.40	47.5	7.24×10^{-4}
PB-15 (464-465)	Silt (ML)	46.4	1.39	48.2	8.52×10^{-6}
PB-15 (483-484)	Lean clay (CL)	42.9	1.48	45.0	1.06×10^{-6}
PB-15 (502-503)	Silt (ML)	41.1	1.43	46.9	2.42×10^{-7}
PB-15 (524-525)	Silt (ML)	44.4	1.47	44.8	1.62×10^{-4}
PB-15 (539-540)	Sandy silt s(ML)	43.4	1.46	44.9	9.42×10^{-9}
PB-15 (559-560)	Silt (ML)	42.6	1.48	44.4	1.49×10^{-6}
PB-15 (574-575)	Silt (ML)	43.4	1.43	45.3	1.23×10^{-7}
PB-15 (604-605)	Silt with sand (ML)s	39.3	1.51	43.9	1.78×10^{-6}

ASTM = American Society for Testing and Materials
g/cm^3 = Grams per cubic centimeter
K_{sat} = Saturated hydraulic conductivity
cm/s = Centimeters per second

Table 4. Water Quality Summary

Well	Concentration (mg/L)						
	Sodium	Potassium	Calcium	Magnesium	Chloride	Sulfate	Bicarbonate
Confined Aquifer							
PB-3	104	22.3	41.9	15.3	6	23	403
PB-8	229	4.4	9.57	2.33	10	21	473
PB-11	316	5.5	12.4	2.97	31	13	649
PB-12	286	6.8	11.5	1.82	43	4	571
PB-13	147	22.9	32.9	9.62	19	71	366
PB-14	176	18.4	33.4	8.07	7	12	497
PB-15	213	12.8	17.9	3.38	17	3	483
Average	210.1	13.3	22.8	6.2	19.0	21.0	491.7
Unconfined Aquifer							
PB-4	27.9	27.3	55.2	20.1	4	5	310
PB-6	88.8	21.3	52.9	32.9	14	51	448
PB-7	28.9	38.8	136	58.7	4	171	481
PB-9	59.1	16.2	134	43.3	6	276	358
PB-10	45.2	34.9	405	126	7	1,100	350
Average	49.98	27.7	156.62	56.2	7	320.6	389.4

mg/L = Milligrams per liter

Table 5. Saturated Flux Model, PB-11

Model Layer	Layer Description	Top of Interval (feet bgs)	Bottom of Interval (feet bgs)	Thickness of Interval (feet)	Laboratory Sample Depth Interval (feet bgs)	Sample K_{sat} (cm/s)	Sample Porosity (%)	Sample Moisture Content (%)	Layer Average K_{sat} (cm/s)	Layer Average Porosity (%)	Layer Average Initial Moisture (%)	Layer Travel Rate (ft/yr)	Layer Travel Time (years)	Cumulative Travel Time (years)	Comments
1	Basalt	NP	NP	—	—	—	—	—	—	—	—	—	—	—	
2	Sandy gravel	NP	NP	—	—	—	—	—	—	—	—	—	—	—	
3	Tan sand	NP	NP	—	—	—	—	—	—	—	—	—	—	—	
4	Tan silty sand	0	95	95	39–40	9.91×10^{-5}	43.5	35.0	9.91×10^{-5}	43.5	35.0	44.63	2	2	
5	Tan sandy silt	95	150	55	154–155	9.11×10^{-6}	44.6	30.2	9.11×10^{-6}	44.6	30.2	4.20	13	15	
6	Silty sand	150	195	45	184–185	5.94×10^{-5}	41.8	36.8	5.94×10^{-5}	41.8	36.8	25.71	2	17	
7	Gray siltstone/ claystone	195	360	165	209–210	4.26×10^{-5}	42.0	39.6	2.00×10^{-8}	40.9	37.9	0.01	19,439	19,456	Siltstone/claystone confining layer encountered at 200 feet bgs. Static groundwater level at 295 feet bgs. First groundwater encountered between 350 and 400 feet bgs.
					229–230	2.75×10^{-7}	38.2	34.5							
					248–249	1.89×10^{-7}	42.9	39.8							
					274–275	3.87×10^{-7}	40.8	36.4							
					294–295	1.60×10^{-7}	42.0	39.1							
					309–310	1.32×10^{-8}	41.7	39.4							
					334–335	1.38×10^{-8}	38.1	35.8							
					359–360	4.29×10^{-9}	41.8	38.3							

bgs = Below ground surface
K_{sat} = Saturated hydraulic conductivity
cm/s = Centimeters per second
ft/yr = Feet per year
NP = Not present
— = Not applicable

Table 6. Saturated Flux Model, PB-12

Model Layer	Layer Description	Top of Interval (feet bgs)	Bottom of Interval (feet bgs)	Thickness of Interval (feet)	Laboratory Sample Depth Interval (feet bgs)	Sample K_{sat} (cm/s)	Sample Porosity (%)	Sample Moisture Content (%)	Layer Average K_{sat} (cm/s)	Layer Average Porosity (%)	Layer Average Initial Moisture (%)	Layer Travel Rate (ft/yr)	Layer Travel Time (years)	Cumulative Travel Time (years)	Comments
1	Basalt	NP	NP	—	—	—	—	—	—	—	—	—	—	—	
2	Sandy gravel	NP	NP	—	—	—	—	—	—	—	—	—	—	—	
3	Tan sand	NP	NP	—	—	—	—	—	—	—	—	—	—	—	
4	Tan silty sand	0	70	70	69–70	1.5×10^{-5}	43.9	40.4	1.54×10^{-5}	43.9	40.4	6.98	10	10	
5	Tan sandy silt	70	120	50	109–110	1.6×10^{-4}	46.3	43.2	1.57×10^{-4}	46.3	43.2	75.23	1	11	
6	Silty sand	120	140	20	—[a]	—[a]	—[a]	—[a]	1.70×10^{-5}	44.6	44.6	7.84	3	13	
7	Gray siltstone/ claystone	140	500	360	154–155	2.6×10^{-8}	39.9	29.6	1.92×10^{-8}	43.12	37.70	0.01	42,058	42,071	Siltstone/claystone confining layer encountered at 140 feet bgs. Static groundwater level at 315 feet bgs. First groundwater encountered between 500 and 560 feet bgs.
					179–180	1.9×10^{-4}	43.4	27.5							
					204–205	3.4×10^{-4}	42.9	39.8							
					224–225	2.1×10^{-6}	42.0	38.7							
					249–250	9.1×10^{-6}	42.6	40.1							
					264–265	9.4×10^{-7}	43.2	34.5							
					284–285	2.5×10^{-8}	44.3	40.8							
					309–310	1.4×10^{-8}	43.6	41.6							
					334–335	4.4×10^{-9}	42.6	39.7							
					349–350	6.9×10^{-9}	46.8	44.7							

[a] No sample was collected in this layer at this well. Values from PB-13(499-500) sample were used.

bgs = Below ground surface
K_{sat} = Saturated hydraulic conductivity
cm/s = Centimeters per second
ft/yr = Feet per year
NP = Not present
— = Not applicable

Table 7. Saturated Flux Model, PB-13

Model Layer	Layer Description	Top of Interval (feet bgs)	Bottom of Interval (feet bgs)	Thickness of Interval (feet)	Laboratory Sample Depth Interval (feet bgs)	Sample K_{sat} (cm/s)	Sample Porosity (%)	Sample Moisture Content (%)	Layer Average K_{sat} (cm/s)	Layer Average Porosity (%)	Layer Average Initial Moisture (%)	Layer Travel Rate (ft/yr)	Layer Travel Time (years)	Cumulative Travel Time (years)	Comments
1	Basalt	0	20	20	—[a]	—[a]	—[a]	—[a]	1.0×10^{-3}	45.0	45.0	465.59	0.04	0.04	
2	Sandy gravel	20	115	95	—[a]	—[a]	—[a]	—[a]	1.0×10^{-3}	45.0	45.0	465.59	0.20	0.25	
3	Tan sand	115	305	190	279–280	1.2×10^{-4}	42.7	39.7	1.17×10^{-4}	42.7	39.7	51.73	4	4	
4	Tan silty sand	305	385	80	349–350	4.1×10^{-7}	45.0	37.1	4.12×10^{-7}	45.0	37.1	0.19	417	421	
5	Tan sandy silt	385	450	65	444–445	1.6×10^{-4}	46.7	42.3	1.58×10^{-4}	46.7	42.3	76.22	1	422	
6	Silty sand	450	545	95	499–500	1.7×10^{-5}	44.6	41.0	2.71×10^{-6}	44.5	39.8	1.24	76	498	
7	Gray siltstone/ claystone	545	850	305	543–535	1.5×10^{-6}	44.3	38.7	1.93×10^{-7}	45.2	41.8	0.09	3,377	3,875	Siltstone/claystone confining layer encountered at 545 feet bgs. Static groundwater level at 735 feet bgs. First groundwater encountered between 850 and 900 feet bgs.
					554–555	6.3×10^{-7}	45.2	37.9							
					563–564	1.2×10^{-7}	44.6	39.3							
					585–586	7.0×10^{-7}	45.8	43.4							
					604–605	1.3×10^{-7}	46.6	44.4							
					625–626	2.0×10^{-7}	44.2	41.9							
					639–640	1.2×10^{-7}	45.7	43.5							

[a] No sample was collected in this layer at this well. Conservative estimates of K_{sat} and porosity of 1.0×10^{-3} and 45.0, respectively, were used.

bgs = Below ground surface
K_{sat} = Saturated hydraulic conductivity
cm/s = Centimeters per second
ft/yr = Feet per year
— = Not applicable

Table 8. Saturated Flux Model, PB-14

Model Layer	Layer Description	Top of Interval (feet bgs)	Bottom of Interval (feet bgs)	Thickness of Interval (feet)	Laboratory Sample Depth Interval (feet bgs)	Sample K_{sat} (cm/s)	Sample Porosity (%)	Sample Moisture Content (%)	Layer Average K_{sat} (cm/s)	Layer Average Porosity (%)	Layer Average Initial Moisture (%)	Layer Travel Rate (ft/yr)	Layer Travel Time (years)	Cumulative Travel Time (years)	Comments
1	Basalt	NP	NP	—	—	—	—	—	—	—	—	—	—	—	
2	Sandy gravel	0	100	100	—[a]	—[a]	—[a]	—[a]	1.0×10^{-3}	45.0	45.0	465.59	0.21	0.21	
3	Tan sand	100	325	225	294–295	1.6×10^{-6}	49.1	43.9	3.12×10^{-6}	48.9	36.8	1.58	142	142	
					304–305	4.9×10^{-5}	48.7	29.6							
4	Tan silty sand	325	400	75	—[b]	—[b]	—[b]	—[b]	4.1×10^{-7}	45.0	45.0	0.19	391	533	
5	Tan sandy silt	400	485	85	—[c]	—[c]	—[c]	—[c]	1.6×10^{-4}	46.7	46.7	76.22	1	534	
6	Silty sand	485	520	35	532–533	3.9×10^{-6}	47.9	42.5	6.20×10^{-7}	46.2	42.3	0.30	118	653	
					549–550	2.3×10^{-6}	45.5	42.4							
					569–570	2.4×10^{-7}	45.2	41.9							
7	Gray siltstone/ claystone	520	850	330	594–595	2.6×10^{-6}	47.8	44.1	5.69×10^{-8}	45.7	42.1	0.03	12,270	12,923	Siltstone/claystone confining layer encountered at 520 feet bgs. Static groundwater level at 721 feet bgs. First groundwater encountered between 800 and 840 feet bgs.
					620–623	4.8×10^{-7}	43.8	38.8							
					635–663	3.3×10^{-7}	46.9	42.5							
					709–710	2.1×10^{-7}	47.4	45.6							
					727–728	3.4×10^{-8}	44.3	40.4							
					741–742	2.1×10^{-8}	44.4	42.2							
					749–750	2.8×10^{-8}	45.1	41.1							

[a] No sample was collected in this layer at this well. Conservative estimates of K_{sat} and porosity of 1.0×10^{-3} and 45.0, respectively, were used.
[b] No sample was collected in this layer at this well. The average K_{sat} and porosity values from Layer 4 in PB-13 were used.
[c] No sample was collected in this layer at this well. The average K_{sat} and porosity values from Layer 5 in PB-13 were used.

bgs = Below ground surface
K_{sat} = Saturated hydraulic conductivity
cm/s = Centimeters per second
ft/yr = Feet per year
NP = Not present
— = Not applicable

Table 9. Saturated Flux Model, PB-15

Model Layer	Layer Description	Top of Interval (feet bgs)	Bottom of Interval (feet bgs)	Thickness of Interval (feet)	Laboratory Sample Depth Interval (feet bgs)	Sample K_{sat} (cm/s)	Sample Porosity (%)	Sample Moisture Content (%)	Layer Average K_{sat} (cm/s)	Layer Average Porosity (%)	Layer Average Initial Moisture (%)	Layer Travel Rate (ft/yr)	Layer Travel Time (years)	Cumulative Travel Time (years)	Comments
1	Basalt	NP	NP	—	—	—	—	—	—	—	—	—	—	—	
2	Sandy gravel	0	80	80	—[a]	—[a]	—[a]	—[a]	1.0×10^{-3}	45.0	45.0	465.59	0.17	0.17	
3	Tan sand	80	310	230	—[b]	—[b]	—[b]	—[b]	4.87×10^{-5}	48.7	48.7	24.55	9.37	9.54	
4	Tan silty sand	310	405	95	—[c]	—[c]	—[c]	—[c]	4.12×10^{-7}	45.0	45.0	0.19	495	504.61	
5	Tan sandy silt	405	500	95	435–436	7.2×10^{-4}	47.5	42.8	7.70×10^{-7}	46.9	43.3	0.37	254	758.69	
					464–465	8.5×10^{-6}	48.2	46.4							
					483–484	1.1×10^{-6}	45.0	42.9							
					502–503	2.4×10^{-7}	46.9	41.1							
6	Silty sand	500	565	65	524–525	1.6×10^{-4}	44.8	44.4	3.48×10^{-8}	44.9	43.5	0.02	4,025	4,784	
					539–540	9.4×10^{-9}	44.9	43.4							
					559–560	1.5×10^{-6}	44.4	42.6							
					574–575	1.2×10^{-7}	45.3	43.4							
7	Gray siltstone/ claystone	565	800	235	604–605	1.8×10^{-6}	43.9	39.3	1.78×10^{-6}	43.9	39.3	0.81	291	5,075	Siltstone/claystone confining layer encountered at 565 feet bgs. Static groundwater level at 661 feet bgs. First groundwater encountered between 800 and 860 feet bgs.

[a] No sample was collected in this layer at this well. Conservative estimates of K_{sat} and porosity of 1.0×10^{-3} and 45.0, respectively, were used.
[b] No sample was collected in this layer at this well. The average K_{sat} and porosity values from Layer 3 in PB-14 were used.
[c] No sample was collected in this layer at this well. The average K_{sat} and porosity values from Layer 4 in PB-13 were used.

bgs = Below ground surface
K_{sat} = Saturated hydraulic conductivity
cm/s = Centimeters per second
ft/yr = Feet per year
NP = Not present
— = Not applicable

Table 10. Saturated Flux Model, Site Average

Model Layer	Description	Layer Thickness	Average K_{sat} (cm/s)	Average Porosity (%)	Layer Travel Rate (ft/yr)	Layer Travel Time (years)	Cumulative Travel Time (years)
1	Basalt	NM	NM	NM	NM	NM	NM
2	Sandy gravel	NM	NM	NM	NM	NM	NM
3	Tan sand	NM	NM	NM	NM	NM	NM
4	Tan silty sand	83	6.80×10^{-7}	44.50	1.58	53	53
5	Tan sandy siltsone	70	3.50×10^{-6}	46.24	7.84	9	61
6	Tan siltstone	52	1.62×10^{-7}	44.38	0.38	137	199
7	Gray siltstone/claystone	279	3.99×10^{-8}	43.77	0.09	2,959	3,158

K_{sat} = Saturated hydraulic conductivity
cm/s = Centimeters per second
ft/yr = Feet per year
NM = Not modeled because unit is not present beneath most of proposed landfill footprint

Table 11. HELP Model Layers

Layer	Description	Layer Thickness (feet)	Average K_{sat} (cm/s)	Average Porosity (%)	Initial Moisture Content (%)	Field Capacity (%)	Wilting Point (%)
1	Intermediate cover material	1	1.70×10^{-3}	43.70	8.00	10.50	4.70
2	Municipal solid waste	30	1.00×10^{-3}	67.10	9.83	29.20	7.70
3	Intermediate cover material	1	1.70×10^{-3}	43.70	8.00	10.50	4.70
4	Municipal solid waste	30	1.00×10^{-3}	67.10	9.83	29.20	7.70
5	Intermediate cover material	1	1.70×10^{-3}	43.70	8.00	10.50	4.70
6	Municipal solid waste	30	1.00×10^{-3}	67.10	9.83	29.20	7.70
7	Intermediate cover material	1	1.70×10^{-3}	43.70	8.00	10.50	4.70
8	Municipal solid waste	30	1.00×10^{-3}	67.10	9.83	29.20	7.70
9	Intermediate cover material	1	1.70×10^{-3}	43.70	8.00	10.50	4.70
10	Municipal solid waste	30	1.00×10^{-3}	67.10	9.83	29.20	7.70
11	Intermediate cover material	1	1.70×10^{-3}	43.70	8.00	10.50	4.70
12	Municipal solid waste	30	1.00×10^{-3}	67.10	9.83	29.20	7.70
13	Intermediate cover material	1	1.70×10^{-3}	43.70	8.00	10.50	4.70
14	Municipal solid waste	30	1.00×10^{-3}	67.10	9.83	29.20	7.70
15	Intermediate cover material	1	1.70×10^{-3}	43.70	8.00	10.50	4.70
16	Municipal solid waste	132	1.00×10^{-3}	67.10	9.83	29.20	7.70
17	Tan silty sand	83	6.80×10^{-7}	44.50	40.49	33.02	12.11
18	Tan sandy siltsone	70	3.50×10^{-6}	46.24	41.13	35.01	13.24
19	Tan siltstone	52	1.62×10^{-7}	44.38	41.39	32.69	11.85
20	Gray siltstone/claystone	279	3.99×10^{-8}	43.77	39.75	33.88	11.48

K_{sat} = Saturated hydraulic conductivity
cm/s = Centimeters per second

Table 12. HELP Climatological and Vegetation Data

Parameter	Value	Source
Climatological data		
Precipitation	Daily fluctuations	Synthetically generated by the HELP modeling based on coefficients for Boise, ID (closest city in HELP database).
Temperature (max, min)		
Solar radiation	Daily fluctuations	Synthetically generated by the HELP modeling based on coefficients for Boise, ID (closest city in HELP database).
Wind speed	8.9 miles per hour	HELP default value for Boise, ID (closest city in HELP database)
Relative humidity Q1 Q2 Q3 Q4	68% 51% 40% 66%	HELP default values for Boise, ID (closest city in HELP database)
Vegetation (ET) data		
Evaporative zone depth	36 inches	Professional experience in Mountain Home, ID
Maximum leaf area index	0.35	HEC (1996)
Growing season days	120 to 286	HEC (1996)

Table 13. HYDRUS Model Layers

Layer	Material	Description	Layer Thickness (feet)	Average K_{sat} (cm/s)	Average Porosity (%)	Initial Moisture Content (%)	θr (%)	θs (%)	α	N
1	1	Intermediate cover material	1	1.70×10^{-3}	43.70	8.00	5.00	43.70	0.0012	1.2500
2	2	Municipal solid waste	30	1.00×10^{-3}	67.10	9.83	2.00	67.10	0.0012	1.2500
3	1	Intermediate cover material	1	1.70×10^{-3}	43.70	8.00	5.00	43.70	0.0012	1.2500
4	2	Municipal solid waste	30	1.00×10^{-3}	67.10	9.83	2.00	67.10	0.0012	1.2500
5	1	Intermediate cover material	1	1.70×10^{-3}	43.70	8.00	5.00	43.70	0.0012	1.2500
6	2	Municipal solid waste	30	1.00×10^{-3}	67.10	9.83	2.00	67.10	0.0012	1.2500
7	1	Intermediate cover material	1	1.70×10^{-3}	43.70	8.00	5.00	43.70	0.0012	1.2500
8	2	Municipal solid waste	30	1.00×10^{-3}	67.10	9.83	2.00	67.10	0.0012	1.2500
9	1	Intermediate cover material	1	1.70×10^{-3}	43.70	8.00	5.00	43.70	0.0012	1.2500
10	2	Municipal solid waste	30	1.00×10^{-3}	67.10	9.83	2.00	67.10	0.0012	1.2500
11	1	Intermediate cover material	1	1.70×10^{-3}	43.70	8.00	5.00	43.70	0.0012	1.2500
12	2	Municipal solid waste	30	1.00×10^{-3}	67.10	9.83	2.00	67.10	0.0012	1.2500
13	1	Intermediate cover material	1	1.70×10^{-3}	43.70	8.00	5.00	43.70	0.0012	1.2500
14	2	Municipal solid waste	30	1.00×10^{-3}	67.10	9.83	2.00	67.10	0.0012	1.2500
15	1	Intermediate cover material	1	1.70×10^{-3}	43.70	8.00	5.00	43.70	0.0012	1.2500
16	2	Municipal solid waste	132	1.00×10^{-3}	67.10	9.83	2.00	67.10	0.0012	1.2500
17	3	Tan silty sand	83	6.80×10^{-7}	44.50	40.49	3.28	43.31	0.0011	1.3404
18	4	Tan sandy siltsone	70	3.50×10^{-6}	46.24	41.13	2.52	45.14	0.0016	1.2753
19	5	Tan siltstone	52	1.62×10^{-7}	44.38	41.39	3.46	41.91	0.0006	1.3689
20	6	Gray siltstone/claystone above static water level	279	3.99×10^{-8}	43.77	39.75	1.07	43.10	0.0014	1.3000

K_{sat} = Saturated hydraulic conductivity cm/s = Centimeters per second

Table 14. Model Results Summary

Model	100-Year Average Precipitation in Excess of Evapotranspiration (ft/yr)	100-Year Change in Storage (% v/v)		Flux Rate (ft/yr)		Travel Time from Top of Blue Clay to First Groundwater (years)
		Landfill Deposits	Native Materials	From Landfill Deposits to Native Materials (ft/yr)	From Blue Clay to First Groundwater (ft/yr)	
Saturated flux	—	—	—	—	1.5	3,158
HELP	0.087	3.39	-0.46	9.92×10^{-10}	0.017	7,255
HYDRUS	0.23	6.97	-0.07	9.09×10^{-9}	0.00235	52,040

ft/yr = Feet per year
% v/v = Percent on volumetric basis
— = Not determined

Appendix A

Water Level and
Water Quality Data

Appendix A1

Water Level Data

Pickles Butte Sanitary Landfill
Well Water Elevations

Date	PB-3	PB-4	PB-5	PB-6	PB-7	PB-8	PB-9	PB-10	PB-11	PB-12	PB-13	PB-14	PB-15
9/1/1992	2383.56	2385.23	2333.06	2393.19	2401.18	2411.11							
4/1/1995	2391.77	2384.83	2331.75	2392.69	2400.86	2416.39							
7/1/1995	2390.12	2384.95	2331.27	2392.23	2399.47	2415.81							
10/1/1995	2374.86	2384.42	2328.87	2391.81	2400.54	2415.65	2387.93	2400.91					
1/1/1996	2378.98	2384.27	2328.74	2391.63	2400.22	2415.71							
4/1/1996	2355.45	2384.42	2329.83	2391.23	2400.19	2415.96							
7/1/1996	2339.50	2384.28	2329.83	2391.17	2400.13	2415.65	2386.60	2400.20					
10/1/1996	2353.96	2384.16	2327.45	2390.94	2399.80	2415.68	2386.35	2400.12					
2/1/1997	2364.37	2383.94	2327.10	2390.72	2399.65	2416.04	2385.99	2399.82					
4/1/1997	2363.36	2384.35	2328.27	2390.94	2399.91	2415.99	2386.05	2398.97					
10/1/1997	2286.52	2383.88	2326.80	2390.44	2399.52	2416.02	2385.46	2401.62					
4/1/1998	2284.78	2383.78	2329.65	2390.43	2399.59	2416.33	2384.73	2399.88					
10/1/1998	2279.95	2383.52	2328.00	2389.78	2399.11	2416.19	2384.76	2399.03					
4/1/1999	2306.06	2383.30	2330.62	2389.21	2398.61	2416.35	2384.33	2399.88					
10/1/1999	2254.73	2383.15	2327.25	2389.04	2398.55	2416.07	2383.99	2393.39					
4/1/2000	2289.70	2382.90	2328.39	2388.78	2398.63	2416.47	2383.52	2397.94					
10/1/2000	2306.72	2382.52	2326.64	2388.39	2398.04	2416.14	2382.59	2397.75					
4/1/2001	2323.43	2382.58	2327.40	2388.89	2398.26	2415.66	2382.74	2395.64					
10/2/2001	2332.18	2382.73	2326.40	2388.41	2398.18	2416.74	2382.28	2397.77					
4/2/2002	2341.36	2382.51	2328.07	2388.60	2398.07	2417.01	2382.07	2397.55					
10/2/2002	2344.75	2382.18	2325.63	2387.60	2397.64	2416.68	2381.43	2397.33					
4/1/2003	2379.92	2382.25	2323.43	2388.38	2397.83	2417.07	2381.54	2397.95					
10/1/2003	2380.24	2382.06		2387.24	2397.31	2416.93	2380.94	2396.89					
4/8/2004	2383.12	2380.10		2386.79	2397.24	2415.12	2380.72	2396.77					
10/13/2004	2385.82	2379.93		2386.20	2396.64	2416.90	2380.02	2396.02					
4/8/2005	2384.68	2379.87		2385.91	2397.02	2417.23	2380.11	2396.50					
10/5/2005	2386.00	2379.37		2385.40	2396.28	2416.96	2379.37	2395.72					
4/8/2006	2387.11	2379.78		2385.41	2396.33	2417.51	2378.44	2395.53					
10/1/2006	2366.91	2378.72		2384.99	2396.02	2417.11	2378.88	2395.53					
4/4/2007	2366.61	2377.95		2385.36	2395.83	2417.36	2378.67	2395.10					
10/2/2007	2369.32	2378.44		2384.68	2395.58	2417.28	2378.15	2394.97					
4/9/2008	2371.50	2378.61		2384.51	2395.42	2416.68	2378.09	2394.93					
10/9/2008	2370.59	2378.30		2384.17	2395.08	2417.42	2377.44	2394.55					
4/1/2009	2374.07	2378.45		2384.22	2395.18	2417.84	2377.44	2394.65					

Pickles Butte Sanitary Landfill
Well Water Elevations

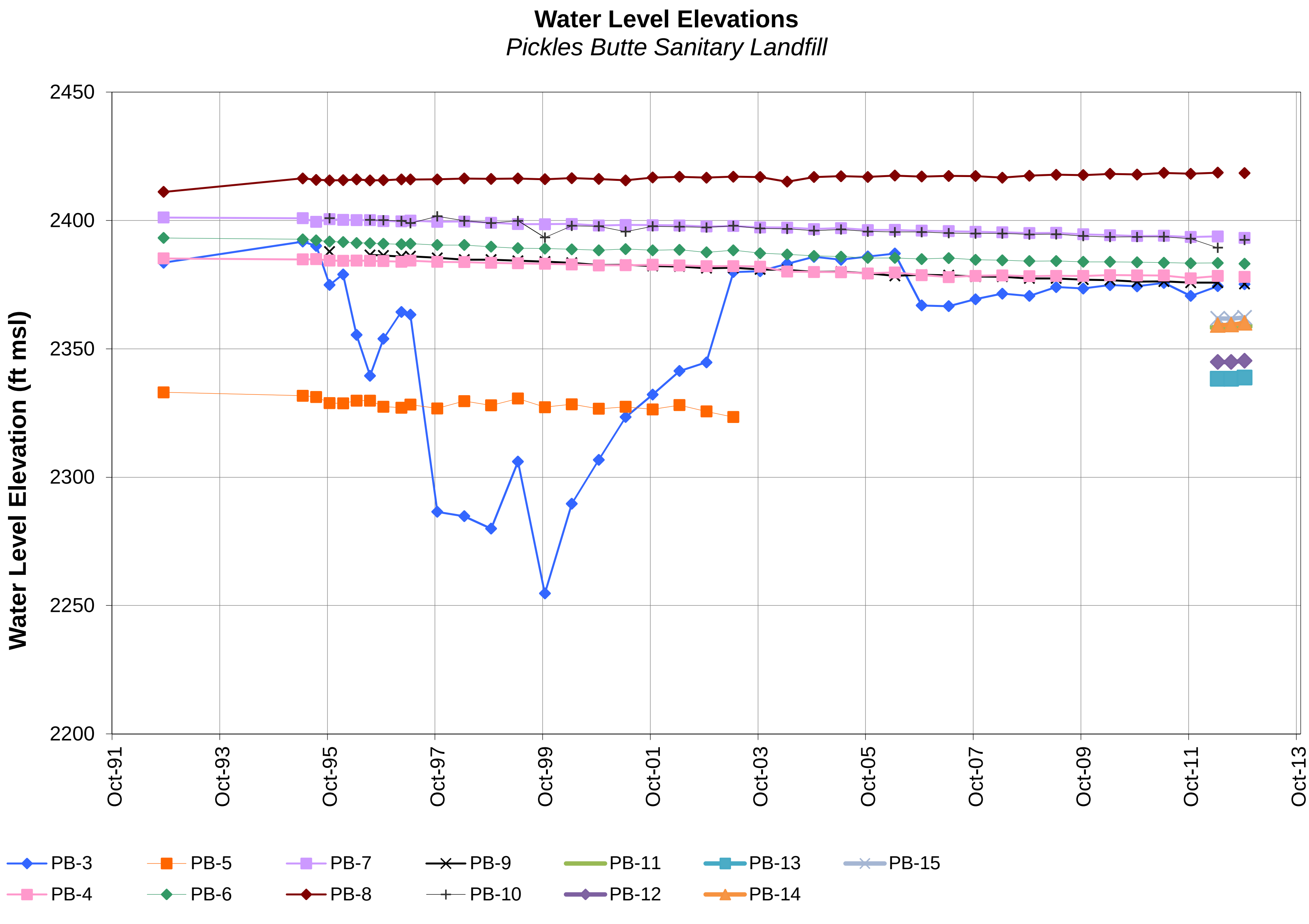
Date	PB-3	PB-4	PB-5	PB-6	PB-7	PB-8	PB-9	PB-10	PB-11	PB-12	PB-13	PB-14	PB-15
10/9/2009	2373.48	2378.40		2383.88	2394.61	2417.69	2376.94	2393.94					
4/10/2010	2374.82	2378.71		2383.87	2394.30	2418.14	2376.79	2393.56					
10/1/2010	2374.35	2378.61		2383.73	2393.95	2417.90	2376.17	2393.64					
4/11/2011	2375.69	2378.56		2383.55	2394.06	2418.53	2376.27	2393.66					
10/12/2011	2370.61	2377.47		2383.35	2393.59	2418.18	2375.76	2392.89					
4/4/2012	2374.38	2378.38		2383.45	2393.79	2418.64	2375.79	2389.41	2358.41	2344.88	2338.39	2359.22	2361.87
7/11/2012									2358.38	2344.88	2338.33	2359.39	2361.73
10/24/2012	2375.22	2378.05		2383.18	2393.21	2418.44	2375.28	2392.45	2358.89	2345.36	2338.78	2360.11	2362.26
1/17/2013									2359.08	2345.61	2338.74	2360.64	2362.67
4/4/2013	2376.59	2378.24		2382.46	2393.16	2418.72	2375.25	2392.70	2359.56	2346.03	2339.04	2361.20	2363.24

Depth to Water Surface for Entry into RockWorks Program

Date	PB-3	PB-4	PB-5	PB-6	PB-7	PB-8	PB-9	PB-10
9/1/1992	408.41	547.27	517.04	492.5	536.8	296.37		
4/1/1995	400.2	547.67	518.35	493	537.12	291.09		
7/1/1995	401.85	547.55	518.83	493.46	538.51	291.67		
10/1/1995	417.11	548.08	521.23	493.88	537.44	291.83	509.34	511.87
1/1/1996	412.99	548.23	521.36	494.06	537.76	291.77		
4/1/1996	436.52	548.08	520.27	494.46	537.79	291.52		
7/1/1996	452.47	548.22	520.27	494.52	537.85	291.83	510.67	512.58
10/1/1996	438.01	548.34	522.65	494.75	538.18	291.8	510.92	512.66
2/1/1997	427.6	548.56	523	494.97	538.33	291.44	511.28	512.96
4/1/1997	428.61	548.15	521.83	494.75	538.07	291.49	511.22	513.81
10/1/1997	505.45	548.62	523.3	495.25	538.46	291.46	511.81	511.16
4/1/1998	507.19	548.72	520.45	495.26	538.39	291.15	512.54	512.9
10/1/1998	512.02	548.98	522.1	495.91	538.87	291.29	512.51	513.75
4/1/1999	485.91	549.2	519.48	496.48	539.37	291.13	512.94	512.9
10/1/1999	537.24	549.35	522.85	496.65	539.43	291.41	513.28	519.39
4/1/2000	502.27	549.6	521.71	496.91	539.35	291.01	513.75	514.84
10/1/2000	485.25	549.98	523.46	497.3	539.94	291.34	514.68	515.03
4/1/2001	468.54	549.92	522.7	496.8	539.72	291.82	514.53	517.14
10/2/2001	459.79	549.77	523.7	497.28	539.8	290.74	514.99	515.01
4/2/2002	450.61	549.99	522.03	497.09	539.91	290.47	515.2	515.23
10/2/2002	447.22	550.32	524.47	498.09	540.34	290.8	515.84	515.45
4/1/2003	412.05	550.25	526.67	497.31	540.15	290.41	515.73	514.83
10/1/2003	411.73	550.44	527.5	498.45	540.67	290.55	516.33	515.89
4/8/2004	408.85	552.4	527.5	498.9	540.74	292.36	516.55	516.01
10/13/2004	406.15	552.57	527.5	499.49	541.34	290.58	517.25	516.76
4/8/2005	407.29	552.63	527.5	499.78	540.96	290.25	517.16	516.28
10/5/2005	405.97	553.13	527.5	500.29	541.7	290.52	517.9	517.06
4/8/2006	404.86	552.72	527.5	500.28	541.65	289.97	518.83	517.25
10/1/2006	425.06	553.78	527.5	500.7	541.96	290.37	518.39	517.25
4/4/2007	425.36	554.55	527.5	500.33	542.15	290.12	518.6	517.68
10/2/2007	422.65	554.06	527.5	501.01	542.4	290.2	519.12	517.81
4/9/2008	420.47	553.89	527.5	501.18	542.56	290.8	519.18	517.85
10/9/2008	421.38	554.2	527.5	501.52	542.9	290.06	519.83	518.23
4/1/2009	417.90	554.05	527.5	501.47	542.8	289.64	519.83	518.13

Depth to Water Surface for Entry into RockWorks Program

Date	PB-3	PB-4	PB-5	PB-6	PB-7	PB-8	PB-9	PB-10
10/9/2009	417.90	554.05	527.50	501.47	542.80	289.64	519.83	518.13
4/10/2010	418.49	554.10	527.50	501.81	543.37	289.79	520.33	518.84
10/1/2010	417.15	553.79	527.50	501.82	543.68	289.34	520.48	519.22
4/11/2011	417.62	553.89	527.50	501.96	544.03	289.58	521.10	519.14
10/12/2011	416.28	553.94	527.50	502.14	543.92	288.95	521.00	519.12



P:_ES09-154\Hydro-Cndtns.4-13\Appx A\A1_WaterElevations.xls

Appendix A2

Water Quality Data

Analytical Laboratories, Inc.
1804 N. 33rd Street
Boise, Idaho 83703
Phone (208) 342-5515

Attn: JACK BIDDLE
CANYON COUNTY SOLID WASTE
15500 MISSOURI AVE
NAMPA, ID 83686

Collected By: J BIDDLE
Submitted By: J BIDDLE

Source of Sample:
PICKLES BUTTE: PB-3

Time of Collection: 15:00
Date of Collection: 10/24/2012
Date Received: 10/30/2012
Report Date: 11/9/2012

Field Temp:
Temp Rcvd in Lab:
PWS: 3140237
PWS Name CANYON COUNTY SOLID W

Laboratory Analysis Report

Sample Number: 1234053

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Sodium, Na	UR	104	mg/L	0.50	EPA 200.7	11/2/2012	KC
Potassium, K	UR	22.3	mg/L	0.5	EPA 200.7	11/2/2012	KC
Calcium, Ca	UR	41.9	mg/L	0.50	EPA 200.7	11/2/2012	KC
Magnesium, Mg	UR	15.3	mg/L	0.50	EPA 200.7	11/2/2012	KC
Silver, Ag	UR	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Nickel, Ni	UR	0.02	mg/L	0.02	EPA 200.7	11/2/2012	KC
Lead Low	0.015	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Zinc, Zn	UR	< 0.01	mg/L	0.01	EPA 200.7	11/2/2012	KC
Vanadium, V		< 0.05	mg/L	0.05	EPA 200.7	11/5/2012	KC
Thallium Low	0.002	< 0.001	mg/L	0.001	EPA 200.8	11/2/2012	JH
Copper, Cu	1.30	< 0.01	mg/L	0.01	EPA 200.7	11/2/2012	KC
Antimony Low	0.006	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Arsenic Low	0.01	0.012	mg/L	0.003	EPA 200.8	11/2/2012	JH
Metals Digestion		*			EPA 200.9-11	10/31/2012	JH
Chromium Low	0.1	0.007	mg/L	0.002	EPA 200.8	11/2/2012	JH
Cobalt, Co		< 0.02	mg/L	0.02	EPA 200.7	11/5/2012	KC

MCL = Maximum Contamination Level
MDL = Method Minimum Detection Limit
UR = Unregulated

Date Report Printed: 11/9/2012 11:25:26

Laboratory Analysis Report

Sample Number: 1234053

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Cadmium Low	0.005	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Beryllium Low	0.004	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Barium, Ba	2	0.28	mg/L	0.05	EPA 200.7	11/2/2012	KC
Selenium Low	0.05	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Acetone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Acrylonitrile		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Benzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromodichloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromoform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Carbon disulfide		<5.0	ug/L	5	EPA 8260B	11/5/2012	DMB
Carbon tetrachloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromo-3-chloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromoethane (EDB)		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,4-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trans-1,4-Dichloro-2-Butene		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Ethylbenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
2-Hexanone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB

MCL = Maximum Contamination Level
MDL = Method Minimum Detection Limit
UR = Unregulated

Laboratory Analysis Report

Sample Number: 1234053

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Bromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methylene chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methyl ethyl ketone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Methyl Iodide		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
4-Methyl-2-pentanone (MIBK)		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Styrene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Tetrachloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Toluene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichlorofluoromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2,3-Trichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Vinyl acetate		<20.0	ug/L	20	EPA 8260B	11/5/2012	DMB
Vinyl chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Xylene, Total		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloride, Cl	UR	6	mg/L	1	EPA 300.0	10/31/2012	KC
Sulfate, SO4	UR	23	mg/L	1	EPA 300.0	10/31/2012	KC
Bicarbonate		403	mg/L		SM 2320	10/31/2012	CJS
Carbonate		0.0	mg/L		SM 2320	10/31/2012	CJS

MCL = Maximum Contamination Level
MDL = Method Minimum Detection Limit
UR = Unregulated

CC SWDH

David Bennett 11/12/12

Thank you for choosing Analytical Laboratories for your testing needs.
If you have any questions concerning this report,
please contact your client manager David Bennett

Date Report Printed 11/9/2012 11:25:26

Analytical Laboratories, Inc.

1804 N 33rd Street
Boise, Idaho 83703
Phone (208) 342-5515

Attn: JACK BIDDLE
CANYON COUNTY SOLID WASTE
15500 MISSOURI AVE
NAMPA, ID 83686

Collected By: J BIDDLE
Submitted By: J BIDDLE

Source of Sample:
PICKLES BUTTE: PB-4

Time of Collection: 10:15
Date of Collection: 10/24/2012
Date Received: 10/30/2012
Report Date: 11/9/2012

Field Temp:
Temp Rcvd in Lab:
PWS: 3140237
PWS Name CANYON COUNTY SOLID W

Laboratory Analysis Report

Sample Number: 1234054

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Sodium, Na	UR	27.9	mg/L	0.50	EPA 200.7	11/2/2012	KC
Potassium, K	UR	27.3	mg/L	0.5	EPA 200.7	11/2/2012	KC
Calcium, Ca	UR	55.2	mg/L	0.50	EPA 200.7	11/2/2012	KC
Magnesium, Mg	UR	20.1	mg/L	0.50	EPA 200.7	11/2/2012	KC
Silver, Ag	UR	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Nickel, Ni	UR	0.05	mg/L	0.02	EPA 200.7	11/2/2012	KC
Lead Low	0.015	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Zinc, Zn	UR	0.01	mg/L	0.01	EPA 200.7	11/2/2012	KC
Vanadium, V		< 0.05	mg/L	0.05	EPA 200.7	11/5/2012	KC
Thallium Low	0.002	< 0.001	mg/L	0.001	EPA 200.8	11/2/2012	JH
Copper, Cu	1.30	< 0.01	mg/L	0.01	EPA 200.7	11/2/2012	KC
Antimony Low	0.006	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Arsenic Low	0.01	0.006	mg/L	0.003	EPA 200.8	11/2/2012	JH
Metals Digestion		*			EPA 200.9-11	10/31/2012	JH
Chromium Low	0.1	0.005	mg/L	0.002	EPA 200.8	11/2/2012	JH
Cobalt, Co		< 0.02	mg/L	0.02	EPA 200.7	11/5/2012	KC

MCL = Maximum Contamination Level
MDL = Method Minimum Detection Limit
UR = Unregulated

Date Report Printed: 11/9/2012 11:25:41

Laboratory Analysis Report

Sample Number: 1234054

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Cadmium Low	0.005	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Beryllium Low	0.004	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Barium, Ba	2	0.45	mg/L	0.05	EPA 200.7	11/2/2012	KC
Selenium Low	0.05	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Acetone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Acrylonitrile		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Benzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromodichloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromoform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Carbon disulfide		<5.0	ug/L	5	EPA 8260B	11/5/2012	DMB
Carbon tetrachloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromo-3-chloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromoethane (EDB)		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,4-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trans-1,4-Dichloro-2-Butene		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Ethylbenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
2-Hexanone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB

MCL = Maximum Contamination Level
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UR = Unregulated

Laboratory Analysis Report

Sample Number: 1234054

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Bromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methylene chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methyl ethyl ketone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Methyl Iodide		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
4-Methyl-2-pentanone (MIBK)		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Styrene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Tetrachloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Toluene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichlorofluoromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2,3-Trichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Vinyl acetate		<20.0	ug/L	20	EPA 8260B	11/5/2012	DMB
Vinyl chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Xylene, Total		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloride, Cl	UR	4	mg/L	1	EPA 300.0	10/31/2012	KC
Sulfate, SO4	UR	5	mg/L	1	EPA 300.0	10/31/2012	KC
Bicarbonate		310	mg/L		SM 2320	10/31/2012	CJS
Carbonate		0.0	mg/L		SM 2320	10/31/2012	CJS

MCL = Maximum Contamination Level
MDL = Method/Minimum Detection Limit
UR = Unregulated

CC SWDH

David M Bennett 11/12/12

Thank you for choosing Analytical Laboratories for your testing needs
If you have any questions concerning this report,
please contact your client manager **David Bennett**

Date Report Printed: 11/9/2012 11:25:41

Analytical Laboratories, Inc.
1804 N. 33rd Street
Boise, Idaho 83703
Phone (208) 342-5515

Attn: JACK BIDDLE
CANYON COUNTY SOLID WASTE
15500 MISSOURI AVE
NAMPA, ID 83686

Collected By: J BIDDLE
Submitted By: J BIDDLE

Source of Sample:
PICKLES BUTTE: PB-6

Time of Collection: 12:30
Date of Collection: 10/25/2012
Date Received: 10/30/2012
Report Date: 11/9/2012

Field Temp:
Temp Rcvd in Lab:
PWS: 3140237
PWS Name CANYON COUNTY SOLID W

Laboratory Analysis Report

Sample Number: 1234055

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Sodium, Na	UR	88.8	mg/L	0.50	EPA 200.7	11/2/2012	KC
Potassium, K	UR	21.3	mg/L	0.5	EPA 200.7	11/2/2012	KC
Calcium, Ca	UR	52.9	mg/L	0.50	EPA 200.7	11/2/2012	KC
Magnesium, Mg	UR	32.9	mg/L	0.50	EPA 200.7	11/2/2012	KC
Silver, Ag	UR	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Nickel, Ni	UR	< 0.02	mg/L	0.02	EPA 200.7	11/2/2012	KC
Lead Low	0.015	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Zinc, Zn	UR	< 0.01	mg/L	0.01	EPA 200.7	11/2/2012	KC
Vanadium, V		< 0.05	mg/L	0.05	EPA 200.7	11/5/2012	KC
Thallium Low	0.002	< 0.001	mg/L	0.001	EPA 200.8	11/2/2012	JH
Copper, Cu	1.30	< 0.01	mg/L	0.01	EPA 200.7	11/2/2012	KC
Antimony Low	0.006	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Arsenic Low	0.01	< 0.003	mg/L	0.003	EPA 200.8	11/2/2012	JH
Metals Digestion		*			EPA 200.9-11	10/31/2012	JH
Chromium Low	0.1	0.068	mg/L	0.002	EPA 200.8	11/2/2012	JH
Cobalt, Co		< 0.02	mg/L	0.02	EPA 200.7	11/5/2012	KC

MCL = Maximum Contamination Level
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Laboratory Analysis Report

Sample Number: 1234055

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Cadmium Low	0.005	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Beryllium Low	0.004	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Barium, Ba	2	< 0.05	mg/L	0.05	EPA 200.7	11/2/2012	KC
Selenium Low	0.05	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Acetone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Acrylonitrile		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Benzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromodichloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromoform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Carbon disulfide		<5.0	ug/L	5	EPA 8260B	11/5/2012	DMB
Carbon tetrachloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromo-3-chloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromoethane (EDB)		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,4-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trans-1,4-Dichloro-2-Butene		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Ethylbenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
2-Hexanone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB

MCL = Maximum Contamination Level
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Laboratory Analysis Report

Sample Number: 1234055

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Bromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methylene chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methyl ethyl ketone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Methyl Iodide		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
4-Methyl-2-pentanone (MIBK)		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Styrene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Tetrachloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Toluene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichlorofluoromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2,3-Trichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Vinyl acetate		<20.0	ug/L	20	EPA 8260B	11/5/2012	DMB
Vinyl chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Xylene, Total		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloride, Cl	UR	14	mg/L	1	EPA 300.0	10/31/2012	KC
Sulfate, SO4	UR	51	mg/L	1	EPA 300.0	10/31/2012	KC
Bicarbonate		448	mg/L		SM 2320	10/31/2012	CJS
Carbonate		0.0	mg/L		SM 2320	10/31/2012	CJS

MCL = Maximum Contamination Level
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UR = Unregulated

CC: SWDH

11/12/12

Thank you for choosing Analytical Laboratories for your testing needs.
If you have any questions concerning this report,
please contact your client manager: **David Bennett**

Date Report Printed: 11/9/2012 11:25:55

Analytical Laboratories, Inc.
1804 N. 33rd Street
Boise, Idaho 83703
Phone (208) 342-5515

Attn: JACK BIDDLE
CANYON COUNTY SOLID WASTE
15500 MISSOURI AVE
NAMPA, ID 83686

Collected By: J BIDDLE
Submitted By: J BIDDLE

Source of Sample:
PICKLES BUTTE: PB-7

Time of Collection: 15:00
Date of Collection: 10/25/2012
Date Received: 10/30/2012
Report Date: 11/9/2012

Field Temp:
Temp Rcvd in Lab:
PWS: 3140237
PWS Name CANYON COUNTY SOLID W

Laboratory Analysis Report

Sample Number: 1234056

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Sodium, Na	UR	28.9	mg/L	0.50	EPA 200.7	11/2/2012	KC
Potassium, K	UR	38.8	mg/L	0.5	EPA 200.7	11/2/2012	KC
Calcium, Ca	UR	136	mg/L	0.50	EPA 200.7	11/2/2012	KC
Magnesium, Mg	UR	58.7	mg/L	0.50	EPA 200.7	11/2/2012	KC
Silver, Ag	UR	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Nickel, Ni	UR	< 0.02	mg/L	0.02	EPA 200.7	11/2/2012	KC
Lead Low	0.015	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Zinc, Zn	UR	< 0.01	mg/L	0.01	EPA 200.7	11/2/2012	KC
Vanadium, V		< 0.05	mg/L	0.05	EPA 200.7	11/5/2012	KC
Thallium Low	0.002	< 0.001	mg/L	0.001	EPA 200.8	11/2/2012	JH
Copper, Cu	1.30	< 0.01	mg/L	0.01	EPA 200.7	11/2/2012	KC
Antimony Low	0.006	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Arsenic Low	0.01	0.004	mg/L	0.003	EPA 200.8	11/2/2012	JH
Metals Digestion		*			EPA 200.9-11	10/31/2012	JH
Chromium Low	0.1	0.006	mg/L	0.002	EPA 200.8	11/2/2012	JH
Cobalt, Co		< 0.02	mg/L	0.02	EPA 200.7	11/5/2012	KC

MCL = Maximum Contamination Level
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UR = Unregulated

Laboratory Analysis Report

Sample Number: 1234056

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Cadmium Low	0.005	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Beryllium Low	0.004	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Barium, Ba	2	0.08	mg/L	0.05	EPA 200.7	11/2/2012	KC
Selenium Low	0.05	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Acetone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Acrylonitrile		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Benzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromodichloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromoform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Carbon disulfide		<5.0	ug/L	5	EPA 8260B	11/5/2012	DMB
Carbon tetrachloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromo-3-chloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromoethane (EDB)		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,4-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trans-1,4-Dichloro-2-Butene		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Ethylbenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
2-Hexanone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB

MCL = Maximum Contamination Level
MDL = Method Minimum Detection Limit
UR = Unregulated

Laboratory Analysis Report

Sample Number: 1234056

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Bromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methylene chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methyl ethyl ketone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Methyl Iodide		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
4-Methyl-2-pentanone (MIBK)		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Styrene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Tetrachloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Toluene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichlorofluoromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2,3-Trichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Vinyl acetate		<20.0	ug/L	20	EPA 8260B	11/5/2012	DMB
Vinyl chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Xylene, Total		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloride, Cl	UR	4	mg/L	1	EPA 300.0	10/31/2012	KC
Sulfate, SO4	UR	171	mg/L	1	EPA 300.0	11/1/2012	KC
Bicarbonate		481	mg/L		SM 2320	10/31/2012	CJS
Carbonate		0.0	mg/L		SM 2320	10/31/2012	CJS

David M Bennett 11/12/12

MCL = Maximum Contamination Level
MDL = Method Minimum Detection Limit
UR = Unregulated

CC: SWDH

Thank you for choosing Analytical Laboratories for your testing needs
If you have any questions concerning this report,
please contact your client manager: **David Bennett**

Date Report Printed 11/9/2012 11:26:11

Analytical Laboratories, Inc.

1804 N. 33rd Street
Boise, Idaho 83703
Phone (208) 342-5515

Attn: JACK BIDDLE
CANYON COUNTY SOLID WASTE
15500 MISSOURI AVE
NAMPA, ID 83686

Collected By: J BIDDLE
Submitted By: J BIDDLE

Source of Sample:
PICKLES BUTTE: PB-8

Time of Collection: 14:00
Date of Collection: 10/24/2012
Date Received: 10/30/2012
Report Date: 11/9/2012

Field Temp:
Temp Rcvd in Lab:
PWS: 3140237
PWS Name CANYON COUNTY SOLID W

Laboratory Analysis Report

Sample Number: 1234057

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Sodium, Na	UR	229	mg/L	0.50	EPA 200.7	11/2/2012	KC
Potassium, K	UR	4.4	mg/L	0.5	EPA 200.7	11/2/2012	KC
Calcium, Ca	UR	9.57	mg/L	0.50	EPA 200.7	11/2/2012	KC
Magnesium, Mg	UR	2.33	mg/L	0.50	EPA 200.7	11/2/2012	KC
Silver, Ag	UR	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Nickel, Ni	UR	< 0.02	mg/L	0.02	EPA 200.7	11/2/2012	KC
Lead Low	0.015	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Zinc, Zn	UR	< 0.01	mg/L	0.01	EPA 200.7	11/2/2012	KC
Vanadium, V		< 0.05	mg/L	0.05	EPA 200.7	11/5/2012	KC
Thallium Low	0.002	< 0.001	mg/L	0.001	EPA 200.8	11/2/2012	JH
Copper, Cu	1.30	< 0.01	mg/L	0.01	EPA 200.7	11/2/2012	KC
Antimony Low	0.006	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Arsenic Low	0.01	< 0.003	mg/L	0.003	EPA 200.8	11/2/2012	JH
Metals Digestion		*			EPA 200.9-11	10/31/2012	JH
Chromium Low	0.1	< 0.002	mg/L	0.002	EPA 200.8	11/2/2012	JH
Cobalt, Co		< 0.02	mg/L	0.02	EPA 200.7	11/5/2012	KC

MCL = Maximum Contamination Level
MDL = Method Minimum Detection Limit
UR = Unregulated

Date Report Printed 11/9/2012 11:26:26

Laboratory Analysis Report

Sample Number: 1234057

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Cadmium Low	0.005	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Beryllium Low	0.004	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Barium, Ba	2	0.12	mg/L	0.05	EPA 200.7	11/2/2012	KC
Selenium Low	0.05	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Acetone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Acrylonitrile		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Benzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromodichloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromoform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Carbon disulfide		<5.0	ug/L	5	EPA 8260B	11/5/2012	DMB
Carbon tetrachloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromo-3-chloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromoethane (EDB)		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,4-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trans-1,4-Dichloro-2-Butene		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Ethylbenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
2-Hexanone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB

MCL = Maximum Contamination Level
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UR = Unregulated

Laboratory Analysis Report

Sample Number: 1234057

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Bromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methylene chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methyl ethyl ketone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Methyl Iodide		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
4-Methyl-2-pentanone (MIBK)		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Styrene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Tetrachloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Toluene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichlorofluoromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2,3-Trichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Vinyl acetate		<20.0	ug/L	20	EPA 8260B	11/5/2012	DMB
Vinyl chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Xylene, Total		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloride, Cl	UR	10	mg/L	1	EPA 300.0	10/31/2012	KC
Sulfate, SO4	UR	21	mg/L	1	EPA 300.0	11/1/2012	KC
Bicarbonate		473	mg/L		SM 2320	10/31/2012	CJS
Carbonate		0.0	mg/L		SM 2320	10/31/2012	CJS

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CC SWDH

Thank you for choosing Analytical Laboratories for your testing needs.
If you have any questions concerning this report, please contact your client manager **David Bennett**

Date Report Printed 11/9/2012 11:26:26

Analytical Laboratories, Inc.
1804 N. 33rd Street
Boise, Idaho 83703
Phone (208) 342-5515

Attn: JACK BIDDLE
CANYON COUNTY SOLID WASTE
15500 MISSOURI AVE
NAMPA, ID 83686

Collected By: J BIDDLE
Submitted By: J BIDDLE

Source of Sample:
PICKLES BUTTE: PB-9

Time of Collection: 13:15
Date of Collection: 10/25/2012
Date Received: 10/30/2012
Report Date: 11/9/2012

Field Temp:
Temp Rcvd in Lab:
PWS: 3140237
PWS Name CANYON COUNTY SOLID W

Laboratory Analysis Report

Sample Number: 1234058

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Sodium, Na	UR	59.1	mg/L	0.50	EPA 200.7	11/2/2012	KC
Potassium, K	UR	16.2	mg/L	0.5	EPA 200.7	11/2/2012	KC
Calcium, Ca	UR	134	mg/L	0.50	EPA 200.7	11/2/2012	KC
Magnesium, Mg	UR	43.3	mg/L	0.50	EPA 200.7	11/2/2012	KC
Silver, Ag	UR	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Nickel, Ni	UR	0.03	mg/L	0.02	EPA 200.7	11/2/2012	KC
Lead Low	0.015	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Zinc, Zn	UR	< 0.01	mg/L	0.01	EPA 200.7	11/2/2012	KC
Vanadium, V		< 0.05	mg/L	0.05	EPA 200.7	11/5/2012	KC
Thallium Low	0.002	< 0.001	mg/L	0.001	EPA 200.8	11/2/2012	JH
Copper, Cu	1.30	< 0.01	mg/L	0.01	EPA 200.7	11/2/2012	KC
Antimony Low	0.006	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Arsenic Low	0.01	0.010	mg/L	0.003	EPA 200.8	11/2/2012	JH
Metals Digestion		*			EPA 200.9-11	10/31/2012	JH
Chromium Low	0.1	0.004	mg/L	0.002	EPA 200.8	11/2/2012	JH
Cobalt, Co		< 0.02	mg/L	0.02	EPA 200.7	11/5/2012	KC

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Laboratory Analysis Report

Sample Number: 1234058

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Cadmium Low	0.005	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Beryllium Low	0.004	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Barium, Ba	2	0.07	mg/L	0.05	EPA 200.7	11/2/2012	KC
Selenium Low	0.05	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Acetone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Acrylonitrile		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Benzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromodichloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromoform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Carbon disulfide		<5.0	ug/L	5	EPA 8260B	11/5/2012	DMB
Carbon tetrachloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromo-3-chloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromoethane (EDB)		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,4-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trans-1,4-Dichloro-2-Butene		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Ethylbenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
2-Hexanone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB

MCL = Maximum Contamination Level
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UR = Unregulated

Date Report Printed 11/9/2012 11:26:43

Laboratory Analysis Report

Sample Number: 1234058

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Bromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methylene chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methyl ethyl ketone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Methyl Iodide		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
4-Methyl-2-pentanone (MIBK)		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Styrene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Tetrachloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Toluene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichlorofluoromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2,3-Trichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Vinyl acetate		<20.0	ug/L	20	EPA 8260B	11/5/2012	DMB
Vinyl chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Xylene, Total		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloride, Cl	UR	6	mg/L	1	EPA 300.0	11/1/2012	KC
Sulfate, SO4	UR	276	mg/L	1	EPA 300.0	11/2/2012	KC
Bicarbonate		358	mg/L		SM 2320	10/31/2012	CJS
Carbonate		0.0	mg/L		SM 2320	10/31/2012	CJS

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MDL = Method Minimum Detection Limit
UR = Unregulated

CC SWDH

Thank you for choosing Analytical Laboratories for your testing needs.
If you have any questions concerning this report,
please contact your client manager **David Bennett**

Date Report Printed 11/9/2012 11:26:43

Analytical Laboratories, Inc.
1804 N. 33rd Street
Boise, Idaho 83703
Phone (208) 342-5515

Attn: JACK BIDDLE
CANYON COUNTY SOLID WASTE
15500 MISSOURI AVE
NAMPA, ID 83686

Collected By: J BIDDLE
Submitted By: J BIDDLE

Source of Sample:
PICKLES BUTTE: PB-10

Time of Collection: 14:00
Date of Collection: 10/25/2012
Date Received: 10/30/2012
Report Date: 11/9/2012

Field Temp:
Temp Rcvd in Lab:
PWS: 3140237
PWS Name CANYON COUNTY SOLID W

Laboratory Analysis Report

Sample Number: 1234059

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Sodium, Na	UR	45.2	mg/L	0.50	EPA 200.7	11/2/2012	KC
Potassium, K	UR	34.9	mg/L	0.5	EPA 200.7	11/2/2012	KC
Calcium, Ca	UR	405	mg/L	0.50	EPA 200.7	11/2/2012	KC
Magnesium, Mg	UR	126	mg/L	0.50	EPA 200.7	11/2/2012	KC
Silver, Ag	UR	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Nickel, Ni	UR	0.04	mg/L	0.02	EPA 200.7	11/2/2012	KC
Lead Low	0.015	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Zinc, Zn	UR	< 0.01	mg/L	0.01	EPA 200.7	11/2/2012	KC
Vanadium, V		< 0.05	mg/L	0.05	EPA 200.7	11/5/2012	KC
Thallium Low	0.002	< 0.001	mg/L	0.001	EPA 200.8	11/2/2012	JH
Copper, Cu	1.30	0.02	mg/L	0.01	EPA 200.7	11/2/2012	KC
Antimony Low	0.006	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Arsenic Low	0.01	< 0.003	mg/L	0.003	EPA 200.8	11/2/2012	JH
Metals Digestion		*			EPA 200.9-11	10/31/2012	JH
Chromium Low	0.1	< 0.002	mg/L	0.002	EPA 200.8	11/2/2012	JH
Cobalt, Co		< 0.02	mg/L	0.02	EPA 200.7	11/5/2012	KC

MCL = Maximum Contamination Level
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UR Unregulated

Laboratory Analysis Report

Sample Number: 1234059

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Cadmium Low	0.005	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Beryllium Low	0.004	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Barium, Ba	2	< 0.05	mg/L	0.05	EPA 200.7	11/2/2012	KC
Selenium Low	0.05	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Acetone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Acrylonitrile		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Benzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromodichloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromoform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Carbon disulfide		<5.0	ug/L	5	EPA 8260B	11/5/2012	DMB
Carbon tetrachloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromo-3-chloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromoethane (EDB)		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,4-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trans-1,4-Dichloro-2-Butene		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Ethylbenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
2-Hexanone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB

MCL = Maximum Contamination Level
MDL = Method Minimum Detection Limit
UR = Unregulated

Laboratory Analysis Report

Sample Number: 1234059

Test Requested	**MCL**	**Analysis Result**	**Units**	**MDL**	**Method**	**Date Completed**	**Analyst**
Bromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methylene chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methyl ethyl ketone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Methyl Iodide		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
4-Methyl-2-pentanone (MIBK)		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Styrene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Tetrachloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Toluene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichlorofluoromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2,3-Trichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Vinyl acetate		<20.0	ug/L	20	EPA 8260B	11/5/2012	DMB
Vinyl chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Xylene, Total		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloride, Cl	UR	7	mg/L	1	EPA 300.0	11/1/2012	KC
Sulfate, SO4	UR	1,100	mg/L	1	EPA 300.0	11/2/2012	KC
Bicarbonate		350	mg/L		SM 2320	10/31/2012	CJS
Carbonate		0.0	mg/L		SM 2320	10/31/2012	CJS

MCL = Maximum Contamination Level
MDL = Method Minimum Detection Limit
UR = Unregulated

CC SWDH

Thank you for choosing Analytical Laboratories for your testing needs.
If you have any questions concerning this report,
please contact your client manager **David Bennett**

Date Report Printed 11/9/2012 11:28:02

Analytical Laboratories, Inc.

1804 N. 33rd Street
Boise, Idaho 83703
Phone (208) 342-5515

Attn: JACK BIDDLE
CANYON COUNTY SOLID WASTE
15500 MISSOURI AVE
NAMPA, ID 83686

Collected By: J BIDDLE
Submitted By: J BIDDLE

Source of Sample:
PICKLES BUTTE: PB-11

Time of Collection: 13:15
Date of Collection: 10/24/2012
Date Received: 10/30/2012
Report Date: 11/9/2012

Field Temp:
PWS: 3140237

Temp Rcvd in Lab:
PWS Name CANYON COUNTY SOLID W

Laboratory Analysis Report

Sample Number: 1234060

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Sodium, Na	UR	316	mg/L	0.50	EPA 200.7	11/2/2012	KC
Potassium, K	UR	5.5	mg/L	0.5	EPA 200.7	11/2/2012	KC
Calcium, Ca	UR	12.4	mg/L	0.50	EPA 200.7	11/2/2012	KC
Magnesium, Mg	UR	2.97	mg/L	0.50	EPA 200.7	11/2/2012	KC
Silver, Ag	UR	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Nickel, Ni	UR	< 0.02	mg/L	0.02	EPA 200.7	11/2/2012	KC
Lead Low	0.015	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Zinc, Zn	UR	0.04	mg/L	0.01	EPA 200.7	11/2/2012	KC
Vanadium, V		< 0.05	mg/L	0.05	EPA 200.7	11/5/2012	KC
Thallium Low	0.002	< 0.001	mg/L	0.001	EPA 200.8	11/2/2012	JH
Copper, Cu	1.30	< 0.01	mg/L	0.01	EPA 200.7	11/2/2012	KC
Antimony Low	0.006	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Arsenic Low	0.01	0.013	mg/L	0.003	EPA 200.8	11/2/2012	JH
Metals Digestion		*			EPA 200.9-11	10/31/2012	JH
Chromium Low	0.1	0.003	mg/L	0.002	EPA 200.8	11/2/2012	JH
Cobalt, Co		< 0.02	mg/L	0.02	EPA 200.7	11/5/2012	KC

MCL = Maximum Contamination Level
MDL = Method Minimum Detection Limit
UR = Unregulated

Date Report Printed 11/9/2012 11:28:17

Laboratory Analysis Report

Sample Number: 1234060

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Cadmium Low	0.005	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Beryllium Low	0.004	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Barium, Ba	2	0.16	mg/L	0.05	EPA 200.7	11/2/2012	KC
Selenium Low	0.05	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Acetone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Acrylonitrile		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Benzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromodichloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromoform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Carbon disulfide		<5.0	ug/L	5	EPA 8260B	11/5/2012	DMB
Carbon tetrachloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromo-3-chloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromoethane (EDB)		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,4-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trans-1,4-Dichloro-2-Butene		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Ethylbenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
2-Hexanone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB

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Date Report Printed: 11/9/2012 11:28:17

Laboratory Analysis Report

Sample Number: 1234060

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Bromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methylene chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methyl ethyl ketone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Methyl Iodide		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
4-Methyl-2-pentanone (MIBK)		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Styrene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Tetrachloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Toluene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichlorofluoromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2,3-Trichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Vinyl acetate		<20.0	ug/L	20	EPA 8260B	11/5/2012	DMB
Vinyl chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Xylene, Total		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloride, Cl	UR	31	mg/L	1	EPA 300.0	11/1/2012	KC
Sulfate, SO4	UR	13	mg/L	1	EPA 300.0	11/1/2012	KC
Bicarbonate		649	mg/L		SM 2320	10/31/2012	CJS
Carbonate		0.0	mg/L		SM 2320	10/31/2012	CJS

David M Bennett 11/12/12

MCL = Maximum Contamination Level
MDL = Method Minimum Detection Limit
UR = Unregulated

CC SWDH

Thank you for choosing Analytical Laboratories for your testing needs.
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please contact your client manager: **David Bennett**

Date Report Printed: 11/9/2012 11:28:17

Analytical Laboratories, Inc.
1804 N. 33rd Street
Boise, Idaho 83703
Phone (208) 342-5515

Attn: JACK BIDDLE
CANYON COUNTY SOLID WASTE
15500 MISSOURI AVE
NAMPA, ID 83686

Collected By: J BIDDLE
Submitted By: J BIDDLE

Source of Sample:
PICKLES BUTTE: PB-12

Time of Collection: 11:15
Date of Collection: 10/24/2012
Date Received: 10/30/2012
Report Date: 11/9/2012

Field Temp:
Temp Rcvd in Lab:
PWS: 3140237
PWS Name CANYON COUNTY SOLID W

Laboratory Analysis Report

Sample Number: 1234061

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Sodium, Na	UR	286	mg/L	0.50	EPA 200.7	11/2/2012	KC
Potassium, K	UR	6.8	mg/L	0.5	EPA 200.7	11/2/2012	KC
Calcium, Ca	UR	11.5	mg/L	0.50	EPA 200.7	11/2/2012	KC
Magnesium, Mg	UR	1.82	mg/L	0.50	EPA 200.7	11/2/2012	KC
Silver, Ag	UR	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Nickel, Ni	UR	< 0.02	mg/L	0.02	EPA 200.7	11/2/2012	KC
Lead Low	0.015	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Zinc, Zn	UR	0.02	mg/L	0.01	EPA 200.7	11/2/2012	KC
Vanadium, V		< 0.05	mg/L	0.05	EPA 200.7	11/5/2012	KC
Thallium Low	0.002	< 0.001	mg/L	0.001	EPA 200.8	11/2/2012	JH
Copper, Cu	1.30	< 0.01	mg/L	0.01	EPA 200.7	11/2/2012	KC
Antimony Low	0.006	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Arsenic Low	0.01	0.013	mg/L	0.003	EPA 200.8	11/2/2012	JH
Metals Digestion		*			EPA 200.9-11	10/31/2012	JH
Chromium Low	0.1	0.003	mg/L	0.002	EPA 200.8	11/2/2012	JH
Cobalt, Co		< 0.02	mg/L	0.02	EPA 200.7	11/5/2012	KC

MCL = Maximum Contamination Level
MDL = Method Minimum Detection Limit
UR = Unregulated

Date Report Printed 11/9/2012 11:28:32

Laboratory Analysis Report

Sample Number: 1234061

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Cadmium Low	0.005	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Beryllium Low	0.004	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Barium, Ba	2	0.17	mg/L	0.05	EPA 200.7	11/2/2012	KC
Selenium Low	0.05	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Acetone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Acrylonitrile		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Benzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromodichloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromoform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Carbon disulfide		<5.0	ug/L	5	EPA 8260B	11/5/2012	DMB
Carbon tetrachloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromo-3-chloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromoethane (EDB)		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,4-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trans-1,4-Dichloro-2-Butene		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Ethylbenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
2-Hexanone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB

MCL = Maximum Contamination Level
MDL = Method/Minimum Detection Limit
UR = Unregulated

Date Report Printed: 11/9/2012 11:28:32

Laboratory Analysis Report

Sample Number: 1234061

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Bromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methylene chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methyl ethyl ketone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Methyl Iodide		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
4-Methyl-2-pentanone (MIBK)		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Styrene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Tetrachloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Toluene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichlorofluoromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2,3-Trichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Vinyl acetate		<20.0	ug/L	20	EPA 8260B	11/5/2012	DMB
Vinyl chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Xylene, Total		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloride, Cl	UR	43	mg/L	1	EPA 300.0	11/1/2012	KC
Sulfate, SO4	UR	4	mg/L	1	EPA 300.0	11/1/2012	KC
Bicarbonate		571	mg/L		SM 2320	10/31/2012	CJS
Carbonate		0.0	mg/L		SM 2320	10/31/2012	CJS

11/12/12

MCL = Maximum Contamination Level
MDL = Method Minimum Detection Limit
UR = Unregulated

CC: SWDH

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please contact your client manager **David Bennett**

Date Report Printed 11/9/2012 11:28:32

Analytical Laboratories, Inc.

1804 N. 33rd Street
Boise, Idaho 83703
Phone (208) 342-5515

Attn: JACK BIDDLE
CANYON COUNTY SOLID WASTE
15500 MISSOURI AVE
NAMPA, ID 83686

Collected By: J BIDDLE
Submitted By: J BIDDLE

Source of Sample:
PICKLES BUTTE: PB-13

Time of Collection: 16:00
Date of Collection: 10/24/2012
Date Received: 10/30/2012
Report Date: 11/9/2012

Field Temp:
Temp Rcvd in Lab:
PWS: 3140237
PWS Name CANYON COUNTY SOLID W

Laboratory Analysis Report

Sample Number: 1234062

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Sodium, Na	UR	147	mg/L	0.50	EPA 200.7	11/2/2012	KC
Potassium, K	UR	22.9	mg/L	0.5	EPA 200.7	11/2/2012	KC
Calcium, Ca	UR	32.9	mg/L	0.50	EPA 200.7	11/2/2012	KC
Magnesium, Mg	UR	9.62	mg/L	0.50	EPA 200.7	11/2/2012	KC
Silver, Ag	UR	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Nickel, Ni	UR	0.02	mg/L	0.02	EPA 200.7	11/2/2012	KC
Lead Low	0.015	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Zinc, Zn	UR	0.20	mg/L	0.01	EPA 200.7	11/2/2012	KC
Vanadium, V		< 0.05	mg/L	0.05	EPA 200.7	11/5/2012	KC
Thallium Low	0.002	< 0.001	mg/L	0.001	EPA 200.8	11/2/2012	JH
Copper, Cu	1.30	< 0.01	mg/L	0.01	EPA 200.7	11/2/2012	KC
Antimony Low	0.006	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Arsenic Low	0.01	0.010	mg/L	0.003	EPA 200.8	11/2/2012	JH
Metals Digestion		*			EPA 200.9-11	10/31/2012	JH
Chromium Low	0.1	< 0.002	mg/L	0.002	EPA 200.8	11/2/2012	JH
Cobalt, Co		< 0.02	mg/L	0.02	EPA 200.7	11/5/2012	KC

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UR = Unregulated

Date Report Printed: 11/9/2012 11:29:02

Laboratory Analysis Report

Sample Number: 1234062

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Cadmium Low	0.005	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Beryllium Low	0.004	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Barium, Ba	2	0.14	mg/L	0.05	EPA 200.7	11/2/2012	KC
Selenium Low	0.05	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Acetone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Acrylonitrile		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Benzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromodichloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromoform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Carbon disulfide		<5.0	ug/L	5	EPA 8260B	11/5/2012	DMB
Carbon tetrachloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromo-3-chloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromoethane (EDB)		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,4-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trans-1,4-Dichloro-2-Butene		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Ethylbenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
2-Hexanone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB

MCL = Maximum Contamination Level
MDL = Method Minimum Detection Limit
UR = Unregulated

Laboratory Analysis Report

Sample Number: 1234062

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Bromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methylene chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methyl ethyl ketone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Methyl Iodide		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
4-Methyl-2-pentanone (MIBK)		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Styrene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Tetrachloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Toluene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichlorofluoromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2,3-Trichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Vinyl acetate		<20.0	ug/L	20	EPA 8260B	11/5/2012	DMB
Vinyl chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Xylene, Total		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloride, Cl	UR	19	mg/L	1	EPA 300.0	11/1/2012	KC
Sulfate, SO4	UR	71	mg/L	1	EPA 300.0	11/1/2012	KC
Bicarbonate		366	mg/L		SM 2320	10/31/2012	CJS
Carbonate		0.0	mg/L		SM 2320	10/31/2012	CJS

11/12/12

MCL = Maximum Contamination Level
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UR = Unregulated

CC: SWDH

Thank you for choosing Analytical Laboratories for your testing needs.
If you have any questions concerning this report,
please contact your client manager: **David Bennett**

Date Report Printed 11/9/2012 11:29:02

Analytical Laboratories, Inc.

1804 N. 33rd Street
Boise, Idaho 83703
Phone (208) 342-5515

Attn: JACK BIDDLE
CANYON COUNTY SOLID WASTE
15500 MISSOURI AVE
NAMPA, ID 83686

Collected By: J BIDDLE
Submitted By: J BIDDLE

Source of Sample:
PICKLES BUTTE: PB-14

Time of Collection: 9:45
Date of Collection: 10/25/2012
Date Received: 10/30/2012
Report Date: 11/9/2012

Field Temp:
Temp Rcvd in Lab:
PWS: 3140237
PWS Name: CANYON COUNTY SOLID W

Laboratory Analysis Report

Sample Number: 1234063

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Sodium, Na	UR	176	mg/L	0.50	EPA 200.7	11/2/2012	KC
Potassium, K	UR	18.4	mg/L	0.5	EPA 200.7	11/2/2012	KC
Calcium, Ca	UR	33.4	mg/L	0.50	EPA 200.7	11/2/2012	KC
Magnesium, Mg	UR	8.07	mg/L	0.50	EPA 200.7	11/2/2012	KC
Silver, Ag	UR	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Nickel, Ni	UR	0.02	mg/L	0.02	EPA 200.7	11/2/2012	KC
Lead Low	0.015	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Zinc, Zn	UR	1.58	mg/L	0.01	EPA 200.7	11/2/2012	KC
Vanadium, V		< 0.05	mg/L	0.05	EPA 200.7	11/5/2012	KC
Thallium Low	0.002	< 0.001	mg/L	0.001	EPA 200.8	11/2/2012	JH
Copper, Cu	1.30	< 0.01	mg/L	0.01	EPA 200.7	11/2/2012	KC
Antimony Low	0.006	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Arsenic Low	0.01	0.012	mg/L	0.003	EPA 200.8	11/2/2012	JH
Metals Digestion		*			EPA 200.9-11	10/31/2012	JH
Chromium Low	0.1	< 0.002	mg/L	0.002	EPA 200.8	11/2/2012	JH
Cobalt, Co		< 0.02	mg/L	0.02	EPA 200.7	11/5/2012	KC

MCL = Maximum Contamination Level
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Date Report Printed 11/13/2012 10:47:45

Laboratory Analysis Report

Sample Number: 1234063

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Cadmium Low	0.005	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Beryllium Low	0.004	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Barium, Ba	2	0.17	mg/L	0.05	EPA 200.7	11/2/2012	KC
Selenium Low	0.05	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Acetone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Acrylonitrile		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Benzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromodichloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromoform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Carbon disulfide		<5.0	ug/L	5	EPA 8260B	11/5/2012	DMB
Carbon tetrachloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromo-3-chloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromoethane (EDB)		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,4-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trans-1,4-Dichloro-2-Butene		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Ethylbenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
2-Hexanone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB

MCL = Maximum Contamination Level
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Laboratory Analysis Report

Sample Number: 1234063

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Bromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methylene chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methyl ethyl ketone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Methyl Iodide		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
4-Methyl-2-pentanone (MIBK)		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Styrene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Tetrachloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Toluene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichlorofluoromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2,3-Trichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Vinyl acetate		<20.0	ug/L	20	EPA 8260B	11/5/2012	DMB
Vinyl chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Xylene, Total		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloride, Cl	UR	7	mg/L	1	EPA 300.0	11/1/2012	KC
Sulfate, SO4	UR	12	mg/L	1	EPA 300.0	11/1/2012	KC
Bicarbonate		497	mg/L		SM 2320	10/31/2012	CJS
Carbonate		0.0	mg/L		SM 2320	10/31/2012	CJS

11/13/12

MCL = Maximum Contamination Level
MDL = Method/Minimum Detection Limit
UR = Unregulated

CC SWDH

Thank you for choosing Analytical Laboratories for your testing needs.
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please contact your client manager: **David Bennett**

Date Report Printed 11/13/2012 10:47:45

Analytical Laboratories, Inc.

1804 N. 33rd Street
Boise, Idaho 83703
Phone (208) 342-5515

Attn: JACK BIDDLE
CANYON COUNTY SOLID WASTE
15500 MISSOURI AVE
NAMPA, ID 83686

Collected By: J BIDDLE
Submitted By: J BIDDLE

Source of Sample:
PICKLES BUTTE: PB-15

Time of Collection: 11:00
Date of Collection: 10/25/2012
Date Received: 10/30/2012
Report Date: 11/9/2012

Field Temp:
Temp Rcvd in Lab:
PWS: 3140237
PWS Name CANYON COUNTY SOLID W

Laboratory Analysis Report

Sample Number: 1234064

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Sodium, Na	UR	213	mg/L	0.50	EPA 200.7	11/2/2012	KC
Potassium, K	UR	12.8	mg/L	0.5	EPA 200.7	11/2/2012	KC
Calcium, Ca	UR	17.9	mg/L	0.50	EPA 200.7	11/2/2012	KC
Magnesium, Mg	UR	3.38	mg/L	0.50	EPA 200.7	11/2/2012	KC
Silver, Ag	UR	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Nickel, Ni	UR	< 0.02	mg/L	0.02	EPA 200.7	11/2/2012	KC
Lead Low	0.015	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Zinc, Zn	UR	0.01	mg/L	0.01	EPA 200.7	11/2/2012	KC
Vanadium, V		< 0.05	mg/L	0.05	EPA 200.7	11/5/2012	KC
Thallium Low	0.002	< 0.001	mg/L	0.001	EPA 200.8	11/2/2012	JH
Copper, Cu	1.30	< 0.01	mg/L	0.01	EPA 200.7	11/2/2012	KC
Antimony Low	0.006	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Arsenic Low	0.01	0.006	mg/L	0.003	EPA 200.8	11/2/2012	JH
Metals Digestion		*			EPA 200.9-11	10/31/2012	JH
Chromium Low	0.1	0.003	mg/L	0.002	EPA 200.8	11/2/2012	JH
Cobalt, Co		< 0.02	mg/L	0.02	EPA 200.7	11/5/2012	KC

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Date Report Printed 11/9/2012 11:29:37

Laboratory Analysis Report

Sample Number: 1234064

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Cadmium Low	0.005	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Beryllium Low	0.004	< 0.0005	mg/L	0.0005	EPA 200.8	11/2/2012	JH
Barium, Ba	2	0.15	mg/L	0.05	EPA 200.7	11/2/2012	KC
Selenium Low	0.05	< 0.005	mg/L	0.005	EPA 200.8	11/2/2012	JH
Acetone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Acrylonitrile		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Benzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromodichloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Bromoform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Carbon disulfide		<5.0	ug/L	5	EPA 8260B	11/5/2012	DMB
Carbon tetrachloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloroform		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromochloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromo-3-chloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dibromoethane (EDB)		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,4-Dichlorobenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trans-1,4-Dichloro-2-Butene		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,2-Dichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2-Dichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
cis-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
trans-1,3-Dichloropropene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Ethylbenzene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
2-Hexanone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB

MCL = Maximum Contamination Level
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Laboratory Analysis Report

Sample Number: 1234064

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Bromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Dibromomethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methylene chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Methyl ethyl ketone		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Methyl Iodide		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
4-Methyl-2-pentanone (MIBK)		<10.0	ug/L	10	EPA 8260B	11/5/2012	DMB
Styrene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2,2-Tetrachloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Tetrachloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Toluene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,1-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,1,2-Trichloroethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichloroethene		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Trichlorofluoromethane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
1,2,3-Trichloropropane		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Vinyl acetate		<20.0	ug/L	20	EPA 8260B	11/5/2012	DMB
Vinyl chloride		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Xylene, Total		<1.0	ug/L	1	EPA 8260B	11/5/2012	DMB
Chloride, Cl	UR	17	mg/L	1	EPA 300.0	11/6/2012	KC
Sulfate, SO4	UR	3	mg/L	1	EPA 300.0	11/6/2012	KC
Bicarbonate		483	mg/L		SM 2320	10/31/2012	CJS
Carbonate		0.0	mg/L		SM 2320	10/31/2012	CJS

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UR = Unregulated

CC: SWDH

Thank you for choosing Analytical Laboratories for your testing needs.
If you have any questions concerning this report,
please contact your client manager: **David Bennett**

Date Report Printed 11/9/2012 11:29:37

CLIENT CODE= CCSW.

CHAIN OF CUSTODY RECORD

CLIENT INFORMATION:

Project Manager: JACK BIDDLE

Company: CANYON CO. SOLID WASTE

Address: 15500 MISSOURI AVE, NAMPA, ID 83686

Phone: 466-7288 Fax: 466-7296

Sampled by: (Please print) JACK BIDDLE

PROJECT INFORMATION:

Project Name: Pickles Butte

PWS Number: —

Purchase Order Number:

Required Due Date:

E-mail Address: ccsw@speedyquick.net

Transported by: (Please print) JACK BIDDLE

ANALYTICAL LABS, INC.
1804 N. 33rd Street • Boise, ID 83703
(208) 342-5515 • Fax: (208) 342-5591 • 1-800-574-5773
Website: www.analyticallaboratories.com
E-mail: ali@analyticallaboratories.com

TESTS REQUESTED

Lab ID	Date Sampled	Time Sampled	Sample Description (Source)	Sample Matrix	8260 VOC's	APPENDIX I Metals	Na, K, Ca, Mg	Cl, HCO3, CO3, SO4						Remarks:
34053	10/24/12	3:10	PB-3	H_2O	✓	✓	✓	✓						
34054	10/24/12	10:15	PB-4	↓	✓	✓	✓	✓						
34055	10/24/12	12:30	PB-6	↓	✓	✓	✓	✓						
34056	10/25	3:00	PB-7	↓	✓	✓	✓	✓						
34057	10/24	2:00	PB-8	↓	✓	✓	✓	✓						
34058	10/25	1:15	PB-9	↓	✓	✓	✓	✓						
34059	10/25	2:00	PB-10	↓	✓	✓	✓	✓						
34060	10/24	1:15	PB-11	↓	✓	✓	✓	✓						
34061	10/24	11:15	PB-12	↓	✓	✓	✓	✓						
34062	10/24	4:00	PB-13	↓	✓	✓	✓	✓						

Invoice to: (If different than above address)

Special Instructions:

ALLOCATIONS OF RISK: Analytical Laboratories, Inc. will perform preparation and testing services, obtain findings and prepare reports in accordance with Good Laboratory Practices (GLP). If, for any reason, Analytical Laboratories, Inc. errors in the conduct of a test or procedure, their liability shall be limited to the cost of the test or procedure completed in error. Under no circumstances will Analytical Laboratories, Inc. be liable for any other cost associated with obtaining a sample or use of data.

Note: Samples are discarded 21 days after results are reported. Hazardous samples will be returned to client or disposed of at client expense.

	Print Name:	Company:	Date:	Time:
Relinquished By: (Signature) Jack Biddle	JACK Biddle	CCSW	10/30/12	15:20
Received By: (Signature)				
Relinquished By: (Signature)				
Received By: (Signature) Brenda Wright	Brenda Wright	ALI	10-30-12	15:20

SAMPLE RECEIPT Total # of Containers: Chains of Custody Seals Y / N / NA Intact: Y / N / NA Temperature Received: Condition: good

REV. 2/19/12 WHITE: STAYS WITH SAMPLE(S) YELLOW: LAB PINK: SAMPLER

10/30/2012 02:48PM 2084667296 CANYON CO SOLID WAST PAGE 03/03

CLIENT CODE= CCSW

CHAIN OF CUSTODY RECORD

292

CLIENT INFORMATION:	PROJECT INFORMATION:
Project Manager: JACK BIDDLE	Project Name: Pickles Butte
Company: CANYON CO SOLID WASTE	PWS Number:
Address: 15500 MISSOURI AVE, NAMPA, ID 83686	Purchase Order Number:
	Required Due Date:
Phone: 466-7280 Fax: 466-7296	E-mail Address: ccswo@speedyquick.net
Sampled by: (Please print)	Transported by: (Please print)

ANALYTICAL LABS, INC.
1804 N. 33rd Street • Boise, ID 83703
(208) 342-5515 • Fax: (208) 342-5591 • 1-800-574-5773
Website: www.analyticallaboratories.com
E-mail: ali@analyticallaboratories.com

TESTS REQUESTED

Lab ID	Date Sampled	Time Sampled	Sample Description (Source)	Sample Matrix	8260 VOC's	APPENDIX I Metals	Na, K, Ca, Mg	Cl, HCO3, CO3, SO4						Remarks:
34063	10/25/12	9:45	PB-14	H2O	✓	✓	✓	✓						
34064	10/25/12	11:00	PB-15	✓	✓	✓	✓	✓						

Invoice to: *(If different than above address)*

Special Instructions:

ALLOCATIONS OF RISK: Analytical Laboratories, Inc. will perform preparation and testing services, obtain findings and prepare reports in accordance with Good Laboratory Practices (GLP). If, for any reason, Analytical Laboratories, Inc. errors in the conduct of a test or procedure, their liability shall be limited to the cost of the test or procedure completed in error. Under no circumstances will Analytical Laboratories, Inc. be liable for any other cost associated with obtaining a sample or use of data.

Note: Samples are discarded 21 days after results are reported. Hazardous samples will be returned to client or disposed of at client expense.

	Signature	Print Name	Company	Date	Time
Relinquished By: *(Signature)*	[signature]	Jack Biddle	CCSW	10/30/12	15:20
Received By: *(Signature)*					
Relinquished By: *(Signature)*					
Received By: *(Signature)*	Brenda Wright	Brenda Wright	ALI	10-30-12	15:20

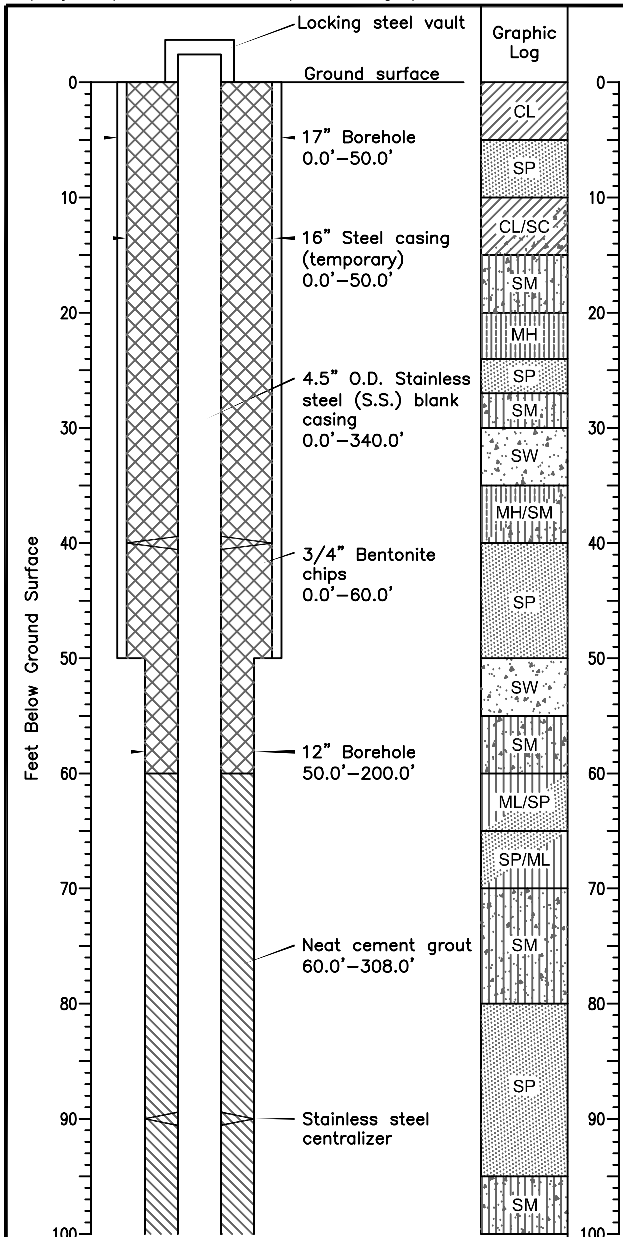
SAMPLE RECEIPT | Total # of Containers: | Chains of Custody Seals Y / N / NA | Intact: Y / N / NA | Temperature Received: | Condition: good

REV. 2/19/12 WHITE: STAYS WITH SAMPLE(S) YELLOW: LAB PINK: SAMPLER

Appendix B

Boring Logs and Well Completion Diagrams

S:\Projects\ES09.0154_Pickles\VR_Drawings\ES09_0154_07B_borelogs.dwg PB-11 (1of5)



Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
40%/40%	0–5	CL	Silty clay, light brownish gray (2.5Y 6/2).
70%/90%	5–10	SP	Sand, light gray (10YR 7/2), medium gravel, well sorted.
25%/25%	10–15	CL–SC	Sandy clay/clayey sand, light brownish gray (2.5Y 6/2).
40%/50%	15–20	SM	Silty sand, light yellowish brown (7.5Y 7/3), fine–grained, well sorted.
90%/90%	20–24	MH	Clayey silt, grayish brown (2.5YR 5/2), low plasticity, hard.
90%/90%	24–25	SP	Sand, dark yellowish brown (10YR 4/4), medium–grained, well sorted, well cemented, hard.
70%/90%	25–27	SP	Same as above.
70%/90%	27–30	SM	Silty sand, light olive brown (2.5Y 5/4), fine– to medium–grained, moderately sorted, soft.
50%/50%	30–35	SW	Sand, light brownish gray (2.5Y 6/2), thinly laminated, fine– to medium–grained, moderately sorted, moderately cemented.
75%/75%	35–40	MH–SM	Clayey silt and silty fine sand, light gray (5Y 7/1), laminated, some orange banding, moderately indurated.
70%/70%	40–45	SP	Sand, dry color light gray (10YR 7/2), medium–grained, moderately to well sorted, moderately to well indurated.
75%/75%	45–50	SP	Same as above.
30%/30%	50–55	SW	Sand, light gray (2.5YR 7/1) to light brownish gray (2.5YR 6/2), prominent orange banding, medium–grained, moderately sorted, soft.
20%/20%	55–60	SM	Silty sand, light olive brown (2.5Y 5/4) to grayish brown (2.5YR 5/2), fine–grained, weakly indurated.
40%/40%	60–65	ML–SP	Silty very fine sand, gray (2.5Y 6/1), massive, grading downward to sand, olive yellow (2.5Y 6/6), medium–grained, well sorted, hard.
45%/45%	65–70	SP–ML	Sand, as above, grading downward to silt and silty fine sand, slightly moist.
60%/60%	70–75	SM	Silty sand, light brownish gray (2.5Y 6/2), fine–grained, slightly moist.
20%/20%	75–80	SM	Similar to above, finer–grained, dry.
65%/65%	80–85	SP	Sand, light brownish gray (2.5Y 6/2), fine–grained, well sorted, moderately indurated, slightly moist.
55%/55%	85–90	SP	Same as above, dry.
20%/20%	90–95	SP	Sand, light brownish gray (7.5YR 6/2), fine– to medium–grained, moderately sorted.
85%/85%	95–100	SM	Sand, light gray (2.5Y 6/1), silty fine–grained, softer than above, slightly moist.

Geologist: J. Raucci
Driller: HAZ–Tech
Date completed: 6–30–11

Drilling method: Core, air rotary
Bit diameters: 19" (0'–50'), 12" (50'–200'), 9 7/8" (200'–420')
Sampling device: HQ core, air rotary cuttings (400'–420')
Steel suface casing: 16" steel (0'–50')

Northing: 668731.199
Easting: 243735.206
Elevation: 2654.1 (TOC)

Note: TOC = top of casing

PICKLES BUTTE
Well Log: PB-11

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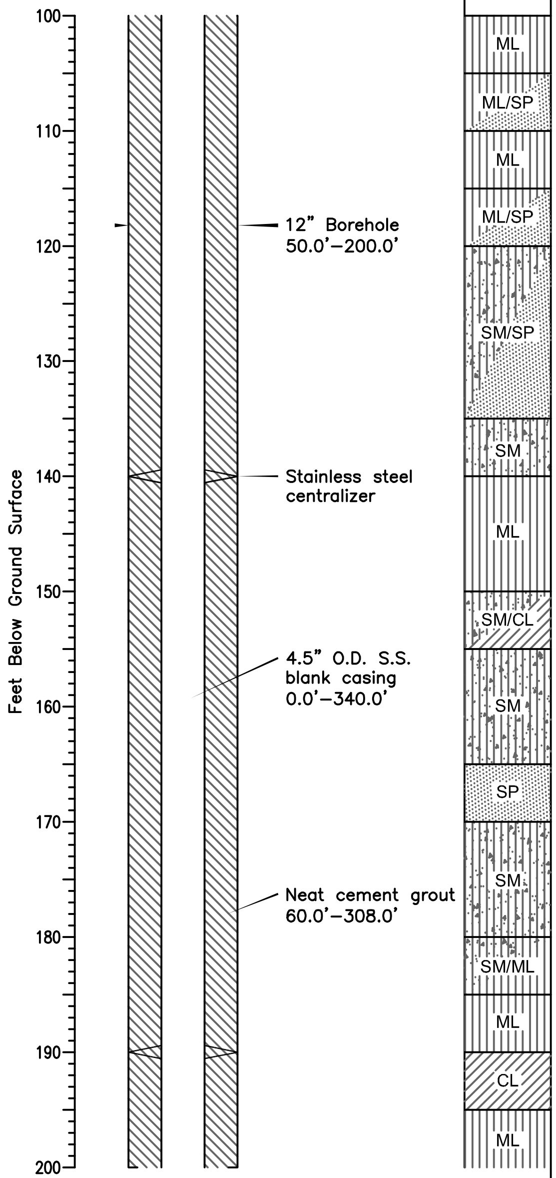
6–05–2012
JN ES09.0154



Depth	Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
100	20%/20%	100–105	ML	Sandy silt, pale yellow (2.5Y 8/2), moderately indurated, dry.
	20%/20%	105–110	ML–SP	Same as above, interbedded with dark gray (2Y 3/1), medium–grained sandstone, very hard, CaCO3 cement.
110	20%/20%	110–115	ML	Sandy silt and silt, light olive gray (5Y 6/2), weakly indurated, slightly moist.
	20%/20%	115–120	ML–SP	Same as above, interbedded with dark gray medium–grained sandstone.
120	50%/50%	120–125	SM–SP	Sandy silt, light olive gray, similar to above, slightly moist, with white fine–grained, well sorted sandstone, cross bedded, some yellow with orange banding, dry, hard.
	20%/20%	125–130	SM–SP	Same as above, interbedded with sandstone, dark gray (2Y 3/1), medium–grained.
130	60%/60%	130–135	SM–SP	Sandy silt, pale yellow (2.5Y 7/3), with white fine–grained sand with yellow color banding, dry.
	30%/30%	135–140	SM	Silty sand, light gray (5Y 7/2), fine–grained, moist, reddish yellow color banding.
140	0%/30%	140–145	ML	Sandy silt, light gray (2.5Y 7/2), fine–grained, slightly moist with small (less than 1 inch) reddish yellow clay lenses.
	55%/55%	145–150	ML	Siltstone, light gray (2.5Y 7/2), hard, dry.
150	100%/100%	150–155	SM–CL	Interbedded, silty sand/sandy silt, light brownish gray (7.5Y 6/2) with clay, dark greenish gray (5GY 4/1), thin bands of reddish clay, fine–grained.
	20%/20%	155–160	SM	Silty sand, light yellowish brown (2.5Y 6/4), laminated and color banded, cross bedded, fine–grained, weakly cemented, slightly moist.
160	50%/50%	160–165	SM	Silty sand, light brownish gray (2.5YR 6/2), otherwise as above, very fine–grained, borderline sandy silt.
	100%/100%	165–168	SP	Similar to above, but dominantly fine sand.
	100%/100%	168–170	SP	Sandstone, light olive brown (2.5Y 5/4), color banded, cross bedded, fine, soft, slightly moist.
170	50%/50%	170–175	SM	Silty sandstone, grayish brown (7.5Y 5/2), massive to laminated, color banding (yellow), trough cross bedded, fine–grained, organic material (?).
	30%/50%	175–180	SM	Silty sandstone, light olive brown (7.5Y 5/3), fine–grained, similar to above, slightly moist.
180	100%/100%	180–185	SM–ML	Sandy silt and silty sand, gray (5Y 5/1) to grayish brown (2.5Y5/2), moderately indurated, slightly moist.
	85%/85%	185–190	ML	Siltstone, gray (5Y 5/1), moderately to strongly cemented, massive, slightly moist to dry.
190	0%/0%	190–195	CL	Little recovery, clay, appears to be dark gray (5Y 4/1).
	65%/75%	195–200	ML	Siltstone, sandy silt and clayey silt intervals, gray (5Y 5/1), reddish brown color banding, moderately indurated, very slightly moist.
200				

Geologist: J. Raucci
Driller: HAZ–Tech
Date completed: 6–30–11

Drilling method: Core, air rotary
Bit diameters: 19" (0'–50'), 12" (50'–200'), 9 7/8" (200'–420')
Sampling device: HQ core, air rotary cuttings (400'–420')
Steel suface casing: 16" steel (0'–50')

PICKLES BUTTE
Well Log: PB-11

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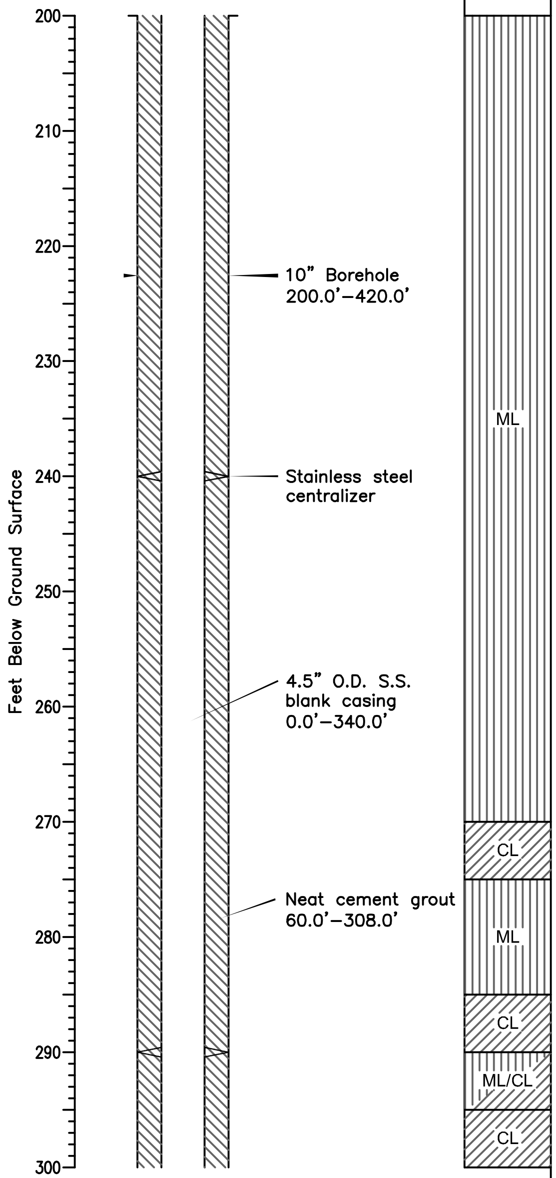
6–05–2012
JN ES09.0154



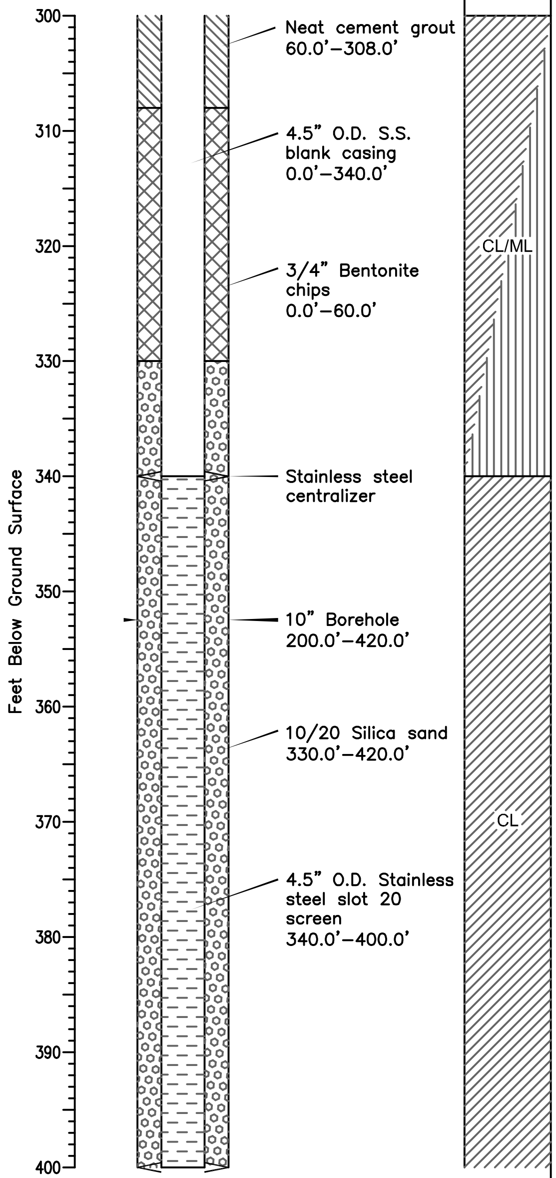
Depth	Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
200	60%/85%	200–205	ML	Siltstone, gray (5Y 5/1), same as above.
	90%/100%	205–210	ML	Same as above.
210	100%/100%	210–215	ML	Same as above.
	85%/100%	215–220	ML	Same as above.
220	100%/100%	220–225	ML	Siltstone, dark gray (5Y 4/1), finely laminated, moderately indurated, slightly moist.
	100%/100%	225–230	ML	Same as above.
230	75%/85%	230–235	ML	Same as above.
	90%/90%	235–240	ML	Same as above, lighter color (5Y 5/1).
240	25%/75%	240–245	ML	Same as above, highly fractured.
	90%/90%	245–250	ML	Same as above.
250	40%/100%	250–255	ML	Same as above, many fractures.
	60%/100%	255–260	ML	Same as above.
260	70%/100%	260–265	ML	Same as above.
	80%/100%	265–270	ML	Same as above.
270	85%/85%	270–275	CL	Similar to above, finer–grained (claystone, some silt).
	100%/100%	275–280	ML	Similar to above, silty, locally cross bedded.
280	100%/100%	280–285	ML	Siltstone, same as above.
	50%/100%	285–290	CL	Silty claystone, similar to above.
290	50%/100%	290–295	ML/CL	Siltstone and claystone, same as above, fractured.
	60%/100%	295–300	CL	Predominantly silty claystone, two prominent, steeply inclined fractures.
300				

Geologist: J. Raucci
Driller: HAZ–Tech
Date completed: 6–30–11

Drilling method: Core, air rotary
Bit diameters: 19" (0'–50'), 12" (50'–200'), 9 7/8" (200'–420')
Sampling device: HQ core, air rotary cuttings (400'–420')
Steel suface casing: 16" steel (0'–50')

PICKLES BUTTE
Well Log: PB-11

Daniel B. Stephens & Associates, Inc.
6–05–2012
JN ES09.0154



Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
100%/100%	300–305	CL/ML	Clay, silty claystone and siltstone, color as above (5YR 4/1–5/1), siltstones are laminated, locally cross bedded, claystone is massive to finely laminated, slightly moist, moderately indurated, brittle to slightly plastic.
100%/100%	305–310	CL–ML	Same as above.
40%/75%	310–315	CL–ML	Same as above.
80%/100%	315–325	CL–ML	Same as above.
100%/100%	325–330	CL–ML	Same as above.
100%/100%	330–335	CL–ML	Same as above.
100%/100%	335–340	CL–ML	Becoming more dominantly claystone and silty claystone.
100%/100%	340–345	CL	Same as above.
90%/90%	345–350	CL	Same as above.
75%/90%	350–355	CL	Claystone, silty claystone and siltstone, gray (5Y 5/1), interbedded, predominantly claystone and silty claystone, slightly moist, slight to moderate plasticity.
100%/100%	355–360	CL	Same as above.
90%/90%	360–365	CL	Same as above.
85%/85%	365–370	CL	Same as above.
95%/95%	370–375	CL	Same as above.
75%/90%	375–380	CL	Same as above.
100%/100%	380–385	CL	Same as above.
80%/80%	385–390	CL	Same as above.
55%/100%	390–395	CL	Same as above.
90%/90%	395–420	CL	Same as above.

Geologist: J. Raucci
Driller: HAZ–Tech
Date completed: 6–30–11

Drilling method: Core, air rotary
Bit diameters: 19" (0'–50'), 12" (50'–200'), 9 7/8" (200'–420')
Sampling device: HQ core, air rotary cuttings (400'–420')
Steel suface casing: 16" steel (0'–50')

PICKLES BUTTE
Well Log: PB-11

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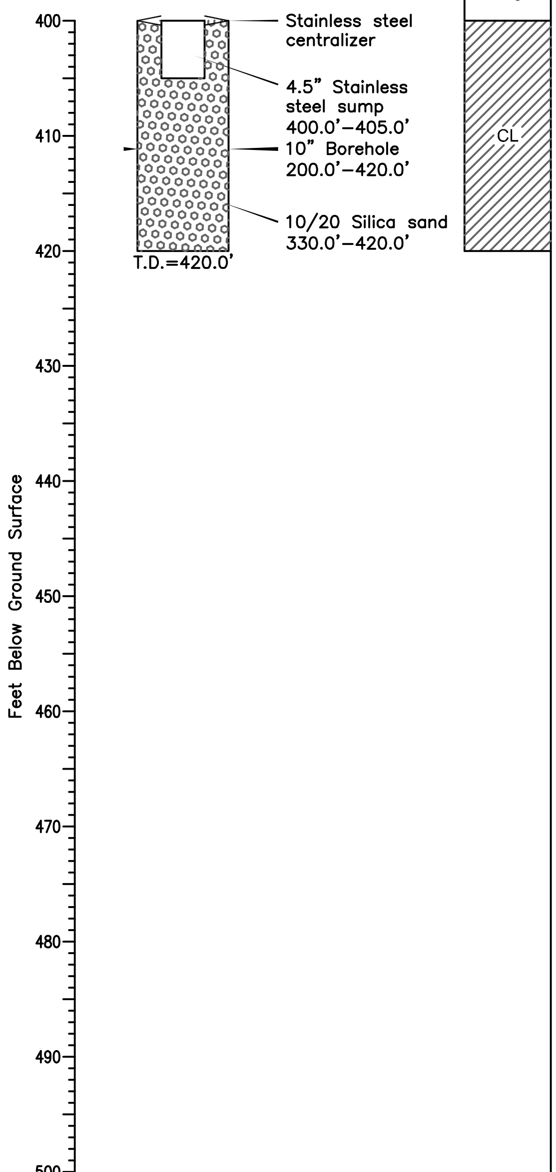


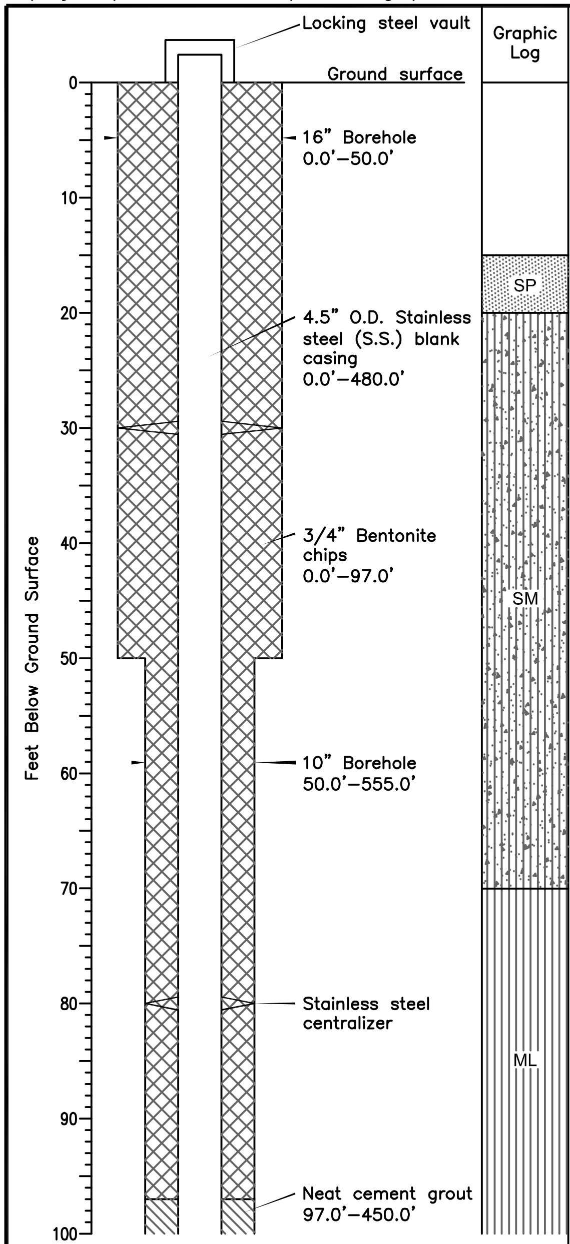
Depth	Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
400–420			CL	Same as above, rotary cuttings.

Geologist: J. Raucci
Driller: HAZ-Tech
Date completed: 6-30-11

Drilling method: Core, air rotary
Bit diameters: 19" (0'-50'), 12" (50'-200'), 9 7/8" (200'-420')
Sampling device: HQ core, air rotary cuttings (400'-420')
Steel suface casing: 16" steel (0'-50')

PICKLES BUTTE
Well Log: PB-11

Daniel B. Stephens & Associates, Inc.
6-05-2012
JN ES09.0154



Depth (feet)	Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
0	0%/0%	0–15		No recovery.
	0%/20%	15–20	SP	Sand, olive brown (2.5Y 4/3), coarse–grained, no plasticity.
20	35%/60%	20–25	SM	Silty sand, olive brown (2.5Y 4/4), fine–grained, no plasticity.
	35%/60%	25–30	SM	Same as above.
30	25%/55%	30–35	SM	Same as above.
	25%/55%	35–40	SM	Same as above.
40	100%/100%	40–45	SM	Silty sand, olive brown (2.5Y 4/3), fine–grained.
	100%/100%	45–50	SM	Clayey silty sand, light olive brown (2.5Y 5/4), very low plasticity.
50	25%/90%	50–60	SM	Silty sand grading into sand, light yellowish brown (2.5Y 6/3), fine– to medium–grained, no plasticity, hard, clayey silty sand, light olive brown (2.5Y 5/3), fine–grained, hard no plasticity.
60	100%/100%	60–70	SM	Clayey silty sand, light olive brown (2.5Y 5/3), hard no plasticity.
70	95%/95%	70–80	ML	Sandy silt, light yellowish brown (2.5Y 6/3), no plasticity.
80	100%/100%	80–90	ML	Clayey sandy silt, grayish brown (2.5YR 5/2).
90	100%/100%	90–100	ML	Same as above.
100				

Geologist: M. Nauck
Driller: HAZ–Tech
Date completed: 7–15–11

Drilling method: Core, air rotary
Bit diameters: 16" (0'–50'), 9 7/8" (50'–555')
Sampling device: HQ core (0'–350'), air rotary cuttings (350'–555')
Steel suface casing: None

Northing: 667697.966
Easting: 243653.665
Elevation: 2657.2 (TOC)

Note: TOC = top of casing

PICKLES BUTTE
Well Log: PB-12

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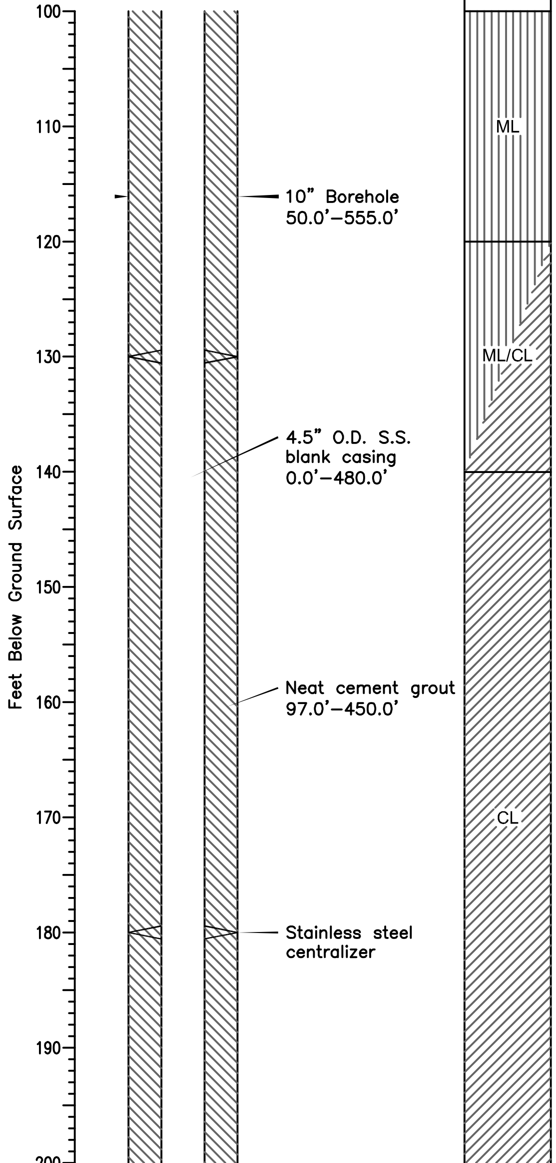
6–05–2012
JN ES09.0154

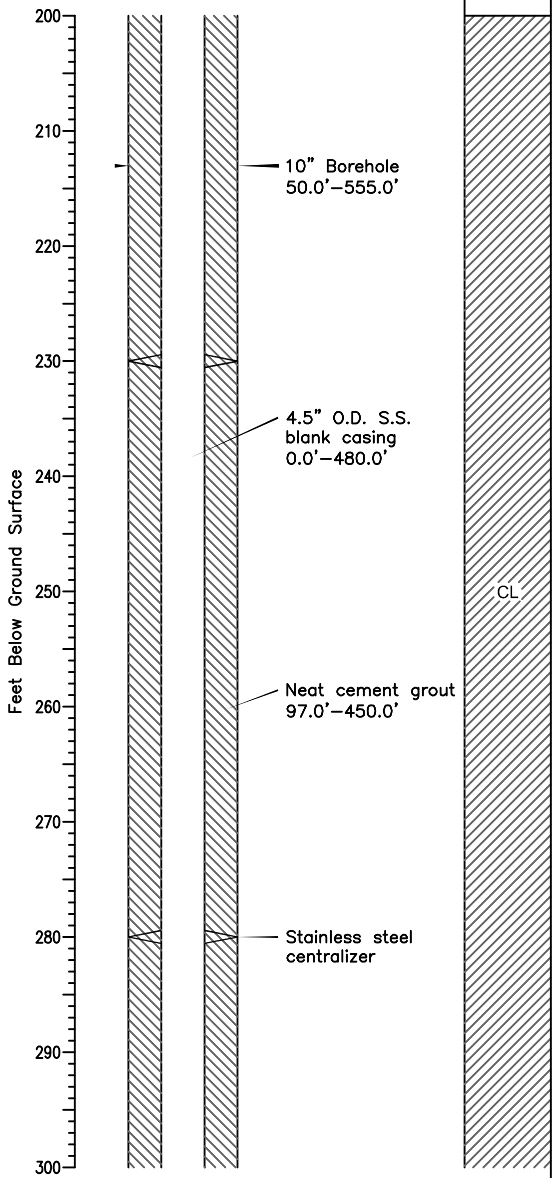


Depth	Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
100	35%/48%	100–110	ML	Clayey silt with abrupt transition to clay, light olive brown (2.5Y 5/4), clay has iron and manganese stain.
110	100%/100%	110–120	ML	Same as above with interbedded silty sand.
120	100%/100%	120–130	ML–CL	Silty claystone, gray (5Y 5/4), no plasticity, hard.
130	100%/100%	130–140	ML–CL	Same as above.
140	40%/65%	140–150	CL	Similar to above; claystone, gray (5Y 5/1), no plasticity, hard to brittle.
150	100%/100%	150–160	CL	Same as above.
160	100%/39%	160–170	CL	Same as above.
170	100%/100%	170–180	CL	Same as above.
180	5%/18%	180–190	CL	Same as above with multiple fractures.
190	90%/100%	190–200	CL	Same as above.
200				

Geologist: M. Nauck
Driller: HAZ–Tech
Date completed: 7–15–11

Drilling method: Core, air rotary
Bit diameters: 16" (0'–50'), 9 7/8" (50'–555')
Sampling device: HQ core (0'–350'), air rotary cuttings (350'–555')
Steel suface casing: None

PICKLES BUTTE
Well Log: PB-12



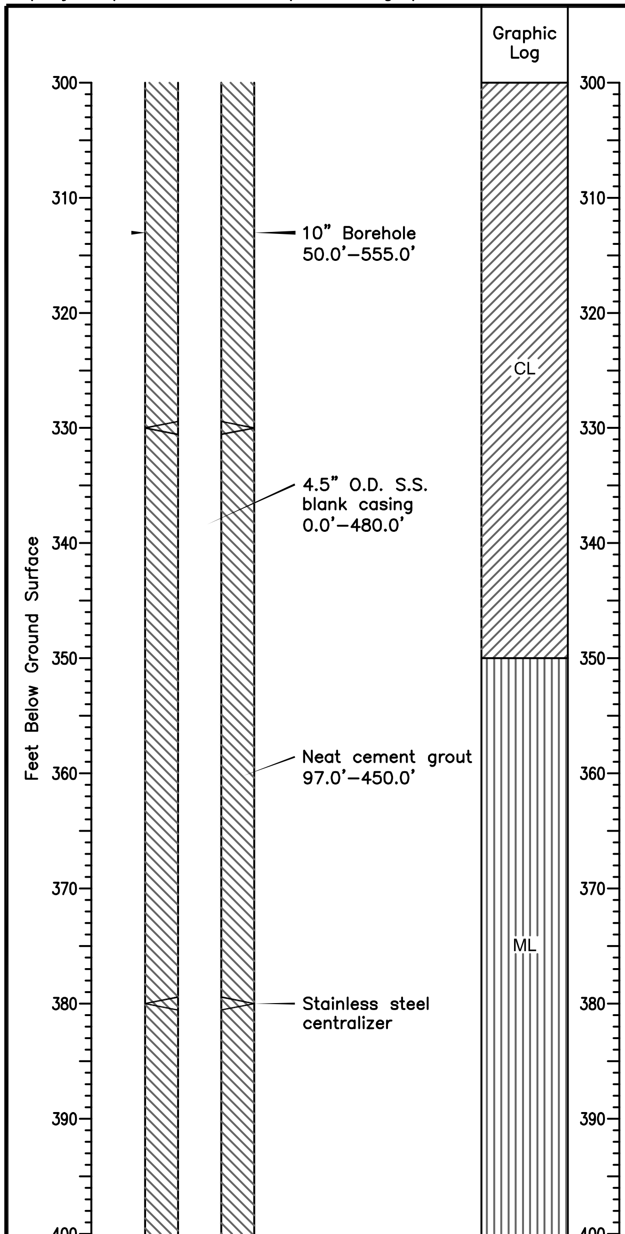
Depth	Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
200	100%/100%	200–210	CL	Same as above.
210	85%/89%	210–220	CL	Same as above.
220	100%/100%	220–230	CL	Same as above.
230	85%/95%	230–240	CL	Same as above, massive, non–fractured.
240	75%/75%	240–250	CL	Claystone, gray (5Y 5/1), no plasticity, hard, brittle, slightly moist.
250	90%/90%	250–260	CL	Same as above.
260	100%/100%	260–270	CL	Same as above.
270	100%/100%	270–280	CL	Same as above.
280	100%/35%	280–290	CL	Same as above.
290	100%/100%	290–300	CL	Same as above.
300				

Geologist: M. Nauck
Driller: HAZ–Tech
Date completed: 7–15–11

Drilling method: Core, air rotary
Bit diameters: 16" (0'–50'), 9 7/8" (50'–555')
Sampling device: HQ core (0'–350'), air rotary cuttings (350'–555')
Steel suface casing: None

PICKLES BUTTE
Well Log: PB-12

Daniel B. Stephens & Associates, Inc.
6–05–2012
JN ES09.0154



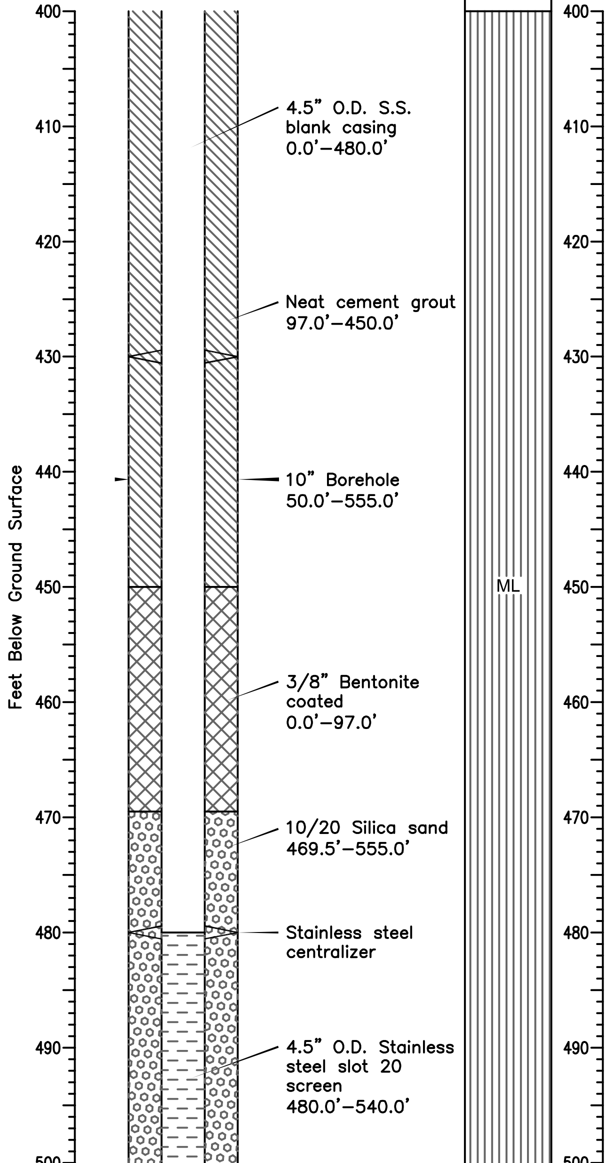
Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
100%/100%	300–310	CL	Same as above.
100%/100%	310–320	CL	Same as above.
100%/100%	320–330	CL	Same as above.
100%/100%	330–340	CL	Same as above.
100%/100%	340–350	CL	Same as above.
NA	350–555	ML	Cuttings not sampled at discrete intervals from 350 feet to 555 feet. Visual inspection indicated predominantly gray silt with varying amounts of clay and sand.

Geologist: M. Nauck
Driller: HAZ–Tech
Date completed: 7–15–11

Drilling method: Core, air rotary
Bit diameters: 16" (0'–50'), 9 7/8" (50'–555')
Sampling device: HQ core (0'–350'), air rotary cuttings (350'–555')
Steel suface casing: None

PICKLES BUTTE
Well Log: PB-12

Daniel B. Stephens & Associates, Inc.
6–05–2012
JN ES09.0154



Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
NA		ML	Cuttings not sampled at discrete intervals from 350 feet to 555 feet. Visual inspection indicated predominantly gray silt with varying amounts of clay and sand.

Geologist: M. Nauck
Driller: HAZ-Tech
Date completed: 7-15-11

Drilling method: Core, air rotary
Bit diameters: 16" (0'-50'), 9 7/8" (50'-555')
Sampling device: HQ core (0'-350'), air rotary cuttings (350'-555')
Steel suface casing: None

PICKLES BUTTE
Well Log: PB-12

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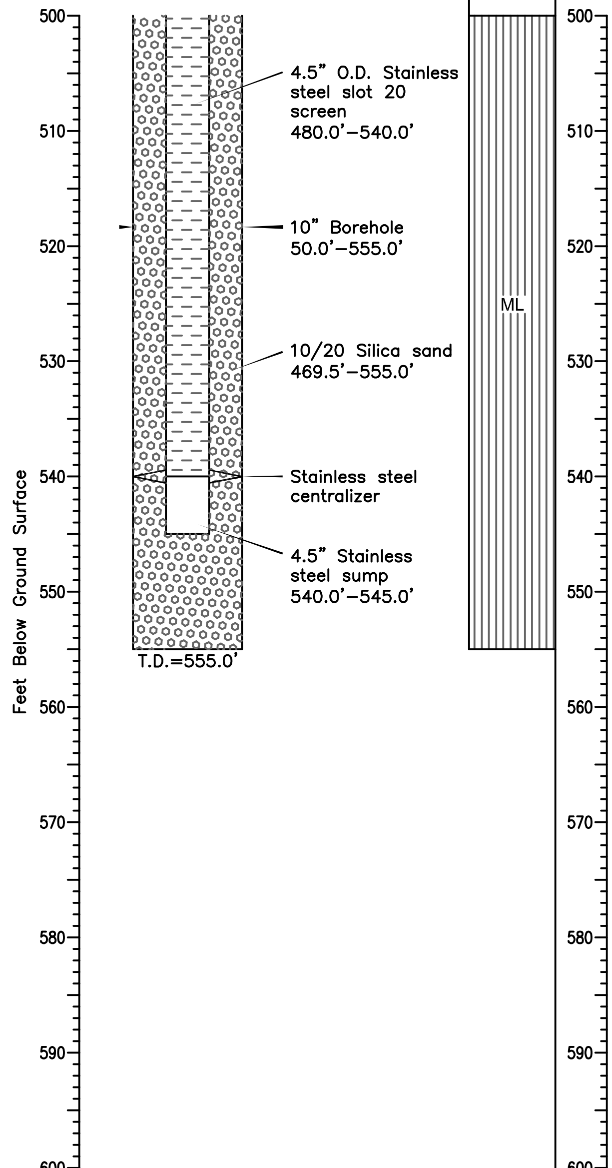

Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
NA		ML	Cuttings not sampled at discrete intervals from 350 feet to 555 feet. Visual inspection indicated predominantly gray silt with varying amounts of clay and sand.

Geologist: M. Nauck
Driller: HAZ–Tech
Date completed: 7–15–11

Drilling method: Core, air rotary
Bit diameters: 16" (0'–50'), 9 7/8" (50'–555')
Sampling device: HQ core (0'–350'), air rotary cuttings (350'–555')
Steel suface casing: None

PICKLES BUTTE
Well Log: PB-12

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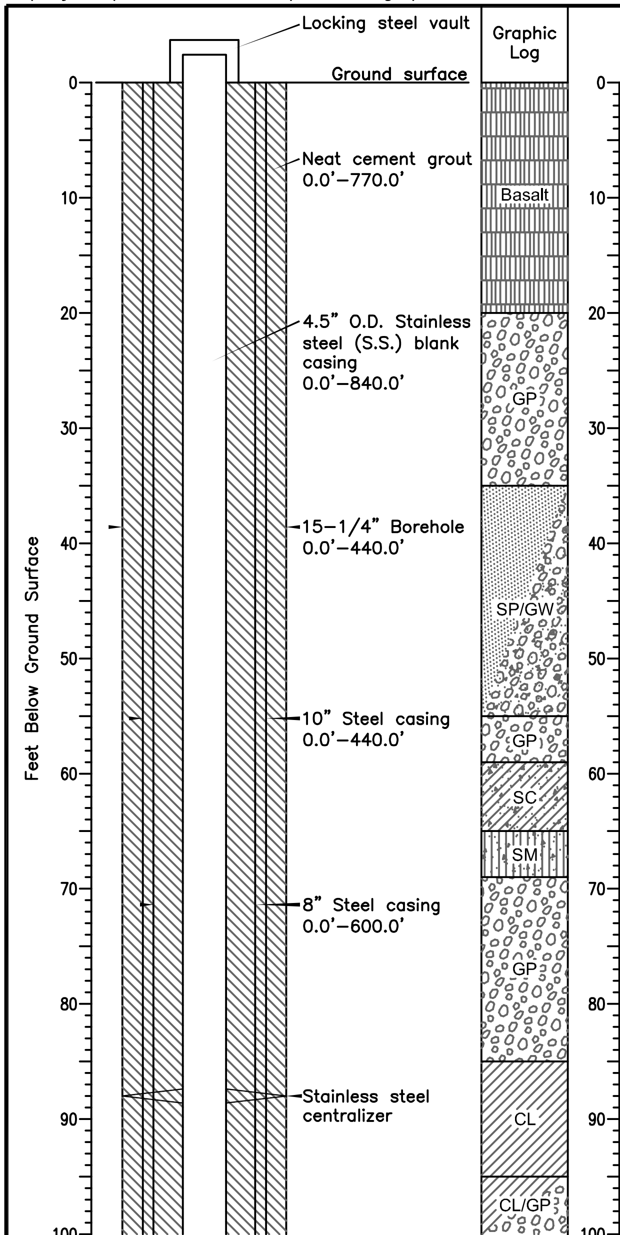

Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
90%/95%	0–5		Vesicular basalt, gray (2.5Y 5/1), several fractures near top of core, slightly glassy texture.
100%/100%	5–10		Same as above.
80%/95%	10–15		Same as above with vertical and horizontal fractures.
25%/70%	15–20		Vesicular basalt, gray (2.5Y 5/1), highly fractured.
0%/2%	20–25	GP	Gravel, unconsolidated, well rounded, loose, 1 to 2.5 inches diameter.
0%/10%	25–35	GP	Same as above, 0.25 to 3.0 inches diameter.
0%/0%	35–45	SP/GW	No core recovery. Rotary cuttings indicate predominantly medium– to coarse–grained sand and interbedded gravel.
0%/0%	45–55	SP/GW	No core recovery, same as above.
8%/15%	55–65	GP SC	Gravel, 0.5 to 3.0 inches diameter with abrupt change to clayey silty fine sand, light olive brown (2.5Y 5/3), very fine–grained, well graded, well rounded, moderate plasticity, soft.
0%/23%	65–75	SM	65 to 69 feet silty fine sand, light olive brown (2.5Y 5/3). 69 to 75 feet coarse sandy gravel, polychromic, well rounded, 0.25 to 2.0 inches diameter, loose.
0%/10%	75–85	GP	Greater than 2 inches diameter, loose.
85%/95%	85–95	CL	Claystone to silty claystone, pale olive (5Y 6/3), none to medium plasticity, hard to stiff, dry, transition to very well consolidated to well consolidated.
55%/55%	95–105	CL/GP	Silty claystone, light yellowish brown (2.5Y), medium plasticity, medium density, slightly moist, some ferric like staining. Gravel lenses noted at 95 to 100 feet in rotary cuttings.

Geologist: M. Nauck/J. Raucci
Driller: HAZ–Tech
Date completed: 12–15–11

Drilling method: Core, mud rotary, air rotary
Bit diameters: 15 1/4" (0'–440'), 9 7/8" (440'–923')
Sampling device: HQ core, air rotary cuttings
Steel suface casing: 8" (0'–600'), 10" (0'–440')

Northing: 666231.696
Easting: 243986.781
Elevation: 3073.9 (TOC)
Notes: HAZ–Tech core drilling 0'–666'; Adamson Pump and Drill air rotary drilling 666'–920'
TOC = top of casing

PICKLES BUTTE
Well Log: PB-13

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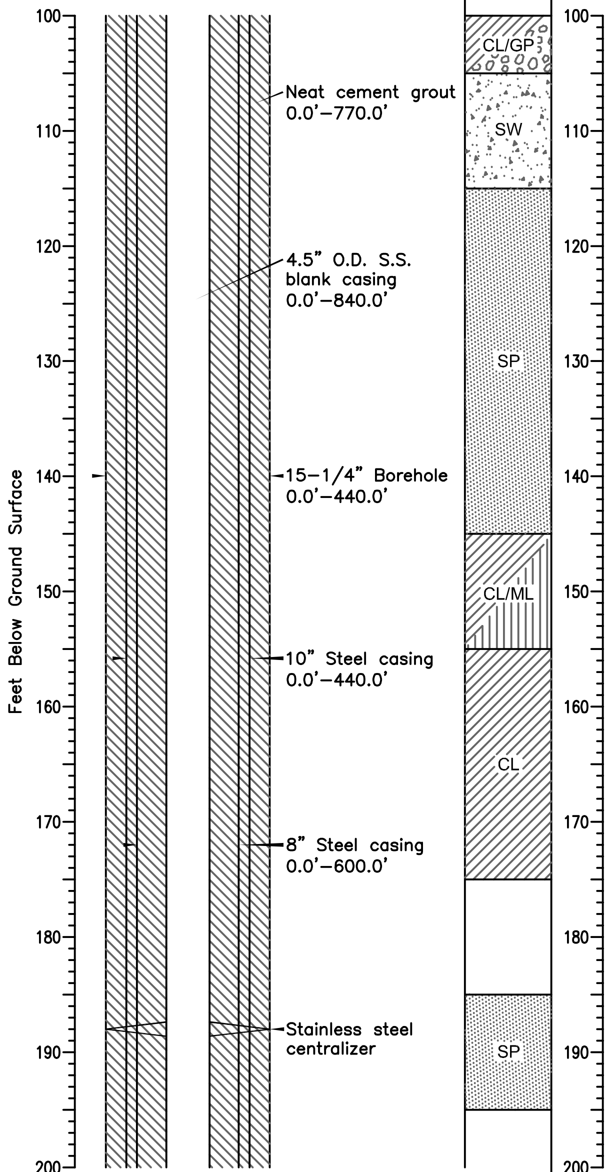


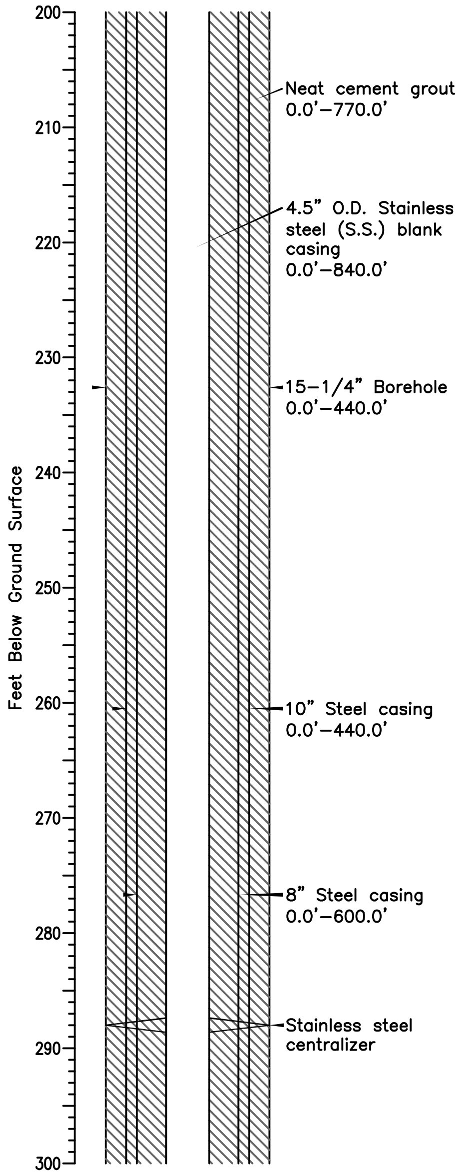
Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
0%/12%	105–115	SW	Sand, grayish brown (2.5Y 5/2), medium– to fine–grained, subrounded, poorly sorted, no plasticity, soft, wet (drilling fluid).
0%/0%	115–125	SP	No core recovery. Rotary cuttings predominantly loose, medium–grained sand with few fines.
0%/0%	125–135	SP	No core recovery, same as above.
0%/0%	135–145	SP	No core recovery, same as above.
12%/25%	145–155	CL–ML	Silty claystone to claystone, light brownish gray (2.5Y 6/2), stiff/brittle, dry.
15%/22%	155–165	CL	Claystone, light brownish gray (2.5Y 6/2), stiff, dry.
15%/20%	165–175	CL	Same as above.
0%/0%	175–180		No recovery.
0%/18%	185–195	SP	Fine to medium sand, olive gray (5Y 5/2), poorly graded, loose, wet.
0%/0%	195–205		No recovery.

Geologist: M. Nauck/J. Raucci
Driller: HAZ–Tech
Date completed: 12–15–11

Drilling method: Core, mud rotary, air rotary
Bit diameters: 15 1/4" (0'–440'), 9 7/8" (440'–923')
Sampling device: HQ core, air rotary cuttings
Steel suface casing: 8" (0'–600'), 10" (0'–440')

Note: HAZ–Tech core drilling 0'–666'; Adamson Pump and Drill air rotary drilling 666'–920'

PICKLES BUTTE
Well Log: PB-13



Graphic Log	Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
SP	0%/20%	205–215	SP	Sand, olive brown (2YR 4/3), medium–grained, well sorted, loose, wet.
	0%/0%	215–225		No recovery.
SP	0%/15%	225–235	SP	Same as above.
	0%/15%	235–245	SP	Same as above.
	0%/35%	245–255	SP	Sand, same as above, color (2.5Y 4/2), then 3 inches of claystone, light yellowish brown (2.5Y 6/2), slight plasticity, slightly moist.
CL/SP	35%/90%	255–265	CL–SP	Interbedded brown sand, same as above, with light yellowish brown claystone, some oxidation color banding.
	30%/80%	265–275	CL–SP	Same as above, predominantly sand with sandy claystone interbeds.
SP	50%/100%	275–285	SP	Sand, light yellowish brown (2.5Y 6/3), fine–grained, well sorted, micaceous, claystone interbeds, moderately compact, slightly moist.
	45%/95%	285–295	SP	Sand, grayish brown (7.5Y 5/3) medium–grained, well sorted with uncommon silty and clayey interbeds, 1 to 2 centimeters thick, loose to weakly cemented, moist, prominent oxidation color banding.
SP/ML	40%/90%	295–305	SP–ML	Similar to above, grayish brown sand interbedded with lighter colored silty fine sand and sandy clay, loose to weakly cemented.

Geologist: M. Nauck/J. Raucci
Driller: HAZ–Tech
Date completed: 12–15–11

Drilling method: Core, mud rotary, air rotary
Bit diameters: 15 1/4" (0'–440'), 9 7/8" (440'–923')
Sampling device: HQ core, air rotary cuttings
Steel suface casing: 8" (0'–600'), 10" (0'–440')

Note: HAZ–Tech core drilling 0'–666';
Adamson Pump and Drill air rotary drilling
666'–920'

PICKLES BUTTE
Well Log: PB-13

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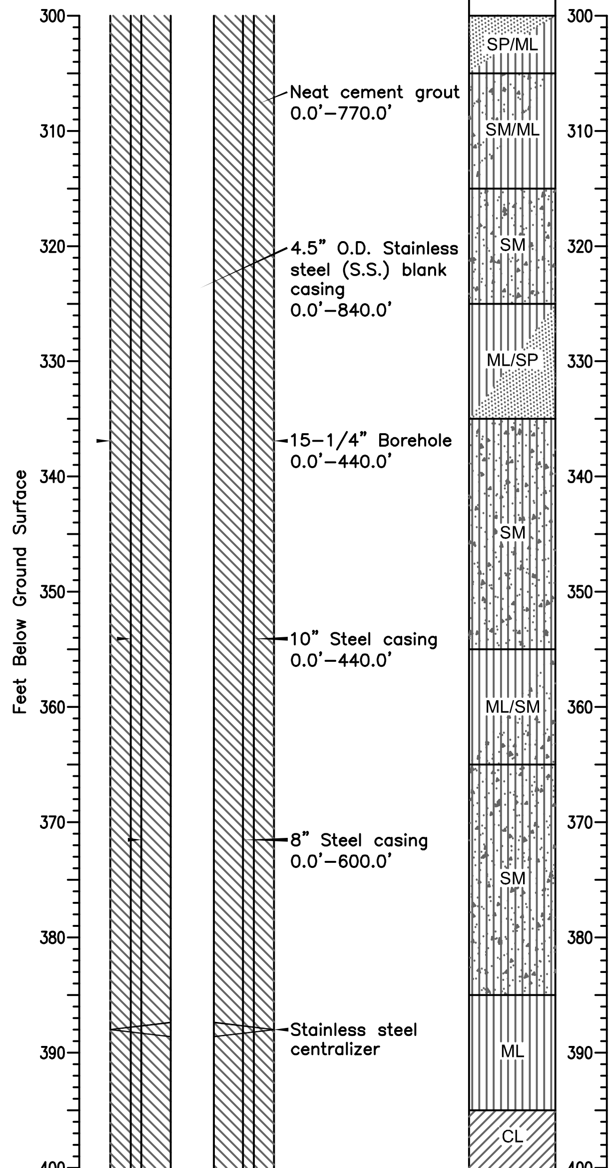

Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
50%/85%	305–315	SM–ML	Sandy silt and silty sand, light yellowish brown (2.5Y 6/3–6/4), fine–grained, weakly cemented, brittle, moist, interbedded with olive brown sand, similar to above.
70%/100%	315–325	SM	Similar to above, but also several thin layers (5 to 10 centimeters) very hard fine sandstone, pale yellow (5Y 8/2), prominent oxidation color sanding, hard rock is dry.
50%/100%	325–335	ML–SP	Sandy siltstone, pale yellow (2.5Y 7/4), hard, dry, interbedded with light olive brown loose sand, similar to above.
0%/90%	335–345	SM	Silty sandstone and sandy siltstone, light yellow brown (2.5Y 6/4), generally weakly cemented with loose and very hard layers, oxidation staining especially in very hard layers.
60%/90%	345–355	SM	Same as above, color mottled with olive yellow (2.5Y 6/6), massive to finely laminated, dry to slightly moist.
40%/90%	355–365	ML–SM	Siltstone, sandy siltstone and very fine sandstone, pale yellow (2.5Y 7/4) to light olive brown (2.5Y 6/3), weakly to moderately cemented, laminated, local oxidation staining, dry to slightly moist.
50%/90%	365–375	SM	Interbedded silty fine sandstone, and siltstone, same as above, with olive brown, fine– to medium–grained sandstone, weakly cemented, slightly moist.
40%/75%	375–380	SM	Sandstone, light olive brown, fine–grained, similar to above, finely laminated, cross–bedded, claystone 384 to 385 feet, slightly moist.
25%/75%	385–395	ML	Similar to above, sandy siltstone and very fine–grained silty sandstone, local oxidation staining, highly fractured, slightly moist.
0%/15%	395–405	CL	Sandy claystone and siltstone, color same as above.

Geologist: M. Nauck/J. Raucci
Driller: HAZ–Tech
Date completed: 12–15–11

Drilling method: Core, mud rotary, air rotary
Bit diameters: 15 1/4" (0'–440'), 9 7/8" (440'–923')
Sampling device: HQ core, air rotary cuttings
Steel suface casing: 8" (0'–600'), 10" (0'–440')

Note: HAZ–Tech core drilling 0'–666';
Adamson Pump and Drill air rotary drilling
666'–920'

PICKLES BUTTE
Well Log: PB-13

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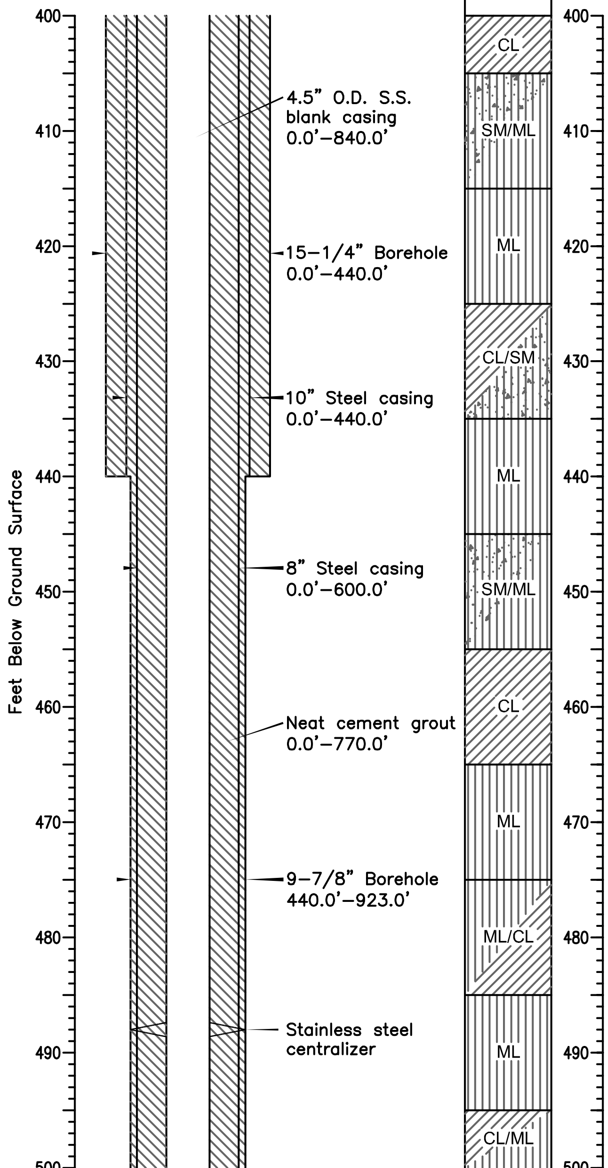


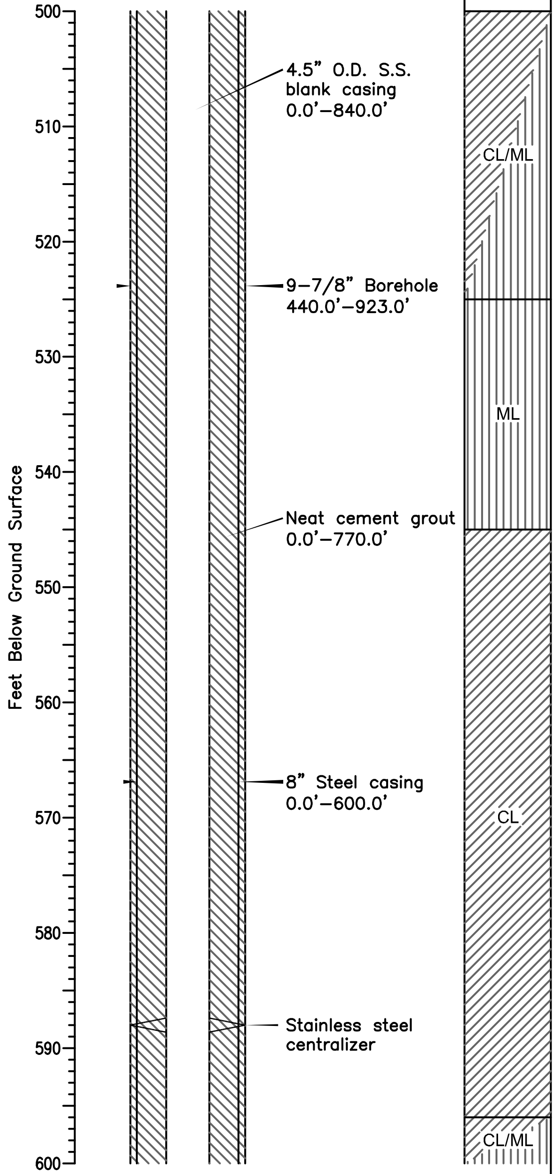
Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
20%/70%	405–415	SM–ML	Sandy siltstone and sandstone, light olive brown, finely laminated, cross–bedded, very fine–grained local oxidation staining, slightly moist.
0%/15%	415–425	ML	Silty claystone and siltstone, light yellowish brown to pale olive.
60%/80%	425–435	CL–SM	Similar to above, light olive brown fine–grained sediments, some organic material, slightly moist, laminated, weakly to moderately cemented.
75%/85%	435–445	ML	Same as above, dominantly sandy silt, clayey fine sand, color same as above.
15%/50%	445–455	SM–ML	Same as above, a bit more sand.
20%/50%	455–465	CL	Silty claystone, olive gray (5Y 5/2), massive, micaceous, brittle, very slightly moist.
30%/90%	465–475	ML	Similar to above, siltier (clayey siltstone), sub–vertical fractures 460 to 465 feet.
40%/100%	475–485	ML–CL	Same as above, color pale olive (5Y 6/3).
100%/100%	485–495	ML	Same as above, clayey siltstone, pale olive, some oxidation staining, few fractures.
100%/100%	495–505	CL–ML	Siltstone and claystone with minor very fine sandstone, light olive gray (5Y 6/2), micaceous, dry to slightly moist, indurated, oxidation staining along bedding.

Geologist: M. Nauck/J. Raucci
Driller: HAZ–Tech
Date completed: 12–15–11

Drilling method: Core, mud rotary, air rotary
Bit diameters: 15 1/4" (0'–440'), 9 7/8" (440'–923')
Sampling device: HQ core, air rotary cuttings
Steel suface casing: 8" (0'–600'), 10" (0'–440')

Note: HAZ–Tech core drilling 0'–666';
Adamson Pump and Drill air rotary drilling 666'–920'

PICKLES BUTTE
Well Log: PB-13



Depth (feet)	Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
505	80%/100%	505–515	CL–ML	Same as above, silty clay and clayey silt, abundant organic material and oxidation staining.
515	0%/100%	515–525	CL–ML	Same as above.
525	80%/100%	525–535	ML	Similar to above, less muddy, siltstone and silty very fine sandstone with claystone, olive (5Y 5/3), sandy layers are laminated, cross–bedded.
535	0%/100%	535–545	ML	Predominantly fine–grained silt, sandstone and clayey siltstone.
545	100%/100%	545–555	CL	Silty claystone, pale olive to olive gray, weakly cemented to 553 feet, then clayey siltstone, gray (5Y 5/1), dense, finely laminated, slightly moist. Contact with "blue clay" unit at 552.5 feet.
555	not recorded	555–565	CL	Silty claystone with minor sand, gray (5Y 5/1), massive to laminated, fine–grained, weakly to moderately cemented, dense, very slightly moist.
565	40%/100%	565–576	CL	Silty claystone, dark greenish gray (Gley1 4/1), hard, brittle, numerous fractures.
576	70%/100%	576–586	CL	Same as above.
586	85%/100%	586–596	CL	Silty claystone, dark greenish gray (Gley1 4/1), slight plasticity, brittle, slightly moist, micaceous.
596	80%/100%	596–606	CL–ML	Same as above, a bit siltier, greenish gray (Gley1 5/1), interbedded with hard micaceous siltstone.

Geologist: M. Nauck/J. Raucci
Driller: HAZ–Tech
Date completed: 12–15–11

Drilling method: Core, mud rotary, air rotary
Bit diameters: 15 1/4" (0'–440'), 9 7/8" (440'–923')
Sampling device: HQ core, air rotary cuttings
Steel suface casing: 8" (0'–600'), 10" (0'–440')

Note: HAZ–Tech core drilling 0'–666'; Adamson Pump and Drill air rotary drilling 666'–920'

PICKLES BUTTE
Well Log: PB-13

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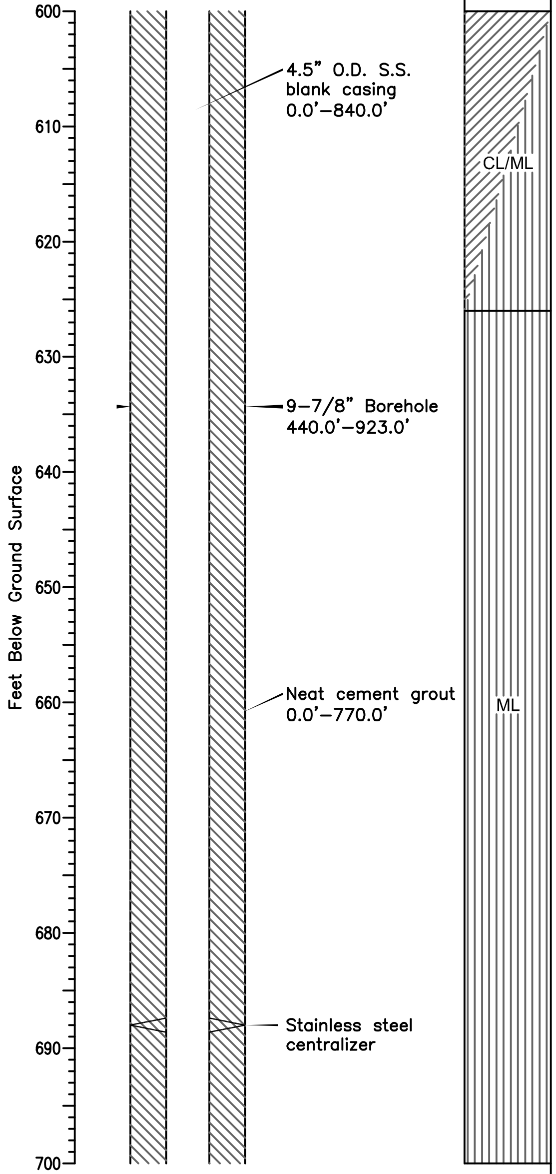

Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
100%/100%	606–616	CL–ML	Same as above. Large steeply dipping fracture at 5 feet.
100%/100%	616–626	CL–ML	Siltstone and interbedded claystone, greenish gray (Gley1 5/10Y–5/N), micaceous, harder than above, (claystone is soft).
100%/100%	626–636	ML	Same as above, predominantly siltstone.
100%/100%	636–646	ML	Siltstone with minor sand and mud, dark greenish gray (Gley1 4/1–10/Y), laminated, fine–grained, hard, slightly moist.
80%/90%	646–656	ML	Same as above.
40%/40%	656–666	ML	Same as above.
	666–923	ML	Cuttings not sampled at discrete intervals from 666 feet to 923 feet. Air rotary drilling method only enabled amalgamated bulk sample collection. Visual inspection indicated predominantly gray silt with lesser amounts of clay and sand.

Geologist: M. Nauck/J. Raucci
Driller: HAZ–Tech
Date completed: 12–15–11

Drilling method: Core, mud rotary, air rotary
Bit diameters: 15 1/4" (0'–440'), 9 7/8" (440'–923')
Sampling device: HQ core, air rotary cuttings
Steel suface casing: 8" (0'–600'), 10" (0'–440')

Note: HAZ–Tech core drilling 0'–666';
Adamson Pump and Drill air rotary drilling 666'–920'

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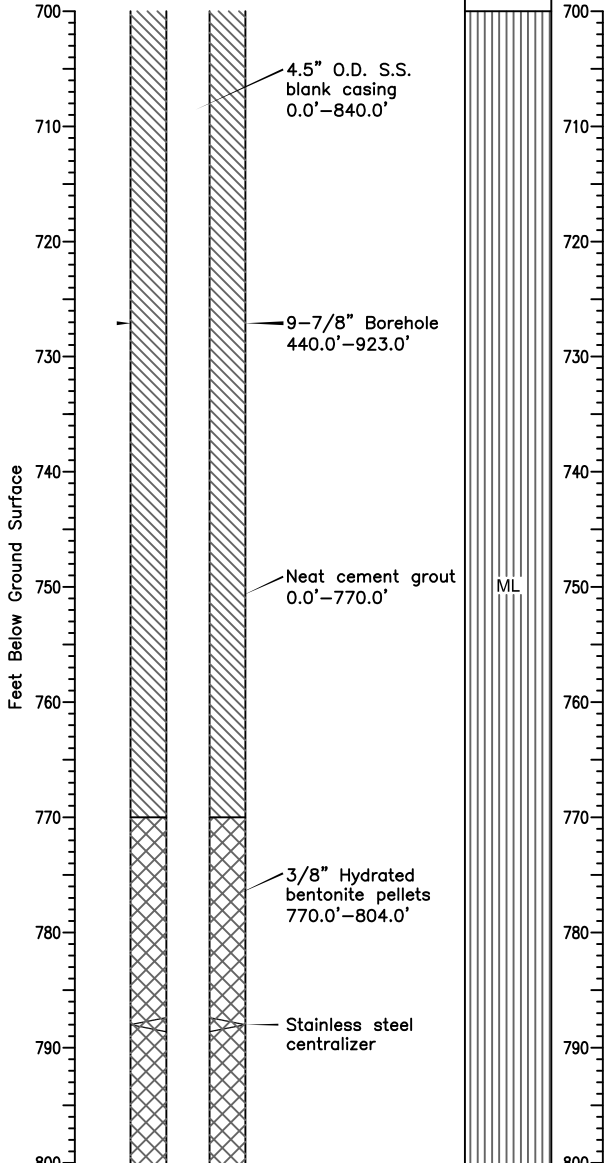

Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
		ML	Cuttings not sampled at discrete intervals from 666 feet to 923 feet. Air rotary drilling method only enabled amalgamated bulk sample collection. Visual inspection indicated predominantly gray silt with lesser amounts of clay and sand.

Geologist: M. Nauck/J. Raucci
Driller: HAZ–Tech
Date completed: 12–15–11

Drilling method: Core, mud rotary, air rotary
Bit diameters: 15 1/4" (0'–440'), 9 7/8" (440'–923')
Sampling device: HQ core, air rotary cuttings
Steel suface casing: 8" (0'–600'), 10" (0'–440')

Note: HAZ–Tech core drilling 0'–666';
Adamson Pump and Drill air rotary drilling 666'–920'

PICKLES BUTTE
Well Log: PB-13

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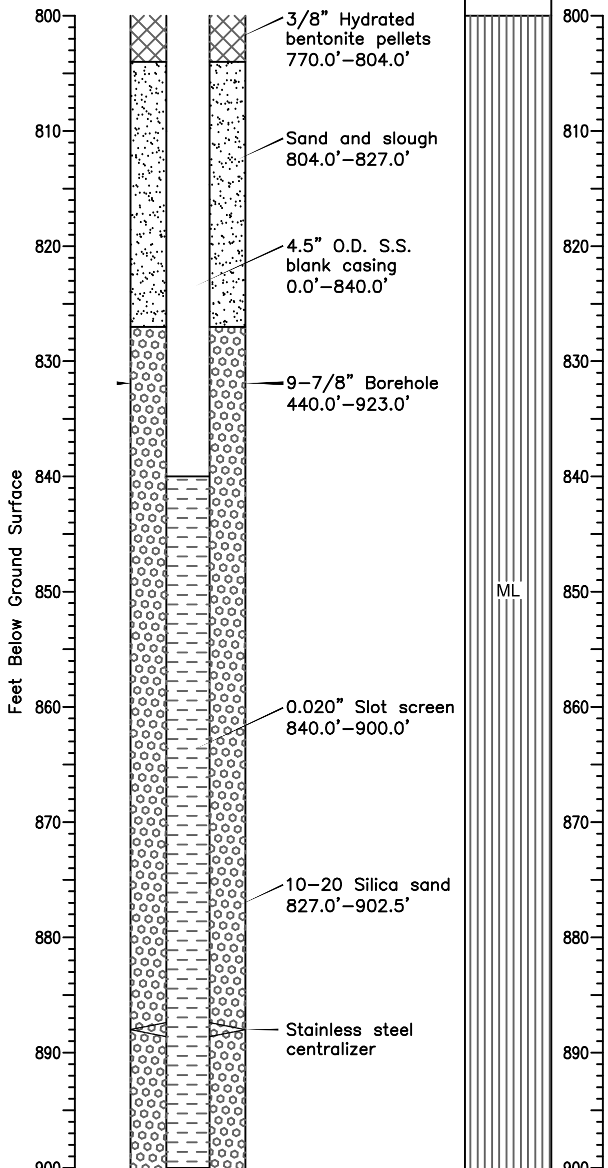

Depth	Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
800–900			ML	Cuttings not sampled at discrete intervals from 666 feet to 923 feet. Air rotary drilling method only enabled amalgamated bulk sample collection. Visual inspection indicated predominantly gray silt with lesser amounts of clay and sand.

Geologist: M. Nauck/J. Raucci
Driller: HAZ–Tech
Date completed: 12–15–11

Drilling method: Core, mud rotary, air rotary
Bit diameters: 15 1/4" (0'–440'), 9 7/8" (440'–923')
Sampling device: HQ core, air rotary cuttings
Steel suface casing: 8" (0'–600'), 10" (0'–440')

Note: HAZ–Tech core drilling 0'–666'; Adamson Pump and Drill air rotary drilling 666'–920'

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Well Log: PB-13

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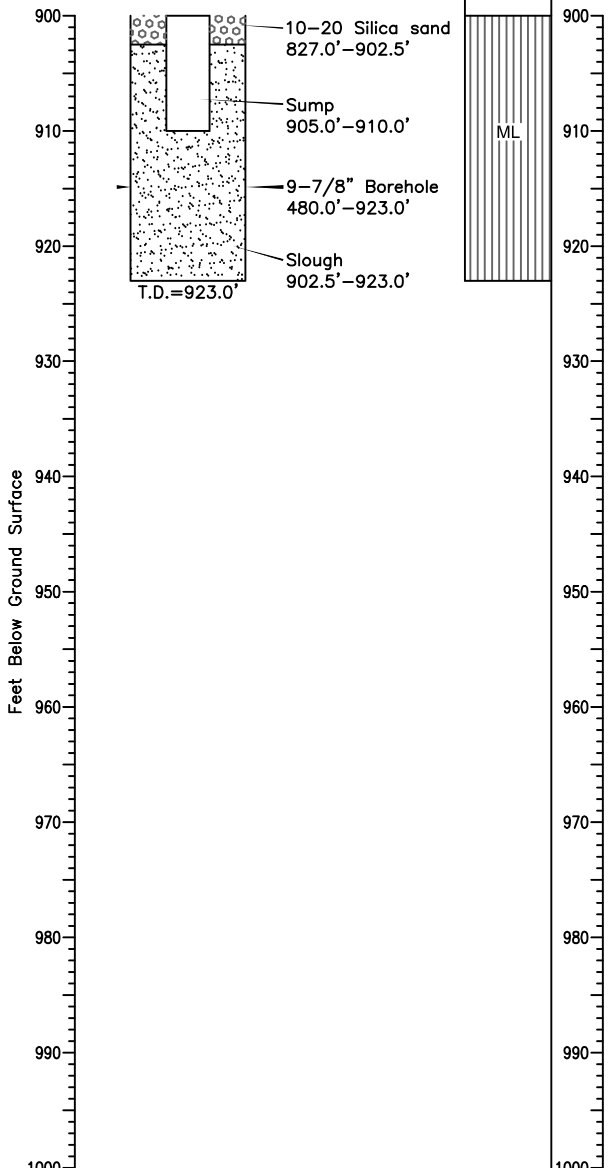

Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
		ML	Cuttings not sampled at discrete intervals from 666 feet to 923 feet. Air rotary drilling method only enabled amalgamated bulk sample collection. Visual inspection indicated predominantly gray silt with lesser amounts of clay and sand.

Geologist: M. Nauck/J. Raucci
Driller: HAZ-Tech
Date completed: 12-15-11

Drilling method: Core, mud rotary, air rotary
Bit diameters: 15 1/4" (0'-440'), 9 7/8" (440'-923')
Sampling device: HQ core, air rotary cuttings
Steel suface casing: 8" (0'-600'), 10" (0'-440')

Note: HAZ-Tech core drilling 0'-666';
Adamson Pump and Drill air rotary drilling
666'-920'

PICKLES BUTTE
Well Log: PB-13

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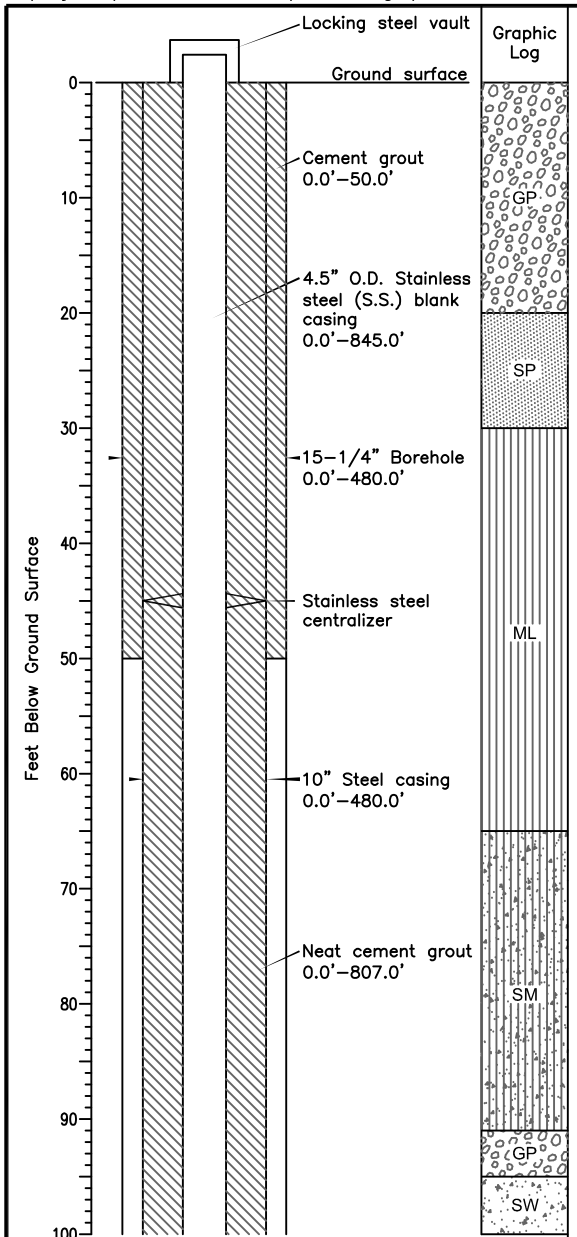

Depth (feet)	Rock Quality Designation / Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
0	0%/0%	0–10	GP	No core recovery. 0 to 30 feet description based on rotary cuttings unconsolidated gravel, meterolithic clasts up to 3 inches, rounded, coarse–grained, poorly sorted, sand matrix.
10		10–20	GP	Same as above.
20		20–30	SP	Sand, medium– to coarse–grained, moderately well sorted, loose.
30	80%/80%	30–35	ML	Silstone, light brownish gray (2.5Y 6/2), weakly cemented.
	85%/85%	35–40	ML	Siltstone–sandy siltstone, light brownish gray (2.5Y 6/2), weakly cemented.
40	85%/85%	40–45	ML	Siltstone–clayey siltstone, pale yellow (2.5Y 7/3), weakly cemented.
	45%/75%	45–50	ML	Sandy silstone, light yellowish brown (2.5Y 6/3), very weakly cemented, highly fractured, oxidation staining.
50	60%/75%	50–55	ML	Same as above.
	25%/40%	55–60	ML	Same as above, fine–grained.
60	50%/95%	60–65	ML	Same as above, fine–grained, highly fractured.
	35%/35%	65–75	SM	Silty sandstone, light yellowish brown (2.5Y 5/4), laminated, fine– to medium–grained, weakly cemented.
70				
	25%/30%	75–85	SM	Same as above, light olive brown (2.5Y 5/4).
80				
	19%/19%	85–91	SM	Same as above with coarse–grained sand in drilling fluid matrix.
90		91–95	GP	Rotary cuttings indicate gravel layer at 91 to 95 feet.
	60%/99%	95–100	SW	Sand, pale yellow (2.5Y 8/3), coarse–grained, subrounded, loose, wet.
100	60%/99%	100–105	SM	Silty sandstone, pale yellow (2.5Y 8/3), fine–grained, weakly cemented.

Geologist: J. Fisher/M. Nauck/J. Raucci
Driller: HAZ–Tech; Adamson Pump and Drill
Date completed: 10–11–11

Drilling method: Core, mud rotary, air rotary
Bit diameters: 15–1/4" and 9–7/8"
Sampling device: HQ core, NQ core, rotary cuttings
Steel suface casing: 10"
Note: TOC = top of casing

Northing: 665549.182
Easting: 244947.947
Elevation: 3080.9 (TOC)

Note: HAZ–Tech core drilling 0'–385', 520'–750' (NQ core 600'–750'); Adamson Pump and Drill mud rotary drilling 385'–520', air rotary drilling 750'–923'

PICKLES BUTTE
Well Log: PB-14

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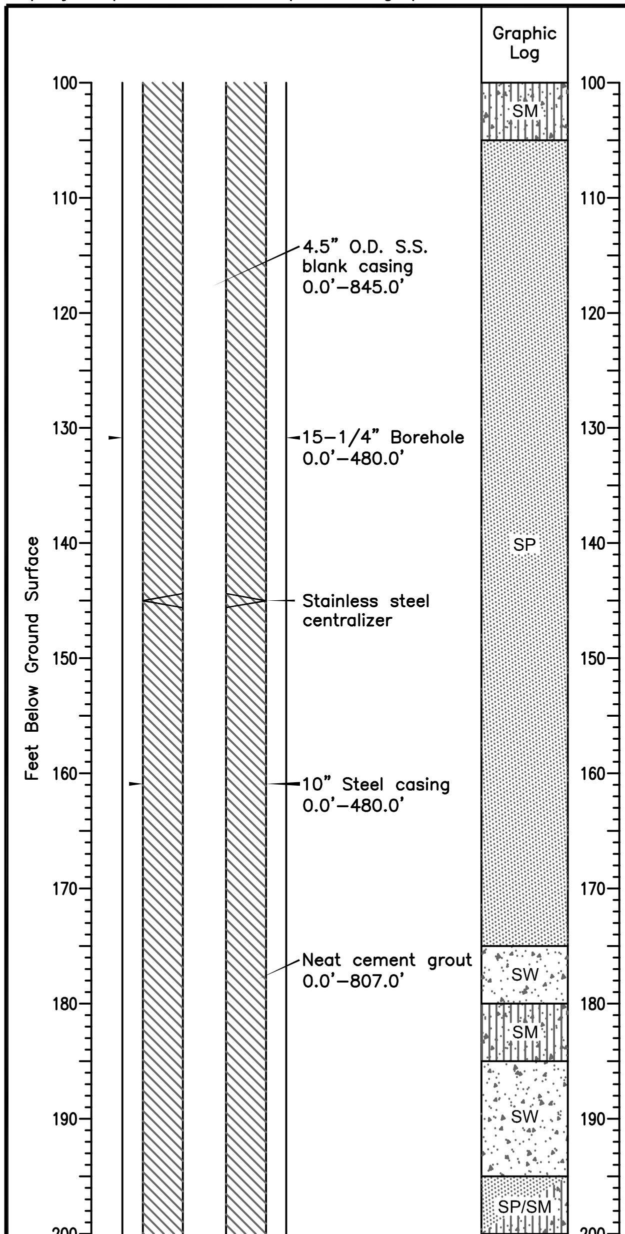

Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
0%/0%	105–115	SP	No core recovery 105 feet to 175 feet, rotary cuttings indicate dominantly medium sand, moderately well sorted, unconsolidated.
0%/0%	115–125	SP	Same as above.
0%/0%	125–175	SP	Same as above to 175 feet (rotary cuttings).
0%/50%	175–180	SW	Sand, dark yellowish brown (10YR 4/4), coarse–grained, non–plastic, loose, wet.
0%/50%	180–185	SM	Silty sand, light yellowish brown (2.5Y 6/4), fine–grained, low plasticity, loose, wet.
30%/40%	185–195	SW	Sandstone, dark grayish brown (2.5Y 5/2), coarse–grained, subrounded, weakly cemented, vertical fractures.
35%/35%	195–205	SP–SM	Sandstone grading to silty sandstone, olive brown (2.5Y 4/3), coarse– to fine–grained, weakly cemented.

Geologist: J. Fisher/M. Nauck/J. Raucci
Driller: HAZ–Tech; Adamson Pump and Drill
Date completed: 10–11–11

Drilling method: Core, mud rotary, air rotary
Bit diameters: 15–1/4" and 9–7/8"
Sampling device: HQ core, NQ core, rotary cuttings
Steel suface casing: 10"

Note: HAZ–Tech core drilling 0'–385', 520'–750' (NQ core 600'–750'); Adamson Pump and Drill mud rotary drilling 385'–520', air rotary drilling 750'–923'

PICKLES BUTTE
Well Log: PB-14

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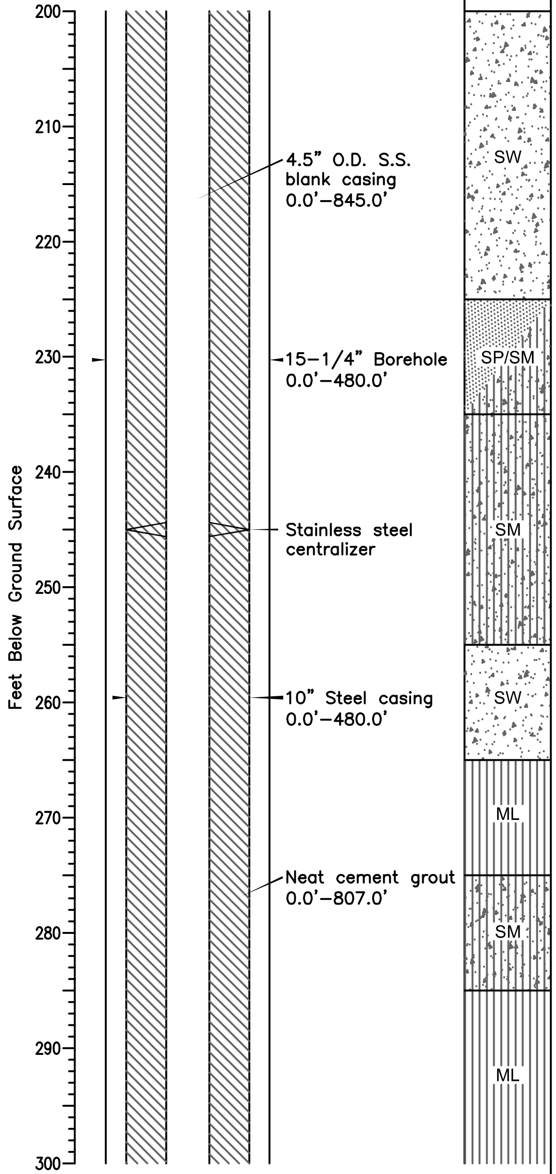
6–05–2012
JN ES09.0154



Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
0%/48%	205–215	SW	Sand, dark yellowish brown (10YR 4/4), coarse–grained, non–plastic, loose, wet.
0%/48%	215–225	SW	Same as above.
0%/48%	225–235	SP–SM	Loose sand graiding to silty sandstone, light yellowish brown (2.5Y 6/3), fine–grained, weakly cemented.
0%/48%	235–245	SM	Silty sandstone, light yellowish brown (2.5Y 6/3), fine– to medium–grained, weakly cemented, fractured.
0%/48%	245–255	SM	Same as above with iron staining.
0%/48%	255–265	SW	Sandstone, light olive brown (2.5Y 5/3), laminated, coarse–grained, very weakly cemented, iron staining.
0%/48%	265–275	ML	Sandy clayey silt, light yellowish brown (2.5Y 6/3), low plasticity, soft, damp.
0%/48%	275–285	SM	Silty sandstone, light yellowish brown (2.5Y 6/3), iron stained banding, fine–grained, weakly cemented.
0%/48%	285–295	ML	Sandy siltstone, light yellowish brown (2.5Y 6/3), fine–grained, weakly cemented, fractured.
0%/48%	295–305	ML	Same as above, light olive brown (2.5Y 5/3).

Geologist: J. Fisher/M. Nauck/J. Raucci
Driller: HAZ–Tech; Adamson Pump and Drill
Date completed: 10–11–11

Drilling method: Core, mud rotary, air rotary
Bit diameters: 15–1/4" and 9–7/8"
Sampling device: HQ core, NQ core, rotary cuttings
Steel suface casing: 10"

Note: HAZ–Tech core drilling 0'–385', 520'–750' (NQ core 600'–750'); Adamson Pump and Drill mud rotary drilling 385'–520', air rotary drilling 750'–923'

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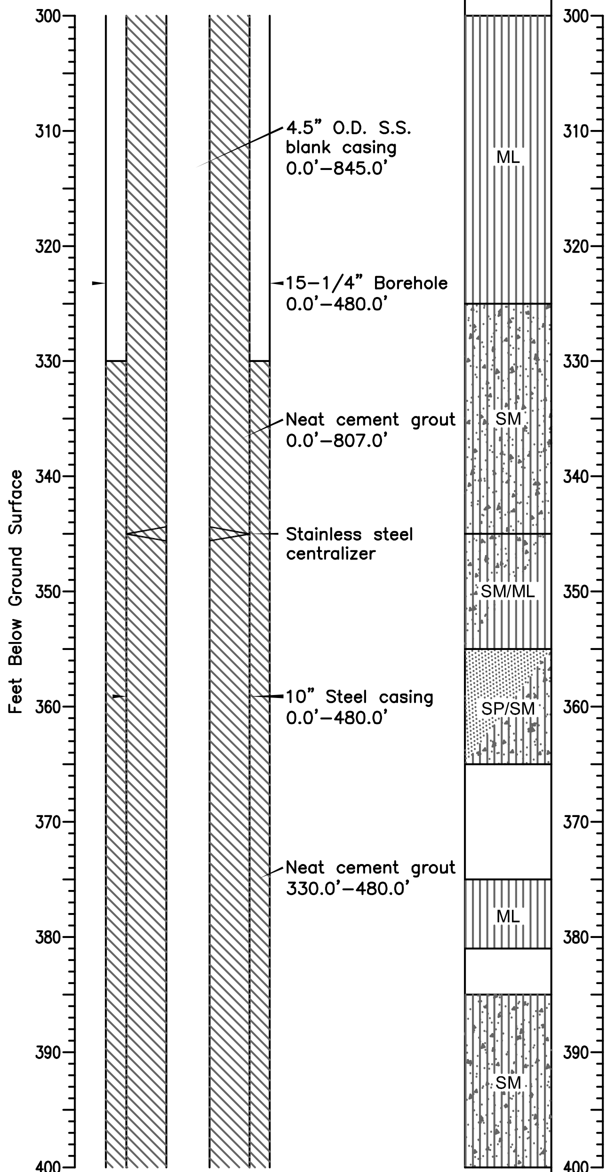


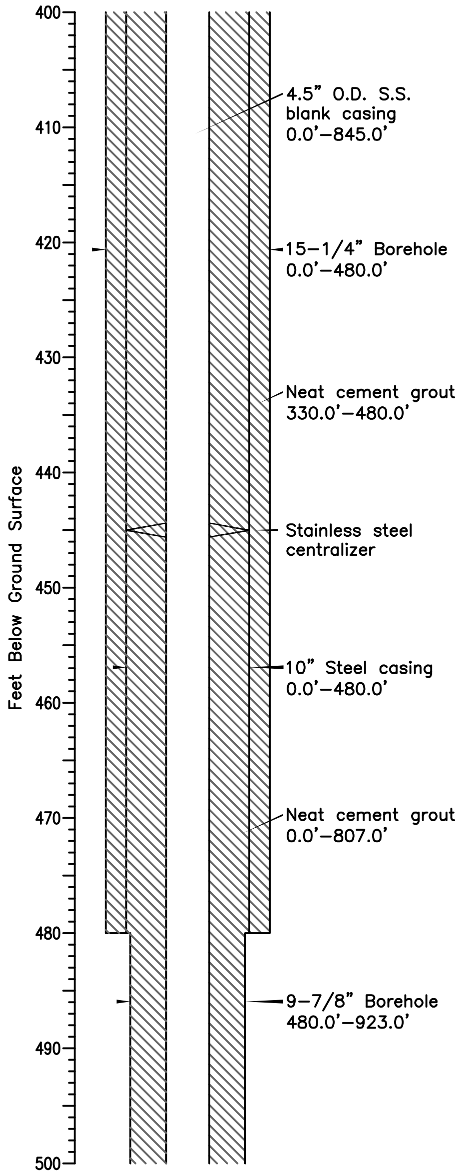
Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
100%/100%	305–315	ML	Same as above.
100%/100%	315–325	ML	Same as above, light olive brown (2.5Y 6/2).
100%/100%	325–335	SM	Silty sandstone, light olive brown (2.5Y 5/3), fine–grained, moderatedly cemented.
100%/100%	335–345	SM	Silty sandstone, pale yellow (2.5Y 7/3), fine–grained, weakly cemented dry.
85%/95%	345–355	SM–ML	Same as above grading into siltstone, light yellowish brown (2.5Y 6/3), weakly cemented.
45%/88%	355–365	SP–SM	Same as above, with loose medium–grained sand.
0%/0%	365–375		No recovery.
95%/95%	375–381	ML	Siltstone, plae yellow (2.5Y 7/3), weakly cemented, dry.
0%/0%	381–385		No recovery.
NA	385–395	SM	Clayey silty sand, light yellowish brown (2.5Y 6/3), fine– to medium–grained, moderately sorted, moderate plasticity, soft (cuttings from mud rotary).
NA	395–405	SM	As above, more sand than fines (cuttings from mud rotary).

Geologist: J. Fisher/M. Nauck/J. Raucci
Driller: HAZ–Tech; Adamson Pump and Drill
Date completed: 10–11–11

Drilling method: Core, mud rotary, air rotary
Bit diameters: 15–1/4" and 9–7/8"
Sampling device: HQ core, NQ core, rotary cuttings
Steel suface casing: 10"

Note: HAZ–Tech core drilling 0'–385', 520'–750' (NQ core 600'–750'); Adamson Pump and Drill mud rotary drilling 385'–520', air rotary drilling 750'–923'

PICKLES BUTTE
Well Log: PB-14



Graphic Log: ML (400–485)

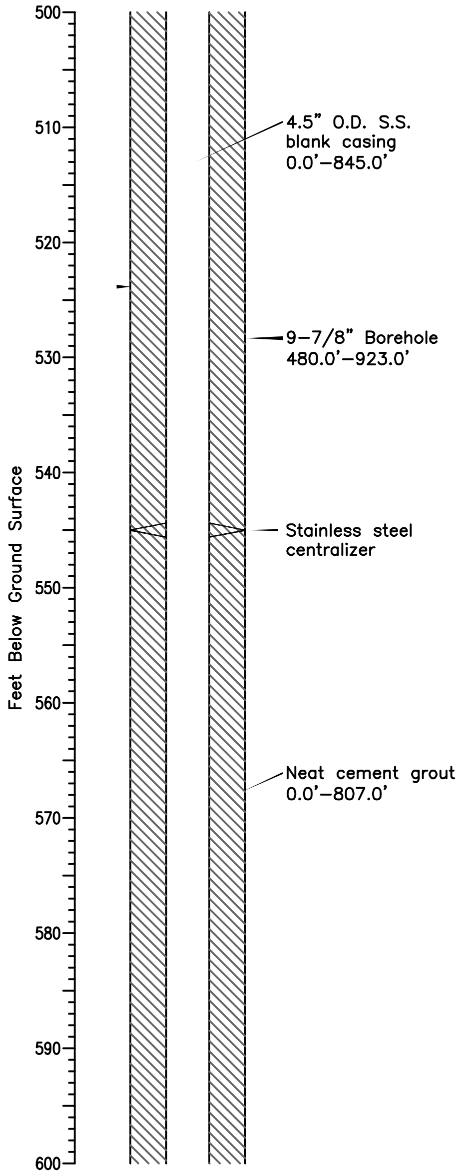
Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
NA	405–415	ML	Same as above, clayey silt with sand, more fines than sand (cuttings from mud rotary).
NA	415–425	ML	Same as above (cuttings from mud rotary).
NA	425–435	ML	Same as above (cuttings from mud rotary).
NA	435–445	ML	Same as above, few cutting returns (cuttings from mud rotary).
NA	445–455	ML	Same as above (cuttings from mud rotary).
NA	455–465	ML	Same as above (cuttings from mud rotary).
NA	465–475	ML	Same as above (cuttings from mud rotary).
NA	475–485	ML	Same as above (cuttings from mud rotary).
NA	485–520		No cuttings return.

Geologist: J. Fisher/M. Nauck/J. Raucci
Driller: HAZ–Tech; Adamson Pump and Drill
Date completed: 10–11–11

Drilling method: Core, mud rotary, air rotary
Bit diameters: 15–1/4" and 9–7/8"
Sampling device: HQ core, NQ core, rotary cuttings
Steel suface casing: 10"

Note: HAZ–Tech core drilling 0'–385', 520'–750' (NQ core 600'–750'); Adamson Pump and Drill mud rotary drilling 385'–520', air rotary drilling 750'–923'

PICKLES BUTTE
Well Log: PB-14



Graphic Log	Depth	Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
	500	NA			No cuttings return.
	510				
CL	520	70%/77%	520–525	CL	Silty claystone, olive gray (5Y 3/2), weakly cemented.
CL		96%/96%	525–530	CL	Same as above.
CL	530	90%/90%	530–540	CL	Silty sandy claystone, dark olive gray (5Y 3/2), fine-grained, weakly cemented, moist.
CL	540	90%/95%	540–550	CL	Same as above, with dark gray mottling, moderately cemented, few fractures.
CL	550	95%/95%	550–560	CL	Same as above.
CL	560	95%/95%	560–570	CL	Same as above.
CL	570	70%/95%	570–580	CL	Sandy silty claystone, light yellowish brown (7.5Y 6/3), very fine-grained, weakly cemented, slight to moderate plastice when wet.
CL	580	82%/82%	580–590	CL	Same as above, some fractures.
CL	590	70%/90%	590–595	CL	Sandy silty claystone, dark greenish brown (2.5Y 4/2), very fine-grained, weakly cemented, dry to damp.
CL		0%/37%	595–605	CL	Sandy silty claystone, greenish gray (Gley1 5/1), very fine-grained, slight plasticity, moderately cemented, brittle, dry.
	600				

Geologist: J. Fisher/M. Nauck/J. Raucci
Driller: HAZ-Tech; Adamson Pump and Drill
Date completed: 10-11-11

Drilling method: Core, mud rotary, air rotary
Bit diameters: 15-1/4" and 9-7/8"
Sampling device: HQ core, NQ core, rotary cuttings
Steel suface casing: 10"

Note: HAZ-Tech core drilling 0'–385', 520'–750' (NQ core 600'–750'); Adamson Pump and Drill mud rotary drilling 385'–520', air rotary drilling 750'–923'

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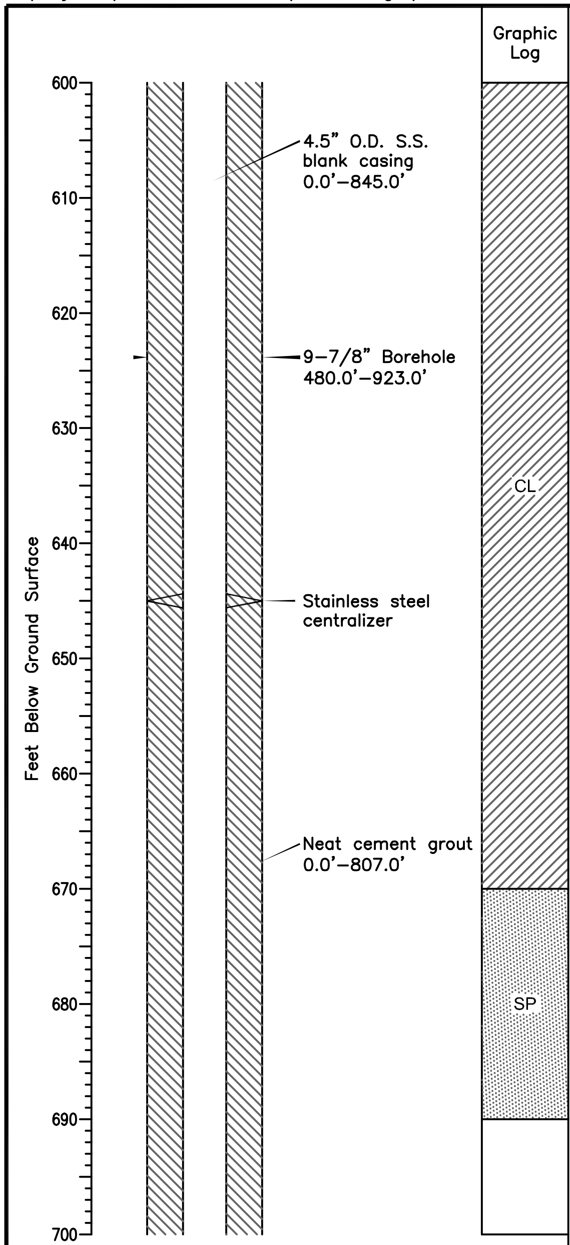

Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
10%/81%	605–615	CL	Sandy silty claystone, dark greenish gray (Gley1 4/1), fine-grained, slight to moderate plasticity when wet, dry (608–615 feet no recovery).
65%/84%	615–625	CL	Same as above.
40%/64%	625–635	CL	Claystone, dark greenish gray (Gley1 4/1), plastic when wet, hard, brittle, dry-damp, massive.
0%/84%	635–640	CL	Same as above.
0%/20%	640–650	CL	Same as above.
30%/44%	650–660	CL	Same as above.
10%/34%	660–670	CL	Same as above.
0%/38%	670–690	SP	Sandstone, dark greenish gray (Gley1 4/1), fine-grained, well sorted, round to subround, non-plastic, hard, dry-damp.
0%/0%	690–700		No recovery.

Geologist: J. Fisher/M. Nauck/J. Raucci
Driller: HAZ-Tech; Adamson Pump and Drill
Date completed: 10-11-11

Drilling method: Core, mud rotary, air rotary
Bit diameters: 15-1/4" and 9-7/8"
Sampling device: HQ core, NQ core, rotary cuttings
Steel suface casing: 10"

Note: HAZ-Tech core drilling 0'–385', 520'–750' (NQ core 600'–750'); Adamson Pump and Drill mud rotary drilling 385'–520', air rotary drilling 750'–923'

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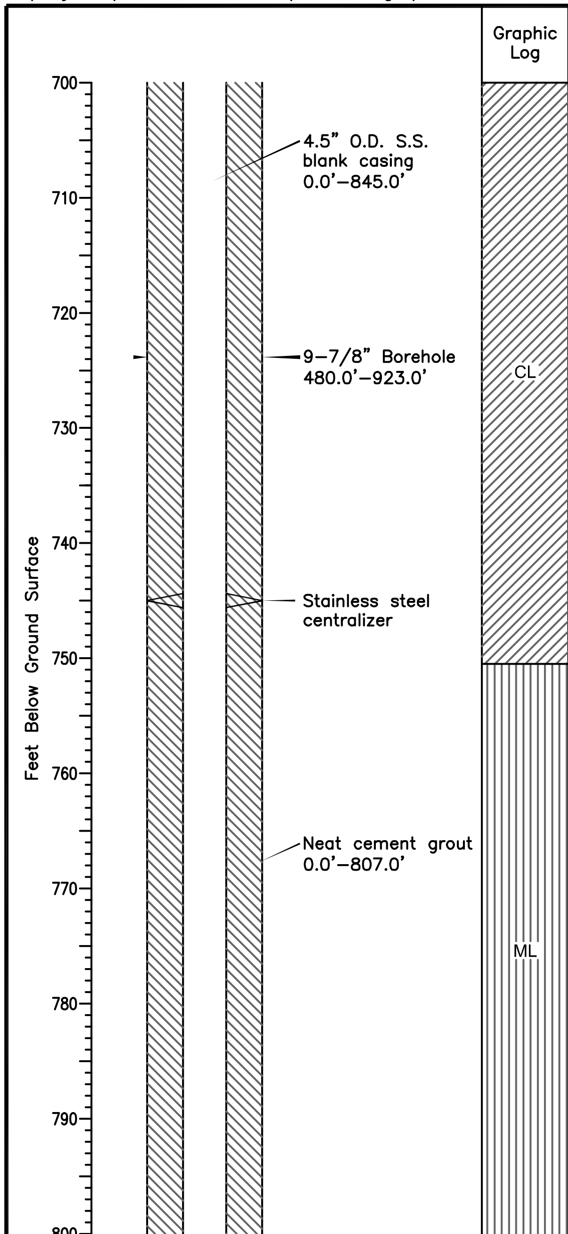

Depth	Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
700	15%/58%	700–710	CL	Claystone, dark greenish gray (Gley1 4/1), plastic when wet, hard, brittle, damp.
710	0%/63%	710–720	CL	Same as above, most likely borehole slough.
720	20%/55%	720–730	CL	Claystone, dark greenish gray (Gley1 4/1), plastic when wet, hard, brittle, dry–damp, massive, with few fractures.
730	90%/96%	730–740	CL	Same as above, without fractures.
740	70%/100%	740–750.5	CL	Same as above.
750	NA	750.5–923	ML	Cuttings not sampled at discrete intervals from 750.5 feet to 923 feet. Air rotary drilling method only enabled amalgamated bulk sample collection. Visual inspection indicated predominantly gray silt with lesser amounts of clay and sand.
760				
770				
780				
790				
800				

Geologist: J. Fisher/M. Nauck/J. Raucci
Driller: HAZ–Tech; Adamson Pump and Drill
Date completed: 10–11–11

Drilling method: Core, mud rotary, air rotary
Bit diameters: 15–1/4" and 9–7/8"
Sampling device: HQ core, NQ core, rotary cuttings
Steel suface casing: 10"

Note: HAZ–Tech core drilling 0'–385', 520'–750' (NQ core 600'–750'); Adamson Pump and Drill mud rotary drilling 385'–520', air rotary drilling 750'–923'

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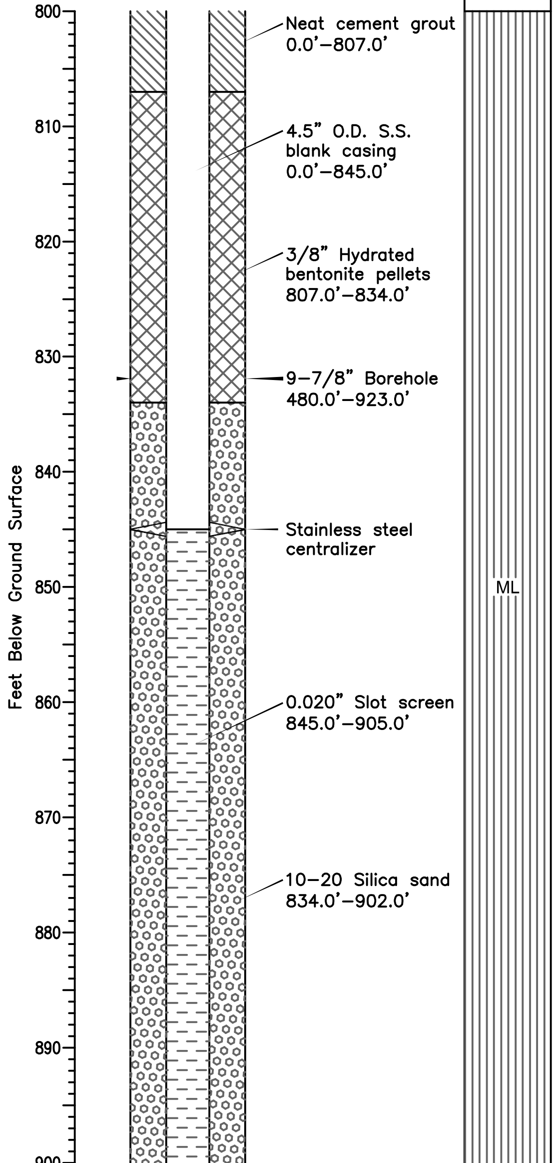

Depth (ft)	Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
800–900	NA		ML	Cuttings not sampled at discrete intervals from 750.5 feet to 923 feet. Air rotary drilling method only enabled amalgamated bulk sample collection. Visual inspection indicated predominantly gray silt with lesser amounts of clay and sand.

Geologist: J. Fisher/M. Nauck/J. Raucci
Driller: HAZ–Tech; Adamson Pump and Drill
Date completed: 10–11–11

Drilling method: Core, mud rotary, air rotary
Bit diameters: 15–1/4" and 9–7/8"
Sampling device: HQ core, NQ core, rotary cuttings
Steel suface casing: 10"

Note: HAZ–Tech core drilling 0'–385', 520'–750' (NQ core 600'–750'); Adamson Pump and Drill mud rotary drilling 385'–520', air rotary drilling 750'–923'

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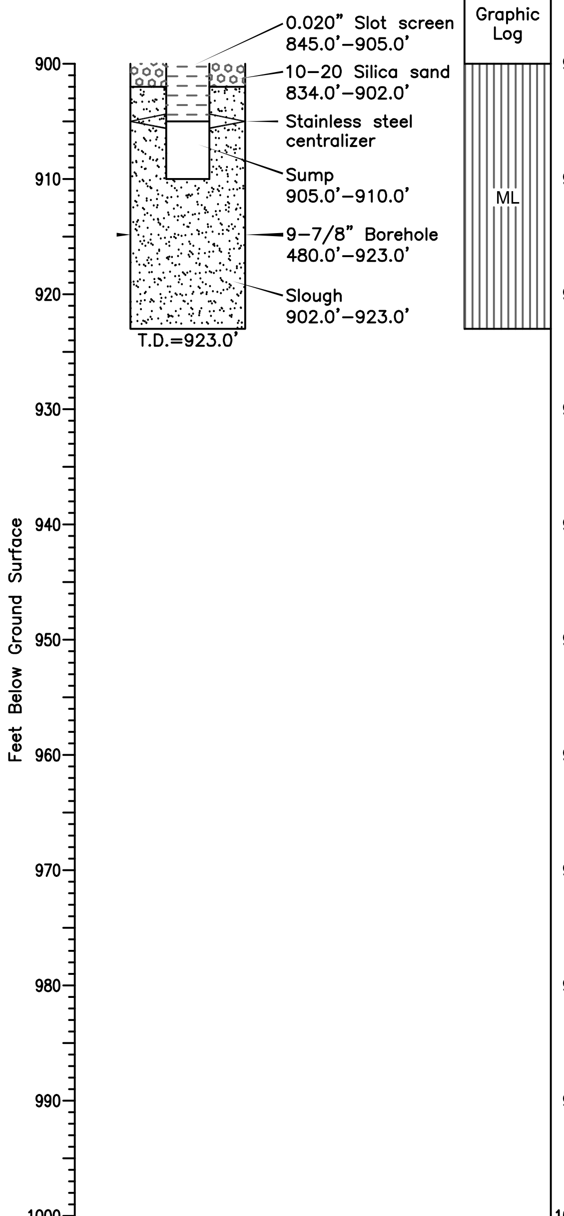

Depth	Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
900–923	NA		ML	Cuttings not sampled at discrete intervals from 750.5 feet to 923 feet. Air rotary drilling method only enabled amalgamated bulk sample collection. Visual inspection indicated predominantly gray silt with lesser amounts of clay and sand.

Geologist: J. Fisher/M. Nauck/J. Raucci
Driller: HAZ–Tech; Adamson Pump and Drill
Date completed: 10–11–11

Drilling method: Core, mud rotary, air rotary
Bit diameters: 15–1/4" and 9–7/8"
Sampling device: HQ core, NQ core, rotary cuttings
Steel suface casing: 10"

Note: HAZ–Tech core drilling 0'–385', 520'–750' (NQ core 600'–750'); Adamson Pump and Drill mud rotary drilling 385'–520', air rotary drilling 750'–923'

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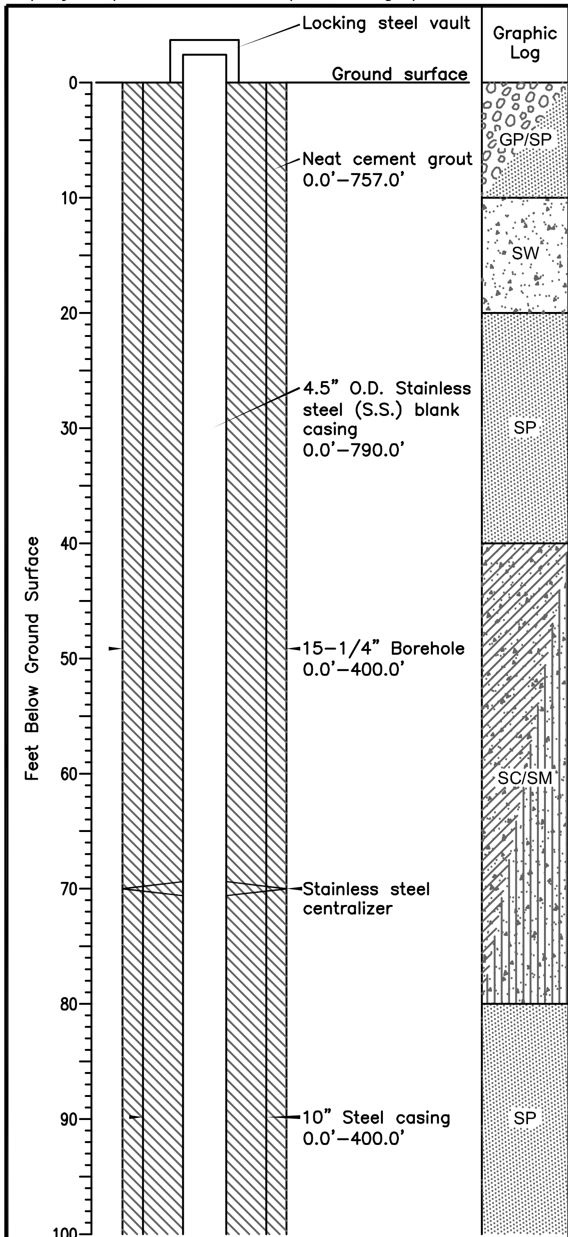

Depth	Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
0	NA	0–10	GP–SP	Gravelly sand, olive gray (5Y 5/2), fine– to medium–grained, subrounded, well sorted, non–plastic, loose, moist.
10	NA	10–20	SW	Sand, light gray (5Y 7/2), fine– to coarse–grained, well sorted, subrounded, non–plastic, loose, dry.
20	NA	20–30	SP	Same as above.
30	NA	30–40	SP	Same as above.
40	NA	40–50	SC–SM	Clayey silty sand, pale yellow (5Y 7/3), fine–grained, subrounded, low plastic, soft, slightly moist.
50	NA	50–60	SC–SM	Same as above.
60	NA	60–70	SC–SM	Same as above.
70	NA	70–80	SC–SM	Clayey silty sand, light olive brown (2.5Y 5/3), fine– to coarse–grained, rounded to subrounded, low plastic, soft, moist.
80	NA	80–90	SP	Sand, pale yellow (2.5Y 7/4), fine–grained, non–plastic, loose, moist.
90	NA	90–100	SP	Same as above.
100				

Geologist: M. Nauck/J. Raucci
Driller: HAZ–Tech; Adamson Pump and Drill
Date completed: 10–26–11

Drilling method: Core, mud rotary
Bit diameters: 15–1/4", 12" and 9–7/8"
Sampling device: HQ core, rotary cuttings
Steel suface casing: 10"
Note: TOC = top of casing

Northing: 665617.168
Easting: 246058.254
Elevation: 3023.3 (TOC)
Note: Adamson Pump and Drill mud rotary drilling 0'–425'; HAZ–Tech core drilling 425'–625'; air rotary drilling 625'–870'

PICKLES BUTTE
Well Log: PB-15

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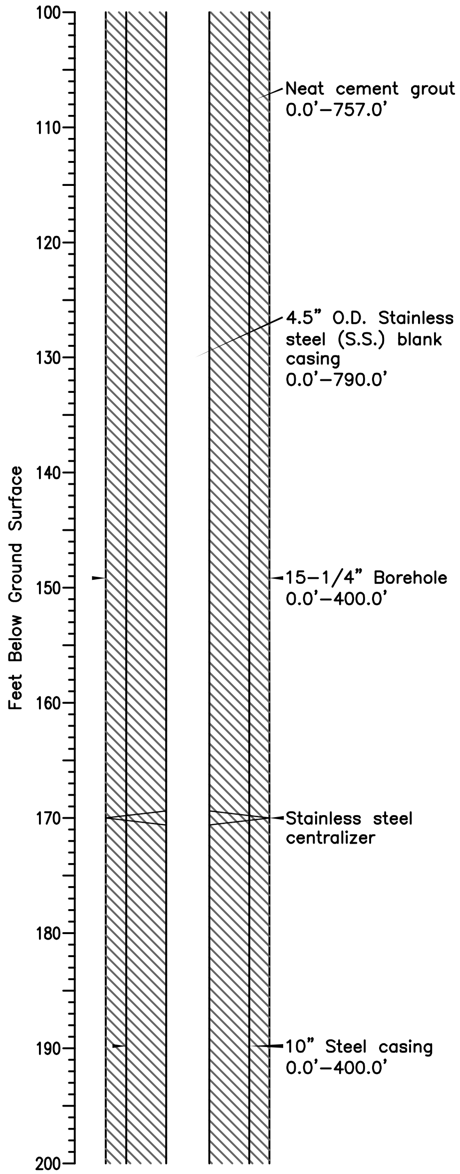

Graphic Log	Depth	Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
SP	100	NA	100–110	SP	Sand, light yellowish brown (2.5Y 6/3), fine-grained, poorly sorted, subrounded, non-plastic, loose, moist.
	110	NA	110–120	SP	Sand, light olive brown (2.5Y 5/3), fine- to medium-grained, subrounded, poorly sorted, non-plastic, loose, moist.
	120	NA	120–130	SP	Same as above.
	130	NA	130–140	SP	Same as above.
	140	NA	140–150	SP	Same as above.
	150	NA	150–160	SP	Same as above.
	160	NA	160–170	SP	Same as above.
	170	NA	170–180	SP	Same as above.
	180	NA	180–190	SP	Same as above with iron staining.
	190	NA	190–200	SP	Sand, pale yellow (2.5Y 8/4), fine- to coarse-grained, poorly sorted, subangular to subrounded, non-plastic, loose, dry.
	200				

Geologist: M. Nauck/J. Raucci
Driller: HAZ-Tech; Adamson Pump and Drill
Date completed: 10-26-11

Drilling method: Core, mud rotary
Bit diameters: 15-1/4", 12" and 9-7/8"
Sampling device: HQ core, rotary cuttings
Steel suface casing: 10"

Note: Adamson Pump and Drill mud rotary drilling 0'–425'; HAZ-Tech core drilling 425'–625'; air rotary drilling 625'–870'

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Well Log: PB-15

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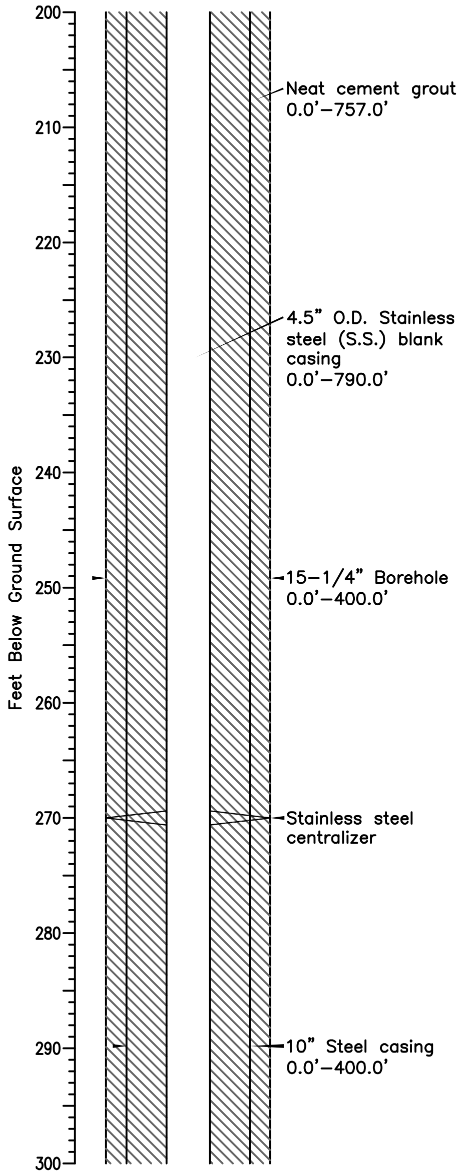

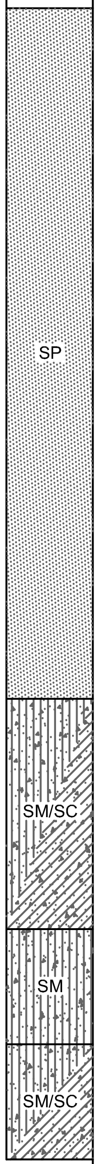

Depth	Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
200	NA	200–210	SP	Same as above, medium–coarse grained.
210	NA	210–220	SP	Same as above.
220	NA	220–230	SP	Same as above.
230	NA	230–240	SP	Same as above with iron staining.
240	NA	240–250	SP	Same as above.
250	NA	250–260	SP	Sand, pale yellow (2.5Y 8/3), fine–grained, well sorted, subrounded, non–plastic, loose, dry.
260	NA	260–270	SM–SC	Silty clayey sand, pale yellow (5Y 7/3), fine–grained, subrounded, low plastic, soft, moist.
270	NA	270–280	SM–SC	Same as above.
280	NA	280–290	SM	Silty sand, pale olive (5Y 6/3), fine–grained, subrounded, non–plastic, loose, slightly moist.
290	NA	290–300	SM–SC	Clayey silty sand, olive (5Y 5/3), fine–grained, subrounded, very low plastic, soft, slightly moist.
300				

Geologist: M. Nauck/J. Raucci
Driller: HAZ–Tech; Adamson Pump and Drill
Date completed: 10–26–11

Drilling method: Core, mud rotary
Bit diameters: 15–1/4", 12" and 9–7/8"
Sampling device: HQ core, rotary cuttings
Steel suface casing: 10"

Note: Adamson Pump and Drill mud rotary drilling 0'–425'; HAZ–Tech core drilling 425'–625'; air rotary drilling 625'–870'

PICKLES BUTTE
Well Log: PB-15

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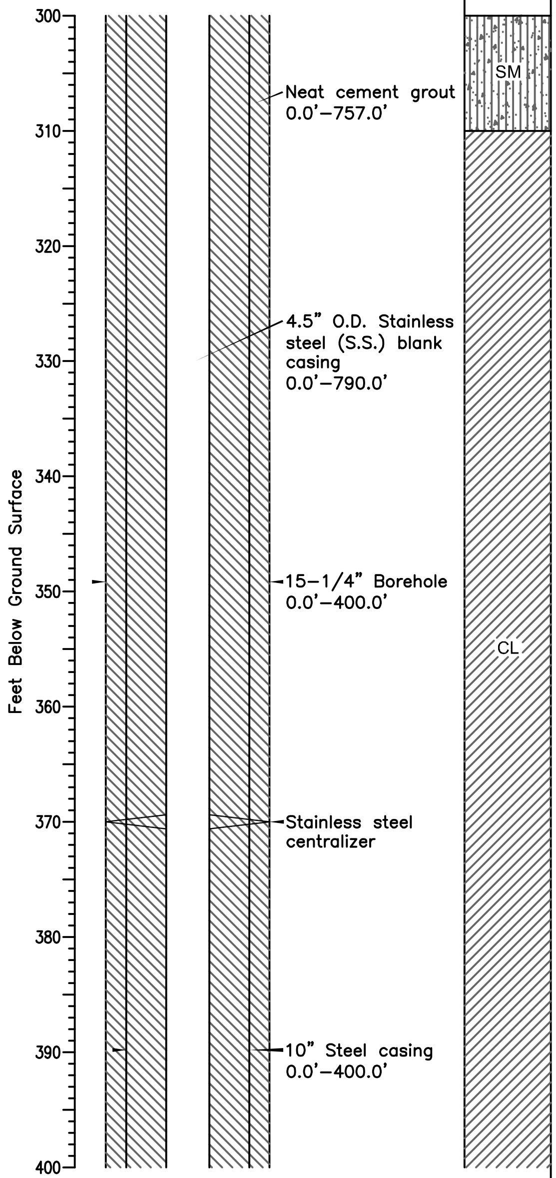

Depth	Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
300	NA	300–310	SM	Silty sand, pale yellow (5Y 8/2), fine–grained, subrounded, non–plastic, loose, dry.
310	NA	310–320	CL	Sandy silty clay, light yellowish brown (2.5Y 6/4), fine–grained, subrounded, medium plastic, soft, moist.
320	NA	320–330	CL	Same as above.
330	NA	330–340	CL	Same as above.
340	NA	340–350	CL	Same as above.
350	NA	350–360	CL	Silty clay, pale olive (5Y 6/3), very fine–grained, highly plastic, soft, wet.
360		360–370		
370	NA	370–380	CL	Same as above.
380	NA	380–390	CL	Same as above.
390	NA	390–400	CL	Same as above.
400				

Geologist: M. Nauck/J. Raucci
Driller: HAZ–Tech; Adamson Pump and Drill
Date completed: 10–26–11

Drilling method: Core, mud rotary
Bit diameters: 15–1/4", 12" and 9–7/8"
Sampling device: HQ core, rotary cuttings
Steel suface casing: 10"

Note: Adamson Pump and Drill mud rotary drilling 0'–425'; HAZ–Tech core drilling 425'–625'; air rotary drilling 625'–870'

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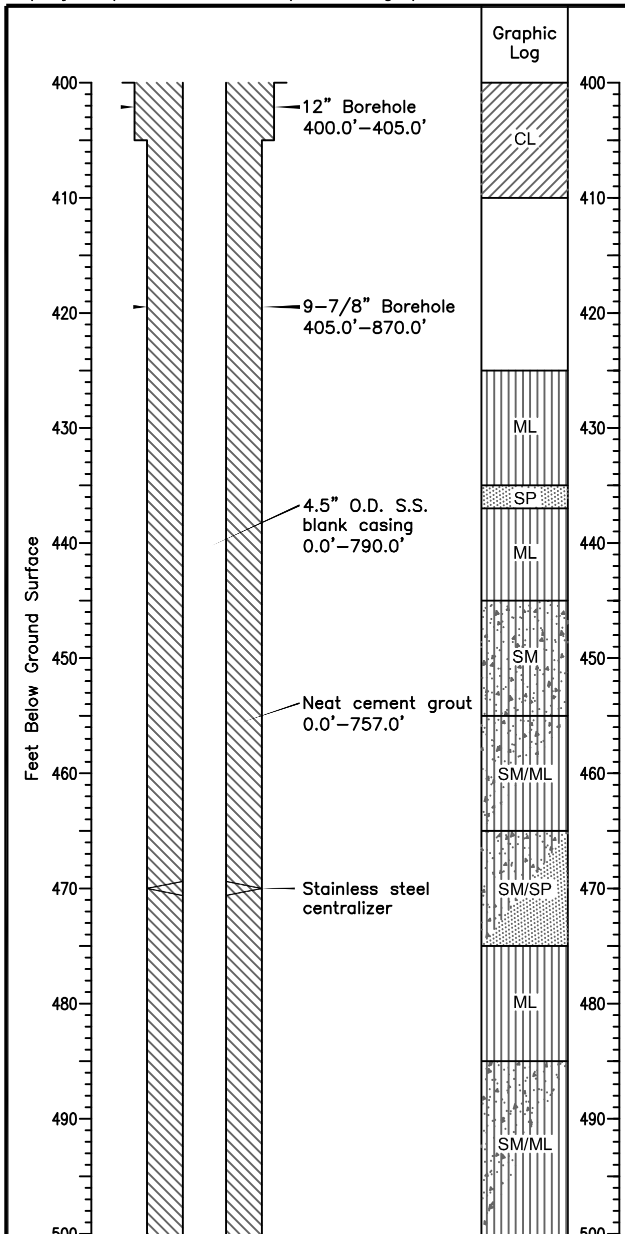


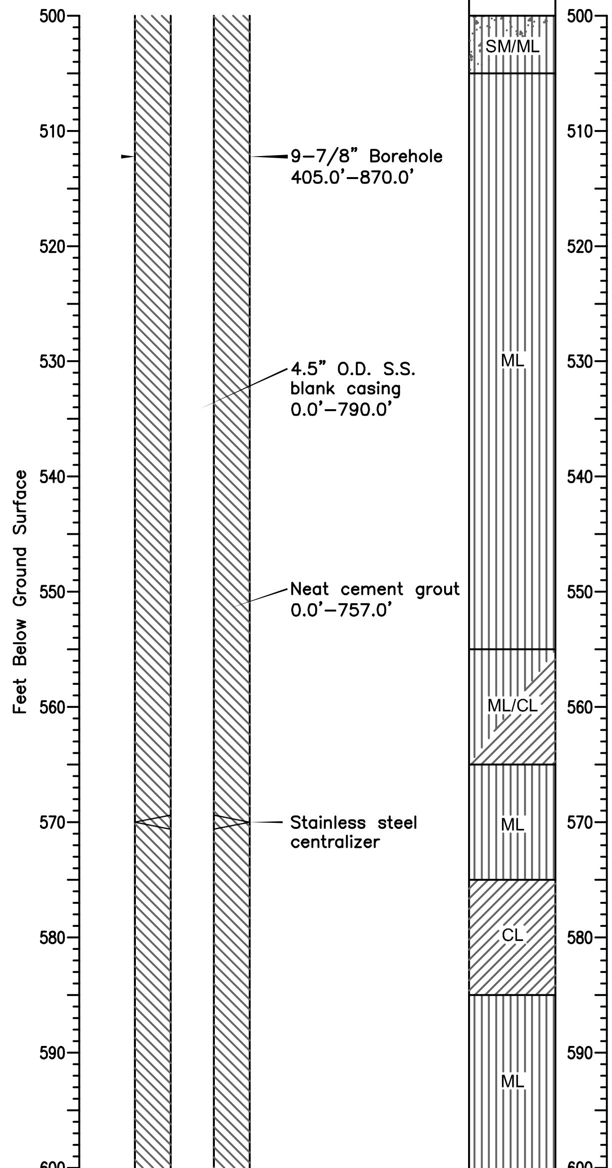
Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
NA	400–410	CL	Same as above.
NA	410–425		No recovery.
30%/65%	425–435	ML	Siltstone, pale yellow (5Y 7/3) to light yellowish brown (2.5Y 6/3), moderately soft, significant clay fraction.
75%/100%	435–445	SP ML	Sand, light yellowish brown (2.5Y 6/4), medium–grained, well sorted, loose (from 435 to 437 feet) then siltstone as above to 445 feet.
50%/75%	445–455	SM	Silty clayey sand, pale olive (5Y 6/3), fine–grained, appreciable clay with alternately clayey soft and hard layers, with organic material and orange oxidation. No recovery from 452.5 to 455 feet.
100%/100%	455–465	SM–ML	Silty sand and sandy silt, pale olive (5Y 6/3), laminated, fine–grained, alternating soft and hard layers, brittle to plastic, slightly moist, with abundant organic material.
100%/100%	465–475	SM–SP	Same as above interbedded with sand, olive gray (5Y 5/2), fine– to medium–grained, moderately well sorted, loose, soft.
85%/100%	475–485	ML	Sandy siltstone, pale olive (5Y 6/3), laminated, weakly to moderately cemented, micaceous with some clay.
60%/80%	485–495	SM–ML	Similar to above silty sand and sandy silt, color mottled pale olive (5Y 6/3) to light olive gray (5Y 6/2), massive to laminated, weakly cemented, interbedded clay and clayey layers.
60%/75%	495–505	SM–ML	Same as above, less sand.

Geologist: M. Nauck/J. Raucci
Driller: HAZ–Tech; Adamson Pump and Drill
Date completed: 10–26–11

Drilling method: Core, mud rotary
Bit diameters: 15–1/4", 12" and 9–7/8"
Sampling device: HQ core, rotary cuttings
Steel suface casing: 10"

Note: Adamson Pump and Drill mud rotary drilling 0'–425'; HAZ–Tech core drilling 425'–625'; air rotary drilling 625'–870'

PICKLES BUTTE
Well Log: PB-15



Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
90%/100%	505–515	ML	Same as above, predominantly silt.
80%/90%	515–525	ML	Same as above.
85%/100%	525–535	ML	Same as above, predominantly silt with minor sand and clay, massive to laminated, locally crossbedded, slightly moist.
50%/65%	535–545	ML	Same as above.
100%/100%	545–555	ML	Similar to above, clayey siltstone, light yellowish brown (2.5Y 6/2–6/3).
100%/100%	555–565	ML–CL	Same as above at 555 feet silty clay, brownish gray (2.5Y 5/2), at 565 feet weakly to moderately cemented.
100%/100%	565–575	ML	Clayey silt, olive (5Y 4/3), soft, slightly plastic to 568.5 feet, silstone, dark greenish gray (Gley1 10Y 4/1), siltstone with sand and clay, sandy at top, well cemented, contact w/ "blue clay" unit at 568.5 feet.
20%/30%	575–585	CL	Sandy clay, dark gray (Gley1 4/N), well cemented, slightly plastic when wet, micaceous, dry.
100%/100%	585–595	ML	Silstone with clay and minor sand, mottled dark gray (Gley1 4/N), well cemented, micaceous.
90%/95%	595–605	ML	Sandy silstone with clay, dark gray (Gley1 4/N), massive to laminated, micaceous.

Geologist: M. Nauck/J. Raucci
Driller: HAZ–Tech; Adamson Pump and Drill
Date completed: 10–26–11

Drilling method: Core, mud rotary
Bit diameters: 15–1/4", 12" and 9–7/8"
Sampling device: HQ core, rotary cuttings
Steel suface casing: 10"

Note: Adamson Pump and Drill mud rotary drilling 0'–425'; HAZ–Tech core drilling 425'–625'; air rotary drilling 625'–870'

PICKLES BUTTE
Well Log: PB-15

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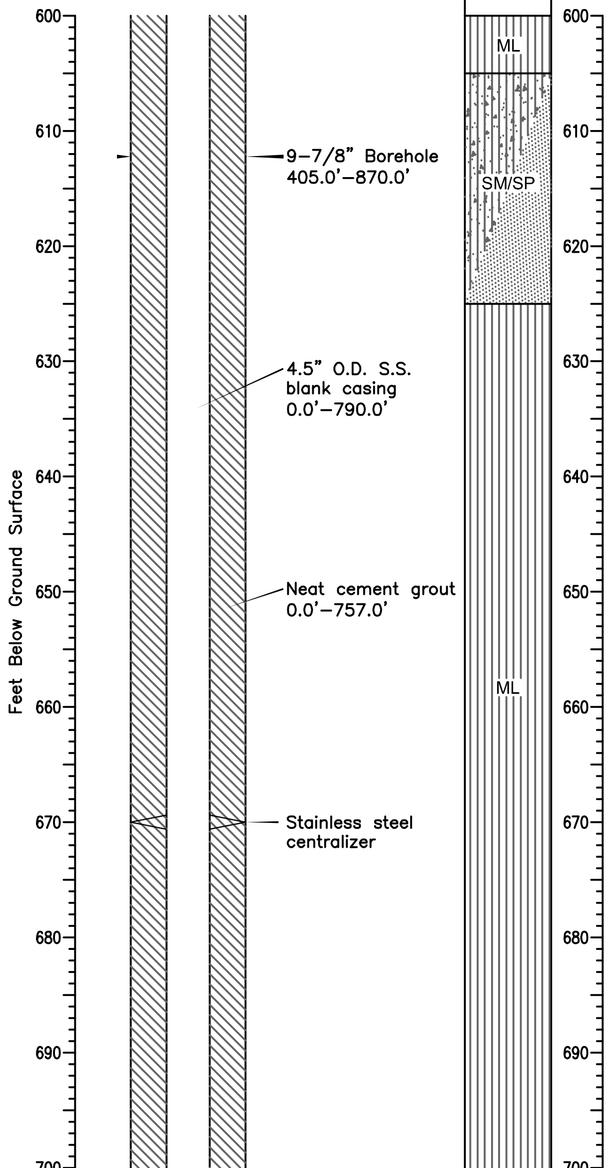
6–05–2012
JN ES09.0154



Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
80%/90%	605-625	SM-SP	Sand and silty sand, mottled gray and light gray, laminated, fine- to medium-grained, moderately sorted, loose to well cemented, slightly moist to moist; interbedded w/ thin (1 to 2 cm) clay lenses.
	625-870	ML	Cuttings not sampled at discrete intervals from 625 feet to 870 feet. Air rotary drilling method only enabled amalgamated bulk sample collection. Visual inspection indicated predominantly gray silt with lesser amounts of clay and sand.

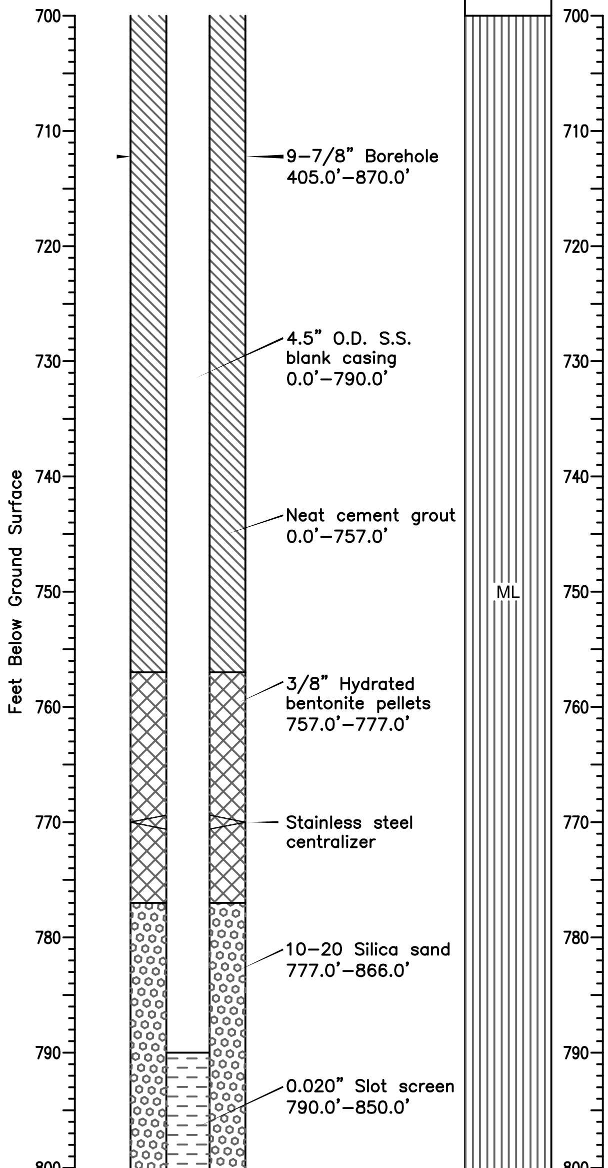
Geologist: M. Nauck/J. Raucci
Driller: HAZ-Tech; Adamson Pump and Drill
Date completed: 10-26-11

Drilling method: Core, mud rotary
Bit diameters: 15-1/4", 12" and 9-7/8"
Sampling device: HQ core, rotary cuttings
Steel suface casing: 10"

Note: Adamson Pump and Drill mud rotary drilling 0'-425'; HAZ-Tech core drilling 425'-625'; air rotary drilling 625'-870'

PICKLES BUTTE
Well Log: PB-15

Daniel B. Stephens & Associates, Inc.
6-05-2012
JN ES09.0154



Depth	Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
700–800			ML	Cuttings not sampled at discrete intervals from 625 feet to 870 feet. Air rotary drilling method only enabled amalgamated bulk sample collection. Visual inspection indicated predominantly gray silt with lesser amounts of clay and sand.

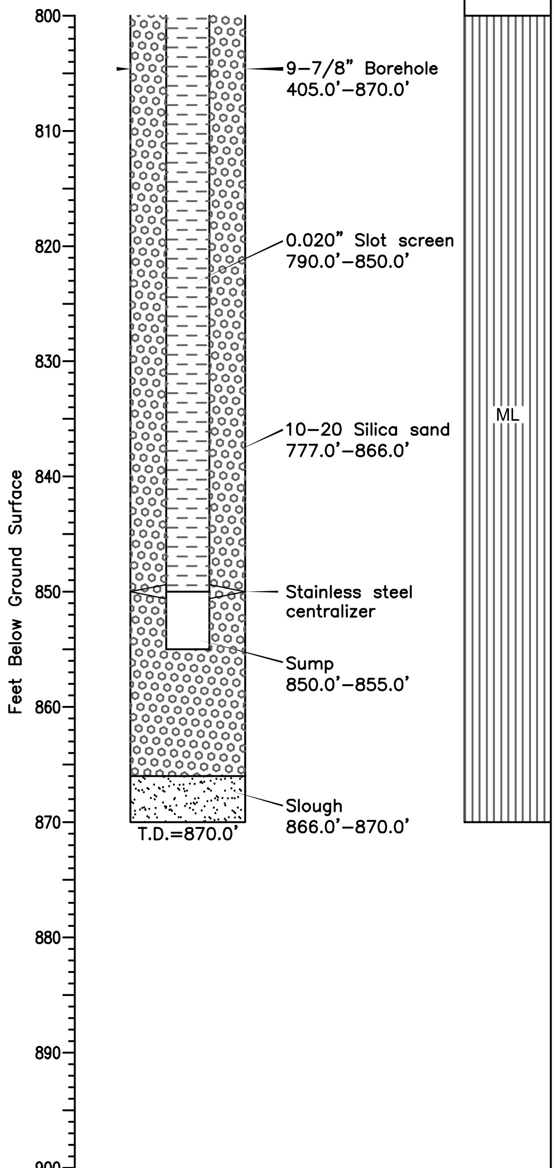
Geologist: M. Nauck/J. Raucci
Driller: HAZ-Tech; Adamson Pump and Drill
Date completed: 10-26-11

Drilling method: Core, mud rotary
Bit diameters: 15-1/4", 12" and 9-7/8"
Sampling device: HQ core, rotary cuttings
Steel suface casing: 10"

Note: Adamson Pump and Drill mud rotary drilling 0'-425'; HAZ-Tech core drilling 425'-625'; air rotary drilling 625'-870'

PICKLES BUTTE
Well Log: PB-15

Daniel B. Stephens & Associates, Inc.
2-05-2012
JN ES09.0154



Depth (ft)	Rock Quality Designation Recovery	Sample Interval (feet bgs)	USCS Symbol	Comments and Lithology
800–870			ML	Cuttings not sampled at discrete intervals from 625 feet to 870 feet. Air rotary drilling method only enabled amalgamated bulk sample collection. Visual inspection indicated predominantly gray silt with lesser amounts of clay and sand.

Geologist: M. Nauck/J. Raucci
Driller: HAZ-Tech; Adamson Pump and Drill
Date completed: 10-26-11

Drilling method: Core, mud rotary
Bit diameters: 15-1/4", 12" and 9-7/8"
Sampling device: HQ core, rotary cuttings
Steel suface casing: 10"

Note: Adamson Pump and Drill mud rotary drilling 0'-425'; HAZ-Tech core drilling 425'-625'; air rotary drilling 625'-870'

PICKLES BUTTE
Well Log: PB-15

Daniel B. Stephens & Associates, Inc.
6-05-2012
JN ES09.0154

Appendix C

Soil Analytical Laboratory Report

Appendix C is provided as Volume 2.

Appendix D

HELP Model Output

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**                                                                          **
**                                                                          **
**              HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE               **
**                HELP MODEL VERSION 3.07  (1 NOVEMBER 1997)                **
**                  DEVELOPED BY ENVIRONMENTAL LABORATORY                   **
**                    USAE WATERWAYS EXPERIMENT STATION                     **
**             FOR USEPA RISK REDUCTION ENGINEERING LABORATORY              **
**                                                                          **
**                                                                          **
******************************************************************************
******************************************************************************


PRECIPITATION DATA FILE:    C:\HELP3\PB_PRECP.D4
TEMPERATURE DATA FILE:      C:\HELP3\PB_TEMP.D7
SOLAR RADIATION DATA FILE:  C:\HELP3\PB_SRAD.D13
EVAPOTRANSPIRATION DATA:    C:\HELP3\PB_ET.D11
SOIL AND DESIGN DATA FILE:  C:\HELP3\PB_TRASH.D10
OUTPUT DATA FILE:           C:\HELP3\PB_OUT_T.OUT


TIME:  11:46     DATE:   3/ 7/2013


******************************************************************************

     TITLE:  Pickles Butte Waste Only

******************************************************************************


     NOTE:  INITIAL MOISTURE CONTENT OF THE LAYERS AND SNOW WATER
              WERE SPECIFIED BY THE USER.


                                   LAYER  1
                                   --------

                      TYPE 1 - VERTICAL PERCOLATION LAYER
                          MATERIAL TEXTURE NUMBER   0
          THICKNESS                    =     12.00   INCHES
          POROSITY                     =      0.4370 VOL/VOL
          FIELD CAPACITY               =      0.1050 VOL/VOL
          WILTING POINT                =      0.0470 VOL/VOL
```

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INITIAL SOIL WATER CONTENT  =      0.0800 VOL/VOL
EFFECTIVE SAT. HYD. COND.   =  0.170000002000E-02 CM/SEC


                        LAYER  2
                        --------

          TYPE 1 - VERTICAL PERCOLATION LAYER
              MATERIAL TEXTURE NUMBER   0
THICKNESS                   =    360.00   INCHES
POROSITY                    =      0.6710 VOL/VOL
FIELD CAPACITY              =      0.2920 VOL/VOL
WILTING POINT               =      0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT  =      0.0983 VOL/VOL
EFFECTIVE SAT. HYD. COND.   =  0.100000005000E-02 CM/SEC


                        LAYER  3
                        --------

          TYPE 1 - VERTICAL PERCOLATION LAYER
              MATERIAL TEXTURE NUMBER   0
THICKNESS                   =     12.00   INCHES
POROSITY                    =      0.4370 VOL/VOL
FIELD CAPACITY              =      0.1050 VOL/VOL
WILTING POINT               =      0.0470 VOL/VOL
INITIAL SOIL WATER CONTENT  =      0.0800 VOL/VOL
EFFECTIVE SAT. HYD. COND.   =  0.170000002000E-02 CM/SEC


                        LAYER  4
                        --------

          TYPE 1 - VERTICAL PERCOLATION LAYER
              MATERIAL TEXTURE NUMBER   0
THICKNESS                   =    360.00   INCHES
POROSITY                    =      0.6710 VOL/VOL
FIELD CAPACITY              =      0.2920 VOL/VOL
WILTING POINT               =      0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT  =      0.0983 VOL/VOL
EFFECTIVE SAT. HYD. COND.   =  0.100000005000E-02 CM/SEC


                        LAYER  5
                        --------
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           TYPE 1 - VERTICAL PERCOLATION LAYER
               MATERIAL TEXTURE NUMBER   0
THICKNESS                    =     12.00   INCHES
POROSITY                     =      0.4370 VOL/VOL
FIELD CAPACITY               =      0.1050 VOL/VOL
WILTING POINT                =      0.0470 VOL/VOL
INITIAL SOIL WATER CONTENT   =      0.0800 VOL/VOL
EFFECTIVE SAT. HYD. COND.    =  0.170000002000E-02 CM/SEC


                         LAYER  6
                         --------

           TYPE 1 - VERTICAL PERCOLATION LAYER
               MATERIAL TEXTURE NUMBER   0
THICKNESS                    =    360.00   INCHES
POROSITY                     =      0.6710 VOL/VOL
FIELD CAPACITY               =      0.2920 VOL/VOL
WILTING POINT                =      0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT   =      0.0983 VOL/VOL
EFFECTIVE SAT. HYD. COND.    =  0.100000005000E-02 CM/SEC


                         LAYER  7
                         --------

           TYPE 1 - VERTICAL PERCOLATION LAYER
               MATERIAL TEXTURE NUMBER   0
THICKNESS                    =     12.00   INCHES
POROSITY                     =      0.4370 VOL/VOL
FIELD CAPACITY               =      0.1050 VOL/VOL
WILTING POINT                =      0.0470 VOL/VOL
INITIAL SOIL WATER CONTENT   =      0.0800 VOL/VOL
EFFECTIVE SAT. HYD. COND.    =  0.170000002000E-02 CM/SEC


                         LAYER  8
                         --------

           TYPE 1 - VERTICAL PERCOLATION LAYER
               MATERIAL TEXTURE NUMBER   0
THICKNESS                    =    360.00   INCHES
POROSITY                     =      0.6710 VOL/VOL
FIELD CAPACITY               =      0.2920 VOL/VOL
WILTING POINT                =      0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT   =      0.0983 VOL/VOL
EFFECTIVE SAT. HYD. COND.    =  0.100000005000E-02 CM/SEC
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                        LAYER  9
                        --------

              TYPE 1 - VERTICAL PERCOLATION LAYER
                  MATERIAL TEXTURE NUMBER   0
THICKNESS                   =     12.00   INCHES
POROSITY                    =      0.4370 VOL/VOL
FIELD CAPACITY              =      0.1050 VOL/VOL
WILTING POINT               =      0.0470 VOL/VOL
INITIAL SOIL WATER CONTENT  =      0.0800 VOL/VOL
EFFECTIVE SAT. HYD. COND.   =  0.170000002000E-02 CM/SEC


                        LAYER 10
                        --------

              TYPE 1 - VERTICAL PERCOLATION LAYER
                  MATERIAL TEXTURE NUMBER   0
THICKNESS                   =    360.00   INCHES
POROSITY                    =      0.6710 VOL/VOL
FIELD CAPACITY              =      0.2920 VOL/VOL
WILTING POINT               =      0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT  =      0.0983 VOL/VOL
EFFECTIVE SAT. HYD. COND.   =  0.100000005000E-02 CM/SEC


                        LAYER 11
                        --------

              TYPE 1 - VERTICAL PERCOLATION LAYER
                  MATERIAL TEXTURE NUMBER   0
THICKNESS                   =     12.00   INCHES
POROSITY                    =      0.4370 VOL/VOL
FIELD CAPACITY              =      0.1050 VOL/VOL
WILTING POINT               =      0.0470 VOL/VOL
INITIAL SOIL WATER CONTENT  =      0.0800 VOL/VOL
EFFECTIVE SAT. HYD. COND.   =  0.170000002000E-02 CM/SEC


                        LAYER 12
                        --------

              TYPE 1 - VERTICAL PERCOLATION LAYER
                  MATERIAL TEXTURE NUMBER   0
THICKNESS                   =    360.00   INCHES
```

```
POROSITY                    =      0.6710 VOL/VOL
FIELD CAPACITY              =      0.2920 VOL/VOL
WILTING POINT               =      0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT  =      0.0983 VOL/VOL
EFFECTIVE SAT. HYD. COND.   =  0.100000005000E-02 CM/SEC


                        LAYER 13
                        --------

          TYPE 1 - VERTICAL PERCOLATION LAYER
              MATERIAL TEXTURE NUMBER   0
THICKNESS                   =     12.00   INCHES
POROSITY                    =      0.4370 VOL/VOL
FIELD CAPACITY              =      0.1050 VOL/VOL
WILTING POINT               =      0.0470 VOL/VOL
INITIAL SOIL WATER CONTENT  =      0.0800 VOL/VOL
EFFECTIVE SAT. HYD. COND.   =  0.170000002000E-02 CM/SEC


                        LAYER 14
                        --------

          TYPE 1 - VERTICAL PERCOLATION LAYER
              MATERIAL TEXTURE NUMBER   0
THICKNESS                   =    360.00   INCHES
POROSITY                    =      0.6710 VOL/VOL
FIELD CAPACITY              =      0.2920 VOL/VOL
WILTING POINT               =      0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT  =      0.0983 VOL/VOL
EFFECTIVE SAT. HYD. COND.   =  0.100000005000E-02 CM/SEC


                        LAYER 15
                        --------

          TYPE 1 - VERTICAL PERCOLATION LAYER
              MATERIAL TEXTURE NUMBER  61
THICKNESS                   =     12.00   INCHES
POROSITY                    =      0.4370 VOL/VOL
FIELD CAPACITY              =      0.1050 VOL/VOL
WILTING POINT               =      0.0470 VOL/VOL
INITIAL SOIL WATER CONTENT  =      0.0800 VOL/VOL
EFFECTIVE SAT. HYD. COND.   =  0.170000002000E-02 CM/SEC
```

LAYER 16

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 62

THICKNESS	=	1584.00	INCHES
POROSITY	=	0.6710	VOL/VOL
FIELD CAPACITY	=	0.2920	VOL/VOL
WILTING POINT	=	0.0770	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.0983	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.100000005000E-02	CM/SEC

GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE: SCS RUNOFF CURVE NUMBER WAS USER-SPECIFIED.

SCS RUNOFF CURVE NUMBER	=	63.00	
FRACTION OF AREA ALLOWING RUNOFF	=	100.0	PERCENT
AREA PROJECTED ON HORIZONTAL PLANE	=	490.000	ACRES
EVAPORATIVE ZONE DEPTH	=	36.0	INCHES
INITIAL WATER IN EVAPORATIVE ZONE	=	3.319	INCHES
UPPER LIMIT OF EVAPORATIVE STORAGE	=	21.348	INCHES
LOWER LIMIT OF EVAPORATIVE STORAGE	=	2.412	INCHES
INITIAL SNOW WATER	=	0.000	INCHES
INITIAL WATER IN LAYER MATERIALS	=	411.103	INCHES
TOTAL INITIAL WATER	=	411.103	INCHES
TOTAL SUBSURFACE INFLOW	=	0.00	INCHES/YEAR

EVAPOTRANSPIRATION AND WEATHER DATA

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM
BOISE IDAHO

STATION LATITUDE	=	43.57	DEGREES
MAXIMUM LEAF AREA INDEX	=	0.35	
START OF GROWING SEASON (JULIAN DATE)	=	120	
END OF GROWING SEASON (JULIAN DATE)	=	286	
EVAPORATIVE ZONE DEPTH	=	36.0	INCHES
AVERAGE ANNUAL WIND SPEED	=	8.90	MPH
AVERAGE 1ST QUARTER RELATIVE HUMIDITY	=	68.00	%
AVERAGE 2ND QUARTER RELATIVE HUMIDITY	=	51.00	%
AVERAGE 3RD QUARTER RELATIVE HUMIDITY	=	40.00	%
AVERAGE 4TH QUARTER RELATIVE HUMIDITY	=	66.00	%

NOTE: PRECIPITATION DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR BOISE IDAHO

NORMAL MEAN MONTHLY PRECIPITATION (INCHES)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
1.64	1.07	1.03	1.19	1.21	0.95
0.26	0.40	0.58	0.75	1.29	1.34

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR BOISE IDAHO

NORMAL MEAN MONTHLY TEMPERATURE (DEGREES FAHRENHEIT)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
29.90	36.10	41.40	48.60	57.40	65.80
74.60	72.00	63.20	51.90	39.70	32.00

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR BOISE IDAHO
AND STATION LATITUDE = 43.57 DEGREES

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ANNUAL TOTALS FOR YEAR 1

	INCHES	CU. FEET	PERCENT
PRECIPITATION	8.87	15777070.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	8.237	14651458.000	92.87
PERC./LEAKAGE THROUGH LAYER 16	0.000003	5.614	0.00
CHANGE IN WATER STORAGE	0.633	1125746.500	7.14
SOIL WATER AT START OF YEAR	411.103	731229248.000	
SOIL WATER AT END OF YEAR	411.736	732354944.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00

SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0001	-139.622	0.00

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ANNUAL TOTALS FOR YEAR 2

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.50	22233754.000	100.00
RUNOFF	0.895	1592716.620	7.16
EVAPOTRANSPIRATION	10.201	18145398.000	81.61
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.403	2495434.500	11.22
SOIL WATER AT START OF YEAR	411.736	732354944.000	
SOIL WATER AT END OF YEAR	413.139	734850432.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	204.510	0.00

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ANNUAL TOTALS FOR YEAR 3

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.37	18445120.000	100.00
RUNOFF	0.054	95886.109	0.52
EVAPOTRANSPIRATION	9.111	16206318.000	87.86
PERC./LEAKAGE THROUGH LAYER 16	0.000006	10.195	0.00

CHANGE IN WATER STORAGE	1.205	2142985.750	11.62
SOIL WATER AT START OF YEAR	413.139	734850432.000	
SOIL WATER AT END OF YEAR	413.175	734914688.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	1.169	2078716.370	11.27
ANNUAL WATER BUDGET BALANCE	0.0000	-79.286	0.00

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ANNUAL TOTALS FOR YEAR 4

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.09	19725786.000	100.00
RUNOFF	1.174	2087502.120	10.58
EVAPOTRANSPIRATION	9.097	16181611.000	82.03
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.819	1456712.620	7.38
SOIL WATER AT START OF YEAR	413.175	734914688.000	
SOIL WATER AT END OF YEAR	415.088	738317568.000	
SNOW WATER AT START OF YEAR	1.169	2078716.370	10.54
SNOW WATER AT END OF YEAR	0.075	132568.750	0.67
ANNUAL WATER BUDGET BALANCE	0.0000	-39.121	0.00

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ANNUAL TOTALS FOR YEAR 5

	INCHES	CU. FEET	PERCENT

PRECIPITATION	10.81	19227752.000	100.00
RUNOFF	0.136	242267.328	1.26
EVAPOTRANSPIRATION	9.518	16928806.000	88.04
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.156	2056625.000	10.70
SOIL WATER AT START OF YEAR	415.088	738317568.000	
SOIL WATER AT END OF YEAR	416.226	740341184.000	
SNOW WATER AT START OF YEAR	0.075	132568.750	0.69
SNOW WATER AT END OF YEAR	0.093	165520.969	0.86
ANNUAL WATER BUDGET BALANCE	0.0000	54.401	0.00

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ANNUAL TOTALS FOR YEAR 6

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.72	22625064.000	100.00
RUNOFF	0.255	454294.500	2.01
EVAPOTRANSPIRATION	10.462	18608678.000	82.25
PERC./LEAKAGE THROUGH LAYER 16	0.000001	1.563	0.00
CHANGE IN WATER STORAGE	2.003	3562160.750	15.74
SOIL WATER AT START OF YEAR	416.226	740341184.000	
SOIL WATER AT END OF YEAR	418.322	744068864.000	
SNOW WATER AT START OF YEAR	0.093	165520.969	0.73
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-69.852	0.00

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ANNUAL TOTALS FOR YEAR 7

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.14	23372124.000	100.00
RUNOFF	0.081	144834.547	0.62
EVAPOTRANSPIRATION	11.659	20737312.000	88.73
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.400	2489897.750	10.65
SOIL WATER AT START OF YEAR	418.322	744068864.000	
SOIL WATER AT END OF YEAR	419.722	746558784.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	80.402	0.00

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ANNUAL TOTALS FOR YEAR 8

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.65	20721862.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	10.939	19458060.000	93.90
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.711	1263784.620	6.10
SOIL WATER AT START OF YEAR	419.722	746558784.000	
SOIL WATER AT END OF YEAR	420.432	747822592.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00

SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	16.963	0.00

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ANNUAL TOTALS FOR YEAR 9

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.69	20793006.000	100.00
RUNOFF	0.786	1398656.250	6.73
EVAPOTRANSPIRATION	8.896	15824027.000	76.10
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	2.007	3570373.250	17.17
SOIL WATER AT START OF YEAR	420.432	747822592.000	
SOIL WATER AT END OF YEAR	422.439	751392960.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-51.419	0.00

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ANNUAL TOTALS FOR YEAR 10

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.07	23247612.000	100.00
RUNOFF	0.087	154741.781	0.67
EVAPOTRANSPIRATION	9.869	17553682.000	75.51
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00

CHANGE IN WATER STORAGE	3.114	5539206.500	23.83
SOIL WATER AT START OF YEAR	422.439	751392960.000	
SOIL WATER AT END OF YEAR	424.422	754919360.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	1.132	2012801.370	8.66
ANNUAL WATER BUDGET BALANCE	0.0000	-18.818	0.00

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ANNUAL TOTALS FOR YEAR 11

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.79	20970878.000	100.00
RUNOFF	0.673	1196506.120	5.71
EVAPOTRANSPIRATION	9.900	17609814.000	83.97
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.217	2164493.750	10.32
SOIL WATER AT START OF YEAR	424.422	754919360.000	
SOIL WATER AT END OF YEAR	426.659	758899008.000	
SNOW WATER AT START OF YEAR	1.132	2012801.370	9.60
SNOW WATER AT END OF YEAR	0.111	197638.562	0.94
ANNUAL WATER BUDGET BALANCE	0.0000	63.346	0.00

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ANNUAL TOTALS FOR YEAR 12

	INCHES	CU. FEET	PERCENT

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PRECIPITATION	10.87	19334474.000	100.00
RUNOFF	0.156	277880.156	1.44
EVAPOTRANSPIRATION	10.744	19110440.000	98.84
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	-0.030	-53900.852	-0.28
SOIL WATER AT START OF YEAR	426.659	758899008.000	
SOIL WATER AT END OF YEAR	426.740	759042752.000	
SNOW WATER AT START OF YEAR	0.111	197638.562	1.02
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	54.494	0.00

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ANNUAL TOTALS FOR YEAR 13

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.94	17680280.000	100.00
RUNOFF	0.130	230856.109	1.31
EVAPOTRANSPIRATION	8.487	15095604.000	85.38
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.323	2354030.750	13.31
SOIL WATER AT START OF YEAR	426.740	759042752.000	
SOIL WATER AT END OF YEAR	428.064	761396800.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0001	-210.129	0.00

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ANNUAL TOTALS FOR YEAR 14

	INCHES	CU. FEET	PERCENT
PRECIPITATION	7.60	13518124.000	100.00
RUNOFF	0.169	300466.875	2.22
EVAPOTRANSPIRATION	7.213	12829831.000	94.91
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.218	387679.312	2.87
SOIL WATER AT START OF YEAR	428.064	761396800.000	
SOIL WATER AT END OF YEAR	428.282	761784448.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	146.412	0.00

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ANNUAL TOTALS FOR YEAR 15

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.59	20615136.000	100.00
RUNOFF	0.150	267299.219	1.30
EVAPOTRANSPIRATION	8.451	15031234.000	72.91
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	2.989	5316641.500	25.79
SOIL WATER AT START OF YEAR	428.282	761784448.000	
SOIL WATER AT END OF YEAR	430.732	766142144.000	

SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.539	958967.687	4.65
ANNUAL WATER BUDGET BALANCE	0.0000	-38.379	0.00

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ANNUAL TOTALS FOR YEAR 16

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.93	19441194.000	100.00
RUNOFF	0.087	155198.172	0.80
EVAPOTRANSPIRATION	10.842	19285066.000	99.20
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.000	785.599	0.00
SOIL WATER AT START OF YEAR	430.732	766142144.000	
SOIL WATER AT END OF YEAR	431.271	767101888.000	
SNOW WATER AT START OF YEAR	0.539	958967.687	4.93
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	145.431	0.00

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ANNUAL TOTALS FOR YEAR 17

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.76	19138818.000	100.00
RUNOFF	0.665	1182669.870	6.18
EVAPOTRANSPIRATION	8.922	15868976.000	82.92

PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.174	2087345.250	10.91
SOIL WATER AT START OF YEAR	431.271	767101888.000	
SOIL WATER AT END OF YEAR	432.445	769189248.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0001	-173.765	0.00

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ANNUAL TOTALS FOR YEAR 18

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.93	19441192.000	100.00
RUNOFF	0.157	278777.875	1.43
EVAPOTRANSPIRATION	9.430	16772344.000	86.27
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.344	2389954.500	12.29
SOIL WATER AT START OF YEAR	432.445	769189248.000	
SOIL WATER AT END OF YEAR	433.533	771124672.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.256	454489.219	2.34
ANNUAL WATER BUDGET BALANCE	0.0001	114.871	0.00

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ANNUAL TOTALS FOR YEAR 19

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.00	16008302.000	100.00
RUNOFF	0.046	82083.203	0.51
EVAPOTRANSPIRATION	8.399	14939117.000	93.32
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.555	987230.562	6.17
SOIL WATER AT START OF YEAR	433.533	771124672.000	
SOIL WATER AT END OF YEAR	434.343	772566400.000	
SNOW WATER AT START OF YEAR	0.256	454489.219	2.84
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0001	-128.720	0.00

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ANNUAL TOTALS FOR YEAR 20

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.60	24190322.000	100.00
RUNOFF	0.076	134751.219	0.56
EVAPOTRANSPIRATION	11.393	20265504.000	83.78
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	2.131	3789942.500	15.67
SOIL WATER AT START OF YEAR	434.343	772566400.000	
SOIL WATER AT END OF YEAR	436.474	776356352.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	125.023	0.00

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ANNUAL TOTALS FOR YEAR 21

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.43	18551844.000	100.00
RUNOFF	0.011	20210.937	0.11
EVAPOTRANSPIRATION	11.207	19933980.000	107.45
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	-0.788	-1402202.750	-7.56
SOIL WATER AT START OF YEAR	436.474	776356352.000	
SOIL WATER AT END OF YEAR	435.686	774954176.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0001	-145.398	0.00

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ANNUAL TOTALS FOR YEAR 22

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.29	21860222.000	100.00
RUNOFF	0.007	13272.346	0.06
EVAPOTRANSPIRATION	10.671	18980740.000	86.83
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.611	2866029.250	13.11
SOIL WATER AT START OF YEAR	435.686	774954176.000	
SOIL WATER AT END OF YEAR	437.000	777292224.000	

SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.297	527957.187	2.42
ANNUAL WATER BUDGET BALANCE	0.0001	182.074	0.00

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ANNUAL TOTALS FOR YEAR 23

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.78	20953086.000	100.00
RUNOFF	0.004	7293.984	0.03
EVAPOTRANSPIRATION	12.194	21690022.000	103.52
PERC./LEAKAGE THROUGH LAYER 16	0.000001	1.488	0.00
CHANGE IN WATER STORAGE	-0.418	-744075.312	-3.55
SOIL WATER AT START OF YEAR	437.000	777292224.000	
SOIL WATER AT END OF YEAR	436.692	776743360.000	
SNOW WATER AT START OF YEAR	0.297	527957.187	2.52
SNOW WATER AT END OF YEAR	0.187	332777.594	1.59
ANNUAL WATER BUDGET BALANCE	-0.0001	-155.849	0.00

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ANNUAL TOTALS FOR YEAR 24

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.23	23532206.000	100.00
RUNOFF	0.192	341301.500	1.45
EVAPOTRANSPIRATION	11.337	20165114.000	85.69

PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.701	3025680.250	12.86
SOIL WATER AT START OF YEAR	436.692	776743360.000	
SOIL WATER AT END OF YEAR	438.580	780101760.000	
SNOW WATER AT START OF YEAR	0.187	332777.594	1.41
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	110.260	0.00

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ANNUAL TOTALS FOR YEAR 25

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.39	20259396.000	100.00
RUNOFF	0.433	769553.062	3.80
EVAPOTRANSPIRATION	9.267	16483016.000	81.36
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.690	3006849.250	14.84
SOIL WATER AT START OF YEAR	438.580	780101760.000	
SOIL WATER AT END OF YEAR	439.897	782444608.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.373	664054.687	3.28
ANNUAL WATER BUDGET BALANCE	0.0000	-23.483	0.00

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ANNUAL TOTALS FOR YEAR 26

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.66	20739642.000	100.00
RUNOFF	0.133	237396.672	1.14
EVAPOTRANSPIRATION	11.116	19772328.000	95.34
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.410	729951.500	3.52
SOIL WATER AT START OF YEAR	439.897	782444608.000	
SOIL WATER AT END OF YEAR	440.681	783838592.000	
SNOW WATER AT START OF YEAR	0.373	664054.687	3.20
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-34.509	0.00

ANNUAL TOTALS FOR YEAR 27

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.52	24048026.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	11.702	20814008.000	86.55
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.818	3233935.750	13.45
SOIL WATER AT START OF YEAR	440.681	783838592.000	
SOIL WATER AT END OF YEAR	442.499	787072512.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	83.119	0.00

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ANNUAL TOTALS FOR YEAR 28

	INCHES	CU. FEET	PERCENT
PRECIPITATION	16.06	28565922.000	100.00
RUNOFF	0.015	27350.635	0.10
EVAPOTRANSPIRATION	15.889	28262288.000	98.94
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.155	276232.094	0.97
SOIL WATER AT START OF YEAR	442.499	787072512.000	
SOIL WATER AT END OF YEAR	442.185	786514944.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.469	833812.875	2.92
ANNUAL WATER BUDGET BALANCE	0.0000	49.973	0.00

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ANNUAL TOTALS FOR YEAR 29

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.88	22909658.000	100.00
RUNOFF	0.529	941234.187	4.11
EVAPOTRANSPIRATION	11.440	20348940.000	88.82
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.911	1619609.120	7.07
SOIL WATER AT START OF YEAR	442.185	786514944.000	

	INCHES	CU. FEET	PERCENT
SOIL WATER AT END OF YEAR	443.327	788545920.000	
SNOW WATER AT START OF YEAR	0.469	833812.875	3.64
SNOW WATER AT END OF YEAR	0.237	422421.062	1.84
ANNUAL WATER BUDGET BALANCE	-0.0001	-125.076	0.00

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ANNUAL TOTALS FOR YEAR 30

	INCHES	CU. FEET	PERCENT
PRECIPITATION	8.89	15812645.000	100.00
RUNOFF	0.030	54026.750	0.34
EVAPOTRANSPIRATION	8.602	15300895.000	96.76
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.257	457672.156	2.89
SOIL WATER AT START OF YEAR	443.327	788545920.000	
SOIL WATER AT END OF YEAR	443.615	789058688.000	
SNOW WATER AT START OF YEAR	0.237	422421.062	2.67
SNOW WATER AT END OF YEAR	0.207	367349.031	2.32
ANNUAL WATER BUDGET BALANCE	0.0000	51.230	0.00

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ANNUAL TOTALS FOR YEAR 31

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.23	21753502.000	100.00
RUNOFF	0.010	17561.240	0.08

EVAPOTRANSPIRATION	12.758	22692938.000	104.32
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	-0.538	-956955.937	-4.40
SOIL WATER AT START OF YEAR	443.615	789058688.000	
SOIL WATER AT END OF YEAR	443.284	788469056.000	
SNOW WATER AT START OF YEAR	0.207	367349.031	1.69
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-41.955	0.00

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ANNUAL TOTALS FOR YEAR 32

	INCHES	CU. FEET	PERCENT
PRECIPITATION	8.30	14763212.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	8.846	15733623.000	106.57
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	-0.546	-970392.437	-6.57
SOIL WATER AT START OF YEAR	443.284	788469056.000	
SOIL WATER AT END OF YEAR	442.738	787498688.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-18.659	0.00

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ANNUAL TOTALS FOR YEAR 33

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.54	20526198.000	100.00
RUNOFF	0.051	90803.836	0.44
EVAPOTRANSPIRATION	9.613	17097954.000	83.30
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.876	3337423.500	16.26
SOIL WATER AT START OF YEAR	442.738	787498688.000	
SOIL WATER AT END OF YEAR	444.555	790729984.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.060	106147.586	0.52
ANNUAL WATER BUDGET BALANCE	0.0000	16.208	0.00

ANNUAL TOTALS FOR YEAR 34

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.12	18000446.000	100.00
RUNOFF	0.066	116787.086	0.65
EVAPOTRANSPIRATION	8.568	15239667.000	84.66
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.486	2643976.250	14.69
SOIL WATER AT START OF YEAR	444.555	790729984.000	
SOIL WATER AT END OF YEAR	446.101	793480064.000	
SNOW WATER AT START OF YEAR	0.060	106147.586	0.59
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	14.969	0.00

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ANNUAL TOTALS FOR YEAR 35

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.75	22678430.000	100.00
RUNOFF	0.087	154057.375	0.68
EVAPOTRANSPIRATION	9.769	17376940.000	76.62
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	2.894	5147471.500	22.70
SOIL WATER AT START OF YEAR	446.101	793480064.000	
SOIL WATER AT END OF YEAR	448.995	798627584.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-38.379	0.00

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ANNUAL TOTALS FOR YEAR 36

	INCHES	CU. FEET	PERCENT
PRECIPITATION	8.04	14300746.000	100.00
RUNOFF	0.036	63541.156	0.44
EVAPOTRANSPIRATION	8.773	15603821.000	109.11
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	-0.768	-1366594.000	-9.56
SOIL WATER AT START OF YEAR	448.995	798627584.000	

SOIL WATER AT END OF YEAR	448.227	797260992.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-21.489	0.00

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ANNUAL TOTALS FOR YEAR 37

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.86	22874082.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	11.351	20190102.000	88.27
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.509	2683959.000	11.73
SOIL WATER AT START OF YEAR	448.227	797260992.000	
SOIL WATER AT END OF YEAR	449.654	799799616.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.082	145316.266	0.64
ANNUAL WATER BUDGET BALANCE	0.0000	21.058	0.00

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ANNUAL TOTALS FOR YEAR 38

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.93	17662496.000	100.00
RUNOFF	0.420	747380.125	4.23

EVAPOTRANSPIRATION	9.317	16572683.000	93.83
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.193	342404.031	1.94
SOIL WATER AT START OF YEAR	449.654	799799616.000	
SOIL WATER AT END OF YEAR	449.928	800287360.000	
SNOW WATER AT START OF YEAR	0.082	145316.266	0.82
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	29.513	0.00

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ANNUAL TOTALS FOR YEAR 39

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.90	21166532.000	100.00
RUNOFF	0.366	650224.187	3.07
EVAPOTRANSPIRATION	9.886	17584052.000	83.07
PERC./LEAKAGE THROUGH LAYER 16	0.000002	2.898	0.00
CHANGE IN WATER STORAGE	1.649	2932321.750	13.85
SOIL WATER AT START OF YEAR	449.928	800287360.000	
SOIL WATER AT END OF YEAR	451.447	802987968.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.130	231702.797	1.09
ANNUAL WATER BUDGET BALANCE	0.0000	-67.331	0.00

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ANNUAL TOTALS FOR YEAR 40

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.82	17466836.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	9.788	17410758.000	99.68
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.031	55967.727	0.32
SOIL WATER AT START OF YEAR	451.447	802987968.000	
SOIL WATER AT END OF YEAR	451.496	803076544.000	
SNOW WATER AT START OF YEAR	0.130	231702.797	1.33
SNOW WATER AT END OF YEAR	0.112	199082.922	1.14
ANNUAL WATER BUDGET BALANCE	0.0001	108.576	0.00

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ANNUAL TOTALS FOR YEAR 41

	INCHES	CU. FEET	PERCENT
PRECIPITATION	15.42	27427558.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	15.111	26877826.000	98.00
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.309	549694.312	2.00
SOIL WATER AT START OF YEAR	451.496	803076544.000	
SOIL WATER AT END OF YEAR	451.895	803785088.000	
SNOW WATER AT START OF YEAR	0.112	199082.922	0.73
SNOW WATER AT END OF YEAR	0.023	40239.281	0.15

ANNUAL WATER BUDGET BALANCE	0.0000	37.690	0.00

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ANNUAL TOTALS FOR YEAR 42

	INCHES	CU. FEET	PERCENT
PRECIPITATION	8.05	14318539.000	100.00
RUNOFF	0.073	129610.148	0.91
EVAPOTRANSPIRATION	7.375	13117069.000	91.61
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.603	1071882.370	7.49
SOIL WATER AT START OF YEAR	451.895	803785088.000	
SOIL WATER AT END OF YEAR	452.520	804897216.000	
SNOW WATER AT START OF YEAR	0.023	40239.281	0.28
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-23.324	0.00

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ANNUAL TOTALS FOR YEAR 43

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.85	24635000.000	100.00
RUNOFF	0.038	67581.781	0.27
EVAPOTRANSPIRATION	13.642	24265770.000	98.50
PERC./LEAKAGE THROUGH LAYER 16	0.000001	1.817	0.00
CHANGE IN WATER STORAGE	0.169	301481.500	1.22

SOIL WATER AT START OF YEAR	452.520	804897216.000	
SOIL WATER AT END OF YEAR	452.603	805045632.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.086	153075.562	0.62
ANNUAL WATER BUDGET BALANCE	0.0001	165.242	0.00

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ANNUAL TOTALS FOR YEAR 44

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.03	19619060.000	100.00
RUNOFF	0.345	613699.562	3.13
EVAPOTRANSPIRATION	10.270	18267392.000	93.11
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.415	738224.937	3.76
SOIL WATER AT START OF YEAR	452.603	805045632.000	
SOIL WATER AT END OF YEAR	453.017	805781056.000	
SNOW WATER AT START OF YEAR	0.086	153075.562	0.78
SNOW WATER AT END OF YEAR	0.088	155838.906	0.79
ANNUAL WATER BUDGET BALANCE	-0.0001	-256.314	0.00

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ANNUAL TOTALS FOR YEAR 45

	INCHES	CU. FEET	PERCENT
PRECIPITATION	15.32	27249692.000	100.00

RUNOFF	0.114	202313.375	0.74
EVAPOTRANSPIRATION	15.100	26857512.000	98.56
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.107	189768.750	0.70
SOIL WATER AT START OF YEAR	453.017	805781056.000	
SOIL WATER AT END OF YEAR	452.842	805470464.000	
SNOW WATER AT START OF YEAR	0.088	155838.906	0.57
SNOW WATER AT END OF YEAR	0.369	656207.062	2.41
ANNUAL WATER BUDGET BALANCE	0.0001	97.458	0.00

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ANNUAL TOTALS FOR YEAR 46

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.71	24385976.000	100.00
RUNOFF	0.400	710966.062	2.92
EVAPOTRANSPIRATION	11.834	21048362.000	86.31
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.477	2626643.250	10.77
SOIL WATER AT START OF YEAR	452.842	805470464.000	
SOIL WATER AT END OF YEAR	454.647	808680576.000	
SNOW WATER AT START OF YEAR	0.369	656207.062	2.69
SNOW WATER AT END OF YEAR	0.041	72744.258	0.30
ANNUAL WATER BUDGET BALANCE	0.0000	4.294	0.00

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ANNUAL TOTALS FOR YEAR 47

	INCHES	CU. FEET	PERCENT
PRECIPITATION	14.02	24937382.000	100.00
RUNOFF	0.217	385270.500	1.54
EVAPOTRANSPIRATION	12.112	21543122.000	86.39
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.692	3009027.250	12.07
SOIL WATER AT START OF YEAR	454.647	808680576.000	
SOIL WATER AT END OF YEAR	456.137	811329984.000	
SNOW WATER AT START OF YEAR	0.041	72744.258	0.29
SNOW WATER AT END OF YEAR	0.243	432339.969	1.73
ANNUAL WATER BUDGET BALANCE	0.0000	-37.637	0.00

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ANNUAL TOTALS FOR YEAR 48

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.42	18534054.000	100.00
RUNOFF	0.117	207512.703	1.12
EVAPOTRANSPIRATION	9.820	17466542.000	94.24
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.483	859888.187	4.64
SOIL WATER AT START OF YEAR	456.137	811329984.000	
SOIL WATER AT END OF YEAR	456.863	812622208.000	
SNOW WATER AT START OF YEAR	0.243	432339.969	2.33
SNOW WATER AT END OF YEAR	0.000	0.000	0.00

ANNUAL WATER BUDGET BALANCE	0.0001	111.558	0.00

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ANNUAL TOTALS FOR YEAR 49

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.06	23229826.000	100.00
RUNOFF	0.208	370813.531	1.60
EVAPOTRANSPIRATION	10.722	19071418.000	82.10
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	2.129	3787608.250	16.30
SOIL WATER AT START OF YEAR	456.863	812622208.000	
SOIL WATER AT END OF YEAR	458.992	816409856.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-14.127	0.00

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ANNUAL TOTALS FOR YEAR 50

	INCHES	CU. FEET	PERCENT
PRECIPITATION	15.29	27196332.000	100.00
RUNOFF	0.337	600155.187	2.21
EVAPOTRANSPIRATION	12.234	21760270.000	80.01
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	2.719	4835949.000	17.78

SOIL WATER AT START OF YEAR	458.992	816409856.000	
SOIL WATER AT END OF YEAR	461.711	821245760.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-43.097	0.00

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ANNUAL TOTALS FOR YEAR 51

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.20	18142744.000	100.00
RUNOFF	0.061	108783.477	0.60
EVAPOTRANSPIRATION	9.427	16768387.000	92.42
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.712	1265575.870	6.98
SOIL WATER AT START OF YEAR	461.711	821245760.000	
SOIL WATER AT END OF YEAR	462.423	822511360.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-3.114	0.00

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ANNUAL TOTALS FOR YEAR 52

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.33	20152670.000	100.00

RUNOFF	0.113	200810.312	1.00
EVAPOTRANSPIRATION	9.709	17269702.000	85.69
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.508	2682116.250	13.31
SOIL WATER AT START OF YEAR	462.423	822511360.000	
SOIL WATER AT END OF YEAR	463.650	824693568.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.281	499941.000	2.48
ANNUAL WATER BUDGET BALANCE	0.0000	41.321	0.00

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ANNUAL TOTALS FOR YEAR 53

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.54	16968796.000	100.00
RUNOFF	0.067	119980.156	0.71
EVAPOTRANSPIRATION	9.475	16852730.000	99.32
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	-0.002	-3856.221	-0.02
SOIL WATER AT START OF YEAR	463.650	824693568.000	
SOIL WATER AT END OF YEAR	463.431	824304576.000	
SNOW WATER AT START OF YEAR	0.281	499941.000	2.95
SNOW WATER AT END OF YEAR	0.498	885066.812	5.22
ANNUAL WATER BUDGET BALANCE	0.0000	-57.966	0.00

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ANNUAL TOTALS FOR YEAR 54

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.11	19761362.000	100.00
RUNOFF	0.383	680621.312	3.44
EVAPOTRANSPIRATION	9.569	17020268.000	86.13
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.158	2060526.500	10.43
SOIL WATER AT START OF YEAR	463.431	824304576.000	
SOIL WATER AT END OF YEAR	464.924	826961152.000	
SNOW WATER AT START OF YEAR	0.498	885066.812	4.48
SNOW WATER AT END OF YEAR	0.162	288996.875	1.46
ANNUAL WATER BUDGET BALANCE	0.0000	-55.236	0.00

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ANNUAL TOTALS FOR YEAR 55

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.62	24225898.000	100.00
RUNOFF	0.338	601044.437	2.48
EVAPOTRANSPIRATION	12.770	22713730.000	93.76
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.512	911115.437	3.76
SOIL WATER AT START OF YEAR	464.924	826961152.000	
SOIL WATER AT END OF YEAR	465.599	828161280.000	
SNOW WATER AT START OF YEAR	0.162	288996.875	1.19

SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	7.262	0.00

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ANNUAL TOTALS FOR YEAR 56

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.61	17093314.000	100.00
RUNOFF	0.287	510447.094	2.99
EVAPOTRANSPIRATION	8.073	14358958.000	84.00
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.250	2223848.000	13.01
SOIL WATER AT START OF YEAR	465.599	828161280.000	
SOIL WATER AT END OF YEAR	466.826	830343616.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.023	41509.898	0.24
ANNUAL WATER BUDGET BALANCE	0.0000	61.604	0.00

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ANNUAL TOTALS FOR YEAR 57

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.18	18107164.000	100.00
RUNOFF	0.003	4463.297	0.02
EVAPOTRANSPIRATION	9.335	16604154.000	91.70
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00

CHANGE IN WATER STORAGE	0.842	1498459.620	8.28
SOIL WATER AT START OF YEAR	466.826	830343616.000	
SOIL WATER AT END OF YEAR	467.692	831883584.000	
SNOW WATER AT START OF YEAR	0.023	41509.898	0.23
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	87.605	0.00

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ANNUAL TOTALS FOR YEAR 58

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.29	23638930.000	100.00
RUNOFF	0.198	352838.312	1.49
EVAPOTRANSPIRATION	10.387	18476204.000	78.16
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	2.704	4809948.500	20.35
SOIL WATER AT START OF YEAR	467.692	831883584.000	
SOIL WATER AT END OF YEAR	470.396	836693504.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-60.404	0.00

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ANNUAL TOTALS FOR YEAR 59

	INCHES	CU. FEET	PERCENT

PRECIPITATION	11.84	21059812.000	100.00
RUNOFF	0.034	61305.312	0.29
EVAPOTRANSPIRATION	10.689	19011902.000	90.28
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.117	1986626.620	9.43
SOIL WATER AT START OF YEAR	470.396	836693504.000	
SOIL WATER AT END OF YEAR	471.309	838316992.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.204	363172.094	1.72
ANNUAL WATER BUDGET BALANCE	0.0000	-22.297	0.00

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ANNUAL TOTALS FOR YEAR 60

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.47	16844290.000	100.00
RUNOFF	0.081	144266.937	0.86
EVAPOTRANSPIRATION	9.381	16686182.000	99.06
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.008	13953.900	0.08
SOIL WATER AT START OF YEAR	471.309	838316992.000	
SOIL WATER AT END OF YEAR	471.297	838296000.000	
SNOW WATER AT START OF YEAR	0.204	363172.094	2.16
SNOW WATER AT END OF YEAR	0.224	398078.687	2.36
ANNUAL WATER BUDGET BALANCE	-0.0001	-113.758	0.00

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ANNUAL TOTALS FOR YEAR 61

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.79	20970876.000	100.00
RUNOFF	0.180	320639.812	1.53
EVAPOTRANSPIRATION	9.306	16552874.000	78.93
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	2.304	4097253.500	19.54
SOIL WATER AT START OF YEAR	471.297	838296000.000	
SOIL WATER AT END OF YEAR	473.824	842791360.000	
SNOW WATER AT START OF YEAR	0.224	398078.687	1.90
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	109.623	0.00

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ANNUAL TOTALS FOR YEAR 62

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.23	23532208.000	100.00
RUNOFF	0.653	1162155.370	4.94
EVAPOTRANSPIRATION	9.343	16617823.000	70.62
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	3.234	5752331.500	24.44
SOIL WATER AT START OF YEAR	473.824	842791360.000	
SOIL WATER AT END OF YEAR	477.058	848543680.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00

SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0001	-101.354	0.00

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ANNUAL TOTALS FOR YEAR 63

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.81	22785150.000	100.00
RUNOFF	0.248	441820.250	1.94
EVAPOTRANSPIRATION	10.160	18071344.000	79.31
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	2.402	4271884.500	18.75
SOIL WATER AT START OF YEAR	477.058	848543680.000	
SOIL WATER AT END OF YEAR	479.455	852806016.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.005	9583.740	0.04
ANNUAL WATER BUDGET BALANCE	0.0001	100.307	0.00

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ANNUAL TOTALS FOR YEAR 64

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.34	18391760.000	100.00
RUNOFF	0.000	330.883	0.00
EVAPOTRANSPIRATION	9.084	16157408.000	87.85
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00

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  CHANGE IN WATER STORAGE                 1.256      2234103.500    12.15

  SOIL WATER AT START OF YEAR           479.455    852806016.000

  SOIL WATER AT END OF YEAR             479.936    853662144.000

  SNOW WATER AT START OF YEAR             0.005         9583.740     0.05

  SNOW WATER AT END OF YEAR               0.780      1387557.500     7.54

  ANNUAL WATER BUDGET BALANCE             0.0000          -82.521    0.00

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                          ANNUAL TOTALS FOR YEAR   65
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                                         INCHES          CU. FEET     PERCENT
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  PRECIPITATION                          10.47       18622992.000   100.00

  RUNOFF                                  0.023         41155.531     0.22

  EVAPOTRANSPIRATION                     10.639      18922962.000   101.61

  PERC./LEAKAGE THROUGH LAYER 16          0.000000          0.000     0.00

  CHANGE IN WATER STORAGE                -0.192       -341210.156    -1.83

  SOIL WATER AT START OF YEAR           479.936    853662144.000

  SOIL WATER AT END OF YEAR             480.502    854669056.000

  SNOW WATER AT START OF YEAR             0.780      1387557.500     7.45

  SNOW WATER AT END OF YEAR               0.022         39423.344     0.21

  ANNUAL WATER BUDGET BALANCE             0.0000           84.245     0.00

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                          ANNUAL TOTALS FOR YEAR   66
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                                         INCHES          CU. FEET     PERCENT
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	INCHES	CU. FEET	PERCENT
PRECIPITATION	15.66	27854446.000	100.00
RUNOFF	0.606	1077251.370	3.87
EVAPOTRANSPIRATION	10.727	19079550.000	68.50
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	4.328	7697769.500	27.64
SOIL WATER AT START OF YEAR	480.502	854669056.000	
SOIL WATER AT END OF YEAR	484.852	862406208.000	
SNOW WATER AT START OF YEAR	0.022	39423.344	0.14
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0001	-126.434	0.00

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ANNUAL TOTALS FOR YEAR 67

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.14	21593416.000	100.00
RUNOFF	0.095	168739.844	0.78
EVAPOTRANSPIRATION	11.484	20427286.000	94.60
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.561	997233.625	4.62
SOIL WATER AT START OF YEAR	484.852	862406208.000	
SOIL WATER AT END OF YEAR	484.662	862068288.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.751	1335191.000	6.18
ANNUAL WATER BUDGET BALANCE	0.0001	156.762	0.00

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ANNUAL TOTALS FOR YEAR 68

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.32	21913590.000	100.00
RUNOFF	0.806	1434055.750	6.54
EVAPOTRANSPIRATION	10.700	19032124.000	86.85
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.814	1447501.750	6.61
SOIL WATER AT START OF YEAR	484.662	862068288.000	
SOIL WATER AT END OF YEAR	486.226	864850944.000	
SNOW WATER AT START OF YEAR	0.751	1335191.000	6.09
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0001	-90.858	0.00

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ANNUAL TOTALS FOR YEAR 69

	INCHES	CU. FEET	PERCENT
PRECIPITATION	15.36	27320838.000	100.00
RUNOFF	0.863	1534725.370	5.62
EVAPOTRANSPIRATION	12.395	22047292.000	80.70
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	2.102	3738755.000	13.68
SOIL WATER AT START OF YEAR	486.226	864850944.000	
SOIL WATER AT END OF YEAR	488.328	868589696.000	

SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	65.308	0.00

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ANNUAL TOTALS FOR YEAR 70

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.87	22891868.000	100.00
RUNOFF	0.010	18084.883	0.08
EVAPOTRANSPIRATION	12.705	22598140.000	98.72
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.155	275642.062	1.20
SOIL WATER AT START OF YEAR	488.328	868589696.000	
SOIL WATER AT END OF YEAR	488.483	868865344.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	2.770	0.00

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ANNUAL TOTALS FOR YEAR 71

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.39	16701997.000	100.00
RUNOFF	0.033	58117.707	0.35
EVAPOTRANSPIRATION	8.628	15346246.000	91.88

PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.729	1297547.750	7.77
SOIL WATER AT START OF YEAR	488.483	868865344.000	
SOIL WATER AT END OF YEAR	489.213	870162944.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	85.756	0.00

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ANNUAL TOTALS FOR YEAR 72

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.04	23194254.000	100.00
RUNOFF	0.210	373549.125	1.61
EVAPOTRANSPIRATION	10.771	19159226.000	82.60
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	2.059	3661712.000	15.79
SOIL WATER AT START OF YEAR	489.213	870162944.000	
SOIL WATER AT END OF YEAR	490.988	873320512.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.283	504095.969	2.17
ANNUAL WATER BUDGET BALANCE	-0.0001	-233.665	0.00

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ANNUAL TOTALS FOR YEAR 73

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.00	19565706.000	100.00
RUNOFF	0.235	417907.219	2.14
EVAPOTRANSPIRATION	9.676	17210358.000	87.96
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.089	1937301.120	9.90
SOIL WATER AT START OF YEAR	490.988	873320512.000	
SOIL WATER AT END OF YEAR	492.275	875609024.000	
SNOW WATER AT START OF YEAR	0.283	504095.969	2.58
SNOW WATER AT END OF YEAR	0.086	152884.141	0.78
ANNUAL WATER BUDGET BALANCE	0.0001	138.858	0.00

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ANNUAL TOTALS FOR YEAR 74

	INCHES	CU. FEET	PERCENT
PRECIPITATION	8.74	15545839.000	100.00
RUNOFF	0.015	26763.617	0.17
EVAPOTRANSPIRATION	9.547	16980584.000	109.23
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	-0.822	-1461342.500	-9.40
SOIL WATER AT START OF YEAR	492.275	875609024.000	
SOIL WATER AT END OF YEAR	491.539	874300608.000	
SNOW WATER AT START OF YEAR	0.086	152884.141	0.98
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0001	-165.653	0.00

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ANNUAL TOTALS FOR YEAR 75

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.55	16986588.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	9.018	16039546.000	94.42
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.532	946671.375	5.57
SOIL WATER AT START OF YEAR	491.539	874300608.000	
SOIL WATER AT END OF YEAR	492.071	875247232.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0002	369.794	0.00

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ANNUAL TOTALS FOR YEAR 76

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.27	21824654.000	100.00
RUNOFF	0.155	275615.375	1.26
EVAPOTRANSPIRATION	11.821	21025288.000	96.34
PERC./LEAKAGE THROUGH LAYER 16	0.000001	1.791	0.00
CHANGE IN WATER STORAGE	0.295	524143.281	2.40
SOIL WATER AT START OF YEAR	492.071	875247232.000	
SOIL WATER AT END OF YEAR	492.366	875771392.000	

SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0002	-395.810	0.00

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ANNUAL TOTALS FOR YEAR 77

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.17	16310683.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	8.459	15046633.000	92.25
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.711	1263784.620	7.75
SOIL WATER AT START OF YEAR	492.366	875771392.000	
SOIL WATER AT END OF YEAR	493.077	877035200.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	264.623	0.00

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ANNUAL TOTALS FOR YEAR 78

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.15	18053812.000	100.00
RUNOFF	0.038	66945.086	0.37
EVAPOTRANSPIRATION	10.027	17835136.000	98.79

PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.085	151825.687	0.84
SOIL WATER AT START OF YEAR	493.077	877035200.000	
SOIL WATER AT END OF YEAR	493.162	877187008.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0001	-93.886	0.00

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ANNUAL TOTALS FOR YEAR 79

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.77	20935298.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	11.821	21025708.000	100.43
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	-0.051	-90541.734	-0.43
SOIL WATER AT START OF YEAR	493.162	877187008.000	
SOIL WATER AT END OF YEAR	493.111	877096448.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	132.311	0.00

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ANNUAL TOTALS FOR YEAR 80

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.92	24759512.000	100.00
RUNOFF	0.189	336445.812	1.36
EVAPOTRANSPIRATION	12.022	21383022.000	86.36
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.709	3040259.000	12.28
SOIL WATER AT START OF YEAR	493.111	877096448.000	
SOIL WATER AT END OF YEAR	494.820	880136704.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0001	-213.601	0.00

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ANNUAL TOTALS FOR YEAR 81

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.61	17093308.000	100.00
RUNOFF	0.055	97410.695	0.57
EVAPOTRANSPIRATION	9.465	16835628.000	98.49
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.090	160132.312	0.94
SOIL WATER AT START OF YEAR	494.820	880136704.000	
SOIL WATER AT END OF YEAR	494.546	879648256.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.365	648612.562	3.79
ANNUAL WATER BUDGET BALANCE	0.0001	136.923	0.00

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ANNUAL TOTALS FOR YEAR 82

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.43	18551844.000	100.00
RUNOFF	0.126	223680.594	1.21
EVAPOTRANSPIRATION	10.569	18799306.000	101.33
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	-0.265	-471003.125	-2.54
SOIL WATER AT START OF YEAR	494.546	879648256.000	
SOIL WATER AT END OF YEAR	494.645	879825856.000	
SNOW WATER AT START OF YEAR	0.365	648612.562	3.50
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0001	-140.581	0.00

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ANNUAL TOTALS FOR YEAR 83

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.85	19298896.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	9.684	17225334.000	89.26
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.166	2073449.120	10.74
SOIL WATER AT START OF YEAR	494.645	879825856.000	

SOIL WATER AT END OF YEAR	495.811	881899328.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	111.956	0.00

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ANNUAL TOTALS FOR YEAR 84

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.00	17786998.000	100.00
RUNOFF	0.000	43.715	0.00
EVAPOTRANSPIRATION	9.495	16888066.000	94.95
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.505	898908.875	5.05
SOIL WATER AT START OF YEAR	495.811	881899328.000	
SOIL WATER AT END OF YEAR	496.193	882578496.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.124	219737.250	1.24
ANNUAL WATER BUDGET BALANCE	0.0000	-20.139	0.00

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ANNUAL TOTALS FOR YEAR 85

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.30	18320614.000	100.00
RUNOFF	0.023	41461.422	0.23

EVAPOTRANSPIRATION	10.612	18875382.000	103.03
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	-0.335	-596185.437	-3.25
SOIL WATER AT START OF YEAR	496.193	882578496.000	
SOIL WATER AT END OF YEAR	495.720	881737856.000	
SNOW WATER AT START OF YEAR	0.124	219737.250	1.20
SNOW WATER AT END OF YEAR	0.261	464156.906	2.53
ANNUAL WATER BUDGET BALANCE	0.0000	-44.269	0.00

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ANNUAL TOTALS FOR YEAR 86

	INCHES	CU. FEET	PERCENT
PRECIPITATION	16.80	29882168.000	100.00
RUNOFF	0.645	1146645.370	3.84
EVAPOTRANSPIRATION	14.307	25446986.000	85.16
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.849	3288439.750	11.00
SOIL WATER AT START OF YEAR	495.720	881737856.000	
SOIL WATER AT END OF YEAR	497.830	885490496.000	
SNOW WATER AT START OF YEAR	0.261	464156.906	1.55
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	97.749	0.00

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ANNUAL TOTALS FOR YEAR 87

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.71	19049878.000	100.00
RUNOFF	0.046	81043.984	0.43
EVAPOTRANSPIRATION	9.286	16517316.000	86.71
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.378	2451703.500	12.87
SOIL WATER AT START OF YEAR	497.830	885490496.000	
SOIL WATER AT END OF YEAR	498.829	887268032.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.379	674143.562	3.54
ANNUAL WATER BUDGET BALANCE	-0.0001	-184.519	0.00

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ANNUAL TOTALS FOR YEAR 88

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.34	16613062.000	100.00
RUNOFF	0.051	90994.594	0.55
EVAPOTRANSPIRATION	8.493	15106313.000	90.93
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.796	1415560.250	8.52
SOIL WATER AT START OF YEAR	498.829	887268032.000	
SOIL WATER AT END OF YEAR	499.777	888953728.000	
SNOW WATER AT START OF YEAR	0.379	674143.562	4.06
SNOW WATER AT END OF YEAR	0.227	403988.187	2.43
ANNUAL WATER BUDGET BALANCE	0.0001	194.279	0.00

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ANNUAL TOTALS FOR YEAR 89

	INCHES	CU. FEET	PERCENT
PRECIPITATION	16.47	29295198.000	100.00
RUNOFF	0.507	902018.375	3.08
EVAPOTRANSPIRATION	13.527	24061066.000	82.13
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	2.436	4332191.000	14.79
SOIL WATER AT START OF YEAR	499.777	888953728.000	
SOIL WATER AT END OF YEAR	502.440	893689920.000	
SNOW WATER AT START OF YEAR	0.227	403988.187	1.38
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-77.818	0.00

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ANNUAL TOTALS FOR YEAR 90

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.50	16897654.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	9.646	17156714.000	101.53
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	-0.146	-259177.969	-1.53
SOIL WATER AT START OF YEAR	502.440	893689920.000	

SOIL WATER AT END OF YEAR	501.725	892419072.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.569	1011663.250	5.99
ANNUAL WATER BUDGET BALANCE	0.0001	117.257	0.00

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ANNUAL TOTALS FOR YEAR 91

	INCHES	CU. FEET	PERCENT
PRECIPITATION	15.89	28263550.000	100.00
RUNOFF	0.986	1753688.750	6.20
EVAPOTRANSPIRATION	12.807	22780002.000	80.60
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	2.097	3730052.750	13.20
SOIL WATER AT START OF YEAR	501.725	892419072.000	
SOIL WATER AT END OF YEAR	504.391	897160768.000	
SNOW WATER AT START OF YEAR	0.569	1011663.250	3.58
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0001	-194.332	0.00

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ANNUAL TOTALS FOR YEAR 92

	INCHES	CU. FEET	PERCENT
PRECIPITATION	14.86	26431482.000	100.00
RUNOFF	0.099	175456.266	0.66

EVAPOTRANSPIRATION	13.983	24871632.000	94.10
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.778	1384255.870	5.24
SOIL WATER AT START OF YEAR	504.391	897160768.000	
SOIL WATER AT END OF YEAR	505.090	898402688.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.080	142346.719	0.54
ANNUAL WATER BUDGET BALANCE	0.0001	136.327	0.00

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ANNUAL TOTALS FOR YEAR 93

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.28	23621136.000	100.00
RUNOFF	0.190	337399.281	1.43
EVAPOTRANSPIRATION	10.593	18842562.000	79.77
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	2.497	4441030.000	18.80
SOIL WATER AT START OF YEAR	505.090	898402688.000	
SOIL WATER AT END OF YEAR	507.666	902986112.000	
SNOW WATER AT START OF YEAR	0.080	142346.719	0.60
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	144.119	0.00

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ANNUAL TOTALS FOR YEAR 94

	INCHES	CU. FEET	PERCENT
PRECIPITATION	8.92	15866006.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	9.564	17011160.000	107.22
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	-0.644	-1145005.120	-7.22
SOIL WATER AT START OF YEAR	507.666	902986112.000	
SOIL WATER AT END OF YEAR	506.852	901537280.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.171	303825.500	1.91
ANNUAL WATER BUDGET BALANCE	-0.0001	-148.691	0.00

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ANNUAL TOTALS FOR YEAR 95

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.90	21166534.000	100.00
RUNOFF	0.208	369958.594	1.75
EVAPOTRANSPIRATION	9.898	17605664.000	83.18
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.794	3190809.250	15.07
SOIL WATER AT START OF YEAR	506.852	901537280.000	
SOIL WATER AT END OF YEAR	508.793	904989568.000	
SNOW WATER AT START OF YEAR	0.171	303825.500	1.44
SNOW WATER AT END OF YEAR	0.024	42324.121	0.20

ANNUAL WATER BUDGET BALANCE	0.0001	102.633	0.00

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ANNUAL TOTALS FOR YEAR 96

	INCHES	CU. FEET	PERCENT
PRECIPITATION	15.20	27036248.000	100.00
RUNOFF	1.602	2849598.500	10.54
EVAPOTRANSPIRATION	10.412	18520132.000	68.50
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	3.186	5666636.500	20.96
SOIL WATER AT START OF YEAR	508.793	904989568.000	
SOIL WATER AT END OF YEAR	512.002	910698496.000	
SNOW WATER AT START OF YEAR	0.024	42324.121	0.16
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0001	-119.225	0.00

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ANNUAL TOTALS FOR YEAR 97

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.85	22856298.000	100.00
RUNOFF	0.002	3789.022	0.02
EVAPOTRANSPIRATION	11.981	21310886.000	93.24
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.867	1541489.370	6.74

SOIL WATER AT START OF YEAR	512.002	910698496.000	
SOIL WATER AT END OF YEAR	512.869	912240000.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	132.825	0.00

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ANNUAL TOTALS FOR YEAR 98

	INCHES	CU. FEET	PERCENT
PRECIPITATION	8.21	14603129.000	100.00
RUNOFF	0.003	5445.680	0.04
EVAPOTRANSPIRATION	8.616	15324582.000	104.94
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	-0.409	-726637.062	-4.98
SOIL WATER AT START OF YEAR	512.869	912240000.000	
SOIL WATER AT END OF YEAR	512.245	911130944.000	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.215	382444.906	2.62
ANNUAL WATER BUDGET BALANCE	-0.0001	-262.183	0.00

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ANNUAL TOTALS FOR YEAR 99

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.69	22571706.000	100.00

RUNOFF	0.006	11091.924	0.05
EVAPOTRANSPIRATION	10.454	18594942.000	82.38
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	2.229	3965400.250	17.57
SOIL WATER AT START OF YEAR	512.245	911130944.000	
SOIL WATER AT END OF YEAR	514.560	915247872.000	
SNOW WATER AT START OF YEAR	0.215	382444.906	1.69
SNOW WATER AT END OF YEAR	0.130	230910.234	1.02
ANNUAL WATER BUDGET BALANCE	0.0002	270.666	0.00

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ANNUAL TOTALS FOR YEAR 100

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.06	19672432.000	100.00
RUNOFF	0.786	1398192.000	7.11
EVAPOTRANSPIRATION	9.138	16254160.000	82.62
PERC./LEAKAGE THROUGH LAYER 16	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.136	2020148.500	10.27
SOIL WATER AT START OF YEAR	514.560	915247872.000	
SOIL WATER AT END OF YEAR	515.826	917498944.000	
SNOW WATER AT START OF YEAR	0.130	230910.234	1.17
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-69.283	0.00

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AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1 THROUGH 100

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
PRECIPITATION						
TOTALS	1.71	1.08	1.01	1.13	1.05	0.99
	0.31	0.42	0.57	0.81	1.25	1.34
STD. DEVIATIONS	0.86	0.50	0.45	0.55	0.56	0.52
	0.31	0.46	0.65	0.45	0.61	0.65
RUNOFF						
TOTALS	0.072	0.118	0.019	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.004
STD. DEVIATIONS	0.142	0.215	0.054	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.024
EVAPOTRANSPIRATION						
TOTALS	0.589	0.582	1.702	1.176	1.127	1.046
	0.784	0.708	0.527	0.542	0.791	0.843
STD. DEVIATIONS	0.244	0.362	0.443	0.596	0.551	0.539
	0.357	0.327	0.624	0.429	0.402	0.250
PERCOLATION/LEAKAGE THROUGH LAYER 16						
TOTALS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
STD. DEVIATIONS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1 THROUGH 100

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.68 (2.082)	20770946.0	100.00
RUNOFF	0.213 (0.2942)	378440.81	1.822

EVAPOTRANSPIRATION	10.418	(1.6834)	18529810.00	89.210
PERCOLATION/LEAKAGE THROUGH LAYER 16	0.00000	(0.00000)	0.254	0.00000
CHANGE IN WATER STORAGE	1.047	(1.0406)	1862696.50	8.968

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PEAK DAILY VALUES FOR YEARS 1 THROUGH 100

	(INCHES)	(CU. FT.)
PRECIPITATION	1.68	2988216.000
RUNOFF	0.623	1107861.7500
PERCOLATION/LEAKAGE THROUGH LAYER 16	0.000002	3.94460
SNOW WATER	3.10	5505763.5000

MAXIMUM VEG. SOIL WATER (VOL/VOL)	0.3006
MINIMUM VEG. SOIL WATER (VOL/VOL)	0.0748

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FINAL WATER STORAGE AT END OF YEAR 100

LAYER	(INCHES)	(VOL/VOL)
1	1.2369	0.1031
2	102.3547	0.2843
3	1.6083	0.1340
4	72.1446	0.2004

5	0.9788	0.0816
6	35.4430	0.0985
7	0.9058	0.0755
8	35.4422	0.0985
9	0.9058	0.0755
10	35.4422	0.0985
11	0.9058	0.0755
12	35.4422	0.0985
13	0.9058	0.0755
14	35.4422	0.0985
15	0.9058	0.0755
16	155.7615	0.0983
SNOW WATER	0.000	

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**                                                                          **
**                                                                          **
**              HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE               **
**                HELP MODEL VERSION 3.07  (1 NOVEMBER 1997)                **
**                  DEVELOPED BY ENVIRONMENTAL LABORATORY                   **
**                    USAE WATERWAYS EXPERIMENT STATION                     **
**              FOR USEPA RISK REDUCTION ENGINEERING LABORATORY             **
**                                                                          **
**                                                                          **
******************************************************************************
******************************************************************************


PRECIPITATION DATA FILE:    C:\HELP3\PB_PRECP.D4
TEMPERATURE DATA FILE:      C:\HELP3\PB_TEMP.D7
SOLAR RADIATION DATA FILE:  C:\HELP3\PB_SRAD.D13
EVAPOTRANSPIRATION DATA:    C:\HELP3\PB_ET.D11
SOIL AND DESIGN DATA FILE:  C:\HELP3\PB_SOIL.D10
OUTPUT DATA FILE:           C:\HELP3\PB_OUT.OUT


TIME:  16:15     DATE:   3/ 4/2013


******************************************************************************

     TITLE:  Pickles Butte Waste + Geology to First Groundwater

******************************************************************************


     NOTE:  INITIAL MOISTURE CONTENT OF THE LAYERS AND SNOW WATER
              WERE SPECIFIED BY THE USER.


                                  LAYER  1
                                  --------

                     TYPE 1 - VERTICAL PERCOLATION LAYER
                         MATERIAL TEXTURE NUMBER   0
           THICKNESS                  =     12.00   INCHES
           POROSITY                   =      0.4370 VOL/VOL
           FIELD CAPACITY             =      0.1050 VOL/VOL
           WILTING POINT              =      0.0470 VOL/VOL
```

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INITIAL SOIL WATER CONTENT  =      0.0800 VOL/VOL
EFFECTIVE SAT. HYD. COND.   =  0.170000002000E-02 CM/SEC


                        LAYER  2
                        --------

          TYPE 1 - VERTICAL PERCOLATION LAYER
              MATERIAL TEXTURE NUMBER   0
THICKNESS                   =    360.00   INCHES
POROSITY                    =      0.6710 VOL/VOL
FIELD CAPACITY              =      0.2920 VOL/VOL
WILTING POINT               =      0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT  =      0.0983 VOL/VOL
EFFECTIVE SAT. HYD. COND.   =  0.100000005000E-02 CM/SEC


                        LAYER  3
                        --------

          TYPE 1 - VERTICAL PERCOLATION LAYER
              MATERIAL TEXTURE NUMBER   0
THICKNESS                   =     12.00   INCHES
POROSITY                    =      0.4370 VOL/VOL
FIELD CAPACITY              =      0.1050 VOL/VOL
WILTING POINT               =      0.0470 VOL/VOL
INITIAL SOIL WATER CONTENT  =      0.0800 VOL/VOL
EFFECTIVE SAT. HYD. COND.   =  0.170000002000E-02 CM/SEC


                        LAYER  4
                        --------

          TYPE 1 - VERTICAL PERCOLATION LAYER
              MATERIAL TEXTURE NUMBER   0
THICKNESS                   =    360.00   INCHES
POROSITY                    =      0.6710 VOL/VOL
FIELD CAPACITY              =      0.2920 VOL/VOL
WILTING POINT               =      0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT  =      0.0983 VOL/VOL
EFFECTIVE SAT. HYD. COND.   =  0.100000005000E-02 CM/SEC


                        LAYER  5
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```
           TYPE 1 - VERTICAL PERCOLATION LAYER
               MATERIAL TEXTURE NUMBER   0
THICKNESS                    =     12.00   INCHES
POROSITY                     =      0.4370 VOL/VOL
FIELD CAPACITY               =      0.1050 VOL/VOL
WILTING POINT                =      0.0470 VOL/VOL
INITIAL SOIL WATER CONTENT   =      0.0800 VOL/VOL
EFFECTIVE SAT. HYD. COND.    =  0.170000002000E-02 CM/SEC


                        LAYER  6
                        --------

           TYPE 1 - VERTICAL PERCOLATION LAYER
               MATERIAL TEXTURE NUMBER   0
THICKNESS                    =    360.00   INCHES
POROSITY                     =      0.6710 VOL/VOL
FIELD CAPACITY               =      0.2920 VOL/VOL
WILTING POINT                =      0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT   =      0.0983 VOL/VOL
EFFECTIVE SAT. HYD. COND.    =  0.100000005000E-02 CM/SEC


                        LAYER  7
                        --------

           TYPE 1 - VERTICAL PERCOLATION LAYER
               MATERIAL TEXTURE NUMBER   0
THICKNESS                    =     12.00   INCHES
POROSITY                     =      0.4370 VOL/VOL
FIELD CAPACITY               =      0.1050 VOL/VOL
WILTING POINT                =      0.0470 VOL/VOL
INITIAL SOIL WATER CONTENT   =      0.0800 VOL/VOL
EFFECTIVE SAT. HYD. COND.    =  0.170000002000E-02 CM/SEC


                        LAYER  8
                        --------

           TYPE 1 - VERTICAL PERCOLATION LAYER
               MATERIAL TEXTURE NUMBER   0
THICKNESS                    =    360.00   INCHES
POROSITY                     =      0.6710 VOL/VOL
FIELD CAPACITY               =      0.2920 VOL/VOL
WILTING POINT                =      0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT   =      0.0983 VOL/VOL
EFFECTIVE SAT. HYD. COND.    =  0.100000005000E-02 CM/SEC
```

LAYER 9

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 0

```
THICKNESS                    =     12.00   INCHES
POROSITY                     =      0.4370 VOL/VOL
FIELD CAPACITY               =      0.1050 VOL/VOL
WILTING POINT                =      0.0470 VOL/VOL
INITIAL SOIL WATER CONTENT   =      0.0800 VOL/VOL
EFFECTIVE SAT. HYD. COND.    =  0.170000002000E-02 CM/SEC
```

LAYER 10

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 0

```
THICKNESS                    =    360.00   INCHES
POROSITY                     =      0.6710 VOL/VOL
FIELD CAPACITY               =      0.2920 VOL/VOL
WILTING POINT                =      0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT   =      0.0983 VOL/VOL
EFFECTIVE SAT. HYD. COND.    =  0.100000005000E-02 CM/SEC
```

LAYER 11

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 0

```
THICKNESS                    =     12.00   INCHES
POROSITY                     =      0.4370 VOL/VOL
FIELD CAPACITY               =      0.1050 VOL/VOL
WILTING POINT                =      0.0470 VOL/VOL
INITIAL SOIL WATER CONTENT   =      0.0800 VOL/VOL
EFFECTIVE SAT. HYD. COND.    =  0.170000002000E-02 CM/SEC
```

LAYER 12

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 0

```
THICKNESS                    =    360.00   INCHES
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```
POROSITY                   =      0.6710 VOL/VOL
FIELD CAPACITY             =      0.2920 VOL/VOL
WILTING POINT              =      0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT =      0.0983 VOL/VOL
EFFECTIVE SAT. HYD. COND.  =  0.100000005000E-02 CM/SEC


                       LAYER 13
                       --------

          TYPE 1 - VERTICAL PERCOLATION LAYER
              MATERIAL TEXTURE NUMBER   0
THICKNESS                  =     12.00   INCHES
POROSITY                   =      0.4370 VOL/VOL
FIELD CAPACITY             =      0.1050 VOL/VOL
WILTING POINT              =      0.0470 VOL/VOL
INITIAL SOIL WATER CONTENT =      0.0800 VOL/VOL
EFFECTIVE SAT. HYD. COND.  =  0.170000002000E-02 CM/SEC


                       LAYER 14
                       --------

          TYPE 1 - VERTICAL PERCOLATION LAYER
              MATERIAL TEXTURE NUMBER   0
THICKNESS                  =    360.00   INCHES
POROSITY                   =      0.6710 VOL/VOL
FIELD CAPACITY             =      0.2920 VOL/VOL
WILTING POINT              =      0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT =      0.0983 VOL/VOL
EFFECTIVE SAT. HYD. COND.  =  0.100000005000E-02 CM/SEC


                       LAYER 15
                       --------

          TYPE 1 - VERTICAL PERCOLATION LAYER
              MATERIAL TEXTURE NUMBER  61
THICKNESS                  =     12.00   INCHES
POROSITY                   =      0.4370 VOL/VOL
FIELD CAPACITY             =      0.1050 VOL/VOL
WILTING POINT              =      0.0470 VOL/VOL
INITIAL SOIL WATER CONTENT =      0.0800 VOL/VOL
EFFECTIVE SAT. HYD. COND.  =  0.170000002000E-02 CM/SEC
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                  LAYER 16
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          TYPE 1 - VERTICAL PERCOLATION LAYER
              MATERIAL TEXTURE NUMBER  62
THICKNESS                   =   1584.00   INCHES
POROSITY                    =      0.6710 VOL/VOL
FIELD CAPACITY              =      0.2920 VOL/VOL
WILTING POINT               =      0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT  =      0.0983 VOL/VOL
EFFECTIVE SAT. HYD. COND.   =  0.100000005000E-02 CM/SEC


                  LAYER 17
                  --------

          TYPE 1 - VERTICAL PERCOLATION LAYER
              MATERIAL TEXTURE NUMBER  63
THICKNESS                   =    996.00   INCHES
POROSITY                    =      0.4450 VOL/VOL
FIELD CAPACITY              =      0.3302 VOL/VOL
WILTING POINT               =      0.1211 VOL/VOL
INITIAL SOIL WATER CONTENT  =      0.3149 VOL/VOL
EFFECTIVE SAT. HYD. COND.   =  0.679999985000E-07 CM/SEC


                  LAYER 18
                  --------

          TYPE 1 - VERTICAL PERCOLATION LAYER
              MATERIAL TEXTURE NUMBER  64
THICKNESS                   =    840.00   INCHES
POROSITY                    =      0.4624 VOL/VOL
FIELD CAPACITY              =      0.3501 VOL/VOL
WILTING POINT               =      0.1324 VOL/VOL
INITIAL SOIL WATER CONTENT  =      0.4113 VOL/VOL
EFFECTIVE SAT. HYD. COND.   =  0.350000005000E-05 CM/SEC


                  LAYER 19
                  --------

          TYPE 1 - VERTICAL PERCOLATION LAYER
              MATERIAL TEXTURE NUMBER  65
THICKNESS                   =    624.00   INCHES
POROSITY                    =      0.4438 VOL/VOL
FIELD CAPACITY              =      0.3269 VOL/VOL
WILTING POINT               =      0.1185 VOL/VOL
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   INITIAL SOIL WATER CONTENT  =      0.4139 VOL/VOL
   EFFECTIVE SAT. HYD. COND.   =  0.162000006000E-06 CM/SEC


                        LAYER 20
                        --------

              TYPE 1 - VERTICAL PERCOLATION LAYER
                  MATERIAL TEXTURE NUMBER   0
   THICKNESS                   =   3348.00   INCHES
   POROSITY                    =      0.4377 VOL/VOL
   FIELD CAPACITY              =      0.3388 VOL/VOL
   WILTING POINT               =      0.1148 VOL/VOL
   INITIAL SOIL WATER CONTENT  =      0.3975 VOL/VOL
   EFFECTIVE SAT. HYD. COND.   =  0.399000015000E-07 CM/SEC


            GENERAL DESIGN AND EVAPORATIVE ZONE DATA
            ----------------------------------------

 NOTE:  SCS RUNOFF CURVE NUMBER WAS USER-SPECIFIED.

SCS RUNOFF CURVE NUMBER             =     63.00
FRACTION OF AREA ALLOWING RUNOFF    =    100.0    PERCENT
AREA PROJECTED ON HORIZONTAL PLANE  =    490.000  ACRES
EVAPORATIVE ZONE DEPTH              =     36.0    INCHES
INITIAL WATER IN EVAPORATIVE ZONE   =      3.319  INCHES
UPPER LIMIT OF EVAPORATIVE STORAGE  =     21.348  INCHES
LOWER LIMIT OF EVAPORATIVE STORAGE  =      2.412  INCHES
INITIAL SNOW WATER                  =      0.000  INCHES
INITIAL WATER IN LAYER MATERIALS    =   2659.339  INCHES
TOTAL INITIAL WATER                 =   2659.339  INCHES
TOTAL SUBSURFACE INFLOW             =      0.00   INCHES/YEAR


             EVAPOTRANSPIRATION AND WEATHER DATA
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 NOTE:  EVAPOTRANSPIRATION DATA WAS OBTAINED FROM
          BOISE                  IDAHO

     STATION LATITUDE                         =  43.57 DEGREES
     MAXIMUM LEAF AREA INDEX                  =   0.35
     START OF GROWING SEASON (JULIAN DATE)    =    120
     END OF GROWING SEASON (JULIAN DATE)      =    286
     EVAPORATIVE ZONE DEPTH                   =  36.0  INCHES
     AVERAGE ANNUAL WIND SPEED                =   8.90 MPH
```

AVERAGE 1ST QUARTER RELATIVE HUMIDITY = 68.00 %
AVERAGE 2ND QUARTER RELATIVE HUMIDITY = 51.00 %
AVERAGE 3RD QUARTER RELATIVE HUMIDITY = 40.00 %
AVERAGE 4TH QUARTER RELATIVE HUMIDITY = 66.00 %

NOTE: PRECIPITATION DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR BOISE IDAHO

NORMAL MEAN MONTHLY PRECIPITATION (INCHES)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
1.64	1.07	1.03	1.19	1.21	0.95
0.26	0.40	0.58	0.75	1.29	1.34

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR BOISE IDAHO

NORMAL MEAN MONTHLY TEMPERATURE (DEGREES FAHRENHEIT)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
29.90	36.10	41.40	48.60	57.40	65.80
74.60	72.00	63.20	51.90	39.70	32.00

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR BOISE IDAHO
AND STATION LATITUDE = 43.57 DEGREES

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ANNUAL TOTALS FOR YEAR 1

	INCHES	CU. FEET	PERCENT
PRECIPITATION	8.87	15777070.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	8.237	14651458.000	92.87
PERC./LEAKAGE THROUGH LAYER 20	0.270765	481609.125	3.05
CHANGE IN WATER STORAGE	0.362	643997.125	4.08

SOIL WATER AT START OF YEAR	2659.339	*************	
SOIL WATER AT END OF YEAR	2659.701	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	6.202	0.00

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ANNUAL TOTALS FOR YEAR 2

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.50	22233754.000	100.00
RUNOFF	0.895	1592716.620	7.16
EVAPOTRANSPIRATION	10.201	18145398.000	81.61
PERC./LEAKAGE THROUGH LAYER 20	0.242171	430749.656	1.94
CHANGE IN WATER STORAGE	1.161	2064438.370	9.29
SOIL WATER AT START OF YEAR	2659.701	*************	
SOIL WATER AT END OF YEAR	2660.862	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0003	450.871	0.00

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ANNUAL TOTALS FOR YEAR 3

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.37	18445120.000	100.00

RUNOFF	0.054	95886.109	0.52
EVAPOTRANSPIRATION	9.111	16206318.000	87.86
PERC./LEAKAGE THROUGH LAYER 20	0.159374	283477.750	1.54
CHANGE IN WATER STORAGE	1.046	1859852.870	10.08
SOIL WATER AT START OF YEAR	2660.862	*************	
SOIL WATER AT END OF YEAR	2660.739	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	1.169	2078716.370	11.27
ANNUAL WATER BUDGET BALANCE	-0.0002	-413.924	0.00

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ANNUAL TOTALS FOR YEAR 4

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.09	19725786.000	100.00
RUNOFF	1.174	2087502.120	10.58
EVAPOTRANSPIRATION	9.097	16181611.000	82.03
PERC./LEAKAGE THROUGH LAYER 20	0.117492	208983.812	1.06
CHANGE IN WATER STORAGE	0.702	1247782.620	6.33
SOIL WATER AT START OF YEAR	2660.739	*************	
SOIL WATER AT END OF YEAR	2662.535	*************	
SNOW WATER AT START OF YEAR	1.169	2078716.370	10.54
SNOW WATER AT END OF YEAR	0.075	132568.750	0.67
ANNUAL WATER BUDGET BALANCE	-0.0001	-92.992	0.00

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ANNUAL TOTALS FOR YEAR 5

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.81	19227752.000	100.00
RUNOFF	0.136	242267.328	1.26
EVAPOTRANSPIRATION	9.518	16928806.000	88.04
PERC./LEAKAGE THROUGH LAYER 20	0.063952	113751.750	0.59
CHANGE IN WATER STORAGE	1.092	1942796.500	10.10
SOIL WATER AT START OF YEAR	2662.535	*************	
SOIL WATER AT END OF YEAR	2663.608	*************	
SNOW WATER AT START OF YEAR	0.075	132568.750	0.69
SNOW WATER AT END OF YEAR	0.093	165520.969	0.86
ANNUAL WATER BUDGET BALANCE	0.0001	131.198	0.00

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ANNUAL TOTALS FOR YEAR 6

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.72	22625064.000	100.00
RUNOFF	0.255	454294.500	2.01
EVAPOTRANSPIRATION	10.462	18608678.000	82.25
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	2.003	3562106.500	15.74
SOIL WATER AT START OF YEAR	2663.608	*************	
SOIL WATER AT END OF YEAR	2665.704	*************	
SNOW WATER AT START OF YEAR	0.093	165520.969	0.73
SNOW WATER AT END OF YEAR	0.000	0.000	0.00

ANNUAL WATER BUDGET BALANCE	0.0000	-14.008	0.00

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ANNUAL TOTALS FOR YEAR 7

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.14	23372124.000	100.00
RUNOFF	0.081	144834.547	0.62
EVAPOTRANSPIRATION	11.659	20737312.000	88.73
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.400	2490440.500	10.66
SOIL WATER AT START OF YEAR	2665.704	*************	
SOIL WATER AT END OF YEAR	2667.104	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0003	-462.414	0.00

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ANNUAL TOTALS FOR YEAR 8

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.65	20721862.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	10.939	19458060.000	93.90
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.710	1263241.750	6.10

SOIL WATER AT START OF YEAR	2667.104	*************	
SOIL WATER AT END OF YEAR	2667.814	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0003	559.779	0.00

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ANNUAL TOTALS FOR YEAR 9

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.69	20793006.000	100.00
RUNOFF	0.786	1398656.250	6.73
EVAPOTRANSPIRATION	8.896	15824027.000	76.10
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	2.007	3570427.500	17.17
SOIL WATER AT START OF YEAR	2667.814	*************	
SOIL WATER AT END OF YEAR	2669.822	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0001	-105.701	0.00

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ANNUAL TOTALS FOR YEAR 10

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.07	23247612.000	100.00

RUNOFF	0.087	154741.781	0.67
EVAPOTRANSPIRATION	9.869	17553682.000	75.51
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	3.114	5538935.000	23.83
SOIL WATER AT START OF YEAR	2669.822	*************	
SOIL WATER AT END OF YEAR	2671.804	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	1.132	2012801.370	8.66
ANNUAL WATER BUDGET BALANCE	0.0001	252.590	0.00

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ANNUAL TOTALS FOR YEAR 11

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.79	20970878.000	100.00
RUNOFF	0.673	1196506.120	5.71
EVAPOTRANSPIRATION	9.900	17609814.000	83.97
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.217	2164765.250	10.32
SOIL WATER AT START OF YEAR	2671.804	*************	
SOIL WATER AT END OF YEAR	2674.042	*************	
SNOW WATER AT START OF YEAR	1.132	2012801.370	9.60
SNOW WATER AT END OF YEAR	0.111	197638.562	0.94
ANNUAL WATER BUDGET BALANCE	-0.0001	-208.062	0.00

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ANNUAL TOTALS FOR YEAR 12

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.87	19334474.000	100.00
RUNOFF	0.156	277880.156	1.44
EVAPOTRANSPIRATION	10.744	19110440.000	98.84
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	-0.030	-53466.598	-0.28
SOIL WATER AT START OF YEAR	2674.042	*************	
SOIL WATER AT END OF YEAR	2674.123	*************	
SNOW WATER AT START OF YEAR	0.111	197638.562	1.02
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0002	-379.759	0.00

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ANNUAL TOTALS FOR YEAR 13

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.94	17680280.000	100.00
RUNOFF	0.130	230856.109	1.31
EVAPOTRANSPIRATION	8.487	15095604.000	85.38
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.323	2353651.000	13.31
SOIL WATER AT START OF YEAR	2674.123	*************	
SOIL WATER AT END OF YEAR	2675.446	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00

SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	169.842	0.00

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ANNUAL TOTALS FOR YEAR 14

	INCHES	CU. FEET	PERCENT
PRECIPITATION	7.60	13518124.000	100.00
RUNOFF	0.169	300466.875	2.22
EVAPOTRANSPIRATION	7.213	12829831.000	94.91
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.218	387353.625	2.87
SOIL WATER AT START OF YEAR	2675.446	*************	
SOIL WATER AT END OF YEAR	2675.664	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0003	472.102	0.00

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ANNUAL TOTALS FOR YEAR 15

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.59	20615136.000	100.00
RUNOFF	0.150	267299.219	1.30
EVAPOTRANSPIRATION	8.451	15031234.000	72.91
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00

CHANGE IN WATER STORAGE	2.989	5317130.500	25.79
SOIL WATER AT START OF YEAR	2675.664	*************	
SOIL WATER AT END OF YEAR	2678.114	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.539	958967.687	4.65
ANNUAL WATER BUDGET BALANCE	-0.0003	-526.913	0.00

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ANNUAL TOTALS FOR YEAR 16

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.93	19441194.000	100.00
RUNOFF	0.087	155198.172	0.80
EVAPOTRANSPIRATION	10.842	19285066.000	99.20
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.000	297.065	0.00
SOIL WATER AT START OF YEAR	2678.114	*************	
SOIL WATER AT END OF YEAR	2678.653	*************	
SNOW WATER AT START OF YEAR	0.539	958967.687	4.93
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0004	633.966	0.00

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ANNUAL TOTALS FOR YEAR 17

	INCHES	CU. FEET	PERCENT

PRECIPITATION	10.76	19138818.000	100.00
RUNOFF	0.665	1182669.870	6.18
EVAPOTRANSPIRATION	8.922	15868976.000	82.92
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.174	2087453.870	10.91
SOIL WATER AT START OF YEAR	2678.653	*************	
SOIL WATER AT END OF YEAR	2679.827	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0002	-282.328	0.00

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ANNUAL TOTALS FOR YEAR 18

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.93	19441192.000	100.00
RUNOFF	0.157	278777.875	1.43
EVAPOTRANSPIRATION	9.430	16772344.000	86.27
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.344	2389954.500	12.29
SOIL WATER AT START OF YEAR	2679.827	*************	
SOIL WATER AT END OF YEAR	2680.915	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.256	454489.219	2.34
ANNUAL WATER BUDGET BALANCE	0.0001	114.871	0.00

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ANNUAL TOTALS FOR YEAR 19

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.00	16008302.000	100.00
RUNOFF	0.046	82083.203	0.51
EVAPOTRANSPIRATION	8.399	14939117.000	93.32
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.555	987230.562	6.17
SOIL WATER AT START OF YEAR	2680.915	*************	
SOIL WATER AT END OF YEAR	2681.726	*************	
SNOW WATER AT START OF YEAR	0.256	454489.219	2.84
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0001	-128.720	0.00

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ANNUAL TOTALS FOR YEAR 20

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.60	24190322.000	100.00
RUNOFF	0.076	134751.219	0.56
EVAPOTRANSPIRATION	11.393	20265504.000	83.78
PERC./LEAKAGE THROUGH LAYER 20	0.001839	3270.195	0.01
CHANGE IN WATER STORAGE	2.129	3786685.500	15.65
SOIL WATER AT START OF YEAR	2681.726	*************	
SOIL WATER AT END OF YEAR	2683.854	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00

SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	111.725	0.00

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ANNUAL TOTALS FOR YEAR 21

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.43	18551844.000	100.00
RUNOFF	0.011	20210.937	0.11
EVAPOTRANSPIRATION	11.207	19933980.000	107.45
PERC./LEAKAGE THROUGH LAYER 20	0.004950	8804.164	0.05
CHANGE IN WATER STORAGE	-0.793	-1410887.750	-7.61
SOIL WATER AT START OF YEAR	2683.854	*************	
SOIL WATER AT END OF YEAR	2683.061	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0001	-264.504	0.00

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ANNUAL TOTALS FOR YEAR 22

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.29	21860222.000	100.00
RUNOFF	0.007	13272.346	0.06
EVAPOTRANSPIRATION	10.671	18980740.000	86.83
PERC./LEAKAGE THROUGH LAYER 20	0.009196	16356.874	0.07

	INCHES	CU. FEET	PERCENT
CHANGE IN WATER STORAGE	1.602	2849907.500	13.04
SOIL WATER AT START OF YEAR	2683.061	*************	
SOIL WATER AT END OF YEAR	2684.367	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.297	527957.187	2.42
ANNUAL WATER BUDGET BALANCE	0.0000	-53.160	0.00

ANNUAL TOTALS FOR YEAR 23

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.78	20953086.000	100.00
RUNOFF	0.004	7293.984	0.03
EVAPOTRANSPIRATION	12.194	21690022.000	103.52
PERC./LEAKAGE THROUGH LAYER 20	0.009644	17153.883	0.08
CHANGE IN WATER STORAGE	-0.428	-761445.437	-3.63
SOIL WATER AT START OF YEAR	2684.367	*************	
SOIL WATER AT END OF YEAR	2684.048	*************	
SNOW WATER AT START OF YEAR	0.297	527957.187	2.52
SNOW WATER AT END OF YEAR	0.187	332777.594	1.59
ANNUAL WATER BUDGET BALANCE	0.0000	61.874	0.00

ANNUAL TOTALS FOR YEAR 24

	INCHES	CU. FEET	PERCENT

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.23	23532206.000	100.00
RUNOFF	0.192	341301.500	1.45
EVAPOTRANSPIRATION	11.337	20165114.000	85.69
PERC./LEAKAGE THROUGH LAYER 20	0.006131	10904.530	0.05
CHANGE IN WATER STORAGE	1.695	3014444.000	12.81
SOIL WATER AT START OF YEAR	2684.048	*************	
SOIL WATER AT END OF YEAR	2685.930	*************	
SNOW WATER AT START OF YEAR	0.187	332777.594	1.41
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0002	442.024	0.00

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ANNUAL TOTALS FOR YEAR 25

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.39	20259396.000	100.00
RUNOFF	0.433	769553.062	3.80
EVAPOTRANSPIRATION	9.267	16483016.000	81.36
PERC./LEAKAGE THROUGH LAYER 20	0.004931	8770.916	0.04
CHANGE IN WATER STORAGE	1.686	2998598.250	14.80
SOIL WATER AT START OF YEAR	2685.930	*************	
SOIL WATER AT END OF YEAR	2687.243	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.373	664054.687	3.28
ANNUAL WATER BUDGET BALANCE	-0.0003	-543.593	0.00

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ANNUAL TOTALS FOR YEAR 26

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.66	20739642.000	100.00
RUNOFF	0.133	237396.672	1.14
EVAPOTRANSPIRATION	11.116	19772328.000	95.34
PERC./LEAKAGE THROUGH LAYER 20	0.000919	1634.973	0.01
CHANGE IN WATER STORAGE	0.409	728160.187	3.51
SOIL WATER AT START OF YEAR	2687.243	*************	
SOIL WATER AT END OF YEAR	2688.025	*************	
SNOW WATER AT START OF YEAR	0.373	664054.687	3.20
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	121.811	0.00

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ANNUAL TOTALS FOR YEAR 27

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.52	24048026.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	11.702	20814008.000	86.55
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.818	3233881.500	13.45
SOIL WATER AT START OF YEAR	2688.025	*************	
SOIL WATER AT END OF YEAR	2689.844	*************	

SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	137.400	0.00

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ANNUAL TOTALS FOR YEAR 28

	INCHES	CU. FEET	PERCENT
PRECIPITATION	16.06	28565922.000	100.00
RUNOFF	0.015	27350.635	0.10
EVAPOTRANSPIRATION	15.889	28262288.000	98.94
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.155	275797.844	0.97
SOIL WATER AT START OF YEAR	2689.844	*************	
SOIL WATER AT END OF YEAR	2689.530	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.469	833812.875	2.92
ANNUAL WATER BUDGET BALANCE	0.0003	484.226	0.00

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ANNUAL TOTALS FOR YEAR 29

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.88	22909658.000	100.00
RUNOFF	0.529	941234.187	4.11
EVAPOTRANSPIRATION	11.440	20348940.000	88.82

PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.911	1619609.120	7.07
SOIL WATER AT START OF YEAR	2689.530	*************	
SOIL WATER AT END OF YEAR	2690.672	*************	
SNOW WATER AT START OF YEAR	0.469	833812.875	3.64
SNOW WATER AT END OF YEAR	0.237	422421.062	1.84
ANNUAL WATER BUDGET BALANCE	-0.0001	-125.076	0.00

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ANNUAL TOTALS FOR YEAR 30

	INCHES	CU. FEET	PERCENT
PRECIPITATION	8.89	15812645.000	100.00
RUNOFF	0.030	54026.750	0.34
EVAPOTRANSPIRATION	8.602	15300895.000	96.76
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.257	457780.719	2.90
SOIL WATER AT START OF YEAR	2690.672	*************	
SOIL WATER AT END OF YEAR	2690.960	*************	
SNOW WATER AT START OF YEAR	0.237	422421.062	2.67
SNOW WATER AT END OF YEAR	0.207	367349.031	2.32
ANNUAL WATER BUDGET BALANCE	0.0000	-57.333	0.00

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ANNUAL TOTALS FOR YEAR 31

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.23	21753502.000	100.00
RUNOFF	0.010	17561.240	0.08
EVAPOTRANSPIRATION	12.758	22692938.000	104.32
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	-0.538	-956630.250	-4.40
SOIL WATER AT START OF YEAR	2690.960	*************	
SOIL WATER AT END OF YEAR	2690.629	*************	
SNOW WATER AT START OF YEAR	0.207	367349.031	1.69
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0002	-367.645	0.00

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ANNUAL TOTALS FOR YEAR 32

	INCHES	CU. FEET	PERCENT
PRECIPITATION	8.30	14763212.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	8.846	15733623.000	106.57
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	-0.546	-970555.312	-6.57
SOIL WATER AT START OF YEAR	2690.629	*************	
SOIL WATER AT END OF YEAR	2690.083	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	144.186	0.00

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ANNUAL TOTALS FOR YEAR 33

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.54	20526198.000	100.00
RUNOFF	0.051	90803.836	0.44
EVAPOTRANSPIRATION	9.613	17097954.000	83.30
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.876	3336989.250	16.26
SOIL WATER AT START OF YEAR	2690.083	*************	
SOIL WATER AT END OF YEAR	2691.899	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.060	106147.586	0.52
ANNUAL WATER BUDGET BALANCE	0.0003	450.461	0.00

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ANNUAL TOTALS FOR YEAR 34

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.12	18000446.000	100.00
RUNOFF	0.066	116787.086	0.65
EVAPOTRANSPIRATION	8.568	15239667.000	84.66
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.487	2644410.500	14.69
SOIL WATER AT START OF YEAR	2691.899	*************	
SOIL WATER AT END OF YEAR	2693.446	*************	

SNOW WATER AT START OF YEAR	0.060	106147.586	0.59
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0002	-419.284	0.00

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ANNUAL TOTALS FOR YEAR 35

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.75	22678430.000	100.00
RUNOFF	0.087	154057.375	0.68
EVAPOTRANSPIRATION	9.769	17376940.000	76.62
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	2.894	5147200.000	22.70
SOIL WATER AT START OF YEAR	2693.446	*************	
SOIL WATER AT END OF YEAR	2696.340	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	233.029	0.00

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ANNUAL TOTALS FOR YEAR 36

	INCHES	CU. FEET	PERCENT
PRECIPITATION	8.04	14300746.000	100.00
RUNOFF	0.036	63541.156	0.44
EVAPOTRANSPIRATION	8.773	15603821.000	109.11

PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	-0.768	-1366594.000	-9.56
SOIL WATER AT START OF YEAR	2696.340	*************	
SOIL WATER AT END OF YEAR	2695.571	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	-21.489	0.00

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ANNUAL TOTALS FOR YEAR 37

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.86	22874082.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	11.351	20190102.000	88.27
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.509	2683959.000	11.73
SOIL WATER AT START OF YEAR	2695.571	*************	
SOIL WATER AT END OF YEAR	2696.999	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.082	145316.266	0.64
ANNUAL WATER BUDGET BALANCE	0.0000	21.058	0.00

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ANNUAL TOTALS FOR YEAR 38

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.93	17662496.000	100.00
RUNOFF	0.420	747380.125	4.23
EVAPOTRANSPIRATION	9.317	16572683.000	93.83
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	0.193	342784.000	1.94
SOIL WATER AT START OF YEAR	2696.999	*************	
SOIL WATER AT END OF YEAR	2697.273	*************	
SNOW WATER AT START OF YEAR	0.082	145316.266	0.82
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0002	-350.458	0.00

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ANNUAL TOTALS FOR YEAR 39

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.90	21166532.000	100.00
RUNOFF	0.366	650224.187	3.07
EVAPOTRANSPIRATION	9.886	17584052.000	83.07
PERC./LEAKAGE THROUGH LAYER 20	0.000000	0.000	0.00
CHANGE IN WATER STORAGE	1.648	2931887.500	13.85
SOIL WATER AT START OF YEAR	2697.273	*************	
SOIL WATER AT END OF YEAR	2698.791	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.130	231702.797	1.09
ANNUAL WATER BUDGET BALANCE	0.0002	369.820	0.00

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ANNUAL TOTALS FOR YEAR 40

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.82	17466836.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	9.788	17410758.000	99.68
PERC./LEAKAGE THROUGH LAYER 20	0.055797	99245.953	0.57
CHANGE IN WATER STORAGE	-0.024	-43041.941	-0.25
SOIL WATER AT START OF YEAR	2698.791	*************	
SOIL WATER AT END OF YEAR	2698.785	*************	
SNOW WATER AT START OF YEAR	0.130	231702.797	1.33
SNOW WATER AT END OF YEAR	0.112	199082.922	1.14
ANNUAL WATER BUDGET BALANCE	-0.0001	-127.706	0.00

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ANNUAL TOTALS FOR YEAR 41

	INCHES	CU. FEET	PERCENT
PRECIPITATION	15.42	27427558.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	15.111	26877826.000	98.00
PERC./LEAKAGE THROUGH LAYER 20	0.045421	80789.719	0.29
CHANGE IN WATER STORAGE	0.264	469086.094	1.71
SOIL WATER AT START OF YEAR	2698.785	*************	

SOIL WATER AT END OF YEAR	2699.138	*************	
SNOW WATER AT START OF YEAR	0.112	199082.922	0.73
SNOW WATER AT END OF YEAR	0.023	40239.281	0.15
ANNUAL WATER BUDGET BALANCE	-0.0001	-143.828	0.00

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ANNUAL TOTALS FOR YEAR 42

	INCHES	CU. FEET	PERCENT
PRECIPITATION	8.05	14318539.000	100.00
RUNOFF	0.073	129610.148	0.91
EVAPOTRANSPIRATION	7.375	13117069.000	91.61
PERC./LEAKAGE THROUGH LAYER 20	0.024297	43216.875	0.30
CHANGE IN WATER STORAGE	0.578	1028457.120	7.18
SOIL WATER AT START OF YEAR	2699.138	*************	
SOIL WATER AT END OF YEAR	2699.739	*************	
SNOW WATER AT START OF YEAR	0.023	40239.281	0.28
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	185.092	0.00

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ANNUAL TOTALS FOR YEAR 43

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.85	24635000.000	100.00
RUNOFF	0.038	67581.781	0.27

EVAPOTRANSPIRATION	13.642	24265770.000	98.50
PERC./LEAKAGE THROUGH LAYER 20	0.012035	21405.789	0.09
CHANGE IN WATER STORAGE	0.158	280311.656	1.14
SOIL WATER AT START OF YEAR	2699.739	*************	
SOIL WATER AT END OF YEAR	2699.811	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.086	153075.562	0.62
ANNUAL WATER BUDGET BALANCE	0.0000	-68.901	0.00

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ANNUAL TOTALS FOR YEAR 44

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.03	19619060.000	100.00
RUNOFF	0.345	613699.562	3.13
EVAPOTRANSPIRATION	10.270	18267392.000	93.11
PERC./LEAKAGE THROUGH LAYER 20	0.008518	15150.213	0.08
CHANGE IN WATER STORAGE	0.406	722754.687	3.68
SOIL WATER AT START OF YEAR	2699.811	*************	
SOIL WATER AT END OF YEAR	2700.215	*************	
SNOW WATER AT START OF YEAR	0.086	153075.562	0.78
SNOW WATER AT END OF YEAR	0.088	155838.906	0.79
ANNUAL WATER BUDGET BALANCE	0.0000	63.734	0.00

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ANNUAL TOTALS FOR YEAR 45

	INCHES	CU. FEET	PERCENT
PRECIPITATION	15.32	27249692.000	100.00
RUNOFF	0.114	202313.375	0.74
EVAPOTRANSPIRATION	15.100	26857512.000	98.56
PERC./LEAKAGE THROUGH LAYER 20	0.014062	25011.867	0.09
CHANGE IN WATER STORAGE	0.093	164690.656	0.60
SOIL WATER AT START OF YEAR	2700.215	*************	
SOIL WATER AT END OF YEAR	2700.027	*************	
SNOW WATER AT START OF YEAR	0.088	155838.906	0.57
SNOW WATER AT END OF YEAR	0.369	656207.062	2.41
ANNUAL WATER BUDGET BALANCE	0.0001	163.696	0.00

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ANNUAL TOTALS FOR YEAR 46

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.71	24385976.000	100.00
RUNOFF	0.400	710966.062	2.92
EVAPOTRANSPIRATION	11.834	21048362.000	86.31
PERC./LEAKAGE THROUGH LAYER 20	0.028617	50901.789	0.21
CHANGE IN WATER STORAGE	1.448	2575727.250	10.56
SOIL WATER AT START OF YEAR	2700.027	*************	
SOIL WATER AT END OF YEAR	2701.803	*************	
SNOW WATER AT START OF YEAR	0.369	656207.062	2.69
SNOW WATER AT END OF YEAR	0.041	72744.258	0.30
ANNUAL WATER BUDGET BALANCE	0.0000	18.663	0.00

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ANNUAL TOTALS FOR YEAR 47

	INCHES	CU. FEET	PERCENT
PRECIPITATION	14.02	24937382.000	100.00
RUNOFF	0.217	385270.500	1.54
EVAPOTRANSPIRATION	12.112	21543122.000	86.39
PERC./LEAKAGE THROUGH LAYER 20	0.050823	90398.211	0.36
CHANGE IN WATER STORAGE	1.641	2919082.500	11.71
SOIL WATER AT START OF YEAR	2701.803	*************	
SOIL WATER AT END OF YEAR	2703.242	*************	
SNOW WATER AT START OF YEAR	0.041	72744.258	0.29
SNOW WATER AT END OF YEAR	0.243	432339.969	1.73
ANNUAL WATER BUDGET BALANCE	-0.0003	-491.212	0.00

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ANNUAL TOTALS FOR YEAR 48

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.42	18534054.000	100.00
RUNOFF	0.117	207512.703	1.12
EVAPOTRANSPIRATION	9.820	17466542.000	94.24
PERC./LEAKAGE THROUGH LAYER 20	0.078224	139136.953	0.75
CHANGE IN WATER STORAGE	0.405	720601.562	3.89
SOIL WATER AT START OF YEAR	2703.242	*************	

SOIL WATER AT END OF YEAR	2703.890	*************	
SNOW WATER AT START OF YEAR	0.243	432339.969	2.33
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	261.230	0.00

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ANNUAL TOTALS FOR YEAR 49

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.06	23229826.000	100.00
RUNOFF	0.208	370813.531	1.60
EVAPOTRANSPIRATION	10.722	19071418.000	82.10
PERC./LEAKAGE THROUGH LAYER 20	0.106823	190006.859	0.82
CHANGE IN WATER STORAGE	2.023	3597785.500	15.49
SOIL WATER AT START OF YEAR	2703.890	*************	
SOIL WATER AT END OF YEAR	2705.913	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0001	-198.176	0.00

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ANNUAL TOTALS FOR YEAR 50

	INCHES	CU. FEET	PERCENT
PRECIPITATION	15.29	27196332.000	100.00
RUNOFF	0.337	600155.187	2.21

EVAPOTRANSPIRATION	12.234	21760270.000	80.01
PERC./LEAKAGE THROUGH LAYER 20	0.134445	239137.844	0.88
CHANGE IN WATER STORAGE	2.584	4596567.500	16.90
SOIL WATER AT START OF YEAR	2705.913	*************	
SOIL WATER AT END OF YEAR	2708.497	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	200.985	0.00

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ANNUAL TOTALS FOR YEAR 51

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.20	18142744.000	100.00
RUNOFF	0.061	108783.477	0.60
EVAPOTRANSPIRATION	9.427	16768387.000	92.42
PERC./LEAKAGE THROUGH LAYER 20	0.159386	283499.469	1.56
CHANGE IN WATER STORAGE	0.552	982280.125	5.41
SOIL WATER AT START OF YEAR	2708.497	*************	
SOIL WATER AT END OF YEAR	2709.049	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0001	-206.843	0.00

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ANNUAL TOTALS FOR YEAR 52

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.33	20152670.000	100.00
RUNOFF	0.113	200810.312	1.00
EVAPOTRANSPIRATION	9.709	17269702.000	85.69
PERC./LEAKAGE THROUGH LAYER 20	0.181806	323378.781	1.60
CHANGE IN WATER STORAGE	1.326	2358977.750	11.71
SOIL WATER AT START OF YEAR	2709.049	*************	
SOIL WATER AT END OF YEAR	2710.094	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.281	499941.000	2.48
ANNUAL WATER BUDGET BALANCE	-0.0001	-198.997	0.00

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ANNUAL TOTALS FOR YEAR 53

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.54	16968796.000	100.00
RUNOFF	0.067	119980.156	0.71
EVAPOTRANSPIRATION	9.475	16852730.000	99.32
PERC./LEAKAGE THROUGH LAYER 20	0.200965	357456.094	2.11
CHANGE IN WATER STORAGE	-0.203	-361354.937	-2.13
SOIL WATER AT START OF YEAR	2710.094	*************	
SOIL WATER AT END OF YEAR	2709.675	*************	
SNOW WATER AT START OF YEAR	0.281	499941.000	2.95
SNOW WATER AT END OF YEAR	0.498	885066.812	5.22

ANNUAL WATER BUDGET BALANCE	0.0000	-15.320	0.00

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ANNUAL TOTALS FOR YEAR 54

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.11	19761362.000	100.00
RUNOFF	0.383	680621.312	3.44
EVAPOTRANSPIRATION	9.569	17020268.000	86.13
PERC./LEAKAGE THROUGH LAYER 20	0.220165	391607.469	1.98
CHANGE IN WATER STORAGE	0.938	1668559.000	8.44
SOIL WATER AT START OF YEAR	2709.675	*************	
SOIL WATER AT END OF YEAR	2710.948	*************	
SNOW WATER AT START OF YEAR	0.498	885066.812	4.48
SNOW WATER AT END OF YEAR	0.162	288996.875	1.46
ANNUAL WATER BUDGET BALANCE	0.0002	304.831	0.00

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ANNUAL TOTALS FOR YEAR 55

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.62	24225898.000	100.00
RUNOFF	0.338	601044.437	2.48
EVAPOTRANSPIRATION	12.770	22713730.000	93.76
PERC./LEAKAGE THROUGH LAYER 20	0.228791	406950.594	1.68
CHANGE IN WATER STORAGE	0.284	504383.250	2.08

SOIL WATER AT START OF YEAR	2710.948	*************	
SOIL WATER AT END OF YEAR	2711.394	*************	
SNOW WATER AT START OF YEAR	0.162	288996.875	1.19
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0001	-211.189	0.00

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ANNUAL TOTALS FOR YEAR 56

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.61	17093314.000	100.00
RUNOFF	0.287	510447.094	2.99
EVAPOTRANSPIRATION	8.073	14358958.000	84.00
PERC./LEAKAGE THROUGH LAYER 20	0.238384	424014.031	2.48
CHANGE IN WATER STORAGE	1.012	1799800.120	10.53
SOIL WATER AT START OF YEAR	2711.394	*************	
SOIL WATER AT END OF YEAR	2712.382	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.023	41509.898	0.24
ANNUAL WATER BUDGET BALANCE	0.0001	95.549	0.00

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ANNUAL TOTALS FOR YEAR 57

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.18	18107164.000	100.00

RUNOFF	0.003	4463.297	0.02
EVAPOTRANSPIRATION	9.335	16604154.000	91.70
PERC./LEAKAGE THROUGH LAYER 20	0.248502	442010.250	2.44
CHANGE IN WATER STORAGE	0.594	1056281.500	5.83
SOIL WATER AT START OF YEAR	2712.382	*************	
SOIL WATER AT END OF YEAR	2713.000	*************	
SNOW WATER AT START OF YEAR	0.023	41509.898	0.23
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	255.399	0.00

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ANNUAL TOTALS FOR YEAR 58

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.29	23638930.000	100.00
RUNOFF	0.198	352838.312	1.49
EVAPOTRANSPIRATION	10.387	18476204.000	78.16
PERC./LEAKAGE THROUGH LAYER 20	0.259975	462417.250	1.96
CHANGE IN WATER STORAGE	2.444	4347740.500	18.39
SOIL WATER AT START OF YEAR	2713.000	*************	
SOIL WATER AT END OF YEAR	2715.444	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0002	-269.712	0.00

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ANNUAL TOTALS FOR YEAR 59

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.84	21059812.000	100.00
RUNOFF	0.034	61305.312	0.29
EVAPOTRANSPIRATION	10.689	19011902.000	90.28
PERC./LEAKAGE THROUGH LAYER 20	0.271404	482746.812	2.29
CHANGE IN WATER STORAGE	0.846	1503954.500	7.14
SOIL WATER AT START OF YEAR	2715.444	*************	
SOIL WATER AT END OF YEAR	2716.085	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.204	363172.094	1.72
ANNUAL WATER BUDGET BALANCE	-0.0001	-97.007	0.00

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ANNUAL TOTALS FOR YEAR 60

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.47	16844290.000	100.00
RUNOFF	0.081	144266.937	0.86
EVAPOTRANSPIRATION	9.381	16686182.000	99.06
PERC./LEAKAGE THROUGH LAYER 20	0.283239	503796.750	2.99
CHANGE IN WATER STORAGE	-0.275	-489670.969	-2.91
SOIL WATER AT START OF YEAR	2716.085	*************	
SOIL WATER AT END OF YEAR	2715.790	*************	
SNOW WATER AT START OF YEAR	0.204	363172.094	2.16
SNOW WATER AT END OF YEAR	0.224	398078.687	2.36

ANNUAL WATER BUDGET BALANCE	-0.0002	-285.668	0.00

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ANNUAL TOTALS FOR YEAR 61

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.79	20970876.000	100.00
RUNOFF	0.180	320639.812	1.53
EVAPOTRANSPIRATION	9.306	16552874.000	78.93
PERC./LEAKAGE THROUGH LAYER 20	0.293026	521205.937	2.49
CHANGE IN WATER STORAGE	2.010	3575770.000	17.05
SOIL WATER AT START OF YEAR	2715.790	*************	
SOIL WATER AT END OF YEAR	2718.024	*************	
SNOW WATER AT START OF YEAR	0.224	398078.687	1.90
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0002	387.181	0.00

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ANNUAL TOTALS FOR YEAR 62

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.23	23532208.000	100.00
RUNOFF	0.653	1162155.370	4.94
EVAPOTRANSPIRATION	9.343	16617823.000	70.62
PERC./LEAKAGE THROUGH LAYER 20	0.303059	539050.437	2.29
CHANGE IN WATER STORAGE	2.931	5212772.000	22.15

SOIL WATER AT START OF YEAR	2718.024	*************	
SOIL WATER AT END OF YEAR	2720.955	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0002	407.483	0.00

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ANNUAL TOTALS FOR YEAR 63

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.81	22785150.000	100.00
RUNOFF	0.248	441820.250	1.94
EVAPOTRANSPIRATION	10.160	18071344.000	79.31
PERC./LEAKAGE THROUGH LAYER 20	0.312596	556014.750	2.44
CHANGE IN WATER STORAGE	2.089	3716366.750	16.31
SOIL WATER AT START OF YEAR	2720.955	*************	
SOIL WATER AT END OF YEAR	2723.039	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.005	9583.740	0.04
ANNUAL WATER BUDGET BALANCE	-0.0002	-396.404	0.00

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ANNUAL TOTALS FOR YEAR 64

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.34	18391760.000	100.00

RUNOFF	0.000	330.883	0.00
EVAPOTRANSPIRATION	9.084	16157408.000	87.85
PERC./LEAKAGE THROUGH LAYER 20	0.322562	573740.750	3.12
CHANGE IN WATER STORAGE	0.933	1660238.120	9.03
SOIL WATER AT START OF YEAR	2723.039	*************	
SOIL WATER AT END OF YEAR	2723.198	*************	
SNOW WATER AT START OF YEAR	0.005	9583.740	0.05
SNOW WATER AT END OF YEAR	0.780	1387557.500	7.54
ANNUAL WATER BUDGET BALANCE	0.0000	41.930	0.00

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ANNUAL TOTALS FOR YEAR 65

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.47	18622992.000	100.00
RUNOFF	0.023	41155.531	0.22
EVAPOTRANSPIRATION	10.639	18922962.000	101.61
PERC./LEAKAGE THROUGH LAYER 20	0.330329	587557.000	3.16
CHANGE IN WATER STORAGE	-0.522	-928645.875	-4.99
SOIL WATER AT START OF YEAR	2723.198	*************	
SOIL WATER AT END OF YEAR	2723.434	*************	
SNOW WATER AT START OF YEAR	0.780	1387557.500	7.45
SNOW WATER AT END OF YEAR	0.022	39423.344	0.21
ANNUAL WATER BUDGET BALANCE	0.0000	-37.107	0.00

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ANNUAL TOTALS FOR YEAR 66

	INCHES	CU. FEET	PERCENT
PRECIPITATION	15.66	27854446.000	100.00
RUNOFF	0.606	1077251.370	3.87
EVAPOTRANSPIRATION	10.727	19079550.000	68.50
PERC./LEAKAGE THROUGH LAYER 20	0.338560	602196.437	2.16
CHANGE IN WATER STORAGE	3.989	7095352.500	25.47
SOIL WATER AT START OF YEAR	2723.434	*************	
SOIL WATER AT END OF YEAR	2727.445	*************	
SNOW WATER AT START OF YEAR	0.022	39423.344	0.14
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	94.516	0.00

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ANNUAL TOTALS FOR YEAR 67

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.14	21593416.000	100.00
RUNOFF	0.095	168739.844	0.78
EVAPOTRANSPIRATION	11.484	20427286.000	94.60
PERC./LEAKAGE THROUGH LAYER 20	0.346410	616160.250	2.85
CHANGE IN WATER STORAGE	0.215	381571.562	1.77
SOIL WATER AT START OF YEAR	2727.445	*************	
SOIL WATER AT END OF YEAR	2726.909	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00

SNOW WATER AT END OF YEAR	0.751	1335191.000	6.18
ANNUAL WATER BUDGET BALANCE	-0.0002	-341.433	0.00

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ANNUAL TOTALS FOR YEAR 68

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.32	21913590.000	100.00
RUNOFF	0.806	1434055.750	6.54
EVAPOTRANSPIRATION	10.700	19032124.000	86.85
PERC./LEAKAGE THROUGH LAYER 20	0.354883	631230.375	2.88
CHANGE IN WATER STORAGE	0.459	816532.250	3.73
SOIL WATER AT START OF YEAR	2726.909	*************	
SOIL WATER AT END OF YEAR	2728.118	*************	
SNOW WATER AT START OF YEAR	0.751	1335191.000	6.09
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0002	-351.717	0.00

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ANNUAL TOTALS FOR YEAR 69

	INCHES	CU. FEET	PERCENT
PRECIPITATION	15.36	27320838.000	100.00
RUNOFF	0.863	1534725.370	5.62
EVAPOTRANSPIRATION	12.395	22047292.000	80.70
PERC./LEAKAGE THROUGH LAYER 20	0.361079	642250.750	2.35

CHANGE IN WATER STORAGE	1.740	3095355.000	11.33
SOIL WATER AT START OF YEAR	2728.118	*************	
SOIL WATER AT END OF YEAR	2729.859	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0007	1214.551	0.00

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ANNUAL TOTALS FOR YEAR 70

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.87	22891868.000	100.00
RUNOFF	0.010	18084.883	0.08
EVAPOTRANSPIRATION	12.705	22598140.000	98.72
PERC./LEAKAGE THROUGH LAYER 20	0.367917	654413.250	2.86
CHANGE IN WATER STORAGE	-0.213	-378234.312	-1.65
SOIL WATER AT START OF YEAR	2729.859	*************	
SOIL WATER AT END OF YEAR	2729.646	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0003	-534.123	0.00

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ANNUAL TOTALS FOR YEAR 71

	INCHES	CU. FEET	PERCENT

PRECIPITATION	9.39	16701997.000	100.00
RUNOFF	0.033	58117.707	0.35
EVAPOTRANSPIRATION	8.628	15346246.000	91.88
PERC./LEAKAGE THROUGH LAYER 20	0.374454	666041.125	3.99
CHANGE IN WATER STORAGE	0.355	631403.750	3.78
SOIL WATER AT START OF YEAR	2729.646	*************	
SOIL WATER AT END OF YEAR	2730.001	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	188.660	0.00

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ANNUAL TOTALS FOR YEAR 72

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.04	23194254.000	100.00
RUNOFF	0.210	373549.125	1.61
EVAPOTRANSPIRATION	10.771	19159226.000	82.60
PERC./LEAKAGE THROUGH LAYER 20	0.381758	679032.250	2.93
CHANGE IN WATER STORAGE	1.677	2982811.750	12.86
SOIL WATER AT START OF YEAR	2730.001	*************	
SOIL WATER AT END OF YEAR	2731.395	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.283	504095.969	2.17
ANNUAL WATER BUDGET BALANCE	-0.0002	-365.765	0.00

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ANNUAL TOTALS FOR YEAR 73

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.00	19565706.000	100.00
RUNOFF	0.235	417907.219	2.14
EVAPOTRANSPIRATION	9.676	17210358.000	87.96
PERC./LEAKAGE THROUGH LAYER 20	0.386704	687831.187	3.52
CHANGE IN WATER STORAGE	0.702	1249444.500	6.39
SOIL WATER AT START OF YEAR	2731.395	*************	
SOIL WATER AT END OF YEAR	2732.294	*************	
SNOW WATER AT START OF YEAR	0.283	504095.969	2.58
SNOW WATER AT END OF YEAR	0.086	152884.141	0.78
ANNUAL WATER BUDGET BALANCE	0.0001	164.329	0.00

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ANNUAL TOTALS FOR YEAR 74

	INCHES	CU. FEET	PERCENT
PRECIPITATION	8.74	15545839.000	100.00
RUNOFF	0.015	26763.617	0.17
EVAPOTRANSPIRATION	9.547	16980584.000	109.23
PERC./LEAKAGE THROUGH LAYER 20	0.392429	698013.375	4.49
CHANGE IN WATER STORAGE	-1.214	-2159567.000	-13.89
SOIL WATER AT START OF YEAR	2732.294	*************	
SOIL WATER AT END OF YEAR	2731.166	*************	
SNOW WATER AT START OF YEAR	0.086	152884.141	0.98

SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	45.429	0.00

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ANNUAL TOTALS FOR YEAR 75

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.55	16986588.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	9.018	16039546.000	94.42
PERC./LEAKAGE THROUGH LAYER 20	0.397909	707760.562	4.17
CHANGE IN WATER STORAGE	0.135	239273.359	1.41
SOIL WATER AT START OF YEAR	2731.166	*************	
SOIL WATER AT END OF YEAR	2731.301	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	7.262	0.00

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ANNUAL TOTALS FOR YEAR 76

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.27	21824654.000	100.00
RUNOFF	0.155	275615.375	1.26
EVAPOTRANSPIRATION	11.821	21025288.000	96.34
PERC./LEAKAGE THROUGH LAYER 20	0.404267	719070.312	3.29

CHANGE IN WATER STORAGE	-0.110	-195413.812	-0.90
SOIL WATER AT START OF YEAR	2731.301	*************	
SOIL WATER AT END OF YEAR	2731.191	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	92.766	0.00

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ANNUAL TOTALS FOR YEAR 77

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.17	16310683.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	8.459	15046633.000	92.25
PERC./LEAKAGE THROUGH LAYER 20	0.408194	726054.812	4.45
CHANGE IN WATER STORAGE	0.303	538473.625	3.30
SOIL WATER AT START OF YEAR	2731.191	*************	
SOIL WATER AT END OF YEAR	2731.494	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0003	-479.205	0.00

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ANNUAL TOTALS FOR YEAR 78

	INCHES	CU. FEET	PERCENT

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.15	18053812.000	100.00
RUNOFF	0.038	66945.086	0.37
EVAPOTRANSPIRATION	10.027	17835136.000	98.79
PERC./LEAKAGE THROUGH LAYER 20	0.413006	734613.937	4.07
CHANGE IN WATER STORAGE	-0.328	-583635.937	-3.23
SOIL WATER AT START OF YEAR	2731.494	*************	
SOIL WATER AT END OF YEAR	2731.166	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0004	753.794	0.00

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ANNUAL TOTALS FOR YEAR 79

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.77	20935298.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	11.821	21025708.000	100.43
PERC./LEAKAGE THROUGH LAYER 20	0.417615	742812.562	3.55
CHANGE IN WATER STORAGE	-0.468	-832462.875	-3.98
SOIL WATER AT START OF YEAR	2731.166	*************	
SOIL WATER AT END OF YEAR	2730.698	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0004	-759.094	0.00

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ANNUAL TOTALS FOR YEAR 80

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.92	24759512.000	100.00
RUNOFF	0.189	336445.812	1.36
EVAPOTRANSPIRATION	12.022	21383022.000	86.36
PERC./LEAKAGE THROUGH LAYER 20	0.423193	752733.187	3.04
CHANGE IN WATER STORAGE	1.286	2286776.000	9.24
SOIL WATER AT START OF YEAR	2730.698	*************	
SOIL WATER AT END OF YEAR	2731.983	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0003	536.296	0.00

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ANNUAL TOTALS FOR YEAR 81

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.61	17093308.000	100.00
RUNOFF	0.055	97410.695	0.57
EVAPOTRANSPIRATION	9.465	16835628.000	98.49
PERC./LEAKAGE THROUGH LAYER 20	0.426272	758209.625	4.44
CHANGE IN WATER STORAGE	-0.336	-597693.312	-3.50
SOIL WATER AT START OF YEAR	2731.983	*************	
SOIL WATER AT END OF YEAR	2731.282	*************	

SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.365	648612.562	3.79
ANNUAL WATER BUDGET BALANCE	-0.0001	-247.077	0.00

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ANNUAL TOTALS FOR YEAR 82

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.43	18551844.000	100.00
RUNOFF	0.126	223680.594	1.21
EVAPOTRANSPIRATION	10.569	18799306.000	101.33
PERC./LEAKAGE THROUGH LAYER 20	0.430323	765416.250	4.13
CHANGE IN WATER STORAGE	-0.695	-1236156.750	-6.66
SOIL WATER AT START OF YEAR	2731.282	*************	
SOIL WATER AT END OF YEAR	2730.952	*************	
SNOW WATER AT START OF YEAR	0.365	648612.562	3.50
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0002	-403.189	0.00

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ANNUAL TOTALS FOR YEAR 83

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.85	19298896.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	9.684	17225334.000	89.26

PERC./LEAKAGE THROUGH LAYER 20	0.434205	772319.875	4.00
CHANGE IN WATER STORAGE	0.731	1300587.500	6.74
SOIL WATER AT START OF YEAR	2730.952	*************	
SOIL WATER AT END OF YEAR	2731.683	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0004	653.712	0.00

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ANNUAL TOTALS FOR YEAR 84

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.00	17786998.000	100.00
RUNOFF	0.000	43.715	0.00
EVAPOTRANSPIRATION	9.495	16888066.000	94.95
PERC./LEAKAGE THROUGH LAYER 20	0.439127	781075.687	4.39
CHANGE IN WATER STORAGE	0.066	118122.055	0.66
SOIL WATER AT START OF YEAR	2731.683	*************	
SOIL WATER AT END OF YEAR	2731.626	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.124	219737.250	1.24
ANNUAL WATER BUDGET BALANCE	-0.0002	-309.045	0.00

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ANNUAL TOTALS FOR YEAR 85

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.30	18320614.000	100.00
RUNOFF	0.023	41461.422	0.23
EVAPOTRANSPIRATION	10.612	18875382.000	103.03
PERC./LEAKAGE THROUGH LAYER 20	0.441493	785283.812	4.29
CHANGE IN WATER STORAGE	-0.777	-1381423.370	-7.54
SOIL WATER AT START OF YEAR	2731.626	*************	
SOIL WATER AT END OF YEAR	2730.712	*************	
SNOW WATER AT START OF YEAR	0.124	219737.250	1.20
SNOW WATER AT END OF YEAR	0.261	464156.906	2.53
ANNUAL WATER BUDGET BALANCE	-0.0001	-90.222	0.00

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ANNUAL TOTALS FOR YEAR 86

	INCHES	CU. FEET	PERCENT
PRECIPITATION	16.80	29882168.000	100.00
RUNOFF	0.645	1146645.370	3.84
EVAPOTRANSPIRATION	14.307	25446986.000	85.16
PERC./LEAKAGE THROUGH LAYER 20	0.444903	791349.500	2.65
CHANGE IN WATER STORAGE	1.404	2497013.750	8.36
SOIL WATER AT START OF YEAR	2730.712	*************	
SOIL WATER AT END OF YEAR	2732.377	*************	
SNOW WATER AT START OF YEAR	0.261	464156.906	1.55
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0001	174.242	0.00

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ANNUAL TOTALS FOR YEAR 87

	INCHES	CU. FEET	PERCENT
PRECIPITATION	10.71	19049878.000	100.00
RUNOFF	0.046	81043.984	0.43
EVAPOTRANSPIRATION	9.286	16517316.000	86.71
PERC./LEAKAGE THROUGH LAYER 20	0.448169	797157.937	4.18
CHANGE IN WATER STORAGE	0.930	1654686.620	8.69
SOIL WATER AT START OF YEAR	2732.377	*************	
SOIL WATER AT END OF YEAR	2732.928	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.379	674143.562	3.54
ANNUAL WATER BUDGET BALANCE	-0.0002	-325.478	0.00

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ANNUAL TOTALS FOR YEAR 88

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.34	16613062.000	100.00
RUNOFF	0.051	90994.594	0.55
EVAPOTRANSPIRATION	8.493	15106313.000	90.93
PERC./LEAKAGE THROUGH LAYER 20	0.452536	804925.625	4.85
CHANGE IN WATER STORAGE	0.343	610075.312	3.67
SOIL WATER AT START OF YEAR	2732.928	*************	
SOIL WATER AT END OF YEAR	2733.423	*************	

SNOW WATER AT START OF YEAR	0.379	674143.562	4.06
SNOW WATER AT END OF YEAR	0.227	403988.187	2.43
ANNUAL WATER BUDGET BALANCE	0.0004	753.529	0.00

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ANNUAL TOTALS FOR YEAR 89

	INCHES	CU. FEET	PERCENT
PRECIPITATION	16.47	29295198.000	100.00
RUNOFF	0.507	902018.375	3.08
EVAPOTRANSPIRATION	13.527	24061066.000	82.13
PERC./LEAKAGE THROUGH LAYER 20	0.454296	808056.687	2.76
CHANGE IN WATER STORAGE	1.982	3524698.000	12.03
SOIL WATER AT START OF YEAR	2733.423	*************	
SOIL WATER AT END OF YEAR	2735.632	*************	
SNOW WATER AT START OF YEAR	0.227	403988.187	1.38
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0004	-641.202	0.00

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ANNUAL TOTALS FOR YEAR 90

	INCHES	CU. FEET	PERCENT
PRECIPITATION	9.50	16897654.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	9.646	17156714.000	101.53

PERC./LEAKAGE THROUGH LAYER 20	0.457160	813151.250	4.81
CHANGE IN WATER STORAGE	-0.603	-1072316.620	-6.35
SOIL WATER AT START OF YEAR	2735.632	*************	
SOIL WATER AT END OF YEAR	2734.460	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.569	1011663.250	5.99
ANNUAL WATER BUDGET BALANCE	0.0001	104.641	0.00

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ANNUAL TOTALS FOR YEAR 91

	INCHES	CU. FEET	PERCENT
PRECIPITATION	15.89	28263550.000	100.00
RUNOFF	0.986	1753688.750	6.20
EVAPOTRANSPIRATION	12.807	22780002.000	80.60
PERC./LEAKAGE THROUGH LAYER 20	0.459901	818025.625	2.89
CHANGE IN WATER STORAGE	1.637	2911812.000	10.30
SOIL WATER AT START OF YEAR	2734.460	*************	
SOIL WATER AT END OF YEAR	2736.666	*************	
SNOW WATER AT START OF YEAR	0.569	1011663.250	3.58
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	21.151	0.00

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ANNUAL TOTALS FOR YEAR 92

	INCHES	CU. FEET	PERCENT
PRECIPITATION	14.86	26431482.000	100.00
RUNOFF	0.099	175456.266	0.66
EVAPOTRANSPIRATION	13.983	24871632.000	94.10
PERC./LEAKAGE THROUGH LAYER 20	0.463793	824948.250	3.12
CHANGE IN WATER STORAGE	0.314	559229.500	2.12
SOIL WATER AT START OF YEAR	2736.666	*************	
SOIL WATER AT END OF YEAR	2736.900	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.080	142346.719	0.54
ANNUAL WATER BUDGET BALANCE	0.0001	214.370	0.00

ANNUAL TOTALS FOR YEAR 93

	INCHES	CU. FEET	PERCENT
PRECIPITATION	13.28	23621136.000	100.00
RUNOFF	0.190	337399.281	1.43
EVAPOTRANSPIRATION	10.593	18842562.000	79.77
PERC./LEAKAGE THROUGH LAYER 20	0.465035	827158.625	3.50
CHANGE IN WATER STORAGE	2.032	3613941.000	15.30
SOIL WATER AT START OF YEAR	2736.900	*************	
SOIL WATER AT END OF YEAR	2739.012	*************	
SNOW WATER AT START OF YEAR	0.080	142346.719	0.60
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	74.478	0.00

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ANNUAL TOTALS FOR YEAR 94

	INCHES	CU. FEET	PERCENT
PRECIPITATION	8.92	15866006.000	100.00
RUNOFF	0.000	0.000	0.00
EVAPOTRANSPIRATION	9.564	17011160.000	107.22
PERC./LEAKAGE THROUGH LAYER 20	0.467431	831419.937	5.24
CHANGE IN WATER STORAGE	-1.111	-1976436.750	-12.46
SOIL WATER AT START OF YEAR	2739.012	*************	
SOIL WATER AT END OF YEAR	2737.730	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.171	303825.500	1.91
ANNUAL WATER BUDGET BALANCE	-0.0001	-137.135	0.00

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ANNUAL TOTALS FOR YEAR 95

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.90	21166534.000	100.00
RUNOFF	0.208	369958.594	1.75
EVAPOTRANSPIRATION	9.898	17605664.000	83.18
PERC./LEAKAGE THROUGH LAYER 20	0.469721	835492.062	3.95
CHANGE IN WATER STORAGE	1.324	2355306.750	11.13
SOIL WATER AT START OF YEAR	2737.730	*************	

SOIL WATER AT END OF YEAR	2739.201	*************	
SNOW WATER AT START OF YEAR	0.171	303825.500	1.44
SNOW WATER AT END OF YEAR	0.024	42324.121	0.20
ANNUAL WATER BUDGET BALANCE	0.0001	113.175	0.00

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ANNUAL TOTALS FOR YEAR 96

	INCHES	CU. FEET	PERCENT
PRECIPITATION	15.20	27036248.000	100.00
RUNOFF	1.602	2849598.500	10.54
EVAPOTRANSPIRATION	10.412	18520132.000	68.50
PERC./LEAKAGE THROUGH LAYER 20	0.473203	841686.250	3.11
CHANGE IN WATER STORAGE	2.713	4824783.000	17.85
SOIL WATER AT START OF YEAR	2739.201	*************	
SOIL WATER AT END OF YEAR	2741.938	*************	
SNOW WATER AT START OF YEAR	0.024	42324.121	0.16
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	0.0000	48.133	0.00

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ANNUAL TOTALS FOR YEAR 97

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.85	22856298.000	100.00
RUNOFF	0.002	3789.022	0.02

EVAPOTRANSPIRATION	11.981	21310886.000	93.24
PERC./LEAKAGE THROUGH LAYER 20	0.474000	843104.562	3.69
CHANGE IN WATER STORAGE	0.393	698712.937	3.06
SOIL WATER AT START OF YEAR	2741.938	*************	
SOIL WATER AT END OF YEAR	2742.331	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0001	-195.340	0.00

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ANNUAL TOTALS FOR YEAR 98

	INCHES	CU. FEET	PERCENT
PRECIPITATION	8.21	14603129.000	100.00
RUNOFF	0.003	5445.680	0.04
EVAPOTRANSPIRATION	8.616	15324582.000	104.94
PERC./LEAKAGE THROUGH LAYER 20	0.475992	846647.625	5.80
CHANGE IN WATER STORAGE	-0.885	-1573430.250	-10.77
SOIL WATER AT START OF YEAR	2742.331	*************	
SOIL WATER AT END OF YEAR	2741.231	*************	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	0.215	382444.906	2.62
ANNUAL WATER BUDGET BALANCE	-0.0001	-116.621	0.00

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ANNUAL TOTALS FOR YEAR 99

	INCHES	CU. FEET	PERCENT
PRECIPITATION	12.69	22571706.000	100.00
RUNOFF	0.006	11091.924	0.05
EVAPOTRANSPIRATION	10.454	18594942.000	82.38
PERC./LEAKAGE THROUGH LAYER 20	0.477892	850026.437	3.77
CHANGE IN WATER STORAGE	1.751	3114915.750	13.80
SOIL WATER AT START OF YEAR	2741.231	*************	
SOIL WATER AT END OF YEAR	2743.067	*************	
SNOW WATER AT START OF YEAR	0.215	382444.906	1.69
SNOW WATER AT END OF YEAR	0.130	230910.234	1.02
ANNUAL WATER BUDGET BALANCE	0.0004	728.561	0.00

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ANNUAL TOTALS FOR YEAR 100

	INCHES	CU. FEET	PERCENT
PRECIPITATION	11.06	19672432.000	100.00
RUNOFF	0.786	1398192.000	7.11
EVAPOTRANSPIRATION	9.138	16254160.000	82.62
PERC./LEAKAGE THROUGH LAYER 20	0.481019	855588.875	4.35
CHANGE IN WATER STORAGE	0.655	1165213.000	5.92
SOIL WATER AT START OF YEAR	2743.067	*************	
SOIL WATER AT END OF YEAR	2743.852	*************	
SNOW WATER AT START OF YEAR	0.130	230910.234	1.17
SNOW WATER AT END OF YEAR	0.000	0.000	0.00
ANNUAL WATER BUDGET BALANCE	-0.0004	-722.730	0.00

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AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1 THROUGH 100

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
PRECIPITATION						
TOTALS	1.71	1.08	1.01	1.13	1.05	0.99
	0.31	0.42	0.57	0.81	1.25	1.34
STD. DEVIATIONS	0.86	0.50	0.45	0.55	0.56	0.52
	0.31	0.46	0.65	0.45	0.61	0.65
RUNOFF						
TOTALS	0.072	0.118	0.019	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.004
STD. DEVIATIONS	0.142	0.215	0.054	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000	0.024
EVAPOTRANSPIRATION						
TOTALS	0.589	0.582	1.702	1.176	1.127	1.046
	0.784	0.708	0.527	0.542	0.791	0.843
STD. DEVIATIONS	0.244	0.362	0.443	0.596	0.551	0.539
	0.357	0.327	0.624	0.429	0.402	0.250
PERCOLATION/LEAKAGE THROUGH LAYER 20						
TOTALS	0.0169	0.0154	0.0169	0.0165	0.0171	0.0168
	0.0173	0.0173	0.0167	0.0172	0.0167	0.0172
STD. DEVIATIONS	0.0161	0.0147	0.0161	0.0156	0.0161	0.0157
	0.0162	0.0162	0.0157	0.0162	0.0157	0.0163

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AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1 THROUGH 100

	INCHES		CU. FEET	PERCENT
PRECIPITATION	11.68	(2.082)	20770946.0	100.00
RUNOFF	0.213	(0.2942)	378440.81	1.822
EVAPOTRANSPIRATION	10.418	(1.6834)	18529810.00	89.210
PERCOLATION/LEAKAGE THROUGH LAYER 20	0.20209	(0.18995)	359465.812	1.73062
CHANGE IN WATER STORAGE	0.845	(1.0525)	1503231.00	7.237

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PEAK DAILY VALUES FOR YEARS 1 THROUGH 100

	(INCHES)	(CU. FT.)
PRECIPITATION	1.68	2988216.000
RUNOFF	0.623	1107861.7500
PERCOLATION/LEAKAGE THROUGH LAYER 20	0.001378	2450.47070
SNOW WATER	3.10	5505763.5000
MAXIMUM VEG. SOIL WATER (VOL/VOL)		0.3006
MINIMUM VEG. SOIL WATER (VOL/VOL)		0.0748

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FINAL WATER STORAGE AT END OF YEAR 100

LAYER	(INCHES)	(VOL/VOL)
1	1.2369	0.1031

2	102.3547	0.2843
3	1.6083	0.1340
4	72.1446	0.2004
5	0.9788	0.0816
6	35.4430	0.0985
7	0.9058	0.0755
8	35.4422	0.0985
9	0.9058	0.0755
10	35.4422	0.0985
11	0.9058	0.0755
12	35.4422	0.0985
13	0.9058	0.0755
14	35.4422	0.0985
15	0.9058	0.0755
16	155.7615	0.0983
17	313.6404	0.3149
18	290.5886	0.3459
19	207.2296	0.3321
20	1416.5680	0.4231
SNOW WATER	0.000	

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Appendix E

HYDRUS Model Output

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 ******* Program HYDRUS
 *******
 Pickles Butte 100 Year Simulation
 Date:  21. 3.    Time:  11:39:35
 Units: L = cm   , T = days , M = -
```

Subregion 1 includes only the landfill deposits and daily cover materials.

Subregion 2 includes only the natural geologic deposits from the base of landfill deposits to first groundwater.

```
----------------------------------------------------------
 Time       [T]        0.0000
----------------------------------------------------------
 Sub-region num.                     1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.67713E+04  0.10496E+04  0.57217E+04
 In-flow  [L/T]      0.00000E+00  0.00000E+00  0.00000E+00
 h Mean   [L]       -0.27055E+07 -0.64459E+07 -0.63236E+03
 Top Flux [L/T]      0.24190E-03
 Bot Flux [L/T]     -0.19741E-03
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]      365.0000
----------------------------------------------------------
 Sub-region num.                     1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.75517E+04  0.18397E+04  0.57120E+04
 In-flow  [L/T]      0.10632E+00  0.11317E+00 -0.68512E-02
 h Mean   [L]       -0.15711E+07 -0.37428E+07 -0.64584E+03
 Top Flux [L/T]      0.82144E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.77364E+03
 WatBalR  [%]             93.259
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]      730.0000
----------------------------------------------------------
 Sub-region num.                     1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.75923E+04  0.18823E+04  0.57100E+04
 In-flow  [L/T]      0.62896E-01  0.67466E-01 -0.45700E-02
 h Mean   [L]       -0.13805E+07 -0.32888E+07 -0.63239E+03
 Top Flux [L/T]      0.82255E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.81136E+03
 WatBalR  [%]             91.630
----------------------------------------------------------
```

Time	[T]	1095.0000		
Sub-region num.			1	2
Length	[L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume	[L]	0.76218E+04	0.19133E+04	0.57085E+04
In-flow	[L/T]	0.41029E-01	0.44805E-01	-0.37766E-02
h Mean	[L]	-0.13296E+07	-0.31674E+07	-0.62727E+03
Top Flux	[L/T]	0.82361E-02		
Bot Flux	[L/T]	-0.19741E-03		
WatBalT	[L]	0.83797E+03		
WatBalR	[%]	90.369		

Time	[T]	1460.0000		
Sub-region num.			1	2
Length	[L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume	[L]	0.76451E+04	0.19379E+04	0.57072E+04
In-flow	[L/T]	0.28377E-01	0.31672E-01	-0.32959E-02
h Mean	[L]	-0.12974E+07	-0.30906E+07	-0.62678E+03
Top Flux	[L/T]	0.82445E-02		
Bot Flux	[L/T]	-0.19741E-03		
WatBalT	[L]	0.85845E+03		
WatBalR	[%]	89.298		

Time	[T]	1825.0000		
Sub-region num.			1	2
Length	[L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume	[L]	0.76647E+04	0.19586E+04	0.57061E+04
In-flow	[L/T]	0.20129E-01	0.23127E-01	-0.29984E-02
h Mean	[L]	-0.12649E+07	-0.30131E+07	-0.61638E+03
Top Flux	[L/T]	0.82500E-02		
Bot Flux	[L/T]	-0.19741E-03		
WatBalT	[L]	0.87521E+03		
WatBalR	[%]	88.277		

Time	[T]	2190.0000		
Sub-region num.			1	2
Length	[L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume	[L]	0.76817E+04	0.19767E+04	0.57050E+04
In-flow	[L/T]	0.14534E-01	0.17280E-01	-0.27466E-02

```
 h Mean    [L]       -0.12346E+07 -0.29409E+07 -0.61561E+03
 Top Flux [L/T]       0.82542E-02
 Bot Flux [L/T]      -0.19741E-03
 WatBalT  [L]         0.88947E+03
 WatBalR  [%]              87.347
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]      2555.0000
----------------------------------------------------------
 Sub-region num.                     1            2
----------------------------------------------------------
 Length   [L]         0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]         0.76970E+04  0.19930E+04  0.57041E+04
 In-flow  [L/T]       0.10584E-01  0.13201E-01 -0.26169E-02
 h Mean   [L]        -0.12138E+07 -0.28914E+07 -0.61535E+03
 Top Flux [L/T]       0.82578E-02
 Bot Flux [L/T]      -0.19741E-03
 WatBalT  [L]         0.90202E+03
 WatBalR  [%]              86.506
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]      2920.0000
----------------------------------------------------------
 Sub-region num.                     1            2
----------------------------------------------------------
 Length   [L]         0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]         0.77111E+04  0.20079E+04  0.57032E+04
 In-flow  [L/T]       0.76911E-02  0.10117E-01 -0.24261E-02
 h Mean   [L]        -0.11914E+07 -0.28381E+07 -0.60760E+03
 Top Flux [L/T]       0.82596E-02
 Bot Flux [L/T]      -0.19741E-03
 WatBalT  [L]         0.91334E+03
 WatBalR  [%]              85.725
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]      3285.0000
----------------------------------------------------------
 Sub-region num.                     1            2
----------------------------------------------------------
 Length   [L]         0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]         0.77242E+04  0.20219E+04  0.57023E+04
 In-flow  [L/T]       0.52400E-02  0.75440E-02 -0.23041E-02
 h Mean   [L]        -0.11644E+07 -0.27737E+07 -0.60797E+03
 Top Flux [L/T]       0.82611E-02
 Bot Flux [L/T]      -0.19741E-03
 WatBalT  [L]         0.92368E+03
 WatBalR  [%]              85.021
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]      3650.0000
```

```
-----------------------------------------------------------
 Sub-region num.                     1            2
-----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.77364E+04  0.20350E+04  0.57015E+04
 In-flow  [L/T]      0.32370E-02  0.55106E-02 -0.22736E-02
 h Mean   [L]       -0.11388E+07 -0.27126E+07 -0.60974E+03
 Top Flux [L/T]      0.82625E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.93323E+03
 WatBalR  [%]             84.360
-----------------------------------------------------------

-----------------------------------------------------------
 Time       [T]     4015.0000
-----------------------------------------------------------
 Sub-region num.                     1            2
-----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.77481E+04  0.20474E+04  0.57007E+04
 In-flow  [L/T]      0.17736E-02  0.39175E-02 -0.21439E-02
 h Mean   [L]       -0.11082E+07 -0.26397E+07 -0.61415E+03
 Top Flux [L/T]      0.82638E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.94215E+03
 WatBalR  [%]             83.729
-----------------------------------------------------------

-----------------------------------------------------------
 Time       [T]     4380.0000
-----------------------------------------------------------
 Sub-region num.                     1            2
-----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.77592E+04  0.20593E+04  0.56999E+04
 In-flow  [L/T]      0.55003E-03  0.25795E-02 -0.20294E-02
 h Mean   [L]       -0.10651E+07 -0.25371E+07 -0.60660E+03
 Top Flux [L/T]      0.82639E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.95056E+03
 WatBalR  [%]             83.139
-----------------------------------------------------------

-----------------------------------------------------------
 Time       [T]     4745.0000
-----------------------------------------------------------
 Sub-region num.                     1            2
-----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.77699E+04  0.20707E+04  0.56992E+04
 In-flow  [L/T]     -0.56219E-03  0.13986E-02 -0.19608E-02
 h Mean   [L]       -0.10230E+07 -0.24367E+07 -0.60879E+03
 Top Flux [L/T]      0.82643E-02
 Bot Flux [L/T]     -0.19741E-03
```

```
 WatBalT  [L]         0.95855E+03
 WatBalR  [%]              82.584
-----------------------------------------------------------

-----------------------------------------------------------
 Time       [T]     5110.0000
-----------------------------------------------------------
 Sub-region num.                     1            2
-----------------------------------------------------------
 Length   [L]         0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]         0.77802E+04  0.20817E+04  0.56985E+04
 In-flow  [L/T]      -0.15225E-02  0.41533E-03 -0.19379E-02
 h Mean   [L]        -0.99452E+06 -0.23690E+07 -0.61216E+03
 Top Flux [L/T]       0.82645E-02
 Bot Flux [L/T]      -0.19741E-03
 WatBalT  [L]         0.96616E+03
 WatBalR  [%]              82.056
-----------------------------------------------------------

-----------------------------------------------------------
 Time       [T]     5475.0000
-----------------------------------------------------------
 Sub-region num.                     1            2
-----------------------------------------------------------
 Length   [L]         0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]         0.77902E+04  0.20924E+04  0.56978E+04
 In-flow  [L/T]      -0.23186E-02 -0.51808E-03 -0.18005E-02
 h Mean   [L]        -0.97644E+06 -0.23259E+07 -0.60993E+03
 Top Flux [L/T]       0.82648E-02
 Bot Flux [L/T]      -0.19741E-03
 WatBalT  [L]         0.97345E+03
 WatBalR  [%]              81.562
-----------------------------------------------------------

-----------------------------------------------------------
 Time       [T]     5840.0000
-----------------------------------------------------------
 Sub-region num.                     1            2
-----------------------------------------------------------
 Length   [L]         0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]         0.77999E+04  0.21028E+04  0.56971E+04
 In-flow  [L/T]      -0.31686E-02 -0.13528E-02 -0.18158E-02
 h Mean   [L]        -0.96109E+06 -0.22893E+07 -0.61197E+03
 Top Flux [L/T]       0.82647E-02
 Bot Flux [L/T]      -0.19741E-03
 WatBalT  [L]         0.98044E+03
 WatBalR  [%]              81.134
-----------------------------------------------------------

-----------------------------------------------------------
 Time       [T]     6205.0000
-----------------------------------------------------------
 Sub-region num.                     1            2
-----------------------------------------------------------
```

```
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.78093E+04  0.21128E+04  0.56965E+04
 In-flow  [L/T]     -0.37978E-02 -0.21040E-02 -0.16937E-02
 h Mean   [L]       -0.94560E+06 -0.22524E+07 -0.61481E+03
 Top Flux [L/T]      0.82653E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.98715E+03
 WatBalR  [%]             80.667
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]     6570.0000
----------------------------------------------------------
 Sub-region num.                   1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.78185E+04  0.21226E+04  0.56958E+04
 In-flow  [L/T]     -0.45116E-02 -0.27874E-02 -0.17242E-02
 h Mean   [L]       -0.93249E+06 -0.22211E+07 -0.61853E+03
 Top Flux [L/T]      0.82653E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.99362E+03
 WatBalR  [%]             80.217
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]     6935.0000
----------------------------------------------------------
 Sub-region num.                   1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.78274E+04  0.21322E+04  0.56952E+04
 In-flow  [L/T]     -0.51310E-02 -0.34640E-02 -0.16670E-02
 h Mean   [L]       -0.92249E+06 -0.21973E+07 -0.61884E+03
 Top Flux [L/T]      0.82656E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.99984E+03
 WatBalR  [%]             79.780
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]     7300.0000
----------------------------------------------------------
 Sub-region num.                   1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.78361E+04  0.21415E+04  0.56946E+04
 In-flow  [L/T]     -0.57571E-02 -0.41053E-02 -0.16518E-02
 h Mean   [L]       -0.91438E+06 -0.21780E+07 -0.62111E+03
 Top Flux [L/T]      0.82654E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.10059E+04
 WatBalR  [%]             79.243
----------------------------------------------------------
```

Time [T]	7665.0000		
Sub-region num.		1	2
Length [L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume [L]	0.78446E+04	0.21506E+04	0.56940E+04
In-flow [L/T]	-0.62845E-02	-0.46327E-02	-0.16518E-02
h Mean [L]	-0.90609E+06	-0.21582E+07	-0.62405E+03
Top Flux [L/T]	0.82649E-02		
Bot Flux [L/T]	-0.19741E-03		
WatBalT [L]	0.10117E+04		
WatBalR [%]	75.912		

Time [T]	8030.0000		
Sub-region num.		1	2
Length [L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume [L]	0.78529E+04	0.21596E+04	0.56934E+04
In-flow [L/T]	-0.67134E-02	-0.51417E-02	-0.15717E-02
h Mean [L]	-0.89565E+06	-0.21333E+07	-0.62777E+03
Top Flux [L/T]	0.82654E-02		
Bot Flux [L/T]	-0.19741E-03		
WatBalT [L]	0.10173E+04		
WatBalR [%]	72.870		

Time [T]	8395.0000		
Sub-region num.		1	2
Length [L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume [L]	0.78611E+04	0.21683E+04	0.56928E+04
In-flow [L/T]	-0.71654E-02	-0.55709E-02	-0.15945E-02
h Mean [L]	-0.88358E+06	-0.21046E+07	-0.63382E+03
Top Flux [L/T]	0.82654E-02		
Bot Flux [L/T]	-0.19741E-03		
WatBalT [L]	0.10227E+04		
WatBalR [%]	70.080		

Time [T]	8760.0000		
Sub-region num.		1	2
Length [L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume [L]	0.78691E+04	0.21769E+04	0.56922E+04
In-flow [L/T]	-0.77174E-02	-0.61114E-02	-0.16060E-02

```
 h Mean   [L]       -0.87231E+06 -0.20777E+07 -0.63432E+03
 Top Flux [L/T]      0.82654E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.10280E+04
 WatBalR  [%]             67.512
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]     9125.0000
----------------------------------------------------------
 Sub-region num.                     1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.78769E+04  0.21853E+04  0.56917E+04
 In-flow  [L/T]     -0.80647E-02 -0.64931E-02 -0.15717E-02
 h Mean   [L]       -0.86302E+06 -0.20556E+07 -0.63698E+03
 Top Flux [L/T]      0.82654E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.10332E+04
 WatBalR  [%]             65.139
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]     9490.0000
----------------------------------------------------------
 Sub-region num.                     1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.78846E+04  0.21935E+04  0.56911E+04
 In-flow  [L/T]     -0.83826E-02 -0.68605E-02 -0.15221E-02
 h Mean   [L]       -0.85544E+06 -0.20375E+07 -0.64022E+03
 Top Flux [L/T]      0.82655E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.10382E+04
 WatBalR  [%]             62.940
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]     9855.0000
----------------------------------------------------------
 Sub-region num.                     1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.78922E+04  0.22016E+04  0.56906E+04
 In-flow  [L/T]     -0.87664E-02 -0.72672E-02 -0.14992E-02
 h Mean   [L]       -0.84867E+06 -0.20214E+07 -0.64436E+03
 Top Flux [L/T]      0.82655E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.10430E+04
 WatBalR  [%]             60.897
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    10220.0000
```

```
-----------------------------------------------------------
 Sub-region num.                        1            2
-----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.78996E+04  0.22096E+04  0.56900E+04
 In-flow  [L/T]     -0.90969E-02 -0.76053E-02 -0.14915E-02
 h Mean   [L]       -0.84159E+06 -0.20045E+07 -0.65216E+03
 Top Flux [L/T]      0.82655E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.10478E+04
 WatBalR  [%]             58.991
-----------------------------------------------------------

-----------------------------------------------------------
 Time       [T]    10585.0000
-----------------------------------------------------------
 Sub-region num.                        1            2
-----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.79070E+04  0.22175E+04  0.56895E+04
 In-flow  [L/T]     -0.94538E-02 -0.79432E-02 -0.15106E-02
 h Mean   [L]       -0.83325E+06 -0.19846E+07 -0.65185E+03
 Top Flux [L/T]      0.82655E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.10524E+04
 WatBalR  [%]             57.211
-----------------------------------------------------------

-----------------------------------------------------------
 Time       [T]    10950.0000
-----------------------------------------------------------
 Sub-region num.                        1            2
-----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.79142E+04  0.22252E+04  0.56890E+04
 In-flow  [L/T]     -0.96507E-02 -0.82126E-02 -0.14381E-02
 h Mean   [L]       -0.82371E+06 -0.19619E+07 -0.65457E+03
 Top Flux [L/T]      0.82660E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.10569E+04
 WatBalR  [%]             55.544
-----------------------------------------------------------

-----------------------------------------------------------
 Time       [T]    11315.0000
-----------------------------------------------------------
 Sub-region num.                        1            2
-----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.79213E+04  0.22329E+04  0.56884E+04
 In-flow  [L/T]     -0.99421E-02 -0.85344E-02 -0.14076E-02
 h Mean   [L]       -0.81389E+06 -0.19385E+07 -0.65790E+03
 Top Flux [L/T]      0.82655E-02
 Bot Flux [L/T]     -0.19741E-03
```

```
 WatBalT  [L]        0.10613E+04
 WatBalR  [%]             53.979
-----------------------------------------------------------


-----------------------------------------------------------
 Time        [T]    11680.0000
-----------------------------------------------------------
 Sub-region num.                      1            2
-----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.79283E+04  0.22404E+04  0.56879E+04
 In-flow  [L/T]     -0.10179E-01 -0.87636E-02 -0.14153E-02
 h Mean   [L]       -0.80452E+06 -0.19161E+07 -0.66216E+03
 Top Flux [L/T]      0.82655E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.10657E+04
 WatBalR  [%]             52.506
-----------------------------------------------------------


-----------------------------------------------------------
 Time        [T]    12045.0000
-----------------------------------------------------------
 Sub-region num.                      1            2
-----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.79352E+04  0.22478E+04  0.56874E+04
 In-flow  [L/T]     -0.10442E-01 -0.90613E-02 -0.13809E-02
 h Mean   [L]       -0.79543E+06 -0.18945E+07 -0.67066E+03
 Top Flux [L/T]      0.82656E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.10699E+04
 WatBalR  [%]             51.118
-----------------------------------------------------------


-----------------------------------------------------------
 Time        [T]    12410.0000
-----------------------------------------------------------
 Sub-region num.                      1            2
-----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.79421E+04  0.22552E+04  0.56869E+04
 In-flow  [L/T]     -0.10673E-01 -0.92957E-02 -0.13771E-02
 h Mean   [L]       -0.78565E+06 -0.18712E+07 -0.67192E+03
 Top Flux [L/T]      0.82658E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.10740E+04
 WatBalR  [%]             49.808
-----------------------------------------------------------


-----------------------------------------------------------
 Time        [T]    12775.0000
-----------------------------------------------------------
 Sub-region num.                      1            2
-----------------------------------------------------------
```

```
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.79488E+04  0.22624E+04  0.56864E+04
 In-flow  [L/T]     -0.10993E-01 -0.96269E-02 -0.13657E-02
 h Mean   [L]       -0.77415E+06 -0.18437E+07 -0.67463E+03
 Top Flux [L/T]      0.82656E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.10780E+04
 WatBalR  [%]             48.568
----------------------------------------------------------


----------------------------------------------------------
 Time       [T]    13140.0000
----------------------------------------------------------
 Sub-region num.                     1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.79554E+04  0.22696E+04  0.56859E+04
 In-flow  [L/T]     -0.11204E-01 -0.98114E-02 -0.13924E-02
 h Mean   [L]       -0.76083E+06 -0.18120E+07 -0.67800E+03
 Top Flux [L/T]      0.82656E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.10820E+04
 WatBalR  [%]             47.394
----------------------------------------------------------


----------------------------------------------------------
 Time       [T]    13505.0000
----------------------------------------------------------
 Sub-region num.                     1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.79620E+04  0.22766E+04  0.56854E+04
 In-flow  [L/T]     -0.11441E-01 -0.10064E-01 -0.13771E-02
 h Mean   [L]       -0.74713E+06 -0.17794E+07 -0.68235E+03
 Top Flux [L/T]      0.82656E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.10859E+04
 WatBalR  [%]             46.279
----------------------------------------------------------


----------------------------------------------------------
 Time       [T]    13870.0000
----------------------------------------------------------
 Sub-region num.                     1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.79685E+04  0.22836E+04  0.56849E+04
 In-flow  [L/T]     -0.11563E-01 -0.10220E-01 -0.13428E-02
 h Mean   [L]       -0.73488E+06 -0.17502E+07 -0.68904E+03
 Top Flux [L/T]      0.82656E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.10897E+04
 WatBalR  [%]             45.220
----------------------------------------------------------
```

Time	[T]	14235.0000		
Sub-region num.			1	2
Length	[L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume	[L]	0.79750E+04	0.22905E+04	0.56844E+04
In-flow	[L/T]	-0.11744E-01	-0.10436E-01	-0.13084E-02
h Mean	[L]	-0.72484E+06	-0.17262E+07	-0.69547E+03
Top Flux	[L/T]	0.82656E-02		
Bot Flux	[L/T]	-0.19741E-03		
WatBalT	[L]	0.10934E+04		
WatBalR	[%]	44.212		

Time	[T]	14600.0000		
Sub-region num.			1	2
Length	[L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume	[L]	0.79813E+04	0.22974E+04	0.56839E+04
In-flow	[L/T]	-0.11960E-01	-0.10613E-01	-0.13466E-02
h Mean	[L]	-0.71644E+06	-0.17062E+07	-0.69811E+03
Top Flux	[L/T]	0.82656E-02		
Bot Flux	[L/T]	-0.19741E-03		
WatBalT	[L]	0.10971E+04		
WatBalR	[%]	43.252		

Time	[T]	14965.0000		
Sub-region num.			1	2
Length	[L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume	[L]	0.79876E+04	0.23042E+04	0.56835E+04
In-flow	[L/T]	-0.12187E-01	-0.10893E-01	-0.12932E-02
h Mean	[L]	-0.70836E+06	-0.16869E+07	-0.70169E+03
Top Flux	[L/T]	0.82656E-02		
Bot Flux	[L/T]	-0.19741E-03		
WatBalT	[L]	0.11007E+04		
WatBalR	[%]	42.337		

Time	[T]	15330.0000		
Sub-region num.			1	2
Length	[L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume	[L]	0.79938E+04	0.23109E+04	0.56830E+04
In-flow	[L/T]	-0.12256E-01	-0.10952E-01	-0.13046E-02

```
 h Mean   [L]       -0.69960E+06 -0.16661E+07 -0.70551E+03
 Top Flux [L/T]      0.82656E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.11042E+04
 WatBalR  [%]             41.462
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    15695.0000
----------------------------------------------------------
 Sub-region num.                     1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.80000E+04  0.23175E+04  0.56825E+04
 In-flow  [L/T]     -0.12572E-01 -0.11222E-01 -0.13504E-02
 h Mean   [L]       -0.69047E+06 -0.16443E+07 -0.71058E+03
 Top Flux [L/T]      0.82659E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.11077E+04
 WatBalR  [%]             40.626
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    16060.0000
----------------------------------------------------------
 Sub-region num.                     1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.80061E+04  0.23241E+04  0.56820E+04
 In-flow  [L/T]     -0.12638E-01 -0.11322E-01 -0.13161E-02
 h Mean   [L]       -0.68185E+06 -0.16238E+07 -0.72180E+03
 Top Flux [L/T]      0.82659E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.11111E+04
 WatBalR  [%]             39.825
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    16425.0000
----------------------------------------------------------
 Sub-region num.                     1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.80121E+04  0.23306E+04  0.56816E+04
 In-flow  [L/T]     -0.12799E-01 -0.11567E-01 -0.12321E-02
 h Mean   [L]       -0.67433E+06 -0.16058E+07 -0.72398E+03
 Top Flux [L/T]      0.82654E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.11144E+04
 WatBalR  [%]             39.058
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    16790.0000
```

```
---------------------------------------------------------
 Sub-region num.                      1            2
---------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.80181E+04  0.23370E+04  0.56811E+04
 In-flow  [L/T]     -0.13045E-01 -0.11752E-01 -0.12932E-02
 h Mean   [L]       -0.66806E+06 -0.15909E+07 -0.72665E+03
 Top Flux [L/T]      0.82654E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.11177E+04
 WatBalR  [%]             38.322
---------------------------------------------------------

---------------------------------------------------------
 Time       [T]    17155.0000
---------------------------------------------------------
 Sub-region num.                      1            2
---------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.80241E+04  0.23434E+04  0.56806E+04
 In-flow  [L/T]     -0.13218E-01 -0.11887E-01 -0.13313E-02
 h Mean   [L]       -0.66287E+06 -0.15785E+07 -0.72994E+03
 Top Flux [L/T]      0.82654E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.11209E+04
 WatBalR  [%]             37.616
---------------------------------------------------------

---------------------------------------------------------
 Time       [T]    17520.0000
---------------------------------------------------------
 Sub-region num.                      1            2
---------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.80299E+04  0.23498E+04  0.56802E+04
 In-flow  [L/T]     -0.13276E-01 -0.12021E-01 -0.12550E-02
 h Mean   [L]       -0.65842E+06 -0.15679E+07 -0.73410E+03
 Top Flux [L/T]      0.82659E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.11241E+04
 WatBalR  [%]             36.937
---------------------------------------------------------

---------------------------------------------------------
 Time       [T]    17885.0000
---------------------------------------------------------
 Sub-region num.                      1            2
---------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.80357E+04  0.23560E+04  0.56797E+04
 In-flow  [L/T]     -0.13454E-01 -0.12177E-01 -0.12779E-02
 h Mean   [L]       -0.65428E+06 -0.15580E+07 -0.74027E+03
 Top Flux [L/T]      0.82659E-02
 Bot Flux [L/T]     -0.19741E-03
```

```
 WatBalT  [L]        0.11272E+04
 WatBalR  [%]             36.284
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    18250.0000
----------------------------------------------------------
 Sub-region num.                    1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.80415E+04  0.23623E+04  0.56792E+04
 In-flow  [L/T]     -0.13555E-01 -0.12300E-01 -0.12550E-02
 h Mean   [L]       -0.64986E+06 -0.15475E+07 -0.75228E+03
 Top Flux [L/T]      0.82659E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.11303E+04
 WatBalR  [%]             35.655
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    18615.0000
----------------------------------------------------------
 Sub-region num.                    1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.80472E+04  0.23684E+04  0.56788E+04
 In-flow  [L/T]     -0.13739E-01 -0.12446E-01 -0.12932E-02
 h Mean   [L]       -0.64461E+06 -0.15350E+07 -0.75465E+03
 Top Flux [L/T]      0.82659E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.11333E+04
 WatBalR  [%]             35.050
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    18980.0000
----------------------------------------------------------
 Sub-region num.                    1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.80529E+04  0.23746E+04  0.56783E+04
 In-flow  [L/T]     -0.13824E-01 -0.12577E-01 -0.12474E-02
 h Mean   [L]       -0.63826E+06 -0.15198E+07 -0.75754E+03
 Top Flux [L/T]      0.82659E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.11363E+04
 WatBalR  [%]             34.466
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    19345.0000
----------------------------------------------------------
 Sub-region num.                    1            2
----------------------------------------------------------
```

```
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.80585E+04  0.23806E+04  0.56779E+04
 In-flow  [L/T]     -0.14045E-01 -0.12775E-01 -0.12703E-02
 h Mean   [L]       -0.63111E+06 -0.15028E+07 -0.76112E+03
 Top Flux [L/T]      0.82656E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.11392E+04
 WatBalR  [%]             33.903
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    19710.0000
----------------------------------------------------------
 Sub-region num.                       1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.80641E+04  0.23867E+04  0.56774E+04
 In-flow  [L/T]     -0.14177E-01 -0.12922E-01 -0.12550E-02
 h Mean   [L]       -0.62380E+06 -0.14854E+07 -0.76570E+03
 Top Flux [L/T]      0.82656E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.11421E+04
 WatBalR  [%]             33.360
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    20075.0000
----------------------------------------------------------
 Sub-region num.                       1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.80696E+04  0.23927E+04  0.56770E+04
 In-flow  [L/T]     -0.14196E-01 -0.13009E-01 -0.11864E-02
 h Mean   [L]       -0.61695E+06 -0.14690E+07 -0.77272E+03
 Top Flux [L/T]      0.82659E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.11449E+04
 WatBalR  [%]             32.835
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    20440.0000
----------------------------------------------------------
 Sub-region num.                       1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.80749E+04  0.23984E+04  0.56765E+04
 In-flow  [L/T]     -0.14343E-01 -0.13126E-01 -0.12169E-02
 h Mean   [L]       -0.61085E+06 -0.14545E+07 -0.78668E+03
 Top Flux [L/T]      0.82446E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.11464E+04
 WatBalR  [%]             32.283
----------------------------------------------------------
```

```
----------------------------------------------------------
 Time        [T]    20805.0000
----------------------------------------------------------
 Sub-region num.                     1            2
----------------------------------------------------------
 Length    [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume  [L]        0.80804E+04  0.24043E+04  0.56761E+04
 In-flow   [L/T]     -0.14389E-01 -0.13175E-01 -0.12131E-02
 h Mean    [L]       -0.60552E+06 -0.14418E+07 -0.78931E+03
 Top Flux  [L/T]      0.82586E-02
 Bot Flux  [L/T]     -0.19741E-03
 WatBalT   [L]        0.11491E+04
 WatBalR   [%]             31.794
----------------------------------------------------------

----------------------------------------------------------
 Time        [T]    21170.0000
----------------------------------------------------------
 Sub-region num.                     1            2
----------------------------------------------------------
 Length    [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume  [L]        0.80858E+04  0.24102E+04  0.56756E+04
 In-flow   [L/T]     -0.14421E-01 -0.13234E-01 -0.11864E-02
 h Mean    [L]       -0.60081E+06 -0.14305E+07 -0.79248E+03
 Top Flux  [L/T]      0.82624E-02
 Bot Flux  [L/T]     -0.19741E-03
 WatBalT   [L]        0.11518E+04
 WatBalR   [%]             31.320
----------------------------------------------------------

----------------------------------------------------------
 Time        [T]    21535.0000
----------------------------------------------------------
 Sub-region num.                     1            2
----------------------------------------------------------
 Length    [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume  [L]        0.80912E+04  0.24161E+04  0.56752E+04
 In-flow   [L/T]     -0.14617E-01 -0.13393E-01 -0.12245E-02
 h Mean    [L]       -0.59648E+06 -0.14202E+07 -0.79639E+03
 Top Flux  [L/T]      0.82634E-02
 Bot Flux  [L/T]     -0.19741E-03
 WatBalT   [L]        0.11545E+04
 WatBalR   [%]             30.862
----------------------------------------------------------

----------------------------------------------------------
 Time        [T]    21900.0000
----------------------------------------------------------
 Sub-region num.                     1            2
----------------------------------------------------------
 Length    [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume  [L]        0.80966E+04  0.24219E+04  0.56747E+04
 In-flow   [L/T]     -0.14766E-01 -0.13515E-01 -0.12512E-02
```

```
 h Mean   [L]       -0.59224E+06 -0.14101E+07 -0.80163E+03
 Top Flux [L/T]      0.82647E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.11572E+04
 WatBalR  [%]             30.417
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    22265.0000
----------------------------------------------------------
 Sub-region num.                    1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.81019E+04  0.24276E+04  0.56743E+04
 In-flow  [L/T]     -0.14860E-01 -0.13628E-01 -0.12321E-02
 h Mean   [L]       -0.58779E+06 -0.13995E+07 -0.80855E+03
 Top Flux [L/T]      0.82652E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.11598E+04
 WatBalR  [%]             29.986
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    22630.0000
----------------------------------------------------------
 Sub-region num.                    1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.81070E+04  0.24332E+04  0.56738E+04
 In-flow  [L/T]     -0.14936E-01 -0.13704E-01 -0.12321E-02
 h Mean   [L]       -0.58291E+06 -0.13878E+07 -0.82570E+03
 Top Flux [L/T]      0.82513E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.11614E+04
 WatBalR  [%]             29.542
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    22995.0000
----------------------------------------------------------
 Sub-region num.                    1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.81123E+04  0.24389E+04  0.56734E+04
 In-flow  [L/T]     -0.15072E-01 -0.13855E-01 -0.12169E-02
 h Mean   [L]       -0.57754E+06 -0.13751E+07 -0.82836E+03
 Top Flux [L/T]      0.82613E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.11639E+04
 WatBalR  [%]             29.137
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    23360.0000
```

Sub-region num.		1	2
Length [L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume [L]	0.81175E+04	0.24446E+04	0.56729E+04
In-flow [L/T]	-0.15145E-01	-0.13860E-01	-0.12856E-02
h Mean [L]	-0.57186E+06	-0.13615E+07	-0.83155E+03
Top Flux [L/T]	0.82637E-02		
Bot Flux [L/T]	-0.19741E-03		
WatBalT [L]	0.11664E+04		
WatBalR [%]	28.743		

Time [T] 23725.0000

Sub-region num.		1	2
Length [L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume [L]	0.81227E+04	0.24502E+04	0.56725E+04
In-flow [L/T]	-0.15116E-01	-0.13926E-01	-0.11902E-02
h Mean [L]	-0.56615E+06	-0.13479E+07	-0.83545E+03
Top Flux [L/T]	0.82647E-02		
Bot Flux [L/T]	-0.19741E-03		
WatBalT [L]	0.11689E+04		
WatBalR [%]	28.361		

Time [T] 24090.0000

Sub-region num.		1	2
Length [L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume [L]	0.81278E+04	0.24558E+04	0.56720E+04
In-flow [L/T]	-0.15287E-01	-0.14074E-01	-0.12131E-02
h Mean [L]	-0.56065E+06	-0.13348E+07	-0.84023E+03
Top Flux [L/T]	0.82652E-02		
Bot Flux [L/T]	-0.19741E-03		
WatBalT [L]	0.11713E+04		
WatBalR [%]	27.990		

Time [T] 24455.0000

Sub-region num.		1	2
Length [L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume [L]	0.81329E+04	0.24613E+04	0.56716E+04
In-flow [L/T]	-0.15335E-01	-0.14164E-01	-0.11711E-02
h Mean [L]	-0.55544E+06	-0.13224E+07	-0.84667E+03
Top Flux [L/T]	0.82648E-02		
Bot Flux [L/T]	-0.19741E-03		

```
 WatBalT  [L]        0.11737E+04
 WatBalR  [%]             27.629
-----------------------------------------------------------

-----------------------------------------------------------
 Time       [T]    24820.0000
-----------------------------------------------------------
 Sub-region num.                     1             2
-----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.81380E+04  0.24668E+04  0.56711E+04
 In-flow  [L/T]     -0.15476E-01 -0.14221E-01 -0.12550E-02
 h Mean   [L]       -0.55047E+06 -0.13105E+07 -0.84363E+03
 Top Flux [L/T]      0.82084E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.11761E+04
 WatBalR  [%]             27.278
-----------------------------------------------------------

-----------------------------------------------------------
 Time       [T]    25185.0000
-----------------------------------------------------------
 Sub-region num.                     1             2
-----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.81430E+04  0.24723E+04  0.56707E+04
 In-flow  [L/T]     -0.15547E-01 -0.14345E-01 -0.12016E-02
 h Mean   [L]       -0.54556E+06 -0.12988E+07 -0.87098E+03
 Top Flux [L/T]      0.82654E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.11784E+04
 WatBalR  [%]             26.936
-----------------------------------------------------------

-----------------------------------------------------------
 Time       [T]    25550.0000
-----------------------------------------------------------
 Sub-region num.                     1             2
-----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.81480E+04  0.24777E+04  0.56702E+04
 In-flow  [L/T]     -0.15636E-01 -0.14458E-01 -0.11787E-02
 h Mean   [L]       -0.54043E+06 -0.12866E+07 -0.87441E+03
 Top Flux [L/T]      0.82655E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.11807E+04
 WatBalR  [%]             26.603
-----------------------------------------------------------

-----------------------------------------------------------
 Time       [T]    25915.0000
-----------------------------------------------------------
 Sub-region num.                     1             2
-----------------------------------------------------------
```

Length	[L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume	[L]	0.81530E+04	0.24832E+04	0.56698E+04
In-flow	[L/T]	-0.15697E-01	-0.14515E-01	-0.11826E-02
h Mean	[L]	-0.53494E+06	-0.12735E+07	-0.87832E+03
Top Flux	[L/T]	0.82656E-02		
Bot Flux	[L/T]	-0.19741E-03		
WatBalT	[L]	0.11830E+04		
WatBalR	[%]	26.279		

Time	[T]	26280.0000		
Sub-region num.			1	2
Length	[L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume	[L]	0.81579E+04	0.24885E+04	0.56694E+04
In-flow	[L/T]	-0.15843E-01	-0.14557E-01	-0.12856E-02
h Mean	[L]	-0.52908E+06	-0.12595E+07	-0.88305E+03
Top Flux	[L/T]	0.82656E-02		
Bot Flux	[L/T]	-0.19741E-03		
WatBalT	[L]	0.11852E+04		
WatBalR	[%]	25.964		

Time	[T]	26645.0000		
Sub-region num.			1	2
Length	[L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume	[L]	0.81628E+04	0.24939E+04	0.56689E+04
In-flow	[L/T]	-0.15905E-01	-0.14692E-01	-0.12131E-02
h Mean	[L]	-0.52311E+06	-0.12453E+07	-0.88911E+03
Top Flux	[L/T]	0.82661E-02		
Bot Flux	[L/T]	-0.19741E-03		
WatBalT	[L]	0.11875E+04		
WatBalR	[%]	25.656		

Time	[T]	27010.0000		
Sub-region num.			1	2
Length	[L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume	[L]	0.81677E+04	0.24992E+04	0.56685E+04
In-flow	[L/T]	-0.15920E-01	-0.14719E-01	-0.12016E-02
h Mean	[L]	-0.51730E+06	-0.12314E+07	-0.89837E+03
Top Flux	[L/T]	0.82656E-02		
Bot Flux	[L/T]	-0.19741E-03		
WatBalT	[L]	0.11896E+04		
WatBalR	[%]	25.356		

Time	[T]	27375.0000		
Sub-region num.			1	2
Length	[L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume	[L]	0.81725E+04	0.25044E+04	0.56680E+04
In-flow	[L/T]	-0.16056E-01	-0.14809E-01	-0.12474E-02
h Mean	[L]	-0.51183E+06	-0.12184E+07	-0.90693E+03
Top Flux	[L/T]	0.82629E-02		
Bot Flux	[L/T]	-0.19741E-03		
WatBalT	[L]	0.11911E+04		
WatBalR	[%]	25.045		

Time	[T]	27740.0000		
Sub-region num.			1	2
Length	[L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume	[L]	0.81773E+04	0.25097E+04	0.56676E+04
In-flow	[L/T]	-0.16068E-01	-0.14863E-01	-0.12054E-02
h Mean	[L]	-0.50656E+06	-0.12058E+07	-0.92241E+03
Top Flux	[L/T]	0.82633E-02		
Bot Flux	[L/T]	-0.19741E-03		
WatBalT	[L]	0.11932E+04		
WatBalR	[%]	24.760		

Time	[T]	28105.0000		
Sub-region num.			1	2
Length	[L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume	[L]	0.81822E+04	0.25150E+04	0.56671E+04
In-flow	[L/T]	-0.16165E-01	-0.14971E-01	-0.11940E-02
h Mean	[L]	-0.50116E+06	-0.11929E+07	-0.92655E+03
Top Flux	[L/T]	0.82647E-02		
Bot Flux	[L/T]	-0.19741E-03		
WatBalT	[L]	0.11953E+04		
WatBalR	[%]	24.482		

Time	[T]	28470.0000		
Sub-region num.			1	2
Length	[L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume	[L]	0.81870E+04	0.25203E+04	0.56667E+04
In-flow	[L/T]	-0.16166E-01	-0.14949E-01	-0.12169E-02

```
 h Mean   [L]        -0.49530E+06 -0.11789E+07 -0.93144E+03
 Top Flux [L/T]       0.82650E-02
 Bot Flux [L/T]      -0.19741E-03
 WatBalT  [L]         0.11974E+04
 WatBalR  [%]              24.211
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    28835.0000
----------------------------------------------------------
 Sub-region num.                       1            2
----------------------------------------------------------
 Length   [L]         0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]         0.81917E+04  0.25255E+04  0.56663E+04
 In-flow  [L/T]      -0.16308E-01 -0.15072E-01 -0.12360E-02
 h Mean   [L]        -0.48892E+06 -0.11637E+07 -0.93762E+03
 Top Flux [L/T]       0.82654E-02
 Bot Flux [L/T]      -0.19741E-03
 WatBalT  [L]         0.11995E+04
 WatBalR  [%]              23.946
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    29200.0000
----------------------------------------------------------
 Sub-region num.                       1            2
----------------------------------------------------------
 Length   [L]         0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]         0.81965E+04  0.25306E+04  0.56658E+04
 In-flow  [L/T]      -0.16372E-01 -0.15174E-01 -0.11978E-02
 h Mean   [L]        -0.48227E+06 -0.11479E+07 -0.94493E+03
 Top Flux [L/T]       0.82655E-02
 Bot Flux [L/T]      -0.19741E-03
 WatBalT  [L]         0.12015E+04
 WatBalR  [%]              23.687
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    29565.0000
----------------------------------------------------------
 Sub-region num.                       1            2
----------------------------------------------------------
 Length   [L]         0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]         0.82012E+04  0.25358E+04  0.56654E+04
 In-flow  [L/T]      -0.16480E-01 -0.15255E-01 -0.12245E-02
 h Mean   [L]        -0.47568E+06 -0.11321E+07 -0.95985E+03
 Top Flux [L/T]       0.82656E-02
 Bot Flux [L/T]      -0.19741E-03
 WatBalT  [L]         0.12035E+04
 WatBalR  [%]              23.434
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    29930.0000
```

```
----------------------------------------------------------
 Sub-region num.                       1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.82058E+04  0.25409E+04  0.56649E+04
 In-flow  [L/T]     -0.16517E-01 -0.15293E-01 -0.12245E-02
 h Mean   [L]       -0.46944E+06 -0.11173E+07 -0.96455E+03
 Top Flux [L/T]      0.82616E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.12052E+04
 WatBalR  [%]             23.180
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    30295.0000
----------------------------------------------------------
 Sub-region num.                       1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.82105E+04  0.25460E+04  0.56645E+04
 In-flow  [L/T]     -0.16545E-01 -0.15332E-01 -0.12131E-02
 h Mean   [L]       -0.46375E+06 -0.11037E+07 -0.98044E+03
 Top Flux [L/T]      0.82647E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.12072E+04
 WatBalR  [%]             22.938
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    30660.0000
----------------------------------------------------------
 Sub-region num.                       1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.82152E+04  0.25511E+04  0.56641E+04
 In-flow  [L/T]     -0.16541E-01 -0.15385E-01 -0.11559E-02
 h Mean   [L]       -0.45870E+06 -0.10916E+07 -0.98512E+03
 Top Flux [L/T]      0.82648E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.12091E+04
 WatBalR  [%]             22.702
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    31025.0000
----------------------------------------------------------
 Sub-region num.                       1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.82198E+04  0.25562E+04  0.56636E+04
 In-flow  [L/T]     -0.16647E-01 -0.15476E-01 -0.11711E-02
 h Mean   [L]       -0.45427E+06 -0.10811E+07 -0.99062E+03
 Top Flux [L/T]      0.82655E-02
 Bot Flux [L/T]     -0.19741E-03
```

```
 WatBalT  [L]        0.12111E+04
 WatBalR  [%]             22.471
-----------------------------------------------------------


-----------------------------------------------------------
 Time       [T]    31390.0000
-----------------------------------------------------------
 Sub-region num.                      1             2
-----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.82244E+04  0.25612E+04  0.56632E+04
 In-flow  [L/T]     -0.16798E-01 -0.15546E-01 -0.12512E-02
 h Mean   [L]       -0.45040E+06 -0.10719E+07 -0.99713E+03
 Top Flux [L/T]      0.82660E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.12130E+04
 WatBalR  [%]             22.245
-----------------------------------------------------------


-----------------------------------------------------------
 Time       [T]    31755.0000
-----------------------------------------------------------
 Sub-region num.                      1             2
-----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.82290E+04  0.25662E+04  0.56628E+04
 In-flow  [L/T]     -0.16692E-01 -0.15510E-01 -0.11826E-02
 h Mean   [L]       -0.44698E+06 -0.10637E+07 -0.10056E+04
 Top Flux [L/T]      0.82654E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.12148E+04
 WatBalR  [%]             22.023
-----------------------------------------------------------


-----------------------------------------------------------
 Time       [T]    32120.0000
-----------------------------------------------------------
 Sub-region num.                      1             2
-----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.82335E+04  0.25712E+04  0.56623E+04
 In-flow  [L/T]     -0.16880E-01 -0.15670E-01 -0.12093E-02
 h Mean   [L]       -0.44385E+06 -0.10562E+07 -0.10257E+04
 Top Flux [L/T]      0.82659E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.12167E+04
 WatBalR  [%]             21.807
-----------------------------------------------------------


-----------------------------------------------------------
 Time       [T]    32485.0000
-----------------------------------------------------------
 Sub-region num.                      1             2
-----------------------------------------------------------
```

```
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.82381E+04  0.25762E+04  0.56619E+04
 In-flow  [L/T]     -0.16869E-01 -0.15682E-01 -0.11864E-02
 h Mean   [L]       -0.44080E+06 -0.10490E+07 -0.99514E+03
 Top Flux [L/T]      0.82656E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.12185E+04
 WatBalR  [%]             21.594
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    32850.0000
----------------------------------------------------------
 Sub-region num.                     1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.82426E+04  0.25811E+04  0.56614E+04
 In-flow  [L/T]     -0.17071E-01 -0.15858E-01 -0.12131E-02
 h Mean   [L]       -0.43769E+06 -0.10415E+07 -0.10441E+04
 Top Flux [L/T]      0.82657E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.12203E+04
 WatBalR  [%]             21.386
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    33215.0000
----------------------------------------------------------
 Sub-region num.                     1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.82470E+04  0.25860E+04  0.56610E+04
 In-flow  [L/T]     -0.16996E-01 -0.15844E-01 -0.11520E-02
 h Mean   [L]       -0.43420E+06 -0.10332E+07 -0.10494E+04
 Top Flux [L/T]      0.82657E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.12221E+04
 WatBalR  [%]             21.182
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    33580.0000
----------------------------------------------------------
 Sub-region num.                     1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.82515E+04  0.25909E+04  0.56606E+04
 In-flow  [L/T]     -0.17027E-01 -0.15872E-01 -0.11559E-02
 h Mean   [L]       -0.43018E+06 -0.10236E+07 -0.10555E+04
 Top Flux [L/T]      0.82659E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.12239E+04
 WatBalR  [%]             20.983
----------------------------------------------------------
```

```
----------------------------------------------------------
 Time        [T]    33945.0000
----------------------------------------------------------
 Sub-region num.                      1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.82560E+04  0.25958E+04  0.56601E+04
 In-flow  [L/T]     -0.17082E-01 -0.15949E-01 -0.11330E-02
 h Mean   [L]       -0.42553E+06 -0.10125E+07 -0.10628E+04
 Top Flux [L/T]      0.82659E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.12256E+04
 WatBalR  [%]             20.787
----------------------------------------------------------

----------------------------------------------------------
 Time        [T]    34310.0000
----------------------------------------------------------
 Sub-region num.                      1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.82604E+04  0.26007E+04  0.56597E+04
 In-flow  [L/T]     -0.17239E-01 -0.16056E-01 -0.11826E-02
 h Mean   [L]       -0.42035E+06 -0.10001E+07 -0.10722E+04
 Top Flux [L/T]      0.82659E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.12274E+04
 WatBalR  [%]             20.595
----------------------------------------------------------

----------------------------------------------------------
 Time        [T]    34675.0000
----------------------------------------------------------
 Sub-region num.                      1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.82648E+04  0.26055E+04  0.56593E+04
 In-flow  [L/T]     -0.17288E-01 -0.16121E-01 -0.11673E-02
 h Mean   [L]       -0.41485E+06 -0.98701E+06 -0.10931E+04
 Top Flux [L/T]      0.82657E-02
 Bot Flux [L/T]     -0.19741E-03
 WatBalT  [L]        0.12291E+04
 WatBalR  [%]             20.406
----------------------------------------------------------

----------------------------------------------------------
 Time        [T]    35040.0000
----------------------------------------------------------
 Sub-region num.                      1            2
----------------------------------------------------------
 Length   [L]        0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]        0.82692E+04  0.26103E+04  0.56589E+04
 In-flow  [L/T]     -0.17300E-01 -0.16148E-01 -0.11520E-02
```

```
 h Mean   [L]        -0.40929E+06 -0.97376E+06 -0.10967E+04
 Top Flux [L/T]       0.82657E-02
 Bot Flux [L/T]      -0.19741E-03
 WatBalT  [L]         0.12308E+04
 WatBalR  [%]              20.222
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    35405.0000
----------------------------------------------------------
 Sub-region num.                      1            2
----------------------------------------------------------
 Length   [L]         0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]         0.82735E+04  0.26151E+04  0.56584E+04
 In-flow  [L/T]      -0.17361E-01 -0.16209E-01 -0.11520E-02
 h Mean   [L]        -0.40393E+06 -0.96098E+06 -0.11143E+04
 Top Flux [L/T]       0.82659E-02
 Bot Flux [L/T]      -0.19741E-03
 WatBalT  [L]         0.12324E+04
 WatBalR  [%]              20.041
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    35770.0000
----------------------------------------------------------
 Sub-region num.                      1            2
----------------------------------------------------------
 Length   [L]         0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]         0.82779E+04  0.26199E+04  0.56580E+04
 In-flow  [L/T]      -0.17426E-01 -0.16240E-01 -0.11864E-02
 h Mean   [L]        -0.39892E+06 -0.94902E+06 -0.11202E+04
 Top Flux [L/T]       0.82659E-02
 Bot Flux [L/T]      -0.19741E-03
 WatBalT  [L]         0.12341E+04
 WatBalR  [%]              19.863
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    36135.0000
----------------------------------------------------------
 Sub-region num.                      1            2
----------------------------------------------------------
 Length   [L]         0.25420E+05  0.10668E+05  0.14752E+05
 W-volume [L]         0.82822E+04  0.26247E+04  0.56576E+04
 In-flow  [L/T]      -0.17533E-01 -0.16332E-01 -0.12016E-02
 h Mean   [L]        -0.39433E+06 -0.93806E+06 -0.11269E+04
 Top Flux [L/T]       0.82664E-02
 Bot Flux [L/T]      -0.19741E-03
 WatBalT  [L]         0.12357E+04
 WatBalR  [%]              19.688
----------------------------------------------------------

----------------------------------------------------------
 Time       [T]    36500.0000
```

Sub-region num.			1	2
Length	[L]	0.25420E+05	0.10668E+05	0.14752E+05
W-volume	[L]	0.82865E+04	0.26294E+04	0.56571E+04
In-flow	[L/T]	-0.17484E-01	-0.16344E-01	-0.11406E-02
h Mean	[L]	-0.39015E+06	-0.92810E+06	-0.11353E+04
Top Flux	[L/T]	0.82657E-02		
Bot Flux	[L/T]	-0.19741E-03		
WatBalT	[L]	0.12373E+04		
WatBalR	[%]	19.517		

Calculation time [sec] 8.00000000000000