Prepared for

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Summary of Environmental Investigations and Updated Site Conceptual Model Poway Landfill Poway, California

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SUMMARY OF ENVIRONMENTAL INVESTIGATIONS AND UPDATED SITE CONCEPTUAL MODEL POWAY LANDFILL POWAY, CALIFORNIA

I certify that this document and attachments presented in this report are accurate and complete. This report was prepared by the staff of Geosyntec Consultants under my supervision to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who are directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete.

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1. INTRODUCTION

1.1 Terms of Reference

This Summary of Environmental Investigations and Updated Site Conceptual Model (SCM) report was prepared to present the field activities conducted to further evaluate groundwater and soil vapor quality and the existing cover system at the Poway Landfill (the site). This document was prepared by Geosyntec Consultants (Geosyntec) for the County of San Diego, Department of Public Works, Landfill Management (County). This report was prepared by Mr. Christopher Gale, and was reviewed by Messrs. Veryl Wittig, PG, CHG and Sam Williams, PG, CHG, in accordance with Geosyntec's internal review policy. This report was also reviewed by Mr. Barry Pulver, PG, CHG, CEG, of the County.

1.2 Objectives and Scope of Work

The objectives of the scope of work addressed herein were to: present the updated SCM based on additional assessment of offsite groundwater conditions west and south of the site; evaluate potential seasonal variations in the chemical quality of shallow soil vapor in the adjoining residential area south of the site; and evaluate the performance of the existing cover system at the site. The work described herein was performed in general accordance with Geosyntec's recommendations presented in the Updated Report of Waste Discharge and Engineering Feasibility Study (EFS) report (Geosyntec, 2005b), the Additional Soil Vapor Evaluation and EFS report (Geosyntec, 2006b), and the Dual-Phase Extraction Pilot Study Report (Geosyntec, 2006d). To achieve the objectives, Geosyntec completed the following scope of work:

- Installed five offsite groundwater monitor wells west and south of the site;
- Performed semi-annual monitoring of onsite and offsite soil vapor; and
- Performed an evaluation of the effectiveness of the existing cover system at the landfill.

1.3 Regulatory Compliance

On 10 March 2006, the San Diego Regional Water Quality Control Board (RWQCB) issued Notice of Violation (NOV) No. R9-2006-0035 for violations related to Order No. 94-165 for the Poway Landfill (RWQCB, 2006a). The NOV asserted violations including illegal discharges of waste to land and "waters of the State," and offsite migration of waste constituents. Before the NOV was issued, the County was working

diligently and proactively to characterize and mitigate potential impacts from the site (Geosyntec, 2004a and 2005b).

On 20 March 2006, the LEA issued Official Notice SWIS #37-AA-0018 for the Poway Landfill (LEA, 2006). According to the Official Notice, the County was required to determine whether the Poway Landfill is causing a hazard or nuisance by migration of landfill gas offsite. On 24 April 2006, the County submitted to the LEA a "Response to the Official Notice: Poway Landfill SWIS # 37-AA-0018" (County, 2006). The County's response addressed each action item outlined in the LEA's Official Notice.

1.4 Report Organization

The remainder of this report is organized into the following sections:

- Section 2, "Background" presents the site description, location, history, geology, hydrogeology and hydrology, and previous investigations performed at the site;
- Section 3, "Summary of Well Installation Activities," describes the scope of services, investigation methods; drilling, monitor well installation and groundwater sampling procedures, analytical parameters, and a summary of the first quarter 2007 routine monitoring results;
- Section 4, "Cover Evaluation," presents a summary of the activities conducted at the site to evaluate the existing cover system;
- Section 5, "Summary of Soil Vapor Investigations," presents a summary of the soil vapor investigations conducted at the site between April 2006 and January 2007;
- Section 6, "Updated Site Conceptual Model" presents a summary of the updated site conceptual model (SCM) based on the investigations described herein;
- Section 7, "Conclusions and Recommendations" presents a summary of the results of the field activities and conclusions derived from those results; and
- Section 8, "References," presents a list of documents referenced in this report.

1.5 Limitations

The scope of services provided herein were performed in accordance with current state and local guidance, and the standard of care exercised by scientists and engineers performing similar services in this area. The conclusions contained in this report are based solely on the analysis of the conditions observed by Geosyntec personnel and as

reported by regulatory agencies and other named sources. We cannot make any assurances concerning the completeness of the data presented to us.

No warranty, expressed or implied, is made regarding the professional opinions expressed in this report. If actual conditions are found to differ from those described in this report, or if new information regarding the site is obtained, Geosyntec should be notified and additional recommendations, if required, will be provided. Geosyntec is not liable for any use of the information contained in this report by persons other than the County of San Diego, or use of information in this report for any purposes other than referenced in this report without the expressed, written consent of Geosyntec.

2. BACKGROUND

2.1 Site Location

The site is located at 14900 Poway Road in Poway, California (Figure 1). The San Diego County Tax Assessor's parcel number for the site is 321-200-38. This site is located in Township 14 South, Range 1 West, Section 7 of the San Bernardino Baseline and Meridian (USGS, 1975).

2.2 Site History

The site was operated as a burn dump from 1949 to 1966. From 1967 to 1975, the site was operated as a Class II (Class III under current regulations) solid waste disposal facility, and contains an estimated 165,000 tons of refuse with an average waste fill thickness of 30 feet (IT, 1993). The landfill was permitted to receive residential, commercial, and agricultural wastes. No known septic, industrial, chemical or liquid wastes were received at the site.

The landfill was constructed without a liner, and does not have a leachate collection or removal system. The landfill cover ranges in thickness from approximately 2.5 feet on the slopes to greater than 10 feet on the top deck. Other than the existing groundwater monitoring network and landfill gas (LFG) migration probes, no leak detection system has been installed at the landfill. A LFG extraction system consisting of 24 LFG extraction wells and a flare have been in operation at the site since July 1996. Site features including the groundwater monitoring network, soil vapor monitoring network, and LFG extraction system are shown on Figure 2.

The site is monitored semi-annually in compliance with Order No. 94-165, which requires the County to submit semi-annual detection monitoring reports to the RWQCB on 30 April and 30 October of each year. Per Order No. 94-165, nine groundwater monitor wells comprise the groundwater monitoring network at the Poway Landfill (Figure 2). Three of these groundwater monitor wells are installed upgradient of the refuse (POGW-6, POGW-9, and POGW-10) and six are installed downgradient of the refuse (POGW-11, POGW-12, POGW-13, POGW-14, POGW-15, and POGW-16).

In June 2005, two nested monitor well pairs (POGW-17A/POGW-17B and POGW-18A/POGW-18B) were installed within the public right-of-way of Los Olivos and Dehia Streets to further evaluate groundwater conditions downgradient of the landfill. In April 2006, one additional offsite downgradient monitor well (POGW-19) was installed west of the site, and two additional downgradient monitor wells (POGW-

20 and POGW-21) were installed along the south property boundary of the landfill. In June 2006, one additional offsite cross-gradient monitor well (POGW-22) was installed west of the site. In November 2006, one additional offsite cross-gradient monitor well (POWG-23) was installed west of the site, and two additional offsite downgradient monitor wells (POGW-24A/-24B) were installed south of the site. A summary of installation details for offsite wells POGW-19,-22,-23,-24A, and -24B are presented in Section 3 of this report.

2.3 Site Setting

2.3.1 Topography and Geomorphology

The site is located in a generally mountainous region on the western slope of the Peninsular Range province in San Diego County. Steep slopes bound the site to the east and west. Elevations at the landfill range from approximately 735 feet above mean sea level (MSL) at the northeastern property boundary to approximately 610 feet above MSL along the southern property boundary.

2.3.2 Geology

The site is predominantly underlain by Cretaceous-age granitic rock of the Southern California Batholith (Figure 3). The crystalline rock is gray to reddish brown and ranges from extremely weathered to hard and fresh. Extremely- to moderately-weathered granitic rock crops out at the surface, primarily at higher elevations around the landfill. Discontinuous outcrops of the Lusardi Formation, a poorly sorted conglomerate, rest unconformably on granitic bedrock in the northeast portion of the site (Kennedy and Peterson, 1975). The waste fill is underlain by extremely-weathered granitic bedrock and Quaternary-age alluvium primarily derived from weathered granitic bedrock. No major faulting has been identified within one mile of the site; however, jointing is present in the granitic rock. Predominant surface joint attitudes and geologic contacts at the site and in the site vicinity strike approximately N35°W, N32°E, and N70°E (IT, 1999).

2.3.3 Hydrogeology

The site is located in the Poway Hydrologic Area (6.20) of the Penasquitos Hydrologic Unit (RWQCB, 2006b). Groundwater within the Poway Hydrologic Area has been designated as beneficial for municipal and agricultural uses and potentially beneficial

for industrial supply uses (RWQCB, 2006b). Groundwater beneath the site is considered unconfined and flows within the alluvium, extremely-weathered granitic bedrock, and underlying fractured granitic bedrock. Historically, groundwater elevations have ranged from approximately 696 feet MSL to approximately 576 feet MSL (Table 1).

Between August 1998 and late 2004, groundwater elevations at the site exhibited a general declining trend (Figure 4). Due to significant rainfall that occurred between January and March 2005 (National Weather Service, 2005), groundwater elevations increased in all monitor wells and piezometers between the first and third quarter 2005 monitoring events (except for monitor well POGW-12). However, since the first quarter 2006 groundwater elevations site wide have decreased between 2.10 feet in monitor well POGW-10 to greater than 8.19 feet in monitor well POGW-18A (Figure 4). Consistent with previous data, the direction of groundwater flow is generally southerly at an average hydraulic gradient ranging from 0.03 to 0.20 feet per foot (ft/ft) (Figure 5).

2.3.4 Hydrology

The site is located at the head of a small canyon that widens to the south and drains toward Poway Creek, a west-trending drainage approximately 3,500 feet south of the site (Figure 6). Drainage in Poway Creek flows west toward Rattlesnake Creek. Surface water for the Los Penasquitos Creek Watershed has been designated as having existing beneficial use for agricultural purposes, contact and non-contact water recreation, warm freshwater habitat and wildlife habitat and potential industrial uses (RWQCB, 2006b). With the exception of Rattlesnake Creek located approximately 3,000 feet upgradient of the site, no perennial surface water occurs within 1-mile of the site. Surface water runoff in the site vicinity occurs during and shortly after periods of precipitation and is directed away from the site by storm drains, drain pipes, and a concrete-lined channel.

2.4 Previous Investigations

Several subsurface investigations have been conducted at the site since 1991. The findings of these investigations are summarized below.

2.4.1 Routine Semi-Annual Groundwater Monitoring

Routine groundwater monitoring has been performed at the site since 1991. Groundwater samples analyzed for general chemistry parameters and volatile organic compounds (VOCs) indicate that groundwater quality beneath the landfill is relatively stable with the exception of slightly increasing concentrations of trichloroethene (TCE) and cis-1,2,-dichloroethene (DCE) in groundwater samples collected from monitor well POGW-14. The highest concentrations of VOCs have historically been observed in groundwater samples collected from former monitor well POGW-7, piezometer POPW-1, and monitor well POGW-14.

2.4.2 Water-Quality Solid Waste Assessment (SWAT)

A water-quality solid waste assessment test (SWAT) conducted for the Poway Landfill was performed in response to the provisions of the California Water Code, Section 13273, as amended (IT, 1993). The purpose of the SWAT was to determine whether the site poses a threat to water quality. The results of the SWAT indicated that in 1993 TCE and vinyl chloride were detected at concentrations above maximum contaminant levels (MCLs) for drinking water in groundwater samples collected from monitor wells POGW-7 and POGW-8.

2.4.3 Evaluation Monitoring Program (EMP)

IT Corporation (IT) prepared an Evaluation Monitoring Program (EMP) report on the Poway Landfill on behalf of the County for submittal to the RWQCB (IT, 1999). The EMP was implemented in response to the detection of potential landfill constituents in groundwater samples collected from site monitoring wells, according to the requirements of RWQCB Order No. 94-165. Groundwater samples were collected from existing monitor wells and four monitor wells (POGW-9, -10, -11, -12, and -13) installed between January and February 1996. The results of the EMP indicated that in 1999 VOCs (DCE, methylene chloride, TCE, and vinyl chloride) were detected at concentrations exceeding MCLs for drinking water in groundwater samples collected from monitor well POGW-7 located in the western portion of the site.

Due to a relatively long screen interval, monitor well POGW-7 was destroyed in December 1999 because it was thought to be a pathway for constituent migration (Geosyntec, 2000a). Monitor well POGW-14 was installed in January 2000 to replace POGW-7. Additional work was recommended to confirm the lateral and vertical extent of VOC impacts to groundwater in the vicinity of former monitor well POGW-7.

2.4.4 Source Characterization

To further evaluate the source of VOCs, primarily TCE, in groundwater in the northwest portion of the landfill, Geosyntec performed a source characterization in April 2003. The source characterization included installation of five piezometers (POPW-1,
POPW-2A, POPW-2B, POPW-3, and POPW-4) in the vicinity of monitor well POGW-14 to evaluate the source of VOCs in the northwest portion of the landfill (Geosyntec, 2004a). The results of the source characterization confirmed an apparent primary source of TCE in the northwest portion of the landfill. The presence of the TCE degradation products DCE and vinyl chloride in groundwater samples collected from the POPW-series piezometers indicated that natural attenuation of TCE was occurring in site groundwater. Based on results of the source characterization and evaluation of historical groundwater sampling data, the apparent primary source area appeared to be localized in the northwest portion of the landfill.

Aquifer testing conducted during the source characterization indicated a low degree of hydraulic connection between fractures in the upper, intermediate, and lower fractured zones. Hydraulic conductivity estimates for the suspected primary source area ranged from 0.04 to 0.6 ft/day, with estimated groundwater velocities ranging from 0.07 to 5.4 ft/day. The relatively low hydraulic conductivities and low degree of hydraulic connection in the suspected primary source area appeared to be limiting the downgradient migration of constituents detected in the primary source area.

2.4.5 Phase II Evaluation Monitoring Program

To further evaluate the nature and extent of potential landfill impacts and assess potential risks to the residential community located south of the site, a Phase II EMP was performed (Geosyntec, 2004b). Monitor well POGW-16 was installed near the southwest corner of the landfill property to provide additional downgradient groundwater monitoring data west of monitor well POGW-15 and downgradient of the localized primary source area in the northwest portion of the landfill. TCE, 1,1-dichloroethane (1,1-DCA), DCE, and vinyl chloride were detected in groundwater samples collected from monitor well POGW-16 at concentrations exceeding MCLs for drinking water.

VOCs detected in groundwater samples collected near the southern property boundary are believed to be primarily attributable to LFG. To assess the presence of VOCs in soil vapor in the unsaturated zone between groundwater and the ground surface, a

screening-level soil vapor survey was performed along the southern property boundary. VOCs were detected in the soil vapor samples collected from nine screening-level soil vapor sampling locations near the southern property boundary. The most prevalent constituents detected in the soil vapor samples were dichlorodifluoromethane (DCDFM), acetone, 2-butanone, benzene, toluene, ethylbenzene, total xylenes, and tetrachloroethene (PCE).

Because VOCs detected in soil vapor and groundwater samples have the potential to migrate through the subsurface into indoor air, a screening-level vapor phase human health risk assessment was conducted to evaluate potential risk to the adjoining residential area south of the site. The screening-level vapor phase human health risk assessment was performed using the Department of Environmental Health (DEH) Vapor Risk model and the California Department of Toxic Substances Control (DTSC) modified Johnson and Ettinger (J&E) vapor intrusion model (DTSC J&E model). Theoretical estimated lifetime cancer risks (ELCRs) and noncancer hazards due to potential exposure to VOCs detected in soil vapor samples using the DEH model were less than the DEH target health goals of 1×10^{-6} and 1.0, respectively. The cancer risk estimated using the DTSC J&E model slightly exceeded the DEH target risk goal of 1×10^{-6}; however, the inputs used in the model were conservative and likely resulted in an overestimation of risk.

2.4.6 Updated Report of Waste Discharge and Engineering Feasibility Study

To further evaluate the nature and extent of potential landfill impacts and potential risks to the residential community located south of the site, an Updated Report of Waste Discharge (ROWD) and Engineering Feasibility Study (EFS) was performed (Geosyntec, 2005b).

A screening-level offsite soil vapor survey was performed within Dehia Street and El Mar Avenue to obtain the necessary soil vapor data to update the vapor phase human health risk assessment for the adjoining residential area south of the landfill. VOCs (primarily benzene) were detected in soil vapor samples collected from two depths at ten soil vapor sampling locations within Dehia Street and El Mar Avenue.

The updated screening-level risk assessment using maximum exposure point concentrations (EPCs) did not change significantly when compared to the results from the vapor phase human health risk assessment conducted during the Phase II EMP. Although the cancer risk estimated using the DTSC J&E model and maximum EPCs still slightly exceeded the DEH target risk goal of 1×10^{-6}, the inputs used in the model

were conservative and likely resulted in an overestimation of potential risk. Based on a distributional assumption using the DTSC J&E model and 95% upper confidence limit (UCL95) concentrations, the potential cancer risk was approximately equivalent to the DEH target risk goal of 1×10^{-6}.

2.4.7 Additional Soil Vapor Evaluation and EFS

Based on the results of the 2005 ROWD/EFS, the County voluntarily initiated an additional soil vapor evaluation and EFS to further assess potential soil vapor impacts potentially related to the site on the adjoining residential community south of the site (Geosyntec, 2006b). As part of the additional soil vapor evaluation, a soil vapor monitoring network was installed onsite and within the residential community downgradient south of the site. Improved field sampling methods were used during the additional soil vapor evaluation compared to methods used during previous screening-level soil vapor investigations at the site. Multiple soil vapor sampling events have demonstrated that soil vapor samples collected from soil vapor monitor wells, as opposed to temporary one-time sampling points yield more consistent and repeatable soil vapor sample data.

The vapor phase human health risk assessment was updated based on the results of the additional soil vapor evaluation. Using the DTSC (J&E) model and VOC concentrations for each vapor well, the theoretical ELCR was estimated to range from 2×10^{-8} to 9×10^{-7}, while the noncancer hazard was estimated to range from 0.001 to 0.05. These hypothetical risk values are acceptable according to the USEPA, DTSC, and DEH even when conservative assumptions and input parameters are used.

Evaluation of laboratory analytical results for soil vapor samples collected during the additional soil vapor evaluation indicates VOCs detected in soil vapor samples collected at the southern property boundary appear to be due to the landfill, and VOCs detected in the adjoining area south of the site may be attributable to the landfill and other offsite sources unrelated to the landfill.

To evaluate potential seasonal variations in soil vapor onsite and offsite in the residential community, the proposed corrective action included semi-annual groundwater monitoring, semi-annual onsite and offsite soil vapor monitoring through August 2007, and enhancements to the landfill gas extraction system.

2.4.8 Dual-Phase Extraction Pilot Study

A dual-phase extraction (DPE) pilot study was conducted between February and April 2006 to evaluate the effectiveness and implementability of DPE to remove or control VOCs detected in groundwater samples collected from monitor wells and piezometers in the apparent primary source area (Geosyntec, 2006d). The DPE system was installed to extract soil vapor and groundwater from piezometer POPW-1, from which groundwater samples have historically contained the highest detected concentrations of VOCs. Groundwater elevations were also monitored throughout the pilot study in nearby upper fracture zone piezometers POPW-2A, POPW-3, and POPW-4 and intermediate fracture zone piezometer POPW-2B.

During the period from 15 February to 25 April 2006, approximately 5,200 gallons of water were pumped from POPW-1 (approximately 74 gallons per day, or approximately 0.05 gallons per minute [gpm]). During the 70 day pilot test, groundwater elevations increased approximately four feet in POPW-3 (approximately 60 feet northeast of POPW-1) and decreased approximately one foot in POPW-2A (approximately 80 feet east of POPW-1); groundwater elevations in POPW-2B and POPW-4 (approximately 140 feet southeast of POPW-1) were unaffected by pumping in POPW-1. The total estimated mass of VOCs removed from soil vapor and groundwater during the pilot test was 174 grams (approximately 149 grams from the vapor phase and 25 grams from the groundwater phase).

The results of the pilot study confirmed a low degree of hydraulic connection between fractures in the suspected primary source area. In addition, based on the low sustainable extraction rates (approximately 0.05 gpm) and the relatively small estimated mass removal achieved during the DPE pilot study, DPE was deemed to be an ineffective and infeasible technology for mitigating VOCs in groundwater in the vicinity of the apparent primary source area.

3. SUMMARY OF WELL INSTALLATION ACTIVITIES

This section presents a summary of groundwater activities performed during the period from April through November 2006 related to the installation of five monitor wells offsite west and south of the Poway Landfill. These activities were conducted in accordance with the Corrective Action Program Work Plan (Geosyntec, 2005a) and the Work Plan for Additional Hydrogeologic Characterization (Geosyntec, 2006a). Groundwater monitor wells were constructed in general accordance with County of San Diego DEH monitor well permit numbers LMON103898, LMON104016, and LMON104364 (Appendix A).

3.1 Drilling

The following subsections present a summary of drilling activities conducted at the site in April, June, and November 2006 related to the installation of three offsite monitor wells west (POGW-19, POGW-22, and POGW-23) and two offsite monitor wells south (POGW-24A and POGW-24B) of the site (Figure 2). The borings were logged by a Geosyntec geologist working under the direction of a California Professional Geologist. Subsurface conditions encountered during drilling were described in the field and recorded on boring logs (Appendix B).

3.1.1 POGW-19

Based on concentrations of VOCs detected in groundwater samples collected from monitor well POGW-16 near the southwest corner of the site, POGW-19 was installed west of POGW-16 to further assess potential offsite migration of VOC impacted groundwater (Figure 2). On 17 April 2006, Geosyntec contracted Tri-County Drilling of San Diego, California (Tri-County) to construct one monitor well west of the western site boundary. The pilot boring for POGW-19 was advanced using and all-terrain CMW-75 drill rig capable of converting to air-rotary-casing-hammer drilling methods. An 8-inch diameter temporary drive casing was advanced through residuum to the top of competent granitic bedrock to prevent caving of noncohesive soils and to improve circulation and cuttings return. After encountering competent bedrock at approximately 13.5 feet bgs, boring POGW-19 was advanced to a total depth of 84 feet bgs using a 6¼-inch diameter down-hole hammer bit.

3.1.2 POGW-22

Based on concentrations of VOCs detected in groundwater samples collected from monitor wells and piezometers in the western portion of the site (POGW-14, POPW-1), POGW-22 was installed west of the site in Hidden Knoll Road (Figure 2). On 7 June 2006, Geosyntec contracted Tri-County to construct one groundwater monitor well west of the western site boundary. The pilot boring for POGW-22 was advanced using a SIMCO truck-mounted hollow stem auger drill rig capable of switching to air-rotary-casing-hammer drilling methods. As with POGW-19, 8-inch diameter drive casing was advanced through the residuum to the top of competent bedrock. After encountering competent bedrock, the boring for POGW-22 was advanced to the target depth of 153 feet bgs using a 6¼-inch diameter down-hole hammer bit. The target depth was the projected depth of groundwater based on measured groundwater elevations in monitor wells approximately 200 feet northeast of the boring. Groundwater was not encountered during drilling on 8 June 2006, therefore the borehole was left open for geophysical logging and to allow water to accumulate. On 15 June 2006 groundwater was not reported in the boring, therefore the boring was drilled to a total depth of 202 feet bgs using a 6¼-inch diameter down-hole hammer bit. Upon deepening of the borehole, groundwater producing fractures were encountered at approximately 195 feet bgs. Depth to groundwater following installation of POGW-22 was approximately 138 feet bgs.

3.1.3 POGW-23 and POGW-24A/24B

Due to VOC concentrations detected in groundwater samples collected from monitor wells POGW-19 and POGW-22 during the third quarter 2006 semi-annual monitoring event, an additional monitor well appeared warranted west of POGW-22 to further assess potential offsite migration of VOC impacted groundwater. Additionally, due to VOC concentrations detected in soil vapor samples collected from soil vapor wells VW-4A and VW-4B, additional groundwater monitor wells appeared warranted in the vicinity of VW-4A/4B to further assess the potential of VOCs volatilizing from groundwater into shallow soil vapor. On 15 November 2006, Geosyntec contracted WDC Wells and Exploration of Montclair, California (WDC) to construct one groundwater monitor well west (POGW-23) and two south (POGW-24A/-24B) of the site (Figure 2). Pilot borings for POGW-23, POGW-24A, and POGW-24B were advanced using an Ingersoll Rand T3W air-rotary drill rig. During drilling, 8-inch diameter temporary drive casing was advanced to the top of competent bedrock to prevent caving of noncohesive soils and to improve circulation and cuttings return. Borings POGW-23 and POGW-24A were advanced to 20.5 and 46.5 feet bgs,

respectively, using an 8-inch diameter tri-cone bit. Boring POGW-24B was advanced to a depth of 45.5 feet bgs using an 8-inch diameter down-hole hammer bit.

3.2 Geophysical Logging

The following sections present a summary of the geophysical logging conducted on boreholes POGW-22, POGW-23, and POGW-24B prior to constructing monitor wells. Geophysical logging was performed using an optical televiewer (OPTV) in the boreholes to evaluate bedrock fracture occurrences and orientations. The OPTV logs are presented as Appendix C.

3.2.1 POGW-22

Prior to the construction of a monitor well at POGW-22, the initial boring was drilled to a target depth of 153 feet bgs. On 8 June 2006, borehole POGW-22 was logged using an OPTV to evaluate bedrock fracture orientations and potential groundwater seepage from fractures to a depth of 146 feet bgs. Previous fracture data collected from site boreholes in the vicinity of POGW-22 indicate the dominant fracture trends in the primary source area were approximately S85°W and N75°E with a south-southeast dip (Geosyntec, 2005a). Seventy-two fractures were identified in borehole POGW-22 from 7 to 127 feet bgs. Consistent with previous data, the predominant fracture orientation in POGW-22 is approximately N80W. Following OPTV logging, the borehole was covered with a 3 foot diameter metal cover and bentonite chips were placed on top of the cover to prevent surface water from entering the borehole. A 960 pound 4 by 6 foot steel plate was placed over the borehole to secure the boring.

3.2.2 POGW-23 and POGW-24B

On 16 November 2006, prior to constructing monitor wells at POGW-23 and POGW-24B, the boreholes were logged using an OPTV to evaluate bedrock fracture orientations. Groundwater was encountered in the boring for POGW-24B at approximately 24 feet bgs, and in the boring for POGW-23 at approximately 32 feet bgs. The cloudiness of groundwater present in the borings prevented the OPTV logging of the saturated portions of the boreholes. The predominant fracture orientation identified in the unsaturated portion of boring POGW-23 was N25E dipping to the south. In boring POGW-24B the predominant fracture orientation was approximately N5E dipping east. The predominant fracture orientations in boreholes POGW-23 and POGW-24B are not consistent with previous fracture orientation data. However only

nine (POGW-23) and four (POGW-24B) fractures were identified in the boreholes. These relatively small fracture populations may not be representative of the fracture orientations in the saturated portions of the boreholes.

3.3 Monitor Well Construction

At the conclusion of drilling, each boring was converted to a monitor well. Monitor well construction details are summarized below and are presented on the boring logs in Appendix B:

Well Construction Specifications	POGW-19	POGW-22	POGW-23	POGW-24A	POGW-24B
Date installed	4/17/06	6/15/06	11/17/06	11/16/06	11/16/06
Drilling method	Air Rotary	Air Rotary	Air Rotary	Air Rotary	Air Rotary
Boring depth (feet bgs)	84	202	46.5	20.5	45.5
Top-of-casing Elevation(feet, MSL)	652.62	773.86	609.5	604.23	604.17
Latitude*	32.9632614	32.9651146	32.9625952	32.9631727	32.9631722
Longitude*	-117.0193325	-117.0194835	-117.0021708	-117.0178993	-117.0179109
Well diameter (inches)	2	2	2	2	2
Surface completion	Stand-Pipe	Flush-mounted	Flush-mounted	Flush-mounted	Flush-mounted
Well depth (feet bgs)	83	200	40	20	45
Screen Interval (feet bgs)	68-83	200-185	30-40	10-20	35-45
Screen Slot Size (inches)	0.02	0.02	0.02	0.02	0.02
Filter Pack Interval (feet bgs)	66-84	202-183	28-41	8-20.5	33-45.5
Filter Pack Type	#3 sand	#3 sand	#3 sand	#3 sand	#3 sand

* - Geographic coordinate system, NAD 83 Datum, decimal degrees

Wellhead and ground surface elevations were surveyed to the nearest 0.01-foot by Rick Engineering on 22 May (POGW-19), 22 June (POGW-22), and 1 December 2006 (POGW-23, POGW-24A, and POGW-24B). Monitor wells POGW-19 and POGW-22 were developed on 27 April and 12 July 2006, respectively. Monitor wells POGW-23, POGW-24A, and POGW-24B were developed on 20 and 21 November 2006. Monitor wells were developed in accordance with DEH SAM manual guidance.

3.4 Groundwater Sampling

Monitor well POGW-19 was initially sampled on 5 May 2006. Monitor well POGW-19 was re-sampled and monitor well POGW-22 was initially sampled as part of the third quarter 2006 semi-annual monitoring event on 17 July 2006. Monitor wells POGW-23,

-24A, and -24B were initially sampled on 11 December 2006 and re-sampled as part of the first quarter 2007 annual monitoring event on 17 January 2007.

Groundwater samples and quality control samples were submitted to Calscience Environmental Laboratories (Calscience) for laboratory analysis as follows:

Parameter	Method
Chloride	SM4500-Cl C
Nitrate as nitrogen	EPA 353.3/354.1
Field pH, field conductivity	Field Method
Sulfate	EPA 375.4
Total Dissolved Solids (TDS)	EPA 160.1
Bicarbonate, carbonate	SM2320B
Chemical Oxygen Demand (COD)	EPA 410.4
Dissolved calcium, potassium, magnesium, and sodium	EPA 6010B
Volatile Organic Compounds (VOCs)	EPA 8260B

The results for the first quarter 2007 annual monitoring event are presented in the 2006 Annual Monitoring Report (Geosyntec, 2007). First quarter 2007 groundwater analytical results are summarized in Table 2. Laboratory analytical certificates are presented in the first quarter 2007 routine groundwater monitoring report. General chemistry parameters and metal parameters detected in groundwater samples collected during the first quarter 2007 monitoring event were within historical concentrations and remained relatively stable except for decreasing pH in the groundwater samples collected from monitor wells POGW-16 and POGW-21; and increasing COD concentrations in groundwater samples collected from monitor wells POGW-13, POGW-14, POGW-17B, POGW-19, POGW-20, and POGW-21. VOCs were detected in the groundwater samples collected from monitor wells POGW-19 and POGW-22, indicating VOC impacted groundwater has migrated offsite to the west (Geosyntec, 2007). However, VOCs were not detected in the groundwater samples collected from monitor wells downgradient and cross gradient (POGW-11 and POGW-23) during the first quarter 2007 monitoring event, indicating the extent of VOC-impacted groundwater offsite southwest of the site has been sufficiently delineated.

The groundwater sample collected from shallow well POGW-24A did not contain detectable concentrations of VOCs, but VOCs detected in the groundwater sample collected from upper fracture zone monitor well POGW-24B included 1,1-dichloroethane (5.9 µg/L), 1,1-dichloroethene (0.67 µg/L), 1,4-dichlorobenzene (2.5 µg/L), chlorobenzene (1.0 µg/L), DCE (0.88 µg/L), DCDFM (2.5 µg/L), PCE (1.4 µg/L), TCE (1.0 µg/L), and vinyl chloride (0.37 µg/L). Groundwater samples

collected from monitoring wells downgradient of POGW-24B indicate that constituents detected in the sample collected from POGW-24B attenuate significantly to trace or non-detectable concentrations in the distance of 300 to 400 feet.

The RWQCB has expressed concerns about the quality of groundwater samples collected from some groundwater monitor wells screened in fractured rock. Specifically, the RWQCB has questioned whether monitor wells with "drowned screens" are providing representative water quality data. As discussed in the 2006 Annual Monitoring Report (Geosyntec, 2007), to evaluate the potential impact of well construction on groundwater quality for monitor wells with "drowned screens," during January 2007 Geosyntec employed low-flow sampling methods as outlined in Section 5.VII.B.2 of the current San Diego County DEH SAM manual.

The concentrations of COCs detected in groundwater samples collected utilizing low-flow sampling methods were consistent with those detected in the first quarter 2007 routine semi-annual sampling event and previous monitoring events using standard purging techniques. Therefore, it appears that current sampling methods utilized in the routine semi-annual monitoring events yield representative groundwater quality data and modifying sampling methods to incorporate low-flow sampling is not warranted (Geosyntec, 2007). Based on the comparison of purging methods, Geosyntec will continue using standard purging and sampling methods for future routine semi-annual groundwater monitoring events.

4. COVER EVALUATION

This section presents a summary of the activities conducted at the site between August 2006 and March 2007 as part of an evaluation of the existing cover system at the Poway Landfill. The recommended corrective action program presented in the Additional Soil Vapor Evaluation (Geosyntec, 2006b) included an evaluation of the cover and the LFG system. The purpose of existing cover system evaluation described herein was to evaluate the suitability of the cover to minimize infiltration of rainwater, and to evaluate the integrity of surface water conveyance structures installed within the cover. Existing LFG extraction wells were also gauged to evaluate the presence of saturated waste within the landfill

4.1 Evaluation of Top Deck Storm Drain

Two metal pipes convey storm water from the central and southern portions of the top deck of the landfill, through the refuse to a concrete drainage channel on the east side of the site and to the desiltation basin (Figure 2). Because of suspected localized areas of saturation in the refuse near these pipes, a video inspection was performed to assess whether the pipes were damaged and thereby possibly allowing surface water to percolate directly into the refuse.

On 21 August 2006, Affordable Pipeline Services (Affordable Pipeline) of San Diego, California (under subcontract to Geosyntec) mobilized to the site to conduct a video survey of the two top deck storm drains. Minor deformations and holes were observed in portions of the pipes. However, the holes were generally on the upper portions of the pipes and did not appear to be areas where surface water would enter refuse. A copy of Affordable Pipeline's report is provided in Appendix D.

4.2 Landfill Gas Extraction Well Evaluation

Based on previous assessments, localized areas in the deepest portions of the landfill were suspected to be saturated as a result of contact with groundwater. Geosyntec evaluated the presence of potentially saturated waste in the vicinities of landfill gas (LFG) extraction wells EW-2 and EW-18, in which standing water had been previously observed (Geosyntec, 2005b). In August 2006 and March 2007, Geosyntec personnel gauged EW-2 and EW-18 for the presence of water but no water was present in either well. Therefore, it appears that saturated waste may not currently be present in the vicinities of LFG extraction wells EW-2 and EW-18.

The absence of water in LFG extraction wells EW-2 and EW-18 during August 2006 and March 2007 may be due to drought conditions in southern California. On average, since the July 05 monitoring event groundwater levels across the site have decreased approximately 5 to 6 feet with a water level decline of 11.56 feet observed in monitor well POGW-10. Based on these data future water level gauging of LFG wells may be warranted during periods of higher (non-drought) rainfall to evaluate areas where waste may come into contact with groundwater.

4.3 Cover Sampling

On 3 January 2007, Geosyntec advanced three test pits in the top deck of the landfill (Figure 7). The soil overlying the waste in the three test pits ranged in thickness from approximately 6 to 10 feet. The soil encountered in the test pits overlying waste ranged from silty sand with cobbles to clayey sand with gravel. One soil sample collected from each test pit was submitted to Daniel B. Stephens and Associates, Inc. (DBSA) of Albuquerque, New Mexico for laboratory analysis as follows:

- Laboratory compaction characteristics (ASTM D1157);
- Grain Size (ASTM D422);
- Atterberg Limits (ASTM D4318);
- Hydraulic Conductivity; and
- Soil Water Characteristic Curve (ASTM D3836).

A copy of the DBSA laboratory analytical certificate is provided in Appendix E. The results of the soil physical properties laboratory testing was used to model the effectiveness of the existing cover system in terms of controlling infiltration of storm water using the UNSAT-H model.

To evaluate the thickness of the existing cover system on the side slopes of the landfill, twenty hand auger borings were advanced on the side slopes of the landfill on 14 and 15 March 2007 (Figure 7). With the exception of HAP-1 through -5, borings were advanced perpendicular to the slope. Borings HAP-1 through -5 could not be advanced perpendicular to slope because the steep slope did not provide adequate footing. Soil was described and characterized in accordance with ASTM D 2488 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Hand auger borings were backfilled with bentonite chips to approximately 6 inches bgs, hydrated with potable water, and capped with clean soil.

The soil type encountered (silty to clayey sand with gravel) on the side slopes was consistent with those observed on the top deck of the landfill. Based on the test pits and hand auger borings advanced into the existing cover system the cover thickness ranges from approximately 2.2 feet to greater than 5 feet on the side slopes, and 6 to 10 feet on the top deck (Table 3, Figure 7).

4.4 UNSAT-H Model

The hydraulic performance of the existing soil cover system on the top deck of the Poway Landfill was evaluated by comparing the simulated rate of drainage through the existing cover system to that for a prescriptive cover system meeting the requirements of Section 21090(a) of Title 27.

The existing soil cover system is a monolithic soil cover, a type of an evapotranspirative (ET) cover system. Except for the southern limit of the top deck where the ET cover system thickness was measured as 3 ft (at PPT-V-16, -17, and -17A), the measured thickness of the existing cover on the top deck ranges from 4 to 11 ft and is greater than 6 ft on an average basis. The soil is classified as silty sand to clayey sand with gravel. The vegetation on the ET cover system typically consists of low grasses and shrubs.

The Title 27 prescriptive cover system consists of the following components, from top to bottom:

- 1-ft thick erosion-resistant layer;
- 1-ft thick low hydraulic conductivity layer with a maximum hydraulic conductivity of 1×10^{-6} cm/s; and
- 2-ft thick foundation layer.

The ability of the ET cover system to provide equivalent reduction in infiltration (i.e., drainage of precipitation from the bottom of the cover system) to the Title 27 prescriptive cover system was analyzed using the computer program *UNSAT-H*. This program incorporates a one-dimensional finite-difference water balance model developed at Pacific Northwest National Laboratory (PNNL) (Fayer and Jones, 1990) to assess the water dynamics of waste disposal facilities at the U.S. Department of Energy (DOE) Hanford site. Version 3.01 of the model was used for the simulations described herein. The *UNSAT-H* model considers precipitation, runoff, evapotranspiration, soil water storage, and percolation (i.e., vertical drainage from the cover system) in the water balance. Because *UNSAT-H* is a one-dimensional model, lateral drainage of water is not considered.

The *UNSAT-H* model requires the input of daily weather data, vegetation data, soils data, and initial and boundary conditions. There are no default data; the user must specify each input parameter. Input parameters used in the hydraulic assessment of the ET cover systems were selected to be consistent with site-specific parameters. All simulations were conducted using 10 years (1989 to 1998) of measured daily weather data, with precipitation data obtained from a weather station in Poway, California. Maximum temperature, minimum temperature, dew point temperature, solar radiation, and wind speed data were obtained from a weather station in Escondido, California (located approximately 8 miles north of Poway). Both the ET cover system and the Title 27 prescriptive cover system were assumed to be vegetated with grass having a maximum leaf area index of 1.2 and a root depth of 6 in. The ET cover system was modeled as a 3 to 4-ft thick layer of silty sand with an average hydraulic conductivity of 2.8×10^{-5} cm/s (arithmetic average of measured values). The Title 27 prescriptive cover system was modeled as a 1-ft thick layer of silty sand with a saturated hydraulic conductivity of 1×10^{-4} cm/s overlying a 1-ft thick layer of clayey sand with a saturated hydraulic conductivity of 1×10^{-6} cm/s. The initial water content of the soil was assumed to be similar to that recently measured for samples of the ET cover system soils collected by Geosyntec. The upper boundary condition was specified by weather data and the lower boundary was specified as unit gradient (i.e., gravity-induced drainage).

For the Title 27 prescriptive cover system, the calculated average annual drainage over the simulation period was 12 mm/year. The calculated average annual drainage for the 3-ft thick ET cover system was 1.3 mm/year. When the thickness of the ET cover system was increased to 4-ft, the calculated average annual drainage only decreased slightly to 1.1 mm/year. Based on the results of the simulations, the existing ET cover system at the Poway Landfill allows less drainage than the Title 27 prescriptive cover system. A detailed summary of the UNSAT-H modeling and results is provided in Appendix E.

4.5 Cover Evaluation Summary

Manometer testing performed at the site in 2006 indicated soil vapor wells screened within the landfill, beneath the landfill, and outside the footprint of the landfill show moderate to significant responses to changes barometric pressure. Soil vapor wells screened within the waste also responded to the LFG extraction system, but only one of the two wells screened below the waste responded to the LFG extraction system, and none of the soil vapor wells screened outside the landfill footprint responded to the LFG extraction system. The response of each soil vapor well to barometric changes

appeared to be related to the permeability of the media between the soil vapor well and the atmosphere. In addition, the response of soil vapor wells screened in the waste to barometric changes suggested that the landfill cap was relatively permeable. As a result, the cover assessment described herein was performed.

Video inspection of the interior of two metal storm water conveyance pipes near the central and southern portions of the top deck of the landfill indicated minor deformations and holes on the upper portions of the pipes. Therefore, the condition of the pipe interiors suggests it is unlikely that significant quantities of surface water would enter refuse. In addition, two LFG extraction wells near the areas where the surface water conveyance inlets are located, and the area where suspected saturated waste may be located, were gauged for the presence of standing water. No standing water was observed in the two extraction wells.

Cover sampling performed during this assessment indicated the cover consists of silty to clayey sand with gravel and cobbles, with an average hydraulic conductivity of 2.8×10^{-5} cm/s. The cover thickness was found to range from approximately 2.2 feet to greater than 5 feet on the side slopes, and 6 to 10 feet on the top deck. Based on the UNSAT-H modeling performed using physical soil properties obtained from cover soil samples, the existing ET cover system at the Poway Landfill allows less drainage than the Title 27 prescriptive cover system. In addition, previous investigations performed at the site indicated that native soil samples collected near the southern site boundary have an average hydraulic conductivity of approximately 9.9×10^{-5} (Geosyntec, 2006b). Therefore, the materials in the existing cap appear to be less permeable than native soil outside the landfill footprint.

5. SOIL VAPOR INVESTIGATIONS

Based on screening-level soil vapor surveys conducted in the southern portion of the site in 2004 and in the southern portion of the site and offsite in 2005, a soil vapor monitoring network was installed onsite and downgradient in the residential area south of the site in March 2006 (Figure 2). This section provides a summary of the four soil vapor sampling events conducted between April 2006 and January 2007.

5.1 April and May 2006 Sampling Events

Results of the April and May 2006 soil vapor sampling events are summarized in the June 2006 Additional Soil Vapor Evaluation and Engineering Feasibility Study (Geosyntec, 2006b). Based on soil vapor data collected in 2006, LFG appeared to have migrated to the southern property boundary. However, the concentrations of VOCs in soil vapor were significantly attenuated from the waste to the southern property boundary. Potential offsite sources of VOCs in soil vapor other than the landfill in the area south of the site include atmospheric fallout, storm water infiltration, and impacts from underground storm drains and sanitary sewer lines. Furthermore, BTEX and other VOCs detected in offsite soil vapor samples may have been introduced during residential site construction, chemical use at individual residences from the late 1960s to the present, historical agricultural activities and other sources unrelated to the landfill. In addition, results of the risk assessment indicate that VOCs in soil vapor samples collected south of the site do not pose an unacceptable risk according to USEPA, DTSC, and DEH.

5.2 July 2006 and January 2007 Sampling Events

Results of the July 2006 soil vapor sampling event are summarized in the April – September 2006 Semi-Annual Monitoring Report (Geosyntec, 2006c). Results of the January 2007 soil vapor sampling event are summarized in the 2006 Annual Monitoring Report (Geosyntec, 2007). VOC concentrations in soil vapor samples collected during the July 2006 and January 2007 semi-annual sampling events were generally similar to or less than concentrations measured during the April and May 2006 sampling events. Because the estimated risk calculated using the April and May 2006 data did not exceed established regulatory acceptable risk levels, and the similarity of the July 2006 and January 2007 soil vapor data to the April and May 2006 soil vapor data, the theoretical risks were estimated to be consistent with the theoretical risks calculated based on the April and May 2006 sampling events.

5.3 Summary of Soil Vapor Investigations

Four soil vapor sampling events were conducted at the site between April 2006 and January 2007 to assess the potential offsite migration of LFG and to evaluate potential human health risks to residents south of the site (Geosyntec, 2007a, 2007b, 2006b, 2006c). The following VOCs have accounted for the greatest portion of the vapor-phase risks and, therefore, are considered to comprise the constituents of concern (COCs):

- Dichlorodifluoromethane (DCDFM, Freon 12)
- Tetrachloroethene (PCE)
- Trichloroethene (TCE)
- cis-1,2-Dichloroethene (DCE)
- Vinyl Chloride
- Benzene
- Toluene
- Ethylbenzene
- Xylenes

A summary of the soil vapor analytical results from the January 2007 sampling event is provided in Table 4. Time series plots for the primary COCs (onsite and offsite PCE, TCE, and benzene) are provided in Appendix F. Soil vapor concentrations have remained consistent or have decreased over the course of the four sampling events conducted between April 2006 and January 2007. In addition, the frequency of VOC detections has decreased over the course of the four soil vapor sampling events. A summary of the historical PCE, TCE, and benzene concentrations detected in soil vapor samples collected between April 2006 and January 2007 is provided in Table 5. Soil vapor sampling performed between April 2006 and January 2007 indicates that VOCs do not pose a risk to offsite residents according to the USEPA, DTSC, and DEH.

6. UPDATED SITE CONCEPTUAL MODEL

The results from previous and ongoing investigations performed at the Poway Landfill are summarized in the following updated SCM. This SCM has been prepared in general accordance with ASTM Standard D 1689. The SCM addresses groundwater flow, source and transport of VOCs, metals, and general chemistry parameters. A SCM provides the framework for understanding the factors that affect the fate and transport of constituents of concern (COCs) at the landfill. Theoretical knowledge of physical processes is combined with experience from similar sites to assist in interpreting the site-specific data. The SCM is also the foundation for mathematical modeling used to simulate site conditions in the past, future, or beyond the spatial limits of the available data.

The SCM is typically divided into three parts; source, pathway, and receptor. A description of the hydrogeological model is also included. The source conceptualization includes an estimate of the mass and flux of each constituent, the volume over which the source is applied, and the persistence of the source concentration. The pathway conceptualization includes the groundwater flow direction and velocity, as well as an analysis of dispersive mixing, dilution, degradation, sorption, and volatilization, all of which may affect constituent concentration distribution. The receptor conceptualization includes the route, frequency, and duration of exposure, the rate of uptake, the dose-response relationship, and factors such as sensitive receptors or synergistic effects from multiple constituents with a similar mode of toxic action.

6.1 Hydrogeological Model

The hydrogeological model is based on review of previous work at the landfill (IT, 1999) and site investigations performed by Geosyntec (Geosyntec, 2004a, 2004b, 2005b, 2006b, and 2006d). A graphical representation of the hydrogeologic conditions is presented on Figure 8. This 2-D representation of the site is based on the pre-landfill and current landfill topographic contours and past and current site investigations, and is summarized as follows:

- The trash/refuse at the Poway Landfill rests primarily on highly weathered granitic bedrock. Alluvium and residual soil from extremely weathered granitic rock is likely present in paleochannels underlying the landfill and in the eastern portion of the site.
- Two primary hydrologic units are present at the site: the alluvium/extremely weathered granitic bedrock and moderately to slightly granitic bedrock (fractured). The alluvium/extremely weathered bedrock, generally

downgradient of the site and in paleochannels underlying the landfill and in the eastern portion of the site, has a higher porosity and transmits more water than the underlying fractured bedrock (Geosyntec, 2004a). The direction of groundwater flow is generally south to southwest at an average hydraulic gradient ranging from 0.03 to 0.20 feet per foot (ft/ft) (Figure 5).

- Groundwater at the site and areas south of the site is unconfined and has been encountered in the alluvium and fractured bedrock at elevations ranging from approximately 576 to 695 feet MSL (Table 1). Seasonal groundwater fluctuation of several feet are common at the site and groundwater monitor wells POGW-12, POGW-17A, and POGW-18A were dry during the first quarter 2007 routine groundwater monitoring event. Groundwater elevations in downgradient nested monitor wells and monitor wells pairs indicate a downward hydraulic gradient exists from shallow groundwater in the alluvium and weathered bedrock/grus to the intermediate and deep fractured bedrock at the site.
- Based on the fracture orientations observed from ATV logs collected from five boreholes located in the western portions of the site, two predominant fracture trends are apparent at the site: one fracture population trending approximately S85°W and the other trending approximately N75°E (Geosyntec, 2005b). Although the overall direction of groundwater flow is generally south to southwest at the site, localized groundwater flow variations in fractured rock underlying the landfill may exist based on the observed fracture orientations. Based on the predominant fracture patterns it appears that the migration of COCs in groundwater through the fractured bedrock in the apparent primary source area may be more westerly.
- Aquifer testing conducted during the characterization of an apparent primary source area in the northwest portion of the landfill indicated a low degree of hydraulic connection between fractures in the upper, intermediate, and lower fracture zones. The hydraulic conductivity in onsite wells is estimated to range from approximately 0.04 to 0.6 feet/day, with estimated groundwater velocities ranging from 0.07 to 5.4 feet/day (Geosyntec, 2004a).
- The DPE pilot study conducted between February and April 2006 confirmed the low degree of hydraulic connection between fractures in the apparent suspected primary source area. The DPE pilot study also demonstrated that the fracture zone in which piezometer POPW-1 is screened, is incapable of producing significant or sustainable quantities of groundwater (pumping rate was approximately 0.05 gpm over the 70 day event).

- Historical groundwater analytical data indicate the portion of the landfill near piezometer POPW-1 and monitor well POGW-14 comprises an apparent localized primary source area. Groundwater samples collected from POPW-1 since the third quarter 2005 monitoring event have contained significantly higher concentrations of benzene, DCE, TCE, chloride, TDS, and magnesium than samples collected from other onsite wells, confirming the presence of a localized primary source area in the northwest portion of the landfill.
- Groundwater samples collected from offsite monitor wells POGW-19 and POGW-22, located 200 to 300 feet west of the western boundary of the site, contain VOCs, general chemistry parameters and metals at concentrations exceeding WQPSs and WQOs. These exceedences in wells located west and hydraulically cross-gradient of the waste indicate localized groundwater flow variations along westerly oriented fracture trends, and that groundwater with concentrations of VOCs exceeding MCLs has migrated offsite in areas west and southwest of the site. However, VOC concentrations attenuate significantly between the suspected source zone and the locations of POGW-19 and POGW-22, with further attenuation to non-detectable concentrations in monitor wells POGW-11 (downgradient to the south) and POGW-23 (cross-gradient to the west).
- Concentrations of TCE and DCE increased significantly in the POPW series piezometers between the first quarter and third quarter 2005 sampling events. Groundwater elevations at that time were at historical highs for the site suggesting there may be periodic, localized occurrences where groundwater is in contact with waste, which may be the cause for significant increases in VOC concentrations during the third quarter 2005 monitoring event.
- Since the first quarter 2006, trace concentrations of TCE have been detected in the groundwater samples collected from downgradient monitor well POGW-17B. However, VOCs concentrations have been lower than MCLs in groundwater samples collected from downgradient monitor well POGW-17B.

Based on the current SCM, the primary groundwater flow direction is southerly. However, the presence of higher concentrations of COCs in groundwater samples collected from wells located near the western site boundary and west of the site than from downgradient monitor wells indicates localized westerly flow variations and offsite migration of COCs in groundwater to the west. Although VOCs have been detected in groundwater samples collected from monitor wells west of the site, COC concentrations significantly decrease both downgradient and cross gradient to below MCLs and the laboratory method detection limits.

6.2 Sources

Four apparent sources of COC impacts are evident based on the SCM: An apparent liquid release that migrated to groundwater resulting in VOC impacts on the western side of the landfill (i.e. POPW-1 and POGW-14); areas of the landfill that have the potential to contact groundwater due to fluctuating groundwater levels; areas of the landfill that were historically exposed to infiltration of surface water prior to improvements of the cover and storm water management measures; and areas where landfill gas migrated to groundwater and COCs have partitioned from the gas phase into groundwater. The COCs present in groundwater may have also resulted from the routine operation of a permitted, unlined landfill between 1940 and 1975. The date, time, and mass of any potential release have not been determined. The COCs detected at concentrations above MCLs in groundwater samples collected at the site include:

- Volatile Organic Compounds (VOCs)
  - Benzene
  - Tetrachloroethene (PCE);
  - Trichloroethene (TCE);
  - cis-1,2-Dichloroethene (DCE);
  - Vinyl chloride;
  - 1,2-Dichloroethane (1,2-DCA);
  - 1,1-Dichloroethane (1,1-DCA); and
  - 1,4-Dichlorobenzene.
- General Chemistry Parameters and Metals
  - Total Dissolved Solids (TDS);
  - Chloride; and
  - Sulfate;

PCE, TCE, DCE, and vinyl chloride have been detected in groundwater samples collected from piezometer POPW-1 and monitor well POGW-14 at concentrations significantly higher than in groundwater samples collected from other site monitor wells, supporting the presence of a localized apparent primary source area in the northwest portion of the landfill. VOC concentrations attenuate significantly between the primary source area (TCE at 1200 µg/L in POPW-1) and offsite monitor wells located 200 to 300 feet west (TCE at 15 µg/L in POGW-19 and at 2.1 µg/L in

POGW-22). VOCs also were detected in groundwater samples collected from downgradient monitor wells located along the south property boundary. However, with the exception of a trace concentration of TCE detected in the groundwater sample collected from monitor well POGW-17B, VOCs attenuate to non-reportable concentrations in the furthest downgradient monitor wells, indicating the extent of VOC-impacted groundwater migration offsite has been sufficiently delineated. Additionally, based on concentrations of degradation products (DCE and vinyl chloride) detected in groundwater samples collected from the POPW-series piezometers and monitor wells POGW-14 and POGW-16, it appears that reductive dechlorination is occurring in site groundwater. In addition, ethene was detected in groundwater samples collected from monitor wells POGW-14, POGW-16, POGW-17A/17B and from piezometers POPW-2A, POPW-2B, POPW-4 during the first and third quarter 2005 monitoring events at concentrations ranging from 0.15 to 4.14 µg/L. The detection of ethene indicates that complete reductive dechlorination of TCE in groundwater is occurring.

To assess historical groundwater analytical data for evidence of leachate or landfill gas impacts, as part of the ROWD-EFS total VOC concentrations were compared to the concentration of a conservative leachate tracer (chloride) in the same groundwater sample (Geosyntec 2005b). If leachate is contributing to VOC concentrations, then increased concentrations of chloride will be associated with increased VOC concentrations. However, if relatively consistent chloride concentrations are associated with increased VOC concentrations, then a landfill gas source is suggested. Based on the investigations discussed herein as well as previous investigations, four primary sources of groundwater impacts are evident. Three potential sources provide leachate-type evidence of groundwater impacts (leachate, surface water infiltration, and waste in contact with groundwater). Piezometer POPW-1 appears to exhibit leachate-type impacts. However, based on the prevalence of increasing VOC concentrations versus relatively constant chloride concentrations, the most widespread source appears to be due to LFG impacts to groundwater beneath the footprint of the landfill (Geosyntec, 2005b).

6.3 Migration Pathways

Three potential migration pathways for landfill-related constituents have been evaluated for the site. A conceptual model of the potential pathways is presented on Figure 9. The potential pathways are as follows:

- Migration in the vapor phase from refuse and impacted groundwater to indoor air of the residences along the southern property boundary (vapor pathway);
- Migration through groundwater in shallow alluvium/extremely weathered granitic rock overlying moderately- to slightly-weathered bedrock (shallow groundwater pathway); and
- Migration through groundwater in fractured bedrock (fractured rock groundwater pathway).

6.3.1 Vapor Pathway

Two possible sources of VOC impacts are evident near the southern property boundary; (1) VOC partitioning from groundwater into the gas-phase and (2) vapor migrating through the subsurface. Cross sections were prepared based on subsurface conditions to evaluate potential sources of VOCs in offsite soil vapor (Figures 10, 11, and 12).

The tendency of VOCs to partition from groundwater to soil vapor is described by constituent-specific Henry's Law constants [H]. Constituent-specific Henry's Law constants can be used to calculate a constituent specific theoretical gas-phase concentration [C_g] immediately above the groundwater surface, which would be at equilibrium with the concentration of the constituent in groundwater [C_w], using the following equation; $C_g = HC_w$ (Pankow and Cherry, 1996). The calculated "relative" theoretical gas-phase concentrations would represent the maximum concentration of VOCs in soil vapor immediately above the groundwater surface due to partitioning from groundwater. Concentrations of VOCs partitioning from groundwater would be expected to decrease via volatilization, dispersion, and or diffusion with increasing vertical distance from the groundwater surface. Because soil vapor wells are generally screened in the unsaturated zone with some distance above the water table, for VOCs partitioning from groundwater to be the source of VOC concentrations in soil vapor, the calculated "relative" theoretical gas-phase concentration should be greater than the concentration detected in soil vapor samples.

To evaluate the potential of VOCs partitioning from groundwater into the gas-phase, VOC concentrations detected in soil vapor were compared to the theoretical gas-phase concentrations calculated from groundwater results of nearby groundwater monitor wells using Henry's Law (Figures 10, 11, and 12). The soil vapor and groundwater data for the primary risk driving COCs (PCE, TCE, and DCE) indicate that either the constituents are not present or the detected soil vapor concentration is greater than the theoretical gas-phase concentration. These data indicate an alternative or contributing offsite source of VOCs within the residential area south of the site. Although VOC

were detected in offsite upper fractured zone monitor wells POGW-17B and POGW-24B, VOCs were not detected in the groundwater samples collected from their respective shallower alluvial monitor wells, POGW-17A and POGW-24A. In addition, historical groundwater elevations indicate a downward vertical gradient exists between the alluvial groundwater and the weathered bedrock groundwater.

VOC concentrations in soil vapor decrease significantly from within the waste to the south property boundary (Figures 10, 11, and 12). If vapor migration from the landfill through the subsurface was the source of VOCs detected in offsite soil vapor samples, concentrations would be expected to continue to attenuate with distance from the southern site boundary. However, in some instances VOC concentrations detected in soil vapor samples collected from within the residential community were greater than the concentrations detected in samples of landfill gas collected in April 2006 from soil vapor probes installed along the toe of the landfill (Figure 10). Concentrations of PCE in offsite soil vapor well VW-4B have been consistently greater than the concentrations that were detected in samples collected from within the waste. Similarly, during the April and May 2006 sampling events, some vapor samples collected at distances of approximately 1,000 feet south of the southern property boundary contain VOCs at higher concentrations than samples collected near the southern property boundary. These data indicate an additional offsite source unrelated to the subsurface migration of landfill gas is contributing to VOC concentrations in offsite soil.

6.3.2 Shallow Groundwater Pathway

Shallow groundwater occurs within the alluvium and weathered bedrock beyond the southern boundary of the site and is considered a secondary pathway for COC migration. The direction of shallow groundwater flow is generally south to southwest downgradient of the site (Figure 5). VOC concentrations in shallow groundwater samples collected from downgradient offsite monitor wells POGW-12, -13, -15, -17A, -18A, and -24A are below MCLs. In addition, residents located in the residential area south of the site are located within the city limits of Poway and are using Poway municipal water. Therefore, the shallow groundwater pathway is considered incomplete.

As discussed in the ROWD-EFS (Geosyntec, 2005b), a well survey was performed to identify the location of domestic water wells in the vicinity of the landfill. The survey consisted of contacting the County and the Department of Water Resources (DWR). The well survey identified several domestic groundwater wells within a 1-mile radius of the site (Figure 6). Most of the wells identified in the DWR database were installed in

the early 1950s and 1960s, prior to the development of the residential area south of the site. Because this residential area south of the site has since been incorporated by the City of Poway and is served with municipal potable water by the City of Poway, it is not likely that wells identified in the DWR database are still in use.

6.3.3 Fractured Rock Groundwater Pathway

Groundwater flow through the fractured granitic bedrock beneath the landfill is considered a potential pathway for COC migration in groundwater. The direction of groundwater flow is generally south to southwest at an average hydraulic gradient ranging from 0.03 to 0.20 ft/ft (Figure 5). Based on the fracture orientations observed in acoustic televiewer (ATV) and OPTV logs collected from borings advanced at the site, localized groundwater flow variations in the fractured rock may exist. Aquifer test data indicate variable hydraulic conductivities in the fractured rock ranging from 0.04 to 0.6 feet/day (Geosyntec, 2004a). Furthermore, the lack of significant aquifer response in observation wells during aquifer testing in 2003 and the DPE pilot study in 2006 indicates a low degree of hydraulic connection between the fractures in the upper, intermediate, and lower fractured zones screened by the monitor wells (Geosyntec, 2004b, 2006d).

Based on MNA parameters collected from site monitor wells, and the presence of degradation products DCE, vinyl chloride, and ethene, biodegradation appears to be occurring at the site and mitigating constituent migration (Geosyntec, 2005b). The closest downgradient domestic well may be located approximately 2,000 ft southwest of the site (Figure 6). Therefore, due to the low hydraulic conductivity and the low degree of fracture connectivity; evidence of VOC concentrations attenuating in downgradient offsite monitor wells; evidence of natural attenuation and biodegradation occurring in groundwater; and the distance from the site to the nearest downgradient domestic well; the fractured rock groundwater pathway is considered incomplete.

6.4 Receptors

For the purpose of the SCM, residents in the adjoining community south of the site are considered sensitive receptors based on potential theoretical exposure to constituents of potential concern (COPCs) detected in soil vapor samples collected in the offsite area south of the site.

As part of the additional soil vapor evaluation conducted from April through June 2006, the Human Health Risk Assessment (HHRA) was updated to assess potential risk

resulting from COCs detected in soil vapor samples collected from along the south property boundary and from within the residential area south of the site (Geosyntec, 2006b).

Chemical-specific, cumulative ELCRs and noncancer hazard indices were estimated for current offsite residents potentially exposed to chemicals detected in soil vapor samples and volatilizing from the subsurface into a residence. An estimated potential ELCR less than 1×10^{-6} and an estimated noncancer hazard indices less than 1 are below levels of concern according to DEH, DTSC, and USEPA guidance. When discussed herein, the estimated potential ELCRs and estimated noncancer hazard indices are based on offsite residents being potentially exposed to COCs detected in soil vapor samples collected from offsite vapor wells (VW-1A/1B, -2A, -3A, -4A/4B, -5A, -6A, -7A, -8A/8B, -9, -10,-11, -12, -13, -14); property boundary vapor wells (PVP-1A, -2A, -3A/3B, -4A); and background vapor wells (PVP-5 and -6) during the April and May 2006 soil vapor sampling events.

Using the DTSC J&E model and COC concentrations for each vapor well, the potential ELCRs was estimated to range from 2×10^{-8} to 9×10^{-7}, while the noncancer hazard was estimated to range from 0.001 to 0.05 for a child resident. The estimated potential ELCR and noncancer hazard for each vapor well were below the target risk of 10^{-6} and the benchmark level of 1, respectively. These data indicate that the hypothetical risk to residents downgradient of the Poway Landfill is below levels of concern according to the USEPA, DTSC, and DEH even when conservative assumptions and input parameters are used.

Concentrations of COCs detected in soil vapor samples collected from onsite and offsite soil vapor wells during the July 2006 and January 2007 sampling events were consistent with or less than the concentrations detected in the April and May 2006 sampling events. Therefore, the estimated vapor risk associated with the July 2006 and January 2007 soil vapor sampling events can be reasonably expected to be consistent with or less than the estimated risk from the April and May 2006 soil vapor sampling events.

7. CONCLUSIONS AND RECOMMENDATIONS

The field activities presented herein include the installation of five additional offsite groundwater monitor wells, an evaluation of the existing cover system at the landfill, and an investigation of shallow onsite and offsite soil vapor. A summary of the results and conclusions are presented in this section.

7.1 Chemical Quality of Groundwater

Historical groundwater sampling data collected at the site indicate what appear to be two primary sources: an apparent liquid release that migrated to groundwater resulting in localized VOC impacts in the northwest portion of the landfill (i.e. POPW-1 and POGW-14), and LFG impacts to groundwater. The presence of relatively low concentrations of constituents such as 1,4-DCB and chlorobenzene in groundwater samples from some downgradient wells also suggests that some groundwater impacts may be attributable to localized areas of groundwater in contact with waste during periods when groundwater levels are elevated due to above-average precipitation.

Metal parameters, TDS, and chloride concentrations in groundwater samples collected at the site have routinely exceeded proposed WQPSs for the site. The exceedence of general chemistry parameter and metals in groundwater may be due to natural geologic variations between the alluvium and fractured bedrock. Revised proposed WQPSs were submitted to the RWQCB in the 1998 Annual Report [IT, 1999b]. At the RWQCB's request the revised proposed WQPSs were re-submitted with additional clarification in May 2000 [Geosyntec, 2000b]. Based on the additional data collected at the site since 2000, updating the revised proposed WQPSs may be warranted.

VOCs have been detected in the groundwater samples collected from piezometer POPW-1 and monitor well POGW-14 at concentrations greater than other onsite monitor wells, indicating a primary localized source area in the northwest portion of the landfill. VOC concentrations attenuate significantly between this apparent primary source area and monitor wells located approximately 200 to 300 feet downgradient and cross-gradient of the source zone, and attenuate to non-detectable concentrations downgradient within approximately 400 feet. VOCs have also been detected in groundwater samples collected from monitor wells located downgradient along the south property boundary. However, with the exception of trace concentrations of TCE detected in groundwater samples collected from monitor well POGW-17B, VOCs attenuate to non-detectable concentrations in the furthest downgradient monitor wells. In addition, the presence of TCE degradation products DCE, vinyl chloride, and ethene in groundwater samples collected from site monitor wells indicates natural attenuation

is occurring in groundwater. Based on the SCM presented herein, the shallow and fractured rock groundwater pathways are considered incomplete. Based on these data the extent of VOC impacted groundwater offsite has been sufficiently delineated.

7.2 Condition of Existing Cover System

Based on sampling performed within the cover top deck and side slopes, the existing cover system ranges in thickness from approximately 2.2 to greater than 5 feet on the side slopes, and from approximately 6 to 10 feet on the top deck. The average hydraulic conductivity of the cover is 2.8×10^{-5} cm/s. A video inspection of the top deck storm drains indicates the storm drains do not provide a major conduit for the infiltration of storm water into the waste.

Computer modeling was performed to evaluate the performance of the existing over system at minimizing surface water infiltration. Based on the UNSAT H model results and the conditions encountered at the site, it appears that the existing ET cover system allows less drainage through the cover than a prescriptive Title 27 cover system. Even though the existing cover is not regulated as a prescriptive final cover as the landfill pre-dates regulatory closure requirements, the modeling indicates that the cover performance exceeds regulatory standards for minimizing surface water infiltration. In addition, previous investigations performed at the site indicated that native soil samples collected near the southern site boundary have an average hydraulic conductivity of approximately 9.9×10^{-5} cm/sec [Geosyntec, 2006b]. Therefore, the materials in the existing cap appear to be less permeable than native soil outside the landfill footprint.

7.3 Chemical Quality of Soil Vapor

Shallow onsite and offsite soil vapor was monitored for four events between April 2006 and January 2007 to further evaluate potential impacts to the residents south of the site, and to evaluate potential seasonal trends. VOC concentrations in soil vapor samples collected from onsite and offsite soil vapor wells during January 2007 were generally within or below the range of concentrations observed during the April, May, and July 2006 sampling events (Geosyntec, 2006b and 2006c). The frequency of detections of COCs in the January 2007 sampling event generally decreased since the April, May, and July 2006 sampling events. Concentrations of COCs in soil vapor generally exhibit relatively stable or declining trends with no discernable seasonal variations. Evaluations of potential sources of VOCs in shallow soil vapor indicate alternative or contributing offsite sources of VOCs other than from the landfill in the residential community south of the site.

7.4 Updated Human Health Risk Assessment

The primary risk driving COCs detected during the April and May 2006 sampling event were PCE and TCE. Since the April and May sampling events, concentrations and the frequency of detections of PCE and TCE have decreased. The estimated human health risk associated with concentrations of COPCs detected in soil vapor samples collected from soil vapor wells onsite and offsite within the residential community during April and May 2006 are below levels of concern according to the USEPA, DTSC, and DEH. Additionally, results of soil vapor sampling conducted subsequent to the April and May 2006 events, indicate the vapor risk can be reasonably expected to be similar to or less than the estimated risks associated with the April and May 2006 soil vapor sampling events.

7.5 Recommendations

The SCM for the site was updated based on the investigations described herein which included: additional evaluation of offsite groundwater conditions west and south of the site; an evaluation of seasonal variations in soil vapor concentrations; and an evaluation of the existing cover system at the site. The investigations performed also address both NOV No. R9-2006-0035 (RWQCB, 2006a) and Official Notice SWIS #37-AA-0018 (LEA, 2006). Based on the results of the investigations discussed herein, Geosyntec recommends the following:

- **Enhance the LFG extraction system:** Soil vapor samples collected near the southern property boundary indicate offsite migration of LFG from the Poway Landfill. Previous studies have indicated that portions of the waste in the landfill, especially the southern portion of the landfill, may not be adequately influenced by the LFG extraction system. Enhancements to the LFG system may include additional well coverage in the southern portion of the landfill, modification of existing wells, and modified operation time. Results of the cover evaluation performed at the site indicate the existing ET cover system at the Poway Landfill allows less drainage than the Title 27 prescriptive cover system. However, further evaluation is necessary to assess the performance of the cover with respect to preventing landfill gas migration and atmospheric influences (i.e., oxygen penetration). A detailed evaluation of the effectiveness of the LFG wells at the toe of the landfill should be performed. This evaluation should include installing vapor probes beneath the cover adjacent to the LFG wells to assess their individual performance and delineate the source of oxygen in these wells.

- **Discontinue soil vapor sampling:** The updated human health risk assessment presented in the June 2006 indicated that concentrations of VOCs detected in offsite soil vapor posed an insignificant risk to residents south of the landfill based on criteria established by the USEPA, DTSC, and DEH. Laboratory analytical results for two subsequent semi-annual vapor sampling events indicated concentrations of COCs in soil vapor generally exhibit relatively stable or declining trends with no discernable seasonal variations. Furthermore, soil vapor monitoring conducted between April 2006 and January 2007 indicates alternative or contributing sources of VOCs other than the landfill in soil vapor in the residential community south of the site. Therefore, soil vapor sampling should be discontinued.

- **Update the Monitoring and Reporting Program:** Based on historical groundwater monitoring and following installation of offsite groundwater monitor wells POGW-19, -22. -23, -24A, and -24B, the extent of groundwater impacts associated with the landfill has been adequately assessed. However, several monitoring wells provide redundant data, or are no longer necessary based on the recent installation of additional monitor wells and should be converted to monitoring piezometers (no sampling performed). The following wells and piezometers are recommended for ongoing semi-annual groundwater sampling:

Well Purpose	Well ID
Upgradient groundwater monitor wells	POGW-6 and -9
Cross-gradient groundwater monitor wells	POPW-1 and POGW-22
Downgradient groundwater monitor wells	POGW-11, -13, -15, -16, 17B, -19, -20, -21, and -24B

In compliance with Section C.3.b of MRP No. 94-165 and the revised MRP [GeoSyntec, 2000b] approved by the RWQCB in a letter dated 10 August 2000 [RWQCB, 2000], the following parameters are recommended for future semi-annual groundwater sampling:

Parameter	Method
Chloride	SM4500-Cl-B
Nitrate as nitrogen	EPA 353.3
Sulfate	EPA 375.4
Total Dissolved Solids (TDS)	EPA 160.1
Bicarbonate, carbonate	EPA 310.1
Chemical Oxygen Demand (COD)	EPA 410.4

Parameter	Method
Dissolved calcium, potassium, magnesium, and sodium	EPA 6010B
Volatile Organic Compounds (VOCs)	EPA 8260B
pH, conductivity	Field Method
Dissolved oxygen	Field method
Oxidation reduction potential	Field method

Based on the comparison of purging methods used to sample ground water monitor wells screened in fractured rock, standard purging and sampling methods are recommended for future semi-annual groundwater monitoring events.

- **Perform Monitored Natural Attenuation:** Relatively minor concentrations of VOCs have been detected in groundwater samples collected within 200 to 300 feet of the western and southern property boundary, and the concentrations attenuate to non-detectable concentrations within approximately 400 feet of the property boundaries. However, groundwater is not used for drinking water purposes in the areas west and south of the landfill, and the estimated risk from VOCs in soil vapor attributable to groundwater partitioning are below levels of concern. The DPE pilot test performed in 2006 demonstrated that active methods of groundwater remediation at the site are impractical and infeasible. The presence of TCE degradation products DCE, vinyl chloride, and ethene in groundwater samples collected from site monitor wells indicate that reductive dechlorination is occurring in site groundwater. Therefore, monitored natural attenuation appears to be an effective and compatible with the relatively low concentrations of VOCs detected near the site boundaries, and is recommended as the remedial option for groundwater at the site.

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TABLES

Table 1
Summary of Groundwater Depths and Elevations
Poway Landfill
Poway, California

Geosyntec consultants

Well Number	Top of Casing Elevation (ft MSL)	Date	Depth to Bottom (ft toc)	Depth to Water (ft toc)	Groundwater Elevation (ft MSL)
POPW-1	724.07	04/18/03	116.00	94.46	629.61
		04/23/03	116.00	92.89	631.18
		05/05/03	116.00	92.12	631.95
		05/12/03	116.00	91.80	632.27
		05/15/03	116.00	91.74	632.33
		06/17/03	116.00	91.10	632.97
		08/26/03	116.00	90.50	633.57
		03/15/04	116.00	91.74	632.33
		06/04/04	116.00	91.67	632.40
		08/19/04	116.00	92.74	631.33
		01/24/05	116.00	85.50	638.57
		07/19/05	116.00	75.58	648.49
		01/18/06	116.00	77.48	646.59
		06/01/06	116.00	79.09	644.98
		07/17/06	116.00	78.86	645.21
		01/17/07	116.00	80.27	643.80
POPW-2A	722.74	04/18/03	121.00	113.05	609.69
		04/23/03	121.00	103.62	619.12
		05/05/03	121.00	97.40	625.34
		05/12/03	121.00	96.01	626.73
		05/15/03	121.00	95.87	626.87
		06/17/03	121.00	95.72	627.02
		08/26/03	121.00	95.53	627.21
		03/15/04	121.00	96.63	626.11
		06/04/04	121.00	96.46	626.28
		08/19/04	121.00	96.91	625.83
		01/24/05	121.00	88.55	634.19
		07/19/05	121.00	80.20	642.54
		01/18/06	121.00	80.32	642.42
		06/01/06	121.00	80.54	642.20
		07/17/06	121.00	80.49	642.25
		01/17/07	121.00	81.65	641.09
POPW-2B	722.75	04/18/03	155.00	95.10	627.65
		04/23/03	155.00	94.93	627.82
		05/05/03	155.00	95.45	627.30
		05/12/03	155.00	94.92	627.83
		05/15/03	155.00	94.98	627.77
		06/17/03	155.00	95.01	627.74
		08/26/03	155.00	94.78	627.97
		03/15/04	155.00	96.09	626.66
		06/04/04	155.00	95.88	626.87
		08/19/04	155.00	96.37	626.38
		01/24/05	155.00	95.10	627.65
		07/19/05	155.00	79.33	643.42
		01/18/06	155.00	77.88	644.87
		06/01/06	155.00	78.09	644.66
		07/17/06	155.00	78.23	644.52
		01/17/07	155.00	80.00	642.75
POPW-3	724.71	04/18/03	121.00	112.76	611.95
		04/23/03	121.00	105.54	619.17
		05/05/03	121.00	97.61	627.10
		05/12/03	121.00	90.92	633.79
		05/15/03	121.00	88.84	635.87
		06/17/03	121.00	76.65	648.06
		08/26/03	121.00	71.20	653.51
		03/15/04	121.00	71.84	652.87
		06/04/04	121.00	71.39	653.32
		08/19/04	121.00	72.38	652.33
		01/24/05	121.00	69.05	655.66
		07/19/05	121.00	51.86	672.85
		01/18/06	121.00	55.86	668.85
		06/01/06	121.00	78.05	646.66
		07/17/06	121.00	63.28	661.43
		01/17/07	121.00	60.67	664.04

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Geosyntec consultants

Well Number	Top of Casing Elevation (ft MSL)	Date	Depth to Bottom (ft toc)	Depth to Water (ft toc)	Groundwater Elevation (ft MSL)
POPW-4	706.49	04/18/03	113.50	95.77	610.72
		04/23/03	113.50	95.81	610.68
		05/05/03	113.50	95.98	610.51
		05/12/03	113.50	95.97	610.52
		05/15/03	113.50	96.08	610.41
		06/17/03	113.50	96.45	610.04
		08/26/03	113.50	96.52	609.97
		03/15/04	113.50	97.70	608.79
		06/04/04	113.50	97.85	608.64
		08/19/04	113.50	98.40	608.09
		01/24/05	113.50	97.85	608.64
		07/19/05	113.50	82.43	624.06
		01/18/06	113.50	80.04	626.45
		06/01/06	113.50	79.58	626.91
		07/17/06	113.50	79.70	626.79
		01/17/07	113.50	80.81	625.68
POGW-6	695.35	02/01/91	35.26	17.26	678.09
		02/05/91	35.00	17.30	678.05
		04/11/91	35.30	12.70	682.65
		07/22/91	35.25	13.17	682.18
		10/16/91	34.90	14.43	680.92
		12/20/93	35.00	5.35	690.00
		05/03/94	35.00	4.92	690.43
		11/22/94	35.30	8.00	687.35
		09/29/95	35.30	4.12	691.23
		02/22/96	35.30	5.70	689.65
		08/15/96	35.30	7.85	687.50
		02/13/97	35.30	5.95	689.40
		08/26/97	35.30	9.24	686.11
		02/18/98	35.30	6.28	689.07
		08/27/98	35.30	3.94	691.41
		03/01/99	35.30	5.26	690.09
		09/02/99	35.30	8.93	686.42
		02/28/00	35.30	9.73	685.62
		08/02/00	35.30	11.78	683.57
		02/05/01	35.30	14.83	680.52
		07/31/01	34.60	12.61	682.74
		02/15/02	34.60	15.72	679.63
		08/02/02	34.60	17.19	678.16
		01/31/03	34.60	19.69	675.66
		03/11/03	34.60	15.56	679.79
		03/19/03	34.60	14.42	680.93
		07/25/03	34.60	14.60	680.75
		08/26/03	34.60	15.34	680.01
		03/15/04	34.60	16.07	679.28
		06/04/04	34.60	15.63	679.72
		08/19/04	34.60	17.06	678.29
		01/24/05	34.60	11.32	684.03
		07/19/05	34.60	4.36	690.99
		01/18/06	34.60	5.45	689.90
		06/01/06	34.60	5.80	689.55
		07/17/06	34.60	6.47	688.88
		01/17/07	34.60	7.95	687.40

Table 1
Summary of Groundwater Depths and Elevations
Poway Landfill
Poway, California

Geosyntec consultants

Well Number	Top of Casing Elevation (ft MSL)	Date	Depth to Bottom (ft toc)	Depth to Water (ft toc)	Groundwater Elevation (ft MSL)
POGW-7	721.45	02/01/91	163.40	88.40	633.05
		02/05/91	163.45	91.25	630.20
		04/11/91	163.50	89.10	632.35
		07/22/91	163.45	86.33	635.12
		10/15/91	163.55	85.51	635.94
		12/20/93	160.00	73.11	648.34
		05/03/94	160.00	74.58	646.87
		11/08/94	160.00	76.72	644.73
		08/10/95	160.00	70.52	650.93
		02/22/96	160.00	74.45	647.00
		08/15/96	160.00	76.55	644.90
		02/13/97	160.00	77.70	643.75
		08/26/97	160.00	77.00	644.45
		02/19/98	160.00	77.75	643.70
		08/27/98	160.00	69.66	651.79
		03/01/99	160.00	73.25	648.20
		09/02/99	160.00	75.57	645.88
POGW-8	619.77	02/01/91	59.80	36.55	583.22
		02/05/91	60.25	36.50	583.27
		04/11/91	60.20	36.90	582.87
		07/22/91	60.26	36.74	583.03
		10/15/91	60.30	36.70	583.07
		12/20/93	58.00	16.33	603.44
		05/03/94	58.00	16.42	603.35
		11/08/94	60.31	19.35	600.42
		08/10/95	60.13	11.08	608.69
POGW-9	725.05	02/22/96	83.50	37.45	687.60
		08/15/96	83.50	40.45	684.60
		02/13/97	83.50	40.67	684.38
		08/26/97	83.50	43.07	681.98
		02/18/98	83.50	43.47	681.58
		08/27/98	83.50	30.27	694.78
		03/01/99	83.50	36.83	688.22
		09/02/99	83.50	40.15	684.90
		02/28/00	83.50	42.97	682.08
		08/02/00	83.50	44.87	680.18
		02/05/01	83.50	48.20	676.85
		07/31/01	84.36	47.11	677.94
		02/15/02	84.36	50.46	674.59
		08/02/02	84.36	52.38	672.67
		01/31/03	84.36	53.48	671.57
		03/11/03	84.36	53.50	671.55
		03/19/03	84.36	53.35	671.70
		07/25/03	84.36	51.50	673.55
		08/26/03	84.36	51.88	673.17
		03/15/04	84.36	52.15	672.90
		06/04/04	84.36	52.39	672.66
		08/19/04	84.36	53.27	671.78
		01/24/05	84.36	52.10	672.95
		07/19/05	84.36	43.75	681.30
		01/18/06	84.36	36.32	688.73
		06/01/06	84.36	37.98	687.07
		07/17/06	84.36	38.86	686.19
		01/17/07	84.36	40.81	684.24

Table 1
Summary of Groundwater Depths and Elevations
Poway Landfill
Poway, California

Geosyntec consultants

Well Number	Top of Casing Elevation (ft MSL)	Date	Depth to Bottom (ft toc)	Depth to Water (ft toc)	Groundwater Elevation (ft MSL)
POGW-10	710.56	02/22/96	52.60	41.00	669.56
		08/15/96	52.60	45.25	665.31
		02/13/97	52.60	46.08	664.48
		08/26/97	52.60	44.07	666.49
		02/19/98	52.60	47.31	663.25
		08/27/98	52.60	28.87	681.69
		03/01/99	52.60	38.80	671.76
		09/02/99	52.60	43.48	667.08
		02/28/00	52.60	46.05	664.51
		08/02/00	52.60	46.10	664.46
		02/05/01	52.60	49.65	660.91
		07/31/01	53.86	43.92	666.64
		02/15/02	53.86	47.02	663.54
		08/02/02	53.86	49.12	661.44
		01/31/03	53.86	52.52	658.04
		03/11/03	53.86	53.30	657.26
		03/19/03	53.86	53.26	657.30
		07/25/03	53.86	47.95	662.61
		08/26/03	53.86	47.21	663.35
		03/15/04	53.86	48.95	661.61
		06/04/04	53.86	48.82	661.74
		08/19/04	53.86	49.62	660.94
		01/24/05	53.86	39.65	670.91
		07/19/05	53.86	28.75	681.81
		01/18/06	53.86	38.21	672.35
		06/01/06	53.86	41.31	669.25
		07/17/06	53.86	42.23	668.33
		01/17/07	53.86	40.31	670.25
POGW-11	628.71	04/09/96	54.20	43.35	585.36
		08/15/96	54.20	45.18	583.53
		02/13/97	54.20	44.11	584.60
		08/26/97	54.20	46.40	582.31
		02/18/98	54.20	43.07	585.64
		08/27/98	54.20	38.10	590.61
		03/01/99	54.20	42.54	586.17
		09/02/99	54.20	44.90	583.81
		02/28/00	54.20	47.53	581.18
		08/02/00	54.20	48.43	580.28
		02/05/01	54.20	51.79	576.92
		07/31/01	54.20	48.46	580.25
		02/15/02	54.20	48.50	580.21
		08/02/02	54.20	51.38	577.33
		01/31/03	54.20	52.22	576.49
		03/11/03	54.20	51.78	576.93
		03/19/03	54.20	51.68	577.03
		07/25/03	54.20	49.10	579.61
		08/26/03	54.20	49.38	579.33
		03/15/04	54.20	51.13	577.58
		06/04/04	54.20	51.05	577.66
		08/19/04	54.20	51.69	577.02
		01/24/05	54.20	47.81	580.90
		07/19/05	54.20	42.00	586.71
		01/18/06	54.20	46.71	582.00
		06/01/06	54.20	45.42	583.29
		07/17/06	54.20	48.81	579.90
		01/17/07	54.20	50.99	577.72

Table 1
Summary of Groundwater Depths and Elevations
Poway Landfill
Poway, California

Geosyntec consultants

Well Number	Top of Casing Elevation (ft MSL)	Date	Depth to Bottom (ft toc)	Depth to Water (ft toc)	Groundwater Elevation (ft MSL)
POGW-12	594.72	02/22/96	15.80	10.10	584.62
		08/15/96	15.80	11.95	582.77
		02/13/97	15.80	10.25	584.47
		08/26/97	15.80	12.48	582.24
		02/19/98	15.80	10.63	584.09
		08/27/98	15.80	7.51	587.21
		03/01/99	15.80	9.00	585.72
		09/02/99	15.80	10.76	583.96
		03/06/00	15.80	12.32	582.40
		08/02/00	15.80	11.41	583.31
		02/05/01	15.80	13.26	581.46
		07/31/01	15.76	9.16	585.56
		02/15/02	15.76	9.67	585.05
		08/02/02	15.76	9.41	585.31
		01/31/03	15.76	9.83	584.89
		03/11/03	15.76	8.92	585.80
		03/19/03	15.76	8.72	586.00
		07/25/03	15.76	9.12	585.60
		08/26/03	15.76	9.52	585.20
		03/15/04	15.76	9.73	584.99
		06/04/04	15.76	9.53	585.19
		08/19/04	15.76	10.12	584.60
		01/24/05	15.76	7.03	587.69
		07/19/05	15.76	11.19	583.53
		01/18/06	15.76	13.33	581.39
		06/01/06	15.76	11.89	582.83
		07/17/06	15.76	11.86	582.86
		01/17/07	15.76	DRY	-
POGW-13	594.88	02/22/96	52.60	12.20	582.68
		08/15/96	52.60	13.90	580.98
		02/13/97	52.60	13.22	581.66
		08/26/97	52.60	14.40	580.48
		02/19/98	52.60	12.83	582.05
		08/27/98	52.60	7.25	587.63
		03/01/99	52.60	10.46	584.42
		09/02/99	52.60	12.49	582.39
		02/28/00	52.60	14.96	579.92
		08/02/00	52.60	15.61	579.27
		02/05/01	52.60	18.46	576.42
		07/31/01	52.52	15.07	579.81
		02/15/02	52.52	16.64	578.24
		08/01/02	52.52	17.54	577.34
		01/31/03	52.52	17.91	576.97
		03/11/03	52.52	17.91	576.97
		03/19/03	52.52	17.00	577.88
		07/25/03	52.52	15.57	579.31
		08/26/03	52.52	15.70	579.18
		03/15/04	52.52	16.04	578.84
		06/04/04	52.52	16.54	578.34
		08/19/04	52.52	17.06	577.82
		01/24/05	52.52	12.90	581.98
		07/19/05	52.52	10.28	584.60
		01/18/06	52.52	14.30	580.58
		06/01/06	52.52	15.11	579.77
		07/17/06	52.52	15.54	579.34
		01/17/07	52.52	17.94	576.94

Table 1
Summary of Groundwater Depths and Elevations
Poway Landfill
Poway, California

Geosyntec consultants

Well Number	Top of Casing Elevation (ft MSL)	Date	Depth to Bottom (ft toc)	Depth to Water (ft toc)	Groundwater Elevation (ft MSL)
POGW-14	722.61	02/28/00	226.60	87.33	635.28
		08/02/00	226.60	88.35	634.26
		02/05/01	226.60	91.79	630.82
		07/31/01	225.68	90.31	632.30
		02/15/02	225.68	94.05	628.56
		08/02/02	225.68	96.90	625.71
		01/31/03	225.68	99.41	623.20
		03/11/03	225.68	99.78	622.83
		03/19/03	225.68	99.76	622.85
		07/25/03	225.68	98.88	623.73
		08/26/03	225.68	99.09	623.52
		03/15/04	225.68	99.18	623.43
		06/04/04	225.68	99.87	622.74
		08/19/04	225.68	100.86	621.75
		01/24/05	225.68	99.14	623.47
		07/19/05	225.68	82.83	639.78
		01/18/06	225.68	83.66	638.95
		07/17/06	225.68	83.80	638.81
		01/17/07	225.68	85.44	637.17
POGW-15	606.60	07/31/01	24.29	13.75	592.85
		02/15/02	24.29	16.78	589.82
		08/02/02	24.29	18.69	587.91
		01/31/03	24.29	20.17	586.43
		03/11/03	24.29	19.69	586.91
		03/19/03	24.29	19.77	586.83
		07/25/03	24.29	19.21	587.39
		08/26/03	24.29	19.39	587.21
		03/15/04	24.29	19.39	587.21
		06/04/04	24.29	20.72	585.88
		08/19/04	24.29	21.19	585.41
		01/24/05	24.29	12.58	594.02
		07/19/05	24.29	9.86	596.74
		01/18/06	24.29	13.05	593.55
		06/01/06	24.29	13.71	592.89
		07/17/06	24.29	14.26	592.34
		01/17/07	24.29	16.64	589.96
POGW-16	643.49	06/04/04	69.50	59.29	584.20
		06/30/04	69.50	59.40	584.09
		07/26/04	69.50	59.41	584.08
		08/19/04	69.50	59.92	583.57
		01/24/05	69.50	56.69	586.80
		07/19/05	69.50	48.80	594.69
		01/18/06	69.50	51.69	591.80
		06/01/06	69.50	52.46	591.03
		07/17/06	69.50	52.92	590.57
		01/17/07	69.50	55.07	588.42
POGW-17A	602.64	07/19/05	18.50	14.08	588.56
		01/18/06	18.50	17.85	584.79
		06/01/06	18.50	15.96	586.68
		07/17/06	18.50	17.03	585.61
		01/17/07	18.50	DRY	-
POGW-17B	602.50	07/19/05	45.00	16.56	585.94
		01/18/06	45.00	20.54	581.96
		06/01/06	45.00	21.63	580.87
		07/17/06	45.00	22.07	580.43
		01/17/07	45.00	24.30	578.20
POGW-18A	616.42	07/19/05	18.00	6.77	609.65
		01/18/06	18.00	9.81	606.61
		06/01/06	18.00	9.41	607.01
		07/17/06	18.00	10.92	605.50
		01/17/07	18.00	DRY	-
POGW-18B	616.54	07/19/05	45.00	18.05	598.49
		01/18/06	45.00	24.54	592.00
		06/01/06	45.00	24.50	592.04
		07/17/06	45.00	25.21	591.33
		01/17/07	45.00	28.00	588.54

Table 1
Summary of Groundwater Depths and Elevations
Poway Landfill
Poway, California

Geosyntec consultants

Well Number	Top of Casing Elevation (ft MSL)	Date	Depth to Bottom (ft toc)	Depth to Water (ft toc)	Groundwater Elevation (ft MSL)
POGW-19	652.62	05/05/06	85.40	70.15	582.47
		06/01/06	85.40	70.29	582.33
		07/17/06	85.40	70.90	581.72
		01/17/07	85.40	71.98	580.64
POGW-20	620.00	05/05/06	43.00	26.75	593.25
		06/01/06	43.00	26.78	593.22
		07/17/06	43.00	27.39	592.61
		01/17/07	43.00	30.09	589.91
POGW-21	617.92	05/05/06	32.90	23.60	594.32
		06/01/06	32.90	23.82	594.10
		07/17/06	32.90	24.29	593.63
		01/17/07	32.90	26.62	591.30
POGW-22	773.86	07/17/06	200.00	140.68	633.18
		01/17/07	200.00	141.56	632.30
POGW-23	609.50	12/11/06	40.00	32.00	577.50
		01/17/07	40.00	31.99	577.51
POGW-24A	604.23	12/11/06	19.60	17.75	586.48
		01/17/07	19.60	18.51	585.72
POGW-24B	604.17	12/11/06	45.10	18.38	585.79
		01/17/07	45.10	18.90	585.27

ft MSL - Feet above Mean Sea Level.
ft toc - Feet below top of casing.

Geosyntec consultants

Table 2
Summary of First Quarter 2007 Groundwater Analytical Results
Poway Landfill
Poway, Califoria

			Background Monitor Wells			Compliance Monitor Wells					Downgradient Monitor Wells						
			POGW-6	POGW-9	POGW-10	POGW-11	POGW-13	POGW-14	POGW-15	POGW-16	POGW-17B	POGW-18B	POGW-19	POGW-20	POGW-21	POGW-22	POGW-23
	UNITS	WQPS	1/17/2007	1/17/2007	1/17/2007	1/17/2007	1/18/2007	1/18/2007	1/17/2007	1/18/2007	1/18/2007	1/17/2007	1/18/2007	1/18/2007	1/18/2007	1/18/2007	1/17/2007
General Chemistry																	
Bicarbonate	mg/L	NE	198	164	208	146	214	138	368	352	386	234	492	318	496	232	236
Carbonate	mg/L	NE	ND<0.85	ND<0.85	ND<0.85	ND<0.85	ND<0.85	ND<0.85	ND<0.85	ND<0.85	ND<0.85	ND<0.85	ND<0.85	ND<0.85	ND<0.85	ND<0.85	ND<0.85
Chemical Oxygen Demand	mg/L	55.89	ND<3.5	ND<3.5	ND<3.5	ND<3.5	**83**	**75**	ND<3.5	**64**	**64**	ND<3.5	**170**	**64**	**110**	**94**	ND<3.5
Chloride	mg/L	314	230	110	96	**340**	170	180	270	140	270	120	**370**	180	**360**	83	**330**
Conductivity	µS/cm	NE	1397	870	1049	1875	1594	962.1	1730	1275	2017	1339	2147	1396	2249	820.8	192.0
Nitrate (as N)	mg/L	32.8	3.8	2.9	4.1	4.3	5.1	0.032J	4.0	1.7	4.8	3.4	0.16	4.1	0.30J	0.20	3.4
pH	pH	5.47-8.28	5.7	6.53	6.53	6.44	6.67	6.07	7.26	4.56	6.70	6.65	6.5	5.73	**5.15**	7.41	7.2
Sulfate	mg/L	292	**350**	150	**310**	**300**	**340**	66	170	130	**310**	**300**	260	140	270	76	**330**
Total Dissolved Solids (TDS)	mg/L	1115	857	520	672	**1130**	1000	540	1020	707	**1200**	850	**1210**	803	**1310**	472	1110
Metals, Dissolved																	
Calcium	mg/L	77.23	40.3	30.2	46.7	68.0	45.5	37.1	**84.9**	50.2	**83.5**	26.5	**87.0**	18.2	**92.6**	30.4	**95.2**
Magnesium	mg/L	80.89	50.5	26.7	37.0	77.5	44.8	37.6	71.0	76.6	**87.8**	26.1	**118**	26.4	**88.4**	18.3	73.8
Potassium	mg/L	11.68	5.55	6.86	**15.8**	4.10	4.53	5.50	1.12	7.86	2.00	4.20	**22.9**	1.23	1.54	5.87	**15.2**
Sodium	mg/L	150	**157**	84.8	97.1	**170**	**218**	80.5	**169**	88.8	**210**	**216**	**176**	**222**	**237**	109	**159**
Volatile Organic Compounds																	
1,1,1,2-Tetrachloroethane	µg/L	ND	ND<0.44	ND<0.44	ND<0.44	ND<0.44	ND<0.44	ND<0.44	ND<0.44	ND<0.44	ND<0.44	ND<0.44	ND<0.44	ND<0.44	ND<0.44	ND<0.44	ND<0.44
1,1,1-Trichloroethane	µg/L	ND	ND<0.35	ND<0.35	ND<0.35	ND<0.35	ND<0.35	ND<0.35	ND<0.35	ND<0.35	ND<0.35	ND<0.35	ND<0.35	ND<0.35	ND<0.35	ND<0.35	ND<0.35
1,1,2,2-Tetrachloroethane	µg/L	ND	ND<0.45	ND<0.45	ND<0.45	ND<0.45	ND<0.45	ND<0.45	ND<0.45	ND<0.45	ND<0.45	ND<0.45	ND<0.45	ND<0.45	ND<0.45	ND<0.45	ND<0.45
1,1,2-Trichloroethane	µg/L	ND	ND<0.79	ND<0.79	ND<0.79	ND<0.79	ND<0.79	ND<0.79	ND<0.79	ND<0.79	ND<0.79	ND<0.79	ND<0.79	ND<0.79	ND<0.79	ND<0.79	ND<0.79
1,1-Dichloroethane	µg/L	ND	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	**3.9**	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25
1,1-Dichloroethene	µg/L	ND	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	**0.91J**	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26
1,1-Dichloropropene	µg/L	ND	ND<0.62	ND<0.62	ND<0.62	ND<0.62	ND<0.62	ND<0.62	ND<0.62	ND<0.62	ND<0.62	ND<0.62	ND<0.62	ND<0.62	ND<0.62	ND<0.62	ND<0.62
1,2,3-Trichlorobenzene	µg/L	ND	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26
1,2,3-Trichloropropane	µg/L	ND	ND<2.8	ND<2.8	ND<2.8	ND<2.8	ND<2.8	ND<2.8	ND<2.8	ND<2.8	ND<2.8	ND<2.8	ND<2.8	ND<2.8	ND<2.8	ND<2.8	ND<2.8
1,2,4-Trichlorobenzene	µg/L	ND	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29
1,2,4-Trimethylbenzene	µg/L	ND	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	**0.20J**	ND<0.13
1,2-Dibromo-3-chloropropane	µg/L	ND	ND<3.1	ND<3.1	ND<3.1	ND<3.1	ND<3.1	ND<3.1	ND<3.1	ND<3.1	ND<3.1	ND<3.1	ND<3.1	ND<3.1	ND<3.1	ND<3.1	ND<3.1
1,2-Dibromoethane	µg/L	ND	ND<0.41	ND<0.41	ND<0.41	ND<0.41	ND<0.41	ND<0.41	ND<0.41	ND<0.41	ND<0.41	ND<0.41	ND<0.41	ND<0.41	ND<0.41	ND<0.41	ND<0.41
1,2-Dichlorobenzene	µg/L	ND	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15
1,2-Dichloroethane	µg/L	ND	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25
1,2-Dichloropropane	µg/L	ND	ND<0.55	ND<0.55	ND<0.55	ND<0.55	ND<0.55	ND<0.55	ND<0.55	ND<0.55	ND<0.55	ND<0.55	ND<0.55	ND<0.55	ND<0.55	ND<0.55	ND<0.55
1,3,5-Trimethylbenzene	µg/L	ND	ND<0.86	ND<0.86	ND<0.86	ND<0.86	ND<0.86	ND<0.86	ND<0.86	ND<0.86	ND<0.86	ND<0.86	ND<0.86	ND<0.86	ND<0.86	ND<0.86	ND<0.86
1,3-Dichlorobenzene	µg/L	ND	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15
1,3-Dichloropropane	µg/L	ND	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28
1,4-Dichlorobenzene	µg/L	ND	ND<0.17	ND<0.17	ND<0.17	ND<0.17	ND<0.17	ND<0.17	ND<0.17	**2.7**	**0.34J**	ND<0.17	**0.97J**	ND<0.17	**1.2**	ND<0.17	ND<0.17
2,2-Dichloropropane	µg/L	ND	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29
2-Butanone	µg/L	ND	ND<8.0	ND<8.0	ND<8.0	ND<8.0	ND<8.0	ND<8.0	ND<8.0	ND<8.0	ND<8.0	ND<8.0	ND<8.0	ND<8.0	ND<8.0	ND<8.0	ND<8.0
2-Chlorotoluene	µg/L	ND	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16
2-Hexanone	µg/L	ND	ND<3.4	ND<3.4	ND<3.4	ND<3.4	ND<3.4	ND<3.4	ND<3.4	ND<3.4	ND<3.4	ND<3.4	ND<3.4	ND<3.4	ND<3.4	ND<3.4	ND<3.4
4-Chlorotoluene	µg/L	ND	ND<0.18	ND<0.18	ND<0.18	ND<0.18	ND<0.18	ND<0.18	ND<0.18	ND<0.18	ND<0.18	ND<0.18	ND<0.18	ND<0.18	ND<0.18	ND<0.18	ND<0.18
4-Methyl-2-pentanone	µg/L	ND	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0
Acetone	µg/L	ND	ND<7.0	ND<7.0	ND<7.0	ND<7.0	ND<7.0	ND<7.0	ND<7.0	ND<7.0	ND<7.0	ND<7.0	ND<7.0	ND<7.0	ND<7.0	**24J**	ND<7.0
Acrolein	µg/L	ND	ND<8.6	ND<8.6	ND<8.6	ND<8.6	ND<8.6	ND<8.6	ND<8.6	ND<8.6	ND<8.6	ND<8.6	ND<8.6	ND<8.6	ND<8.6	ND<8.6	ND<8.6
Acrylonitrile	µg/L	ND	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4
Benzene	µg/L	ND	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19
Bromobenzene	µg/L	ND	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26
Bromochloromethane	µg/L	ND	ND<0.88	ND<0.88	ND<0.88	ND<0.88	ND<0.88	ND<0.88	ND<0.88	ND<0.88	ND<0.88	ND<0.88	ND<0.88	ND<0.88	ND<0.88	ND<0.88	ND<0.88
Bromodichloromethane	µg/L	ND	ND<0.21	ND<0.21	ND<0.21	ND<0.21	ND<0.21	ND<0.21	ND<0.21	ND<0.21	ND<0.21	ND<0.21	ND<0.21	ND<0.21	ND<0.21	**1.4**	ND<0.21
Bromoform	µg/L	ND	ND<0.87	ND<0.87	ND<0.87	ND<0.87	ND<0.87	ND<0.87	ND<0.87	ND<0.87	ND<0.87	ND<0.87	ND<0.87	ND<0.87	ND<0.87	ND<0.87	ND<0.87
Bromomethane	µg/L	ND	ND<3.5	ND<3.5	ND<3.5	ND<3.5	ND<3.5	ND<3.5	ND<3.5	ND<3.5	ND<3.5	ND<3.5	ND<3.5	ND<3.5	ND<3.5	ND<3.5	ND<3.5

Table 2
Summary of First Quarter 2007 Groundwater Analytical Results
Poway Landfill
Poway, Califoria

Geosyntec consultants

			Background Monitor Wells			Compliance Monitor Wells					Downgradient Monitor Wells						
			POGW-6	POGW-9	POGW-10	POGW-11	POGW-13	POGW-14	POGW-15	POGW-16	POGW-17B	POGW-18B	POGW-19	POGW-20	POGW-21	POGW-22	POGW-23
	UNITS	WQPS	1/17/2007	1/17/2007	1/17/2007	1/17/2007	1/18/2007	1/18/2007	1/17/2007	1/18/2007	1/18/2007	1/17/2007	1/18/2007	1/18/2007	1/18/2007	1/18/2007	1/17/2007
Volatile Organic Compounds																	
Carbon tetrachloride	µg/L	ND	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29
Chlorobenzene	µg/L	ND	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	**0.39J**	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16
Chloroethane	µg/L	ND	ND<0.70	ND<0.70	ND<0.70	ND<0.70	ND<0.70	ND<0.70	ND<0.70	ND<0.70	ND<0.70	ND<0.70	ND<0.70	ND<0.70	ND<0.70	ND<0.70	ND<0.70
Chloroform	µg/L	ND	ND<0.29	ND<0.29	ND<0.29	ND<0.29	**1.6**	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	**1.3**	ND<0.29
Chloromethane	µg/L	ND	ND<2.1	ND<2.1	ND<2.1	ND<2.1	ND<2.1	ND<2.1	ND<2.1	ND<2.1	ND<2.1	ND<2.1	ND<2.1	ND<2.1	ND<2.1	ND<2.1	ND<2.1
cis-1,2-Dichloroethene	µg/L	ND	ND<0.63	ND<0.63	ND<0.63	ND<0.63	ND<0.63	**37**	**1.3**	**13**	ND<0.63	ND<0.63	**35**	ND<0.63	**7.1**	**0.83J**	ND<0.63
cis-1,3-Dichloropropene	µg/L	ND	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28
Dibromochloromethane	µg/L	ND	ND<0.39	ND<0.39	ND<0.39	ND<0.39	ND<0.39	ND<0.39	ND<0.39	ND<0.39	ND<0.39	ND<0.39	ND<0.39	ND<0.39	ND<0.39	**1.7**	ND<0.39
Dibromomethane	µg/L	ND	ND<0.82	ND<0.82	ND<0.82	ND<0.82	ND<0.82	ND<0.82	ND<0.82	ND<0.82	ND<0.82	ND<0.82	ND<0.82	ND<0.82	ND<0.82	ND<0.82	ND<0.82
Dichlorodifluoromethane	µg/L	ND	ND<0.33	ND<0.33	ND<0.33	ND<0.33	ND<0.33	ND<0.33	**1.4**	**0.68J**	**1.1**	ND<0.33	**4.2**	**1.2**	**1.5**	ND<0.33	ND<0.33
Ethylbenzene	µg/L	ND	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	**0.29J**	ND<0.13
Hexachlorobutadiene	µg/L	ND	ND<0.93	ND<0.93	ND<0.93	ND<0.93	ND<0.93	ND<0.93	ND<0.93	ND<0.93	ND<0.93	ND<0.93	ND<0.93	ND<0.93	ND<0.93	ND<0.93	ND<0.93
Isopropylbenzene (Cumene)	µg/L	ND	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10
Isopropyltoluene	µg/L	ND	ND<0.14	ND<0.14	ND<0.14	ND<0.14	ND<0.14	ND<0.14	ND<0.14	ND<0.14	ND<0.14	ND<0.14	ND<0.14	ND<0.14	ND<0.14	ND<0.14	ND<0.14
Methylene chloride	µg/L	ND	ND<9.7	ND<9.7	ND<9.7	ND<9.7	ND<9.7	ND<9.7	ND<9.7	ND<9.7	ND<9.7	ND<9.7	ND<9.7	ND<9.7	ND<9.7	ND<9.7	ND<9.7
Methyl-tert-butyl-ether (MTBE)	µg/L	ND	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23
Naphthalene	µg/L	ND	ND<0.42	**0.47J**	ND<0.42	ND<0.42	ND<0.42	ND<0.42	ND<0.42	**0.48J**	ND<0.42	ND<0.42	ND<0.42	ND<0.42	ND<0.42	ND<0.42	ND<0.42
n-Butylbenzene	µg/L	ND	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25
n-Propylbenzene	µg/L	ND	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12
sec-Butylbenzene	µg/L	ND	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29
Styrene	µg/L	ND	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16
tert-Butylbenzene	µg/L	ND	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19
Tetrachloroethene	µg/L	ND	ND<0.30	ND<0.30	ND<0.30	ND<0.30	ND<0.30	ND<0.30	**4.2**	**1.1**	ND<0.30	ND<0.30	**2.0**	ND<0.30	**0.56J**	ND<0.30	ND<0.30
Toluene	µg/L	ND	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	**8.9**	ND<0.23
trans-1,2-Dichloroethene	µg/L	ND	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83
trans-1,3-Dichloropropene	µg/L	ND	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26
Trichloroethene	µg/L	ND	ND<0.31	ND<0.31	ND<0.31	ND<0.31	ND<0.31	**30**	**1.2**	**4.6**	**0.48J**	ND<0.31	**15**	ND<0.31	**6.4**	**2.1**	ND<0.31
Trichlorofluoromethane	µg/L	ND	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83
Vinyl chloride	µg/L	ND	ND<0.24	ND<0.24	ND<0.24	ND<0.24	ND<0.24	**3.2**	ND<0.24	ND<0.24	ND<0.24	ND<0.24	**0.31J**	ND<0.24	ND<0.24	ND<0.24	ND<0.24
Xylenes, total	µg/L	ND	ND<0.27	ND<0.27	ND<0.27	ND<0.27	ND<0.27	ND<0.27	ND<0.27	ND<0.27	ND<0.27	ND<0.27	ND<0.27	ND<0.27	ND<0.27	**0.84J**	ND<0.27

Bolded values exceed Water Quality Protection Standards (WQPS)

mg/L - Milligrams per liter.

µg/L - Micrograms per liter.

µS/cm - Microseimens per centimeter.

ND- Not detected at concentrations greater than or equal to the method detection limit

NE - Not established.

J- Trace concentration detected between the method detection limit and the reporting limit

- Not analyzed.

D - The analyte concentration was reported from analysis of the diluted sample

QCFB - Quality Control Field Blank

QCEB - Quality Control Equipment Blank

QCTB - Quality Control Trip Blank

QCMB - Quality Control Method Blank

WQPS - Water Quality Protectioin Standard

Geosyntec consultants

Table 2
Summary of First Quarter 2007 Groundwater Analytical Results
Poway Landfill
Poway, Califoria

			Downgradient Monitor Wells		Piezometer	Quality Control Samples						
			POGW-24A	POGW-24B	POPW-1	QCFB		QCEB	QCTB		QCMB	
	UNITS	WQPS	1/17/2007	1/17/2007	1/17/2007	1/17/2007	1/18/2007	1/17/2007	1/17/2007	1/18/2007	1/17/2007	1/18/2007
General Chemistry												
Bicarbonate	mg/L	NE	-	650	264	-	-	ND<0.85	-	-	ND<0.85	ND<0.85
Carbonate	mg/L	NE	-	ND<0.85	ND<0.85	-	-	ND<0.85	-	-	ND<0.85	ND<0.85
Chemical Oxygen Demand	mg/L	55.89	5.0	19	18	-	-	ND<3.5	-	-	ND<3.5	ND<8.5
Chloride	mg/L	314	-	**560**	**690**	-	-	1.3J	-	-	ND<1.0	ND<1.0
Conductivity	µS/cm	NE	-	3160	3601	-	-	-	-	-	-	-
Nitrate (as N)	mg/L	32.8	-	0.44	5.9	-	-	0.034J	-	-	ND<0.029	ND<0.029
pH	pH	5.47-8.28	-	6.45	5.73	-	-	-	-	-	-	-
Sulfate	mg/L	292	-	**340**	**340**	-	-	9.8	-	-	ND<0.42	ND<0.42
Total Dissolved Solids (TDS)	mg/L	1115	-	**1840**	**2510**	-	-	ND<1.0	-	-	ND<1.0	ND<1.0
Metals, Dissolved												
Calcium	mg/L	77.23	-	**137**	**176**	-	-	0.0318J	-	-	ND<0.00932	ND<0.00932
Magnesium	mg/L	80.89	-	**120**	**240**	-	-	0.00376J	-	-	ND<0.00328	ND<0.00328
Potassium	mg/L	11.68	-	7.73	**12.9**	-	-	ND<0.0561	-	-	ND<0.0561	ND<0.0561
Sodium	mg/L	150	-	**359**	**246**	-	-	0.294J	-	-	ND<0.0192	ND<0.0192
Volatile Organic Compounds												
1,1,1,2-Tetrachloroethane	µg/L	ND	ND<0.44	ND<0.44	ND<0.44	ND<0.44	ND<0.44	ND<0.44	ND<0.44	ND<0.44	ND<0.44	ND<0.44
1,1,1-Trichloroethane	µg/L	ND	ND<0.35	ND<0.35	ND<0.35	ND<0.35	ND<0.35	ND<0.35	ND<0.35	ND<0.35	ND<0.35	ND<0.35
1,1,2,2-Tetrachloroethane	µg/L	ND	ND<0.45	ND<0.45	ND<0.45	ND<0.45	ND<0.45	ND<0.45	ND<0.45	ND<0.45	ND<0.45	ND<0.45
1,1,2-Trichloroethane	µg/L	ND	ND<0.79	ND<0.79	ND<0.79	ND<0.79	ND<0.79	ND<0.79	ND<0.79	ND<0.79	ND<0.79	ND<0.79
1,1-Dichloroethane	µg/L	ND	ND<0.25	**5.0**	**1.0**	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25
1,1-Dichloroethene	µg/L	ND	ND<0.26	**0.67J**	**0.89J**	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26
1,1-Dichloropropene	µg/L	ND	ND<0.62	ND<0.62	ND<0.62	ND<0.62	ND<0.62	ND<0.62	ND<0.62	ND<0.62	ND<0.62	ND<0.62
1,2,3-Trichlorobenzene	µg/L	ND	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26
1,2,3-Trichloropropane	µg/L	ND	ND<2.8	ND<2.8	ND<2.8	ND<2.8	ND<2.8	ND<2.8	ND<2.8	ND<2.8	ND<2.8	ND<2.8
1,2,4-Trichlorobenzene	µg/L	ND	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29
1,2,4-Trimethylbenzene	µg/L	ND	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13
1,2-Dibromo-3-chloropropane	µg/L	ND	ND<3.1	ND<3.1	ND<3.1	ND<3.1	ND<3.1	ND<3.1	ND<3.1	ND<3.1	ND<3.1	ND<3.1
1,2-Dibromoethane	µg/L	ND	ND<0.41	ND<0.41	ND<0.41	ND<0.41	ND<0.41	ND<0.41	ND<0.41	ND<0.41	ND<0.41	ND<0.41
1,2-Dichlorobenzene	µg/L	ND	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15
1,2-Dichloroethane	µg/L	ND	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25
1,2-Dichloropropane	µg/L	ND	ND<0.55	ND<0.55	ND<0.55	ND<0.55	ND<0.55	ND<0.55	ND<0.55	ND<0.55	ND<0.55	ND<0.55
1,3,5-Trimethylbenzene	µg/L	ND	ND<0.86	ND<0.86	ND<0.86	ND<0.86	ND<0.86	ND<0.86	ND<0.86	ND<0.86	ND<0.86	ND<0.86
1,3-Dichlorobenzene	µg/L	ND	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15	ND<0.15
1,3-Dichloropropane	µg/L	ND	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28
1,4-Dichlorobenzene	µg/L	ND	ND<0.17	**1.9**	**1.4**	ND<0.17	ND<0.17	ND<0.17	ND<0.17	ND<0.17	ND<0.17	ND<0.17
2,2-Dichloropropane	µg/L	ND	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29
2-Butanone	µg/L	ND	ND<8.0	ND<8.0	ND<8.0	ND<8.0	ND<8.0	ND<8.0	ND<8.0	ND<8.0	ND<8.0	ND<8.0
2-Chlorotoluene	µg/L	ND	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16
2-Hexanone	µg/L	ND	ND<3.4	ND<3.4	ND<3.4	ND<3.4	ND<3.4	ND<3.4	ND<3.4	ND<3.4	ND<3.4	ND<3.4
4-Chlorotoluene	µg/L	ND	ND<0.18	ND<0.18	ND<0.18	ND<0.18	ND<0.18	ND<0.18	ND<0.18	ND<0.18	ND<0.18	ND<0.18
4-Methyl-2-pentanone	µg/L	ND	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0
Acetone	µg/L	ND	ND<7.0	ND<7.0	ND<7.0	ND<7.0	ND<7.0	ND<7.0	ND<7.0	ND<7.0	ND<7.0	ND<7.0
Acrolein	µg/L	ND	ND<8.6	ND<8.6	ND<8.6	ND<8.6	ND<8.6	ND<8.6	ND<8.6	ND<8.6	ND<8.6	ND<8.6
Acrylonitrile	µg/L	ND	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4	ND<4.4
Benzene	µg/L	ND	ND<0.19	ND<0.19	**1.2**	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19
Bromobenzene	µg/L	ND	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26
Bromochloromethane	µg/L	ND	ND<0.88	ND<0.88	ND<0.88	ND<0.88	ND<0.88	ND<0.88	ND<0.88	ND<0.88	ND<0.88	ND<0.88
Bromodichloromethane	µg/L	ND	ND<0.21	ND<0.21	ND<0.21	ND<0.21	ND<0.21	ND<0.21	ND<0.21	ND<0.21	ND<0.21	ND<0.21
Bromoform	µg/L	ND	ND<0.87	ND<0.87	ND<0.87	ND<0.87	ND<0.87	ND<0.87	ND<0.87	ND<0.87	ND<0.87	ND<0.87
Bromomethane	µg/L	ND	ND<3.5	ND<3.5	ND<3.5	ND<3.5	ND<3.5	ND<3.5	ND<3.5	ND<3.5	ND<3.5	ND<3.5

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Table 2
Summary of First Quarter 2007 Groundwater Analytical Results
Poway Landfill
Poway, Califoria

			Downgradient Monitor Wells		Piezometer	Quality Control Samples						
			POGW-24A	POGW-24B	POPW-1	QCFB		QCEB	QCTB		QCMB	
	UNITS	WQPS	1/17/2007	1/17/2007	1/17/2007	1/17/2007	1/18/2007	1/17/2007	1/17/2007	1/18/2007	1/17/2007	1/18/2007
Volatile Organic Compounds												
Carbon tetrachloride	µg/L	ND	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29
Chlorobenzene	µg/L	ND	ND<0.16	**1.0**	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16
Chloroethane	µg/L	ND	ND<0.70	ND<0.70	ND<0.70	ND<0.70	ND<0.70	ND<0.70	ND<0.70	ND<0.70	ND<0.70	ND<0.70
Chloroform	µg/L	ND	ND<0.29	ND<0.29	**1.7**	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29
Chloromethane	µg/L	ND	ND<2.1	ND<2.1	ND<2.1	ND<2.1	ND<2.1	ND<2.1	ND<2.1	ND<2.1	ND<2.1	ND<2.1
cis-1,2-Dichloroethene	µg/L	ND	ND<0.63	**0.88J**	**280 D**	ND<0.63	ND<0.63	ND<0.63	ND<0.63	ND<0.63	ND<0.63	ND<0.63
cis-1,3-Dichloropropene	µg/L	ND	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28	ND<0.28
Dibromochloromethane	µg/L	ND	ND<0.39	ND<0.39	ND<0.39	ND<0.39	ND<0.39	ND<0.39	ND<0.39	ND<0.39	ND<0.39	ND<0.39
Dibromomethane	µg/L	ND	ND<0.82	ND<0.82	ND<0.82	ND<0.82	ND<0.82	ND<0.82	ND<0.82	ND<0.82	ND<0.82	ND<0.82
Dichlorodifluoromethane	µg/L	ND	ND<0.33	**2.5**	**0.77J**	ND<0.33	ND<0.33	ND<0.33	ND<0.33	ND<0.33	ND<0.33	ND<0.33
Ethylbenzene	µg/L	ND	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13	ND<0.13
Hexachlorobutadiene	µg/L	ND	ND<0.93	ND<0.93	ND<0.93	ND<0.93	ND<0.93	ND<0.93	ND<0.93	ND<0.93	ND<0.93	ND<0.93
Isopropylbenzene (Cumene)	µg/L	ND	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10
Isopropyltoluene	µg/L	ND	ND<0.14	ND<0.14	ND<0.14	ND<0.14	ND<0.14	ND<0.14	ND<0.14	ND<0.14	ND<0.14	ND<0.14
Methylene chloride	µg/L	ND	ND<9.7	ND<9.7	ND<9.7	ND<9.7	ND<9.7	ND<9.7	ND<9.7	ND<9.7	ND<9.7	ND<9.7
Methyl-tert-butyl-ether (MTBE)	µg/L	ND	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23	ND<0.23
Naphthalene	µg/L	ND	ND<0.42	ND<0.42	ND<0.42	ND<0.42	ND<0.42	ND<0.42	ND<0.42	ND<0.42	ND<0.42	ND<0.42
n-Butylbenzene	µg/L	ND	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25	ND<0.25
n-Propylbenzene	µg/L	ND	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12
sec-Butylbenzene	µg/L	ND	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29	ND<0.29
Styrene	µg/L	ND	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16	ND<0.16
tert-Butylbenzene	µg/L	ND	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19	ND<0.19
Tetrachloroethene	µg/L	ND	ND<0.30	**1.4**	**3.4**	ND<0.30	ND<0.30	ND<0.30	ND<0.30	ND<0.30	ND<0.30	ND<0.30
Toluene	µg/L	ND	ND<0.23	ND<0.23	ND<0.23	ND<0.23	**0.33J**	ND<0.23	ND<0.23	**0.30J**	ND<0.23	ND<0.23
trans-1,2-Dichloroethene	µg/L	ND	ND<0.83	ND<0.83	**1.8**	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83
trans-1,3-Dichloropropene	µg/L	ND	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26	ND<0.26
Trichloroethene	µg/L	ND	ND<0.31	**1.0**	**1200 D**	ND<0.31	ND<0.31	ND<0.31	ND<0.31	ND<0.31	ND<0.31	ND<0.31
Trichlorofluoromethane	µg/L	ND	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83	ND<0.83
Vinyl chloride	µg/L	ND	ND<0.24	**0.37J**	**2.5**	ND<0.24	ND<0.24	ND<0.24	ND<0.24	ND<0.24	ND<0.24	ND<0.24
Xylenes, total	µg/L	ND	ND<0.27	ND<0.27	ND<0.27	ND<0.27	ND<0.27	ND<0.27	ND<0.27	ND<0.27	ND<0.27	ND<0.27

Bolded values exceed Water Quality Protection Standards (WQPS)

mg/L - Milligrams per liter.

µg/L - Micrograms per liter.

µS/cm - Microseimens per centimeter.

ND- Not detected at concentrations greater than or equal to the method detection limit

NE - Not established.

J- Trace concentration detected between the method detection limit and the reporting limit

- Not analyzed.

D - The analyte concentration was reported from analysis of the diluted sample

QCFB - Quality Control Field Blank

QCEB - Quality Control Equipment Blank

QCTB - Quality Control Trip Blank

QCMB - Quality Control Method Blank

WQPS - Water Quality Protectioin Standard

Table 3
Cover Thickness Measurements
Poway Landfill
Poway, California

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Boring	Cover Thickness (feet)	Boring Orientation	Location	Cover Soil Description
HAP-1	>5.0	Vertical	Side Slope	Silty sand with gravel (SM)-no waste encountered
HAP-2	>5.0	Vertical	Side Slope	Silty sand with gravel and cobbles (SM)-no waste encountered
HAP-3	>2.6	Vertical	Side Slope	Silty sand with gravel and cobbles (SM)-encountered refusal at 2.6 ft bgs
HAP-4	>3.0	Vertical	Side Slope	Silty sand with gravel and cobbles (SM)-encountered refusal at 3.0 ft bgs
HAP-5	>2.8	Vertical	Side Slope	Silty sand with gravel and cobbles (SM)-encountered refusal at 2.8 ft bgs
HAP-6	>3.3	Perpendicular	Side Slope	Silty sand with some gravel (SM)-encountered refusal at 3.3 ft bgs
HAP-7	4.5	Perpendicular	Side Slope	Silty sand with gravel (SM)
HAP-8	2.4	Perpendicular	Side Slope	Silty sand with gravel (SM)
HAP-9	2.5	Perpendicular	Side Slope	Silty sand with gravel (SM)
HAP-10	2.2	Perpendicular	Side Slope	Silty sand with some gravel and cobbles (SM)
HAP-11	>3.5	Perpendicular	Side Slope	Silty sand with trace to some gravel (SM)-encountered refusal at 3.5 ft bgs
HAP-12	3.0	Perpendicular	Side Slope	Sandy silt with trace gravel (ML)
HAP-13	>2.8	Perpendicular	Side Slope	Sandy silt (ML)-encountered refusal at 2.75 ft bgs.
HAP-14	3.7	Perpendicular	Side Slope	Sandy silt with trace clay (ML)
HAP-15	3.3	Perpendicular	Side Slope	Sandy silt with some gravel (ML)
HAP-16	3.0	Perpendicular	Side Slope	Sandy silt with trace gravel (ML)
HAP-17	>2.5	Perpendicular	Side Slope	Silty sand with some gravel (SM)-encountered refusal at 2.5 ft bgs
HAP-18	>3.0	Perpendicular	Side Slope	Silty sand with gravel (SM)-encountered refusal at 3.0 ft bgs
HAP-19	>2.5	Perpendicular	Side Slope	Silty sand with gravel (SM)-encountered refusal at 2.5 ft bgs
HAP-20	>4.5	Perpendicular	Side Slope	Gravelly sand (SM)-encountered refusal at 4.5 ft bgs
P-1	6	Vertical	Top Deck	Sandy clayey silt with cobbles (ML)
P-2	10	Vertical	Top Deck	Sandy clayey silt with cobbles (ML)
P-3	9	Vertical	Top Deck	Sandy clayey silt with cobbles (ML)
PVP-7	9	Vertical	Road	Poorly graded sand with gravel and clay (SP)
PVP-8	5	Vertical	Road	Poorly graded sand with gravel and clay (SP)
PVP-9	5	Vertical	Road	Poorly graded sand with gravel and clay (SP)
PVP-10	8.5	Vertical	Road	Poorly graded sand with gravel and clay (SP)

Table 4
Summary of First Quarter 2007 Soil Vapor Analytical Results
Poway Landfill
Poway, California

Geosyntec consultants

		Property Boundary Wells					Background Wells		Offsite Soil Vapor Wells							
		PVP-1A	PVP-2A	PVP-3A	PVP-3C[1]	PVP-4A	PVP-5	PVP-6	VW-1A	VW-1B	VW-2A	VW-3A	VW-4A	VW-4B	VW-5A	VW-6A
	Units	1/22/2007	1/22/2007	1/22/2007	1/22/2007	1/22/2007	1/22/2007	1/22/2007	1/22/2007	1/22/2007	1/22/2007	1/23/2007	1/22/2007	1/22/2007	1/23/2007	1/23/2007
VOCs by Modified EPA Method TO-15																
1,1,1-Trichloroethane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
1,1,2,2-Tetrachloroethane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
1,1,2-Trichloroethane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
1,1-Dichloroethane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
1,1-Dichloroethene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
1,2,4-Trichlorobenzene	ppbv	ND<4.6	ND<4.4	ND<4.4	ND<4.4	ND<4.7	ND<4.5	ND<4.4	ND<4.5	ND<4.6	ND<4.6	ND<4.0	ND<4.6	ND<4.7	ND<4.6	ND<4.5
1,2,4-Trimethylbenzene	ppbv	4.9	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
1,2-Dibromoethane (EDB)	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
1,2-Dichlorobenzene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	2.2
1,2-Dichloroethane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
1,2-Dichloropropane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
1,3,5-Trimethylbenzene	ppbv	1.3	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
1,3-Butadiene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
1,3-Dichlorobenzene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
1,4-Dichlorobenzene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
1,4-Dioxane	ppbv	ND<4.6	ND<4.4	ND<4.4	ND<4.4	ND<4.7	ND<4.5	ND<4.4	ND<4.5	ND<4.6	ND<4.6	ND<4.0	ND<4.6	ND<4.7	ND<4.6	ND<4.5
2,2,4-Trimethylpentane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
2-Butanone (Methyl Ethyl Ketone)	ppbv	ND<1.1	2.2	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	2.3	ND<1.0	1.4	ND<1.2	ND<1.1	4.6
2-Hexanone	ppbv	ND<4.6	ND<4.4	ND<4.4	ND<4.4	ND<4.7	ND<4.5	ND<4.4	ND<4.5	ND<4.6	ND<4.6	ND<4.0	ND<4.6	ND<4.7	ND<4.6	ND<4.5
2-Propanol	ppbv	ND<4.6	ND<4.4	ND<4.4	ND<4.4	ND<4.7	ND<4.5	ND<4.4	ND<4.5	ND<4.6	ND<4.6	ND<4.0	ND<4.6	ND<4.7	ND<4.6	ND<4.5
3-Chloropropene	ppbv	ND<4.6	ND<4.4	ND<4.4	ND<4.4	ND<4.7	ND<4.5	ND<4.4	ND<4.5	ND<4.6	ND<4.6	ND<4.0	ND<4.6	ND<4.7	ND<4.6	ND<4.5
4-Ethyltoluene	ppbv	3.8	1.2	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
4-Methyl-2-pentanone	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
Acetone	ppbv	ND<4.6	ND<4.4	ND<4.4	ND<4.4	ND<4.7	ND<4.5	4.6	ND<4.5	ND<4.6	5.4	ND<4.0	5.7	ND<4.7	ND<4.6	18
alpha-Chlorotoluene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
Benzene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
Bromodichloromethane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
Bromoform	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
Bromomethane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
Carbon Disulfide	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	13	ND<1.2	ND<1.1	ND<1.1
Carbon Tetrachloride	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
Chlorobenzene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
Chloroethane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
Chloroform	ppbv	3.4	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	2.7	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	1.4
Chloromethane	ppbv	ND<4.6	ND<4.4	ND<4.4	ND<4.4	ND<4.7	ND<4.5	ND<4.4	ND<4.5	ND<4.6	ND<4.6	ND<4.0	ND<4.6	ND<4.7	ND<4.6	ND<4.5
cis-1,2-Dichloroethene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
cis-1,3-Dichloropropene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
Cumene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
Cyclohexane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
Dibromochloromethane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
Ethanol	ppbv	ND<4.6	ND<4.4	ND<4.4	ND<4.4	ND<4.7	ND<4.5	ND<4.4	ND<4.5	ND<4.6	ND<4.6	ND<4.0	ND<4.6	ND<4.7	ND<4.6	7.7
Ethyl Benzene	ppbv	2.9	2.7	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
Freon 11	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
Freon 113	ppbv	3.9	140	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	1.4	1.4	ND<1.1
Freon 114	ppbv	ND<1.1	5.0	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
Freon 12	ppbv	6.7	49	ND<1.1	ND<1.1	8.5	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	1.5	2.9	2.0	ND<1.1
Heptane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1

Table 4
Summary of First Quarter 2007 Soil Vapor Analytical Results
Poway Landfill
Poway, California

Geosyntec consultants

		Property Boundary Wells					Background Wells		Offsite Soil Vapor Wells							
		PVP-1A	PVP-2A	PVP-3A	PVP-3C[1]	PVP-4A	PVP-5	PVP-6	VW-1A	VW-1B	VW-2A	VW-3A	VW-4A	VW-4B	VW-5A	VW-6A
	Units	1/22/2007	1/22/2007	1/22/2007	1/22/2007	1/22/2007	1/22/2007	1/22/2007	1/22/2007	1/22/2007	1/22/2007	1/23/2007	1/22/2007	1/22/2007	1/23/2007	1/23/2007
VOCs by Modified EPA Method TO-15																
Hexachlorobutadiene	ppbv	ND<4.6	ND<4.4	ND<4.4	ND<4.4	ND<4.7	ND<4.5	ND<4.4	ND<4.5	ND<4.6	ND<4.6	ND<4.0	ND<4.6	ND<4.7	ND<4.6	ND<4.5
Hexane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	3.5	ND<1.2	ND<1.1	ND<1.1
Iodomethane*	ppbv	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylene	ppbv	12	3.7	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
Methyl tert-butyl ether	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
Methylene Chloride	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	16	ND<1.2	ND<1.1	ND<1.1
o-Xylene	ppbv	3.7	1.8	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
Propylbenzene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
Styrene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
Tetrachloroethene	ppbv	ND<1.1	2.5	ND<1.1	1.1	2.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	9.6	60	8.2	ND<1.1
Tetrahydrofuran	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	1.5	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
Toluene	ppbv	5.9	4.0	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	2.6	ND<1.2	ND<1.1	ND<1.1
trans-1,2-Dichloroethene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
trans-1,3-Dichloropropene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
trans-1,4-Dichloro-2-butene*	ppbv	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1
Vinyl Acetate*	ppbv	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.0	ND<1.1	ND<1.2	ND<1.1	ND<1.1

ppbv - Parts per billion by volume
ND - Analyte not detected at a concentration greater than the detection limit
VOCs - Volatile Organic Compounds
* - Tentatively Identified Compound (TIC)
TICs do not have a detection limit
[1] - PVP-3C and VW-8C are duplicate samples for PVP-3A and VW-8A, respectively
QCTB - Quality Control Trip Blank

Table 4
Summary of First Quarter 2007 Soil Vapor Analytical Results
Poway Landfill
Poway, California

Geosyntec consultants

		Offsite Soil Vapor Wells									QA/QC Samples	
		VW-7A	VW-8A	VW-8C[1]	VW-8B	VW-10	VW-11	VW-12	VW-13	VW-14	QCTB	
	Units	1/23/2007	1/23/2007	1/23/2007	1/23/2007	1/23/2007	1/23/2007	1/23/2007	1/23/2007	1/23/2007	1/22/2007	1/23/2007
VOCs by Modified EPA Method TO-15												
1,1,1-Trichloroethane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
1,1,2,2-Tetrachloroethane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
1,1,2-Trichloroethane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
1,1-Dichloroethane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
1,1-Dichloroethene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
1,2,4-Trichlorobenzene	ppbv	ND<4.5	ND<4.3	ND<4.5	ND<4.5	ND<4.4	ND<4.4	ND<4.7	ND<4.7	ND<4.5	ND<2.0	ND<2.0
1,2,4-Trimethylbenzene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
1,2-Dibromoethane (EDB)	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
1,2-Dichlorobenzene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
1,2-Dichloroethane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
1,2-Dichloropropane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
1,3,5-Trimethylbenzene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
1,3-Butadiene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
1,3-Dichlorobenzene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
1,4-Dichlorobenzene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
1,4-Dioxane	ppbv	ND<4.5	ND<4.3	5.0	ND<4.5	ND<4.4	ND<4.4	ND<4.7	ND<4.7	ND<4.5	ND<2.0	ND<2.0
2,2,4-Trimethylpentane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
2-Butanone (Methyl Ethyl Ketone)	ppbv	1.2	ND<1.1	ND<1.1	ND<1.1	ND<1.1	1.3	2.3	ND<1.2	2.3	ND<0.50	0.56
2-Hexanone	ppbv	ND<4.5	ND<4.3	ND<4.5	ND<4.5	ND<4.4	ND<4.4	ND<4.7	ND<4.7	ND<4.5	ND<2.0	ND<2.0
2-Propanol	ppbv	ND<4.5	ND<4.3	ND<4.5	ND<4.5	ND<4.4	ND<4.4	ND<4.7	ND<4.7	ND<4.5	ND<2.0	ND<2.0
3-Chloropropene	ppbv	ND<4.5	ND<4.3	ND<4.5	ND<4.5	ND<4.4	ND<4.4	ND<4.7	ND<4.7	ND<4.5	ND<2.0	ND<2.0
4-Ethyltoluene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
4-Methyl-2-pentanone	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Acetone	ppbv	ND<4.5	ND<4.3	ND<4.5	ND<4.5	ND<4.4	6.7	8.1	ND<4.7	17	ND<2.0	2.8
alpha-Chlorotoluene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Benzene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	1.3	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Bromodichloromethane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Bromoform	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Bromomethane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Carbon Disulfide	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Carbon Tetrachloride	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Chlorobenzene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Chloroethane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Chloroform	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Chloromethane	ppbv	ND<4.5	ND<4.3	ND<4.5	ND<4.5	ND<4.4	ND<4.4	ND<4.7	ND<4.7	ND<4.5	ND<2.0	ND<2.0
cis-1,2-Dichloroethene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
cis-1,3-Dichloropropene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Cumene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Cyclohexane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Dibromochloromethane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Ethanol	ppbv	ND<4.5	ND<4.3	ND<4.5	ND<4.5	ND<4.4	ND<4.4	ND<4.7	ND<4.7	ND<4.5	ND<2.0	2.6
Ethyl Benzene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	1.5	ND<1.1	ND<0.50	ND<0.50
Freon 11	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Freon 113	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	17	ND<1.2	3.2	ND<0.50	ND<0.50
Freon 114	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Freon 12	ppbv	ND<1.1	1.2	1.4	1.3	ND<1.1	ND<1.1	24	ND<1.2	7.6	ND<0.50	ND<0.50
Heptane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	1.7	ND<1.1	ND<0.50	ND<0.50

Geosyntec consultants

Table 4
Summary of First Quarter 2007 Soil Vapor Analytical Results
Poway Landfill
Poway, California

		Offsite Soil Vapor Wells									QA/QC Samples	
		VW-7A	VW-8A	VW-8C[1]	VW-8B	VW-10	VW-11	VW-12	VW-13	VW-14	QCTB	
	Units	1/23/2007	1/23/2007	1/23/2007	1/23/2007	1/23/2007	1/23/2007	1/23/2007	1/23/2007	1/23/2007	1/22/2007	1/23/2007
VOCs by Modified EPA Method TO-15												
Hexachlorobutadiene	ppbv	ND<4.5	ND<4.3	ND<4.5	ND<4.5	ND<4.4	ND<4.4	ND<4.7	ND<4.7	ND<4.5	ND<2.0	ND<2.0
Hexane	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Iodomethane*	ppbv	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	1.6	1.9	ND<1.2	2.6	ND<1.1	ND<0.50	ND<0.50
Methyl tert-butyl ether	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Methylene Chloride	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	0.74
o-Xylene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Propylbenzene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Styrene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Tetrachloroethene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	3.6	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Tetrahydrofuran	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Toluene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	1.7
trans-1,2-Dichloroethene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
trans-1,3-Dichloropropene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
trans-1,4-Dichloro-2-butene*	ppbv	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50
Vinyl Acetate*	ppbv	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ppbv	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.1	ND<1.2	ND<1.2	ND<1.1	ND<0.50	ND<0.50

ppbv - Parts per billion by volume
ND - Analyte not detected at a concentration greater than the detection limit
VOCs - Volatile Organic Compounds
* - Tentatively Identified Compound (TIC)
TICs do not have a detection limit
[1] - PVP-3C and VW-8C are duplicate samples for PVP-3A and VW-8A, respectively
QCTB - Quality Control Trip Blank

Table 5
Historical Benzene, PCE, and TCE Concentrations in Soil Vapor
Poway Landfill
Poway, California

Geosyntec consultants

Onsite Vapor Wells	Sample ID	Date	Benzene ppbv	TCE ppbv	PCE ppbv
Background Vapor Wells	PVP-5	4/19/2006	ND<1.3	ND<1.3	ND<1.3
		5/8/2006	ND<1.1	ND<1.1	1.2
		7/24/2006	ND<1.1	ND<1.1	ND<1.1
		1/22/2007	ND<1.1	ND<1.1	ND<1.1
	PVP-6	4/19/2006	ND<1.1	ND<1.1	ND<1.1
		5/8/2006	ND<1.2	ND<1.2	1.2
		7/24/2006	ND<1.1	ND<1.1	1.2
		1/22/2007	ND<1.1	ND<1.1	ND<1.1
Vapor Wells Installed Within Refuse	PVP-7A	4/6/2006	100	19	ND<4.7
	PVP-8	4/6/2006	130	36	18
	PVP-9	4/6/2006	180	37	27
	PVP-10A	4/6/2006	140	19	ND<4.8
Vapor Wells Installed Within Refuse	PVP-7B	4/6/2006	87	10	3.3
	PVP-10B	4/6/2006	120	23	5.0
Property Boundary Soil Vapor Wells	PVP-1	2/2/2006[1]	120	ND<7.8	ND<7.8
		2/14/2006[1]	140	ND<9.2	ND<9.2
	PVP-1D	2/2/2006*	150	ND<3.1	ND<3.1
	PVP-1A	4/19/2006	ND<1.3	ND<1.3	1.8
		5/8/2006	ND<1.3	ND<1.3	2.1
		7/24/2006	ND<1.3	ND<1.3	2.9
		1/22/2007	ND<1.1	ND<1.1	ND<1.1
	PVP-2A-R	2/14/2006[1]	9.5	ND<1.1	3.9
	PVP-2AD-R	2/14/2006*	8.6	ND<2.4	4.2
	PVP-2A	2/2/2006	19	ND<1.2	ND<1.2
		2/14/2006[1]	11	5.2	ND<4.7
		5/8/2006	ND<1.1	ND<1.1	3.6
		7/24/2006	ND<1.2	ND<1.2	3.4
		1/22/2007	ND<1.1	ND<1.1	2.5
	PVP-2B-R	2/14/2006[1]	100	ND<32	ND<32
	PVP-2B	2/2/2006[1]	ND<1.1	ND<1.1	ND<1.1
		2/14/2006	ND<2.3	ND<2.3	ND<2.3
		5/8/2006[1]	3.0	ND<3.0	ND<3.0
	PVP-3A	2/2/2006	36	ND<1.2	ND<1.2
		2/14/2006[1]	26	ND<1.2	ND<1.2
		4/19/2006	1.4	ND<1.3	ND<1.3
		4/19/2006*	5.4	ND<1.1	5.4
		5/8/2006	1.5	ND<1.2	4.2
		5/8/2006*	1.3	ND<1.2	1.4
		7/24/2006	ND<1.2	ND<1.2	1.2
		1/22/2007	ND<1.1	ND<1.1	ND<1.1
		1/22/2007*	ND<1.1	ND<1.1	1.1
	PVP-3B	2/2/2006	58	ND<6.2	ND<6.2
		2/14/2006	92	ND<4.8	ND<4.8
		4/19/2006	6.2	ND<1.2	5.6
		5/8/2006	7.0	ND<1.3	3.8
	PVP-4A	4/20/2006	ND<1.1	ND<1.1	3.2
		5/8/2006	ND<1.2	ND<1.2	3.4
		7/24/2006	ND<1.2	ND<1.2	4.0
		1/22/2007	ND<1.2	ND<1.2	2.2
	PVP-4B	5/8/2006[1]	ND<370	ND<370	ND<370

Table 5
Historical Benzene, PCE, and TCE Concentrations in Soil Vapor
Poway Landfill
Poway, California

Geosyntec consultants

Offsite Vapor Wells	Sample ID	Date	Benzene ppbv	TCE ppbv	PCE ppbv
100 feet from Property Boundary	VW-1A	4/20/2006	ND<4.9	ND<4.9	ND<4.9
		5/8/2006	ND<1.2	ND<1.2	ND<1.2
		7/24/2006	ND<1.2	ND<1.2	ND<1.2
		7/24/2006*	1.5	ND<1.2	ND<1.2
		1/22/2007	ND<1.1	ND<1.1	ND<1.1
	VW-1B	4/20/2006	2.9	ND<1.2	3.3
		5/9/2006	ND<1.2	ND<1.2	3.3
		7/24/2006	ND<1.2	ND<1.2	1.6
		1/22/2007	ND<1.1	ND<1.1	ND<1.1
	VW-2A	4/20/2006	5.9	ND<1.1	4.1
		4/20/2006*	6.5	ND<1.2	4.1
		5/9/2006	1.2	ND<1.2	2.5
		7/25/2006	ND<1.3	ND<1.3	ND<1.3
		1/22/2007	ND<1.1	ND<1.1	ND<1.1
	VW-2B	5/11/2006[1]	ND<220	ND<220	ND<220
	VW-3A	4/20/2006	ND<1.1	ND<1.1	ND<1.1
		5/9/2006	ND<1.2	ND<1.2	ND<1.2
		7/24/2006	ND<1.2	ND<1.2	ND<1.2
		1/23/2007	ND<1.0	ND<1.0	ND<1.0
	VW-3B	5/11/2006[1]	ND<81	ND<81	ND<81
	VW-4A	4/24/2006	ND<1.2	ND<1.2	51
		5/9/2006	ND<1.2	ND<1.2	59
		5/9/2006*	ND<1.1	ND<1.1	49
		7/25/2006	ND<1.2	ND<1.2	73
		1/22/2007	ND<1.1	ND<1.1	9.6
	VW-4B	4/24/2006	6.0	ND<1.1	62
		5/9/2006	2.4	1.5	88
		7/25/2006	ND<1.3	ND<1.3	69
		1/22/2007	ND<1.2	ND<1.2	60
	VW-5A	5/9/2006	ND<1.2	1.8	19
		7/24/2006	ND<1.2	ND<1.2	20
		1/23/2007	ND<1.1	ND<1.1	8.2
	VW-5B	5/11/2006[1]	ND<19	ND<19	ND<19
	VW-6A	5/10/2006	3.8	ND<1.2	6.2
		7/24/2006	ND<1.3	ND<1.3	3.1
		1/23/2007	ND<1.1	ND<1.1	ND<1.1
	VW-6B	5/11/2006[1]	ND<10	ND<10	11
	VW-7A	4/24/2006	2.6	19	3.7
		4/24/2006*	2.6	19	3.6
		5/10/2006	2.2	5.6	2.0
		7/25/2006	ND<1.2	ND<1.2	2.6
		1/23/2007	ND<1.1	ND<1.1	ND<1.1

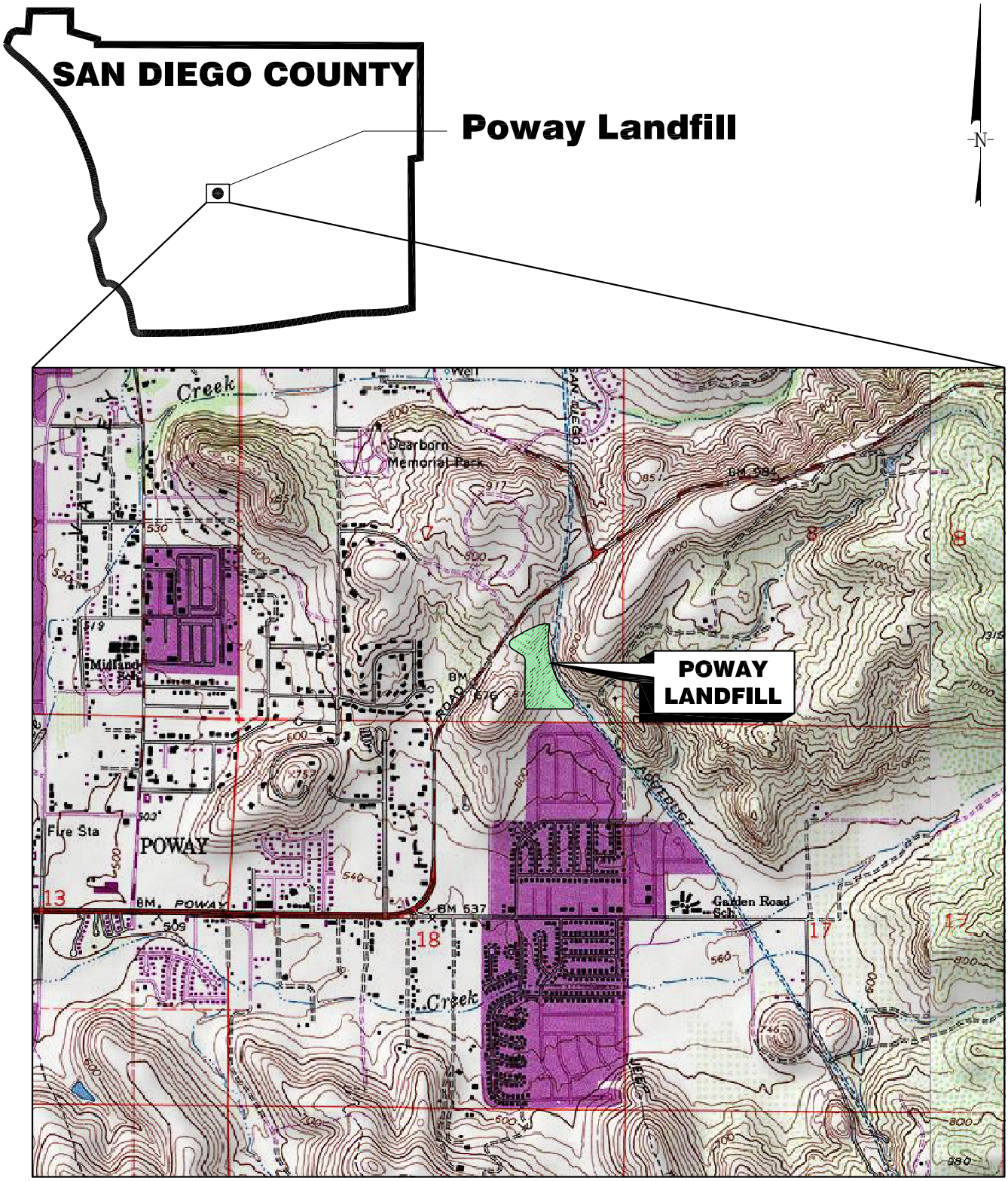
Geosyntec consultants

Table 5
Historical Benzene, PCE, and TCE Concentrations in Soil Vapor
Poway Landfill
Poway, California

Offsite Vapor Wells	Sample ID	Date	Benzene ppbv	TCE ppbv	PCE ppbv
300 feet from Property Boundary	VW-8A	4/24/2006	ND<1.1	3.7	2.1
		5/9/2006	ND<1.2	2.8	2.2
		7/25/2006	ND<1.2	ND<1.2	2.8
		7/25/2006*	ND<1.2	ND<1.2	3
		1/23/2007	ND<1.1	ND<1.1	ND<1.1
		1/23/2007*	ND<1.1	ND<1.1	ND<1.1
	VW-8B	4/25/2006	ND<1.1	ND<1.1	1.7
		5/9/2006	ND<1.1	ND<1.1	1.9
		7/25/2006	ND<1.1	ND<1.1	1.9
		1/23/2007	ND<1.1	ND<1.1	ND<1.1
	VW-9	5/11/2006[1]	ND<150	ND<150	ND<150
	VW-10	4/25/2006	ND<1.1	ND<1.1	ND<1.1
		4/25/2006*	ND<1.2	ND<1.2	ND<1.2
		5/10/2006	2.5	ND<1.1	ND<1.1
		7/25/2006	ND<1.2	ND<1.2	ND<1.2
		1/23/2007	1.3	ND<1.1	ND<1.1
1000 feet from Property Boundary	VW-11	4/25/2006	1.5	ND<1.1	ND<1.1
		5/10/2006	1.8	ND<1.1	ND<1.1
		5/10/2006*	ND<1.1	ND<1.1	1.3
		7/25/2006	ND<1.2	ND<1.2	ND<1.2
		1/23/2007	ND<1.1	ND<1.1	ND<1.1
	VW-12	5/10/2006	ND<1.2	ND<1.2	4.3
		6/1/2006	ND<1.1	ND<1.1	6.7
		6/1/2006*	ND<1.2	ND<1.2	6.7
		7/25/2006	ND<1.2	ND<1.2	9.3
		1/23/2007	ND<1.2	ND<1.2	3.6
	VW-13	5/10/2006	5.0	4.2	2.6
		6/1/2006	ND<1.3	2.4	5.3
		7/25/2006	ND<1.3	ND<1.3	2.8
		1/23/2007	ND<1.2	ND<1.2	ND<1.2
	VW-14	5/10/2006	3.7	3.5	1.4
		6/1/2006	ND<1.3	4.0	1.5
		7/25/2006	ND<1.3	ND<1.3	ND<1.3
		1/23/2007	ND<1.1	ND<1.1	ND<1.1

ppbv -parts per billion by volume
* Duplicate sample collected at vapor well
[1] - Tracer gas breakthough in soil vapor well

FIGURES



2000 1000 0 2000

SCALE IN FEET

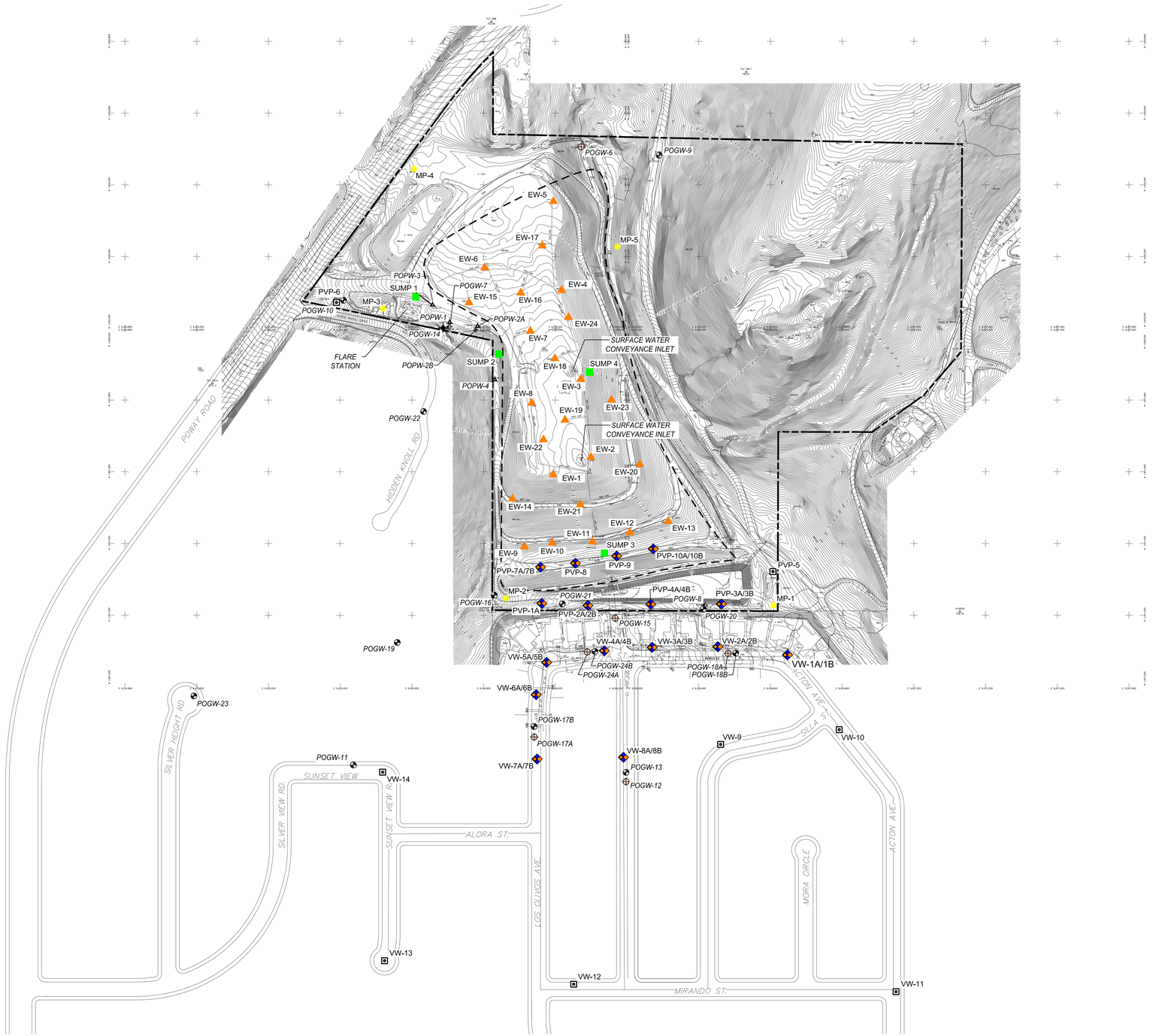
SITE LOCATION
POWAY LANDFILL
POWAY, CALIFORNIA

SOURCE:
NATIONAL GEOGRAPHIC (CALIFORNIA)
SEAMLESS USGS TOPOGRAPHIC MAPS
ON CD-ROM POWERED BY TOPO

Geosyntec consultants

DATE:	APRIL 2007	FIGURE
PROJECT NO.	SC0233	1

P:\PRJ\SDCadd\CADD\SC0233\Figures\Well Install Report\SC0233_Figure 1_Site Location.dwg 7/10/2006 5:25 PM Mark Duncan



LEGEND

- SOIL VAPOR WELL CLUSTER
- VAPOR WELL (5 FEET BGS)
- *POGW-6* ALLUVIAL GROUNDWATER MONITOR WELL
- *POGW-9* UPPER FRACTURE ZONE GROUNDWATER MONITOR WELL
- *POPW-1* UPPER FRACTURE ZONE GROUNDWATER PIEZOMETER
- *POPW-2B* INTERMEDIATE FRACTURE ZONE GROUNDWATER PIEZOMETER
- *POGW-14* LOWER FRACTURE ZONE GROUNDWATER MONITOR WELL
- *POGW-8* DESTROYED GROUNDWATER MONITOR WELL
- LANDFILL GAS EXTRACTION WELL
- PERIMETER LANDFILL GAS MONITORING PROBE
- CONDENSATE SUMP
- APPROXIMATE PROPERTY BOUNDARY
- ESTIMATED LIMITS OF TRASH/REFUSE

150 75 0 150
SCALE IN FEET

BASE MAP REFERENCE:
STEWART GEO TECHNOLOGIES JULY 2002

SITE FEATURES
POWAY LANDFILL
POWAY, CALIFORNIA

Geosyntec consultants

DATE:	APRIL 2007	FIGURE
PROJECT NO.	SC0233	2

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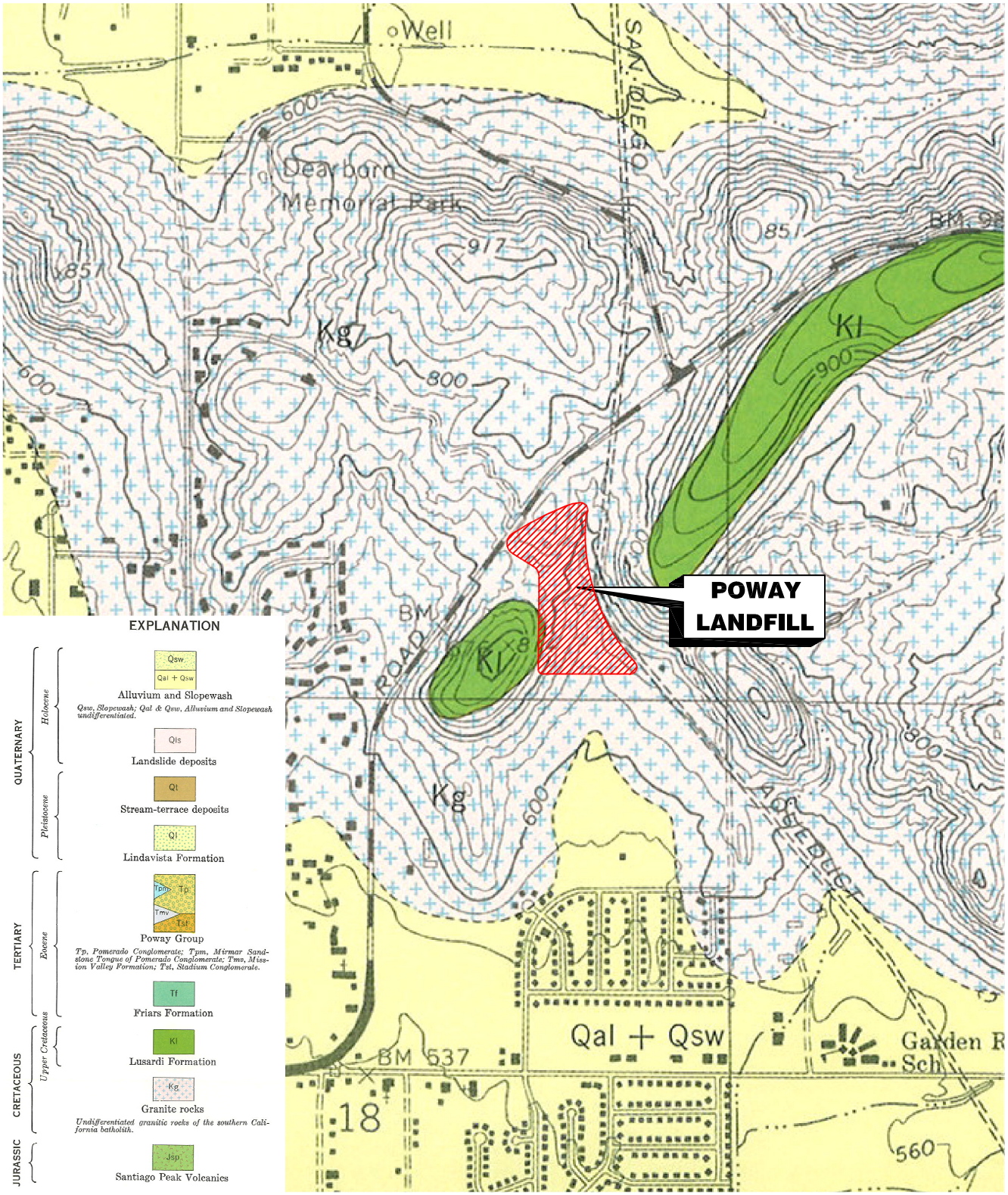


SITE GEOLOGY MAP
POWAY LANDFILL
POWAY, CALIFORNIA

SOURCE:
GEOLOGY OF THE POWAY QUADRANGLE, 1967
SAN DIEGO COUNTY, CALIFORNIA
by Michael P. Kennedy and G.L. Peterson

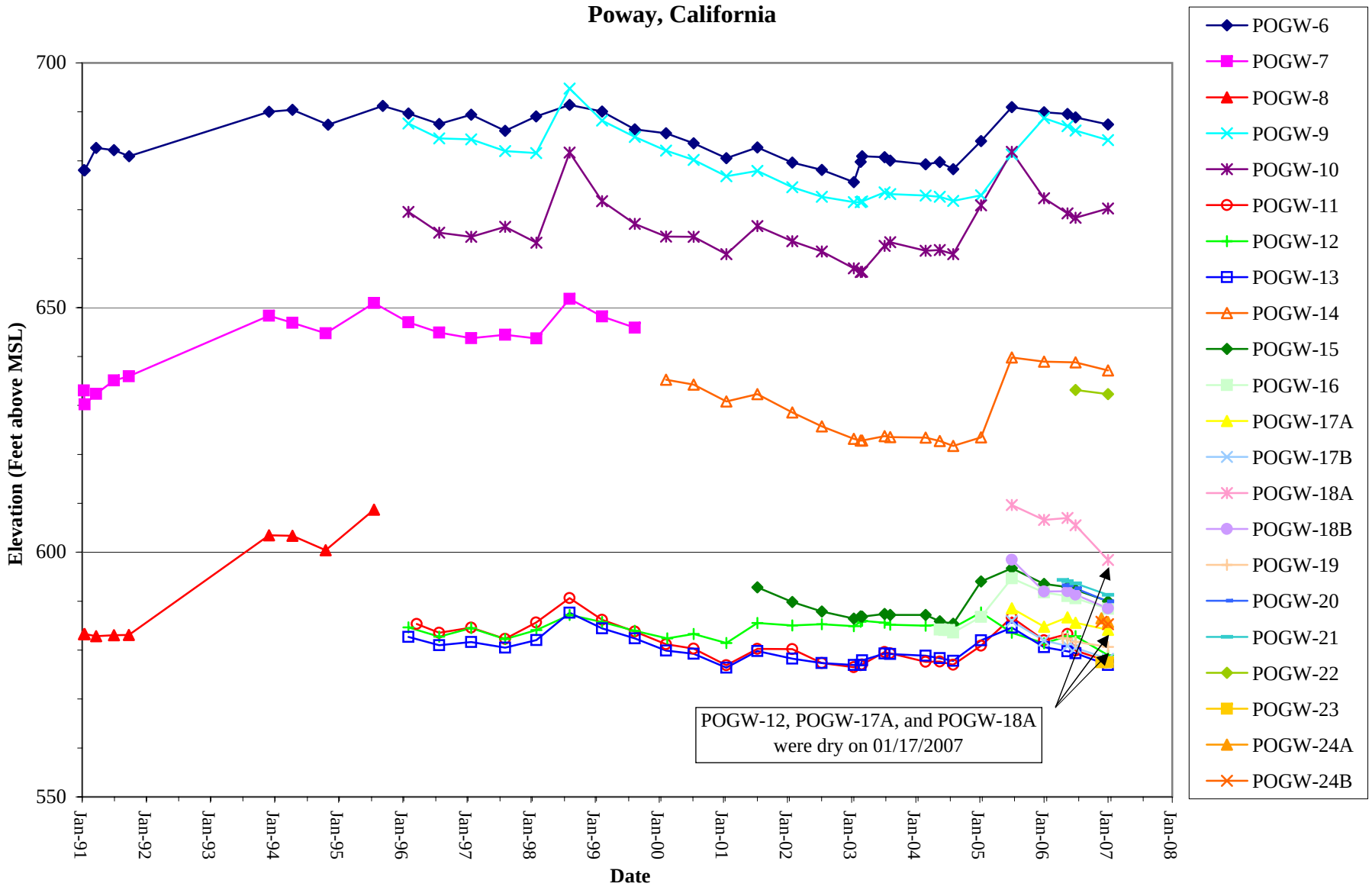
Geosyntec consultants

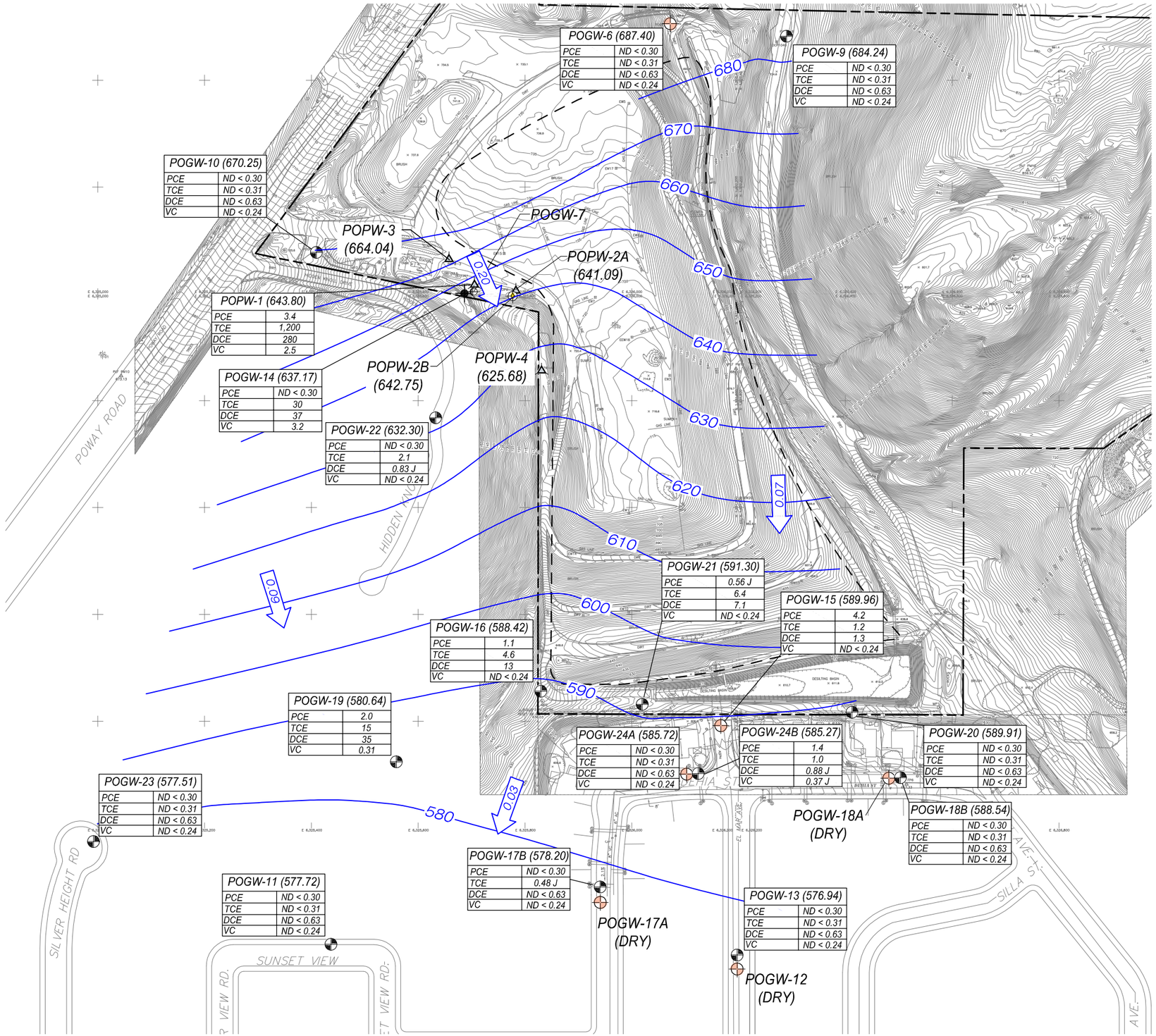
DATE:	APRIL 2007	FIGURE
PROJECT NO.	SC0233	3

P:\PRJ\SDCadd\CADD\SC0233\Figures\Well Install Report\SC0233_Figure 3_Site Geology Map.dwg 7/10/2006 5:25 PM Mark Duncan

Figure 4
Groundwater Elevation Fluctuations
Poway Landfill
Poway, California

Geosyntec consultants





LEGEND

POGW-12	ALLUVIAL GROUNDWATER MONITOR WELL
POGW-9	UPPER FRACTURE ZONE GROUNDWATER MONITOR WELL
POPW-1	UPPER FRACTURE ZONE GROUNDWATER PIEZOMETER
POPW-2B	INTERMEDIATE FRACTURE ZONE GROUNDWATER PIEZOMETER
POGW-14	LOWER FRACTURE ZONE GROUNDWATER MONITOR WELL
	APPROXIMATE PROPERTY BOUNDARY
	ESTIMATED LIMITS OF TRASH/REFUSE
	EXISTING PAVED ROAD
	EXISTING DIRT ROAD
620	GROUNDWATER ELEVATION CONTOUR (10 FT INTERVALS)
0.09	APPROXIMATE GROUNDWATER FLOW DIRECTION AND HYDRAULIC GRADIENT (FT/FT)

N

POGW-19 (580.64)

PCE	1.3
TCE	13
DCE	31
VC	ND < 0.33

MONITOR WELL ID WITH GROUNDWATER ELEVATION AND PRIMARY COC CONCENTRATIONS IN µg/L

(J - COC DETECTED AT A CONCENTRATION BETWEEN THE METHOD DETECTION LIMIT AND THE REPORTING LIMIT, CONCENTRATION IS ESTIMATED)

NOTES:

1. *GROUNDWATER ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL.*
2. *WELLS POGW-6, POGW-12, POGW-15, POGW-17A, POGW-18A, AND POGW-24A ARE ALLUVIAL WELLS AND ARE NOT USED IN GROUNDWATER CONTOURING. POPW-2B IS AN INTERMEDIATE FRACTURE ZONE WELL AND WAS NOT USED IN GROUNDWATER CONTOURING. POGW-14 IS A DEEP FRACTURE ZONE WELL AND WAS NOT USED IN GROUNDWATER CONTOURING.*
3. *COC - CONSTITUENTS OF CONCERN*
   PCE - TETRACHLOROETHENE
   TCE - TRICHLOROETHENE
   DCE - cis-1,2-DICHLOROETHENE
   VC - VINYL CHLORIDE

200 100 0 200

SCALE IN FEET

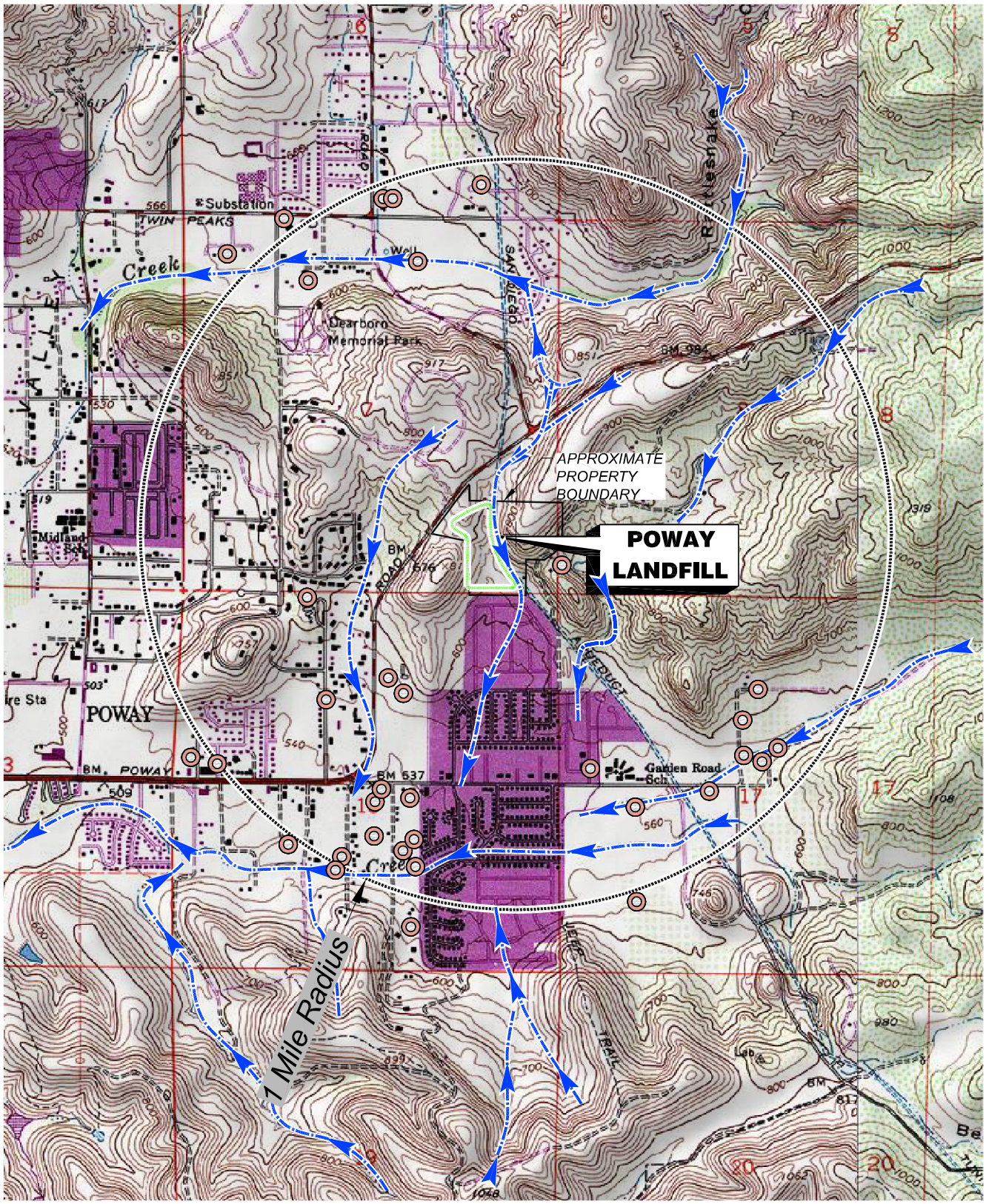
BASE MAP REFERENCE:
STEWART GEO TECHNOLOGIES JULY 2002

GROUNDWATER ELEVATIONS, FLOW DIRECTION AND COC CONCENTRATIONS
17 JANUARY 2007
POWAY LANDFILL
POWAY, CALIFORNIA

Geosyntec consultants

DATE:	APRIL 2007	FIGURE
PROJECT NO.	SC0233	5

P:\PRJ\SDCadd\CADD\SC0233\Figures\Well Install Report\SC0233_Figure 5_GW Elevations.dwg



LEGEND

REGIONAL SURFACE WATER FLOW

PRIVATE WELL LOCATION

2000 1000 0 2000

SCALE IN FEET

SOURCE:
NATIONAL GEOGRAPHIC (CALIFORNIA) SEAMLESS USGS TOPOGRAPHIC MAPS ON CD-ROM POWERED BY TOPO

HYDROLOGIC FEATURES
POWAY LANDFILL
POWAY, CALIFORNIA

Geosyntec consultants

DATE:	APRIL 2007	FIGURE
PROJECT NO.	SC0233	6

LEGEND

HAP-14 (3.70') — HAND AUGER BORING LOCATION AND APPROXIMATE THICKNESS OF COVER

APPROXIMATE PROPERTY BOUNDARY

ESTIMATED LIMITS OF TRASH / REFUSE

TEST PIT LOCATION

N

200 100 0 200

SCALE IN FEET

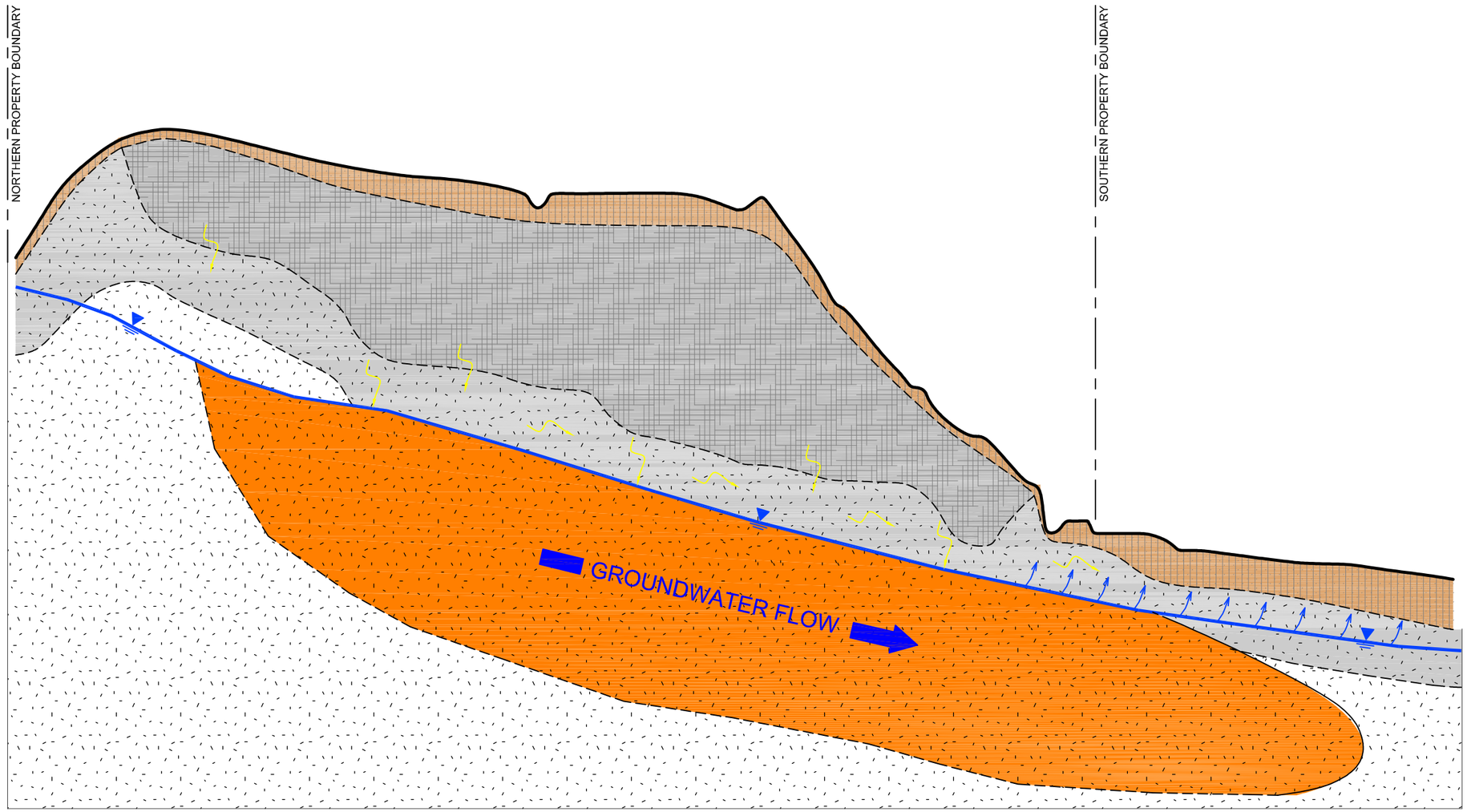
SOURCE:
LANDISCOR AERIAL PHOTOGRAPH - JANUARY 2006

COVER THICKNESS
POWAY LANDFILL
POWAY, CALIFORNIA

Geosyntec consultants

DATE:	APRIL 2007	FIGURE
PROJECT NO.	SC0233	7

P:\PRJ\SDCadd\CADD\SC0233\Figures\Well Install Report\SC0233_Figure 7_Cover Thickness.dwg



LEGEND

- ALLUVIUM / FILL
- TRASH / REFUSE
- EXTREMELY / HIGHLY WEATHERED GRANITIC BEDROCK
- MODERATELY WEATHERED TO FRESH GRANITIC BEDROCK
- POTENTIAL COC IN GROUNDWATER TRANSPORT IN FRACTURED BEDROCK
- REPRESENTS POTENTIAL LANDFILL GAS MIGRATION FLOW DIRECTION
- POTENTIAL VOLATILIZATION OF COC FROM GROUNDWATER
- GROUNDWATER TABLE

150 75 0 150

SCALE IN FEET

SITE CONCEPTUAL MODEL
POWAY LANDFILL
POWAY, CALIFORNIA

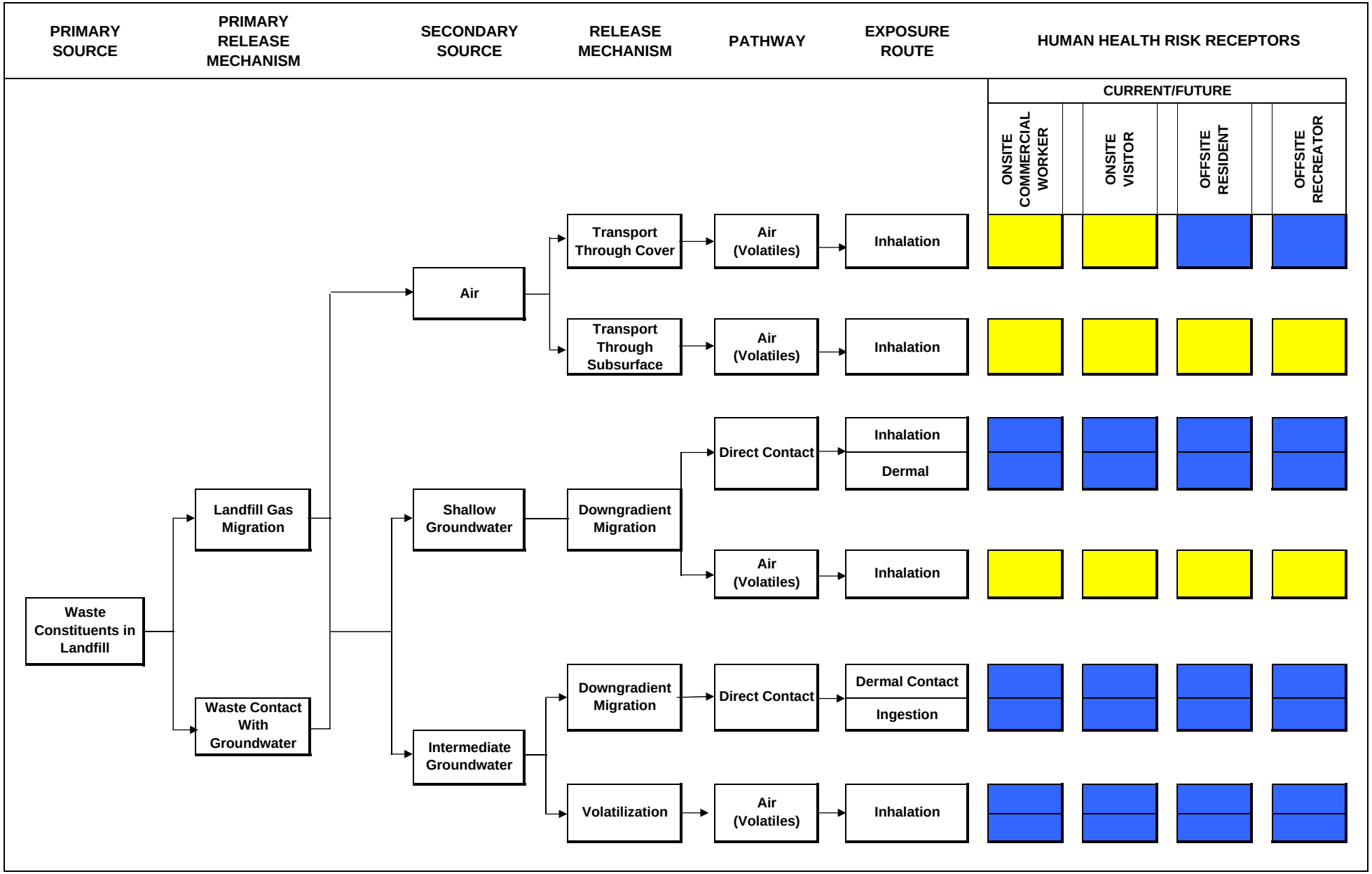
Geosyntec consultants

DATE:	APRIL 2007	FIGURE
PROJECT NO.	SC0233	8

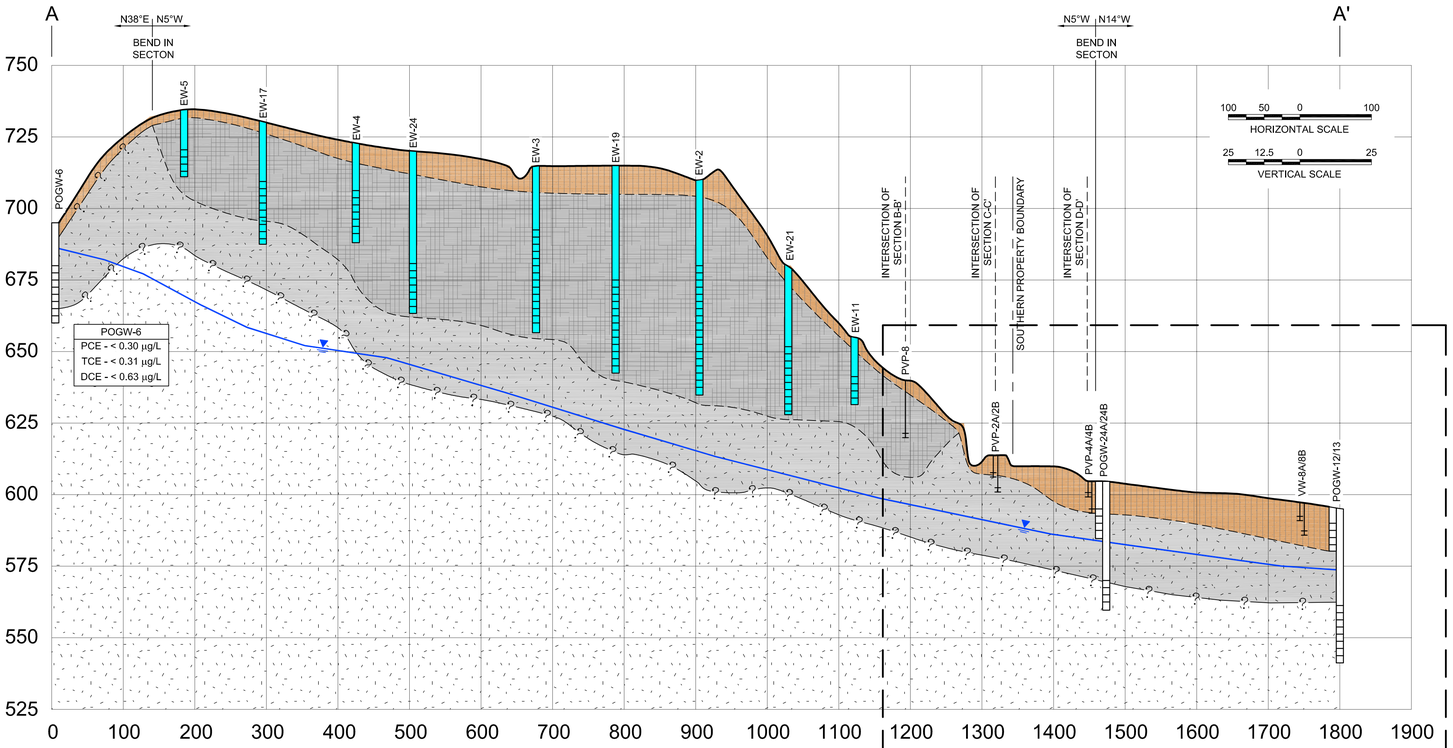
P:\PRJ\SDCadd\CADD\SC0233\Figures\Well Install Report\SC0233_Figure 8_Site Conceptual Model.dwg

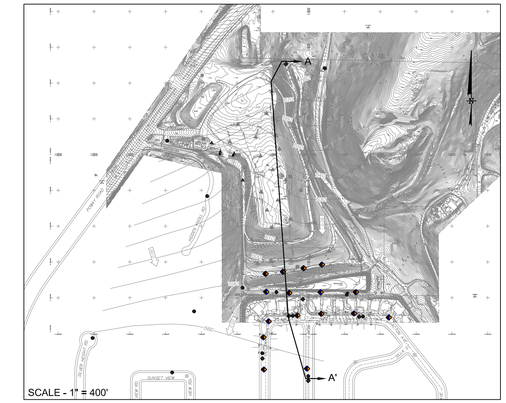
Figure 9
Conceptual Model of Pathway and Receptors
Poway Landfill
Poway, California

Geosyntec consultants



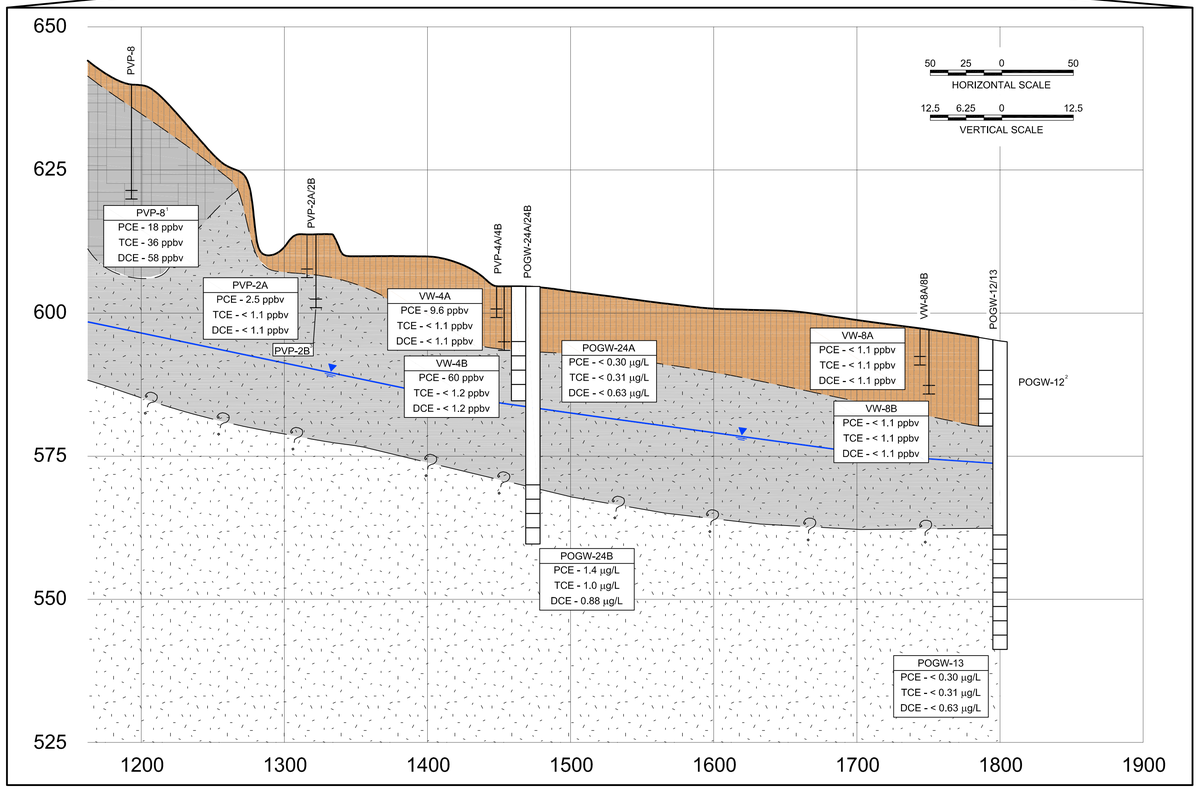
NOTES: Complete exposure pathway | Potentially complete but insignificant exposure pathway | Incomplete exposure pathway





LEGEND

- GROUNDWATER MONITOR WELL — Screened Interval
- LANDFILL GAS EXTRACTION WELL — Screened Interval
- SOIL VAPOR MONITOR WELL
- ESTIMATED CONTACT
- APPROXIMATE CONTACT *
- GROUNDWATER ELEVATION 17 JANUARY 2007
- TRASH / REFUSE
- ALLUVIUM / FILL
- EXTREMELY / HIGHLY WEATHERED GRANITIC BEDROCK
- MODERATELY WEATHERED TO FRESH GRANITIC BEDROCK
- POGW-6 (PCE - < 0.30 µg/L, TCE - < 0.31 µg/L, DCE - < 0.63 µg/L): WELL ID AND PRIMARY COC CONCENTRATION FROM FIRST QUARTER 2007 SAMPLING EVENT (groundwater concentrations in µg/L vapor concentrations in ppbv)



Theoretical vs. Measured Soil Vapor Concentration

Constituent	H (ppbv-µg/L)	Measured Groundwater Concentration (Cw)	Calculated "Relative" Theoretical Gas-Phase Concentration (Cg)[1]	Measured Soil Vapor Concentration[2]	Potentially from Groundwater
		µg/L	ppbv	ppbv	Y/N
		POGW-13		VW-8B	
PCE	1.41E+02	ND<0.30	<42.30	ND<1.1	?
TCE	6.90E+01	ND<0.31	<21.39	ND<1.1	?
cis-1,2-DCE	5.90E+01	ND<0.63	<37.17	ND<1.1	?
		POGW-24A		VW-4B	
PCE	1.41E+02	ND<0.30	<42.30	60	N
TCE	6.90E+01	ND<0.31	<21.39	ND<1.2	?
cis-1,2-DCE	5.90E+01	ND<0.63	<37.17	ND<1.2	?

H - Constituent specific Henry's Gas Law constant and factor for converting vapor concentration units from µg/L to ppbv.

[1] - Predicted by using the measured groundwater concentration (Cw) multiplied by H (Pankow and Cherry, 1996).

[2] - Concentrations detected during the January 2007 sampling event are reported.

ND< - Constituent not detected at a concentration greater than the detection limit.

ppbv - parts per billion by volume

µg/L - micrograms per liter

Y - Measured soil vapor concentration is within range of theoretical concentration (Cg), and therefore may be attributable to volatilization from groundwater.

N - Measured soil vapor concentration is greater than concentration possible due to volatilization from groundwater and therefore cannot be attributable to volatilization from groundwater.

? - If both the measured groundwater and soil vapor concentrations were ND, source is indeterminate.

NOTES:

* CONTACT BETWEEN HIGHLY WEATHERED GRANITIC BEDROCK AND MODERATELY WEATHERED TO FRESH GRANITIC BEDROCK IS ESTIMATED BASED ON SURFACE GEOPHYSICS AND BORINGS DRILLED ALONG THE WESTERN EDGE OF THE LANDFILL.

COC - CONSTITUENT OF CONCERN
PCE - TETRACHLOROETHENE
TCE - TRICHLOROETHENE
DCE - cis-1,2-DICHLOROETHENE

[1] LANDFILL GAS SAMPLE COLLECTED FROM REFUSE SOIL VAPOR WELL ON 4/6/2006.

[2] GROUNDWATER MONITOR WELL COULD NOT BE SAMPLED DURING THE FIRST QUARTER 2007 SAMPLING EVENT BECAUSE THE WELL WAS DRY.

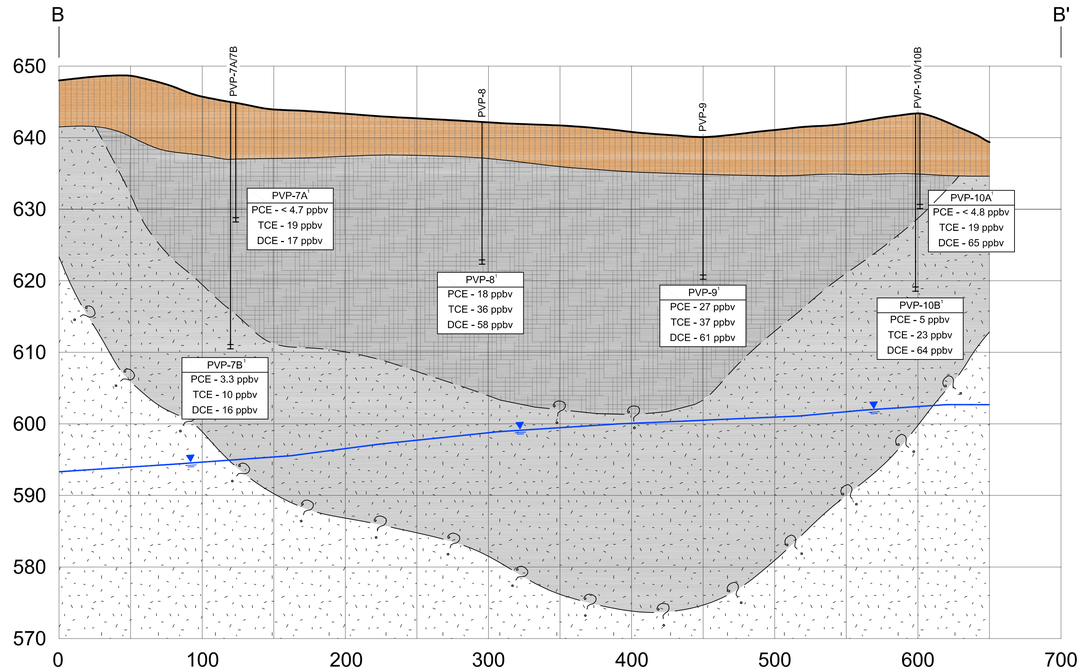
[3] SOIL VAPOR WELL COULD NOT BE SAMPLED DUE TO HIGH VACUUM CONDITIONS IN THE WELL.

NORTH-SOUTH HYDROGEOLOGIC CROSS SECTION
POWAY LANDFILL
POWAY, CALIFORNIA

Geosyntec consultants

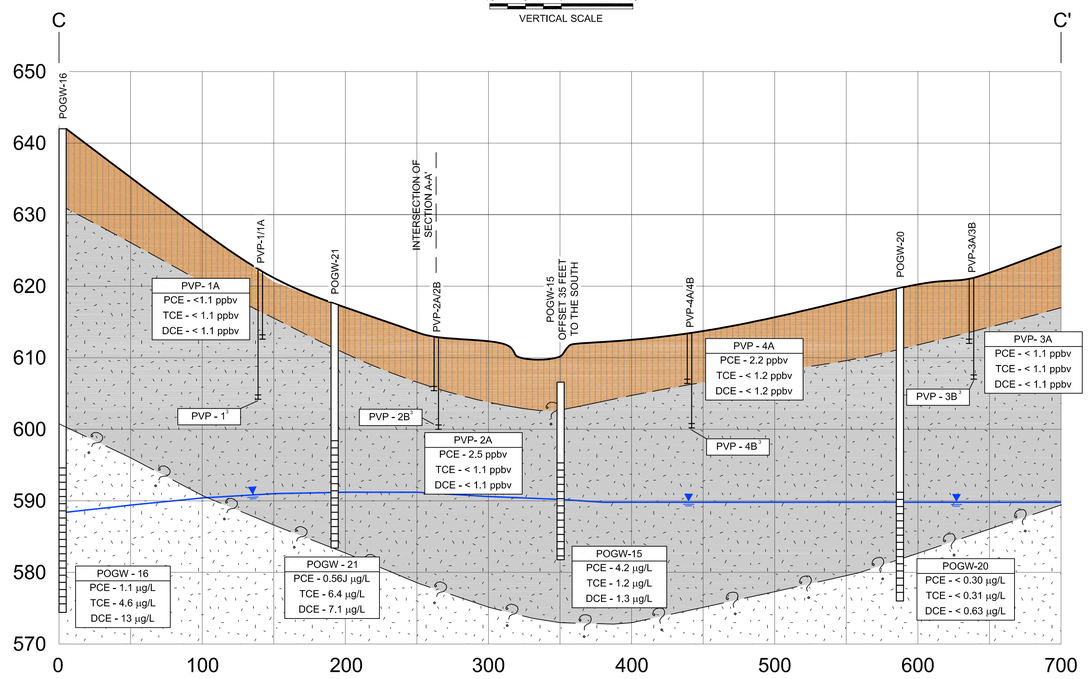
DATE:	APRIL 2007	FIGURE
PROJECT NO.	SC0233	10

P:\PRJ\SDCadd\CADD\SC0233\Figures\Well Install Report\SC0233_Figure 10_North-South Cross Section.dwg



50 25 0 50
HORIZONTAL SCALE

10 5 0 10
VERTICAL SCALE



Theoretical vs. Measured Soil Vapor Concentration

Constituent	H (ppbv-µg/L)	Measured Groundwater Concentration (Cw)	Calculated "Relative" Theoretical Gas-Phase Concentration (Cg)[1]	Measured Soil Vapor Concentration[2]	Potentially from Groundwater
		µg/L	ppbv	ppbv	Y/N
		POGW-20		PVP-3A	
PCE	1.41E+02	ND<0.30	<42.30	ND<1.1	?
TCE	6.90E+01	ND<0.31	<21.39	ND<1.1	?
cis-1,2-DCE	5.90E+01	ND<0.63	<37.17	ND<1.1	?

H - Constituent specific Henry's Gas Law constant and factor for converting vapor concentration units from µg/L to ppbv.

[1] - Predicted by using the measured groundwater concentration (Cw) multiplied by H (Pankow and Cherry, 1996).

[2] - Concentrations detected during the January 2007 sampling event are reported.

ND< - Constituent not detected at a concentration greater than the detection limit.

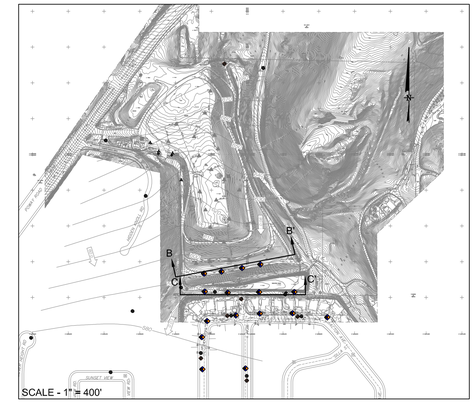
ppbv - parts per billion by volume

µg/L - micrograms per liter

Y - Measured soil vapor concentration is within range of theoretical concentration (Cg), and therefore may be attributable to volatilization from groundwater.

N - Measured soil vapor concentration is greater than concentration possible due to volatilization from groundwater and therefore cannot be attributable to volatilization from groundwater.

? - If both the measured groundwater and soil vapor concentrations were ND, source is indeterminate.



LEGEND

- GROUNDWATER MONITOR WELL Screened Interval
- SOIL VAPOR MONITOR WELL
- ESTIMATED CONTACT
- APPROXIMATE CONTACT *
- GROUNDWATER ELEVATION 17 JANUARY 2007
- TRASH / REFUSE
- ALLUVIUM / FILL
- EXTREMELY / HIGHLY WEATHERED GRANITIC BEDROCK
- MODERATELY WEATHERED TO FRESH GRANITIC BEDROCK
- POGW-6 / PCE - < 0.30 µg/L / TCE - < 0.31 µg/L / DCE - < 0.63 µg/L — WELL ID AND PRIMARY COC CONCENTRATION FROM FIRST QUARTER 2007 SAMPLING EVENT (groundwater concentrations in µg/L vapor concentrations in ppbv)

NOTES:

* CONTACT BETWEEN HIGHLY WEATHERED GRANITIC BEDROCK AND MODERATELY WEATHERED TO FRESH GRANITIC BEDROCK IS ESTIMATED BASED ON SURFACE GEOPHYSICS AND BORINGS DRILLED ALONG THE WESTERN EDGE OF THE LANDFILL.

COC - CONSTITUENT OF CONCERN
PCE - TETRACHLOROETHENE
TCE - TRICHLOROETHENE
DCE - cis-1,2-DICHLOROETHENE

[1] LANDFILL GAS SAMPLE COLLECTED FROM REFUSE SOIL VAPOR WELL ON 4/6/2006.

[2] GROUNDWATER MONITOR WELL COULD NOT BE SAMPLED DURING THE FIRST QUARTER 2007 SAMPLING EVENT BECAUSE THE WELL WAS DRY.

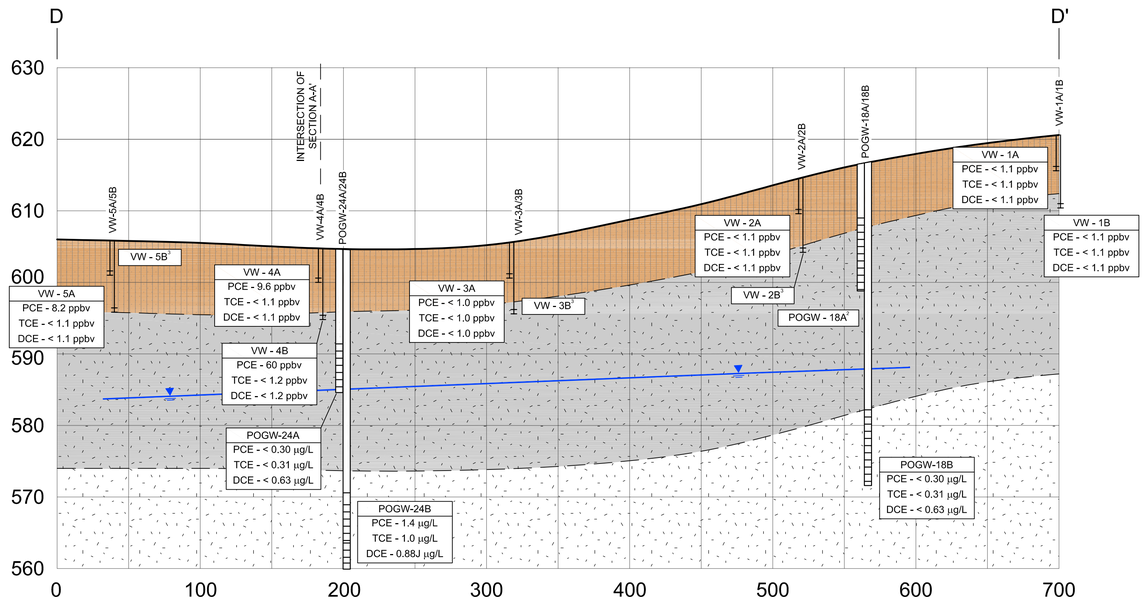
[3] SOIL VAPOR WELL COULD NOT BE SAMPLED DUE TO HIGH VACUUM CONDITIONS IN THE WELL.

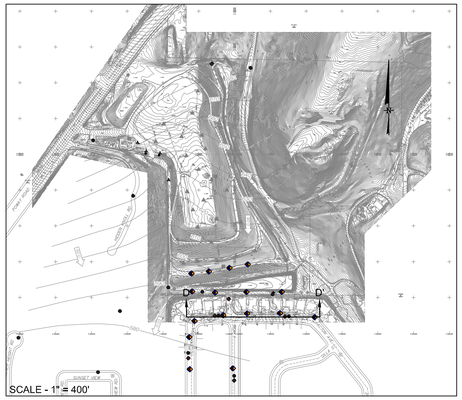
LANDFILL TOE & SOUTH PROPERTY BOUNDARY HYDROGEOLOGIC CROSS SECTIONS
POWAY LANDFILL
POWAY, CALIFORNIA

Geosyntec consultants

DATE:	APRIL 2007	FIGURE
PROJECT NO.	SC0233	11

P:\PRJ\SD\Cadd\CADD\SC0233\Figures\Well Install Report\SC0233_Figure 11_Landfill Toe Cross Sections.dwg





LEGEND

- GROUNDWATER MONITOR WELL — Screened Interval
- SOIL VAPOR MONITOR WELL
- ESTIMATED CONTACT
- GROUNDWATER ELEVATION 17 JANUARY 2007
- ALLUVIUM / FILL
- EXTREMELY / HIGHLY WEATHERED GRANITIC BEDROCK
- MODERATELY WEATHERED TO FRESH GRANITIC BEDROCK
- POGW-6 (PCE - < 0.30 µg/L, TCE - < 0.31 µg/L, DCE - < 0.63 µg/L): WELL ID AND PRIMARY COC CONCENTRATION FROM FIRST QUARTER 2007 SAMPLING EVENT (groundwater concentrations in µg/L vapor concentrations in ppbv)

Theoretical vs. Measured Soil Vapor Concentration

Constituent	H (ppbv-µg)/L	Measured Groundwater Concentration (Cw)	Calculated "Relative" Theoretical Gas-Phase Concentration (Cg)[1]	Measured Soil Vapor Concentration[2]	Potentially from Groundwater
		µg/L	ppbv	ppbv	Y/N
		POGW-24A		VW-4B	
PCE	1.41E+02	ND<0.30	<42.30	60	N
TCE	6.90E+01	ND<0.31	<21.39	ND<1.2	?
cis-1,2-DCE	5.90E+01	ND<0.63	<37.17	ND<1.2	?
		POGW-18B		VW-2A	
PCE	1.41E+02	ND<0.30	<42.30	ND<1.1	?
TCE	6.90E+01	ND<0.31	<21.39	ND<1.1	?
cis-1,2-DCE	5.90E+01	ND<0.63	<37.17	ND<1.1	?

H - Constituent specific Henry's Gas Law constant and factor for converting vapor concentration units from µg/L to ppbv.

[1] - Predicted by using the measured groundwater concentration (Cw) multiplied by H (Pankow and Cherry, 1996).

[2] - Concentrations detected during the January 2007 sampling event are reported.

ND< - Constituent not detected at a concentration greater than the detection limit.

ppbv - parts per billion by volume

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Y - Measured soil vapor concentration is within range of theoretical concentration (Cg), and therefore may be attributable to volatilization from groundwater.

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NOTES:
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PCE - TETRACLOROETHENE
TCE - TRICHLOROETHENE
DCE - cis-1,2-DICHLOROETHENE

[1] LANDFILL GAS SAMPLE COLLECTED FROM REFUSE SOIL VAPOR WELL ON 4/6/2006.

[2] GROUNDWATER MONITOR WELL COULD NOT BE SAMPLED DURING THE FIRST QUARTER 2007 SAMPLING EVENT BECAUSE THE WELL WAS DRY.

[3] SOIL VAPOR WELL COULD NOT BE SAMPLED DUE TO HIGH VACUUM CONDITIONS IN THE WELL.

50 25 0 50
HORIZONTAL SCALE

10 5 0 10
VERTICAL SCALE

DEHIA STREET HYDROGEOLOGIC CROSS SECTION
POWAY LANDFILL
POWAY, CALIFORNIA

Geosyntec consultants

DATE:	APRIL 2007	FIGURE
PROJECT NO.	SC0233	12

P:\PRJ\SDCadd\CADD\SC0233\Figures\Well Install Report\SC0233_Figure 12_Dehia Street Cross Section.dwg

APPENDIX A

DEH Well Permits

PERMIT #LMON103898
A.P.N. #321-200-38, 323-461-25-00
EST # H86017

COUNTY OF SAN DIEGO
DEPARTMENT OF ENVIRONMENTAL HEALTH
LAND AND WATER QUALITY DIVISION
MONITORING WELL PROGRAM

MONITORING WELL AND BORING CONSTRUCTION AND DESTRUCTION PERMIT

SITE NAME: POWAY LANDFILL

SITE ADDRESS: 14900 POWAY RD. & SUNSET VIEW RD., POWAY CA 92064

PERMIT FOR: **INSTALL 3 GROUNDWATER MONITORING WELLS**

PERMIT APPROVAL DATE: APRIL 5, 2006

PERMIT EXPIRES ON: AUGUST 3, 2006

RESPONSIBLE PARTY: COUNTY OF SAN DIEGO, LANDFILL MANAGEMENT

PERMIT CONDITIONS:

1. Wells must have a **minimum 3-foot concrete surface seal**. The surface seal shall consist of concrete able to withstand the maximum anticipated load without cracking or deteriorating. The concrete should meet Class A specifications of a minimum 4000-pound compressive strength.

2. All water and soil resulting from the activities covered by this permit must be managed, stored and disposed of as specified in the SAM Manual in Section 5, II, E- 4. (**http://www.sdcounty.ca.gov/deh/lwq/sam/manual_guidelines.html**). In addition, drill cuttings must be properly handled and disposed in compliance with the Stormwater Best Management Practices of the local jurisdiction.

3. Within 60 days of completing work, submit a well construction report, including all well and/or boring logs and laboratory data to the Well Permit Desk. This report must include all items required by the SAM Manual, Section 5, Pages 6 & 7.

4. This office must be given 48-hour notice of any drilling activity on this site and advanced notification of drilling cancellation. Please contact the Well Permit Desk at 338-2339.

APPROVED BY: _____ DATE: 04/05/2006
KEVIN HEATON

NOTIFIED: 04/06/06 v-message

DEH:SAM-9075 (3/05)

COUNTY OF SAN DIEGO

DEPARTMENT OF ENVIRONMENTAL HEALTH
1255 Imperial Avenue, 3rd Floor
San Diego, CA 92101
(619)338-2228

RECEIPT NUMBER: **06-0322662**
Cashier: **EGARCIA**

APN: 321-200-38-00
DATE ISSUED: 04-APR-2006
PERMIT: LMON T103898
SCOPE: MONITORING WELL/CATHODIC WELL
SITE ADDRESS: NO ADDRESS
SUBDIVISION:
CITY:

PARCEL OWNER: COUNTY OF SAN DIEGO
ADDRESS: PUBLIC AGENCY
CITY/STATE/ZIP: , 00000

PERMIT OWNER:
ADDRESS:
CITY/STATE/ZIP:

Fees Calculated 12 Months Back

Date	Fee Code	Description	Paid to Date	This Receipt	Balance Due
)3-APR-2006	6LW25--EHO	MONITORING WELL	$185.00	$0.00	$0.00
)3-APR-2006	6LW25-ZCRO	FISCAL YEAR 05/06 ONE-TIME 10% CREDIT	-$18.50	$0.00	$0.00
)3-APR-2006	6LWMAINEHO	WELL MAINTENANCE FEE	$100.00	$0.00	$0.00
)3-APR-2006	6LWMAINZCO	FISCAL YEAR 05/06 ONE-TIME 10% CREDIT	-$10.00	$0.00	$0.00
)3-APR-2006	6LWAM--EHO	ADDITIONAL MONITORING WELL	$319.00	$1.00	$0.00
)3-APR-2006	6LWAM-ZCRO	FISCAL YEAR 05/06 ONE-TIME 10% CREDIT	-$32.00	$0.00	$0.00
)3-APR-2006	6LWMAIXEHO	ADDITIONAL WELL MAINTENANCE FEE	$60.00	$0.00	$0.00
)3-APR-2006	6LWMAIXZCO	FISCAL YEAR 05/06 ONE-TIME 10% CREDIT	-$6.00	$0.00	$0.00
		Totals:		$1.00	$0.00

?ayment Code	Description	Amount
CASH	CASH PAYMENT	$1.00

Tendered:	$1.00
Change:	$0.00
Balance Due:	$0.00

COUNTY OF SAN DIEGO

DEPARTMENT OF ENVIRONMENTAL HEALTH
1255 Imperial Avenue, 3rd Floor
San Diego, CA 92101
(619)338-2228

RECEIPT NUMBER: **06-0322661**
Cashier: **EGARCIA**

APN: 321-200-38-00
DATE ISSUED: 04-APR-2006
PERMIT: LMON T103898
SCOPE: MONITORING WELL/CATHODIC WELL
SITE ADDRESS: NO ADDRESS
SUBDIVISION:
CITY:

PARCEL OWNER: COUNTY OF SAN DIEGO
ADDRESS: PUBLIC AGENCY
CITY/STATE/ZIP: , 00000

PERMIT OWNER:
ADDRESS:
CITY/STATE/ZIP:

Fees Calculated 12 Months Back

Date	Fee Code	Description	Paid to Date	This Receipt	Balance Due
)3-APR-2006	6LW25--EHO	MONITORING WELL	$0.00	$185.00	$0.00
)3-APR-2006	6LW25-ZCRO	FISCAL YEAR 05/06 ONE-TIME 10% CREDIT	$0.00	-$18.50	$0.00
)3-APR-2006	6LWMAINEHO	WELL MAINTENANCE FEE	$0.00	$100.00	$0.00
)3-APR-2006	6LWMAINZCO	FISCAL YEAR 05/06 ONE-TIME 10% CREDIT	$0.00	-$10.00	$0.00
)3-APR-2006	6LWAM--EHO	ADDITIONAL MONITORING WELL	$0.00	$319.00	$1.00
)3-APR-2006	6LWAM-ZCRO	FISCAL YEAR 05/06 ONE-TIME 10% CREDIT	$0.00	-$32.00	$0.00
)3-APR-2006	6LWMAIXEHO	ADDITIONAL WELL MAINTENANCE FEE	$0.00	$60.00	$0.00
)3-APR-2006	6LWMAIXZCO	FISCAL YEAR 05/06 ONE-TIME 10% CREDIT	$0.00	-$6.00	$0.00
		Totals:		$597.50	$1.00

Payment Code	Description	Amount
CHECK	1063	$597.50

Tendered:	$597.50
Change:	$0.00
Balance Due:	$1.00

PERMIT APPLICATION
GROUNDWATER
AND VADOSE MONITORING WELLS
AND EXPLORATORY OR TEST BORINGS

RECEIVED
2006 MAR 30 PM 1 40
D. E. H.
MAILROOM

OFFICE USE ONLY
PERMIT LMON # 103898
SAM CASE Y/N # _____
DATE RECEIVED: _____
FEE PAID: _____
CHECK # _____

A. RESPONSIBLE PARTY County of San Diego, Landfill Management Phone 858-495-5480
(The person, persons, or company responsible for the construction, maintenance, and destruction of the proposed borings and/or wells.)
Mailing Address 5201 Ruffin Rd Ste. D City San Diego State CA Zip 92123
Contact Person Barry Pulver Phone 858-495-5480 Ext. _____ Fax _____

B. SITE ASSESSMENT PROJECT NUMBER – IF APPLICABLE # _____

C. CONSULTING FIRM GeoSyntec Consultants
Mailing Address 10875 Rancho Bernardo Rd Ste 200 City San Diego State CA Zip 92127
Registered Professional Sam Williams Registration # 4858 (PG)
Contact Person Sean McClain Phone 858-674-6559 Ext. 811 Fax 858-674-6586

D. DRILLING COMPANY TRI-COUNTY DRILLING, INC. C57# 547737
Contact Name Tim Duddie
Mailing Address 9631 Candida Street City San Diego State CA Zip 92126-
Phone 858-271-0099 Fax 858-271-0233

E. CONSTRUCTION INFORMATION

TYPE OF WELLS/ BORINGS TO BE CONSTRUCTED

	#
☒ Groundwater	3
☐ Vadose	___
☐ Boring	___
☐ Other	___

NUMBER OF WELLS TO BE DESTROYED

☐ ___

MATERIALS TO BE USED

CASING
Not Applicable _____
Type PVC
Gauge SCH 40
Diameter 2-inch
Well Screen Size 0.02
Filter Pack #3

SEAL/BORING BACKFILL
☐ Neat Cement
☒ Cement & Bentonite
☐ Sand-Cement
☐ Bentonite
☐ Other

Borehole diameter 6-inch

Drilling Method
☐ Auger
☐ Mud Rotary
☐ Percussion
☒ Air Rotary
☐ Other

PROPOSED CONSTRUCTION
Estimated groundwater depth: _____ ft.
Estimated depth of boring _____ ft.

Concrete surface seal	0 to 3
Annular seal	_____ to _____
Bentonite transition seal	_____ to _____
Filter Pack	_____ to _____
Perforation	_____ to _____

(See Diagram)

NOTE:
Attach a well construction diagram for wells with multiple completions

I agree to comply with the requirements of the current Site Assessment and Mitigation Manual, and with all ordinances and laws of the County of San Diego and the State of California pertaining to well/boring construction and destruction.

DRILLER'S SIGNATURE [signature] DATE 3-27-06

Within 60 days of completion, I will furnish the Monitoring Well Permit Desk with a complete and accurate well/boring log. I will certify the design and construction or destruction of the well/borings in accordance with the permit application.

PG/RCE SIGNATURE [signature] DATE 3.29.06

Permit Fees In Effect for July 1, 2005 - June 30, 2006

G. FEES (in effect beginning July 1, 2005, through June 30, 2006)

The County Board of Supervisors authorized a *10% credit, for the Fiscal Year ending June 30, 2006,* to be applied to the Department of Environmental Health customers. This credit is being provided to qualified fee-based programs that have contributed to the cost reduction/cost containment/cost avoidance efforts initiated by the Department. This *fee adjustment, for the Fiscal Year ending June 30, 2006,* is applicable to fees and permits due and/or obtained during this period. The 10% is not applicable to enforcement fees or fees relating to non-compliance of permit regulations.

ACTIVITY	FEE SCHEDULE FEE -- ONE-TIME FISCAL YEAR 10% CREDIT	AMOUNT
Permit for Well Installations Only (Groundwater Monitoring Wells, Vadose, Vapor Extraction Wells)	$185.00 for the first monitoring well $185.00 – 10% <$18.50> =	1 x $166.50 $ 165.50
Permit for Well Maintenance Inspection **(Valid for three years)**	$100.00 for first well maintenance inspection $100.00 – 10% <$10.00> =	1 x $ 90.00 $ 90.00
Each Additional New Well	$160.00 for each additional well installation $160.00 – 10% <$16.00> = $ 30.00 for each additional well maintenance inspection $ 30.00 – 10% <$ 3.00> =	2 x $144.00 $ 288.00 2 x $ 27.00 $ 54.00
Permit for Borings Only *(CPT's, Hydropunch, Geoprobes,* Temporary Well Points, etc.)	$185.00 for the first boring $185.00 – 10% <$18.50> = $ 50.00 for each additional boring $ 50.00 – 10% <$ 5.00> =	1 x $166.50 $____ ____ x $ 45.00 $____
Permit for Well Destructions Only	$185.00 for the first destruction $185.00 – 10% <$18.50> = $120.00 for each additional destruction $120.00 – 10% <$12.00> =	1 x $166.50 $____ ____ x $108.00 $____
Permit for any Combination of Well Installations, Borings, & Destructions ***(except UST backfill permit)*** **Permit for any Combination of Well Installations, Borings, & Destructions** ***(except UST backfill permit)***	The first activity will be $185.00. $185.00 – 10% <$18.50> = Additional activities will be as follows: $160.00 for each additional well $160.00 – 10% <$16.00> = $100.00 for first well maintenance inspection $100.00 – 10% <$10.00> = $ 30.00 for each additional well maintenance inspection $ 30.00 – 10% <$ 3.00> = $ 50.00 for each additional boring $ 50.00 – 10% <$ 5.00> = $120.00 for each well destruction $120.00 – 10% <$12.00> =	1 x $166.50 $____ ____ x $144.00 $____ 1 x $ 90.00$____ ____ x $ 27.00 $____ ____ x $ 45.00 $____ ____ x $108.00 $____
	TOTAL COST OF PERMIT	$ 597.50
Permit for Underground Storage Tank Monitoring System in Backfill *(i.e. Enhanced Leak Detection)*	(Flat Fee) $320.00 – 10% <$32.00> =	$288.00

F. SITE INFORMATION

1. **ASSESSOR'S PARCEL NUMBER** 321-200-38 and 323-461-25
   Site Name Poway Landfill
   Site Address 14900 Poway Road City Poway Zip 92064-

   PROPERTY OWNER County of San Diego
   Phone 858-495-5480 Ext. Fax _____
   Mailing Address 5201 Ruffin Road, Suite D City San Diego State CA
   Zip 92123-

   NUMBER OF WELLS 12 **TYPE OF WELLS** Vapor Wells

2. **ASSESSOR'S PARCEL NUMBER** _____
   Site Name _____
   Site Address _____ City _____ Zip _____

   PROPERTY OWNER _____
   Phone _____ Ext. _____ Fax _____
   Mailing Address _____ City _____ State __ Zip _____

   NUMBER OF WELLS _____ **TYPE OF WELLS** _____

3. **ASSESSOR'S PARCEL NUMBER** _____
   Site Name _____
   Site Address _____ City _____ Zip _____

   PROPERTY OWNER _____
   Phone _____ Ext. _____ Fax _____
   Mailing Address _____ City _____ State __ Zip _____

   NUMBER OF WELLS _____ **TYPE OF WELLS** _____

4. **ASSESSOR'S PARCEL NUMBER** _____
   Site Name _____
   Site Address _____ City _____ Zip _____

   PROPERTY OWNER _____
   Phone _____ Ext. _____ Fax _____
   Mailing Address _____ City _____ State __ Zip _____

   NUMBER OF WELLS _____ **TYPE OF WELLS** _____

H. QUESTIONNAIRE: Please answer all applicable questions completely. For well destructions, complete only #1 below and submit any required supportive documentation.

1. If wells are to be destroyed, provide a description of method of destruction NA

2. What is the purpose of the well/boring investigation?

   ☒ a. Part of an ongoing site assessment case in which DEH or another government regulator is the lead agency.

   ☐ b. Part of a Phase I investigation for property ownership transfer or: _____

   ☐ c. Geotechnical investigation for proposed construction, land stabilization or:

   ☐ d. Other: _____

3. What procedures will be used to prevent the well/boring from providing an avenue to contamination during construction? The monitor wells will be installed imediately after the borings are completed

4. What field procedures will be utilized to determine if contamination exists? The cuttings will be screened with a photoionization detector (PID) and a composite sample from the cuttings will be submitted to an analytical laboratory for analysis

5. What procedures will be used to determine whether samples will be sent for laboratory testing or archiving? Groundwater samples will be submitted to an analytical laboratory

6. What constituents will be monitored and tested (Include EPA Laboratory Test Methods to be used)? VOCs by EPA Method 8260B, General Chemistry and Metals by EPA Method 6010

7. How will samples be transported and preserved? Groundwater samples will be sent to lab by curier (with ice perservative).

8. What sampling methods will be used? Soil cuttings will be stored in 55-gallon drums and one composite soil sample will be collected from all drums.

9. Are you proposing a variation from the methods and/or procedures presented in the requirements for the construction or destruction of Vadose and Groundwater Monitoring Wells (Current SAM Manual Requirements)? If yes, specify these variations and include a well construction diagram and all required supporting documentation. Refer to the SAM Manual Appendix B for monitoring well guidelines (http://www/sdcounty.ca.gov/deh/lwq/sam/monitoring_well.html). :Yes, The borehole will be reduced from 8" to 4". The 2" well screen and filter pack will be constructed in the 4" borehole, the seal will be constructed in the 8" borehole (See well diagrams).

10. Are you proposing a variation in drilling and destruction of soil borings from the methods and/or procedures specified in the current SAM manual? If yes, specify these variations and include a destruction diagram. No

11. What procedures will be used to ensure that the drilling equipment will introduce no contamination? Drilling equipment will be steamed cleaned prior to drilling onsite

RECEIVED
2008 APR 4 AM 10:44
H.M. MIL ROOM

12. What methods will be used to clean sampling equipment? Sampling equipment will be cleaned by three bucket wash method.

13. What cleaning method will be used to clean casing and screen prior to installation? New PVC pipe will be used which will arrive onsite pre-wrapped

GeoSyntec Consultants

Well Construction Log

Site: Poway Landfill

Date: 4/3/2006

Well ID: POGW-21

Drilling Method: Hollow Stem Auger/Rock Coring

Drilling Company: Tri-County Drilling

Boring Depth: 31 feet

Drillers:

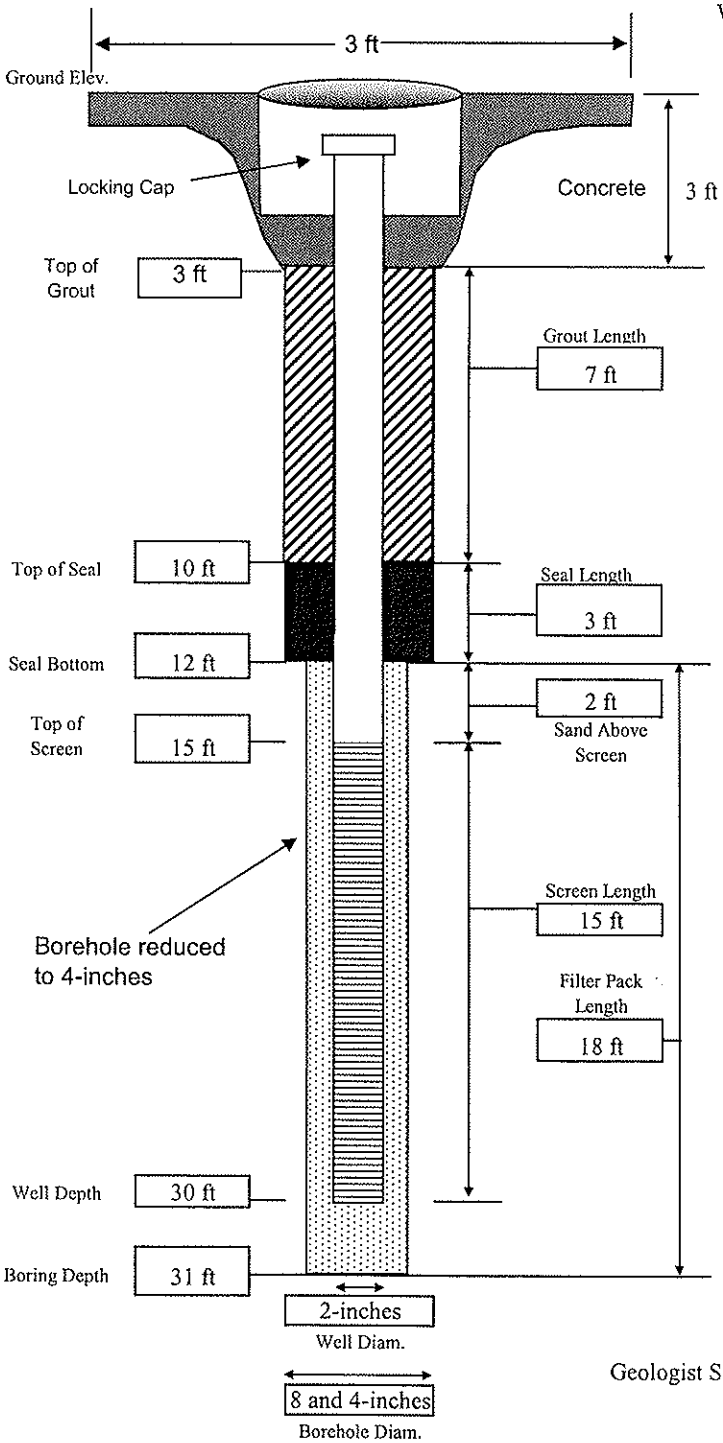
Boring Diameter: 6-inches

Geologist: Sean McClain

Well Depth: 30 feet

3 ft above ground surface

Well Diameter: 2-inches



Well Construction:

Material: Schedule 40 PVC

Inside Diamter: 2-inches

Screen Slot Size: 0.02-inches

Screen Beg.: 15 feet End: 30 feet

Sump Y / N

Type/Lenth: NA

Filter Pack:

Type/Brand: Montery Sand #3

Amount Used:

Placement Method: Direct Pour

Seal:

Type/Brand: Enviroplug WYO-Ben

Amount Used:

Vol. Fluid Added:

Set-up Time:

Placement Method: Direct pour

Grout:

Type/Brand: Grout well WYO-Ben

Amount Used:

Vol. Fluid Added:

Placement Method: Tremmie

Well Completion:

Above Grade / **Below Grade**

Guard Posts? Y / N

Pad Size: 3-foot diameter

Cover Type/Size: 12-inch steel cover

Comments:

Geologist Signature:

GeoSyntec Consultants

Well Construction Log

Site: Poway Landfill

Well ID: POGW-20

Drilling Company: Tri-County Drilling

Drillers:

Geologist: Sean McClain

Date: 4/3/2006

Drilling Method: Hollow Stem Auger/Rock Coring

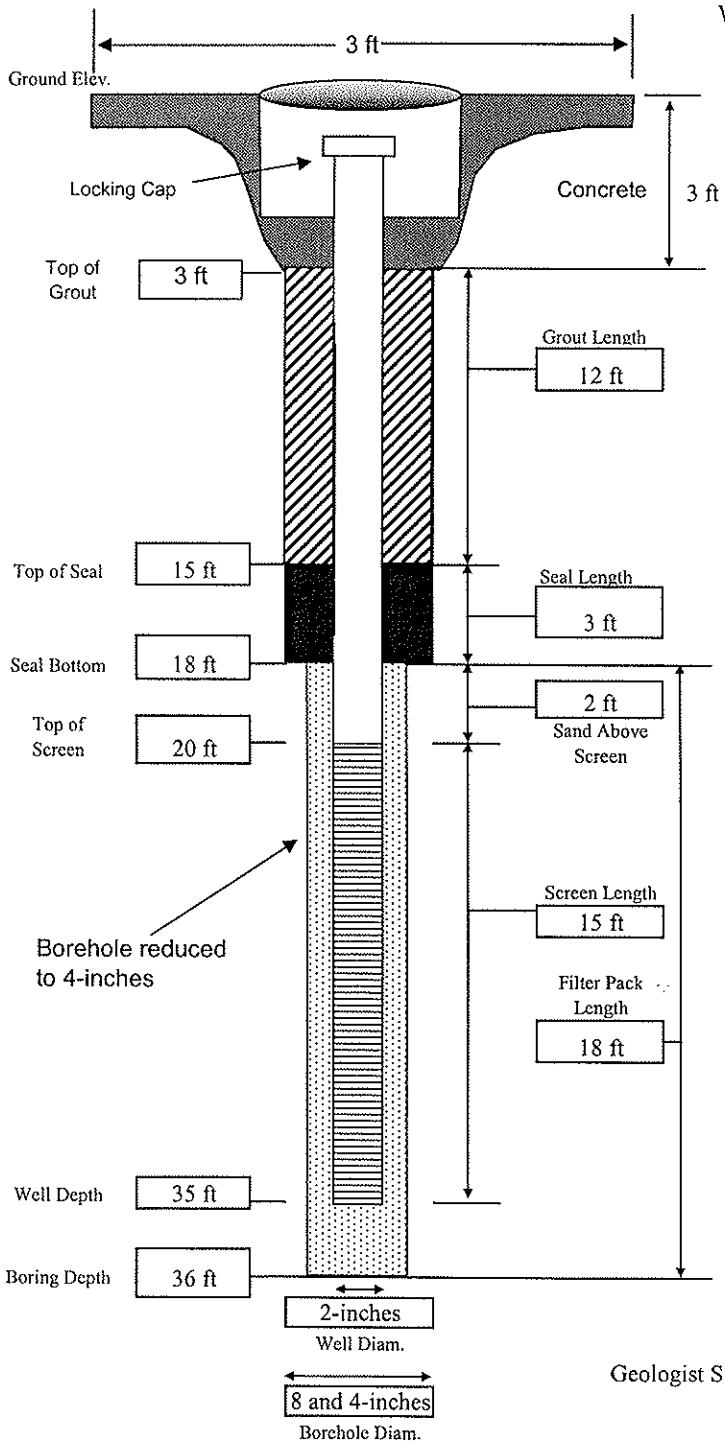
Boring Depth: 36 feet

Boring Diameter: 6-inches

Well Depth: 35 feet

3 ft above ground surface

Well Diameter: 2-inches



Well Construction:

Material: Schedule 40 PVC

Inside Diamter: 2-inches

Screen Slot Size: 0.02-inches

Screen Beg.: 20 feet End: 35 feet

Sump Y / N

Type/Lenth: NA

Filter Pack:

Type/Brand: Montery Sand #3

Amount Used:

Placement Method: Direct Pour

Seal:

Type/Brand: Enviroplug WYO-Ben

Amount Used:

Vol. Fluid Added:

Set-up Time:

Placement Method: Direct pour

Grout:

Type/Brand: Grout well WYO-Ben

Amount Used:

Vol. Fluid Added:

Placement Method: Tremmie

Well Completion:

Above Grade / **Below Grade**

Guard Posts? Y / N

Pad Size: 3-foot diameter

Cover Type/Size: 12-inch steel cover

Comments:

Geologist Signature:

H. QUESTIONNAIRE: Please answer all applicable questions completely. For well destructions, complete only #1 below and submit any required supportive documentation.

1. If wells are to be destroyed, provide a description of method of destruction NA

2. What is the purpose of the well/boring investigation?

   ☒ a. Part of an ongoing site assessment case in which DEH or another government regulator is the lead agency.

   ☐ b. Part of a Phase I investigation for property ownership transfer or: _____

   ☐ c. Geotechnical investigation for proposed construction, land stabilization or:

   ☐ d. Other: _____

3. What procedures will be used to prevent the well/boring from providing an avenue to contamination during construction? The monitor wells will be installed imediately after the borings are completed

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7. How will samples be transported and preserved? Groundwater samples will be sent to lab by curier (with ice perservative).

8. What sampling methods will be used? Soil cuttings will be stored in 55-gallon drums and one composite soil sample will be collected from all drums.

9. Are you proposing a variation from the methods and/or procedures presented in the requirements for the construction or destruction of Vadose and Groundwater Monitoring Wells (Current SAM Manual Requirements)? If yes, specify these variations and include a well construction diagram and all required supporting documentation. Refer to the SAM Manual Appendix B for monitoring well guidelines (http://www/sdcounty.ca.gov/deh/lwq/sam/monitoring_well.html). :No

10. Are you proposing a variation in drilling and destruction of soil borings from the methods and/or procedures specified in the current SAM manual? If yes, specify these variations and include a destruction diagram. No

11. What procedures will be used to ensure that the drilling equipment will introduce no contamination? Drilling equipment will be steamed cleaned prior to drilling onsite

12. What methods will be used to clean sampling equipment? Sampling equipment will be cleaned by three bucket wash method.

13. What cleaning method will be used to clean casing and screen prior to installation? New PVC pipe will be used which will arrive onsite pre-wrapped

County of San Diego

GARY W. ERBECK
DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH
LAND AND WATER QUALITY DIVISION
P.O. BOX 129261, SAN DIEGO, CA 92112-9261
619-338-2222/FAX 619-338-2315/1-800-253-9933
www.sdcounty.ca.gov/deh/lwq

RICHARD HAAS
ASSISTANT DIRECTOR

PROPERTY OWNER RESPONSIBILITY ACKNOWLEDGEMENT

Proposed locations for subsurface work:

Property Address: 14900 Poway Rd, Poway, CA

Assessor's Parcel Number (APN): 321-300-38

I, Barry Pulver, owner of the property/properties listed above, give my permission to GeoSyntec Consultants (consulting company, contractor) to conduct the following work at the locations stated above.

☒ Install 2 monitoring wells ☐ Destroy _____ monitoring wells ☐ Drill _____ soil borings

The person who causes to have a monitoring well installed or an existing well destroyed on this property is defined as the *Responsible Party*. San Diego County Code, Section 67.424, states that: "Monitoring wells shall be maintained to meet construction or destruction standards. If a monitoring well does not meet construction or destruction standards, the *Responsible Party* must repair, reconstruct or destroy the monitoring well so it meets the standards. The property owner, if different than the *Responsible Party*, must take the necessary actions to repair, reconstruct or destroy the monitoring well so it meets the standards if the *Responsible Party* does not complete the necessary actions."

A soil boring is used specifically to sample soil and, because there are construction and destruction standards, is included in the definition of a monitoring well even though no maintenance is required. These standards are outlined in the County of San Diego Site Assessment and Mitigation (SAM) Manual and the State of California Well Standards Bulletin 74-90.

I understand that Sam Williams (registered professional) of GeoSyntec Consultants (consulting company) and an authorized signer for Tri-County Drilling (drilling company) have submitted a signed application to the Department of Environmental Health in which they have agreed to complete the above-stated work according the requirements of the current SAM Manual, all ordinances and laws of the County of San Diego and the State of California pertaining to well/boring construction and destruction.

I also understand that if either the registered professional and/or the licensed drilling company should fail in their responsibilities as defined in San Diego County Code, Section 67.424, I, as the property owner, must take the necessary actions to repair, reconstruct or destroy the monitoring well so it meets the standards if the Responsible Party does not complete the necessary actions.

The scope of work covered by this Acknowledgement will expire one year from the date of the property owner's signature below. If an extension of time beyond one year is required to complete the proposed drilling activities or additional work is proposed, a new Property Owner Responsibility Agreement will be required.

Property Owner Signature: [signature] Date: 3/29/06

Print Name: Barry Pulver Title: _____

Company: _____

Mailing Address: _____

ROW NO. 06-09

CITY OF POWAY

PUBLIC RIGHT-OF-WAY PERMIT

Associated Plan No. See Attached location MAP
Contact Person Sean McClain
Address 11205 Rancho Bernardo Rd ste 101
San Diego, CA

APPLICANT PLEASE FILL OUT NUMBERED ITEMS 1-4: Phone No. (858) 674-6559

1. APPLICANT, GeoSyntec Consultants, hereby requests permission to work in the following streets or other public easements (provide owner, address, and property description):
Property adjacent to Southwest corner of Poway Landfill (Parcel No. 323-461-25)

2. TO INSTALL (provide type of installation and approximate dimensions, length, width, and depth):
One groundwater monitor well: 6" bore to approximately 75' Depth with monument finish. According to San Diego Site Assessment & mitigation Guidlines.

3. X PRIVATE DEVELOPMENT ___SOUTH POWAY ___CITY PROJECT

4. Contractor Tri-County Drilling Subcontractors None

Job superintendent Dave Maske License No. 547737

Address 9631 Candida Street, San Diego, CA 92126

Contractor's License No._____ Type of License C57

APPLICANT MUST SUBMIT THE FOLLOWING WITH THE APPLICATION:

1. Copy of the Contractor's license (Type A required).
2. Certificate of insurance for worker's compensation and general liability in the amount of $1 million naming the City as an additional insured.
3. Detailed and scaled traffic control plan for all phases of work.
4. Detailed construction schedule and clear description of work.
5. Itemized cost estimate (unless fees were previously paid with an approved plan listed above).
6. All applicable fees and deposits.

PRE-APPROVED
NOT FOR CONSTRUCTION
PENDING PRE-CONSTRUCTION MEETING

NOTE: Application will not be accepted unless items 1-6 are provided. In some cases, the City will consider a waiver of a part of the requirements of items 1-3 with submittal of a waiver request.

Hours of work 8:30 am - 3:30 pm (8:30 a.m. and 3:30 p.m. unless otherwise specified).

ACCESS TO SITE IS TO BE VIA ROUTE 2 ONLY. KW

Contractor must call Underground Service Alert at 1-800-422-4133 to have utilities marked out before the preconstruction meeting. After approval of permit, the City Inspector will contact the contractor and set up a time for a pre-construction meeting. City inspector must have a minimum of 48-hours notification prior to scheduling of pre-construction meeting and construction. Location of all utility cabinets or structures are subject to review, and may require an MDRA to be processed through Development Services Department, Planning division.

In consideration of the granting of this application, the permittee agrees to, and by this instrument, does hold the City of Poway, its elective and appointed officials, officers, agents, and employees harmless from any liability for claims for work done and material furnished upon the property, or any improvements made on the property covered by this permit. Permittee further agrees to hold and save harmless from any claim, cause of action, liability or responsibility for any accident, loss or damage to persons or property caused by the negligence of the Permittee, secured by the submitted certificate of insurance, arising out of the work undertaken pursuant to this permit, or any other permits that may be granted pursuant thereto. **I, the applicant, have read and understand the front and back of this application and will abide by its rules and regulations.**

Signature of Applicant Sean McClain Date 1-10-06

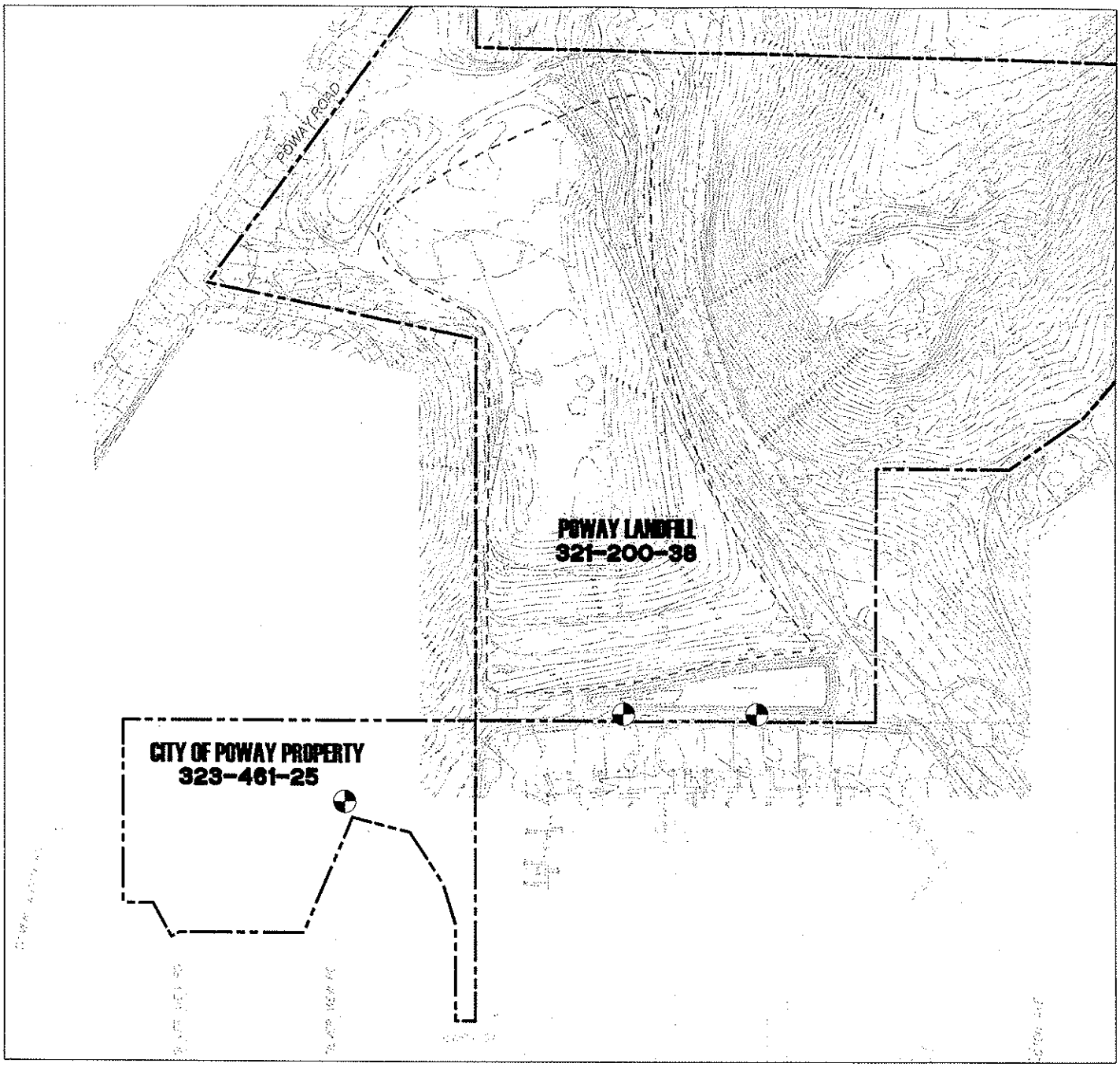
Approved Carl R. Quitmann Date 1/18/06
Traffic Engineer

Kenneth W. Cheung Date 2/10/06
Senior Civil Engineer

PERMIT VALID UNTIL: Sept 30, 2006

Inspector Dave Rizzuto Date 2/10/06

APPROVED EXTENSION DATE_____ By:_____



LEGEND

- PROPOSED MONITOR WELL
- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE TRASH/REFUSE BOUNDARY
- EXISTING PAVED ROAD
- EXISTING DIRT ROAD

N

300 150 0 300

SCALE IN FEET

GEOSYNTEC CONSULTANTS

BASE MAP REFERENCE:
Stewart Geo Technologies
July 2002

PROPOSED MONITOR WELL LOCATIONS
POWAY LANDFILL
POWAY, CALIFORNIA

FIGURE NO.	1
PROJECT NO.	SC0233-06-06
DATE:	MARCH 2006

P:\PRJ\SDCadd\CADD\SC0233\06-06-FIGURES\06-06-VAPOR\SC0233-06-06-PP-MW.dwg 3/29/06 14:17 Administrator

GeoSyntec Consultants

Well Construction Log

Site: Poway Landfill

Well ID: POGW-19

Drilling Company: Tri-County Drilling

Drillers:

Geologist: Sean McClain

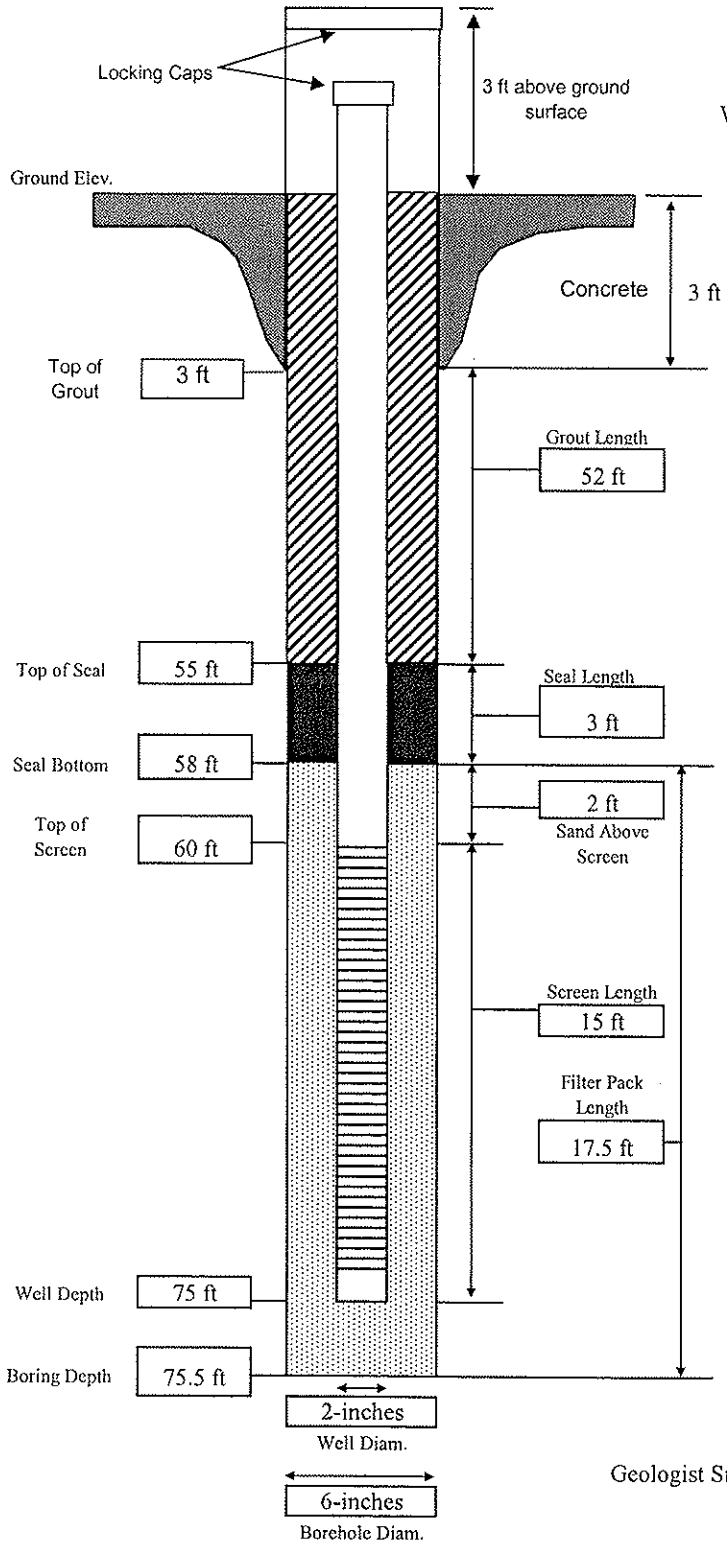
Date: 3/27/2006

Drilling Method: Air Rotary Hammer Casing

Boring Depth: 75.5 feet

Boring Diameter: 6-inches

Well Depth: 75 feet



Well Diameter: 2-inches

Well Construction:

Material: Schedule 40 PVC

Inside Diamter: 2-inches

Screen Slot Size: 0.02-inches

Screen Beg.: 60 feet End: 75 feet

Sump Y / **N**

Type/Lenth: NA

Filter Pack:

Type/Brand: Montery Sand #3

Amount Used:

Placement Method: Direct Pour

Seal:

Type/Brand: Enviroplug WYO-Ben

Amount Used:

Vol. Fluid Added:

Set-up Time:

Placement Method: Direct pour

Grout:

Type/Brand: Grout well WYO-Ben

Amount Used:

Vol. Fluid Added:

Placement Method: Tremmie

Well Completion:

Above Grade / Below Grade

Guard Posts? Y / **N**

Pad Size: 3-foot diameter

Cover Type/Size: Monument

Comments:

Geologist Signature:

GeoSyntec Consultants

Well Construction Log

Site: Poway Landfill

Well ID: POGW-20

Drilling Company: Tri-County Drilling

Drillers:

Geologist: Sean McClain

Date: 3/27/2006

Drilling Method: Air Rotary Hammer Casing

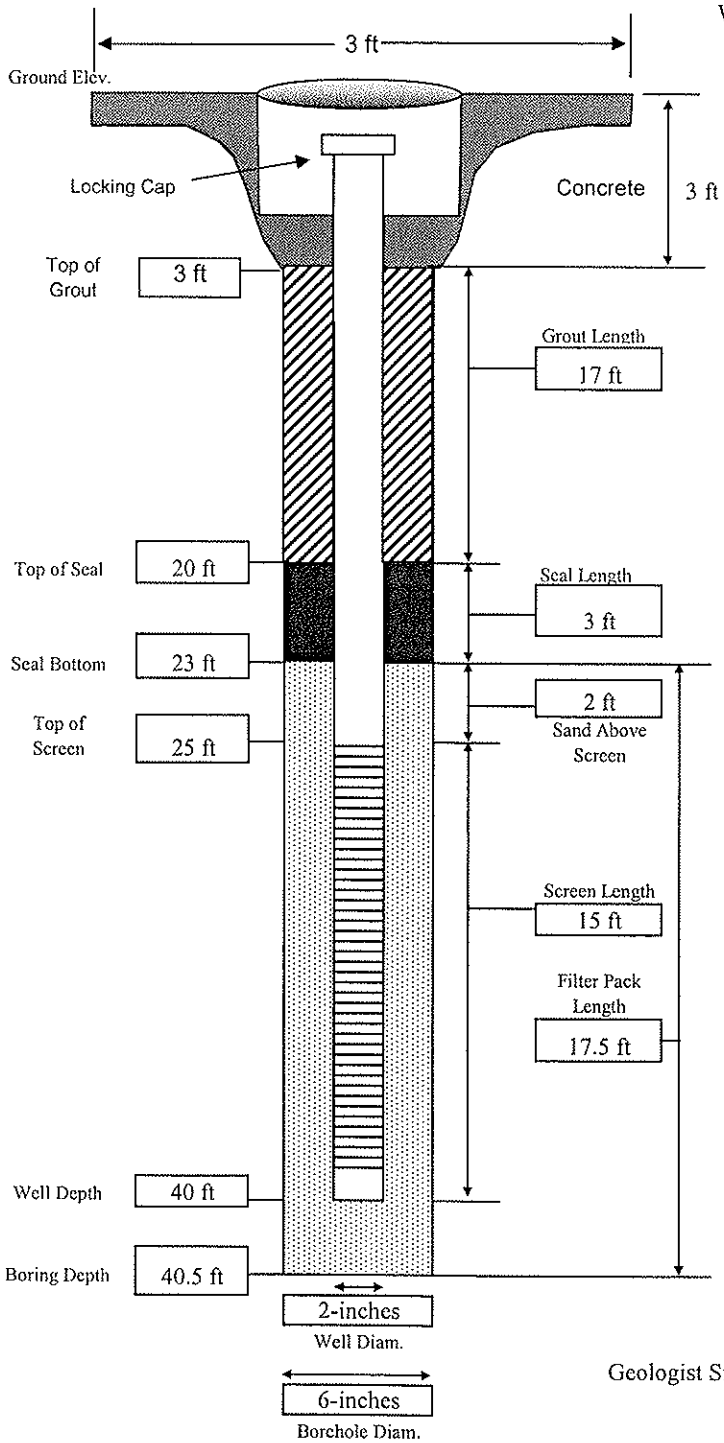
Boring Depth: 40.5 feet

Boring Diameter: 6-inches

Well Depth: 40 feet

3 ft above ground surface

Well Diameter: 2-inches



Well Construction:

Material: Schedule 40 PVC

Inside Diamter: 2-inches

Screen Slot Size: 0.02-inches

Screen Beg.: 25 feet End: 40 feet

Sump Y / N

Type/Lenth: NA

Filter Pack:

Type/Brand: Montery Sand #3

Amount Used:

Placement Method: Direct Pour

Seal:

Type/Brand: Enviroplug WYO-Ben

Amount Used:

Vol. Fluid Added:

Set-up Time:

Placement Method: Direct pour

Grout:

Type/Brand: Grout well WYO-Ben

Amount Used:

Vol. Fluid Added:

Placement Method: Tremmie

Well Completion:

Above Grade / **Below Grade**

Guard Posts? Y / N

Pad Size: 3-foot diameter

Cover Type/Size: 12-inch steel cover

Comments:

Geologist Signature:

J:\standard\forms\POGW-19.xls\POGW-20

GeoSyntec Consultants

Well Construction Log

Site: Poway Landfill

Well ID: POGW-21

Drilling Company: Tri-County Drilling

Drillers:

Geologist: Sean McClain

Date: 3/27/2006

Drilling Method: Air Rotary Hammer Casing

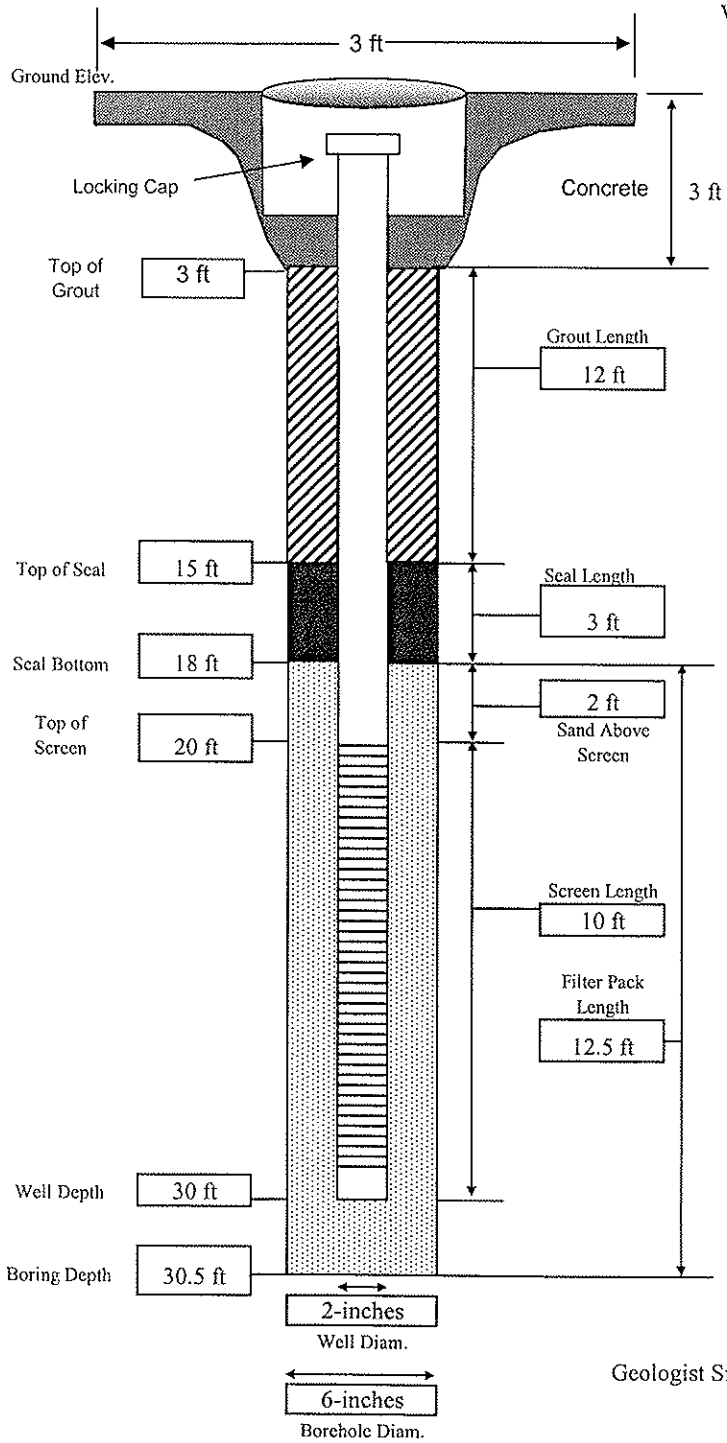
Boring Depth: 30.5 feet

Boring Diameter: 6-inches

Well Depth: 30 feet

3 ft above ground surface

Well Diameter: 2-inches



Well Construction:

Material: Schedule 40 PVC

Inside Diamter: 2-inches

Screen Slot Size: 0.02-inches

Screen Beg.: 20 feet End: 30 feet

Sump Y / N

Type/Lenth: NA

Filter Pack:

Type/Brand: Montery Sand #3

Amount Used:

Placement Method: Direct Pour

Seal:

Type/Brand: Enviroplug WYO-Ben

Amount Used:

Vol. Fluid Added:

Set-up Time:

Placement Method: Direct pour

Grout:

Type/Brand: Grout well WYO-Ben

Amount Used:

Vol. Fluid Added:

Placement Method: Tremmie

Well Completion:

Above Grade / **Below Grade**

Guard Posts? Y / N

Pad Size: 3-foot diameter

Cover Type/Size: 12-inch steel cover

Comments:

Geologist Signature:

PERMIT #LMON104016
A.P.N. #321-200-38
EST #H86017

COUNTY OF SAN DIEGO
DEPARTMENT OF ENVIRONMENTAL HEALTH
LAND AND WATER QUALITY DIVISION
MONITORING WELL PROGRAM

MONITORING WELL CONSTRUCTION PERMIT

SITE NAME: POWAY LANDFILL

SITE ADDRESS: PUBLIC RIGHT-OF-WAY ADJACENT TO 14900 POWAY RD., POWAY CA 92064

PERMIT FOR: **1 GROUNDWATER MONITORING WELL**

PERMIT APPROVAL DATE: JUNE 1, 2006

PERMIT EXPIRES ON: SEPTEMBER 29, 2006

RESPONSIBLE PARTY: COUNTY OF SAN DIEGO DEPT. OF PUBLIC WORKS

PERMIT CONDITIONS:

1. Wells must have a **minimum 3-foot concrete surface seal**. The surface seal shall consist of concrete able to withstand the maximum anticipated load without cracking or deteriorating. The concrete should meet Class A specifications of a minimum 4000-pound compressive strength.

2. All water and soil resulting from the activities covered by this permit must be managed, stored and disposed of as specified in the SAM Manual in Section 5, E- 4. (**http://www.sdcounty.ca.gov/deh/lwq/sam/manual_guidelines.html**). In addition, drill cuttings must be properly handled and disposed in compliance with the Stormwater Best Management Practices of the local jurisdiction.

3. Within 60 days of completing work, submit a well construction report, including all well and/or boring logs and laboratory data to the Well Permit Desk. This report must include all items required by the SAM Manual, Section 5, Pages 6 & 7.

4. This office must be given 48-hour notice of any drilling activity on this site and advanced notification of drilling cancellation. Please contact the Well Permit Desk at 619) 338-2339.

NOTE: **This permit does not constitute approval of a work plan as defined in Section 2722 of Article 11 of C.C.R., Title 23. Work plans are required for all unauthorized release investigations in San Diego County.**

APPROVED BY: KMH DATE: 6.1.2006
KEVIN HEATON

NOTIFIED: _____

DEH: SAM-9075

COUNTY OF SAN DIEGO

DEPARTMENT OF ENVIRONMENTAL HEALTH
1255 Imperial Avenue, 3rd Floor
San Diego, CA 92101
(619)338-2228

RECEIPT NUMBER: **06-0334909**
Cashier: **EGARCIA**

APN: 321-200-38-00
DATE ISSUED: 19-MAY-2006
PERMIT: LMON T104016
SCOPE: MONITORING WELL/CATHODIC WELL
SITE ADDRESS: 14900 POWAY RD
SUBDIVISION:
CITY: Poway, CA 92064

PARCEL OWNER: COUNTY OF SAN DIEGO
ADDRESS: PUBLIC AGENCY
CITY/STATE/ZIP: , 00000

PERMIT OWNER:
ADDRESS:
CITY/STATE/ZIP:

Fees Calculated 12 Months Back

Date	Fee Code	Description	Paid to Date	This Receipt	Balance Due
19-MAY-2006	6LW25--EHO	MONITORING WELL	$0.00	$185.00	$0.00
19-MAY-2006	6LW25-ZCRO	FISCAL YEAR 05/06 ONE-TIME 10% CREDIT	$0.00	-$18.50	$0.00
19-MAY-2006	6LWMAINEHO	WELL MAINTENANCE FEE	$0.00	$100.00	$0.00
19-MAY-2006	6LWMAINZCO	FISCAL YEAR 05/06 ONE-TIME 10% CREDIT	$0.00	-$10.00	$0.00
		Totals:		$256.50	$0.00

Payment Code	Description	Amount
CHECK	1084	$256.50

Tendered:	$256.50
Change:	$0.00
Balance Due:	$0.00

PERMIT APPLICATION
GROUNDWATER
AND VADOSE MONITORING WELLS
AND EXPLORATORY OR TEST BORINGS

OFFICE USE ONLY
PERMIT LMON # 104016
SAM CASE Y/N # H 96017
DATE RECEIVED: 5-19-06
FEE PAID: $256.50
CHECK # 1084

A. RESPONSIBLE PARTY County of San Diego, Dept. of Public Works Landfill Mgmt. Phone 858-495-5480
(The person, persons, or company responsible for the construction, maintenance, and destruction of the proposed borings and/or wells.)
Mailing Address 5201 Ruffin Rd, Ste. D City San Diego State CA Zip 92127
Contact Person Barry Pulver Phone 858-495-5480 Ext. _____ Fax _____

B. SITE ASSESSMENT PROJECT NUMBER – IF APPLICABLE # _____

C. CONSULTING FIRM GeoSyntec Consultants
Mailing Address 10875 Rancho Bernardo Rd Ste 200 City San Diego State Ca Zip 92127
Registered Professional Verne Wittig Registration # 7115 (PG)
Contact Person Sean McClain Phone 858-674-6559 Ext. ~~346~~ 011 Fax 858-674-6586

D. DRILLING COMPANY TRI-COUNTY DRILLING, INC. C57# 547737
Contact Name Tim Duddie
Mailing Address 9631 Candida Street City San Diego State CA Zip 92126-
Phone 858-271-0099 Fax 858-271-0233

E. CONSTRUCTION INFORMATION

TYPE OF WELLS/ BORINGS TO BE CONSTRUCTED

	#
☒ Groundwater	1
☐ Vadose	___
☐ Boring	___
☐ Other	___

NUMBER OF WELLS TO BE DESTROYED

☐ ___

MATERIALS TO BE USED

CASING
Not Applicable _____
Type PVC
Gauge SCH-40
Diameter 2-inch
Well Screen Size 0.02
Filter Pack #3

SEAL/BORING BACKFILL
☐ Neat Cement
☒ Cement & Bentonite
☐ Sand-Cement
☐ Bentonite
☐ Other

Borehole diameter 6.25 in

Drilling Method
☐ Auger
☐ Mud Rotary
☐ Percussion
☒ Air Rotary
☐ Other

PROPOSED CONSTRUCTION
Estimated groundwater depth: _____ ft.
Estimated depth of boring 145 ft.
Concrete surface seal 0 to 3
See Attached Diagram
Annular seal _____ to _____
Bentonite transition seal _____ to _____
Filter Pack _____ to _____
Perforation _____ to _____

NOTE:
Attach a well construction diagram for wells with multiple completions

I agree to comply with the requirements of the current Site Assessment and Mitigation Manual, and with all ordinances and laws of the County of San Diego and the State of California pertaining to well/boring construction and destruction.

DRILLER'S SIGNATURE [signature] DATE 5/18/06

Within 60 days of completion, I will furnish the Monitoring Well Permit Desk with a complete and accurate well/boring log. I will certify the design and construction or destruction of the well/borings in accordance with the permit application.

PG/~~RGE~~ SIGNATURE [signature] DATE 5-18-06

F. SITE INFORMATION

1. **ASSESSOR'S PARCEL NUMBER** Adjacent to 321-200-38
   Site Name Poway Landfill
   Site Address 14900 Poway Road City Poway Zip 92064-

   PROPERTY OWNER County of San Diego
   Phone 858-495-5480 Ext. Fax _____
   Mailing Address 5201 Ruffin Road, Suite D City San Diego State CA
   Zip 92123-

   NUMBER OF WELLS 1- **TYPE OF WELLS** Groundwater Wells

2. **ASSESSOR'S PARCEL NUMBER** _____
   Site Name _____
   Site Address _____ City _____ Zip _____

   PROPERTY OWNER _____
   Phone _____ Ext. _____ Fax _____
   Mailing Address _____ City _____ State __ Zip _____

   NUMBER OF WELLS _____ **TYPE OF WELLS** _____

3. **ASSESSOR'S PARCEL NUMBER** _____
   Site Name _____
   Site Address _____ City _____ Zip _____

   PROPERTY OWNER _____
   Phone _____ Ext. _____ Fax _____
   Mailing Address _____ City _____ State __ Zip _____

   NUMBER OF WELLS _____ **TYPE OF WELLS** _____

4. **ASSESSOR'S PARCEL NUMBER** _____
   Site Name _____
   Site Address _____ City _____ Zip _____

   PROPERTY OWNER _____
   Phone _____ Ext. _____ Fax _____
   Mailing Address _____ City _____ State __ Zip _____

   NUMBER OF WELLS _____ **TYPE OF WELLS** _____

H. QUESTIONNAIRE: Please answer all applicable questions completely. For well destructions, complete only #1 below and submit any required supportive documentation.

1. If wells are to be destroyed, provide a description of method of destruction NA

2. What is the purpose of the well/boring investigation?

   ☒ a. Part of an ongoing site assessment case in which DEH or another government regulator is the lead agency.

   ☐ b. Part of a Phase I investigation for property ownership transfer or: _____

   ☐ c. Geotechnical investigation for proposed construction, land stabilization or:

   ☐ d. Other: _____

3. What procedures will be used to prevent the well/boring from providing an avenue to contamination during construction? The monitor well will be installed imediately after the boring is completed

4. What field procedures will be utilized to determine if contamination exists? The cuttings will be screened with a photoionization detector (PID) and a composite sample from the cuttings will be submitted to an analytical laboratory for analysis

5. What procedures will be used to determine whether samples will be sent for laboratory testing or archiving? Groundwater samples will be submitted to an analytical laboratory

6. What constituents will be monitored and tested (Include EPA Laboratory Test Methods to be used)? VOCs by EPA Method 8260B, General Chemistry and Metals by EPA Method 6010

7. How will samples be transported and preserved? Groundwater samples will be sent to lab by curier (with ice perservative).

8. What sampling methods will be used? Soil cuttings will be stored in 55-gallon drums and one composite soil sample will be collected from all drums.

9. Are you proposing a variation from the methods and/or procedures presented in the requirements for the construction or destruction of Vadose and Groundwater Monitoring Wells (Current SAM Manual Requirements)? If yes, specify these variations and include a well construction diagram and all required supporting documentation. Refer to the SAM Manual Appendix B for monitoring well guidelines (http://www/sdcounty.ca.gov/deh/lwq/sam/monitoring_well.html). :No

10. Are you proposing a variation in drilling and destruction of soil borings from the methods and/or procedures specified in the current SAM manual? If yes, specify these variations and include a destruction diagram. No

11. What procedures will be used to ensure that the drilling equipment will introduce no contamination? Drilling equipment will be steamed cleaned prior to drilling onsite

12. What methods will be used to clean sampling equipment? Sampling equipment will be cleaned by three bucket wash method.

Permit Fees In Effect for July 1, 2005 - June 30, 2006

G. FEES (in effect beginning July 1, 2005, through June 30, 2006)

The County Board of Supervisors authorized a *10% credit, for the Fiscal Year ending June 30, 2006,* to be applied to the Department of Environmental Health customers. This credit is being provided to qualified fee-based programs that have contributed to the cost reduction/cost containment/cost avoidance efforts initiated by the Department. This *fee adjustment, for the Fiscal Year ending June 30, 2006,* is applicable to fees and permits due and/or obtained during this period. The 10% is not applicable to enforcement fees or fees relating to non-compliance of permit regulations.

ACTIVITY	FEE SCHEDULE FEE -- ONE-TIME FISCAL YEAR 10% CREDIT	AMOUNT
Permit for Well Installations Only (Groundwater Monitoring Wells, Vadose, Vapor Extraction Wells)	$185.00 for the first monitoring well $185.00 – 10% <$18.50> =	1 x $166.50 $ 166.50
Permit for Well Maintenance Inspection **(Valid for three years)**	$100.00 for first well maintenance inspection $100.00 – 10% <$10.00> =	1 x $ 90.00 $ 90.00
Each Additional New Well	$160.00 for each additional well installation $160.00 – 10% <$16.00> = $ 30.00 for each additional well maintenance inspection $ 30.00 – 10% <$ 3.00> =	_____ x $144.00 $_____ _____ x $ 27.00 $_____
Permit for Borings Only *(CPT's, Hydropunch, Geoprobes,* Temporary Well Points, etc.)	$185.00 for the first boring $185.00 – 10% <$18.50> = $ 50.00 for each additional boring $ 50.00 – 10% <$ 5.00> =	1 x $166.50 $_____ _____ x $ 45.00 $_____
Permit for Well Destructions Only	$185.00 for the first destruction $185.00 – 10% <$18.50> = $120.00 for each additional destruction $120.00 – 10% <$12.00> =	1 x $166.50 $_____ _____ x $108.00 $_____
Permit for any Combination of Well Installations, Borings, & Destructions ***(except UST backfill permit)*** **Permit for any Combination of Well Installations, Borings, & Destructions** ***(except UST backfill permit)***	The first activity will be $185.00. $185.00 – 10% <$18.50> = Additional activities will be as follows: $160.00 for each additional well $160.00 – 10% <$16.00> = $100.00 for first well maintenance inspection $100.00 – 10% <$10.00> = $ 30.00 for each additional well maintenance inspection $ 30.00 – 10% <$ 3.00> = $ 50.00 for each additional boring $ 50.00 – 10% <$ 5.00> = $120.00 for each well destruction $120.00 – 10% <$12.00> =	1 x $166.50 $_____ _____ x $144.00 $_____ 1 x $ 90.00$_____ _____ x $ 27.00 $_____ _____ x $ 45.00 $_____ _____ x $108.00 $_____
	TOTAL COST OF PERMIT	$ 256.50
Permit for Underground Storage Tank Monitoring System in Backfill *(i.e. Enhanced Leak Detection)*	(Flat Fee) $320.00 – 10% <$32.00> =	$288.00

13. What cleaning method will be used to clean casing and screen prior to installation? New PVC pipe will be used which will arrive onsite pre-wrapped

GeoSyntec Consultants

Well Construction Log

Site: Poway Landfill

Well ID: POGW-22

Drilling Company: Tri-County Drilling

Drillers:

Geologist: Sean McClain

Date: 5/17/2006

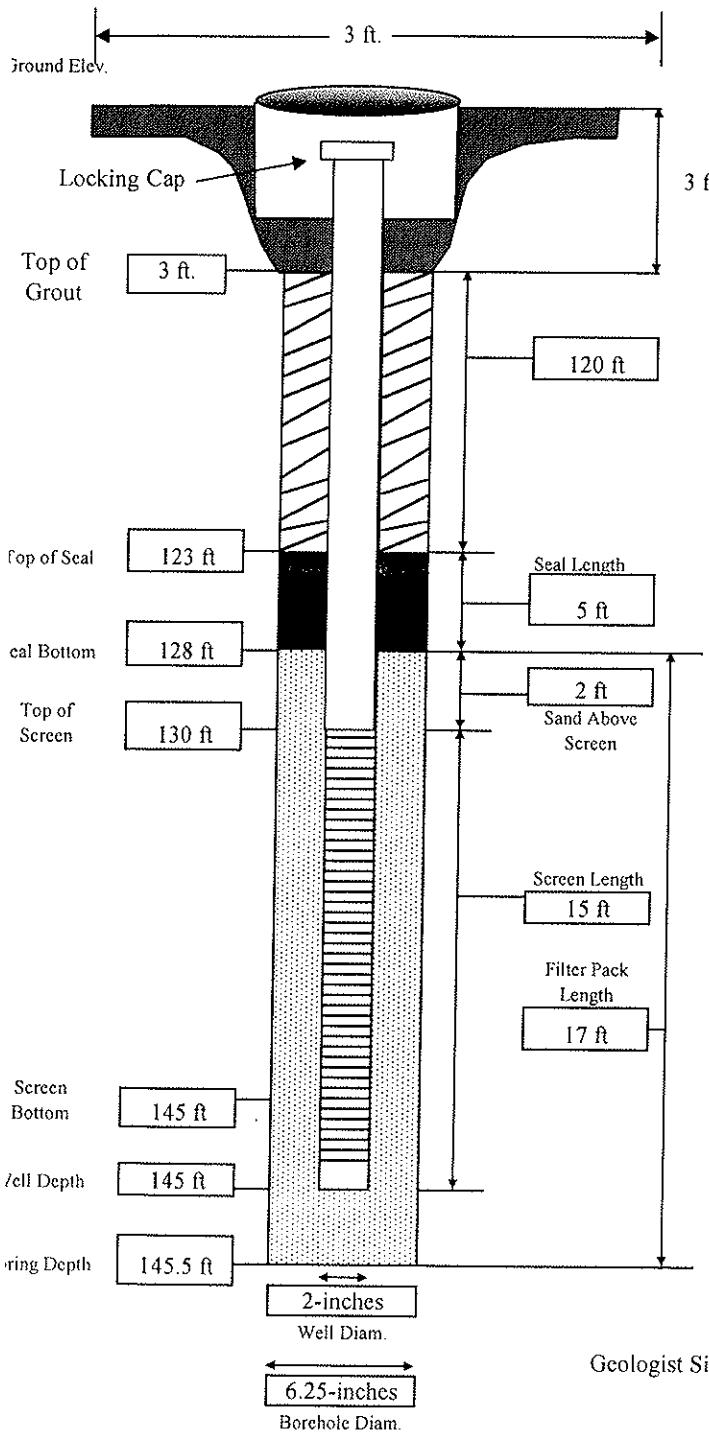
Drilling Method: Air Rotary Hammer Casing

Boring Depth: 145.5 feet

Boring Diameter: 6.25-inches

Well Depth: 145 feet

Well Diameter: 2-inches



Well Construction:

Material: Schedule 40 PVC

Inside Diamter: 2-inches

Screen Slot Size: 0.02-inches

Screen Beg.: 130 feet End: 145 feet

Sump Y / N

Type/Lenth: NA

Filter Pack:

Type/Brand: Montery Sand #3

Amount Used:

Placement Method: Direct Pour

Seal:

Type/Brand: Enviroplug WYO-Ben

Amount Used:

Vol. Fluid Added:

Set-up Time:

Placement Method: Direct pour

Grout:

Type/Brand: Grout well WYO-Ben

Amount Used:

Vol. Fluid Added:

Placement Method: Tremmie

Well Completion:

Above Grade / **Below Grade**

Guard Posts? Y / N

Pad Size: 3-foot diameter

Cover Type/Size: 12-inch steel cover

Comments:

Geologist Signature:

ROW NO. 06-71

CITY OF POWAY

PUBLIC RIGHT-OF-WAY PERMIT

Associated Plan No.
Contact Person Sean McClain
Address 10825 Rancho Bernardo Rd Ste. 2x
San Diego CA 92127

APPLICANT PLEASE FILL OUT NUMBERED ITEMS 1-4:

Phone No. 858-674-6559 ex 211
Fax: 858/674-6526

1. APPLICANT, Geotec Consultants, hereby requests permission to work in the following streets or other public easements (provide owner, address, and property description):
Hidden Knoll Rd

2. TO INSTALL (provide type of installation and approximate dimensions, length, width, and depth):
One monitor well to a depth of 140 ft below ground surface to monitor groundwater

3. X PRIVATE DEVELOPMENT ___SOUTH POWAY ___CITY PROJECT

4. Contractor Geotec Consultants Subcontractors Tri County Drilling

Job superintendent Vaughn Willing License No. PC 7115

Address 10825 Rancho Bernardo Rd # 2x, San Diego, CA

Contractor's License No. 417737 Type of License C-57

APPLICANT MUST SUBMIT THE FOLLOWING WITH THE APPLICATION:

1. Copy of the Contractor's license (Type A required).
2. Certificate of insurance for worker's compensation and general liability in the amount of $1 million naming the City as an additional insured.
3. Detailed and scaled traffic control plan for all phases of work.
4. Detailed construction schedule and clear description of work.
5. Itemized cost estimate (unless fees were previously paid with an approved plan listed above).
6. All applicable fees and deposits.

PRE-APPROVED
NOT FOR CONSTRUCTION
PENDING PRE-CONSTRUCTION MEETING

Note: **Application will not be accepted unless items 1-6 are provided. In some cases, the City will consider a waiver of a part of the requirements of items 1 and 3 with submittal of a waiver request.**

Hours of work 8:30 - 3:30 (8:30 a.m. and 3:30 p.m. unless otherwise specified).

Contractor must call Underground Service Alert at 1-800-422-4133 to have utilities marked out before the preconstruction meeting. After approval of permit, the City Inspector will contact the contractor and set up a time for a pre-construction meeting. City inspector must have a minimum of 48-hours notification prior to scheduling of pre-construction meeting and construction. Location of all utility cabinets or structures are subject to review, and may require an MDRA to be processed through Development Services Department, Planning division.

In consideration of the granting of this application, the permittee agrees to, and by this instrument, does hold the City of Poway, its elective and appointed officials, officers, agents, and employees harmless from any liability for claims for work done and material furnished upon the property, or any improvements made on the property covered by this permit. Permittee further agrees to hold and save harmless from any claim, cause of action, liability or responsibility for any accident, loss or damage to persons or property caused by the negligence of the Permittee, secured by the submitted certificate of insurance, arising out of the work undertaken pursuant to this permit, or any other permits that may be granted pursuant thereto. **I, the applicant, have read and understand the front and back of this application and will abide by its rules and regulations.**

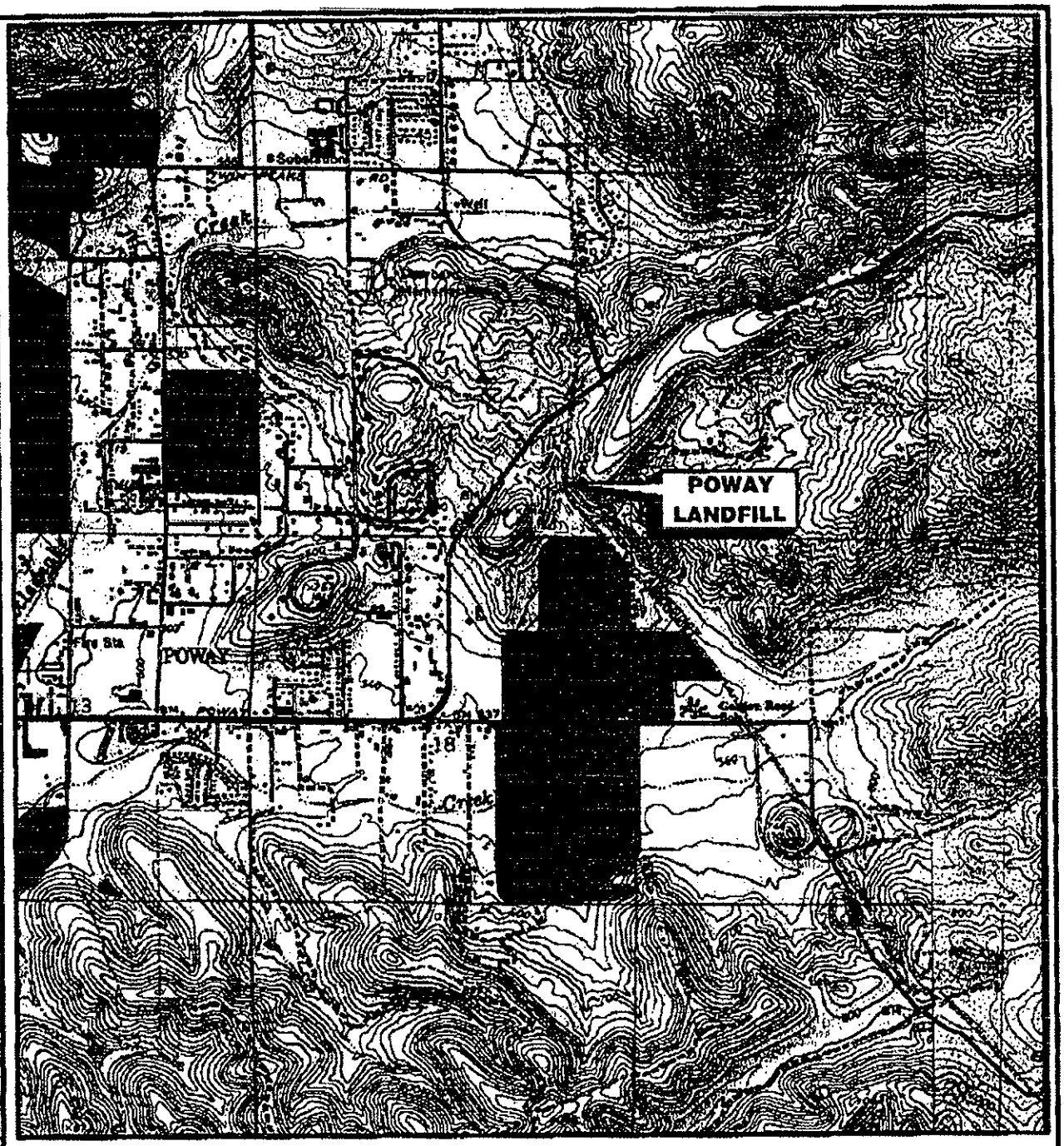
Signature of Applicant [signature] Date 5-2-06

Approved [signature] Date 5/8/06
Traffic Engineer

[signature] Date 5/9/06
Senior Civil Engineer

PERMIT VALID UNTIL: ___ Inspector ___ Date ___

APPROVED EXTENSION DATE ___



SOURCE:
NATIONAL GEOGRAPHIC (CALIFORNIA)
SEAMLESS USGS TOPOGRAPHIC MAPS ON CD-ROM
POWERED BY TOPO

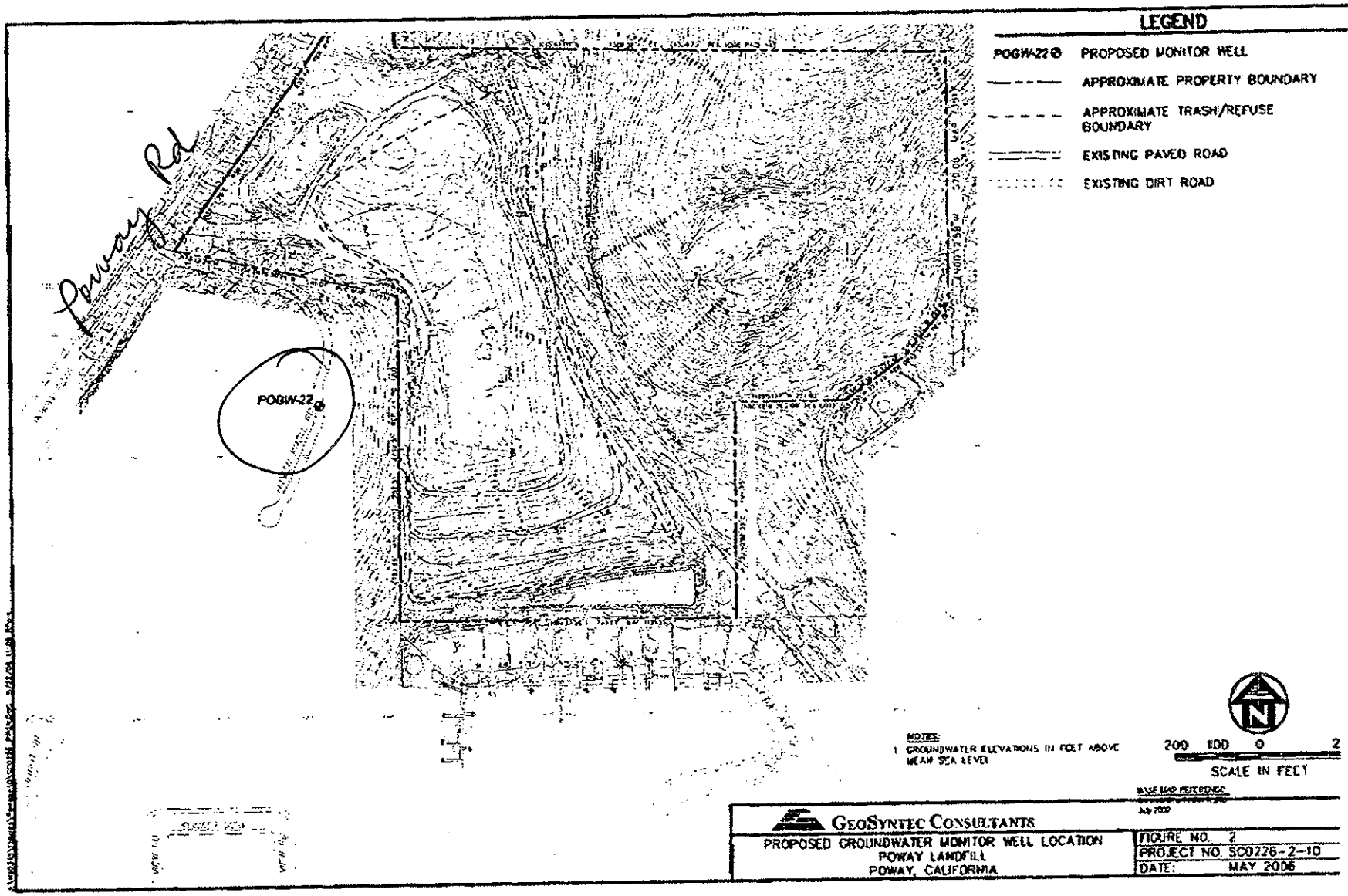
N

2,000 1,000 0 2,000 4,000
SCALE IN FEET

GEOSYNTEC CONSULTANTS

SITE LOCATION POWAY LANDFILL POWAY, CALIFORNIA	FIGURE NO. 1 PROJECT NO. SC0226-2-10 DATE: MARCH 2006

P:\PRJ\SC0226\CADD\SC0233\05-05-\P2-MW-TASK\SC0233_03-05_S-FIG_1.dwg 2/22/06 09:21 RPo


Poway Rd
POGW-22
LEGEND
POGW-22 PROPOSED MONITOR WELL
APPROXIMATE PROPERTY BOUNDARY
APPROXIMATE TRASH/REFUSE BOUNDARY
EXISTING PAVED ROAD
EXISTING DIRT ROAD
NOTES:
1 GROUNDWATER ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL
200 100 0 2
SCALE IN FEET
N
GEOSYNTEC CONSULTANTS
PROPOSED GROUNDWATER MONITOR WELL LOCATION
POWAY LANDFILL
POWAY, CALIFORNIA
FIGURE NO. 2
PROJECT NO. SC0226-2-10
DATE: MAY 2006

PERMIT #LMON104364
A.P.N. # 321-200-38, 323-461-05-00
EST # H86017

COUNTY OF SAN DIEGO
DEPARTMENT OF ENVIRONMENTAL HEALTH
LAND AND WATER QUALITY DIVISION
MONITORING WELL PROGRAM

MONITORING WELL AND BORING CONSTRUCTION AND DESTRUCTION PERMIT

SITE NAME: POWAY LANDFILL

SITE ADDRESS: IN THE CITY RIGHT OF WAY ADJACENT TO 14900 POWAY RD,(FOR 2 WELLS) AT DEHIA ST., AND ADJACENT TO 14450 SILVER HEIGHTS RD.(FOR 1 WELL) , POWAY, CA 92064

PERMIT FOR: **THREE GROUNDWATER MONITORING WELLS**

PERMIT APPROVAL DATE: OCTOBER 26, 2006

PERMIT EXPIRES ON: FEBRUARY 23, 2007

RESPONSIBLE PARTY: COUNTY OF SAN DIEGO, DPW

PERMIT CONDITIONS:

1. Wells must have a **minimum 3-foot concrete surface seal**. The surface seal shall consist of concrete able to withstand the maximum anticipated load without cracking or deteriorating. The concrete should meet Class A specifications of a minimum 4000-pound compressive strength.

2. All water and soil resulting from the activities covered by this permit must be managed, stored and disposed of as specified in the SAM Manual in Section 5, II, E- 4. (**http://www.sdcounty.ca.gov/deh/lwq/sam/manual_guidelines.html**). In addition, drill cuttings must be properly handled and disposed in compliance with the Stormwater Best Management Practices of the local jurisdiction.

3. Within 60 days of completing work, submit a well construction report, including all well and/or boring logs and laboratory data to the Well Permit Desk. This report must include all items required by the SAM Manual, Section 5, Pages 6 & 7.

4. This office must be given 48-hour notice of any drilling activity on this site and advanced notification of drilling cancellation. Please contact the Well Permit Desk at 338-2339.

APPROVED BY: _____ DATE: 10.26.2006
JAMES CLAY

NOTIFIED: by vmag 10/26/06 EP

DEH:SAM-9075 (3/05)

RECEIVED
OCT 16 2006
ENVIRONMENTAL HEALTH

PERMIT APPLICATION GROUNDWATER AND VADOSE MONITORING WELLS AND EXPLORATORY OR TEST BORINGS

OFFICE USE ONLY
PERMIT LMON # 104364
SAM CASE Y/N # _____
DATE RECEIVED: _____
FEE PAID: _____
CHECK # _____

A. RESPONSIBLE PARTY County of San Diego, Department of Public Works, Land Div Mgmt Phone 858.495.5480
(The person, persons, or company responsible for the construction, maintenance, and destruction of the proposed borings and/or wells.)
Mailing Address 5201 Ruffin Rd. Ste D City San Diego State CA Zip 92123
Contact Person Barry Pulver Phone 858.495.5480 Ext. _____ Fax _____

B. SITE ASSESSMENT PROJECT NUMBER – IF APPLICABLE # _____

C. CONSULTING FIRM GeoSyntec Consultants
Mailing Address 10875 Rancho Bernardo Rd. Ste 200 City San Diego State CA Zip 92127
Registered Professional Veryl Wittig Registration # 7115 (RG)
Contact Person Christopher Gale Phone 858.674.6559 Ext. 215 Fax 858.674.6586

D. DRILLING COMPANY WDC Explroation & Wells C57# 283326
Contact Name Bill Stuckey
Mailing Address 5566 Arrow Highway City Montclair State CA Zip 92509-
Phone 909-931-4014 Fax 909-931-4017

E. CONSTRUCTION INFORMATION

TYPE OF WELLS/ BORINGS TO BE CONSTRUCTED

	#
☒ Groundwater	3
☐ Vadose	___
☐ Boring	___
☐ Other	___

NUMBER OF WELLS TO BE DESTROYED

☐ ___

MATERIALS TO BE USED

CASING
Not Applicable _____
Type PVC
Gauge Sch-40
Diameter 2"
Well Screen Size 0.02
Filter Pack #3

SEAL/BORING BACKFILL
☐ Neat Cement
☒ Cement & Bentonite
☐ Sand-Cement
☐ Bentonite
☐ Other

Borehole diameter 8"

Drilling Method
☐ Auger
☐ Mud Rotary
☐ Percussion
☒ Air Rotary
☐ Other

PROPOSED CONSTRUCTION
Estimated groundwater depth: _____ ft.
Estimated depth of boring _____ ft.
Concrete surface seal 0 to 3
See Attached Diagrams
Annular seal _____ to _____
Bentonite transition seal _____ to _____
Filter Pack _____ to _____
Perforation _____ to _____

NOTE:
Attach a well construction diagram for wells with multiple completions

I agree to comply with the requirements of the current Site Assessment and Mitigation Manual, and with all ordinances and laws of the County of San Diego and the State of California pertaining to well/boring construction and destruction.

DRILLER'S SIGNATURE _____ DATE 10-13-06

Within 60 days of completion, I will furnish the Monitoring Well Permit Desk with a complete and accurate well/boring log. I will certify the design and construction or destruction of the well/borings in accordance with the permit application.

RG/~~RCE/CEG~~ SIGNATURE _____ DATE 10-13-06

F. SITE INFORMATION

1. **ASSESSOR'S PARCEL NUMBER** Adjacent to 321-200-38 in City of Poway Right-of-Ways (See Fig. 2)
   Site Name Poway Landfill
   Site Address 14900 Poway Road City Poway Zip 92064-

   PROPERTY OWNER County of San Diego
   Phone 858-495-5480 Ext. Fax _____
   Mailing Address 5210 ruffin Road, Suite D City San Diego State CA Zip 92123-

   NUMBER OF WELLS 3 **TYPE OF WELLS** Groundwater Wells

2. **ASSESSOR'S PARCEL NUMBER** _____
   Site Name _____
   Site Address _____ City _____ Zip _____

   PROPERTY OWNER _____
   Phone _____ Ext. _____ Fax _____
   Mailing Address _____ City _____ State __ Zip _____

   NUMBER OF WELLS _____ **TYPE OF WELLS** _____

3. **ASSESSOR'S PARCEL NUMBER** _____
   Site Name _____
   Site Address _____ City _____ Zip _____

   PROPERTY OWNER _____
   Phone _____ Ext. _____ Fax _____
   Mailing Address _____ City _____ State __ Zip _____

   NUMBER OF WELLS _____ **TYPE OF WELLS** _____

4. **ASSESSOR'S PARCEL NUMBER** _____
   Site Name _____
   Site Address _____ City _____ Zip _____

   PROPERTY OWNER _____
   Phone _____ Ext. _____ Fax _____
   Mailing Address _____ City _____ State __ Zip _____

   NUMBER OF WELLS _____ **TYPE OF WELLS** _____

G. FEES (in effect beginning July 1, 2006, through June 30, 2007)

ACTIVITY	FEE SCHEDULE	AMOUNT	
Permit for Well Installations Only (Groundwater Monitoring Wells, Vadose, Vapor Extraction Wells)	$185.00 for the first monitoring well	1	$185.00
Permit for Well Maintenance Inspection (Valid for three years)	$100.00 for first well maintenance inspection	1	$100.00
Each Additional New Well	$160.00 for each additional well installation	2 x $160.00	$320.00
	$ 30.00 for each additional well maintenance inspection	2 x $30.00	$60.00
Permit for Borings Only *(CPT's, Hydropunch, Geoprobes, Temporary Well Points, etc.)*	$185.00 for the first boring	___ x $185.00	_____
	$ 50.00 for each additional boring	___ x $50.00	_____
Permit for Well Destructions Only	$185.00 for the first destruction	___ x $185.00	
	$120.00 for each additional destruction ...	___ x $120.00	
Permit for any Combination of Well Installations, Borings, & Destructions *(except UST backfill permit)*	The first activity will be $185.00	___ x $185.00	_____
	Additional activities will be as follows:		
	$160.00 for each additional well	___ x $160.00	_____
	$100.00 for first well maintenance inspection	___ x $100.00	_____
	$ 30.00 for each additional well maintenance inspection	___ x $ 30.00	_____
	$ 50.00 for each additional boring	___ x $ 50.00	_____
	$120.00 for each well destruction	___ x $120.00	_____
Permit for Underground Storage Tank Monitoring System in Backfill *(i.e. Enhanced Leak Detection)*	**$320.00 (Flat Fee)**		$320.00
	TOTAL COST OF PERMIT		$ 665.00

H. QUESTIONNAIRE: Please answer all applicable questions completely. For well destructions, complete only #1 below and submit any required supportive documentation.

1. If wells are to be destroyed, provide a description of method of destruction NA

2. What is the purpose of the well/boring investigation?

   ☒ a. Part of an ongoing site assessment case in which DEH or another government regulator is the lead agency.

   ☐ b. Part of a Phase I investigation for property ownership transfer or: _____

   ☐ c. Geotechnical investigation for proposed construction, land stabilization or:

   ☐ d. Other: _____

3. What procedures will be used to prevent the well/boring from providing an avenue to contamination during construction? Wells will be constructed immediately after boring is completed

4. What field procedures will be utilized to determine if contamination exists? Soil cuttings will be screened with a photoionization detection (PID).

5. What procedures will be used to determine whether samples will be sent for laboratory testing or archiving? Groundwater samples will be submitted for analytical testing

6. What constituents will be monitored and tested (Include EPA Laboratory Test Methods to be used)? VOCs by EPA 8260B, General chemistry and Metals by EPA 6010

7. How will samples be transported and preserved? Groundwater samples will be sent to the lab by courier (with ice preservative)

8. What sampling methods will be used? _____

9. Are you proposing a variation from the methods and/or procedures presented in the requirements for the construction or destruction of Vadose and Groundwater Monitoring Wells (Current SAM Manual Requirements)? If yes, specify these variations and include a well construction diagram and all required supporting documentation. Refer to the SAM Manual Appendix B for monitoring well guidelines (http://www/sdcounty.ca.gov/deh/lwq/sam/monitoring_well.html). :_____

10. Are you proposing a variation in drilling and destruction of soil borings from the methods and/or procedures specified in the current SAM manual? If yes, specify these variations and include a destruction diagram. _____

11. What procedures will be used to ensure that the drilling equipment will introduce no contamination? Drilling equipment will be steam cleaned prior to drilling

12. What methods will be used to clean sampling equipment? New dedicated sampling equipment will be used to collect groundwater samples

13. What cleaning method will be used to clean casing and screen prior to installation? New PVE pipe will be used which will arrive onsite pre-wrapped.

ROW NO. 06 181

CITY OF POWAY

PUBLIC RIGHT-OF-WAY PERMIT

Associated Plan No. _____
Contact Person Christopher Gale
Address 10875 Rancho Bernardo Rd. Suite 200
San Diego CA 92127

Phone No. 858. 674 6559 x 215
Fax: 858. 674 6586

APPLICANT PLEASE FILL OUT NUMBERED ITEMS 1-4:

1. APPLICANT, GeoSyntec Consultants, hereby requests permission to work in the following streets or other public easements (provide owner, address, and property description):
Dehia Street and Silver Heights Road

2. TO INSTALL (provide type of installation and approximate dimensions, length, width, and depth):
One monitor well to a depth of 45 ft below ground surface, ~~at~~ one monitor well to 20 ft bgs on Dehia St. and one monitor well to 65 ft bgs on Silver Heights Road to monitor groundwater

3. X PRIVATE DEVELOPMENT ___SOUTH POWAY ___CITY PROJECT

4. Contractor GeoSyntec Consultants Subcontractors wide exploration & wells

Job superintendent Veryl Wattis License No. P6 7115

Address [illegible]

Contractor's License No. [illegible] Type of License [illegible]

APPLICANT MUST SUBMIT THE FOLLOWING WITH THE APPLICATION:

1. Copy of the Contractor's license (Type A required).
2. Certificate of insurance for worker's compensation and general liability in the amount of $1 million naming the City as an additional insured.
3. Detailed and scaled traffic control plan for all phases of work.
4. Detailed construction schedule and clear description of work.
5. Itemized cost estimate (unless fees were previously paid with an approved plan listed above).
6. All applicable fees and deposits.

PRE-APPROVED FOR CONSTRUCTION PENDING PRE-CONSTRUCTION MEETING

Note: **Application will not be accepted unless items 1-6 are provided. In some cases, the City will consider a waiver of a part of the requirements of items 1 and 3 with submittal of a waiver request.**

Hours of work 8:30 - 3:30 (8:30 a.m. and 3:30 p.m. unless otherwise specified).

Contractor must call Underground Service Alert at 1-800-422-4133 to have utilities marked out before the preconstruction meeting. After approval of permit, the City Inspector will contact the contractor and set up a time for a pre-construction meeting. City inspector must have a minimum of 48-hours notification prior to scheduling of pre-construction meeting and construction. Location of all utility cabinets or structures are subject to review, and may require an MDRA to be processed through Development Services Department, Planning division.

In consideration of the granting of this application, the permittee agrees to, and by this instrument, does hold the City of Poway, its elective and appointed officials, officers, agents, and employees harmless from any liability for claims for work done and material furnished upon the property, or any improvements made on the property covered by this permit. Permittee further agrees to hold and save harmless from any claim, cause of action, liability or responsibility for any accident, loss or damage to persons or property caused by the negligence of the Permittee, secured by the submitted certificate of insurance, arising out of the work undertaken pursuant to this permit, or any other permits that may be granted pursuant thereto. **I, the applicant, have read and understand the front and back of this application and will abide by its rules and regulations.**

Signature of Applicant [signature] Date 10/3/2006

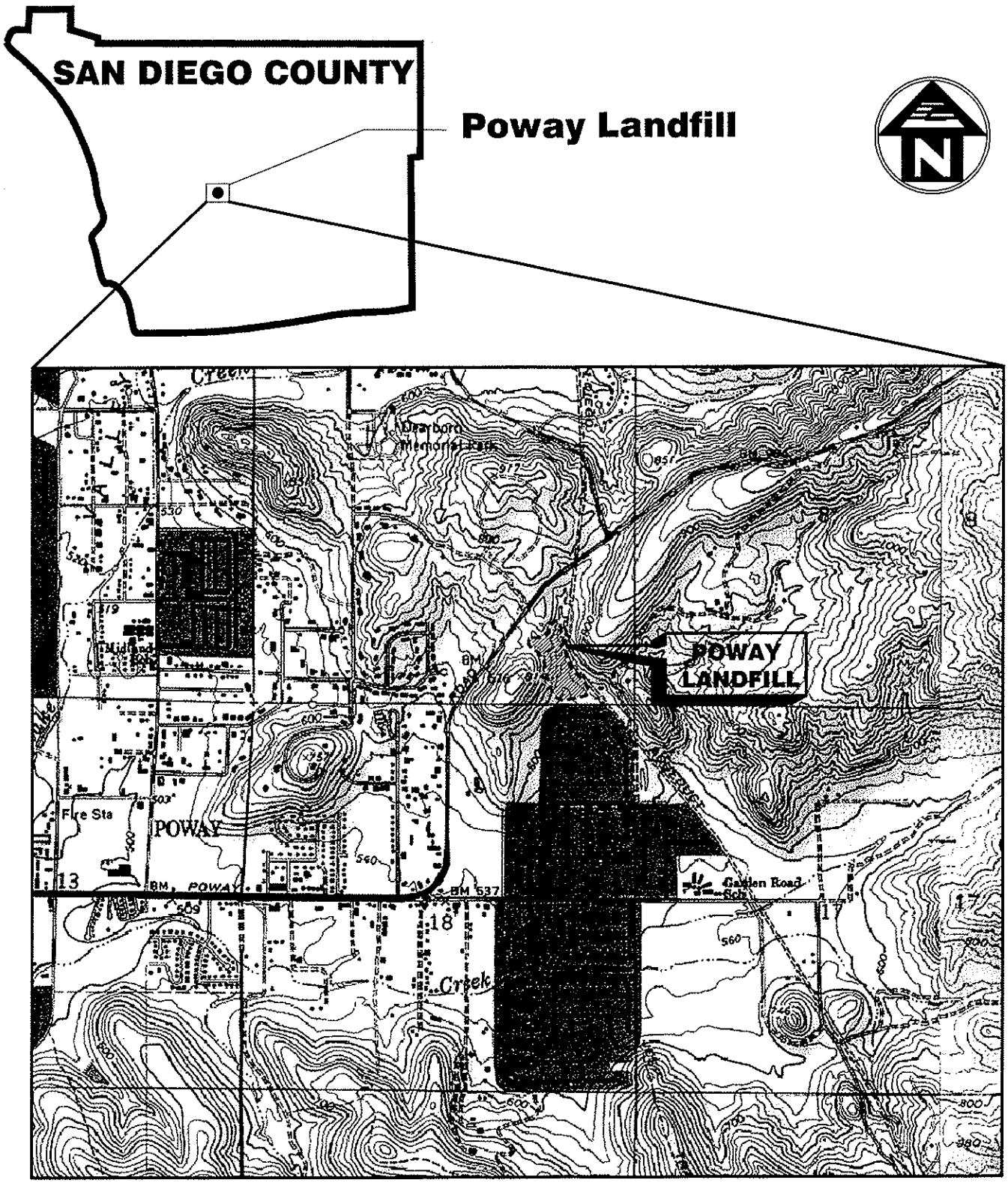
Approved [signature] Date 10/3/06
Traffic Engineer

Kenneth W. Dean Date 10/9/06
Senior Civil Engineer

PERMIT VALID UNTIL: Dec 9, 2006

Inspector [signature] Date 10/9/06

APPROVED EXTENSION DATE _____ By: _____



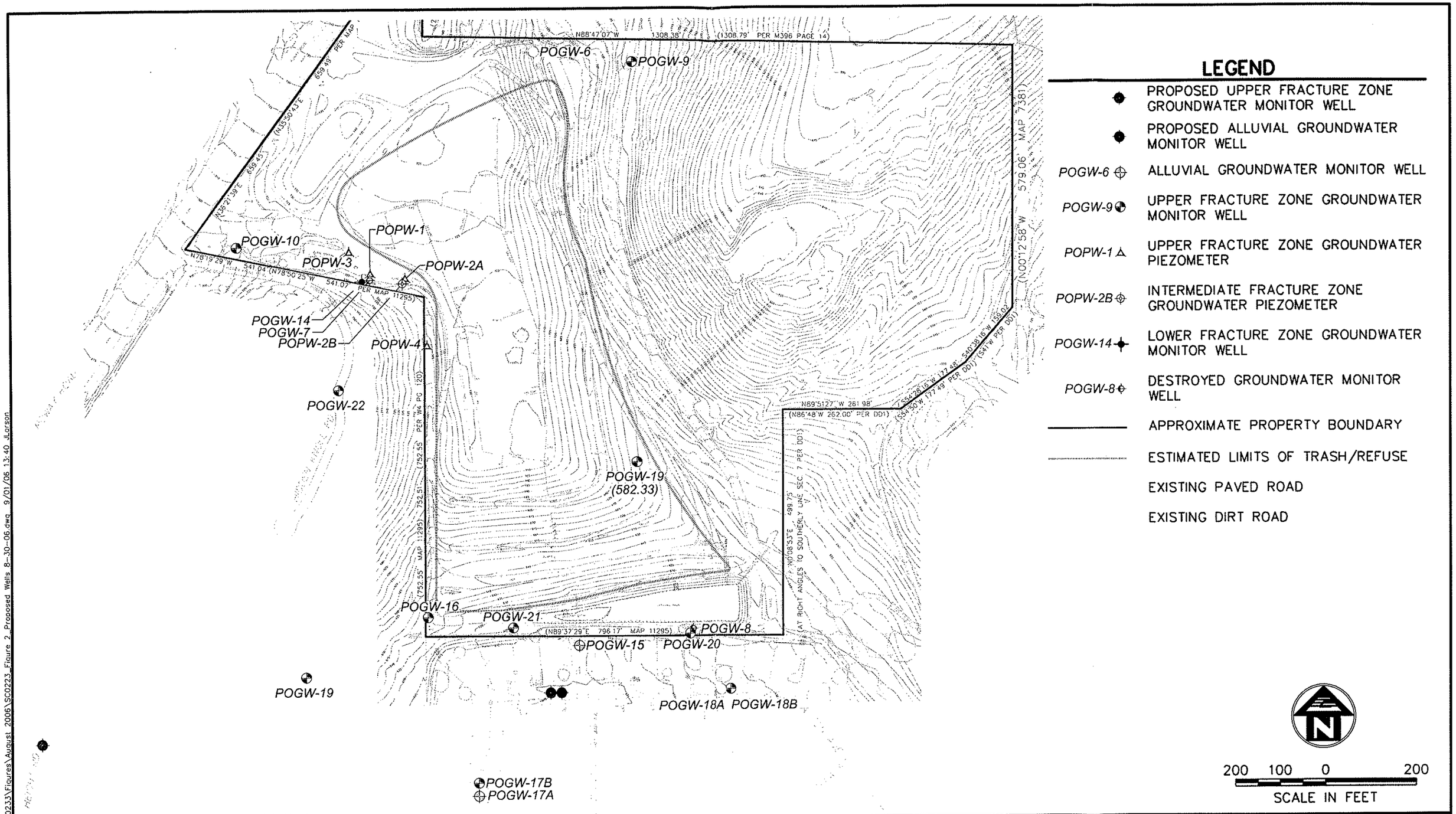
SOURCE:
NATIONAL GEOGRAPHIC (CALIFORNIA)
SEAMLESS USGS TOPOGRAPHIC MAPS ON CD-ROM
POWERED BY TOPO

2,000 1,000 0 2,000 4,000
SCALE IN FEET

GEOSYNTEC CONSULTANTS

SITE LOCATION POWAY LANDFILL POWAY, CALIFORNIA	FIGURE NO. 1 PROJECT NO. SC0233-09 DATE: AUGUST 2006

P:\PRJ\SDCadd\CADD\SC0233\Figures\Soil Vapor Sampling Report\SC0233 Figure 1 Site Loc.dwg 8/22/06 15:35 jhall



LEGEND

- PROPOSED UPPER FRACTURE ZONE GROUNDWATER MONITOR WELL
- PROPOSED ALLUVIAL GROUNDWATER MONITOR WELL
- POGW-6 ALLUVIAL GROUNDWATER MONITOR WELL
- POGW-9 UPPER FRACTURE ZONE GROUNDWATER MONITOR WELL
- POPW-1 UPPER FRACTURE ZONE GROUNDWATER PIEZOMETER
- POPW-2B INTERMEDIATE FRACTURE ZONE GROUNDWATER PIEZOMETER
- POGW-14 LOWER FRACTURE ZONE GROUNDWATER MONITOR WELL
- POGW-8 DESTROYED GROUNDWATER MONITOR WELL
- APPROXIMATE PROPERTY BOUNDARY
- ESTIMATED LIMITS OF TRASH/REFUSE
- EXISTING PAVED ROAD
- EXISTING DIRT ROAD

GEOSYNTEC CONSULTANTS

BASE MAP REFERENCE:
Stewart Geo Technologies
July 2002

PROPOSED GROUNDWATER MONITOR WELLS
POWAY LANDFILL
POWAY, CALIFORNIA

FIGURE NO. 2
PROJECT NO. SC0233
DATE: SEPTEMBER 2006

P:\PRJ\SDCadd\CADD\SC0233\Figures\August 2006\SC0223_Figure 2_Proposed Wells 8-30-06.dwg 9/01/06 13:40 JLarson

GeoSyntec Consultants

Figure 3: Proposed Alluvial Well Construction (southeast of POGW-21)

Site: Poway Landfill

Date: 9/1/2006

Well ID:

Drilling Method: Air Rotary Casing Hammer

Drilling Company:

Boring Depth: 20.5 feet

Drillers:

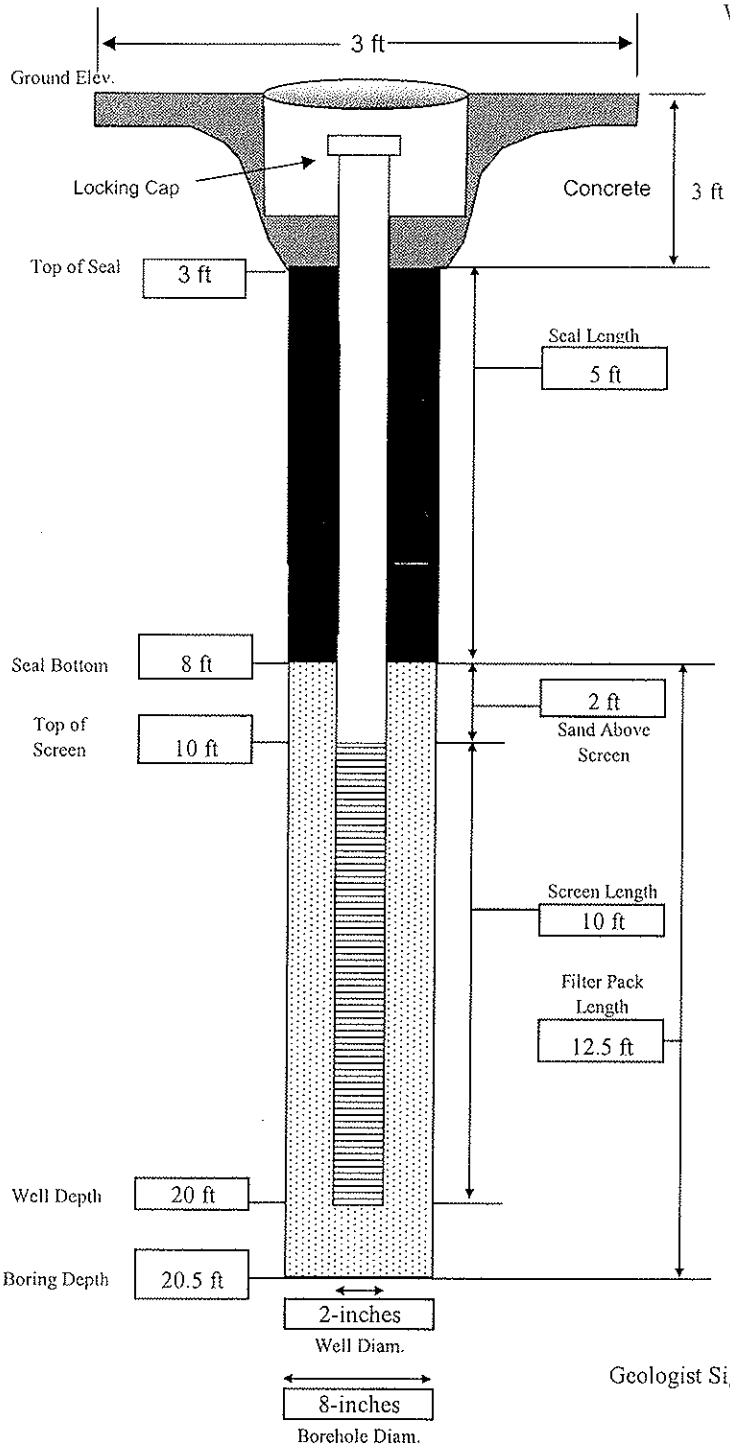
Boring Diameter: 8-inches

Geologist:

Well Depth: 20 feet

3 ft above ground surface

Well Diameter: 2-inches



Well Construction:

Material: Schedule 40 PVC

Inside Diameter: 2-inches

Screen Slot Size: 0.02-inches

Screen Beg.: 10 feet End: 20 feet

Sump Y / N

Type/Length: NA

Filter Pack:

Type/Brand: Monterey Sand #3

Amount Used:

Placement Method: Direct Pour

Seal:

Type/Brand: Enviroplug WYO-Ben

Amount Used:

Vol. Fluid Added:

Set-up Time:

Placement Method: Direct pour

Grout:

Type/Brand: NA

Amount Used:

Vol. Fluid Added:

Placement Method: NA

Well Completion:

Above Grade / **Below Grade**

Guard Posts? Y / N

Pad Size: 3-foot diameter

Cover Type/Size: 12-inch steel cover

Comments:

Geologist Signature:

GeoSyntec Consultants

Figure 4: Proposed Upper Fracture Zone Well Construction (southeast of POGW-21)

Site: Poway Landfill

Date: 9/1/2006

Well ID:

Drilling Method: Air Rotary Casing Hammer

Drilling Company:

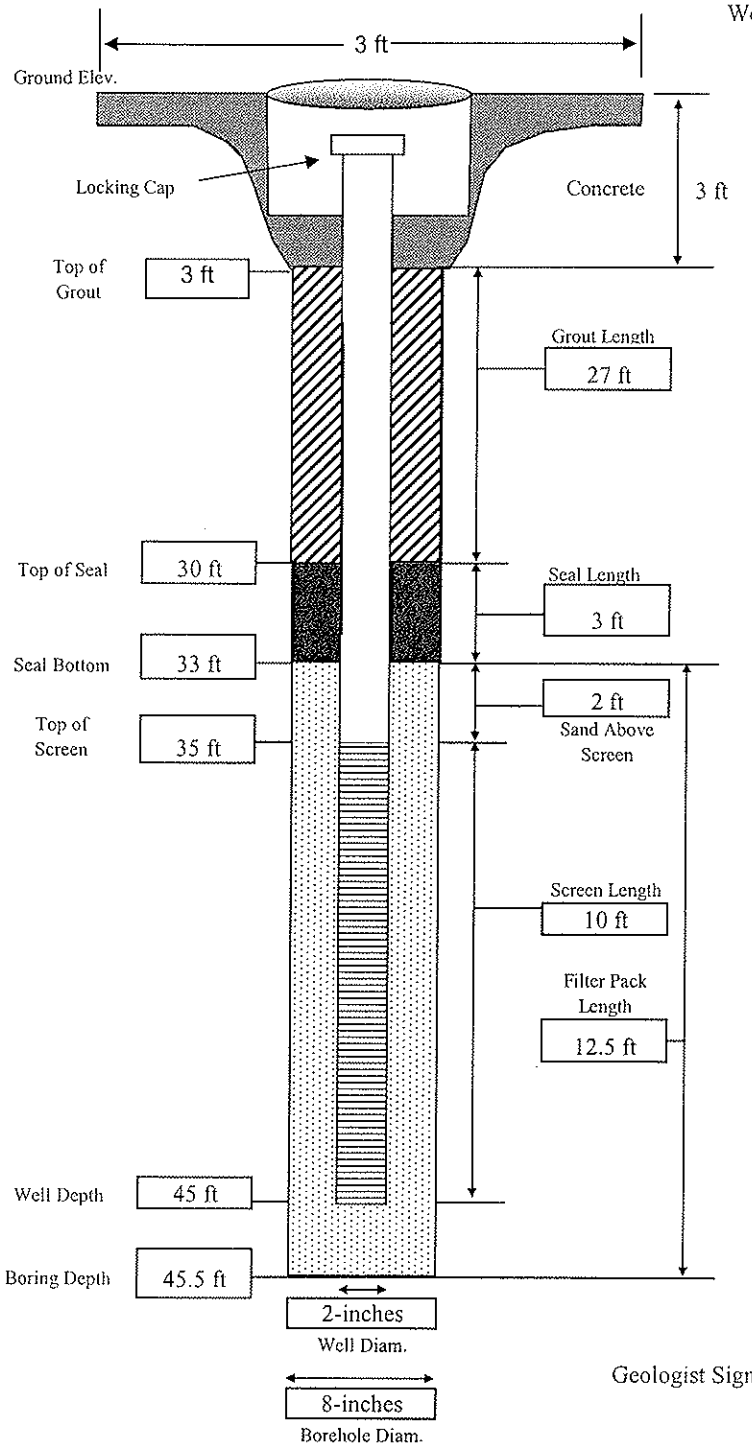
Boring Depth: 45.5 feet

Drillers:

Boring Diameter: 8-inches

Geologist:

Well Depth: 36 feet



Well Diameter: 2-inches

Well Construction:

Material: Schedule 40 PVC

Inside Diameter: 2-inches

Screen Slot Size: 0.02-inches

Screen Beg.: 25 feet End: 35 feet

Sump Y / N

Type/Length: NA

Filter Pack:

Type/Brand: Monterey Sand #3

Amount Used:

Placement Method: Direct Pour

Seal:

Type/Brand: Enviroplug WYO-Ben

Amount Used:

Vol. Fluid Added:

Set-up Time:

Placement Method: Tremmie

Grout:

Type/Brand: Cement-bentonite grout

Amount Used:

Vol. Fluid Added:

Placement Method: Tremmie

Well Completion:

Above Grade / **Below Grade**

Guard Posts? Y / N

Pad Size: 3-foot diameter

Cover Type/Size: 12-inch steel cover

Comments:

Geologist Signature:

GeoSyntec Consultants

Figure 5: Proposed Upper Fracture Zone Well Construction (southwest of POGW-22)

Site: Poway Landfill

Date: 9/1/2006

Well ID:

Drilling Method: Air Rotary Casing Hammer

Drilling Company:

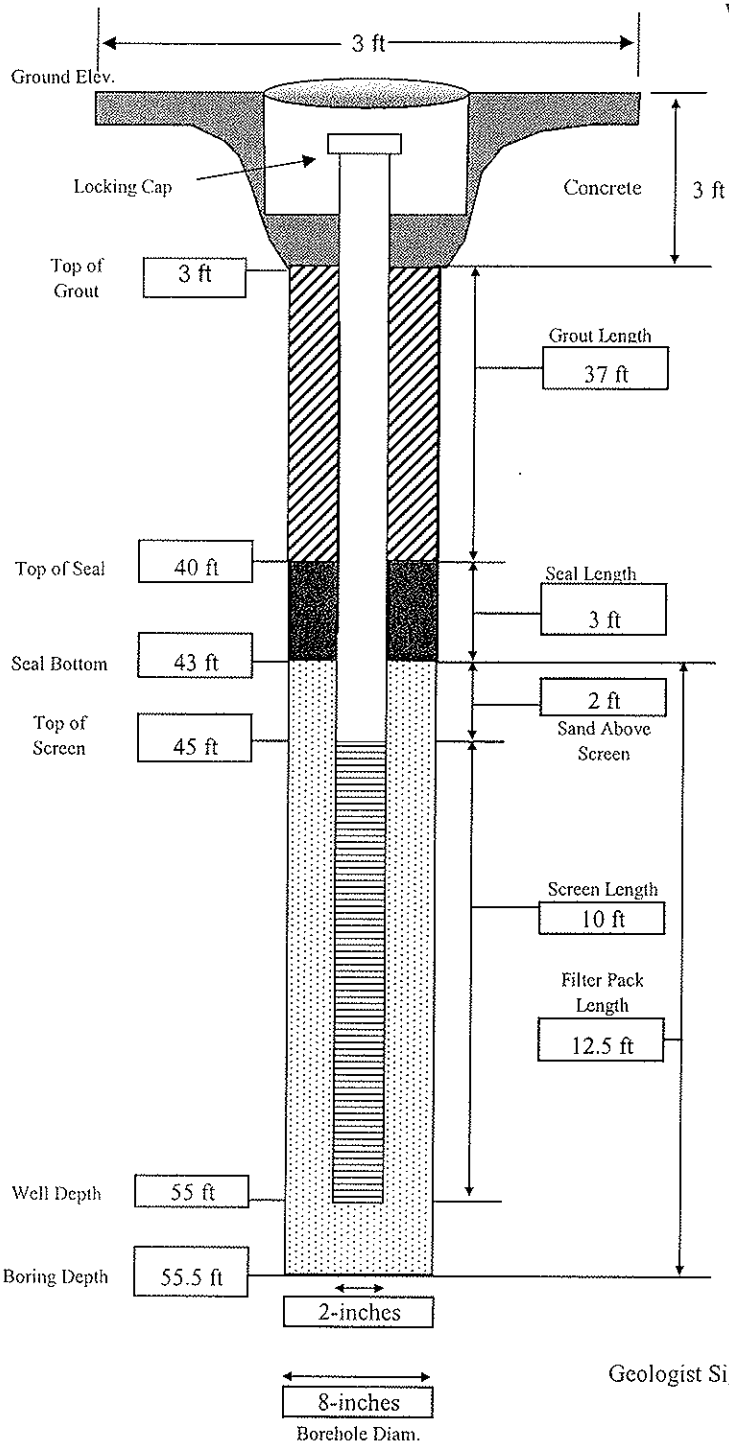
Boring Depth: 55.5 feet

Drillers:

Boring Diameter: 8-inches

Geologist:

Well Depth: 55 feet



Well Diameter: 2-inches

Well Construction:

Material: Schedule 40 PVC

Inside Diameter: 2-inches

Screen Slot Size: 0.02-inches

Screen Beg.: 45 feet End: 55 feet

Sump Y / **N**

Type/Length: NA

Filter Pack:

Type/Brand: Monterey Sand #3

Amount Used:

Placement Method: Direct Pour

Seal:

Type/Brand: Enviroplug WYO-Ben

Amount Used:

Vol. Fluid Added:

Set-up Time:

Placement Method: Tremmie

Grout:

Type/Brand: Cement-bentonite grout

Amount Used:

Vol. Fluid Added:

Placement Method: Tremmie

Well Completion:

Above Grade / **Below Grade**

Guard Posts? Y / **N**

Pad Size: 3-foot diameter

Cover Type/Size: 12-inch steel cover

Comments:

Geologist Signature:

APPENDIX B

Boring and Well Construction Logs

Geosyntec consultants
10875 Rancho Bernardo Rd, Suite 200
San Diego, CA 92127
Tel: (858) 674-6559
Fax: (858) 674-6586

GS FORM: CORE3 10/00

BOREHOLE LOG

BORING POGW-19 **SHEET** 1 **OF** 4
START DATE 17 Apr 06 **Elevation** 652.62 FT. MSL
FINISH DATE 18 Apr 06
PROJECT Evaluation Monitoring Program
LOCATION Poway Landfill
PROJECT NUMBER SC0233

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	WELL CONSTRUCTION MATERIAL	ELEVATION (ft)	DRILL RATE (ft/min)	TIME	COMMENTS
	Silty Sand (SM)) dry, dark yellowish brown, medium grained sand, loose.			Surface Completion - 12-inch well box set in a 5-foot by 5-foot concrete pad (Approximately 7.5 cubic feet).			1130	Begin pushing in continuous casing.
					650			
5							1140	
				2-inch diameter schedule 40 PVC casing.				
					645			
10	@ 10 ft. becomes 10 YR 4/3 brown, fine to medium grained sand.			Volclay grout (10 cubic feet).			1148	
					640			
	Extremely Weathered Granodiorite Weathers to silty sand (SM), 2.5 Y 5/2 grayish brown, fine to medium grained sand, loose, dry.							
15							1152	
					635			
20							1157	
					630			
25								

CONTRACTOR Tri-County Drilling
EQUIPMENT All terrain HSA
DRILL MTHD Air Rotary
DIAMETER 6.25"
LOGGER L. Morales **REVIEWER** V. Wittig

NORTHING 32.96326140
EASTING -117.0193325
ANGLE Vertical
BEARING ------
PRINTED 30 Mar 07

REMARKS: HSA converted to air rotary casing hammer.

COORDINATE SYSTEM: MSL
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

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GS FORM: CORE3 10/00

BOREHOLE LOG

BORING POGW-19 **SHEET** 2 **OF** 4
START DATE 17 Apr 06 **Elevation** 652.62 FT. MSL
FINISH DATE 18 Apr 06
PROJECT Evaluation Monitoring Program
LOCATION Poway Landfill
PROJECT NUMBER SC0233

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	WELL CONSTRUCTION MATERIAL	ELEVATION (ft)	DRILL RATE (ft/min)	TIME	COMMENTS
	@ 25 ft. becomes 2.5 Y 5/1 gray.						1203	
					625			
30							1207	
					620			
35							1220	
					615			
40							1230	
					610			
45							1242	Replaced 5 foot flights with 10 foot flights.
							1305	
					605			
50								

CONTRACTOR Tri-County Drilling
EQUIPMENT All terrain HSA
DRILL MTHD Air Rotary
DIAMETER 6.25"
LOGGER L. Morales **REVIEWER** V. Wittig

NORTHING 32.96326140
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GS FORM: CORE3 10/00

BOREHOLE LOG

BORING POGW-19 **SHEET** 3 OF 4
START DATE 17 Apr 06 **Elevation** 652.62 FT. MSL
FINISH DATE 18 Apr 06
PROJECT Evaluation Monitoring Program
LOCATION Poway Landfill
PROJECT NUMBER SC0233

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	WELL CONSTRUCTION MATERIAL	ELEVATION (ft)	DRILL RATE (ft/min)	TIME	COMMENTS
							1311	
					600			
55				Hydrated Sinclair high yielding 1/4" bentonite chips (2.3 cubic feet).			1328	
					595			
60							1335	
					590			
65	@ 65 ft. becomes wet.						1355	
				RMC Pacific #3 sand (3.6 cubic feet).	585			Depth to water 4/18/06
				2-inch diameter 0.020-inch slot schedule 40 PVC screen.				Depth to water 4/17/06
70							1420	
					580			
75								

CONTRACTOR Tri-County Drilling
EQUIPMENT All terrain HSA
DRILL MTHD Air Rotary
DIAMETER 6.25"
LOGGER L. Morales **REVIEWER** V. Wittig

NORTHING 32.96326140
EASTING -117.0193325
ANGLE Vertical
BEARING ------
PRINTED 30 Mar 07

REMARKS: HSA converted to air rotary casing hammer.

COORDINATE SYSTEM: MSL
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GS FORM: CORE3 10/00

BOREHOLE LOG

BORING POGW-19 **SHEET** 4 **OF** 4
START DATE 17 Apr 06 **Elevation** 652.62 FT. MSL
FINISH DATE 18 Apr 06
PROJECT Evaluation Monitoring Program
LOCATION Poway Landfill
PROJECT NUMBER SC0233

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	WELL CONSTRUCTION MATERIAL	ELEVATION (ft)	DRILL RATE (ft/min)	TIME	COMMENTS
							1445	
					575		1538	
80								
					570			
	Total depth = 84 ft. bgs.							

Veryl Wittig
Professional Geologist No. 7115

CONTRACTOR	Tri-County Drilling	**NORTHING**	32.96326140
EQUIPMENT	All terrain HSA	**EASTING**	-117.0193325
DRILL MTHD	Air Rotary	**ANGLE**	Vertical
DIAMETER	6.25"	**BEARING**	------
LOGGER	L. Morales **REVIEWER** V. Wittig	**PRINTED**	30 Mar 07

REMARKS: HSA converted to air rotary casing hammer.

COORDINATE SYSTEM: MSL
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

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GS FORM: CORE3 10/00

BOREHOLE LOG

BORING POGW-22 **SHEET** 1 **OF** 9
START DATE 7 Jun 06 **Elevation** 773.86 FT. MSL
FINISH DATE 15 Jun 06
PROJECT Evaluation Monitoring Program
LOCATION Poway Landfill
PROJECT NUMBER SC0233

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	WELL CONSTRUCTION MATERIAL	ELEVATION (ft)	DRILL RATE (ft/min)	TIME	COMMENTS
	Asphalt 4 inches			Flush Mounted - 10-inch steel well box set in a 3-foot by 3-foot concrete pad				3x3 cookie cut asphalt. Hand auger to 3' (refusal) to clear boring.
	Fill 3/4 gravel with coarse grained sand (60/40)							
	Granodiorite (Kg) Drills to highly weathered bedrock, coarse-grained, black and gray with orange specs, 50% iron staining, 40% quartz, 15% feldspar, 30% mafic, 15% other minerals				770	1		
5								
					765	13		
10								
					760	8		
15	Becomes moderately weathered bedrock, black and gray with orange specs with 20% iron staining							Fractures at 17' and 18'
					755	8		
20	Becomes slightly weathered bedrock with few orange specs, 10% iron oxide staining							
					750	6		
25								

CONTRACTOR Tri-County
EQUIPMENT All Terrain HSA
DRILL MTHD Air Rotary
DIAMETER 6.25
LOGGER S. McClain **REVIEWER** V. Wittig
NORTHING 32.96511460
EASTING -117.0194835
ANGLE Vertical
BEARING ------
PRINTED 30 Mar 07

REMARKS: On Hidden Knoll Road approximately 240 feet south of POGW-14.

COORDINATE SYSTEM: MSL
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

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GS FORM: CORE3 10/00

BOREHOLE LOG

BORING POGW-22 **SHEET** 2 OF 9
START DATE 7 Jun 06 **Elevation** 773.86 FT. MSL
FINISH DATE 15 Jun 06
PROJECT Evaluation Monitoring Program
LOCATION Poway Landfill
PROJECT NUMBER SC0233

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	WELL CONSTRUCTION MATERIAL	ELEVATION (ft)	DRILL RATE (ft/min)	TIME	COMMENTS
				2-inch diameter schedule 40 PVC casing.				
						21		
					745			
30				Centralizer				
						8		
					740			
35	Becomes fresh bedrock with trace orange specs, iron oxide-staining <5%							Fracture at 36' to 38'
						8		Drilling speed increases.
					735			
40								
						4		
					730			
45								
						5		
					725			
50								

CONTRACTOR Tri-County
EQUIPMENT All Terrain HSA
DRILL MTHD Air Rotary
DIAMETER 6.25
LOGGER S. McClain **REVIEWER** V. Wittig

NORTHING 32.96511460
EASTING -117.0194835
ANGLE Vertical
BEARING ------
PRINTED 30 Mar 07

REMARKS: On Hidden Knoll Road approximately 240 feet south of POGW-14.

COORDINATE SYSTEM: MSL

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GS FORM: CORE3 10/00

BOREHOLE LOG

BORING POGW-22 **SHEET** 3 **OF** 9
START DATE 7 Jun 06 **Elevation** 773.86 FT. MSL
FINISH DATE 15 Jun 06
PROJECT Evaluation Monitoring Program
LOCATION Poway Landfill
PROJECT NUMBER SC0233

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	WELL CONSTRUCTION MATERIAL	ELEVATION (ft)	DRILL RATE (ft/min)	TIME	COMMENTS
	Becomes more mafic (about 50%) 25% quartz, 15% feldspar, 10% other minerals			Wyo-ben bentonite grout (36.1 cubic feet).				Drilling speed decreases.
						7		
					720			
55	Becomes less mafic; 40% quartz, 15% feldspar, 30% mafic, 15% other minerals							
						7		
					715			
60				Centralizer				
								Fracture at 62' to 65'
						6		
					710			
65	More weathered (possible fracture zone)							
								Fracture at 67'
						7		
					705			
70								Fracture at 71'
						9		
					700			
75								

CONTRACTOR Tri-County
EQUIPMENT All Terrain HSA
DRILL MTHD Air Rotary
DIAMETER 6.25
LOGGER S. McClain **REVIEWER** V. Wittig

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COORDINATE SYSTEM: MSL

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BOREHOLE LOG

BORING POGW-22 **SHEET** 4 **OF** 9
START DATE 7 Jun 06 **Elevation** 773.86 FT. MSL
FINISH DATE 15 Jun 06
PROJECT Evaluation Monitoring Program
LOCATION Poway Landfill
PROJECT NUMBER SC0233

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	WELL CONSTRUCTION MATERIAL	ELEVATION (ft)	DRILL RATE (ft/min)	TIME	COMMENTS
					695	11		Fractures at 78' and 79'
80				Wyo-ben bentonite grout (36.1 cubic feet).	690	10		
85					685	11		
90				Centralizer	680	11		Fracture at 94'
95					675	7		
100								

CONTRACTOR Tri-County
EQUIPMENT All Terrain HSA
DRILL MTHD Air Rotary
DIAMETER 6.25
LOGGER S. McClain **REVIEWER** V. Wittig

NORTHING 32.96511460
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ANGLE Vertical
BEARING ------
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COORDINATE SYSTEM: MSL

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BOREHOLE LOG

BORING POGW-22 **SHEET** 5 OF 9
START DATE 7 Jun 06 **Elevation** 773.86 FT. MSL
FINISH DATE 15 Jun 06
PROJECT Evaluation Monitoring Program
LOCATION Poway Landfill
PROJECT NUMBER SC0233

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	WELL CONSTRUCTION MATERIAL	ELEVATION (ft)	DRILL RATE (ft/min)	TIME	COMMENTS
								Stop drilling 6-7-06, start drilling 6-8-06 dry hole at 7:45
						12		
					670			
105								
						10		
					665			
110								
	Same as above.							
								Fracture at 112'
						8		
					660			
115								
						9		
					655			
120	More weathered (possible fracture zone)			Centralizer				Possible fracture zone
						9		
					650			
125								

CONTRACTOR Tri-County
EQUIPMENT All Terrain HSA
DRILL MTHD Air Rotary
DIAMETER 6.25
LOGGER S. McClain **REVIEWER** V. Wittig

NORTHING 32.96511460
EASTING -117.0194835
ANGLE Vertical
BEARING ------
PRINTED 30 Mar 07

REMARKS: On Hidden Knoll Road approximately 240 feet south of POGW-14.

COORDINATE SYSTEM: MSL

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Tel: (858) 674-6559
Fax: (858) 674-6586

GS FORM: CORE3 10/00

BOREHOLE LOG

BORING POGW-22 **SHEET** 6 **OF** 9
START DATE 7 Jun 06 **Elevation** 773.86 FT. MSL
FINISH DATE 15 Jun 06
PROJECT Evaluation Monitoring Program
LOCATION Poway Landfill
PROJECT NUMBER SC0233

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	WELL CONSTRUCTION MATERIAL	ELEVATION (ft)	DRILL RATE (ft/min)	TIME	COMMENTS
	Returns to fresh bedrock, iron staining < 5%							
					645	8		
130								Fracture at 131'
					640	9		
135				Wyo-ben bentonite grout 36.1 cubic feet).				
								Depth to water 06/30/06
					635	10		
140								
					630	119		
145								
					625	6		
150								

CONTRACTOR Tri-County
EQUIPMENT All Terrain HSA
DRILL MTHD Air Rotary
DIAMETER 6.25
LOGGER S. McClain **REVIEWER** V. Wittig

NORTHING 32.96511460
EASTING -117.0194835
ANGLE Vertical
BEARING ------
PRINTED 30 Mar 07

REMARKS: On Hidden Knoll Road approximately 240 feet south of POGW-14.

COORDINATE SYSTEM: MSL

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

Geosyntec consultants
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GS FORM: CORE3 10/00

BOREHOLE LOG

BORING POGW-22 **SHEET** 7 **OF** 9
START DATE 7 Jun 06 **Elevation** 773.86 FT. MSL
FINISH DATE 15 Jun 06
PROJECT Evaluation Monitoring Program
LOCATION Poway Landfill
PROJECT NUMBER SC0233

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	WELL CONSTRUCTION MATERIAL	ELEVATION (ft)	DRILL RATE (ft/min)	TIME	COMMENTS
				Centralizer				
								Stop Drilling and let borehole sit for water. Cover borehole with drum lid, bentonite, and a 4x6 steel plate. No water on 6-15-06 resume drilling.
						9		
					620			
155								
						14		
					615			
160								
						8		Fracture at 163'
					610			
165	Slightly weathered zone							
						9		Fracture at 168'
					605			
170								
						8		
					600			
175								

CONTRACTOR Tri-County
EQUIPMENT All Terrain HSA
DRILL MTHD Air Rotary
DIAMETER 6.25
LOGGER S. McClain **REVIEWER** V. Wittig

NORTHING 32.96511460
EASTING -117.0194835
ANGLE Vertical
BEARING ------
PRINTED 30 Mar 07

REMARKS: On Hidden Knoll Road approximately 240 feet south of POGW-14.

COORDINATE SYSTEM: MSL

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GS FORM: CORE3 10/00

BOREHOLE LOG

BORING POGW-22 **SHEET** 8 **OF** 9
START DATE 7 Jun 06 **Elevation** 773.86 FT. MSL
FINISH DATE 15 Jun 06
PROJECT Evaluation Monitoring Program
LOCATION Poway Landfill
PROJECT NUMBER SC0233

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	WELL CONSTRUCTION MATERIAL	ELEVATION (ft)	DRILL RATE (ft/min)	TIME	COMMENTS
								Fractures at 175' and 176'
				Pure Gold medium bentonite chips (2.1 cubic feet).				
						10		
					595			
180								
						11		Fracture at 183'
					590			
				Centralizer				
185								
				RMC Pacific #3 sand (3.94 cubic feet).				
						8		Fracture at 188'
					585			
190								
				2-inch diameter 0.020-inch slot schedule 40 PVC screen.				Fracture at 191'
								Groundwater encountered at 192' dust decreases.
						9		Fractures at 195' and 197'
					580			
195								
						8		Fracture at 198'
					575			
				Centralizer				
200								

CONTRACTOR Tri-County
EQUIPMENT All Terrain HSA
DRILL MTHD Air Rotary
DIAMETER 6.25
LOGGER S. McClain **REVIEWER** V. Wittig

NORTHING 32.96511460
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ANGLE Vertical
BEARING ------
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COORDINATE SYSTEM: MSL

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GS FORM: CORE3 10/00

BOREHOLE LOG

BORING POGW-22 **SHEET** 9 **OF** 9
START DATE 7 Jun 06 **Elevation** 773.86 FT. MSL
FINISH DATE 15 Jun 06
PROJECT Evaluation Monitoring Program
LOCATION Poway Landfill
PROJECT NUMBER SC0233

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	WELL CONSTRUCTION MATERIAL	ELEVATION (ft)	DRILL RATE (ft/min)	TIME	COMMENTS
	Total Depth = 202 ft bgs				570			

Veryl Wittig
Professional Geologist No. 7115

CONTRACTOR Tri-County
EQUIPMENT All Terrain HSA
DRILL MTHD Air Rotary
DIAMETER 6.25
LOGGER S. McClain **REVIEWER** V. Wittig
NORTHING 32.96511460
EASTING -117.0194835
ANGLE Vertical
BEARING ------
PRINTED 30 Mar 07

REMARKS: On Hidden Knoll Road approximately 240 feet south of POGW-14.

COORDINATE SYSTEM: MSL
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

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GS FORM: CORE3 10/00

BOREHOLE LOG

BORING POGW-23 **SHEET** 1 **OF** 2
START DATE 15 Nov 06 **Elevation** 609.50 FT. MSL
FINISH DATE 17 Nov 06
PROJECT Evaluation Monitoring Program
LOCATION Poway Landfill
PROJECT NUMBER SC0233

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	WELL CONSTRUCTION MATERIAL	ELEVATION (ft)	DRILL RATE (ft/min)	TIME	COMMENTS
	Asphalt			Surface Completion - 12-inch well box set in a 3-foot by 3-foot concrete pad (Approximately 6 cubic feet).			10:41	Begin drilling with tri-cone bit
	Fill 10 YR4/3 very pale brown, medium grained sand with angular gravel.							
	Highly Weathered Granitic Rock drills to medium grained sand, predominantly quartz and feldspar, 50% iron oxide coloring							drive casing advanced to 1.5 feet
					605			
5						1.6	10:42	stop drilling to connect water to control dust
				2-inch diameter schedule 40 PVC casing.				
					600			
10	same as above			Bentonite-Cement Grout (7.5 cubic feet).			10:55 11:03	
					595			
15						2		fracture @ 15.0 ft.
								fracture @ 16.5 ft.
								fracture @ 18.0 ft.
					590			
20	**Moderately Weathered Granitic Rock** quartz, feldspar, micas, 25 % iron oxide coloring,						11:08	drilling slows fracture @ 20.5 ft.
					585			
25								

CONTRACTOR WDC
EQUIPMENT IngersollRand T3W
DRILL MTHD Air Rotary
DIAMETER 8"
LOGGER C. Gale **REVIEWER** V. Wittig

NORTHING 32.96
EASTING -117.02
ANGLE Vertical
BEARING ------
PRINTED 26 Jan 07

REMARKS: Well Constructed on 11/17/06 to facilitate geophysical logging on 11/16/06

COORDINATE SYSTEM:
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

Geosyntec consultants
10875 Rancho Bernardo Rd, Suite 200
San Diego, CA 92127
Tel: (858) 674-6559
Fax: (858) 674-6586

GS FORM: CORE3 10/00

BOREHOLE LOG

BORING POGW-23 **SHEET** 2 **OF** 2
START DATE 15 Nov 06 **Elevation** 609.50 FT. MSL
FINISH DATE 17 Nov 06
PROJECT Evaluation Monitoring Program
LOCATION Poway Landfill
PROJECT NUMBER SC0233

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG / WELL LOG	WELL CONSTRUCTION MATERIAL	ELEVATION (ft)	DRILL RATE (ft/min)	TIME	COMMENTS
					1.25	11:11	fracture @ 25 ft. fracture @ 25.2 ft.
			Pure Gold medium bentonite chips (1 cubic foot).				fracture @ 27.2 ft.
				580			
30						11:16	
							fracture @ 31.1 ft. DTW on 11/20/06
			RMC Pacific #3 sand (4.8 cubic feet).				fracture @ 32.8 ft
						11:18 11:26	
				575			
35	same as above		2-inch diameter 0.020-inch slot schedule 40 PVC screen.		0.9		
				570			
40						11:35	
					0.25		
			Backfilled with coated time release bentonite pellets (2 cubic feet)	565			
45	same as above						Stop drilling to switch to downhole hammer. DTW = 45.5 ft at 13:10 on 11/15/06, therefore did not continue drilling.
						11:55	

Total Depth = 46.5 feet

Veryl Wittig
Professional Geologist No. 7115

CONTRACTOR WDC
EQUIPMENT IngersollRand T3W
DRILL MTHD Air Rotary
DIAMETER 8"
LOGGER C. Gale **REVIEWER** V. Wittig

NORTHING 32.96
EASTING -117.02
ANGLE Vertical
BEARING ------
PRINTED 26 Jan 07

REMARKS: Well Constructed on 11/17/06 to facilitate geophysical logging on 11/16/06

COORDINATE SYSTEM:
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Geosyntec consultants
10875 Rancho Bernardo Rd, Suite 200
San Diego, CA 92127
Tel: (858) 674-6559
Fax: (858) 674-6586

GS FORM: CORE3 10/00

BOREHOLE LOG

BORING POGW-24A **SHEET** 1 **OF** 1
START DATE 16 Nov 06 **Elevation** 604.23 FT. MSL
FINISH DATE 16 Nov 06
PROJECT Evaluation Monitoring Program
LOCATION Poway Landfill
PROJECT NUMBER SC0233

DEPTH (ft)	MATERIAL DESCRIPTION	WELL CONSTRUCTION MATERIAL	ELEVATION (ft)	DRILL RATE (ft/min)	TIME	COMMENTS
	Asphalt	Surface Completion - 12-inch well box set in a 3-foot by 4.5-foot concrete pad (Approximately 8 cubic feet).			11:22	Begin drilling with tri-cone bit
	Fill,Silty Sand, fine to medium grained, olive brown [2.5 Y 4/3], loose, dry,trace gravel, no odor.					
5	**Silty Sand (SM)** fine to medium grained, olive brown [2.5 Y 4/3], loose, dry,trace gravel, no odor.	2-inch diameter schedule 40 PVC casing.	600	1		
		Pure Gold medium bentonite chips (1.7 cubic feet).				
			595			
10	becomes with some clay				11:32 11:37	
	Highly Weathered Granitic Rockquartz and feldspar with ~50% iron oxide coloring	RMC Pacific #3 sand (4.3 cubic feet).	590			
15		2-inch diameter 0.020-inch slot schedule 40 PVC screen.		1.6		
	drills to gravel with sand					drilling slows
	drills to sand					DTW on 11/20/06
			585			
20					11:43	Groundwater not encountered during drilling.
	Total Depth = 20.5 feet					

Veryl Wittig
Professional Geologist No. 7115

CONTRACTOR	WDC	**NORTHING**	32.96
EQUIPMENT	IngersollRand T3W	**EASTING**	-117.02
DRILL MTHD	Air Rotary	**ANGLE**	Vertical
DIAMETER	8"	**BEARING**	------
LOGGER	C. Gale **REVIEWER** V. Wittig	**PRINTED**	26 Jan 07

REMARKS:

COORDINATE SYSTEM:
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

Geosyntec consultants
10875 Rancho Bernardo Rd, Suite 200
San Diego, CA 92127
Tel: (858) 674-6559
Fax: (858) 674-6586

GS FORM: CORE3 10/00

BOREHOLE LOG

BORING POGW-24B **SHEET** 1 OF 2
START DATE 16 Nov 06 **Elevation** 604.17 FT. MSL
FINISH DATE 16 Nov 06
PROJECT Evaluation Monitoring Program
LOCATION Poway Landfill
PROJECT NUMBER SC0233

DEPTH (ft)	MATERIAL DESCRIPTION	WELL CONSTRUCTION MATERIAL	ELEVATION (ft)	DRILL RATE (ft/min)	TIME	COMMENTS
	Asphalt	Surface Completion - 12-inch well box set in a 3-foot by 4.5-foot concrete pad (Approximately 8 cubic feet).			9:03	Begin drilling with tri-cone bit
	Fill,Silty Sand (SM), fine to medium grained, olive brown [2.5 Y 4/3], loose, dry,trace gravel, no odor.					
			600			
5	**Silty Sand (SM)** fine to medium grained, olive brown [2.5 Y 4/3], loose, dry,trace gravel, no odor.	2-inch diameter schedule 40 PVC casing.		2.5		
			595			
10	becomes with some clay	Bentonite-Cement Grout (9.2 cubic feet).			9:07 9:15	
	Highly Weathered Granitic Rockquartz and feldspar with ~50% iron oxide coloring					
			590			
15				0.75	9:24 9:41	Drilling becomes slower, switch to hammer bit.
						fracture @ 17.8 ft.
						DTW on 11/20/06.
			585			
20	same as above					fracture @ 20.0 ft. fracture @ 20.2 ft.
						fractur @ 22.4 ft.
			580			
25					9:47	

CONTRACTOR WDC
EQUIPMENT IngersollRand T3W
DRILL MTHD Air Rotary
DIAMETER 8"
LOGGER C. Gale **REVIEWER** V. Wittig

NORTHING 32.96
EASTING -117.02
ANGLE Vertical
BEARING ------
PRINTED 26 Jan 07

REMARKS:

COORDINATE SYSTEM:
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

Geosyntec consultants
10875 Rancho Bernardo Rd, Suite 200
San Diego, CA 92127
Tel: (858) 674-6559
Fax: (858) 674-6586

GS FORM: CORE3 10/00

BOREHOLE LOG

BORING POGW-24B **SHEET** 2 **OF** 2
START DATE 16 Nov 06 **Elevation** 604.17 FT. MSL
FINISH DATE 16 Nov 06
PROJECT Evaluation Monitoring Program
LOCATION Poway Landfill
PROJECT NUMBER SC0233

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	WELL CONSTRUCTION MATERIAL	ELEVATION (ft)	DRILL RATE (ft/min)	TIME	COMMENTS
	Moderately Weathered Granitic Rock quartz, feldspar, micas, little mafics, 20% iron oxide coloring					2	9:52	
					575			
30	iron oxide coloring decreases to 15%			Pure Gold medium bentonite chips (1 cubic foot).			9:54	
					570			
35	same as above			RMC Pacific #3 sand (4.3 cubic feet).		2	9:59	
					565			
40	**Slightly Weathered Granitic Rock** quartz, feldspar, micas, little mafics, less than 10% iron oxide coloring			2-inch diameter 0.020-inch slot schedule 40 PVC screen.		1.6		DTW at 10:47 Drilling slows slightly
					560			
45							10:02	

Total Depth = 45.5 feet

Veryl Wittig
Professional Geologist No. 7115

CONTRACTOR	WDC	**NORTHING**	32.96
EQUIPMENT	IngersollRand T3W	**EASTING**	-117.02
DRILL MTHD	Air Rotary	**ANGLE**	Vertical
DIAMETER	8"	**BEARING**	------
LOGGER	C. Gale **REVIEWER** V. Wittig	**PRINTED**	26 Jan 07

REMARKS:

COORDINATE SYSTEM:
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

APPENDIX C

Optical Televiewer Logs

COLOG

BOREHOLE GEOPHYSICS & HYDROPHYSICS

A DIVISION OF LAYNE CHRISTENSEN COMPANY

11001 Etiwanda Avenue, Fontana CA. 92337 Ph. (909) 390-2833 Fax (909) 390-6097

CO GEOSYNTEC CONSULTANTS
WELL B-1
FLD POWAY
CTY POWAY
STE CALIFORNIA
FILING No

COMPANY GEOSYNTEC CONSULTANTS
WELL ID B-1 DRAFT
FIELD POWAY
COUNTRY USA STATE CALIFORNIA

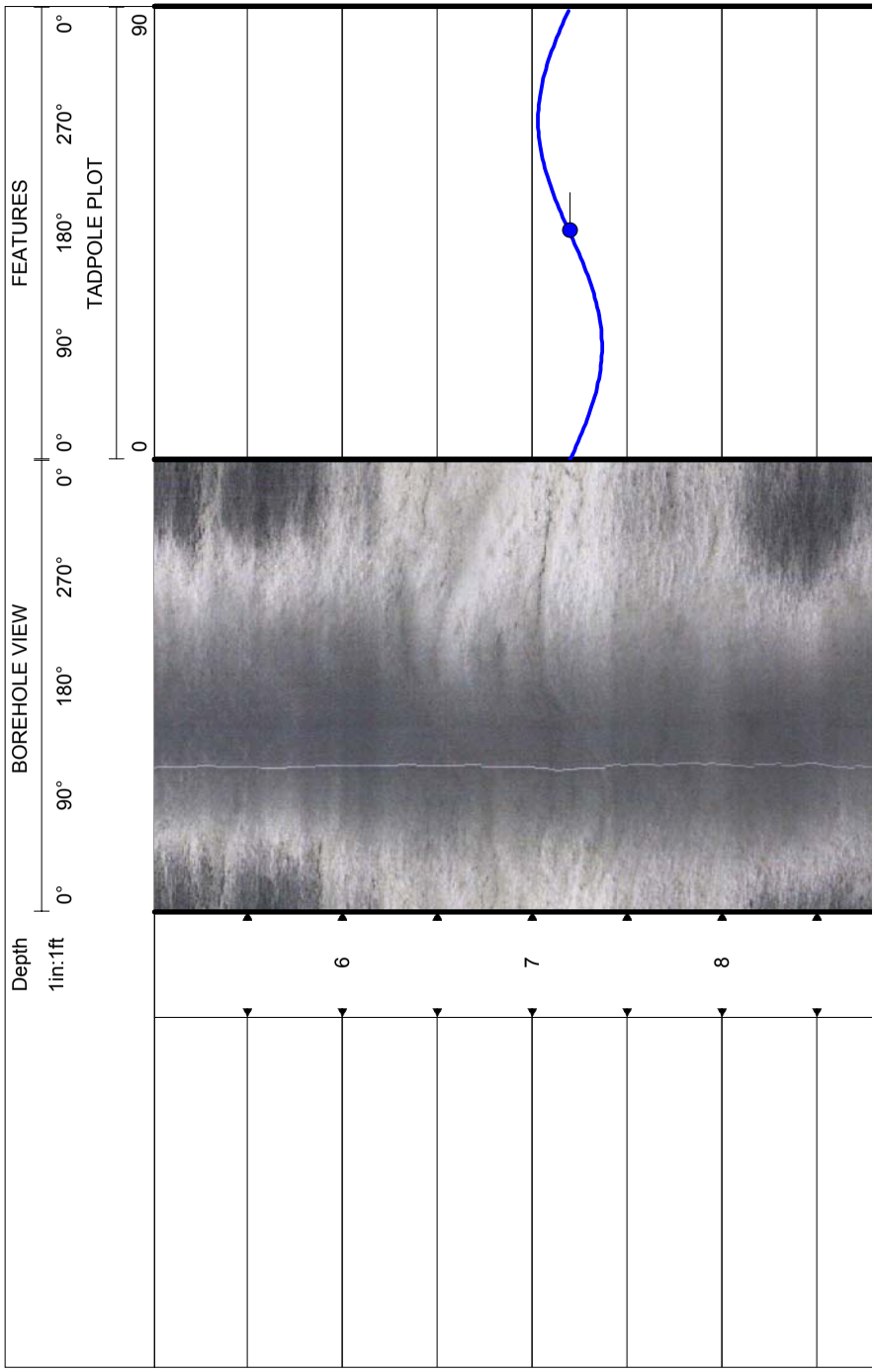
LOCATION
POWAY, CALIFORNIA
SEC TWP RGE

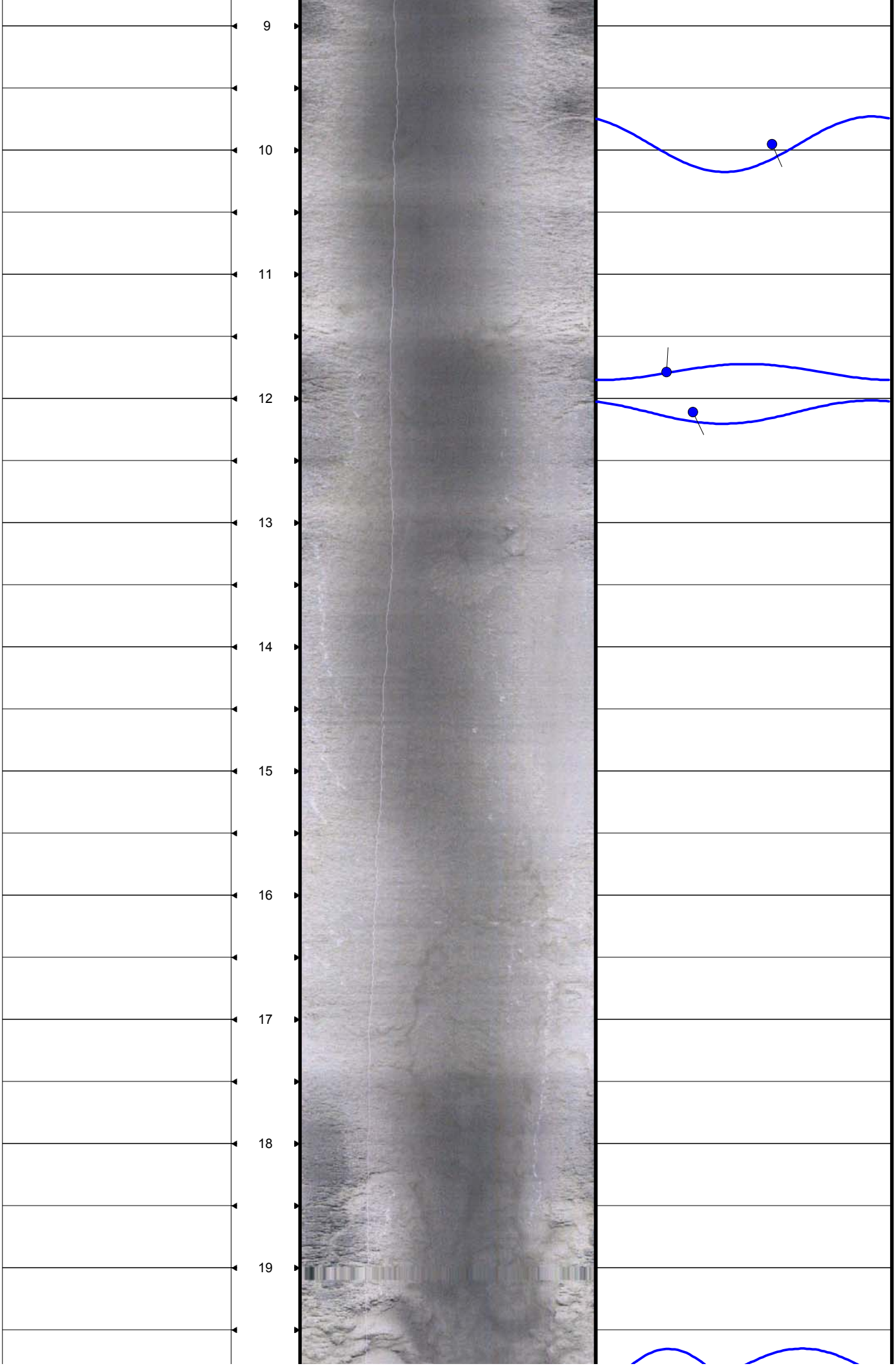
OTHER SERVICES

PERMANENT DATUM	GS	ELEVATION	K.B.
LOG MEAS. FROM	GS	ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	GS		G.L.

DATE	15 JUNE 2006	TYPE FLUID IN HOLE	WATER
RUN No	1	SALINITY	
TYPE LOG	OPTICAL TELEVIEWER	DENSITY	
DEPTH-DRILLER	150'	LEVEL	
DEPTH-LOGGER	150'	MAX. REC. TEMP.	
BTM LOGGED INTERVAL	147'		
TOP LOGGED INTERVAL	5'		
OPERATING RIG TIME			
RECORDED BY	J. ABREAU		
WITNESSED BY			

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO

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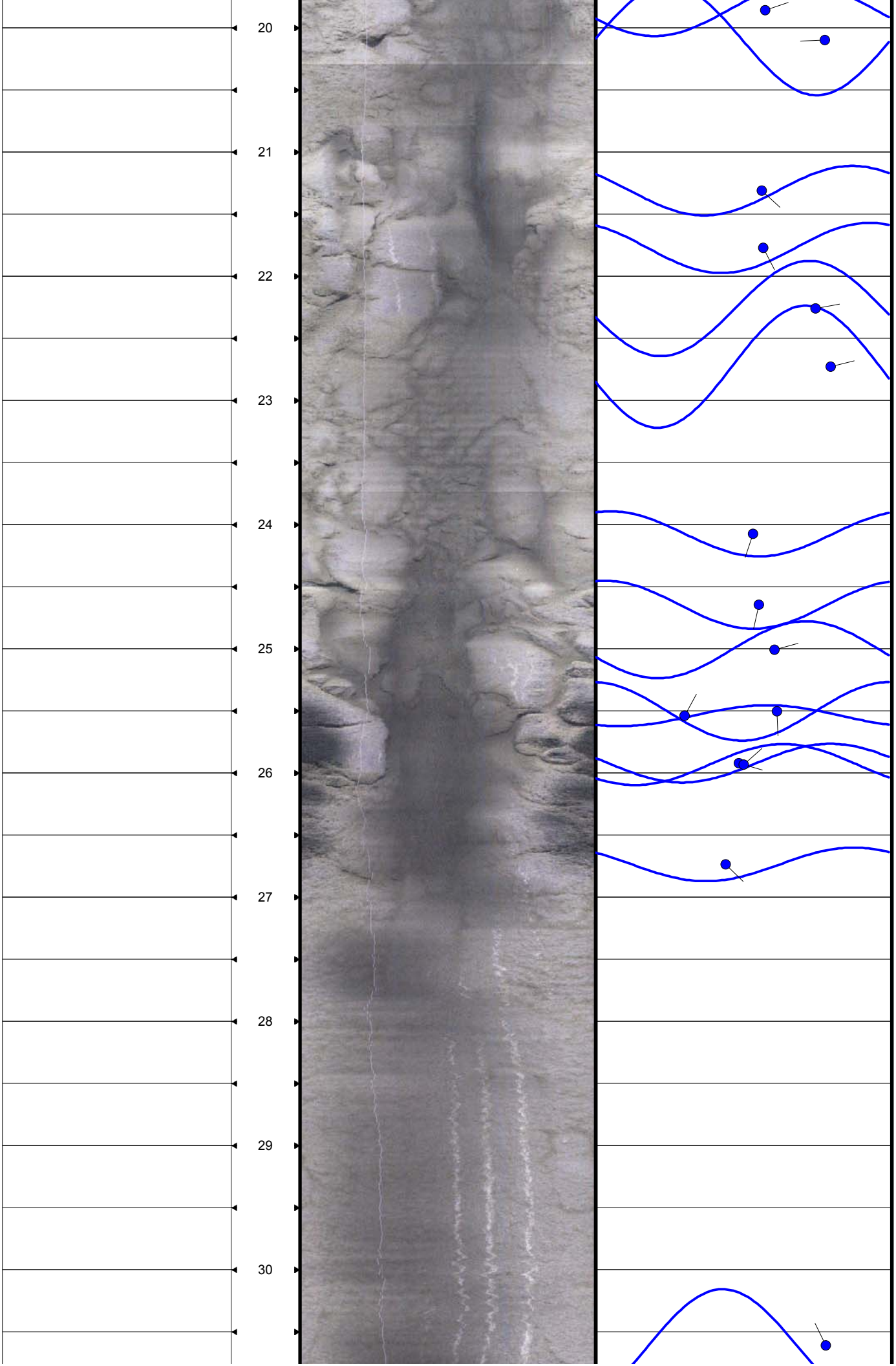
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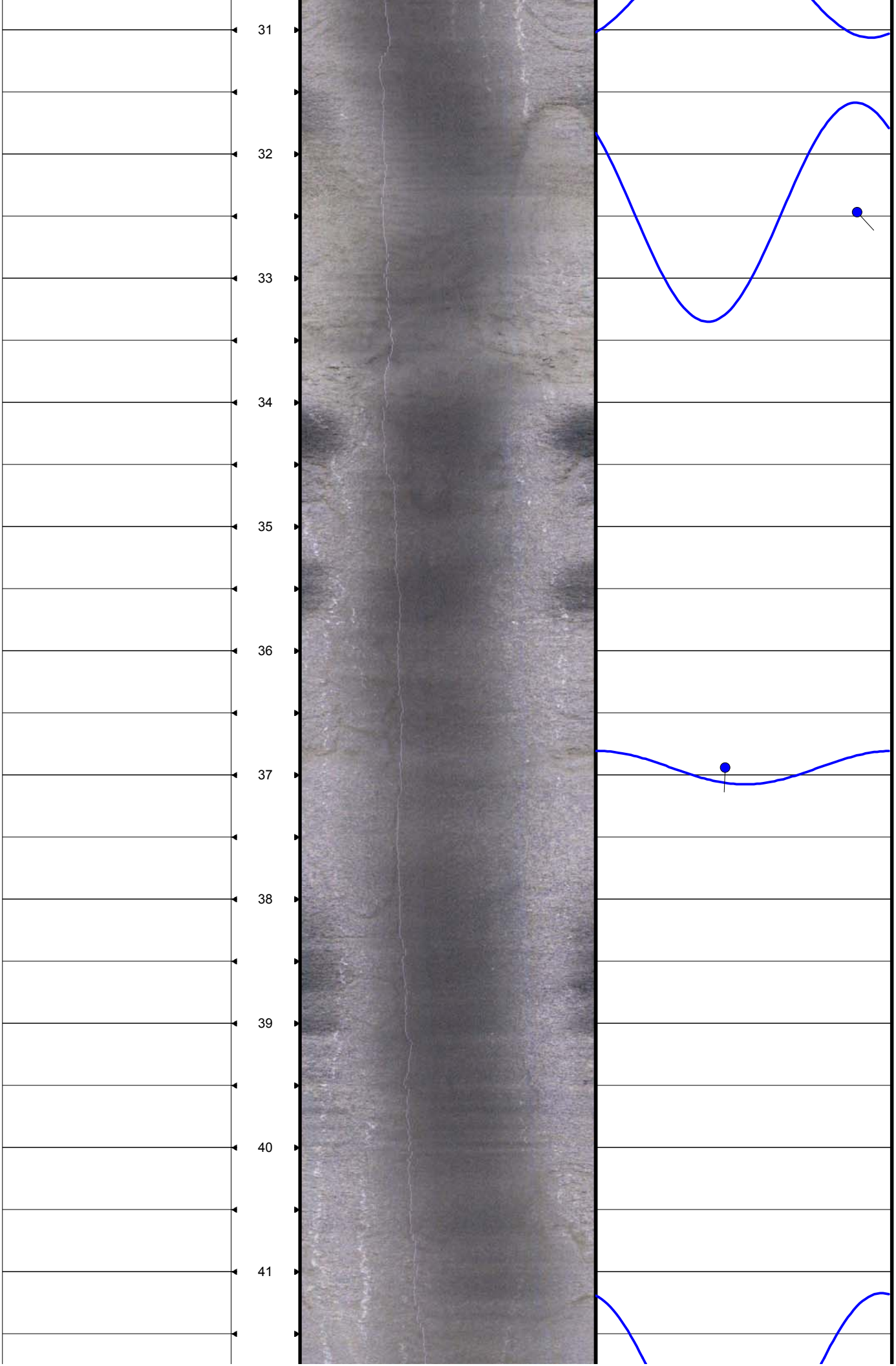
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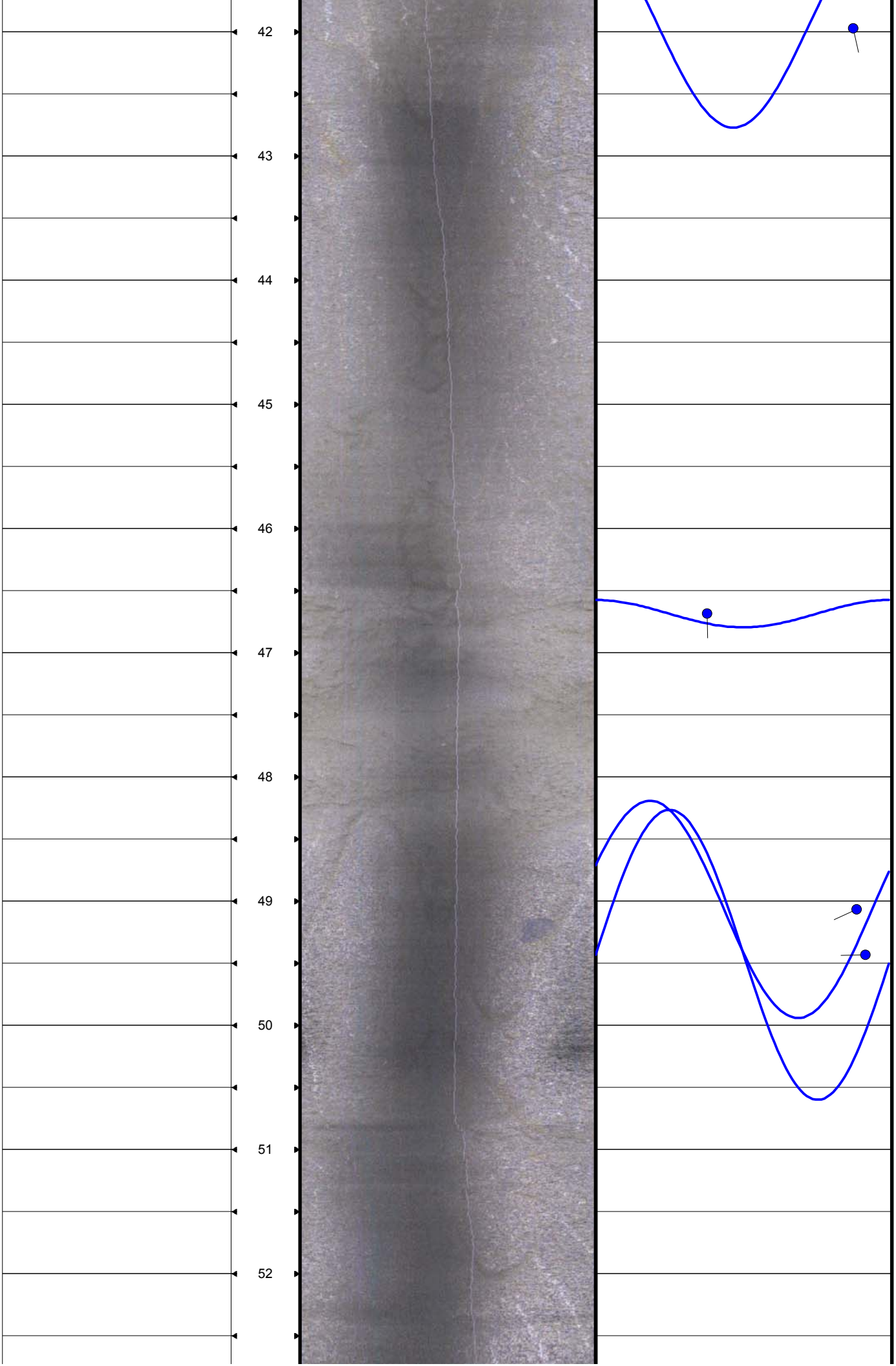
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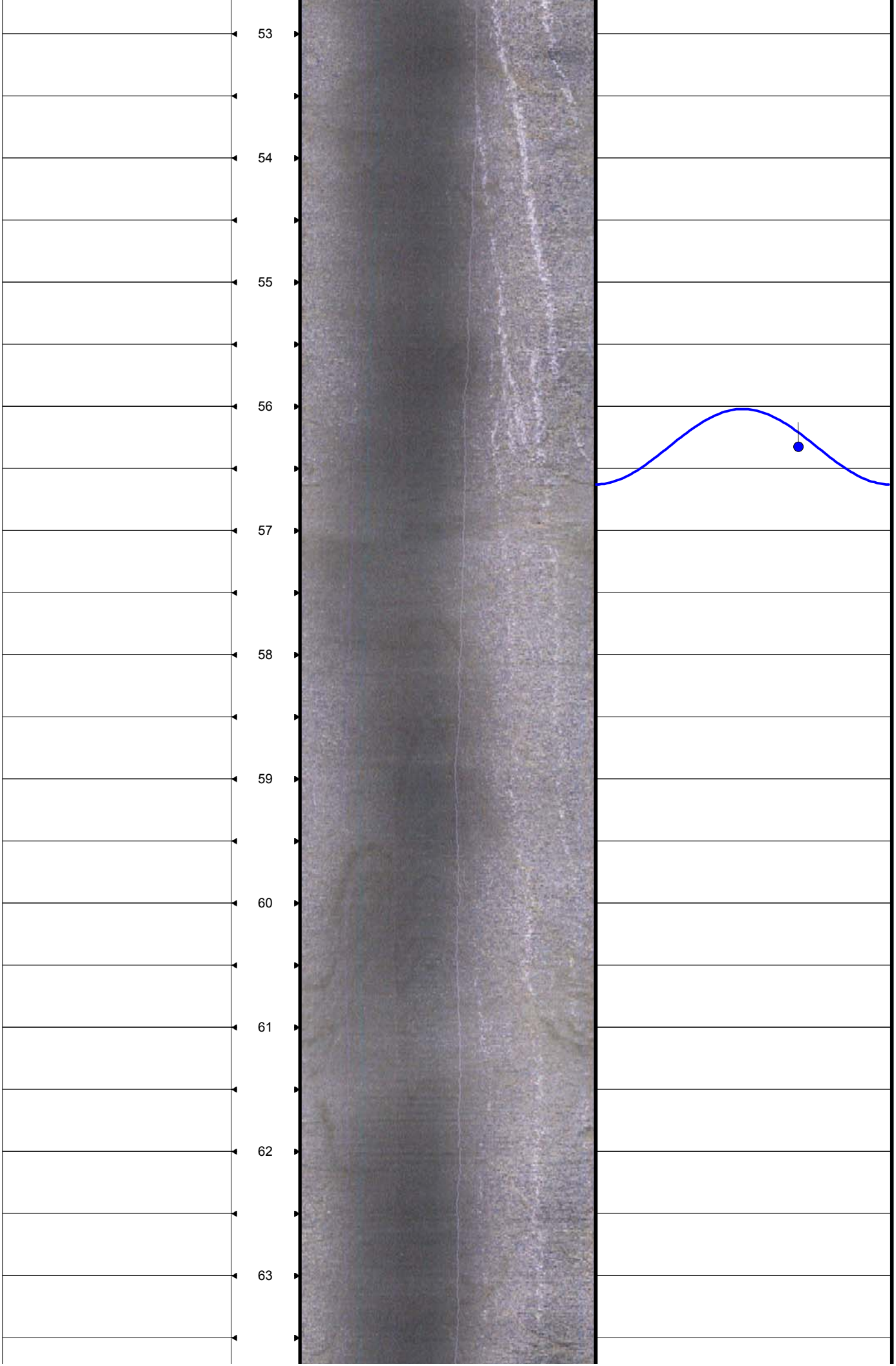
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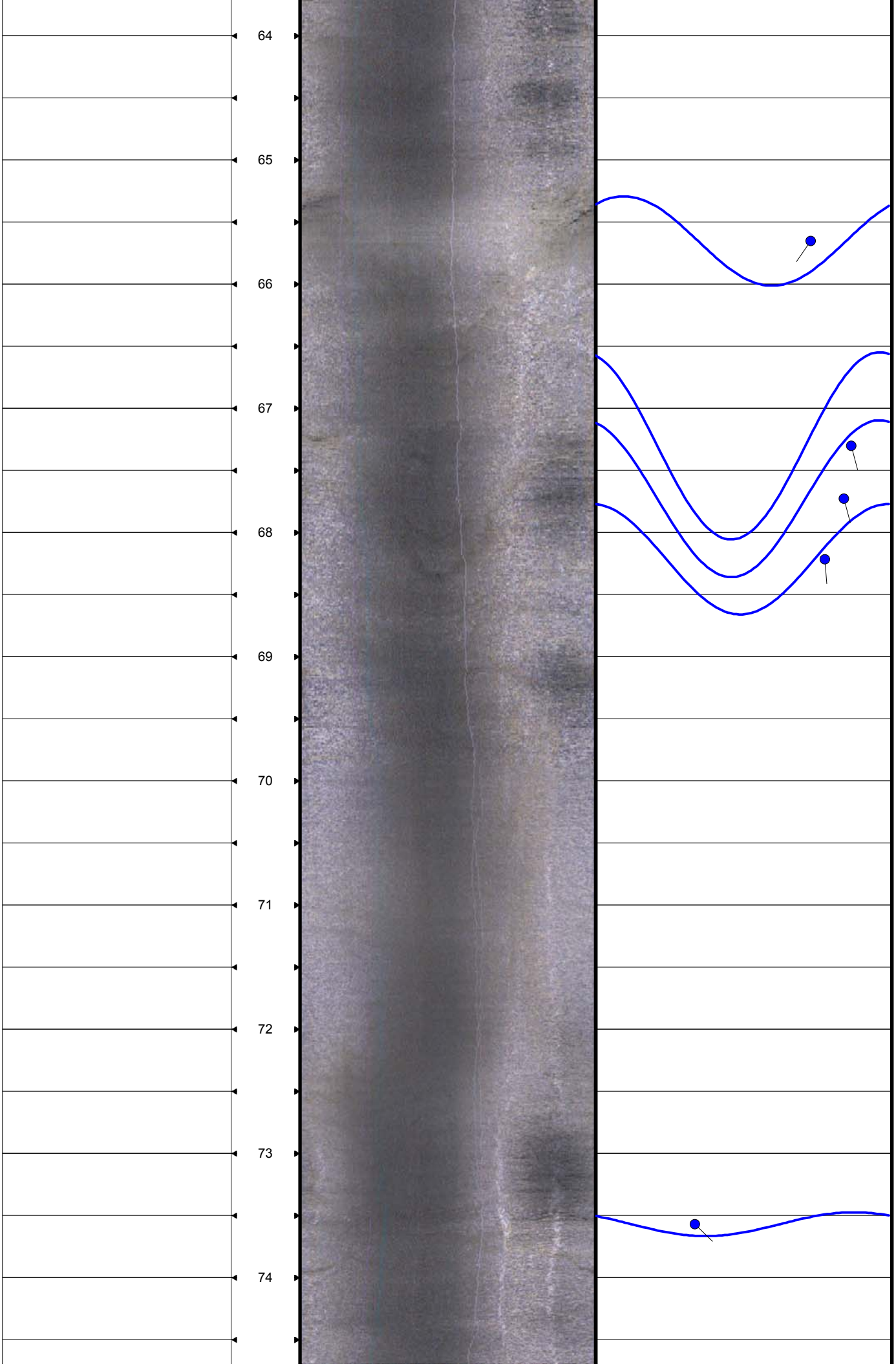
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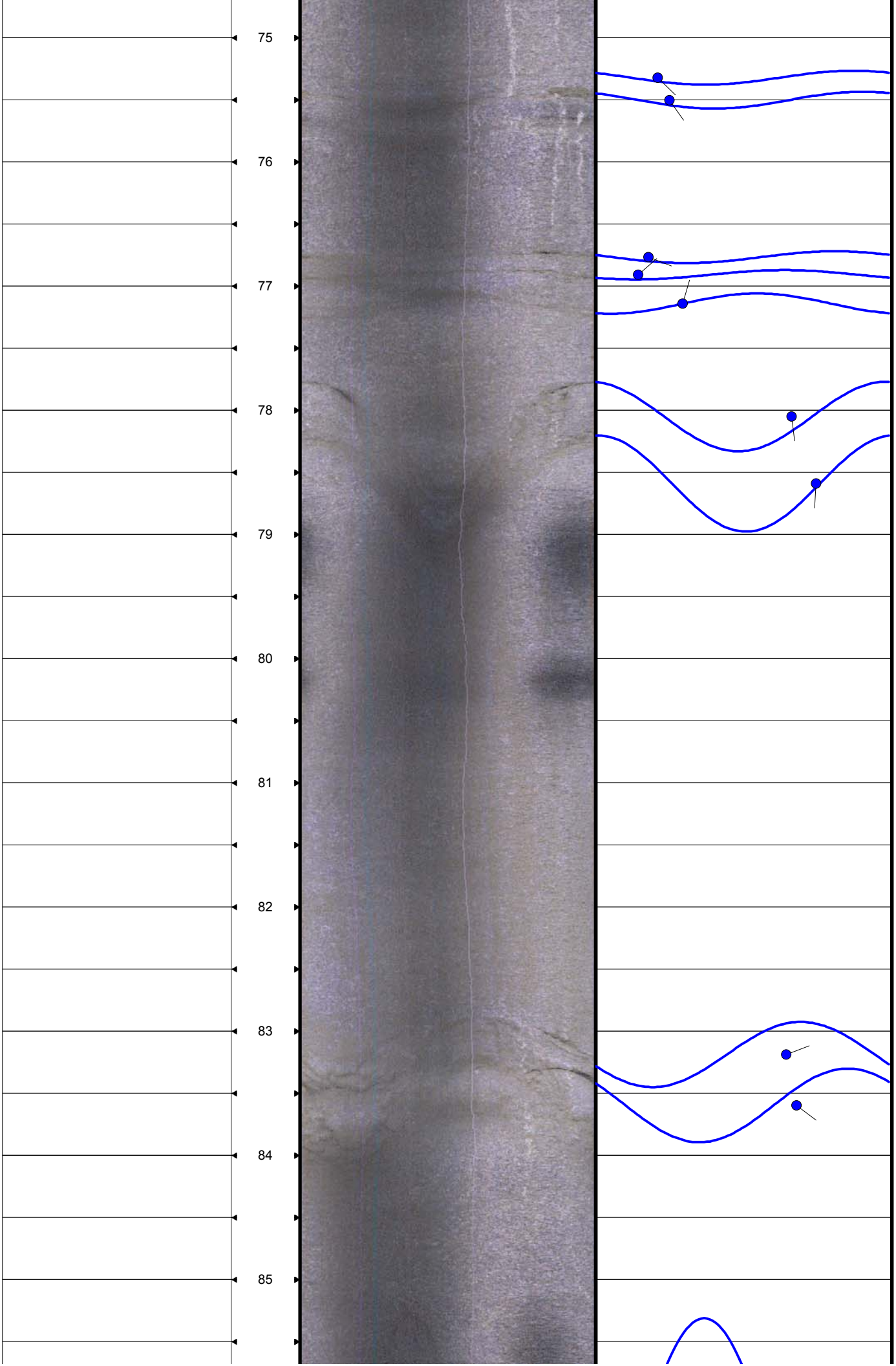
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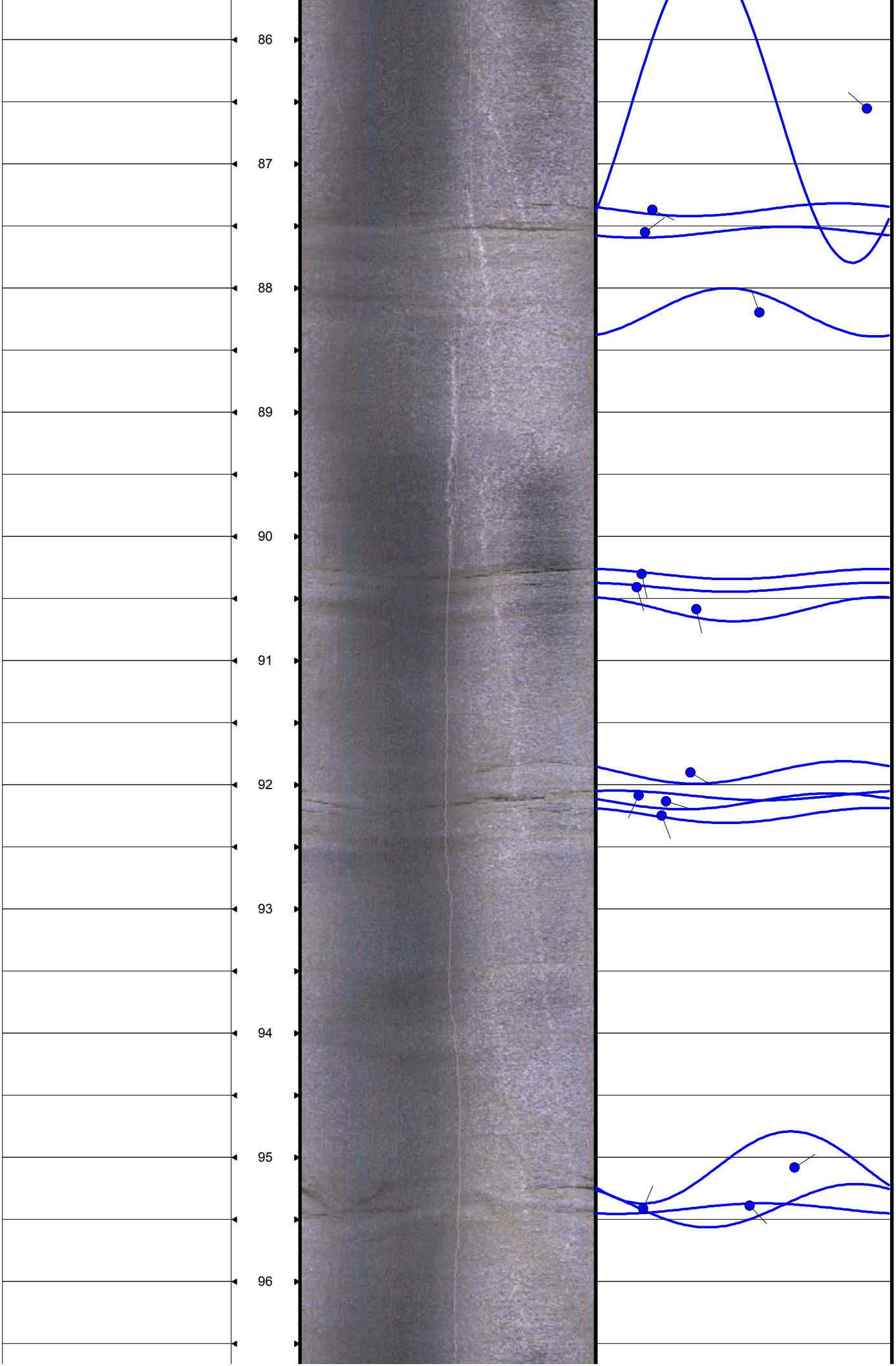
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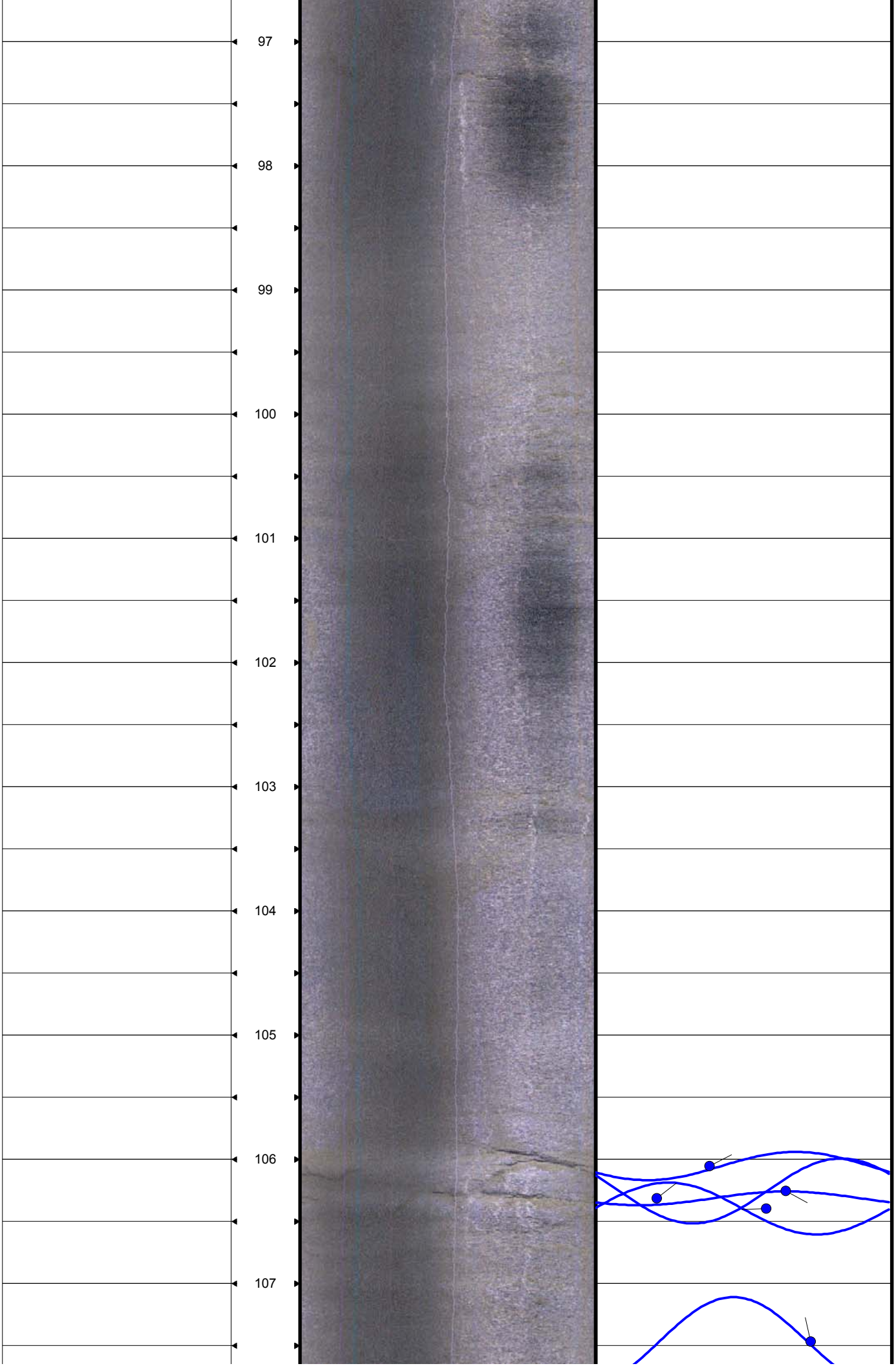
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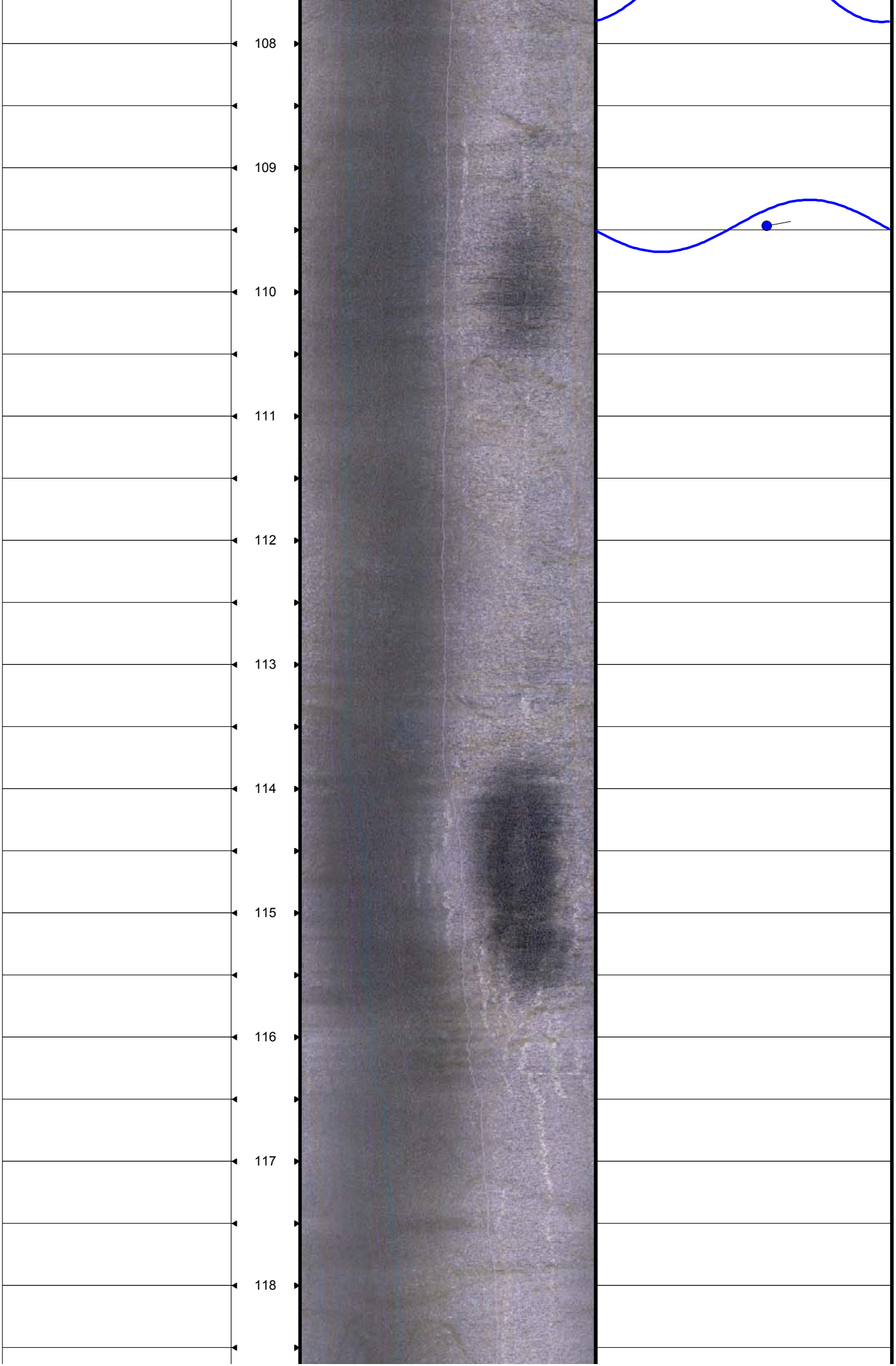
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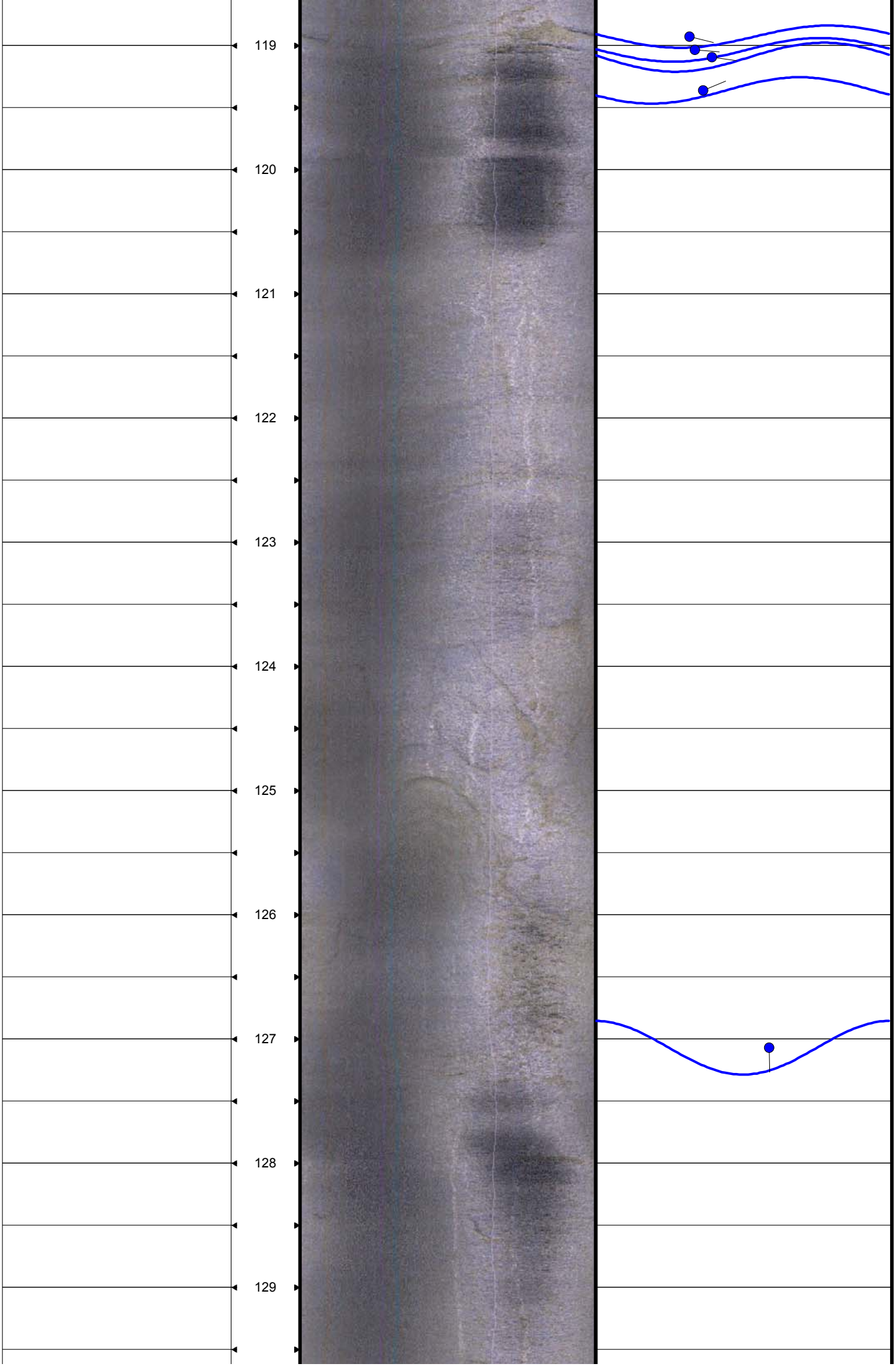
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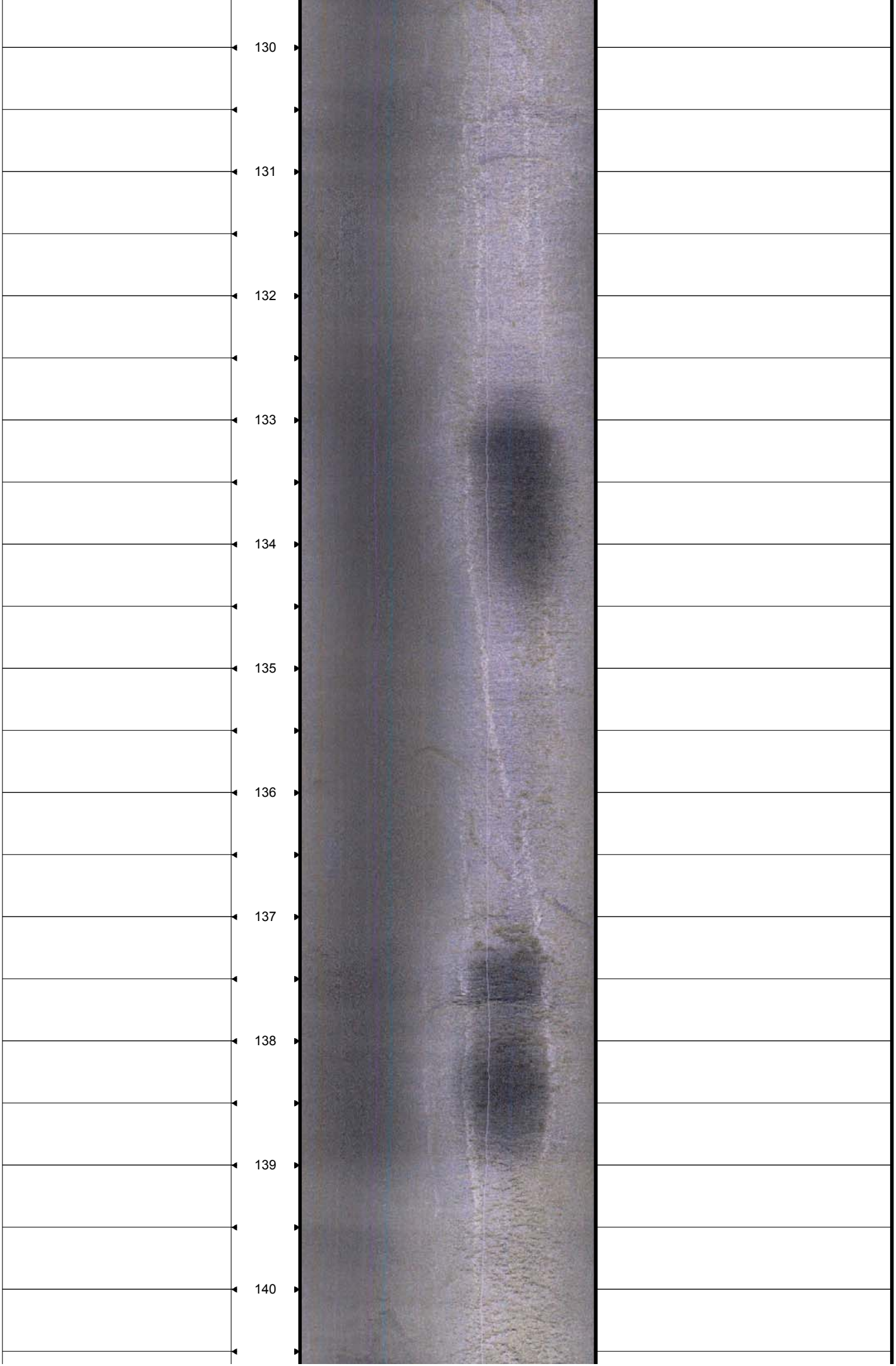
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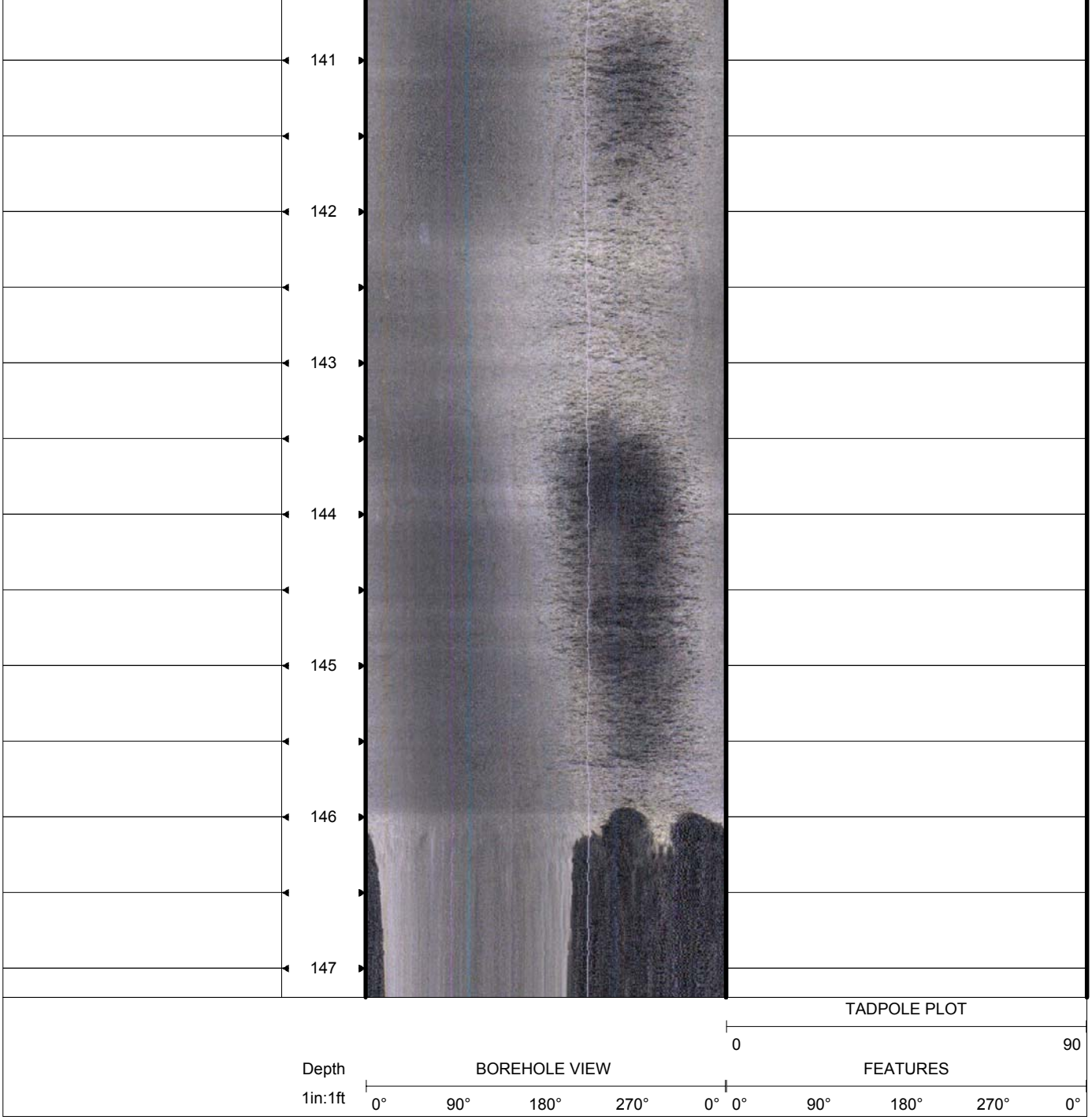
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143
144
145
146
147
TADPOLE PLOT
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90
Depth
1in:1ft
BOREHOLE VIEW
0°
90°
180°
270°
0°
FEATURES
0°
90°
180°
270°
0°

ROBERTSON GEOLOGGING TECHNOLOGY

REMARKS (POWAY B-1 70D.otv)

ROBERTSON GEOLOGGING LIMITED

COMPANY	ROBERTSON GEOLOGGING TECHNOLOGY
WELL	
FIELD	
LOCATION	
LAT.:	
LONG.:	

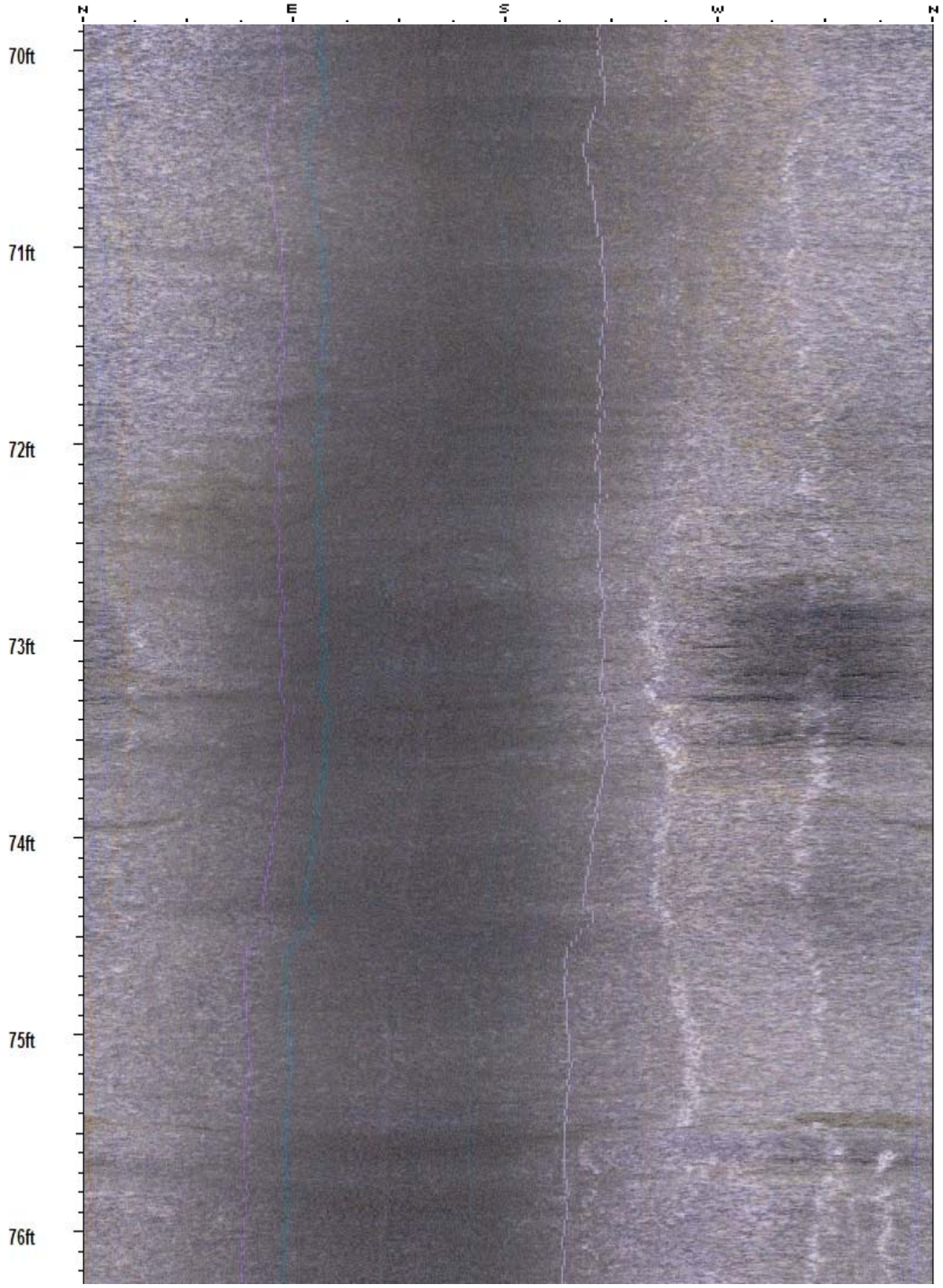
OTHER SERVICES

Perm. Datum	Elev	KB	0.00
Log. Datum		DF	0.00
Drill Datum		GL	0.00

DATE			
RUN#			
TYPE OF LOG			
DEPTH DRILLER (ft)			
DEPTH LOGGER (ft)			
LOG DEEPEST (ft)			
LOG SHALLOW (ft)			
FLUID IN HOLE			
SALINITY			
DENSITY			
LEVEL			
MAX TEMP.(°C)			
RIG TIME			
RECORDED BY			
WITNESSED BY			

RUN#	BIT RECORD			CASING RECORD			
	BIT (inch)	FROM (ft)	TO (ft)	SIZE (inch)	WEIGHT (lb)	FROM (ft)	TO (ft)

OPTV LOG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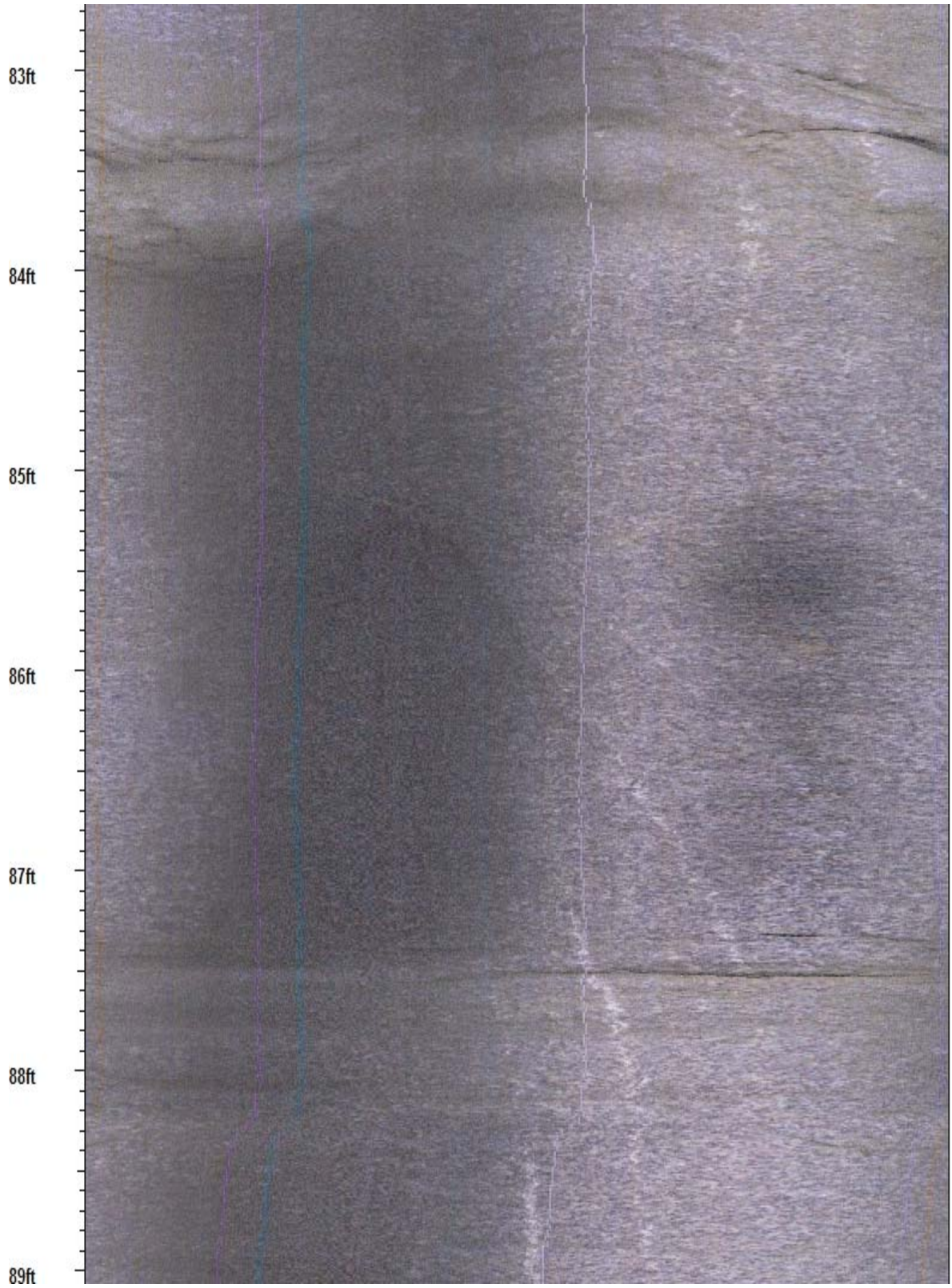
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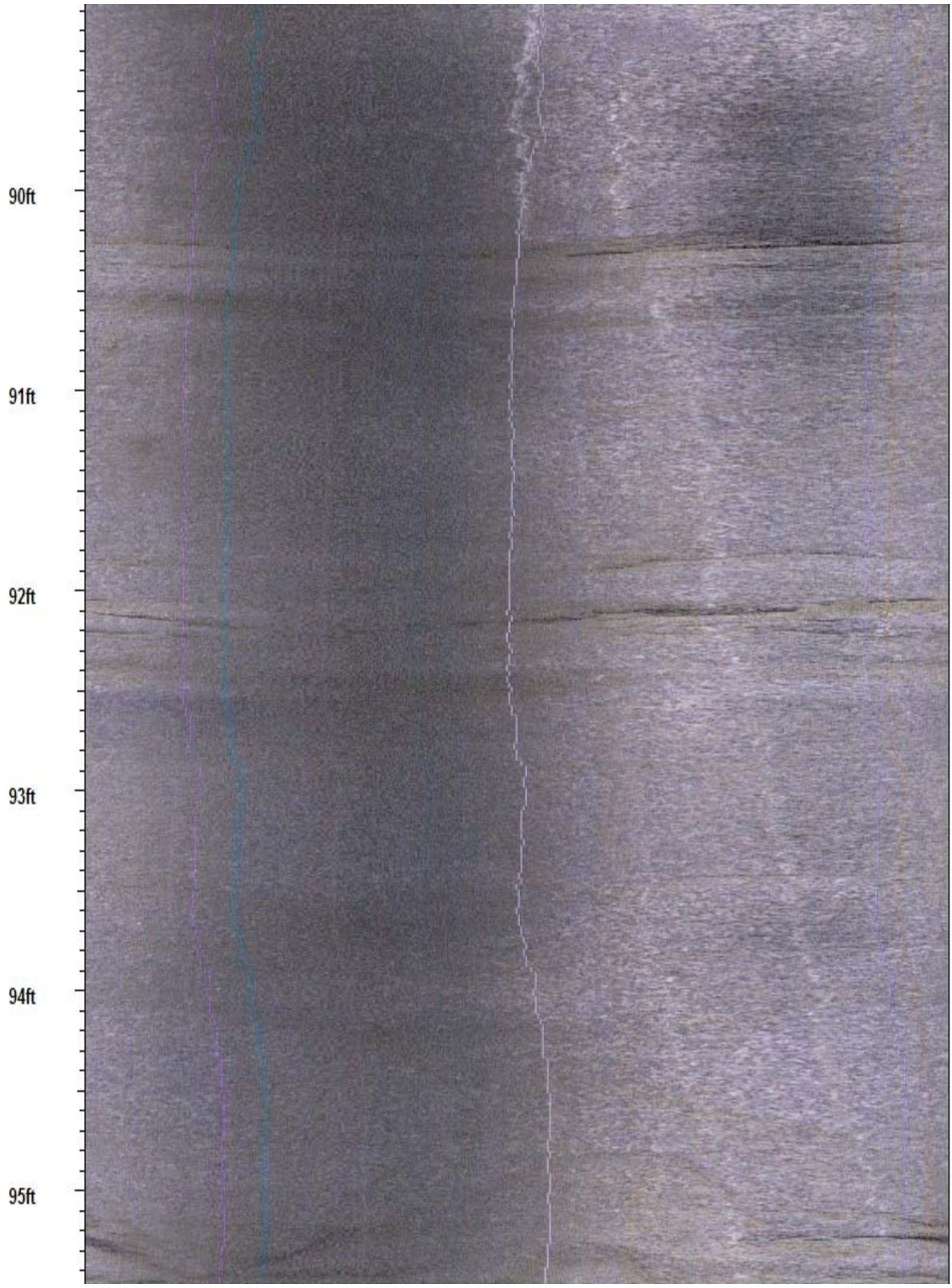
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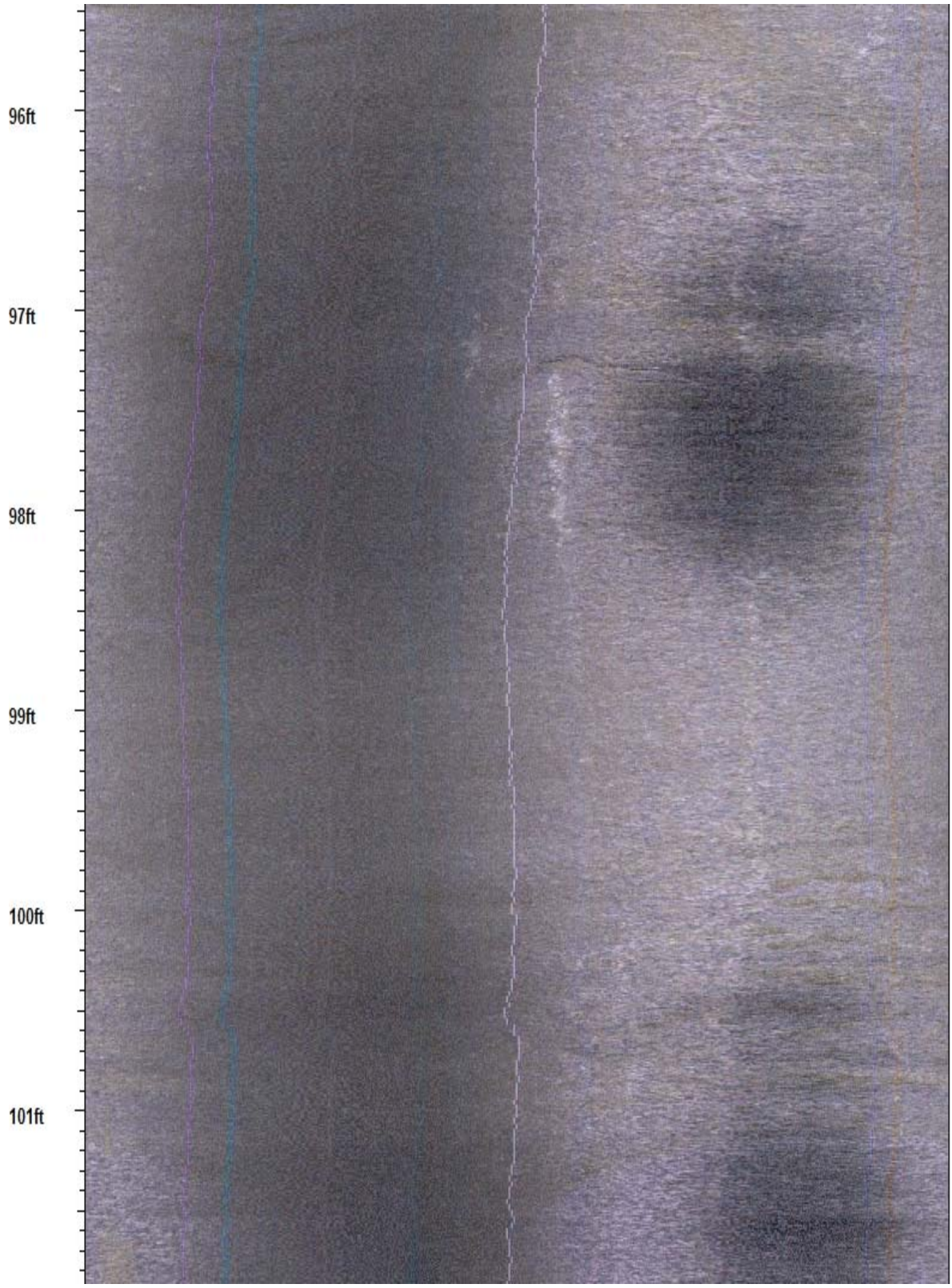
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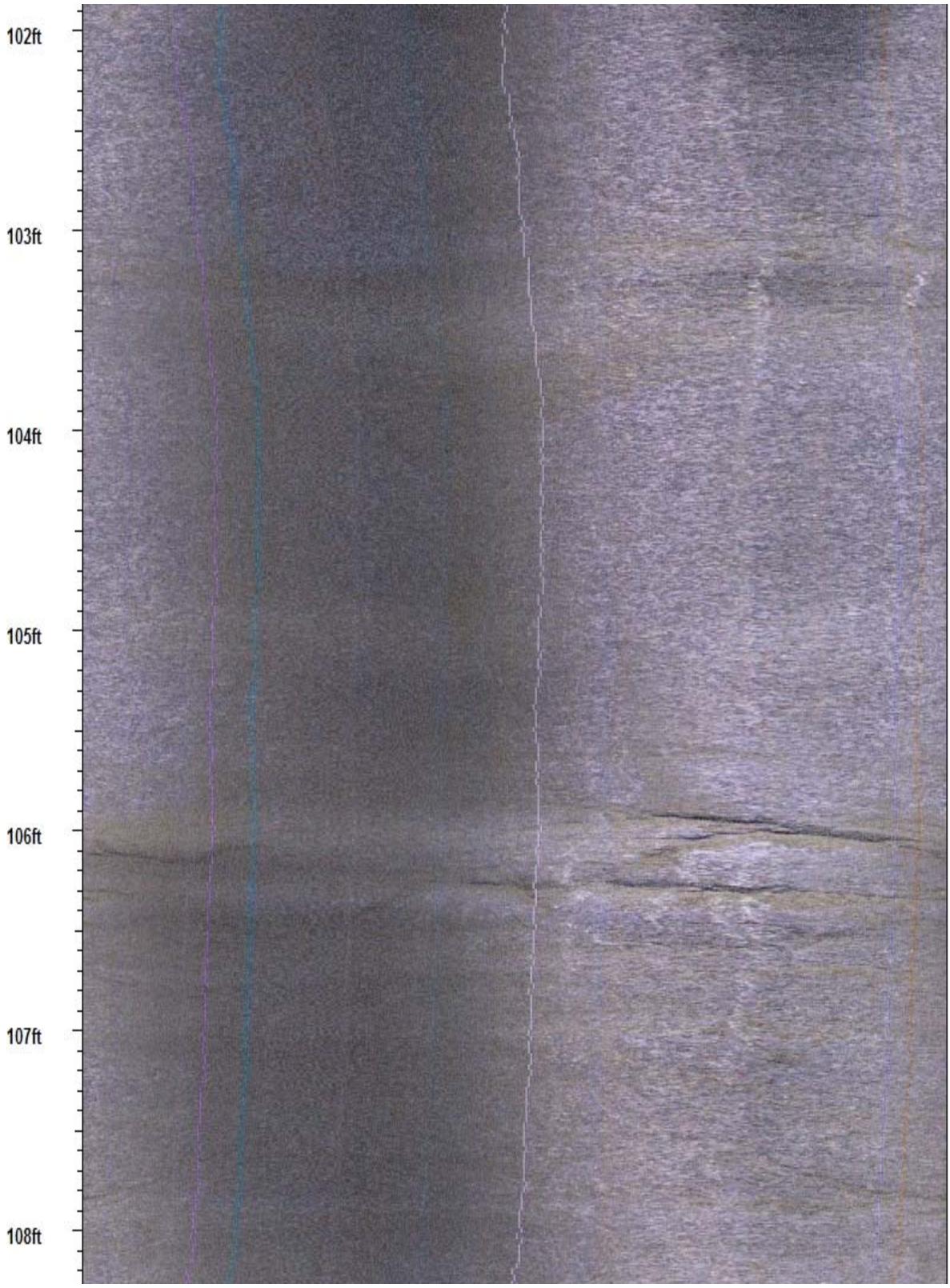
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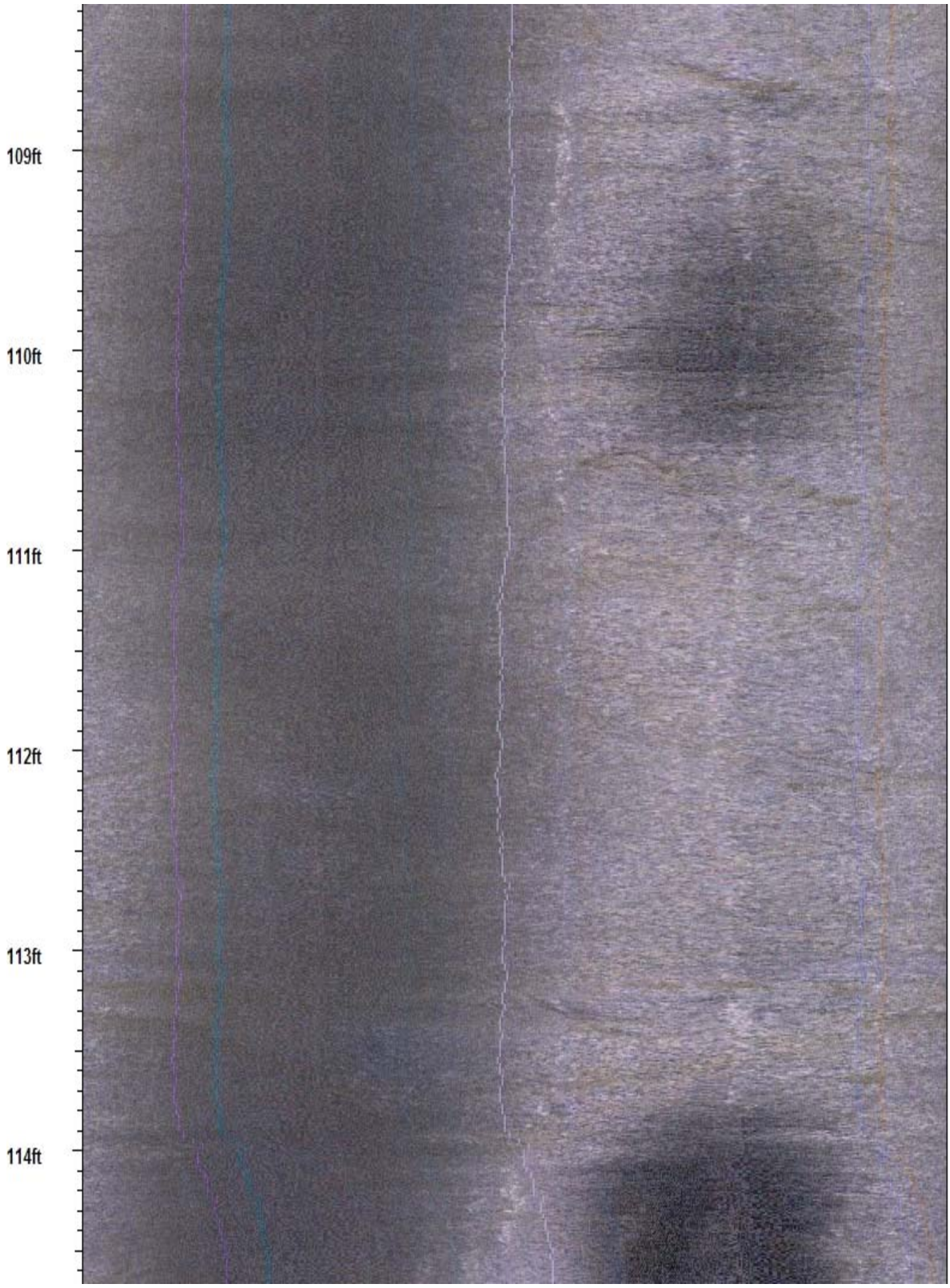
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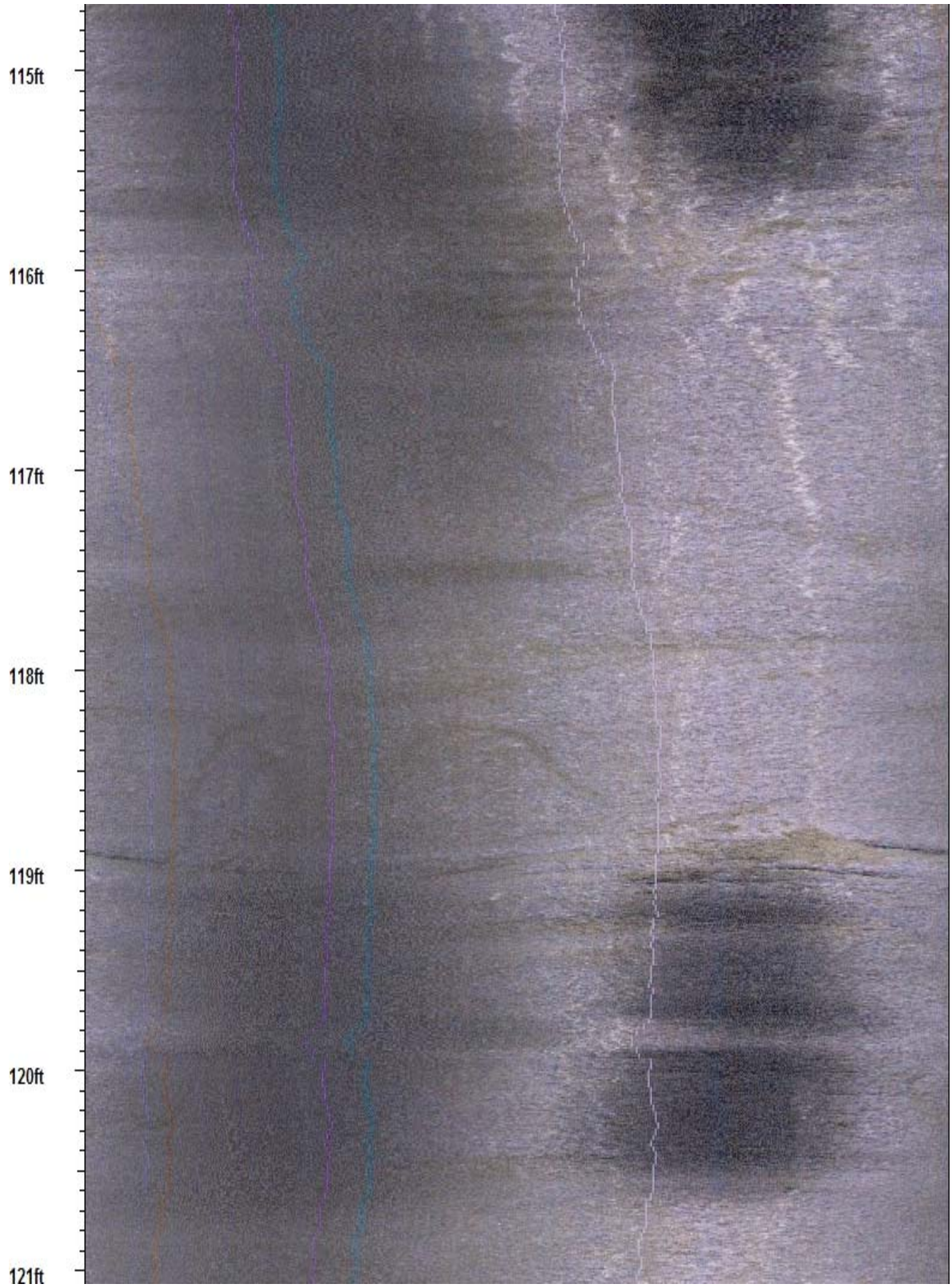
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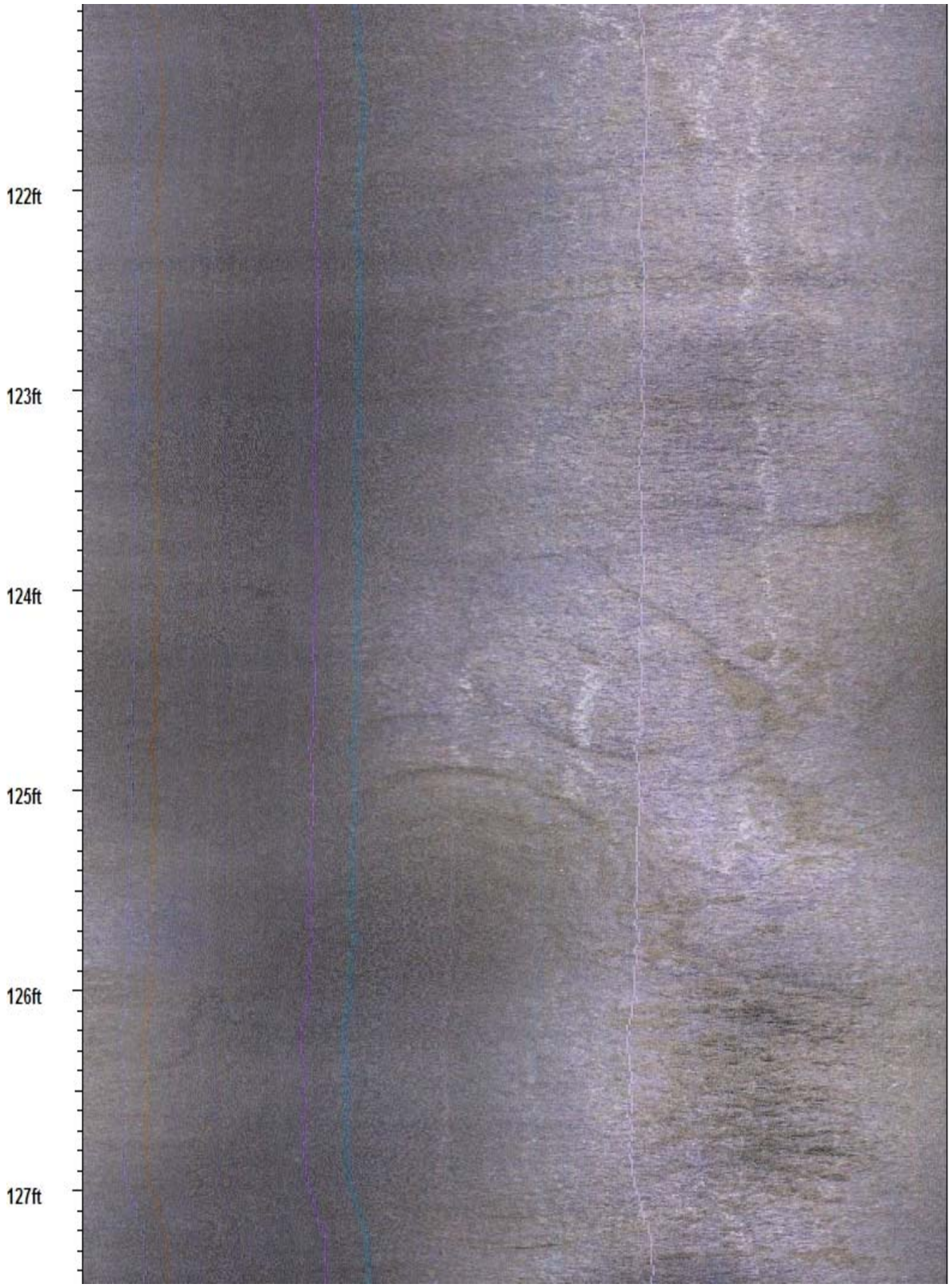
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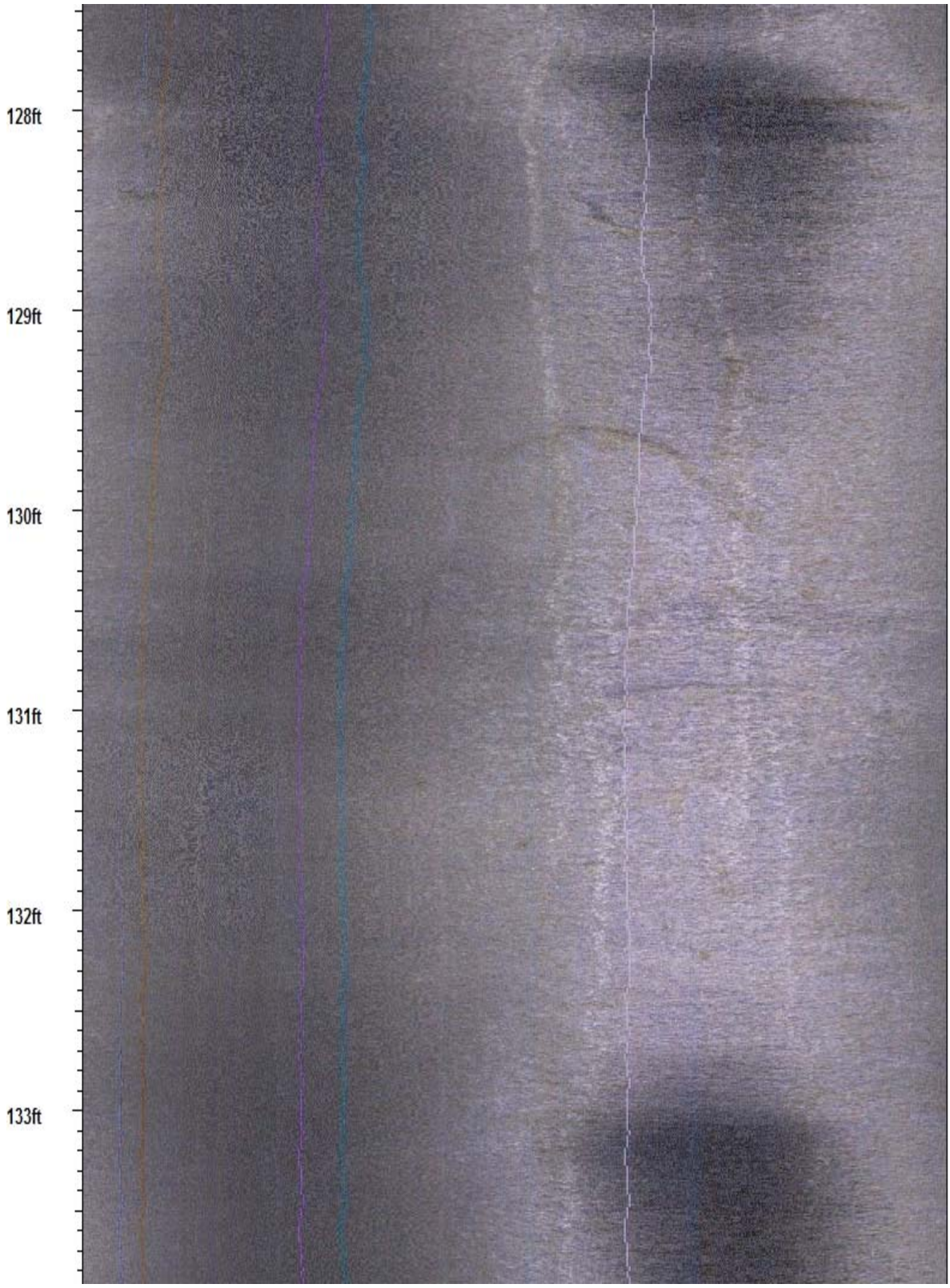
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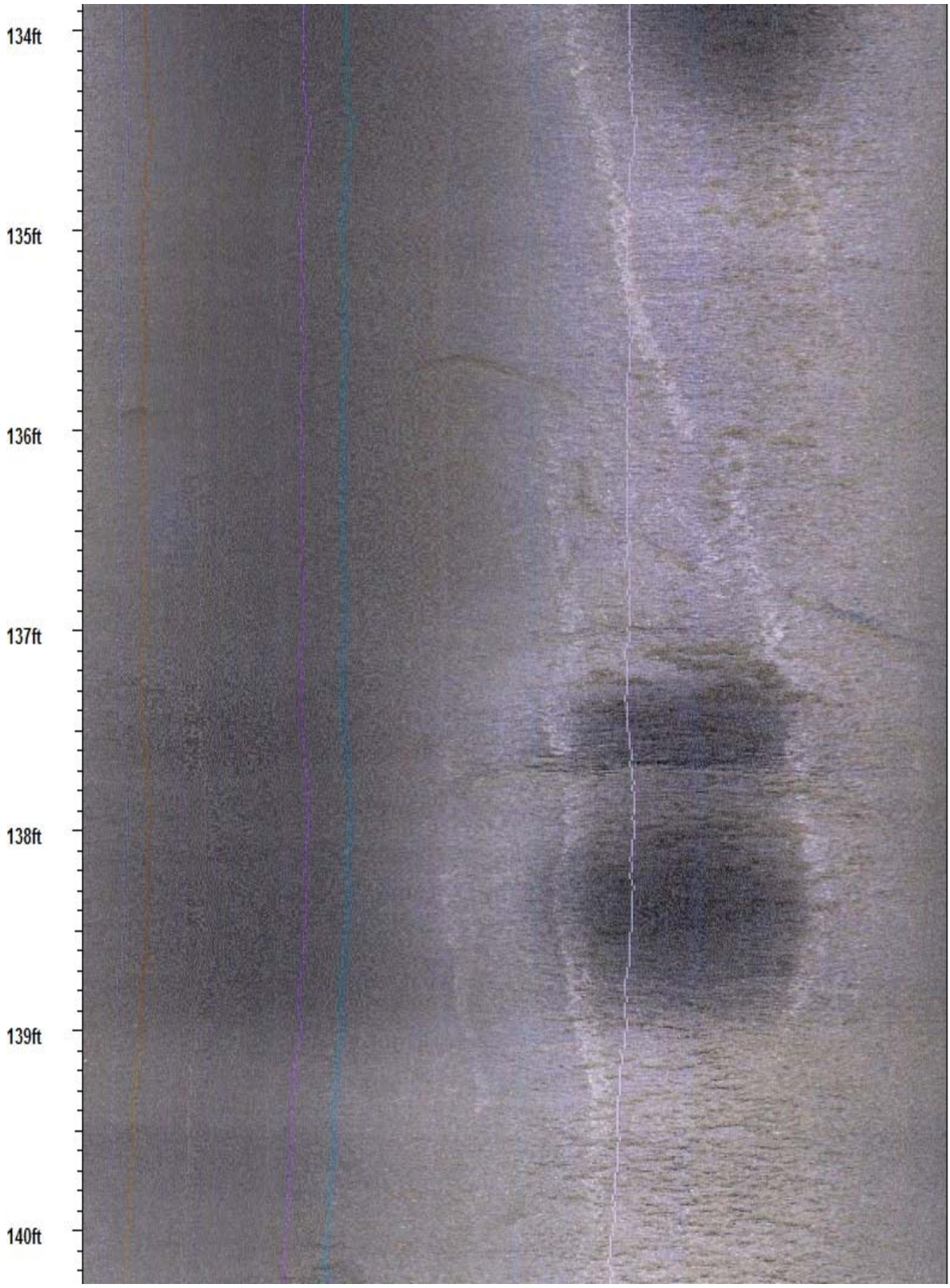
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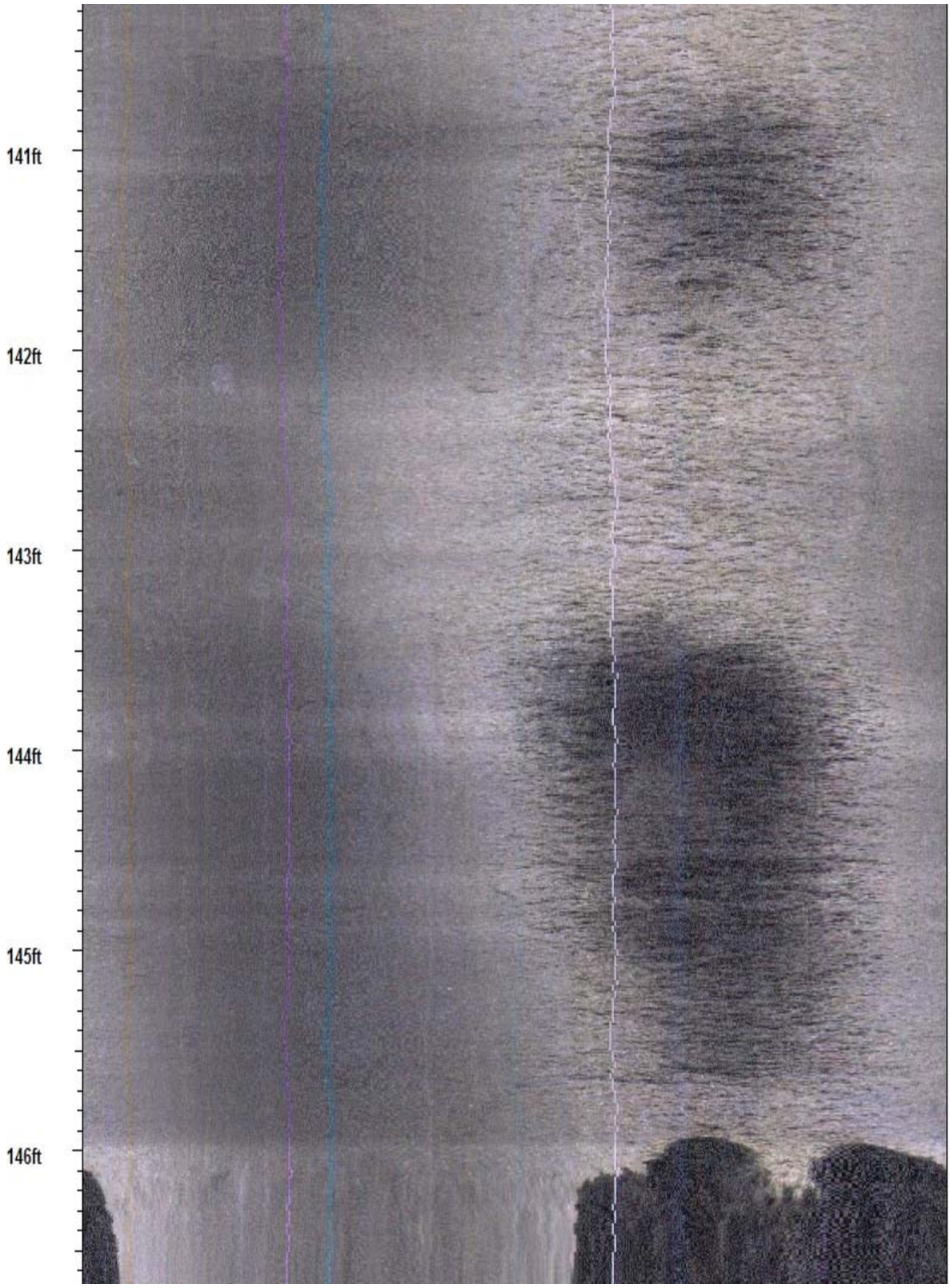

141ft
142ft
143ft
144ft
145ft
146ft

147ft

COLOG

BOREHOLE GEOPHYSICS & HYDROPHYSICS

A DIVISION OF LAYNE CHRISTENSEN COMPANY

11001 Etiwanda Avenue, Fontana CA. 92337 Ph. (909) 390-2833 Fax (909) 390-6097

CO GEOSYNTEC
WELL POGW-23
FLD POWAY
CTY SAN DIEGO
STE CA
FILING No

COMPANY POWAY LANDFILL
WELL ID POGW-23
FIELD POWAY
COUNTRY USA STATE CA

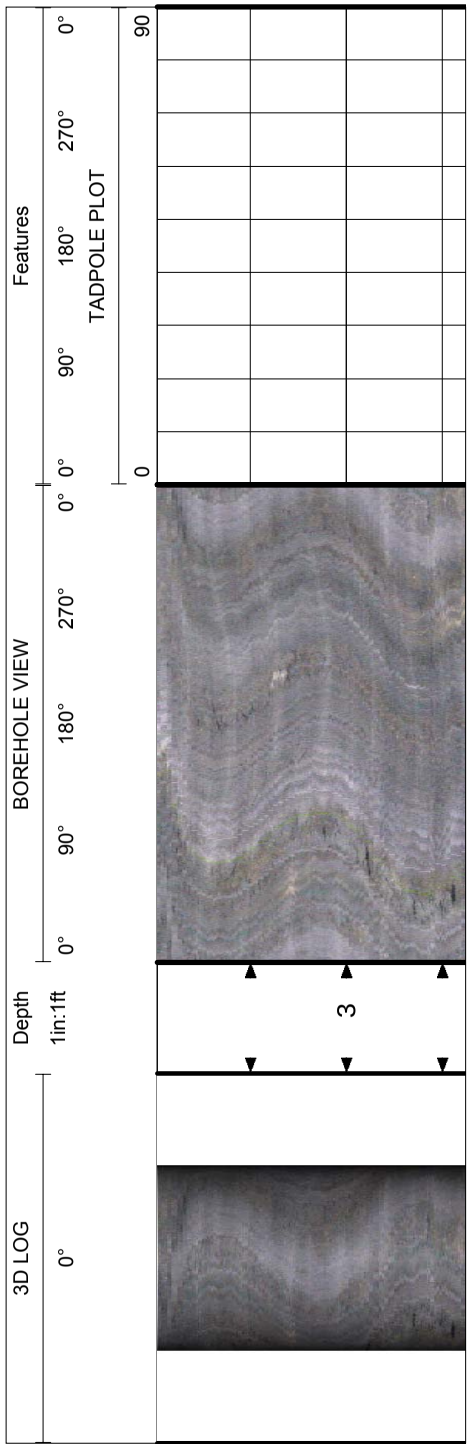
LOCATION
SEC TWP RGE

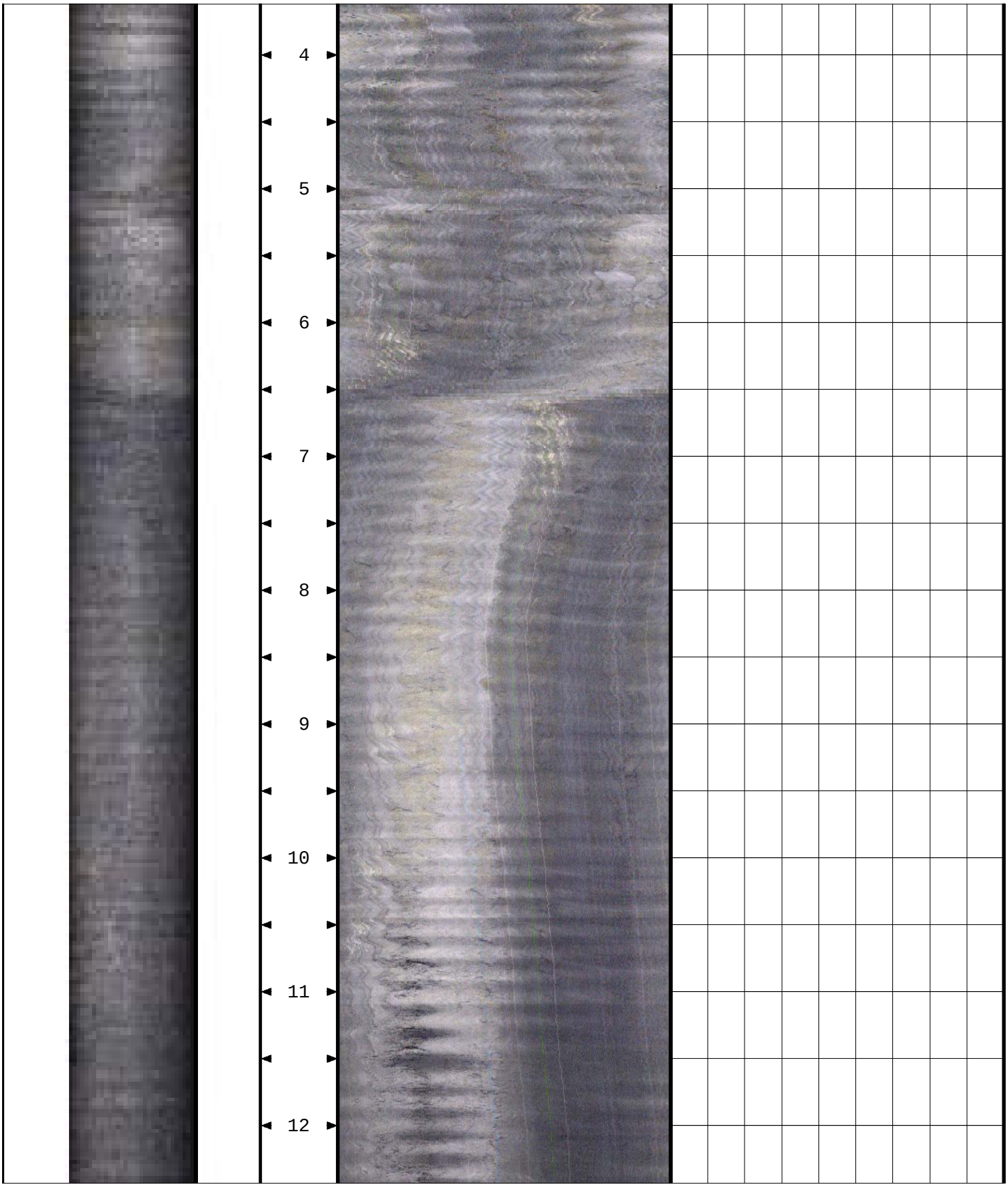
OTHER SERVICES

PERMANENT DATUM	G.S	ELEVATION G.S	K.B.
LOG MEAS. FROM	G.S	ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	G.S		G.L.

DATE	16/11/06	TYPE FLUID IN HOLE	WATER
RUN No	1	SALINITY	
TYPE LOG	OPTV	DENSITY	
DEPTH-DRILLER	46'	LEVEL	
DEPTH-LOGGER	46'	MAX. REC. TEMP.	
BTM LOGGED INTERVAL	45'		
TOP LOGGED INTERVAL	0		
OPERATING RIG TIME			
RECORDED BY	J. ABREAU		
WITNESSED BY			

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	8"	0	46'				

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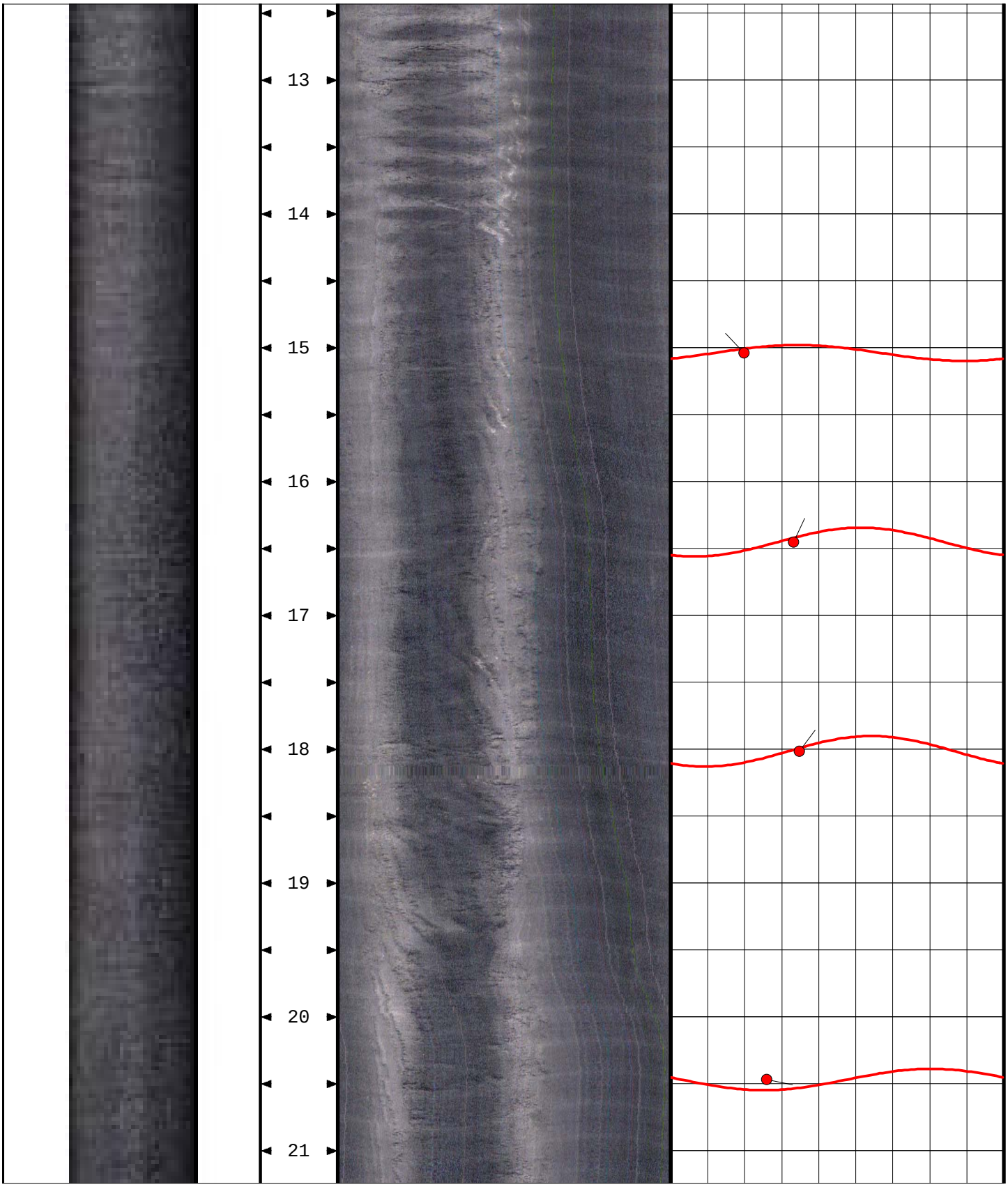
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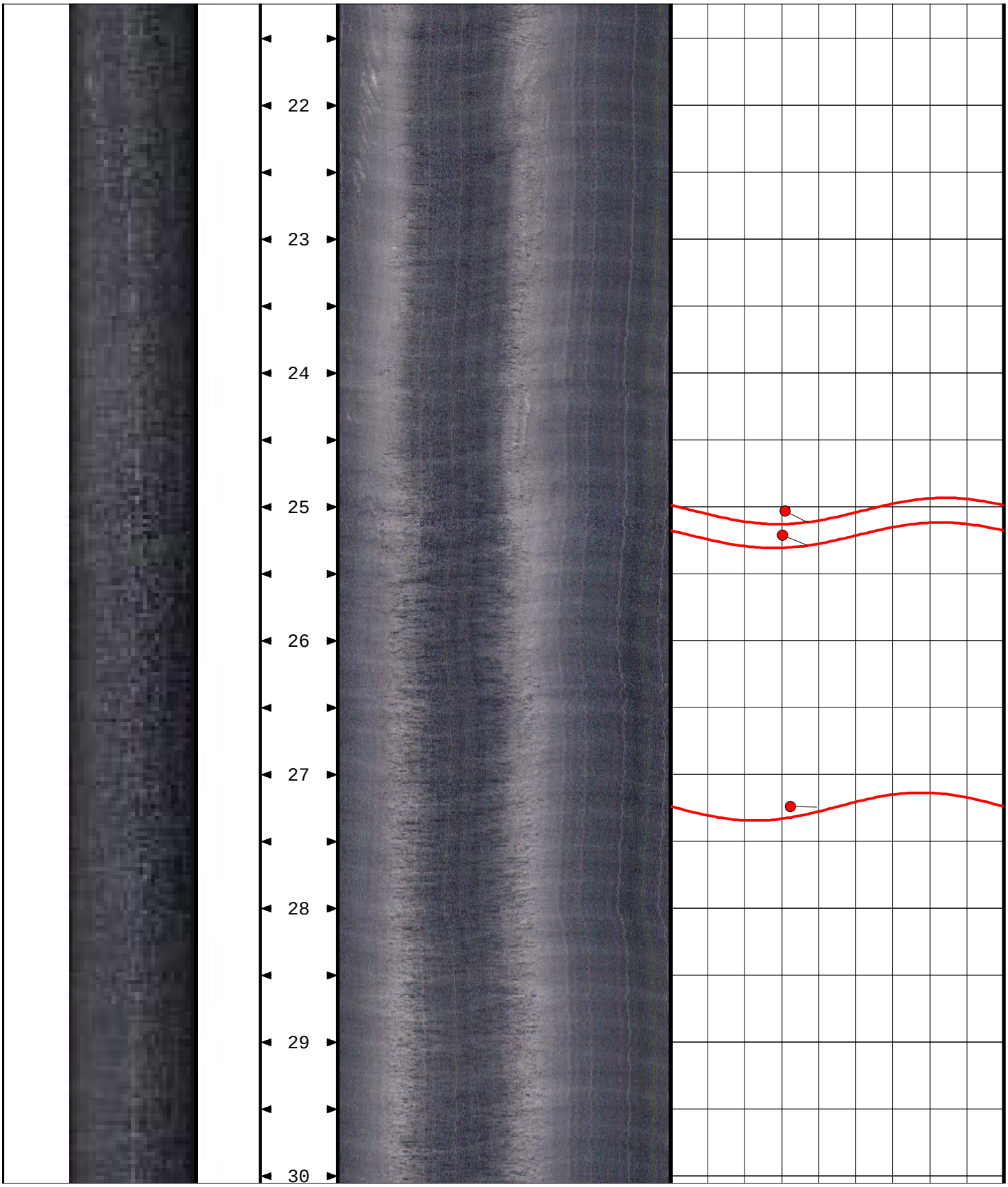
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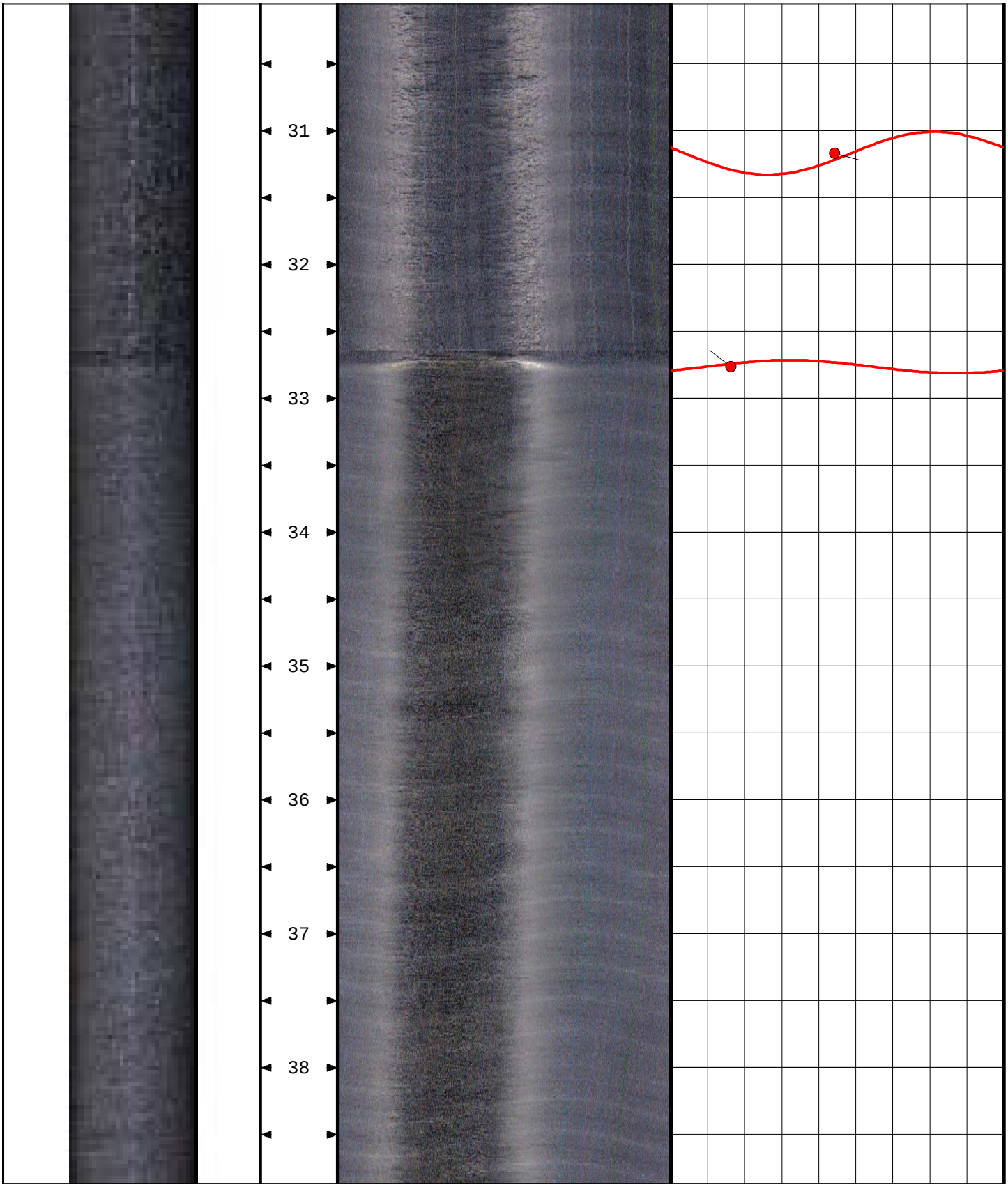
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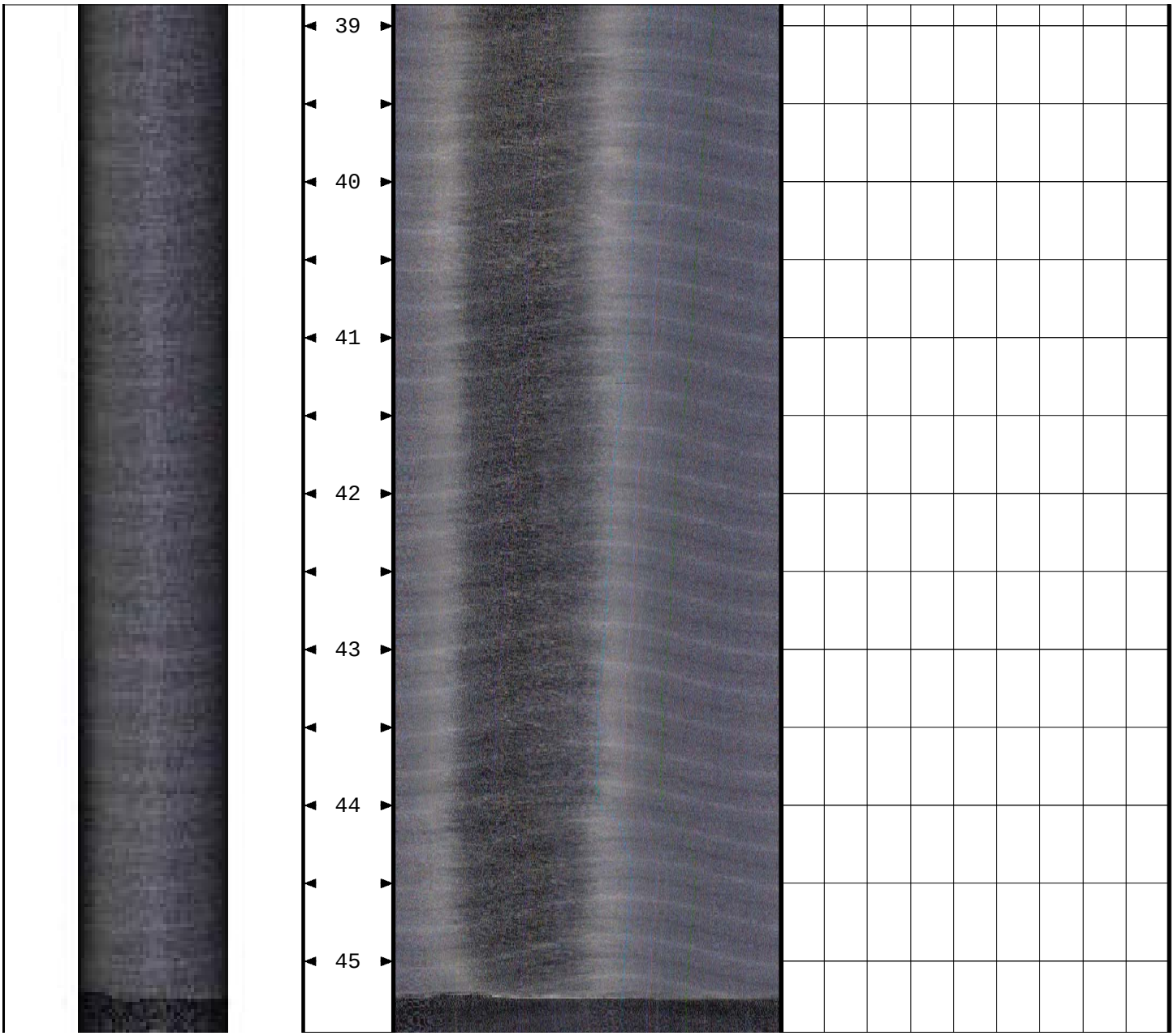
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COLOG

BOREHOLE GEOPHYSICS & HYDROPHYSICS

A DIVISION OF LAYNE CHRISTENSEN COMPANY

11001 Etiwanda Avenue, Fontana CA. 92337 Ph. (909) 390-2833 Fax (909) 390-6097

CO POWAY LANDFILL
WELL POGW-24B
FLD POWAY
CTY SAN DIEGO
STE CA
FILING No

COMPANY POWAY LANDILL
WELL ID POGW-24B
FIELD POWAY
COUNTRY USA STATE CA

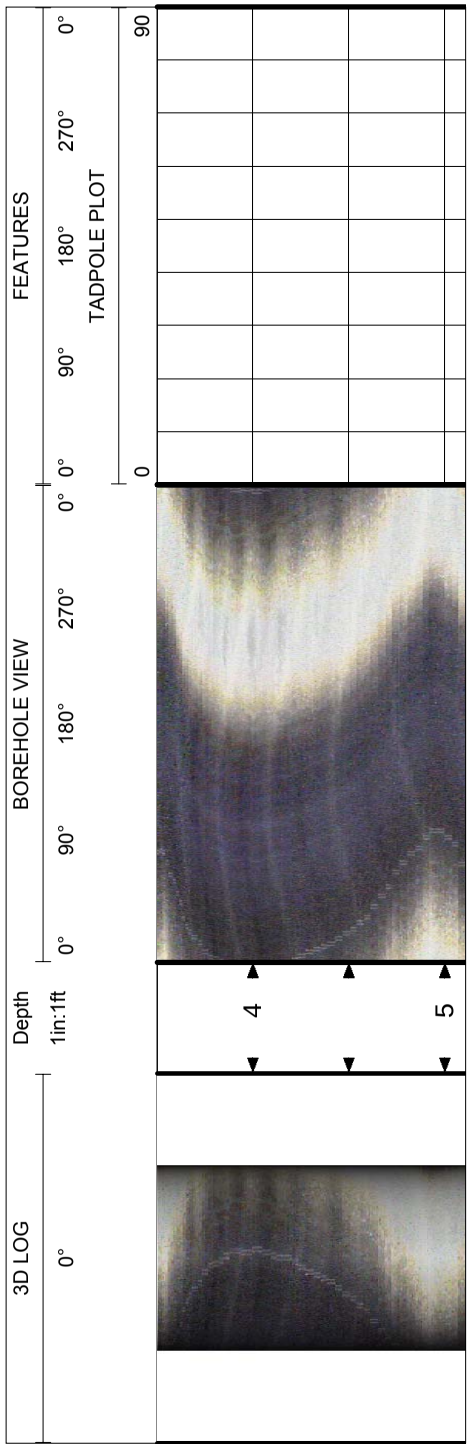
LOCATION
SEC TWP RGE

OTHER SERVICES

PERMANENT DATUM	G.S	ELEVATION G.S	K.B.
LOG MEAS. FROM	G.S	ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	G.S		G.L.

DATE	16/11/06	TYPE FLUID IN HOLE	WATER
RUN No	1	SALINITY	
TYPE LOG	OPTV	DENSITY	
DEPTH-DRILLER	45'	LEVEL	
DEPTH-LOGGER		MAX. REC. TEMP.	
BTM LOGGED INTERVAL	45'		
TOP LOGGED INTERVAL	0		
OPERATING RIG TIME			
RECORDED BY	J. ABREAU		
WITNESSED BY			

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
	8"	0	45'				



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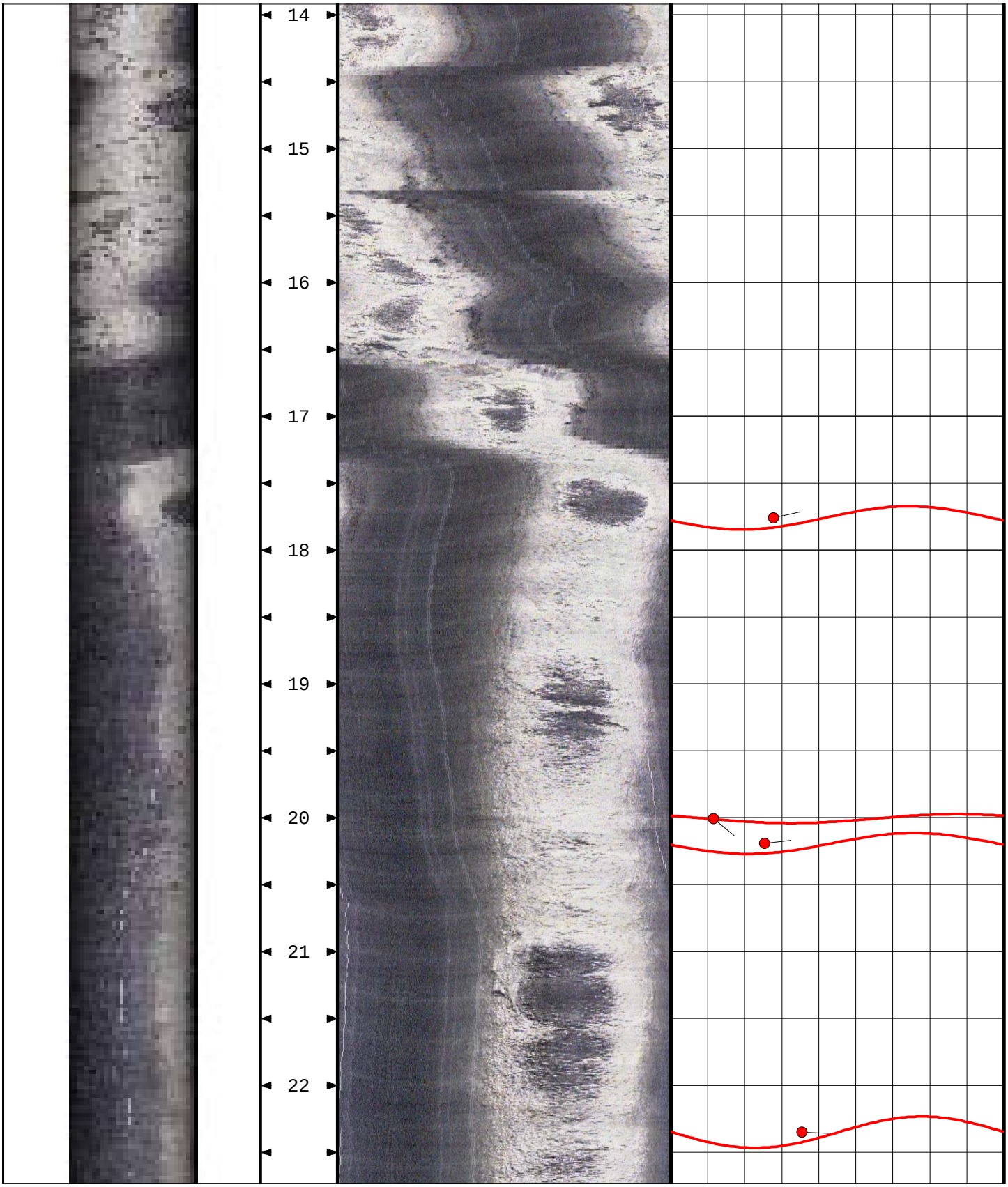
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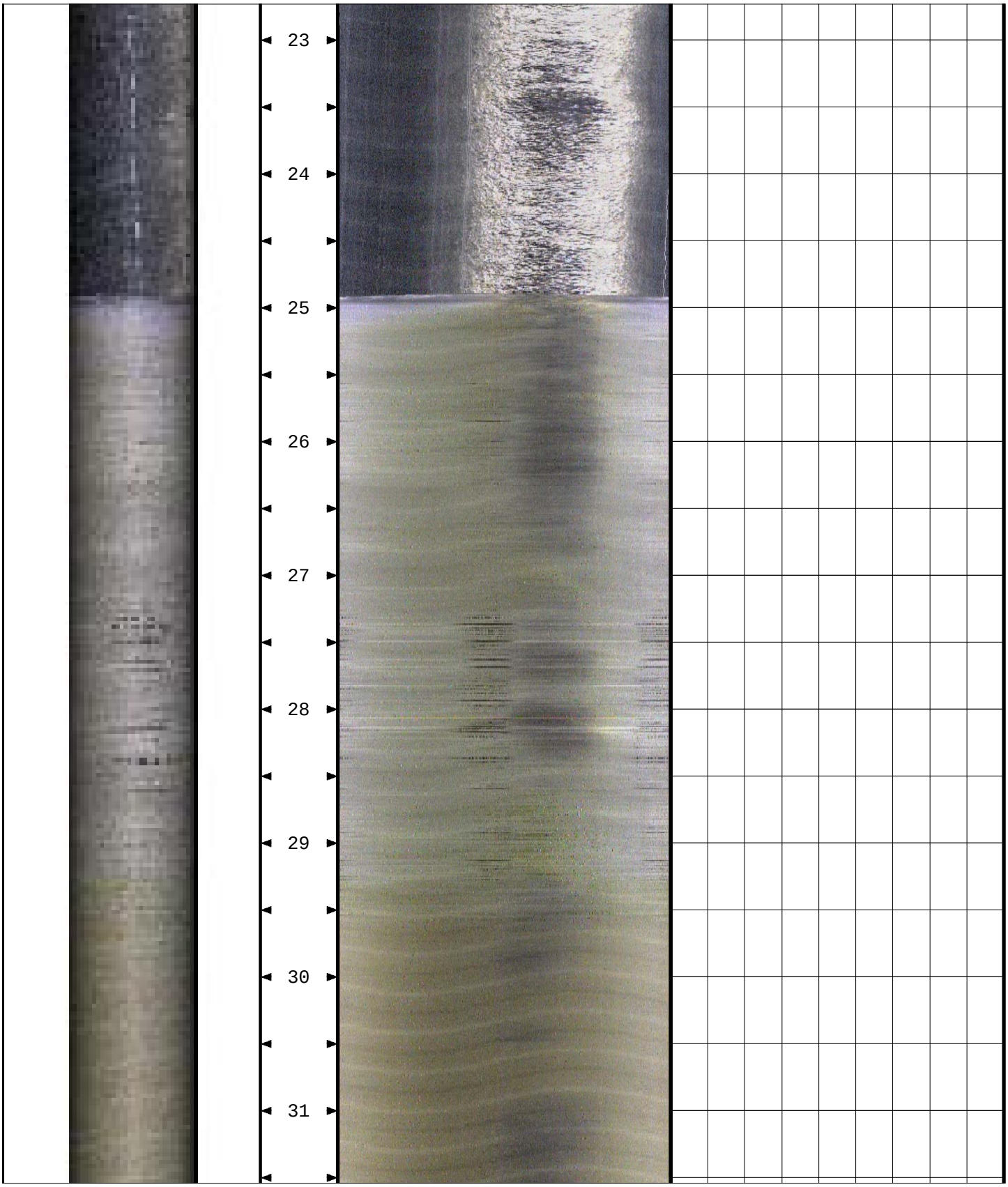
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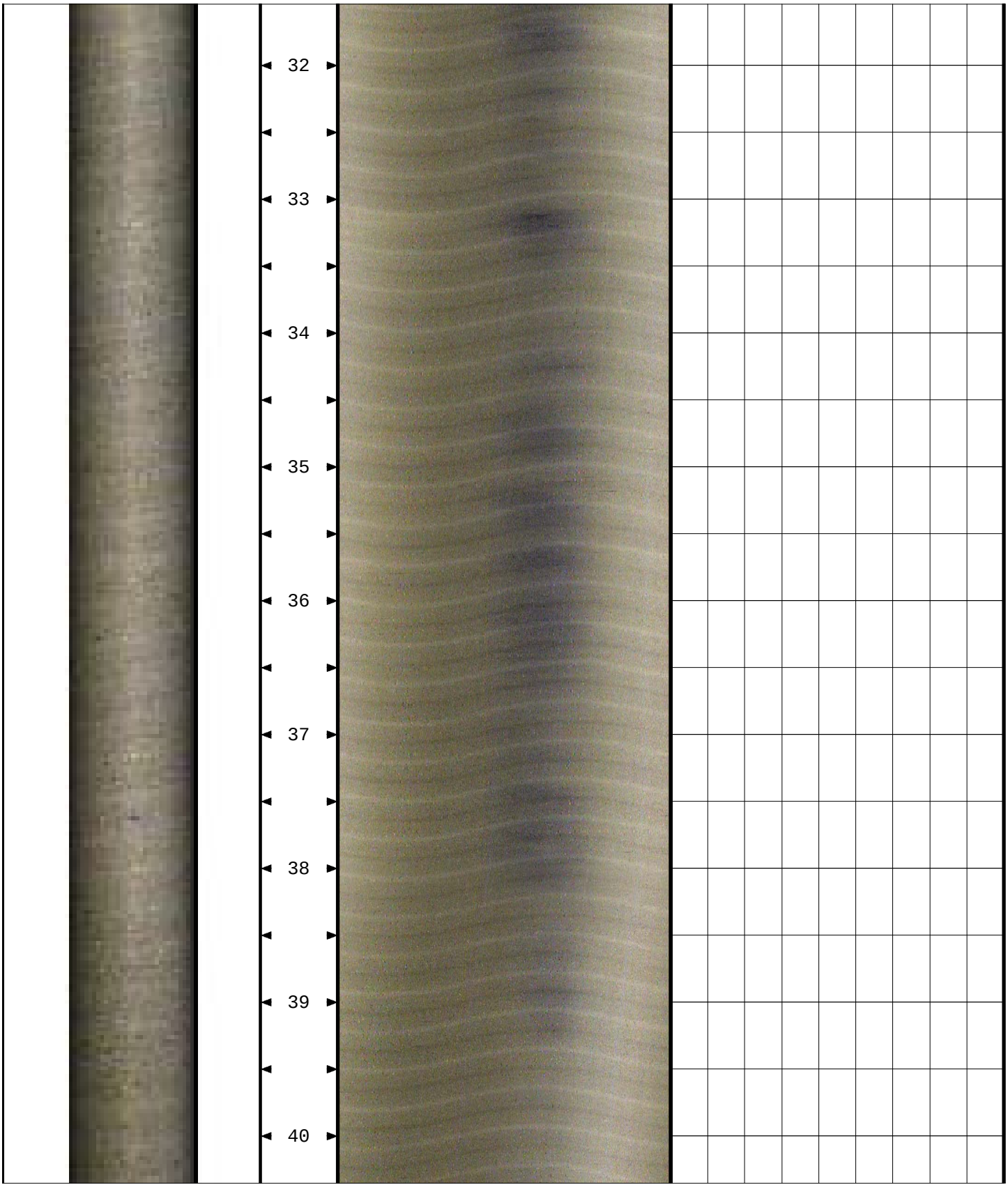
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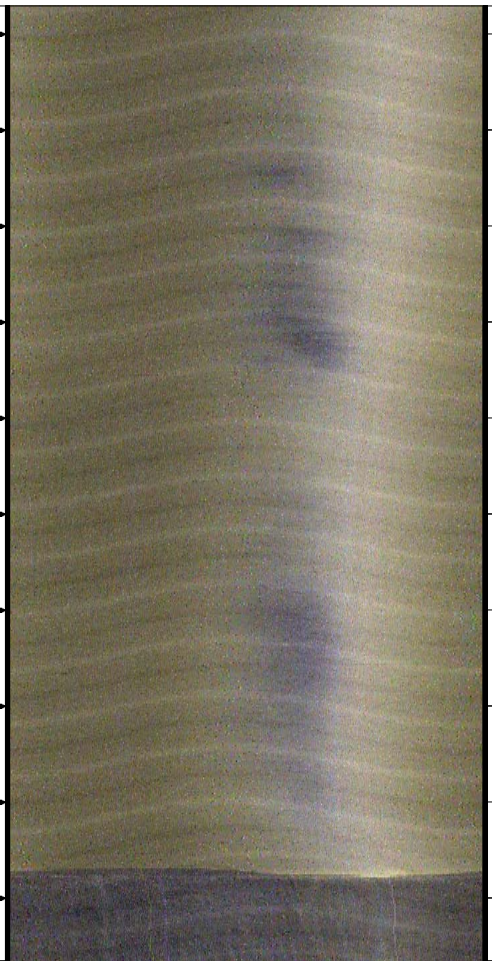
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APPENDIX D

Storm Drain Video Inspection Report

Tabular Report of PLR SOUTH DRAIN 1U X **for** **Geosyntec Consultants**

Work Order	SC0233	***Contract***		***Video***	1	***Setup***	1
Facility		***Operator***	CJC	***Van Ref***	3	***Surveyed On***	08/21/2006
Street Name	14900 Poway Road			***City***	Poway		
Location type							
Surface							
Survey purpose				***Weather***			

Pipe Use	Storm	***Sched length***	111.6 ***Ft***	***From***	SOUTH DRAIN 1U ***Depth*** ***Ft***
Shape	Circular	***Size***	18 ***by*** 18 ***ins***	***To***	SOUTH DRAIN 1D ***Depth*** ***Ft***
Material	Steel - Corrugated (ARMCO)	***Joint Spacing***	5.00 ***Ft***	***Direction***	Down
Lining		***Year laid***		***Pre-clean***	***Last Cleaned***
General note	South Drain			Structural	Service Constructional
Location note				Miscellaneous	Hydraulic

Video	Count	CD	Code		Sev	Fr	To	Value	Remarks
00000	0.0		ST	Start of Survey					
00000	0.0		MH	Manhole/Node					SOUTH DRAIN 1U
00000	0.0		WL	Water level				0	
	0.0		DE	Debris (Not grease or silt)	S				
	8.4		DE	Debris (Not grease or silt)	M				
	37.5		LD	Line of sewer deviates down					
	72.0		D	Deformed sewer (NOT brick)				0005	
	84.5		D	Deformed sewer (NOT brick)				0005	
	111.5		MH	Manhole/Node					SOUTH DRAIN 1D
00840	111.6		FH	Finish of Surveys					

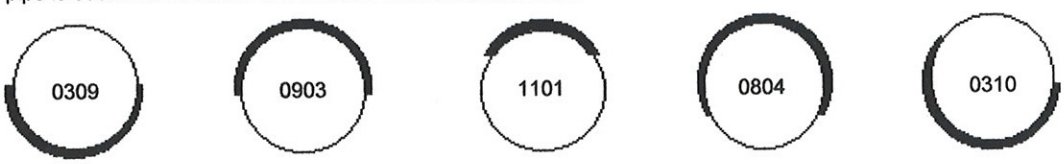
111.6 Ft ***Total Length Surveyed***

Scores

Structural:	***Total*** 0	***Mean Defect*** 0	***Peak*** 0	***Mean Pipe*** 0
Service:	***Total*** 30	***Mean Defect*** 10	***Peak*** 25	***Mean Pipe*** 0.3

Notes

Clock references: Clock references are given clockwise ie from 10 o'clock to 2 o'clock = 1002. The upper part of a pipe is 0903 and the lower half is 0309. See Illustration below



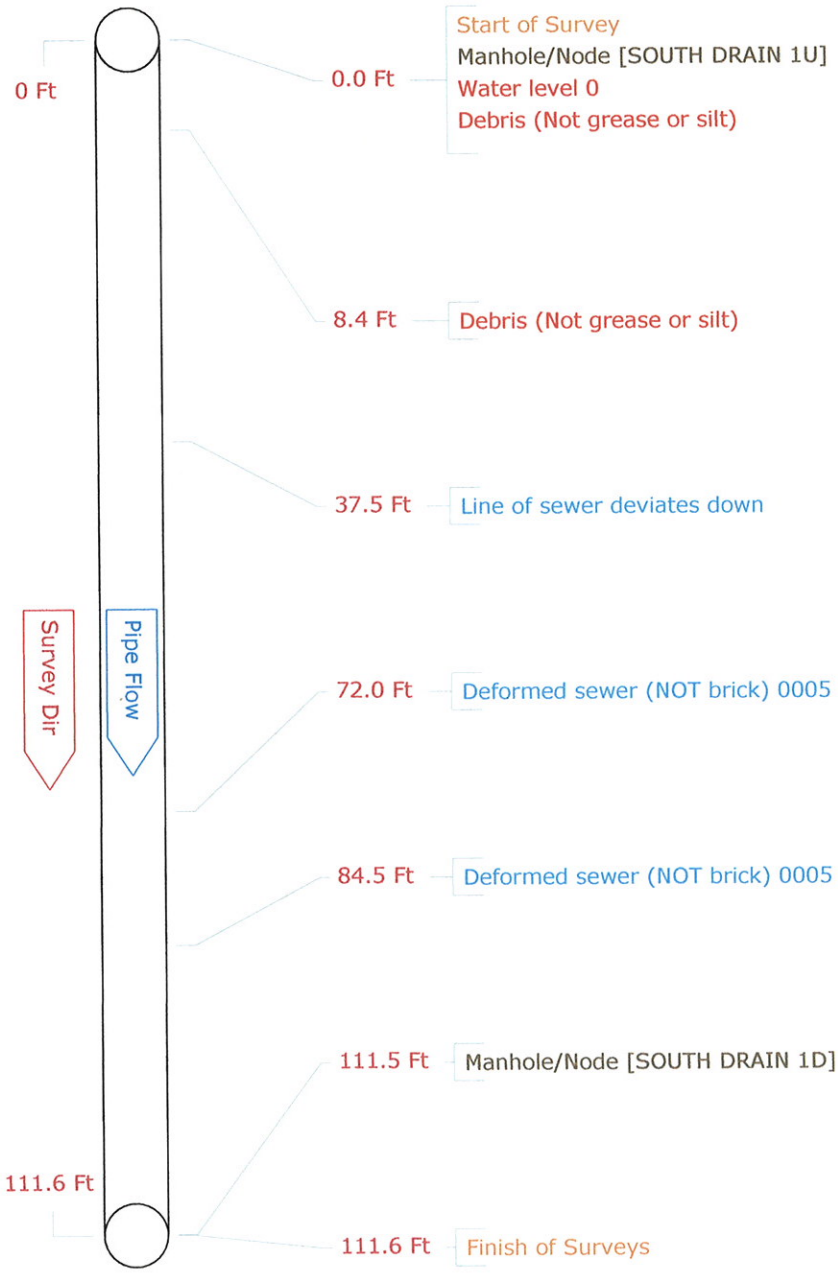
Pipe Graphic Report of PLR SOUTH DRAIN 1U X **for** Geosyntec Consultants

Work Order	SC0233	***Contract***		***Video***	1	***Setup***	1
Facility		***Operator***	CJC	***Van Ref***	3	***Surveyed On***	08/21/2006

Street Name	14900 Poway Road	***City***	Poway
Location type			
Surface			
Survey purpose		***Weather***	

Pipe Use	Storm	***Schedule length***	111.6 Ft	***From***	SOUTH DRAIN 1U	***Depth***	Ft
Shape	Circular	***Size***	18 ***by*** 18 ins	***To***	SOUTH DRAIN 1D	***Depth***	Ft
Material	Steel - Corrugated (ARMCO)	***Joint spacing***	5.0 Ft	***Direction***	Downstream		
Lining		***Year laid***		***Pre-clean***		***Last cleaned***	

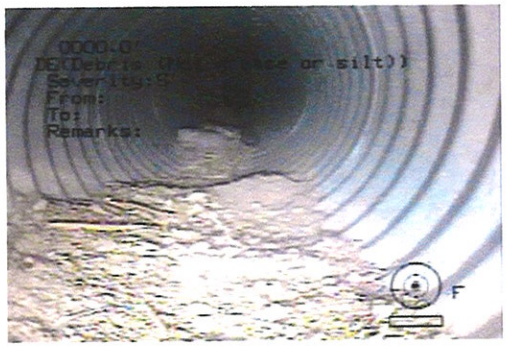
General note	South Drain	Structural	Service	Constructional
Location note		Miscellaneous	Hydraulic	



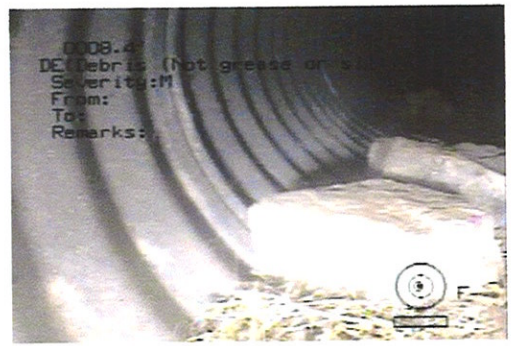
CCTV pictures of SOUTH DRAIN 1U X **for** Geosyntec Consultants

Work Order SC0233	**Video** 1	**Surveyed On** 08/21/2006	**Direction** Downstream	**Setup** 1
Street Name 14900 Poway Road	**City Name** Poway	**ZIP Code**	**Weather**	
Location		**From Manhole** SOUTH DRAIN 1U	**To Manhole** SOUTH DRAIN 1D	

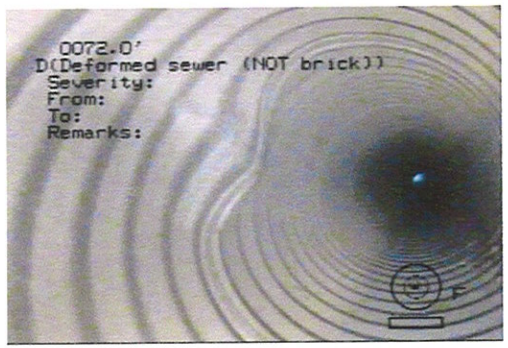
Date: 8/21/2006 10:11:56 AM
Distance: 0.0 Ft
Obs: Debris (Not grease or silt)
Comments:



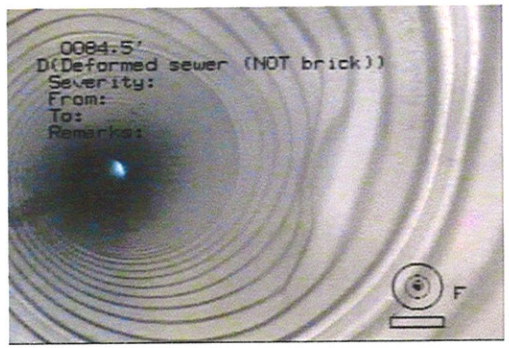
Date: 8/21/2006 11:30:43 AM
Distance: 8.4 Ft
Obs: Debris (Not grease or silt)
Comments:



Date: 8/21/2006 11:30:56 AM
Distance: 72.0 Ft
Obs: Deformed sewer (NOT brick)
Comments:



Date: 8/21/2006 11:31:07 AM
Distance: 84.5 Ft
Obs: Deformed sewer (NOT brick)
Comments:



Tabular Report of PLR SOUTH DRAIN 1D X **for** **Geosyntec Consultants**

Work Order SC0233	***Contract***	***Video*** 1	***Setup*** 2
Facility	***Operator*** CJC	***Van Ref*** 3	***Surveyed On*** 08/21/2006

Street Name 14900 Poway Road	***City*** Poway
Location type	
Surface	
Survey purpose	***Weather***

Pipe Use Storm	***Sched length*** 92.7 ***Ft***	***From*** SOUTH DRAIN 1D ***Depth*** ***Ft***
Shape Circular	***Size*** 18 ***by*** 18 ***ins***	***To*** SOUTH DRAIN 2 ***Depth*** ***Ft***
Material Steel - Corrugated (ARMCO)	***Joint Spacing*** 5.00 ***Ft***	***Direction*** Down
Lining	***Year laid***	***Pre-clean*** ***Last Cleaned***

General note South Drain	Structural Service Constructional
Location note	Miscellaneous Hydraulic

Video	Count	CD	Code		Sev	Fr	To	Value	Remarks
00840	0.0		ST	Start of Survey					
00840	0.0		MH	Manhole/Node					SOUTH DRAIN 1D
00840	0.0		WL	Water level				0	
	20.2		D	Deformed sewer (NOT brick)				0005	
	46.9		D	Deformed sewer (NOT brick)				0015	
	59.7		D	Deformed sewer (NOT brick)				0005	
	92.7		MH	Manhole/Node					SOUTH DRAIN 2
01435	92.7		FH	Finish of Surveys					

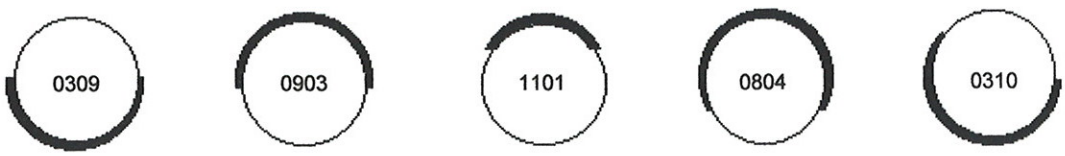
92.7 Ft ***Total Length Surveyed***

Scores

Structural:	***Total*** 0	***Mean Defect*** 0	***Peak*** 0	***Mean Pipe*** 0
Service:	***Total*** 0	***Mean Defect*** 0	***Peak*** 0	***Mean Pipe*** 0

Notes

Clock references: Clock references are given clockwise ie from 10 o'clock to 2 o'clock = 1002. The upper part of a pipe is 0903 and the lower half is 0309. See Illustration below



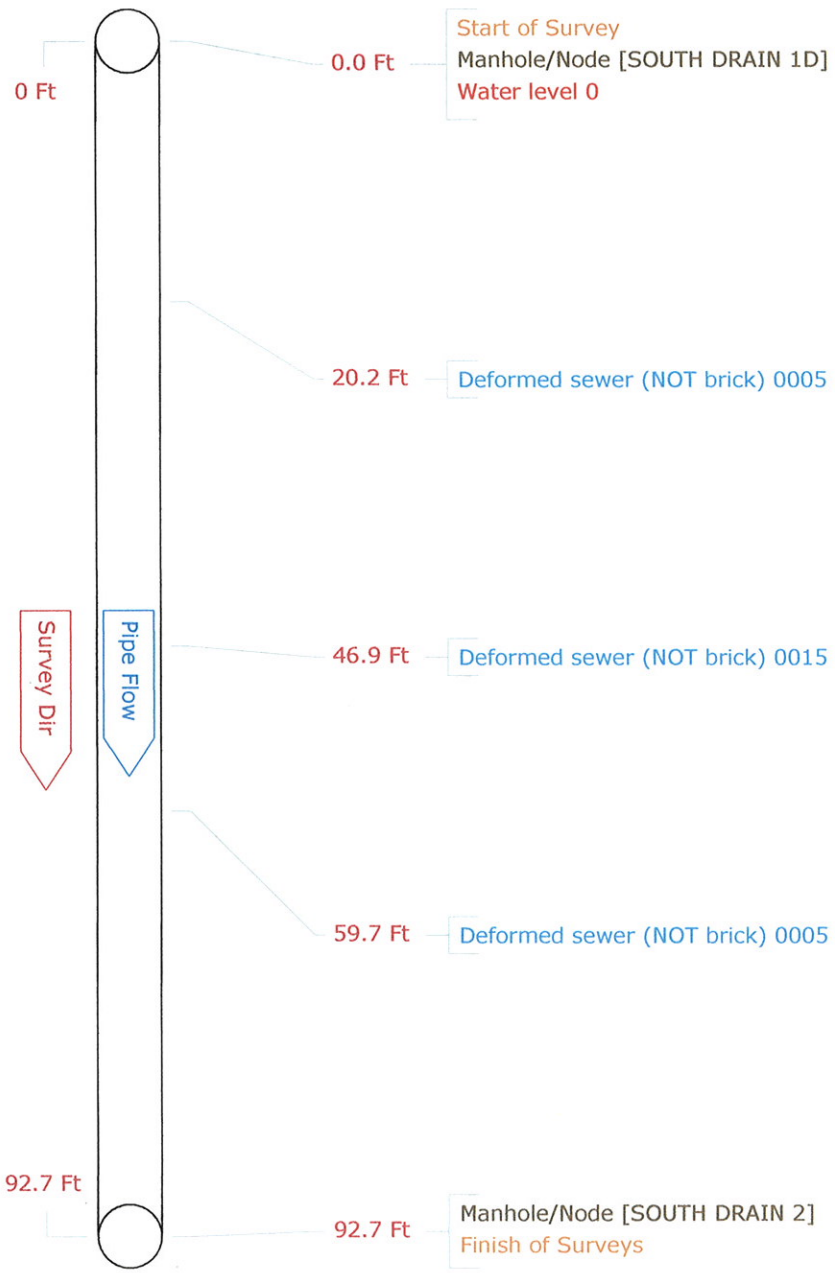
Pipe Graphic Report of PLR SOUTH DRAIN 1D X **for** Geosyntec Consultants

Work Order	SC0233	***Contract***		***Video***	1	***Setup***	2
Facility		***Operator***	CJC	***Van Ref***	3	***Surveyed On***	08/21/2006

Street Name	14900 Poway Road	***City***	Poway
Location type			
Surface			
Survey purpose		***Weather***	

Pipe Use	Storm	***Schedule length***	92.7 Ft	***From***	SOUTH DRAIN 1D	***Depth***	Ft
Shape	Circular	***Size***	18 ***by*** 18 ins	***To***	SOUTH DRAIN 2	***Depth***	Ft
Material	Steel - Corrugated (ARMCO)	***Joint spacing***	5.0 Ft	***Direction***	Downstream		
Lining		***Year laid***		***Pre-clean***		***Last cleaned***	

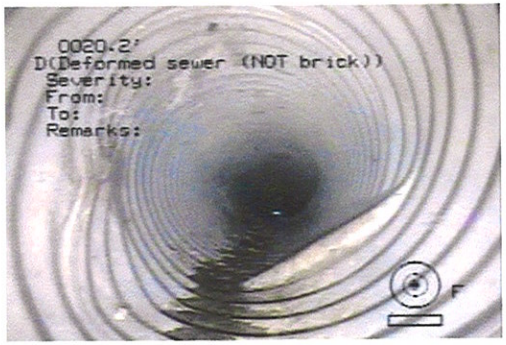
General note	South Drain	Structural	Service	Constructional
Location note		Miscellaneous	Hydraulic	



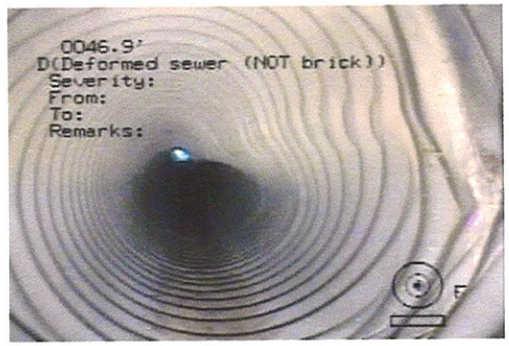
CCTV pictures of SOUTH DRAIN 1D X **for** Geosyntec Consultants

Work Order SC0233	**Video** 1	**Surveyed On** 08/21/2006	**Direction** Downstream	**Setup** 2
Street Name 14900 Poway Road	**City Name** Poway	**ZIP Code**	**Weather**	
Location		**From Manhole** SOUTH DRAIN 1D	**To Manhole** SOUTH DRAIN 2	

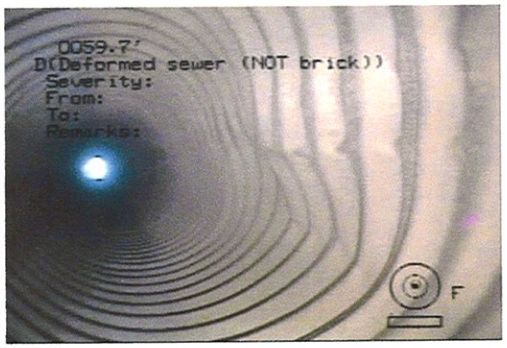
Date: 8/21/2006 10:09:31 AM
Distance: 20.2 Ft
Obs: Deformed sewer (NOT brick)
Comments:



Date: 8/21/2006 10:09:58 AM
Distance: 46.9 Ft
Obs: Deformed sewer (NOT brick)
Comments:



Date: 8/21/2006 10:10:04 AM
Distance: 59.7 Ft
Obs: Deformed sewer (NOT brick)
Comments:



Tabular Report of PLR SOUTH DRAIN 2 X **for** **Geosyntec Consultants**

Work Order	SC0233	***Contract***		***Video***	1	***Setup***	3
Facility		***Operator***	CJC	***Van Ref***	3	***Surveyed On***	08/21/2006

Street Name	14900 Poway Road	***City***	Poway
Location type			
Surface			
Survey purpose		***Weather***	

Pipe Use	Storm	***Sched length***	58.3 ***Ft***	***From***	SOUTH DRAIN 2 ***Depth*** ***Ft***
Shape	Circular	***Size***	18 ***by*** 18 ***ins***	***To***	SOUTH DRAIN 3 ***Depth*** ***Ft***
Material	Steel - Corrugated (ARMCO)	***Joint Spacing***	5.00 ***Ft***	***Direction***	Down
Lining		***Year laid***		***Pre-clean***	***Last Cleaned***

General note	South Drain	Structural	Service	Constructional
Location note		Miscellaneous	Hydraulic	

Video	Count	CD	Code		Sev	Fr	To	Value	Remarks
01435	0.0		ST	Start of Survey					
01435	0.0		MH	Manhole/Node					SOUTH DRAIN 2
01435	0.0		WL	Water level				0	
	0.6		DE	Debris (Not grease or silt)	S				
	7.6		LD	Line of sewer deviates down					
	30.0		H	Hole in sewer		01			
	34.4		D	Deformed sewer (NOT brick)				0005	
	40.2		H	Hole in sewer		12			
	48.8		DE	Debris (Not grease or silt)	S				
	58.3		MH	Manhole/Node					SOUTH DRAIN 3
01955	58.3		FH	Finish of Surveys					

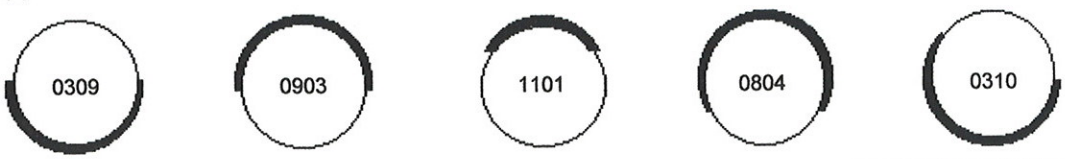
58.3 Ft ***Total Length Surveyed***

Scores

Structural:	***Total***	0	***Mean Defect***	0	***Peak***	0	***Mean Pipe***	0
Service:	***Total***	10	***Mean Defect***	3.3	***Peak***	5	***Mean Pipe***	0.2

Notes

Clock references: Clock references are given clockwise ie from 10 o'clock to 2 o'clock = 1002. The upper part of a pipe is 0903 and the lower half is 0309. See Illustration below



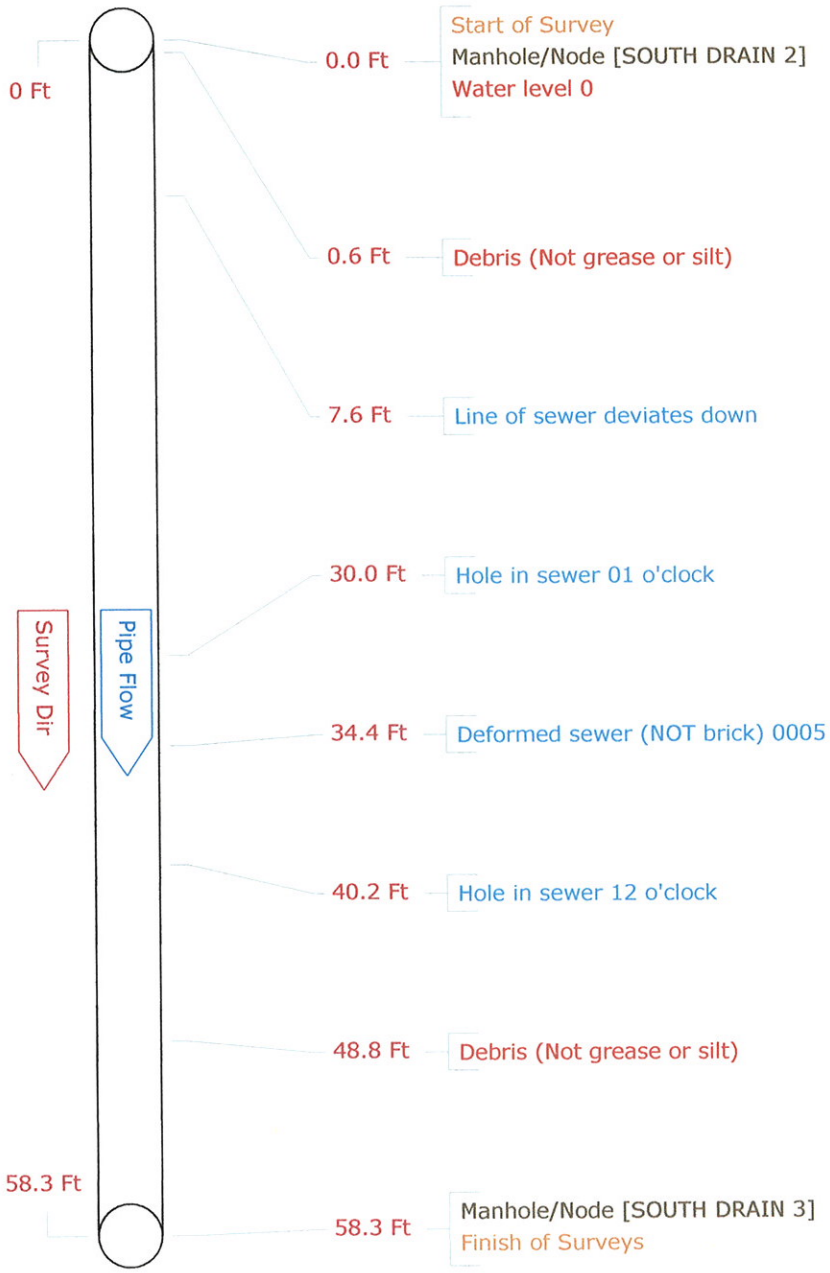
Pipe Graphic Report of PLR SOUTH DRAIN 2 X **for** Geosyntec Consultants

Work Order	SC0233	***Contract***		***Video***	1	***Setup***	3
Facility		***Operator***	CJC	***Van Ref***	3	***Surveyed On***	08/21/2006

Street Name	14900 Poway Road	***City***	Poway
Location type			
Surface			
Survey purpose		***Weather***	

Pipe Use	Storm	***Schedule length***	58.3 Ft	***From***	SOUTH DRAIN 2	***Depth***	Ft
Shape	Circular	***Size***	18 ***by*** 18 ins	***To***	SOUTH DRAIN 3	***Depth***	Ft
Material	Steel - Corrugated (ARMCO)	***Joint spacing***	5.0 Ft	***Direction***	Downstream		
Lining		***Year laid***		***Pre-clean***		***Last cleaned***	

General note	South Drain	Structural	Service	Constructional
Location note		Miscellaneous	Hydraulic	

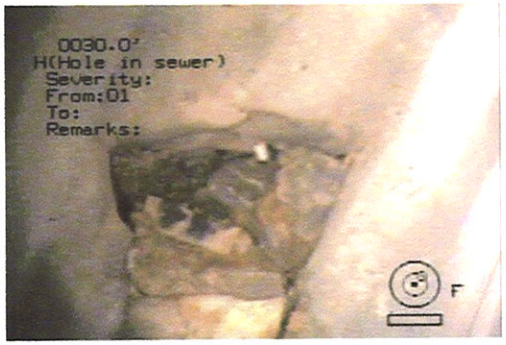


CCTV pictures of SOUTH DRAIN 2 X **for** Geosyntec Consultants

Work Order SC0233	**Video** 1	**Surveyed On** 08/21/2006	**Direction** Downstream	**Setup** 3
Street Name 14900 Poway Road	**City Name** Poway	**ZIP Code**	**Weather**	
Location		**From Manhole** SOUTH DRAIN 2	**To Manhole** SOUTH DRAIN 3	

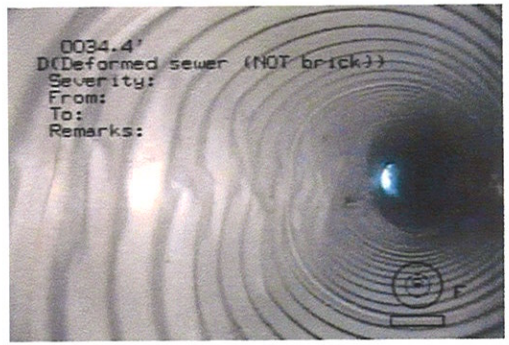
Date: 8/21/2006 10:13:24 AM
Distance: 30.0 Ft
Obs: Hole in sewer

Comments:



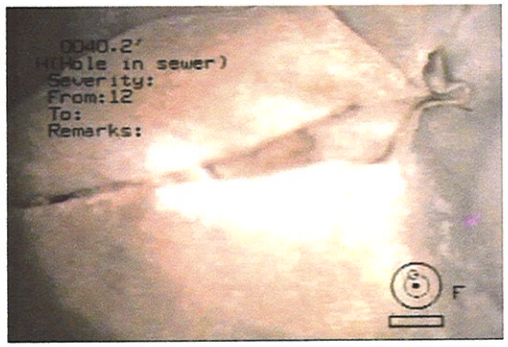
Date: 8/21/2006 10:15:28 AM
Distance: 34.4 Ft
Obs: Deformed sewer (NOT brick)

Comments:



Date: 8/21/2006 10:15:38 AM
Distance: 40.2 Ft
Obs: Hole in sewer

Comments:



Tabular Report of PLR SOUTH DRAIN 3 X **for** **Geosyntec Consultants**

Work Order	SC0233	***Contract***		***Video***	1	***Setup***	4
Facility		***Operator***	CJC	***Van Ref***	3	***Surveyed On***	08/21/2006

Street Name	14900 Poway Road	***City***	Poway
Location type			
Surface			
Survey purpose		***Weather***	

Pipe Use	Storm	***Sched length***	57.5 ***Ft***	***From***	SOUTH DRAIN 3 ***Depth*** ***Ft***
Shape	Circular	***Size***	18 ***by*** 18 ***ins***	***To***	SOUTH DRAIN 4 ***Depth*** ***Ft***
Material	Steel - Corrugated (ARMCO)	***Joint Spacing***	5.00 ***Ft***	***Direction***	Down
Lining		***Year laid***		***Pre-clean***	***Last Cleaned***

General note	South Drain	Structural	Service	Constructional
Location note		Miscellaneous	Hydraulic	

Video	Count	CD	Code		Sev	Fr	To	Value	Remarks
01955	0.0		ST	Start of Survey					
01955	0.0		MH	Manhole/Node					SOUTH DRAIN 3
01955	0.0		WL	Water level				0	
	1.0		DE	Debris (Not grease or silt)	M				
	11.6		LD	Line of sewer deviates down					
	57.4		MH	Manhole/Node					SOUTH DRAIN 4
02330	57.5		FH	Finish of Surveys					

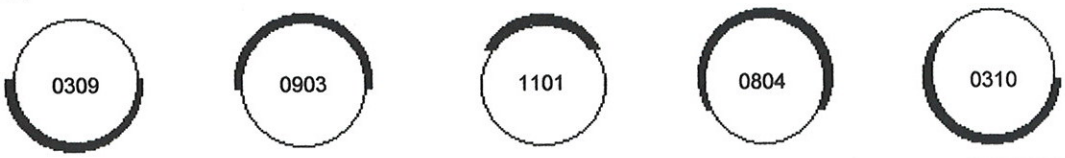
57.5 Ft ***Total Length Surveyed***

Scores

Structural:	***Total***	0	***Mean Defect***	0	***Peak***	0	***Mean Pipe***	0
Service:	***Total***	25	***Mean Defect***	12.5	***Peak***	25	***Mean Pipe***	0.4

Notes

Clock references: Clock references are given clockwise ie from 10 o'clock to 2 o'clock = 1002. The upper part of a pipe is 0903 and the lower half is 0309. See Illustration below



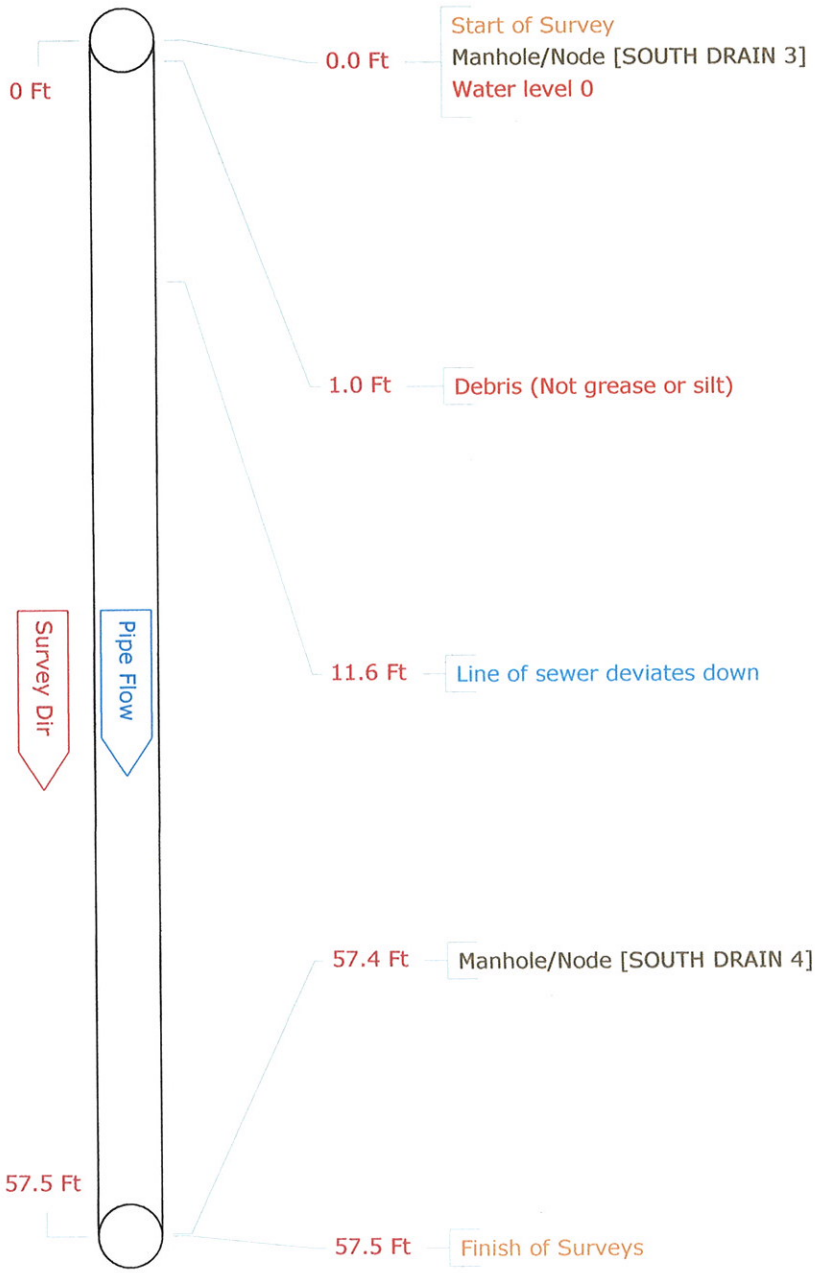
Pipe Graphic Report of PLR SOUTH DRAIN 3 X **for** Geosyntec Consultants

Work Order	SC0233	***Contract***		***Video***	1	***Setup***	4
Facility		***Operator***	CJC	***Van Ref***	3	***Surveyed On***	08/21/2006

Street Name	14900 Poway Road	***City***	Poway
Location type			
Surface			
Survey purpose		***Weather***	

Pipe Use	Storm	***Schedule length***	57.5 Ft	***From***	SOUTH DRAIN 3	***Depth***	Ft
Shape	Circular	***Size***	18 ***by*** 18 ins	***To***	SOUTH DRAIN 4	***Depth***	Ft
Material	Steel - Corrugated (ARMCO)	***Joint spacing***	5.0 Ft	***Direction***	Downstream		
Lining		***Year laid***		***Pre-clean***		***Last cleaned***	

General note	South Drain	Structural	Service	Constructional
Location note		Miscellaneous	Hydraulic	



CCTV pictures of SOUTH DRAIN 3 X **for** Geosyntec Consultants

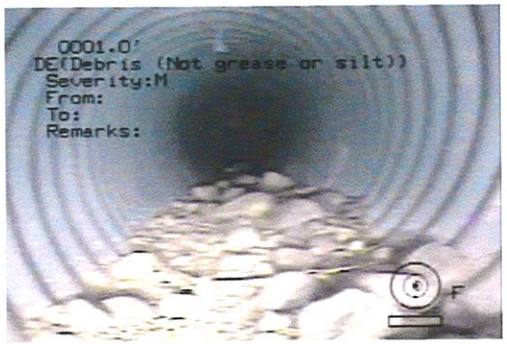
Work Order SC0233	**Video** 1	**Surveyed On** 08/21/2006	**Direction** Downstream	**Setup** 4
Street Name 14900 Poway Road	**City Name** Poway	**ZIP Code**	**Weather**	
Location		**From Manhole** SOUTH DRAIN 3	**To Manhole** SOUTH DRAIN 4	

Date: 8/21/2006 10:46:37 AM

Distance: 1.0 Ft

Obs: Debris (Not grease or silt)

Comments:



Tabular Report of PLR EAST DRAIN 1 X **for** **Geosyntec Consultants**

Work Order SC0233	***Contract***		***Video*** 1	***Setup*** 5	
Facility	***Operator*** CJC		***Van Ref*** 3	***Surveyed On*** 08/21/2006	
Street Name 14900 Poway Road			***City*** Poway		
Location type					
Surface					
Survey purpose			***Weather***		
Pipe Use Storm	***Sched length*** 129.1 ***Ft***		***From*** EAST DRAIN 1	***Depth*** ***Ft***	
Shape Circular	***Size*** 18 ***by*** 18 ***ins***		***To*** EAST DRAIN 2	***Depth*** ***Ft***	
Material Steel - Corrugated (ARMCO)	***Joint Spacing*** 5.00 ***Ft***		***Direction*** Down		
Lining	***Year laid***		***Pre-clean***	***Last Cleaned***	
General note east drain			Structural	Service	Constructional
Location note			Miscellaneous	Hydraulic	

Video	Count	CD	Code		Sev	Fr	To	Value	Remarks
02330	0.0		ST	Start of Survey					
02330	0.0		MH	Manhole/Node					NORTH DRAIN 1
02330	0.0		WL	Water level				0	
	6.1		LU	Line of sewer deviates up					
	10.7		DE	Debris (Not grease or silt)	S				
	57.6		H	Hole in sewer		01			
	129.1		MH	Manhole/Node					EAST DRAIN 2
02920	129.1		FH	Finish of Surveys					

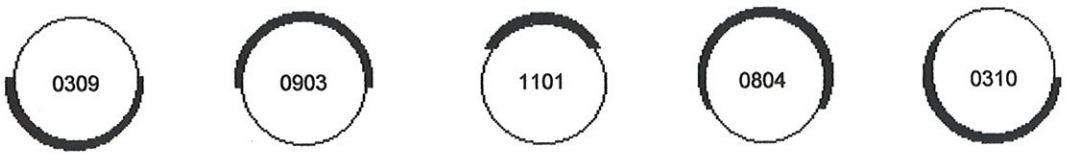
129.1 Ft ***Total Length Surveyed***

Scores

Structural:	***Total*** 0	***Mean Defect*** 0	***Peak*** 0	***Mean Pipe*** 0
Service:	***Total*** 5	***Mean Defect*** 2.5	***Peak*** 5	***Mean Pipe*** 0

Notes

Clock references: Clock references are given clockwise ie from 10 o'clock to 2 o'clock = 1002. The upper part of a pipe is 0903 and the lower half is 0309. See Illustration below

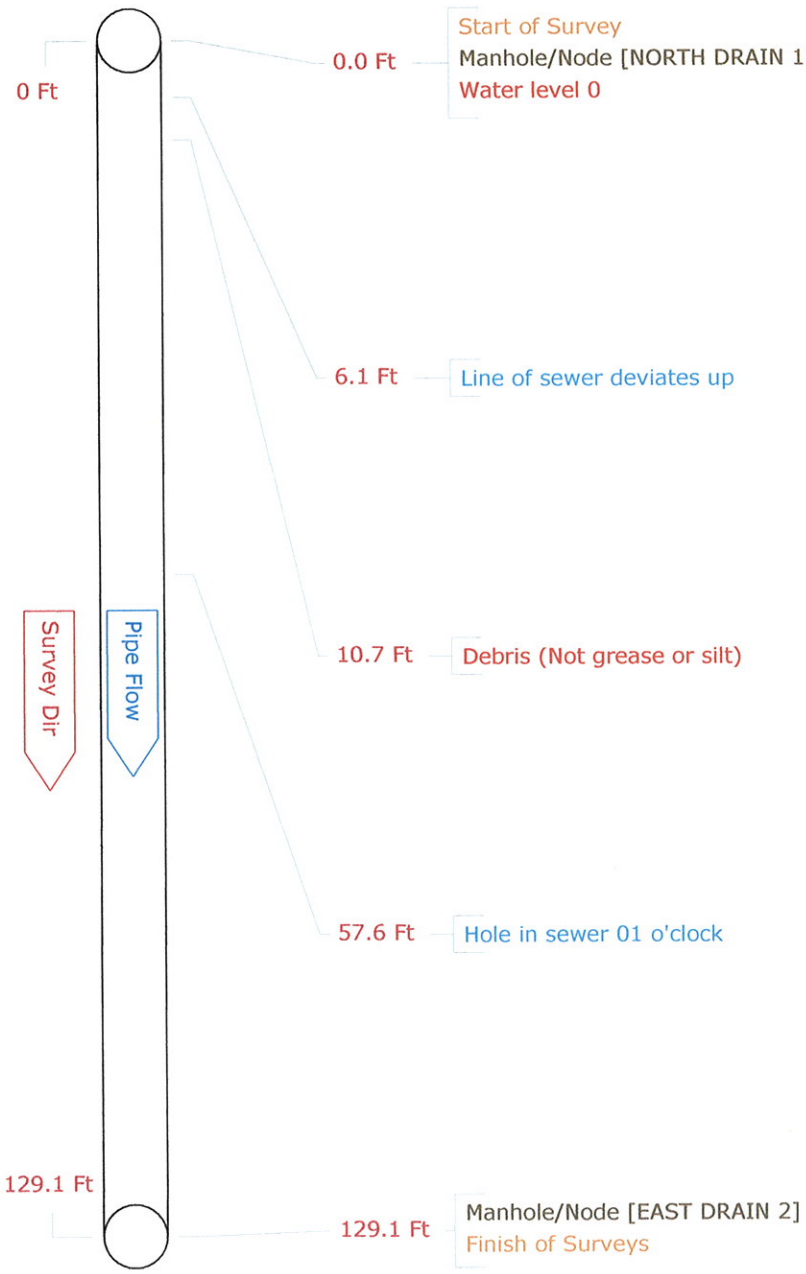


Pipe Graphic Report of PLR EAST DRAIN 1 X **for** Geosyntec Consultants

Work Order	SC0233	***Contract***		***Video*** 1	***Setup*** 5
Facility		***Operator***	CJC	***Van Ref*** 3	***Surveyed On*** 08/21/2006
Street Name	14900 Poway Road	***City***	Poway		
Location type					
Surface					
Survey purpose				***Weather***	

Pipe Use	Storm	***Schedule length***	129.1 Ft	***From*** EAST DRAIN 1	***Depth*** Ft
Shape	Circular	***Size*** 18 ***by*** 18 ins		***To*** EAST DRAIN 2	***Depth*** Ft
Material	Steel - Corrugated (ARMCO)	***Joint spacing***	5.0 Ft	***Direction*** Downstream	
Lining		***Year laid***		***Pre-clean***	***Last cleaned***

General note	east drain	Structural	Service	Constructional
Location note		Miscellaneous	Hydraulic	



CCTV pictures of EAST DRAIN 1 X **for** Geosyntec Consultants

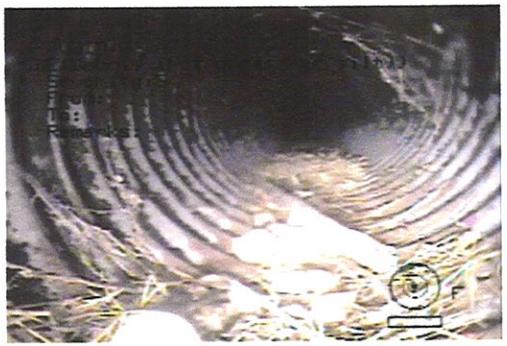
Work Order SC0233	**Video** 1	**Surveyed On** 08/21/2006	**Direction** Downstream	**Setup** 5
Street Name 14900 Poway Road	**City Name** Poway	**ZIP Code**	**Weather**	
Location		**From Manhole** EAST DRAIN 1	**To Manhole** EAST DRAIN 2	

Date: 8/21/2006 11:12:47 AM

Distance: 10.7 Ft

Obs: Debris (Not grease or silt)

Comments:

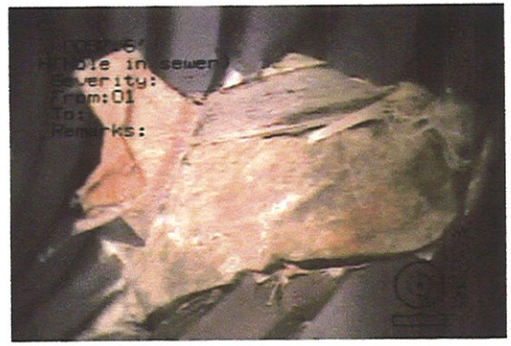


Date: 8/21/2006 11:12:57 AM

Distance: 57.6 Ft

Obs: Hole in sewer

Comments:



Tabular Report of PLR EAST DRAIN 2 X **for** **Geosyntec Consultants**

Work Order	SC0233	***Contract***		***Video***	1	***Setup***	6
Facility		***Operator***	CJC	***Van Ref***	3	***Surveyed On***	08/21/2006

Street Name	14900 Poway Road	***City***	Poway
Location type			
Surface			
Survey purpose		***Weather***	

Pipe Use	Storm	***Sched length***	***Ft***	***From*** EAST DRAIN 2	***Depth*** ***Ft***
Shape	Circular	***Size*** 18 ***by*** 18	***ins***	***To*** EAST DRAIN 3	***Depth*** ***Ft***
Material	Steel - Corrugated (ARMCO)	***Joint Spacing*** 5.00	***Ft***	***Direction*** Down	
Lining		***Year laid***		***Pre-clean***	***Last Cleaned***

General note	east drain
Location note	

Structural Service Constructional
Miscellaneous Hydraulic

Video	Count	CD	Code		Sev	Fr	To	Value	Remarks
02920	0.0		ST	Start of Survey					
02920	0.0		MH	Manhole/Node					EAST DRAIN 2
02920	0.0		WL	Water level				0	
	0.0		DE	Debris (Not grease or silt)	S				
	10.6		DE	Debris (Not grease or silt)	M				
	17.0		GO	General observation					BLOCKED BY DEBRIS
03235	17.2		SA	Survey abandoned					

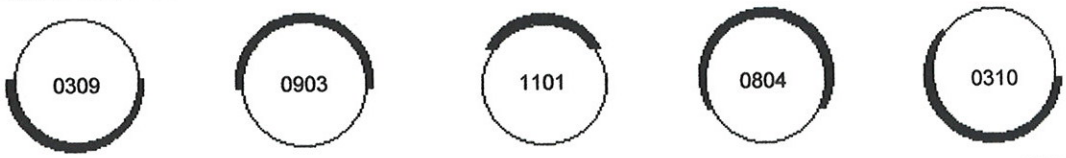
17.2 Ft ***Total Length Surveyed***

Scores

Structural:	***Total*** 0	***Mean Defect*** 0	***Peak*** 0	***Mean Pipe*** 0
Service:	***Total*** 30	***Mean Defect*** 10	***Peak*** 25	***Mean Pipe*** 1.7

Notes

Clock references: Clock references are given clockwise ie from 10 o'clock to 2 o'clock = 1002. The upper part of a pipe is 0903 and the lower half is 0309. See Illustration below



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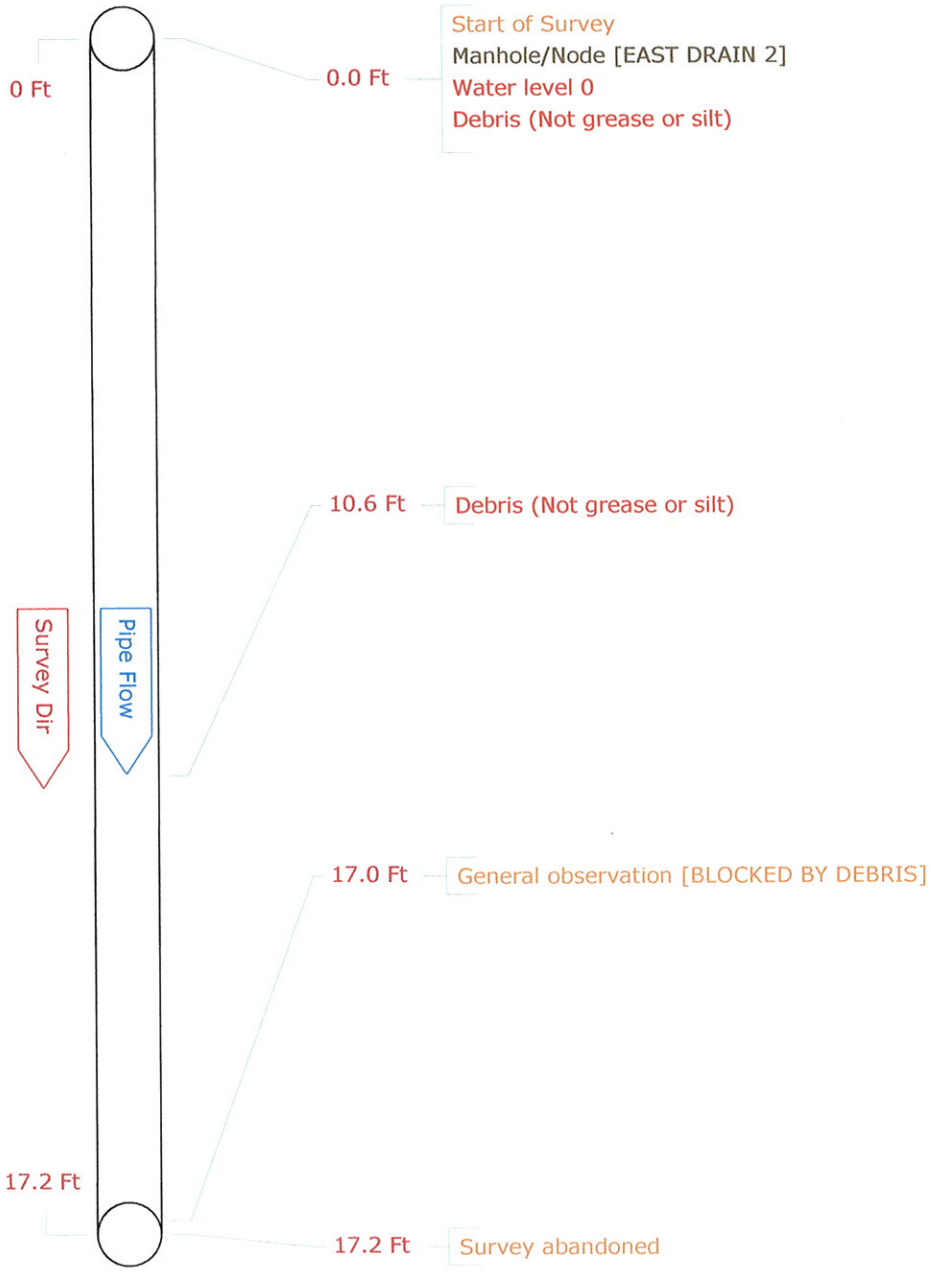
Pipe Graphic Report of PLR EAST DRAIN 2 X **for** Geosyntec Consultants

Work Order	SC0233	***Contract***		***Video***	1	***Setup***	6
Facility		***Operator***	CJC	***Van Ref***	3	***Surveyed On***	08/21/2006

Street Name	14900 Poway Road	***City***	Poway
Location type			
Surface			
Survey purpose		***Weather***	

Pipe Use	Storm	***Schedule length***	Ft	***From***	EAST DRAIN 2	***Depth***	Ft
Shape	Circular	***Size*** 18 ***by*** 18 ins		***To***	EAST DRAIN 3	***Depth***	Ft
Material	Steel - Corrugated (ARMCO)	***Joint spacing***	5.0 Ft	***Direction***	Downstream		
Lining		***Year laid***		***Pre-clean***		***Last cleaned***	

General note	east drain	Structural	Service	Constructional
Location note		Miscellaneous	Hydraulic	



CCTV pictures of EAST DRAIN 2 X **for** Geosyntec Consultants

Work Order SC0233	**Video** 1	**Surveyed On** 08/21/2006	**Direction** Downstream	**Setup** 6
Street Name 14900 Poway Road	**City Name** Poway	**ZIP Code**	**Weather**	
Location		**From Manhole** EAST DRAIN 2	**To Manhole** EAST DRAIN 3	

Date: 8/21/2006 11:11:28 AM
Distance: 0.0 Ft
Obs: Debris (Not grease or silt)

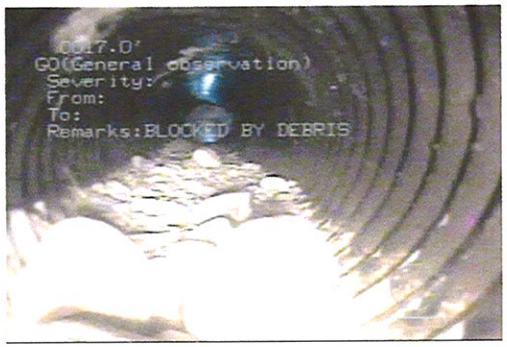
Comments:

Date: 8/21/2006 11:11:36 AM
Distance: 10.6 Ft
Obs: Debris (Not grease or silt)

Comments:

Date: 8/21/2006 11:12:20 AM
Distance: 17.0 Ft
Obs: General observation

Comments:
BLOCKED BY DEBRIS



Tabular Report of PLR EAST DRAIN 2 X **for** **Geosyntec Consultants**

Work Order SC0233	***Contract***	***Video*** 1	***Setup*** 7
Facility	***Operator*** CJC	***Van Ref*** 3	***Surveyed On*** 08/21/2006
Street Name 14900 Poway Road		***City*** Poway	
Location type			
Surface			
Survey purpose		***Weather***	

Pipe Use Storm	***Sched length*** ***Ft***	***From*** EAST DRAIN 3 ***Depth*** ***Ft***
Shape Circular	***Size*** 18 ***by*** 18 ***ins***	***To*** EAST DRAIN 2 ***Depth*** ***Ft***
Material Steel - Corrugated (ARMCO)	***Joint Spacing*** 5.00 ***Ft***	***Direction*** Up
Lining	***Year laid***	***Pre-clean*** ***Last Cleaned***
General note east drain		Structural Service Constructional
Location note		Miscellaneous Hydraulic

Video	Count	CD	Code		Sev	Fr	To	Value	Remarks
03405	0.0		ST	Start of Survey					
03405	0.0		MH	Manhole/Node					EAST DRAIN 3
03405	0.0		WL	Water level				0	
	5.0		D	Deformed sewer (NOT brick)				0005	
	17.2		D	Deformed sewer (NOT brick)				0005	
	29.2		DE	Debris (Not grease or silt)	M				
	31.8		H	Hole in sewer		01			
	33.8		H	Hole in sewer		01			
	34.5		H	Hole in sewer		01			
	36.4		H	Hole in sewer		02			
	37.9		DE	Debris (Not grease or silt)	L				
	37.9		GO	General observation					BLOCKED BY DEBRIS
03930	37.9		SA	Survey abandoned					

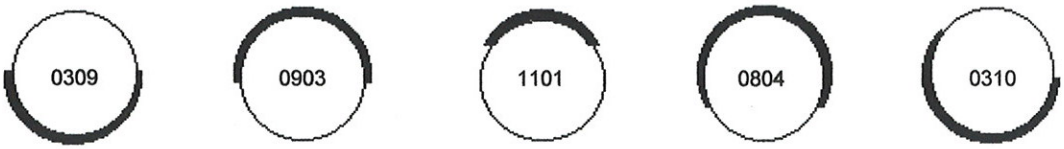
37.9 Ft ***Total Length Surveyed***

Scores

Structural:	***Total*** 0	***Mean Defect*** 0	***Peak*** 0	***Mean Pipe*** 0
Service:	***Total*** 25	***Mean Defect*** 8.3	***Peak*** 25	***Mean Pipe*** 0.7

Notes

Clock references: Clock references are given clockwise ie from 10 o'clock to 2 o'clock = 1002. The upper part of a pipe is 0903 and the lower half is 0309. See Illustration below



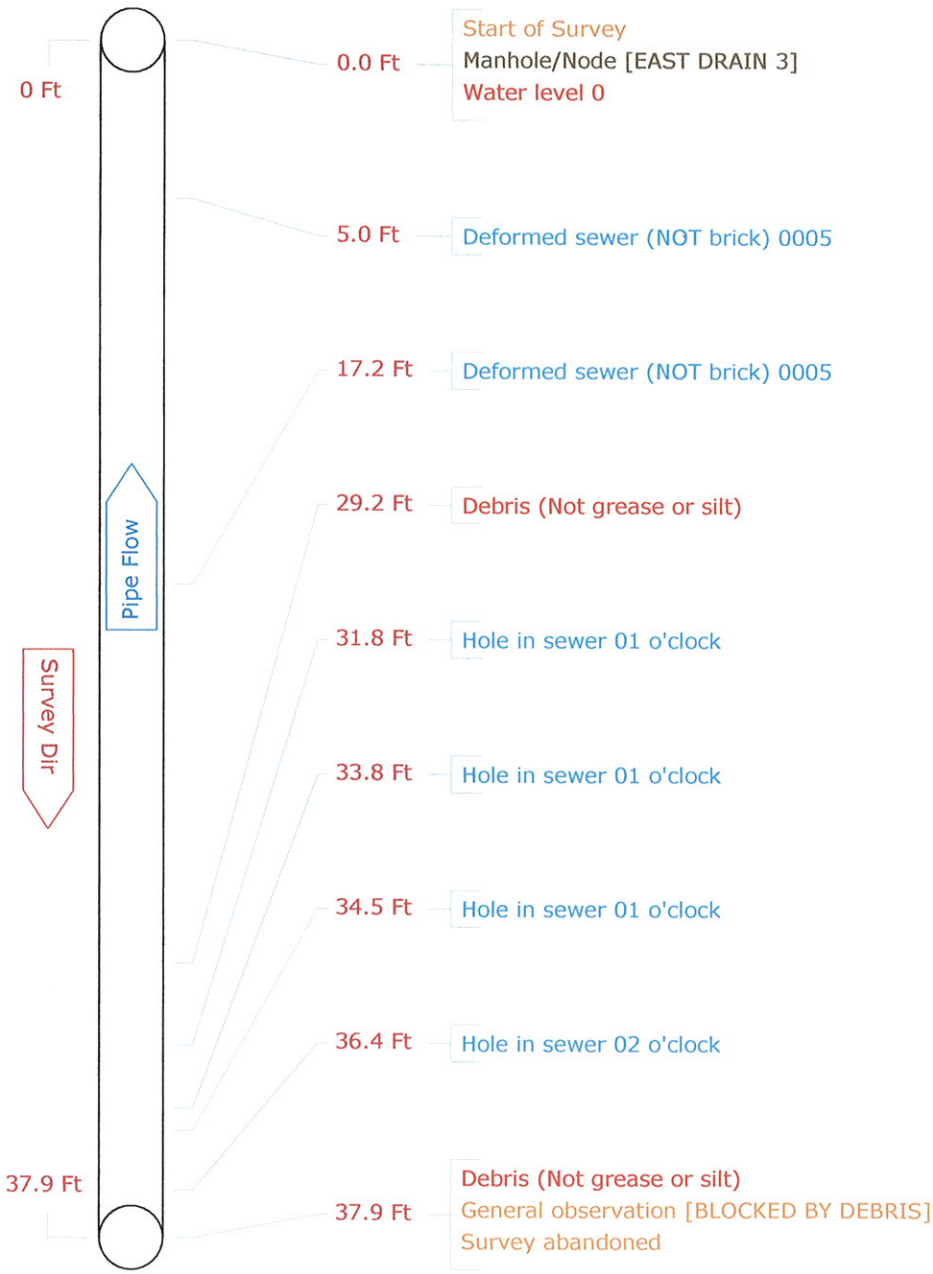
Pipe Graphic Report of PLR EAST DRAIN 2 X **for** Geosyntec Consultants

Work Order	SC0233	***Contract***		***Video***	1	***Setup***	7
Facility		***Operator***	CJC	***Van Ref***	3	***Surveyed On***	08/21/2006

Street Name	14900 Poway Road	***City***	Poway
Location type			
Surface			
Survey purpose		***Weather***	

Pipe Use	Storm	***Schedule length***	Ft	***From***	EAST DRAIN 3	***Depth***	Ft
Shape	Circular	***Size***	18 ***by*** 18 ins	***To***	EAST DRAIN 2	***Depth***	Ft
Material	Steel - Corrugated (ARMCO)	***Joint spacing***	5.0 Ft	***Direction***	Upstream		
Lining		***Year laid***		***Pre-clean***		***Last cleaned***	

General note	east drain	Structural	Service	Constructional
Location note		Miscellaneous	Hydraulic	

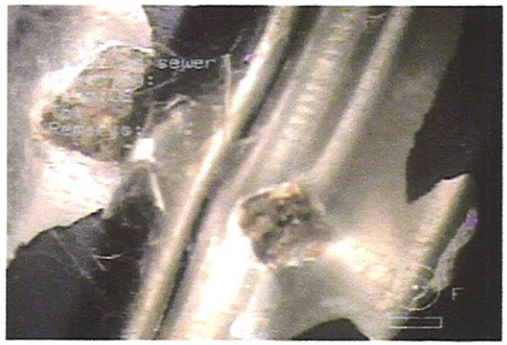


CCTV pictures of EAST DRAIN 2 X **for** Geosyntec Consultants

Work Order SC0233	**Video** 1	**Surveyed On** 08/21/2006	**Direction** Upstream	**Setup** 7
Street Name 14900 Poway Road	**City Name** Poway	**ZIP Code**	**Weather**	
Location		**From Manhole** EAST DRAIN 3	**To Manhole** EAST DRAIN 2	

Date: 8/21/2006 12:02:02 PM
Distance: 36.4 Ft
Obs: Hole in sewer

Comments:



Date: 8/21/2006 12:02:11 PM
Distance: 37.9 Ft
Obs: Debris (Not grease or silt)

Comments:

Tabular Report of PLR EAST DRAIN 4 X **for** **Geosyntec Consultants**

Work Order SC0233	***Contract***		***Video*** 1	***Setup*** 8	
Facility	***Operator*** CJC		***Van Ref*** 3	***Surveyed On*** 08/21/2006	
Street Name 14900 Poway Road			***City*** Poway		
Location type					
Surface					
Survey purpose			***Weather***		
Pipe Use Storm	***Sched length***	***Ft***	***From*** EAST DRAIN 5	***Depth***	***Ft***
Shape Circular	***Size*** 18 ***by*** 18	***ins***	***To*** EAST DRAIN 4	***Depth***	***Ft***
Material Steel - Corrugated (ARMCO)	***Joint Spacing*** 5.00	***Ft***	***Direction*** Up		
Lining	***Year laid***		***Pre-clean***	***Last Cleaned***	
General note east drain			Structural	Service	Constructional
Location note			Miscellaneous	Hydraulic	

Video	Count	CD	Code		Sev	Fr	To	Value	Remarks
03930	0.0		ST	Start of Survey					
03930	0.0		MH	Manhole/Node					EAST DRAIN 5
03930	0.0		WL	Water level				0	
	3.0		D	Deformed sewer (NOT brick)				0015	
	15.4		DE	Debris (Not grease or silt)	S				
	19.7		DE	Debris (Not grease or silt)	S				
	36.0		D	Deformed sewer (NOT brick)				0015	
	38.1		DE	Debris (Not grease or silt)	M				
	38.1		GO	General observation					BLOCKED BY DEBRIS AND
04341	38.1		SA	Survey abandoned					

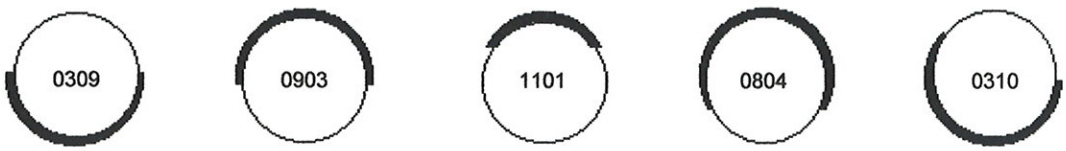
38.1 Ft ***Total Length Surveyed***

Scores

Structural:	***Total*** 0	***Mean Defect*** 0	***Peak*** 0	***Mean Pipe*** 0
Service:	***Total*** 35	***Mean Defect*** 8.8	***Peak*** 25	***Mean Pipe*** 0.9

Notes

Clock references: Clock references are given clockwise ie from 10 o'clock to 2 o'clock = 1002. The upper part of a pipe is 0903 and the lower half is 0309. See Illustration below



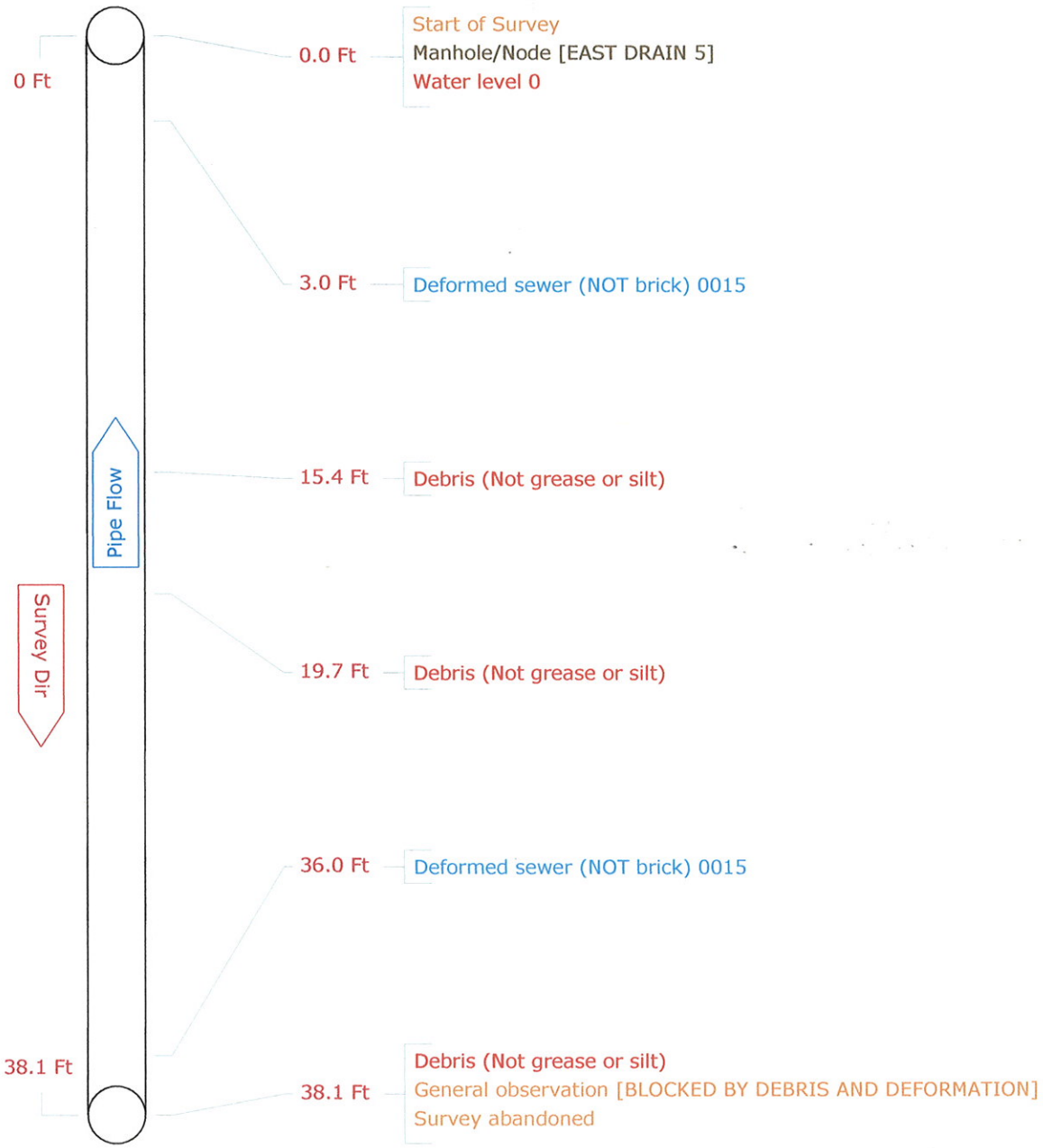
Pipe Graphic Report of PLR EAST DRAIN 4 X **for** Geosyntec Consultants

Work Order	SC0233	***Contract***		***Video***	1	***Setup***	8
Facility		***Operator***	CJC	***Van Ref***	3	***Surveyed On***	08/21/2006

Street Name	14900 Poway Road	***City***	Poway
Location type			
Surface			
Survey purpose		***Weather***	

Pipe Use	Storm	***Schedule length***	Ft	***From***	EAST DRAIN 5	***Depth***	Ft
Shape	Circular	***Size*** 18 ***by*** 18 ins		***To***	EAST DRAIN 4	***Depth***	Ft
Material	Steel - Corrugated (ARMCO)	***Joint spacing***	5.0 Ft	***Direction***	Upstream		
Lining		***Year laid***		***Pre-clean***		***Last cleaned***	

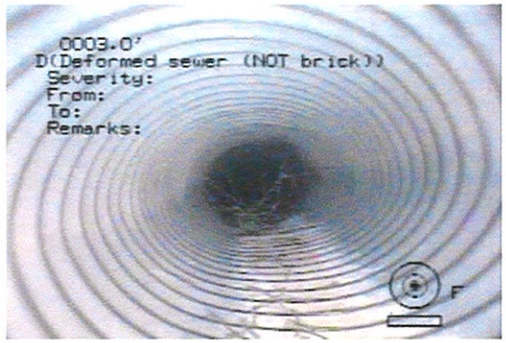
General note	east drain	Structural	Service	Constructional
Location note		Miscellaneous	Hydraulic	



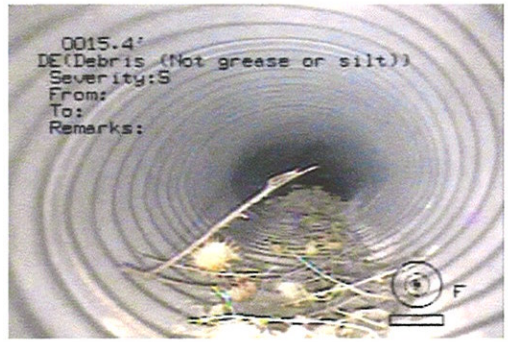
CCTV pictures of EAST DRAIN 4 X **for** Geosyntec Consultants

Work Order SC0233	**Video** 1	**Surveyed On** 08/21/2006	**Direction** Upstream	**Setup** 8
Street Name 14900 Poway Road	**City Name** Poway	**ZIP Code**	**Weather**	
Location		**From Manhole** EAST DRAIN 5	**To Manhole** EAST DRAIN 4	

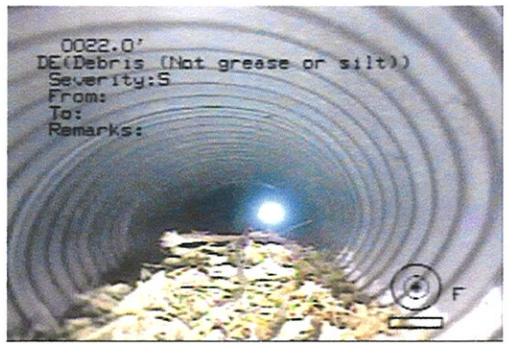
Date: 8/21/2006 12:12:12 PM
Distance: 3.0 Ft
Obs: Deformed sewer (NOT brick)
Comments:



Date: 8/21/2006 12:12:29 PM
Distance: 15.4 Ft
Obs: Debris (Not grease or silt)
Comments:

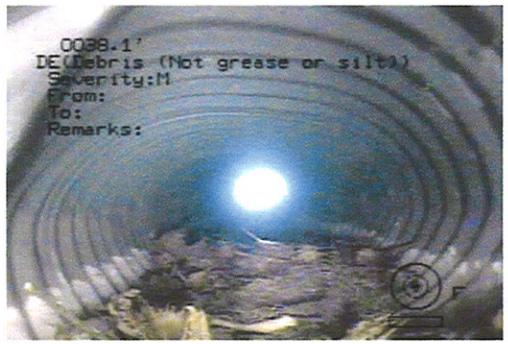


Date: 8/21/2006 12:12:43 PM
Distance: 19.7 Ft
Obs: Debris (Not grease or silt)
Comments:



Date: 8/21/2006 12:12:52 PM
Distance: 36.0 Ft
Obs: Deformed sewer (NOT brick)
Comments:

Date: 8/21/2006 12:13:00 PM
Distance: 38.1 Ft
Obs: Debris (Not grease or silt)
Comments:



Tabular Report of PLR EAST DRAIN 4 X **for** **Geosyntec Consultants**

Work Order SC0233	***Contract***		***Video*** 1	***Setup*** 9	
Facility	***Operator*** CJC		***Van Ref*** 3	***Surveyed On*** 08/21/2006	
Street Name 14900 Poway Road			***City*** Poway		
Location type					
Surface					
Survey purpose			***Weather***		
Pipe Use Storm	***Sched length*** 53.7 ***Ft***		***From*** EAST DRAIN 4	***Depth*** ***Ft***	
Shape Circular	***Size*** 18 ***by*** 18 ***ins***		***To*** EAST DRAIN 5	***Depth*** ***Ft***	
Material Steel - Corrugated (ARMCO)	***Joint Spacing*** 5.00 ***Ft***		***Direction*** Down		
Lining	***Year laid***		***Pre-clean***	***Last Cleaned***	
General note east drain			Structural	Service	Constructional
Location note			Miscellaneous	Hydraulic	

Video	Count	CD	Code		Sev	Fr	To	Value	Remarks
04341	0.0		ST	Start of Survey					
04341	0.0		MH	Manhole/Node					EAST DRAIN 4
04341	0.0		WL	Water level				0	
	0.0		DE	Debris (Not grease or silt)	M				
	17.6		D	Deformed sewer (NOT brick)				0005	
	53.7		MH	Manhole/Node					EAST DRAIN 5
04740	53.7		FH	Finish of Surveys					

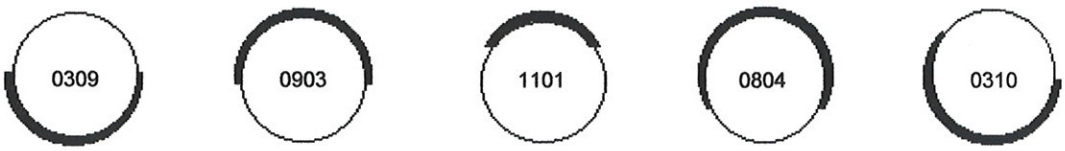
53.7 Ft ***Total Length Surveyed***

Scores

Structural:	***Total*** 0	***Mean Defect*** 0	***Peak*** 0	***Mean Pipe*** 0
Service:	***Total*** 25	***Mean Defect*** 12.5	***Peak*** 25	***Mean Pipe*** 0.5

Notes

Clock references: Clock references are given clockwise ie from 10 o'clock to 2 o'clock = 1002. The upper part of a pipe is 0903 and the lower half is 0309. See Illustration below



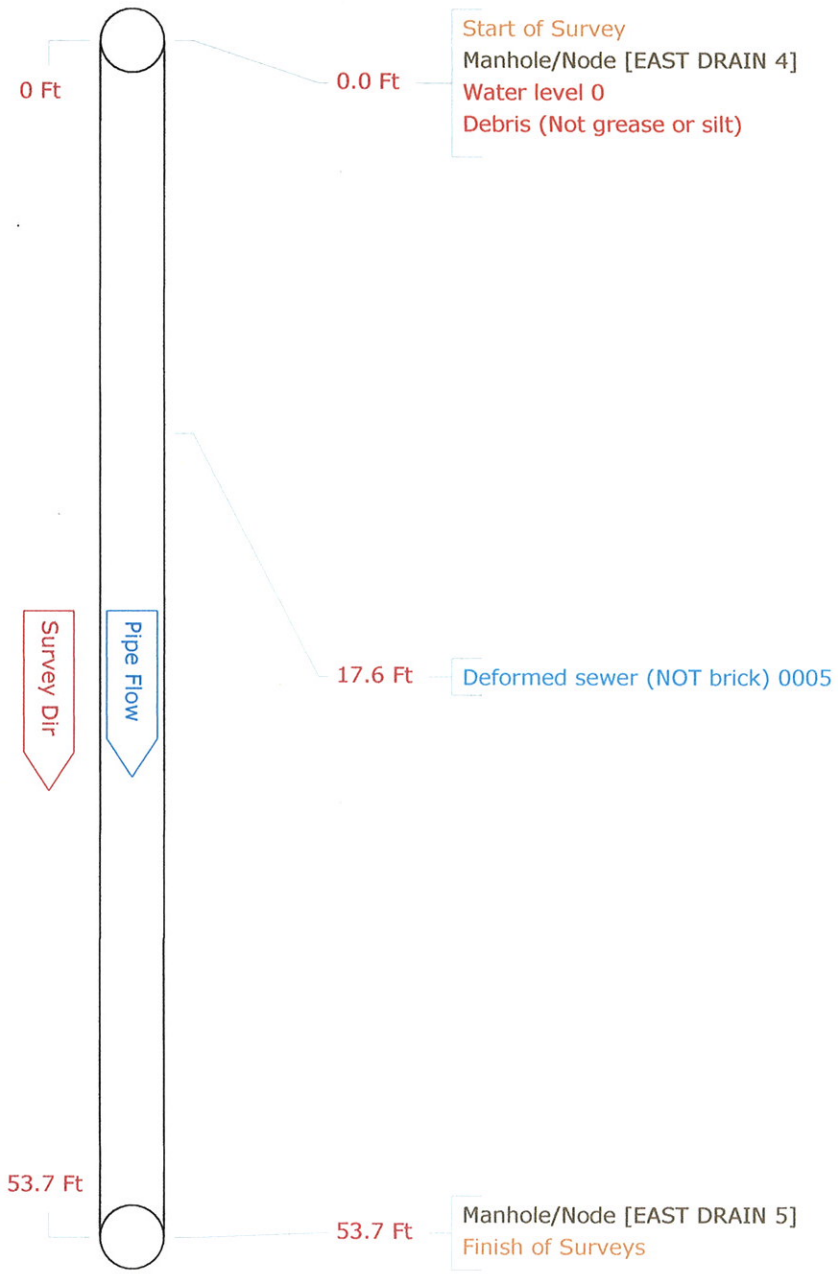
Pipe Graphic Report of PLR EAST DRAIN 4 X **for** Geosyntec Consultants

Work Order	SC0233	***Contract***		***Video***	1	***Setup***	9
Facility		***Operator***	CJC	***Van Ref***	3	***Surveyed On***	08/21/2006

Street Name	14900 Poway Road	***City***	Poway
Location type			
Surface			
Survey purpose		***Weather***	

Pipe Use	Storm	***Schedule length***	53.7 Ft	***From***	EAST DRAIN 4	***Depth***	Ft
Shape	Circular	***Size***	18 ***by*** 18 ins	***To***	EAST DRAIN 5	***Depth***	Ft
Material	Steel - Corrugated (ARMCO)	***Joint spacing***	5.0 Ft	***Direction***	Downstream		
Lining		***Year laid***		***Pre-clean***		***Last cleaned***	

General note	east drain	Structural	Service	Constructional
Location note		Miscellaneous	Hydraulic	



CCTV pictures of EAST DRAIN 4 X **for** Geosyntec Consultants

Work Order SC0233	**Video** 1	**Surveyed On** 08/21/2006	**Direction** Downstream	**Setup** 9
Street Name 14900 Poway Road	**City Name** Poway	**ZIP Code**	**Weather**	
Location		**From Manhole** EAST DRAIN 4	**To Manhole** EAST DRAIN 5	

Date: 8/21/2006 12:11:15 PM

Distance: 0.0 Ft

Obs: Debris (Not grease or silt)

Comments:

Date: 8/21/2006 12:11:26 PM

Distance: 17.6 Ft

Obs: Deformed sewer (NOT brick)

Comments:

APPENDIX E

UNSAT-H Model Results

Geosyntec consultants

COMPUTATION COVER SHEET

Client: **County of San Diego** Project: **Poway Landfill** Project/ Proposal No.: **SC0233** Task No. **09-05**

Title of Computations **EVALUATION OF EXISTING SOIL COVER SYSTEM**

Computations by:
Signature
Printed Name Rami El-Sherbiny
Title Engineer
Date

Assumptions and Procedures Checked by: (peer reviewer)
Signature
Printed Name Beth Gross
Title Senior Engineer
Date

Computations Checked by:
Signature
Printed Name Beth Gross
Title Senior Engineer
Date

Computations backchecked by: (originator)
Signature
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Title Engineer
Date

Approved by: (pm or designate)
Signature
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Title
Date

Approval notes:

Revisions (number and initial all revisions)

No.	Sheet	Date	By	Checked by	Approval

Written by:	R. EL-Sherbiny	Date:	04/12/07	Reviewed by:	B. Gross	Date:	04/12/07
Client:	County of San Diego	Project:	Poway Landfill	Project/Proposal No.:	SC0233	Task No.:	09-05

EVALUATION OF EXISTING SOIL COVER SYSTEM

PURPOSE

This calculation package presents an evaluation of the hydraulic performance of the existing soil cover system (existing cover system) on the top deck of the Poway Landfill. The evaluation was conducted by comparing the simulated drainage rate through the existing cover system to that for a prescriptive cover system meeting the requirements of California Code of Regulations, Title 27, Section 21090(a).

The existing cover system is a monolithic soil cover, a type of an evapotranspirative (ET) cover system. Except for the southern limit of the top deck where the existing cover system thickness was interpreted by SCS Engineers in a PPT survey as 3 feet (at PPT-V-16, -17, and -17A), the interpreted thickness of the existing cover system on the top deck, based on the SCS PPT survey and field logging performed by Geosyntec, ranges from 4 to 11 ft, with an average thickness of 6 ft. Based on field logging and laboratory testing, soil is generally classified as silty sand (SM) to clayey sand with gravel (SC). The vegetation on the top deck of the existing cover system primarily consists of cool season annuals, including short grasses, burr clover, and filaree (Photograph 1).

Photograph 1. Existing Cover System at Poway Landfill on 21 March 2006.

A Title 27 prescriptive cover system (prescriptive cover system) consists of the following components, from top to bottom:

- 1-ft thick erosion-resistant layer;
- 1-ft thick low hydraulic conductivity layer with a maximum hydraulic conductivity of 1×10^{-6} cm/s; and
- 2-ft thick foundation layer.

The ability of the existing cover system to provide equivalent reduction in infiltration (i.e., drainage of precipitation from the bottom of the cover system) to the prescriptive cover system is analyzed below.

METHOD OF ANALYSIS

The performance of the existing cover system relative to a Title 27 prescriptive cover system was evaluated using the *UNSAT-H* computer model. *UNSAT-H* was selected because it is currently the computer model most commonly used to design ET cover systems in the U.S. and because it models the physics of water movement through unsaturated soil. The *UNSAT-H* computer model is briefly described below.

UNSAT-H is a one-dimensional finite-difference water balance model developed at Pacific Northwest National Laboratory (PNNL) (Fayer and Jones, 1990) to assess the water dynamics of waste disposal facilities at the U.S. Department of Energy (DOE) Hanford site. The model also simulates soil heat flow and vapor flow. Version 3.01 of the model was used for the simulations described herein.

The *UNSAT-H* model considers precipitation, runoff, evapotranspiration, soil water storage, and percolation (i.e., vertical drainage from the cover system) in the water balance. Because *UNSAT-H* is a one-dimensional model, lateral drainage of water is not considered in the model. Infiltration of water into the soil profile, water redistribution within the soil, and vertical drainage from the soil are simulated using a finite difference solution to Richards' partial differential equation (Richards, 1931). This equation is obtained by combining the differential form of Darcy's equation for unsteady vertical flow with the one-dimensional differential form of the conservation of mass equation:

$$\frac{\partial \theta}{\partial t} = -\frac{\partial}{\partial z}\left[k_u(h)\left(\frac{\partial h}{\partial z}+1\right)\right] - S(z,t)$$

where: θ = volumetric moisture content; t = time; z = vertical coordinate (positive downward); k_u = unsaturated hydraulic conductivity; h = matric potential (head) due to capillary suction forces; and S = sink term representing water uptake by transpiration. In UNSAT-H, the unsaturated soil hydraulic conductivity term can be calculated using Haverkamp functions, Brooks-Corey functions, van Genuchten functions, or other functions. Precipitation in excess of the infiltration capacity of the soil is shed as runoff. Evaporation and transpiration are considered separately.

Evapotranspiration can be calculated in UNSAT-H using the potential evapotranspiration approach. Potential evapotranspiration is the maximum evapotranspiration that can occur if the supply of water to an evaporating surface is not limited and is a function of meteorological conditions alone. Potential evaporation and potential transpiration are first partitioned from potential evapotranspiration in UNSAT-H using a method based on leaf area index (LAI) or field data for cheatgrass. The LAI option was used herein. Evaporation of water from the soil surface proceeds at the potential evaporation rate as long as the suction head at the surface is no greater than a value that corresponds to air-dry soil. When the suction head exceeds this value, evaporation occurs at a rate less than the potential evaporation rate.

Potential transpiration is distributed over the plant root zone in proportion to the root density at each depth interval, and the actual transpiration at each depth interval is calculated as a function of potential transpiration and suction head. The root length density function for the specific vegetation is input by the model user. Fayer (2000) includes data from Cline et al. (1997) on root density distributions for an annual grass community (mostly cheatgrass) and a perennial grass community (mostly bluebunch wheatgrass).

To set up the finite difference grid used by *UNSAT-H*, the soil profile is divided into a number of horizontal sublayers with a node located at the center of each sublayer. Soil properties are then specified for each layer. Two additional nodes, one above the ground surface and one below the profile being modeled, are used to set boundary conditions. The upper boundary condition can be changed with time by adjusting the head to simulate ponded or non-ponded infiltration, evaporation, or zero flux. The lower boundary condition can be selected as a fixed water table, free drainage (or unit gradient), zero flux, or specified flux boundary. The initial condition is specified by assigning an initial head or water content to each node in the finite-difference nodal grid. Simulation output includes daily infiltration, evaporation, transpiration, and percolation.

ANALYSIS OF THE COVER SYSTEMS USING *UNSAT-H*

The *UNSAT-H* model requires the input of daily weather data, soils data, vegetation data, and initial and boundary conditions. There are no default data; the user must specify each input parameter. Input parameters used in the hydraulic assessment of the cover systems were selected to be consistent with site-specific parameters. The input data are described in this section.

Weather Data

The simulations were conducted using 10 years (1989 to 1998) of measured daily weather data, with precipitation data obtained from a weather station in Poway, California and maximum temperature, minimum temperature, dew point temperature[1], solar radiation, and wind speed data obtained from a weather station in Escondido, California (located approximately 8 miles north of Poway). The daily weather data for the Poway station were obtained from the National Oceanic and Atmospheric Administration's National Climatic Data Center (NOAA-NCDC), and weather for the Escondido station were obtained from the California weather database compiled by the Integrated Pest Management program at the University of California at Davis (UC-IPM). Relative humidity and wind speed measurements at the Escondido station were only available for the period from 1989 to1998. Therefore, the 10-year weather record from 1989 to 1998 was used in the simulations. The annual precipitation over the 10-year simulation period ranged from 4.5 in. (year 1989) to 25.6 in. (year 1998) and averaged 15.6 in.

The continuous daily rainfall record used in the analysis subjects the cover systems to a variety of weather scenarios including drought, multiple days of heavy rain, and extended wet periods. The worst-case weather scenario in terms of cover system performance is an extended wet period during the rainy season because potential evapotranspiration (PET) is low and outside the growing season[2] when vegetation is potentially dormant. The monthly precipitation record used in the simulations is shown on Figure 1. The daily weather input to *UNSAT-H*, consisting of precipitation, maximum temperature, minimum temperature, dew point temperature, solar radiation, and wind speed, is tabulated in Attachment A.

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[1] Dew point temperature was calculated from relative humidity and temperature using an integrated form of the Clausius-Clapeyron equation as Dew point (°C) = $(b - (b^2 - C_3)^{0.5})/C_4 - 273.15$ where $b = C_{15} - \ln(e_s \times RH/100)$, RH = relative humidity (%), $e_s = \exp(C_{15} - C_1 T - C_2/T)$, T = temperature (°K), $C_{15} = 26.66082$, $C_1=0.009138$, $C_2=6106.396$, $C_3=223.1986$, and $C_4=0.018276$.

[2] Growing season is defined herein as the time period between the last frost (at 32 ºF) of the winter and the first frost of the fall.

Because precipitation intensity information is not provided from NCDC, precipitation in *UNSAT-H* was applied uniformly at a moderate intensity of 1 cm/hr, starting at midnight.

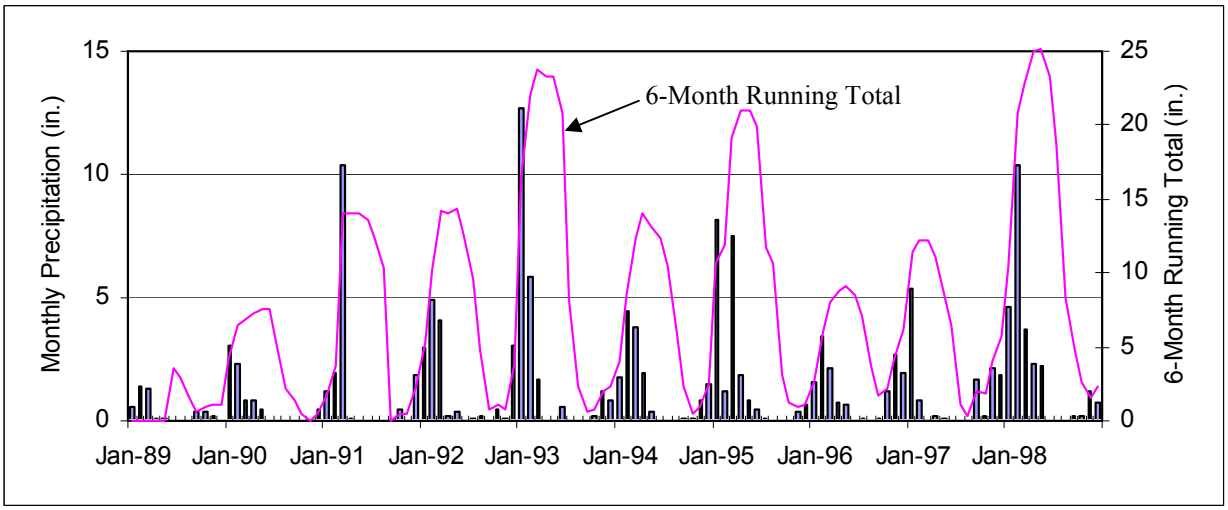

Figure 1. Monthly Precipitation Record for Poway, CA (1989-1998).
(Note: 6-month running total is equal to the monthly precipitation plus the total precipitation from the previous five months.)

Soils Data

As previously discussed, except for the southern limit of the top deck where the existing cover system thickness was measured as 3 ft, the measured thickness of the existing cover system on the top deck ranges from 4 to 11 ft with an average thickness of 6 ft. To assess the effect of soil thickness on drainage through the existing cover system, cover system thicknesses of 3 ft, 4 ft, and 6 ft were evaluated. The existing cover system was modeled as a single soil type.

To evaluate the properties of the existing soil cover, Geosyntec conducted a field exploration and laboratory testing program. On 3 January 2007, Geosyntec collected three bulk samples from test pits excavated into the existing cover system on the top deck of the Poway Landfill. The samples were evaluated for grain size (ASTM D422), Atterberg limits (ASTM D 4318), hydraulic conductivity (ASTM D5084), and soil water retention properties (ASTM D6836). The hydraulic conductivity and soil water characteristic curves (SWCCs) for the samples were determined based on as-compacted conditions simulated in the laboratory, and the SWCCs were corrected for gravel content. A summary of the laboratory test results is included in Attachment B.

The van Genuchten option in *UNSAT-H* was used to describe the relationship between soil suction and water content (i.e., the SWCC). The van Genuchten equation (van Genuchten, 1978) is given as:

$$\frac{\theta - \theta_r}{\theta_s - \theta_r} = \left[\frac{1}{1 + (\alpha h)^n}\right]^{1-1/n}$$

where: h = suction head; θ_r = residual water content; θ_s = saturated water content; θ = water content, and α and n are fitting parameters.

UNSAT-H requires the input of saturated water content, residual water content, van Genuchten fitting parameters, and soil hydraulic conductivity. An arithmetic mean of the parameters determined for the three soil samples (P-1, P-2, and P-3) was used to describe the representative properties of the existing cover system. These values are summarized in Table 1. The corresponding SWCC is shown in Figure 2 as the mean SWCC.

Table 1. Soil Parameters Used in *UNSAT-H*.

	θ_s	θ_r	α (cm^{-1})	n	Hydraulic Conductivity (cm/s)
Existing Cover System (Mean of Samples P-1 to P-3)	0.310	0.00	0.0064	1.202	2.8×10^{-5}
Prescriptive Cover System: Erosion Resistant Layer (Sample P-1 SWCC)	0.292	0.00	0.0111	1.231	1.0×10^{-4}
Prescriptive Cover System: Low Hydraulic Conductivity Layer (Sample P-2 SWCC)	0.298	0.00	0.0007	1.204	1.0×10^{-6}

The prescriptive cover system was modeled as a 1-ft thick erosion layer with a hydraulic conductivity of 1.0×10^{-4} cm/s (an assumed value for a loosely placed soil layer) overlying a 1-ft thick low hydraulic conductivity layer having a hydraulic conductivity of 1.0×10^{-6} cm/s (a prescribed value). The SWCC for these two layers were selected from the three SWCCs developed for the site soils. The SWCC for sample P-1, the sample with the highest measured

hydraulic conductivity, was assigned to the erosion resistant layer of the prescriptive cover system. The SWCC for sample P-2, the sample with the lowest hydraulic conductivity, was assigned to the low hydraulic conductivity layer of the prescriptive cover system. The SWCCs used for the prescriptive cover system are shown in Figure 2 as P-1 and P-2.

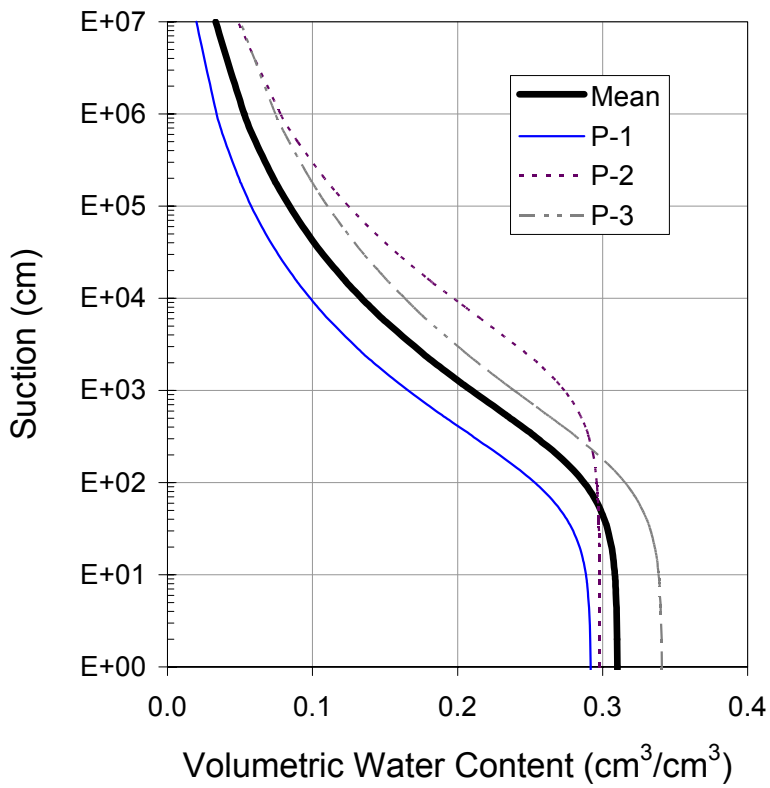

Figure 2. SWCCs Measured for Site Soils and Used in *UNSAT-H*.

Vegetation Data

UNSAT-H requires a variety of input parameters to model plant transpiration. This section describes how values were selected for each parameter. Key parameters that drive the results of the model are indicated.

Option for LAI: *UNSAT-H* calculates potential transpiration based on LAI or field data for annual cheatgrass. Because the cover systems are considered to be vegetated with annual

grasses, the LAI option was chosen for this analysis. LAI is defined as the total leaf area per unit ground area.

LAI: *UNSAT-H* requires the user to specify representative LAI values over time for the plant species on the cover systems. LAI is a key parameter that influences the results of the model because LAI is proportional to potential plant transpiration, and plant transpiration effectively intercepts water moving downward through the cover system and prevents water from percolating into the underlying waste. LAI may range from 0 for no grass to 5 for excellent grass. As described by Schroeder et al. (1994a), the LAI values for poor, fair, and good stands of grass can approach 1.0, 2.0, and 3.5, respectively, with the maximum leaf area index for a region being a function of precipitation and temperature. Model results are sensitive to LAI when LAI is changed from 0 to 1. However, model results are not as sensitive to LAI changes between 1 and 5. In other words, a small amount of vegetation may significantly reduce percolation provided the roots extend to a sufficient depth to capture the water. The maximum LAI value for the Poway site was selected as 1.2 based on the LAI contour maps for the U.S. presented in documentation for the U.S. Environmental Protection Agency (EPA) Hydrologic Evaluation of Landfill Performance (*HELP*) model (Schroeder et al., 1994b).

Number of changes in LAI vs. time slope in a season: *UNSAT-H* allows the user to specify how LAI will change during the season. For example, at the start of a growing season LAI is generally low, but as the season progresses LAI increases as vegetation grows. Towards the end of a growing season, LAI decreases as vegetation dies or goes dormant. For this analysis, the growing season was assumed to extend from the last frost in the winter to the first frost in the fall as recorded for the 10-year weather dataset used in the simulations. Thus, the growing season was assumed to start at julian day 47 and end at julian day 318. If the vegetation at the site can tolerate occasional temperatures of 32 ºF or lower (the lowest recorded temperature in the 10-year weather dataset is 28 ºF), the actual growing season for site vegetation would be longer and may be 365 days/year. Therefore, UNSAT-H may be conservative in that it is underestimating PET because vegetation may not be dormant between the estimated first and last frosts. It was also assumed that LAI increases linearly from zero at the start of the growing season (julian day 47) to the maximum LAI (1.2) 35 days later (julian day 82). LAI was assumed to remain constant until 35 days before the end of the growing season (julian day 283) and then decrease linearly to zero at the end of the growing season (julian day 318). Therefore, the number of changes in the LAI vs. time slope was specified to be four. The length of the plant growing stages were selected based on the data presented by Allen et al. (1998) for forages.

Severe summer drought may cause vegetation to go dormant prematurely and result in an LAI reduction prior to the normal end of growing season. However, a severe summer drought is not a worse-case scenario for the cover systems because percolation will be negligible when the soil profile is dry. *UNSAT-H* accounts for the effects of drought on transpiration by reducing the transpiration rate when suction heads increase beyond a specified value. If suction heads increase still further to a specified wilting point, transpiration is assumed to cease. A scenario of a severe summer drought followed by extended rainfall may result in water entering the cover system, but the presence of rain in the growing season should cause the annual grasses to germinate and grow or come out of dormancy and begin to transpire.

Bare area: For the analysis of the cover systems, the effect of bare area is incorporated into the canopy LAI assumed for the grass. This approach is appropriate because: (i) the canopy leaf area index was used by Ritchie and Burnett (1971) when they developed their empirical relationship to partition potential evapotranspiration into potential evaporation and potential transpiration; the Ritchie and Burnett (1971) relationship is incorporated into the *UNSAT* model; and (ii) if there are extensive bare areas or extensive localized areas with different leaf area indices, the correct way to model these areas would be to use the canopy leaf area indices for these sub-areas, e.g., a leaf area index of zero for bare areas. Furthermore, the bare area fraction in *UNSAT-H* is an artifact of the *UNSAT* code developed by Gupta et al. (1978) that was carried along into the *UNSAT-H* code (personal communication with Mike Fayer, author of *UNSAT-H*, July 2005).

Root depth: *UNSAT-H* requires input for root depth versus time. Root depth is a key parameter that influences the results of the model because the depth of the roots determines the depth to which the water may be extracted from the cover system soil by plants. Deeper roots are able to extract more water from the cover system soil. Rooting depth is dependent on many factors including species, moisture availability, maturity, soil type, and plant density (Schroeder et al., 1994a). In general, the root depth for annual vegetation is less than that for perennial vegetation. County personnel estimate the maximum root depth of the annual vegetation at the site to be on the order of 12 to 18 in. On 3 January 2007, prior to significant rainfall and vegetation growth, Geosyntec personnel observed root depths on the order of 3 in. in test pits excavated at the site. For the purposes of the cover system evaluation presented herein, as a conservative estimate of root depth during normal precipitation years the root depth was assumed to be 0 at the start of the growing season (julian day 47) and reach 6 in. 35 days later (julian day 82), when LAI reaches its maximum value.

Root length density: *UNSAT-H* requires fitting parameters to describe a root length density (RLD) function, which is essentially the shape of the root frequency vs. depth curve. The function is defined by the code as:

$$RLD = a \exp^{(-b z)} + c$$

where: a, b, and c = fitting parameters; and z = depth below ground surface. Root biomass is typically denser near the surface and less dense with depth. RLD coefficients based on annual cheatgrass root biomass data (Fayer, 2000) were used to model the root biomass. The resulting fitting parameters are used in *UNSAT-H* are a = 1.163, b = 0.129, and c = 0.020. The RLD function calculated using these parameters indicates RLD decreases with depth below the ground surface (Figure 3).

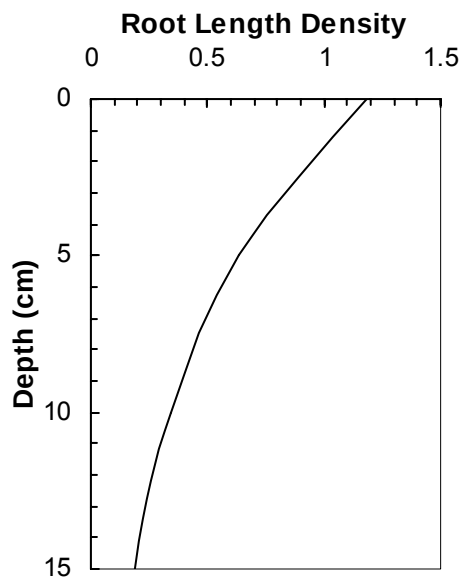

Figure 3. RLD Function Used in *UNSAT-H*.

Suction heads controlling transpiration: For each soil type specified in the profile, *UNSAT-H* requires the input of three suction head values that control the rate at which plants transpire. The first head value (HN) corresponds to the anaerobic water content, or the water content above which plants cannot transpire because of anaerobic conditions. The anaerobic water content is dependent primarily on a plant species' tolerance to anaerobic conditions. Some plants are able to transpire despite anaerobic conditions, but most are not. Lanyon et al. (2004) reported that in case of grapevines (which have low anaerobic tolerance), soils are regarded as waterlogged when

the degree of saturation exceeds 93%. For the vegetation at the Poway Landfill site, the anaerobic water content was assumed to occur at 93% soil saturation. Based on the water retention curves for the soils (Figure 2), HN was estimated to be 90 cm for the existing cover system, 50 cm for the erosion resistant layer, and 860 cm for the low hydraulic conductivity layer.

The second head value (HD) corresponds to the depletion water content (θ_t), the water content below which transpiration starts to decrease because of lack of water. Depletion water content is typically expressed as a fraction (F) of the difference between field capacity (θ_{fc}) and wilting point (θ_{wp}) (Allen et al., 1998):

$$\theta_t = (1 - F)(\theta_{fc} - \theta_{wp}) + \theta_{wp}$$

Depletion fractions are typically in the range of 0.3 to 0.7. The depletion fraction reported by Allen et al. (1998) for cool-season turf grass is 0.4. This value was considered to be applicable to the vegetation on the Poway Landfill. Using the above equation, a depletion fraction of 0.4, and the water retention curves for the soils, HD was estimated to be 860 cm for the existing cover system, 1,150 cm for the erosion resistant layer, and 2,500 cm for the low hydraulic conductivity layer.

The third head value (HW) corresponds to the wilting point, or the water content below which transpiration ceases due to lack of water. HW is typically assumed to equal 15,300 cm (15 bars) for most plants (Schroeder et al., 1994b), but can be much greater for plants adapted to arid and semi-arid climates. A value of 15,300 cm was used in the simulations. A summary of suction heads used as input to the *UNSAT-H* is provided in Table 2, and a summary of vegetation input data for the *UNSAT-H* simulations is provided in Table 3.

Table 2. Summary of Input Heads to *UNSAT-H*

Transpiration Condition [At which Suction Head is Calculated]	Existing Cover		Erosion Layer		Low Hydraulic Conductivity Layer	
	Volumetric Water Content (θ)	Suction Head h (cm)	Volumetric Water Content (θ)	Suction Head h (cm)	Volumetric Water content (θ)	Suction Head h (cm)
Anaerobic at 93% Saturation [HN]	0.289	90	0.272	50	0.277	860
Depletion at Water Content $\theta_t = (1-F)(\theta_{fc}-\theta_{wp})+\theta_{wp}$ [HD]	0.215	860	0.161	1150	0.247	2500

Field Capacity	0.208	330	0.251	330	0.290	330
Wilting Point [HW]	0.123	15300	0.090	15300	0.182	15300
Initial Conditions at Remolded Water Content	0.200	1300	0.190	530	0.200	9200

Table 3. Vegetation Data Used in *UNSAT-H*.

Parameter	Representative Input Value	Reference
Maximum LAI	1.2	Schroeder et al. (1994a)
Number of changes in LAI vs. time function	4	Assumed based on site temperatures during simulation period and growing stages for forages in Allen et al. (1998)
Growing season start day (for plants, including roots)	Julian day 47 (Feb 16)	
Peak LAI start day (roots at maximum root depth)	Julian day 82 (Mar 23)	
Peak LAI end day	Julian day 283 (Oct 10)	
Growing season end day	Julian day 318 (Nov 14)	
Bare Area	0	Average LAI is used, consistent with Ritchie and Burnett (1971)
Root Depth	6 in.	Site observation
Root Length Density	a = 1.163, b = 0.129, and c = 0.020	Values for an annual grass in Fayer (2000)
Suction Heads Controlling Transpiration for	HN = 90 cm (existing cover system), 50 cm (erosion resistant layer), and 860 cm (low hydraulic conductivity layer); HD = 860 cm (existing cover system), 1,150 cm (erosion resistant layer), 2,500 cm (low hydraulic conductivity layer); HW all soils = 15,300 cm	Allen et al. (1998), Lanyon et al. (2004)

Initial and Boundary Conditions

The initial suctions in the soil profiles were selected based on the volumetric moisture contents of the remolded soil samples tested for SWCC and hydraulic conductivity. The gravimetric water contents of the bulk samples were similar (within 1.4 percentage points) to the gravimetric water contents of the remolded samples, and it was assumed that the bulk densities of the in-place soil were similar to that of the remolded samples. The initial suction of the existing cover system was assumed to be 1300 cm, corresponding to a volumetric water content of approximately 0.2. The initial suction of the erosion resistant layer was assumed to be 530 cm, corresponding to a volumetric water content of about 0.19. The initial suction of the low hydraulic conductivity layer was assumed to be 9,200 cm, corresponding to a volumetric water content of about 0.2. Meteorological forcing (i.e., the 1989-1998 weather record) was used at the upper boundary. A unit gradient flow boundary was specified for the bottom of the drainage layer component of the ET cover systems and permitted cover system. The unit gradient lower boundary corresponds to gravity induced drainage and is most appropriate when drainage is not impeded (Fayer, 2000).

RESULTS AND DISCUSSION

The results of the *UNSAT-H* analyses for the existing cover system and a Title 27 cover system are summarized in Table 4. The *UNSAT-H* model input and output are presented in Attachment C. Based on the results of the simulations, the existing cover system allows less drainage than a prescriptive cover system. The relatively high performance of the existing cover system is primarily due to its relatively high water storage capacity and its relatively low permeability. The majority of water that enters the cover system can be stored in the cover system soil until it is removed by evapotranspiration. The results also indicate that a 3-ft thickness of existing cover system is sufficient.

Table 4. Simulation Results.

Cover System Configuration	Total 10-year Drainage [mm (in.)]	Average Annual Drainage [mm (in.)]
Existing Cover System (3-ft thick)	13 (0.5)	1.3 (0.05)
Existing Cover System (4-ft thick)	11 (0.4)	1.1 (0.04)
Existing Cover System (6-ft thick)	10 (0.4)	1.0 (0.04)
Prescriptive Cover System	120 (5)	12 (0.5)

CONCLUSION

Based on the results of the simulations, the existing cover system allows less drainage than a Title 27 prescriptive cover system.

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Written by: **R. EL-Sherbiny** Date: **04/18/07** Reviewed by: **B. Gross** Date: **04/18/07**

Client: **County of San Diego** Project: **Poway Landfill** Project/Proposal No.: **SC0233-9** Task No.: **5**

ATTACHMENT A

WEATHER DATA

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
1	1	1989	1	65	37	35.5	255	6	0	0
1	2	1989	2	69	36	31.7	291	5	0	0
1	3	1989	3	68	40	41.9	135	5	0	0.01
1	4	1989	4	61	49	50.9	98	3	0	0.06
1	5	1989	5	60	45	47.4	198	4	0	0
1	6	1989	6	60	44	43.6	231	5	0	0.38
1	7	1989	7	53	32	34.0	205	5	0	0.01
1	8	1989	8	55	33	32.6	293	4	0	0.01
1	9	1989	9	70	32	35.4	303	3	0	0
1	10	1989	10	71	39	41.6	299	4	0	0
1	11	1989	11	71	48	43.4	310	6	0	0
1	12	1989	12	64	45	10.1	323	9	0	0
1	13	1989	13	63	34	29.0	316	4	0	0
1	14	1989	14	63	34	35.5	306	3	0	0
1	15	1989	15	71	39	39.5	319	5	0	0
1	16	1989	16	74	33	32.0	318	3	0	0
1	17	1989	17	80	34	38.8	321	3	0	0
1	18	1989	18	82	37	33.1	321	3	0	0
1	19	1989	19	84	40	37.8	324	4	0	0
1	20	1989	20	79	40	40.7	230	5	0	0
1	21	1989	21	80	52	35.3	132	3	0	0
1	22	1989	22	73	47	45.4	312	5	0	0
1	23	1989	23	64	48	52.0	90	4	0	0
1	24	1989	24	60	47	49.2	188	3	0	0.09
1	25	1989	25	65	42	44.0	287	4	0	0
1	26	1989	26	71	34	31.1	326	4	0	0
1	27	1989	27	66	32	35.1	377	5	0	0
1	28	1989	28	62	44	45.3	281	5	0	0
1	29	1989	29	74	37	41.3	353	3	0	0
1	30	1989	30	76	34	33.8	352	5	0	0
1	31	1989	31	74	42	30.5	360	4	0	0
2	1	1989	32	65	38	39.9	336	4	0	0.08
2	2	1989	33	60	51	52.4	62	3	0	0.54
2	3	1989	34	63	53	53.0	143	4	0	0.24
2	4	1989	35	54	50	49.7	73	7	0	0.01
2	5	1989	36	52	36	35.4	207	8	0	0
2	6	1989	37	52	36	23.4	352	9	0	0
2	7	1989	38	53	42	28.8	174	9	0	0.21
2	8	1989	39	63	46	38.5	177	6	0	0.23
2	9	1989	40	61	47	43.9	111	4	0	0.01
2	10	1989	41	61	54	51.9	304	4	0	0
2	11	1989	42	62	49	48.3	394	4	0	0
2	12	1989	43	60	47	47.4	261	5	0	0.02
2	13	1989	44	58	46	45.9	150	5	0	0.04
2	14	1989	45	62	44	46.0	396	3	0	0
2	15	1989	46	66	43	44.8	391	4	0	0
2	16	1989	47	67	40	43.0	401	4	0	0
2	17	1989	48	73	44	47.2	398	4	0	0
2	18	1989	49	68	43	47.0	369	4	0	0
2	19	1989	50	64	56	55.0	169	3	0	0
2	20	1989	51	70	56	56.0	388	3	0	0
2	21	1989	52	84	46	50.1	427	4	0	0
2	22	1989	53	88	47	40.8	383	3	0	0
2	23	1989	54	88	50	45.4	401	3	0	0
2	24	1989	55	86	51	49.2	340	3	0	0
2	25	1989	56	82	53	50.1	352	3	0	0
2	26	1989	57	86	51	48.8	429	4	0	0
2	27	1989	58	76	46	49.8	420	4	0	0
2	28	1989	59	70	56	55.4	394	4	0	0
3	1	1989	60	67	54	54.1	396	4	0	0

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
3	2	1989	61	65	56	56.4	80	5	0	0.05
3	3	1989	62	64	46	48.3	316	7	0	0.27
3	4	1989	63	65	42	42.8	422	5	0	0
3	5	1989	64	73	47	47.8	407	4	0	0
3	6	1989	65	82	45	45.3	466	4	0	0
3	7	1989	66	87	52	56.0	447	4	0	0
3	8	1989	67	74	51	50.0	560	5	0	0
3	9	1989	68	79	51	53.7	457	4	0	0
3	10	1989	69	77	60	58.5	407	4	0	0
3	11	1989	70	78	61	60.6	390	5	0	0
3	12	1989	71	83	59	60.5	476	4	0	0
3	13	1989	72	73	56	56.6	486	5	0	0
3	14	1989	73	73	57	56.2	497	5	0	0
3	15	1989	74	68	46	49.4	498	4	0	0
3	16	1989	75	67	57	56.3	432	4	0	0
3	17	1989	76	71	56	54.9	502	4	0	0
3	18	1989	77	78	55	56.5	487	4	0	0
3	19	1989	78	77	54	55.9	493	4	0	0
3	20	1989	79	84	55	52.0	512	4	0	0
3	21	1989	80	86	47	24.2	553	6	0	0
3	22	1989	81	82	44	44.7	535	5	0	0
3	23	1989	82	72	50	51.7	516	5	0	0
3	24	1989	83	72	58	55.3	447	5	0	0
3	25	1989	84	62	53	55.5	114	5	0	0.22
3	26	1989	85	68	53	55.9	438	4	0	0.78
3	27	1989	86	68	53	53.2	551	4	0	0.01
3	28	1989	87	73	57	58.3	541	4	0	0
3	29	1989	88	69	49	53.2	550	4	0	0
3	30	1989	89	81	62	61.9	555	4	0	0
3	31	1989	90	88	57	59.5	560	4	0	0
4	1	1989	91	75	57	58.2	547	5	0	0
4	2	1989	92	77	61	60.2	554	4	0	0
4	3	1989	93	80	59	61.0	558	4	0	0
4	4	1989	94	99	60	60.2	596	5	0	0
4	5	1989	95	101	55	41.5	617	6	0	0
4	6	1989	96	105	61	32.6	626	6	0	0
4	7	1989	97	103	61	29.8	625	6	0	0
4	8	1989	98	95	57	53.5	614	5	0	0
4	9	1989	99	81	54	59.0	589	5	0	0
4	10	1989	100	80	63	63.4	517	5	0	0
4	11	1989	101	76	66	68.6	130	4	0	0
4	12	1989	102	75	65	66.2	204	4	0	0
4	13	1989	103	73	64	63.3	291	4	0	0.05
4	14	1989	104	78	65	63.7	439	5	0	0
4	15	1989	105	78	65	64.0	563	5	0	0
4	16	1989	106	78	64	63.8	461	5	0	0
4	17	1989	107	78	64	62.7	495	5	0	0
4	18	1989	108	80	65	64.5	552	6	0	0
4	19	1989	109	83	65	66.0	578	5	0	0
4	20	1989	110	87	64	62.9	590	5	0	0
4	21	1989	111	75	65	63.4	380	5	0	0
4	22	1989	112	76	63	59.3	582	5	0	0
4	23	1989	113	72	60	57.3	586	5	0	0
4	24	1989	114	68	49	48.2	499	6	0	0
4	25	1989	115	68	50	48.3	576	6	0	0
4	26	1989	116	68	55	53.8	524	3	0	0.02
4	27	1989	117	74	54	53.9	630	4	0	0
4	28	1989	118	72	47	48.0	617	6	0	0
4	29	1989	119	82	50	55.4	613	5	0	0
4	30	1989	120	81	51	53.1	618	5	0	0

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
5	1	1989	121	81	49	53.6	636	5	0	0
5	2	1989	122	76	52	53.2	656	5	0	0
5	3	1989	123	76	53	55.4	647	5	0	0
5	4	1989	124	74	55	56.4	581	5	0	0
5	5	1989	125	76	55	58.3	572	5	0	0
5	6	1989	126	76	56	56.5	592	5	0	0
5	7	1989	127	75	54	55.7	631	5	0	0
5	8	1989	128	76	54	54.9	620	6	0	0
5	9	1989	129	76	54	57.4	413	6	0	0
5	10	1989	130	67	57	53.3	387	7	0	0
5	11	1989	131	64	52	50.9	485	6	0	0.07
5	12	1989	132	66	55	52.6	484	5	0	0
5	13	1989	133	66	55	57.3	584	4	0	0
5	14	1989	134	63	53	55.4	545	3	0	0.01
5	15	1989	135	60	52	51.9	576	4	0	0.05
5	16	1989	136	69	56	56.7	412	5	0	0
5	17	1989	137	67	57	56.6	471	5	0	0
5	18	1989	138	71	57	57.5	535	5	0	0
5	19	1989	139	74	59	56.9	643	5	0	0
5	20	1989	140	78	53	52.9	668	5	0	0
5	21	1989	141	79	52	52.0	682	5	0	0
5	22	1989	142	76	53	51.5	624	5	0	0
5	23	1989	143	76	53	50.8	648	5	0	0
5	24	1989	144	73	52	50.6	679	5	0	0
5	25	1989	145	74	51	51.8	672	5	0	0
5	26	1989	146	74	52	54.9	658	5	0	0
5	27	1989	147	72	56	56.1	564	6	0	0
5	28	1989	148	71	55	55.1	646	6	0	0
5	29	1989	149	70	58	56.6	667	6	0	0
5	30	1989	150	71	54	53.1	655	5	0	0
5	31	1989	151	73	52	54.9	661	5	0	0
6	1	1989	152	71	56	56.9	576	6	0	0
6	2	1989	153	71	56	57.6	507	5	0	0
6	3	1989	154	67	56	55.6	404	5	0	0
6	4	1989	155	71	57	54.9	532	6	0	0
6	5	1989	156	72	58	57.3	599	5	0	0
6	6	1989	157	71	52	55.3	648	6	0	0
6	7	1989	158	70	58	60.7	232	5	0	0
6	8	1989	159	66	58	59.4	256	5	0	0
6	9	1989	160	66	58	59.0	597	5	0	0.01
6	10	1989	161	70	56	60.0	443	5	0	0
6	11	1989	162	71	58	61.0	567	5	0	0
6	12	1989	163	74	58	62.0	561	5	0	0
6	13	1989	164	75	58	63.0	767	8	0	0
6	14	1989	165	92	58	63.6	670	5	0	0
6	15	1989	166	86	59	64.7	663	5	0	0
6	16	1989	167	86	56	62.6	682	6	0	0
6	17	1989	168	92	55	58.5	703	5	0	0
6	18	1989	169	99	53	59.6	687	5	0	0
6	19	1989	170	101	59	59.9	619	5	0	0
6	20	1989	171	97	60	63.9	676	6	0	0
6	21	1989	172	94	55	62.1	709	6	0	0
6	22	1989	173	86	58	63.3	663	6	0	0
6	23	1989	174	79	58	61.3	645	5	0	0
6	24	1989	175	75	55	58.1	523	5	0	0
6	25	1989	176	80	56	60.2	688	5	0	0
6	26	1989	177	86	52	59.6	688	5	0	0
6	27	1989	178	87	55	62.0	673	5	0	0
6	28	1989	179	83	55	57.9	656	5	0	0
6	29	1989	180	82	50	57.8	702	5	0	0

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
6	30	1989	181	84	51	58.8	702	5	0	0
7	1	1989	182	85	51	58.6	689	5	0	0
7	2	1989	183	88	52	59.9	705	5	0	0
7	3	1989	184	94	53	61.7	692	5	0	0
7	4	1989	185	107	56	60.5	683	5	0	0
7	5	1989	186	93	60	62.9	665	6	0	0
7	6	1989	187	95	61	62.2	654	6	0	0
7	7	1989	188	90	63	68.3	606	6	0	0
7	8	1989	189	87	62	67.9	614	6	0	0
7	9	1989	190	85	61	66.1	565	5	0	0
7	10	1989	191	84	64	68.0	477	5	0	0
7	11	1989	192	84	61	66.6	596	5	0	0
7	12	1989	193	86	60	67.0	647	5	0	0
7	13	1989	194	92	58	65.3	675	5	0	0
7	14	1989	195	85	59	58.2	676	5	0	0
7	15	1989	196	88	52	62.3	640	5	0	0
7	16	1989	197	87	55	63.0	660	5	0	0
7	17	1989	198	86	57	63.2	650	5	0	0
7	18	1989	199	90	56	63.9	635	5	0	0
7	19	1989	200	94	58	66.9	580	5	0	0
7	20	1989	201	94	63	68.6	589	5	0	0
7	21	1989	202	90	66	68.8	566	6	0	0
7	22	1989	203	89	64	66.3	560	5	0	0
7	23	1989	204	88	61	67.9	623	6	0	0
7	24	1989	205	87	61	67.8	602	5	0	0
7	25	1989	206	91	61	68.8	604	5	0	0
7	26	1989	207	89	57	66.1	621	5	0	0
7	27	1989	208	92	60	66.8	609	5	0	0
7	28	1989	209	93	63	69.0	601	5	0	0
7	29	1989	210	92	60	65.1	609	5	0	0
7	30	1989	211	89	58	63.8	617	5	0	0
7	31	1989	212	92	57	62.3	638	5	0	0
8	1	1989	213	88	55	62.0	649	5	0	0
8	2	1989	214	87	52	60.0	645	5	0	0
8	3	1989	215	89	59	65.0	639	5	0	0
8	4	1989	216	90	55	61.7	631	5	0	0
8	5	1989	217	91	60	63.4	594	5	0	0
8	6	1989	218	90	63	69.1	585	5	0	0
8	7	1989	219	86	64	68.5	534	5	0	0
8	8	1989	220	83	65	70.0	529	5	0	0
8	9	1989	221	88	63	69.8	577	5	0	0
8	10	1989	222	90	65	71.1	591	5	0	0
8	11	1989	223	90	64	69.9	588	5	0	0
8	12	1989	224	93	64	69.9	584	5	0	0
8	13	1989	225	93	63	66.5	592	5	0	0
8	14	1989	226	92	60	64.8	600	5	0	0
8	15	1989	227	89	61	67.0	598	5	0	0
8	16	1989	228	77	62	60.9	570	7	0	0
8	17	1989	229	85	64	63.9	597	5	0	0
8	18	1989	230	85	62	63.7	602	5	0	0
8	19	1989	231	86	63	65.0	577	5	0	0
8	20	1989	232	81	64	63.1	598	6	0	0
8	21	1989	233	81	59	59.9	591	5	0	0
8	22	1989	234	84	56	61.1	615	5	0	0
8	23	1989	235	83	63	64.2	551	6	0	0
8	24	1989	236	82	63	63.6	587	5	0	0
8	25	1989	237	82	63	63.6	505	5	0	0
8	26	1989	238	83	63	64.4	508	5	0	0
8	27	1989	239	85	62	64.5	521	5	0	0
8	28	1989	240	87	57	63.0	586	5	0	0

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
8	29	1989	241	90	61	67.9	522	4	0	0
8	30	1989	242	88	63	64.1	591	4	0	0
8	31	1989	243	88	56	60.1	592	4	0	0
9	1	1989	244	94	54	57.4	599	4	0	0
9	2	1989	245	96	54	54.0	585	4	0	0
9	3	1989	246	95	53	53.3	579	4	0	0
9	4	1989	247	96	56	52.4	575	4	0	0
9	5	1989	248	102	56	52.8	568	4	0	0
9	6	1989	249	96	58	57.0	565	4	0	0
9	7	1989	250	89	59	57.2	554	5	0	0
9	8	1989	251	87	52	57.7	567	4	0	0
9	9	1989	252	84	51	56.0	568	4	0	0
9	10	1989	253	83	59	60.6	537	4	0	0
9	11	1989	254	80	64	65.0	465	5	0	0
9	12	1989	255	84	65	65.1	510	5	0	0
9	13	1989	256	89	64	66.4	514	4	0	0
9	14	1989	257	101	58	56.1	522	4	0	0
9	15	1989	258	93	62	60.0	251	4	0	0
9	16	1989	259	89	70	68.0	342	5	0	0.01
9	17	1989	260	78	64	62.0	500	4	0	0.2
9	18	1989	261	73	57	55.0	365	4	0	0
9	19	1989	262	70	54	51.0	340	4	0	0.2
9	20	1989	263	77	52	50.0	518	5	0	0
9	21	1989	264	94	63	60.0	524	4	0	0
9	22	1989	265	85	59	56.0	519	4	0	0
9	23	1989	266	79	58	54.0	475	4	0	0
9	24	1989	267	81	55	51.0	470	4	0	0
9	25	1989	268	98	64	60.0	434	4	0	0
9	26	1989	269	98	64	60.0	479	5	0	0
9	27	1989	270	83	62	58.0	477	4	0	0
9	28	1989	271	86	60	56.0	480	4	0	0
9	29	1989	272	82	59	55.0	471	5	0	0
9	30	1989	273	78	58	54.0	487	4	0	0
10	1	1989	274	75	57	52.8	456	4	0	0
10	2	1989	275	72	62	55.3	373	5	0	0
10	3	1989	276	72	59	53.6	450	4	0	0
10	4	1989	277	76	50	52.0	470	4	0	0
10	5	1989	278	76	55	53.5	438	5	0	0
10	6	1989	279	76	60	62.3	433	6	0	0
10	7	1989	280	78	59	61.5	447	5	0	0
10	8	1989	281	82	55	55.4	471	4	0	0
10	9	1989	282	76	59	59.5	431	4	0	0
10	10	1989	283	76	57	59.9	451	5	0	0
10	11	1989	284	75	57	57.6	403	4	0	0
10	12	1989	285	74	57	60.3	434	4	0	0
10	13	1989	286	77	56	61.7	275	4	0	0
10	14	1989	287	72	60	60.4	255	3	0	0
10	15	1989	288	75	56	58.2	379	4	0	0
10	16	1989	289	82	53	59.9	396	4	0	0
10	17	1989	290	90	45	55.2	415	4	0	0
10	18	1989	291	91	50	53.2	432	4	0	0
10	19	1989	292	94	53	56.3	326	6	0	0
10	20	1989	293	76	59	60.8	353	4	0	0
10	21	1989	294	70	58	61.3	363	3	0	0.03
10	22	1989	295	76	59	63.6	195	2	0	0.21
10	23	1989	296	76	55	61.2	337	3	0	0
10	24	1989	297	75	56	60.1	340	4	0	0
10	25	1989	298	67	53	54.6	256	5	0	0.15
10	26	1989	299	74	44	48.2	388	4	0	0
10	27	1989	300	75	42	46.4	381	4	0	0

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
10	28	1989	301	78	40	46.0	388	3	0	0
10	29	1989	302	76	38	41.6	400	7	0	0
10	30	1989	303	77	44	24.3	312	6	0	0
10	31	1989	304	79	50	30.6	481	5	0	0
11	1	1989	305	84	43	34.0	378	4	0	0
11	2	1989	306	84	46	25.8	387	5	0	0
11	3	1989	307	83	37	24.6	377	4	0	0
11	4	1989	308	83	44	36.8	366	4	0	0
11	5	1989	309	72	38	46.5	352	4	0	0
11	6	1989	310	71	50	53.7	277	5	0	0
11	7	1989	311	72	48	53.2	312	5	0	0
11	8	1989	312	80	43	51.6	329	3	0	0
11	9	1989	313	84	36	39.9	351	4	0	0
11	10	1989	314	90	41	34.0	340	3	0	0
11	11	1989	315	87	45	48.6	333	3	0	0
11	12	1989	316	74	52	52.5	321	4	0	0
11	13	1989	317	69	55	53.1	294	4	0	0
11	14	1989	318	68	54	53.0	305	5	0	0
11	15	1989	319	89	48	51.1	350	4	0	0
11	16	1989	320	84	47	18.1	331	4	0	0
11	17	1989	321	75	40	40.5	313	4	0	0
11	18	1989	322	84	46	45.2	330	9	0	0
11	19	1989	323	91	53	25.1	326	5	0	0
11	20	1989	324	81	53	34.0	136	4	0	0
11	21	1989	325	78	53	51.8	302	4	0	0
11	22	1989	326	70	48	48.9	267	3	0	0
11	23	1989	327	66	52	52.7	252	3	0	0
11	24	1989	328	63	55	53.1	190	5	0	0
11	25	1989	329	65	57	56.8	104	3	0	0
11	26	1989	330	65	54	53.0	121	3	0	0.23
11	27	1989	331	73	50	46.3	283	8	0	0
11	28	1989	332	70	50	13.3	308	12	0	0
11	29	1989	333	75	43	12.4	359	8	0	0
11	30	1989	334	75	33	20.8	304	3	0	0
12	1	1989	335	77	32	25.1	307	4	0	0
12	2	1989	336	77	44	15.4	309	6	0	0
12	3	1989	337	77	36	21.5	306	5	0	0
12	4	1989	338	78	35	18.7	303	4	0	0
12	5	1989	339	81	35	27.5	296	4	0	0
12	6	1989	340	79	39	32.3	287	4	0	0
12	7	1989	341	83	37	28.8	298	3	0	0
12	8	1989	342	84	45	23.8	283	4	0	0
12	9	1989	343	77	42	28.9	283	3	0	0
12	10	1989	344	73	40	43.4	220	3	0	0
12	11	1989	345	79	39	42.4	292	10	0	0
12	12	1989	346	71	32	19.1	290	4	0	0
12	13	1989	347	64	30	15.9	131	3	0	0
12	14	1989	348	74	33	27.7	234	3	0	0
12	15	1989	349	75	39	36.5	193	3	0	0
12	16	1989	350	62	47	45.5	189	3	0	0
12	17	1989	351	64	40	42.1	262	4	0	0
12	18	1989	352	68	48	50.9	177	4	0	0
12	19	1989	353	67	52	47.7	259	4	0	0
12	20	1989	354	66	42	45.0	261	4	0	0
12	21	1989	355	64	42	44.6	227	3	0	0
12	22	1989	356	78	40	43.4	284	4	0	0
12	23	1989	357	85	34	30.4	287	6	0	0
12	24	1989	358	83	38	24.2	227	3	0	0
12	25	1989	359	83	35	29.0	205	3	0	0
12	26	1989	360	79	53	40.7	202	3	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
12	27	1989	361	64	52	47.8	227	3	0	0
12	28	1989	362	67	50	53.0	147	4	0	0.01
12	29	1989	363	69	45	46.8	177	3	0	0
12	30	1989	364	79	41	42.2	287	4	0	0
12	31	1989	365	82	35	37.7	291	4	0	0
1	1	1990	1	65	42	42.0	259	4	0	0
1	2	1990	2	56	47	47.3	187	5	0	1.02
1	3	1990	3	63	41	40.9	269	4	0	0.01
1	4	1990	4	63	40	29.8	299	5	0	0
1	5	1990	5	68	40	36.1	295	5	0	0
1	6	1990	6	70	43	27.0	302	4	0	0
1	7	1990	7	66	40	37.4	277	3	0	0
1	8	1990	8	67	40	41.5	265	3	0	0
1	9	1990	9	78	47	47.3	293	3	0	0
1	10	1990	10	75	49	45.1	289	3	0	0
1	11	1990	11	75	46	44.6	295	4	0	0
1	12	1990	12	69	47	48.1	259	4	0	0
1	13	1990	13	63	47	53.7	178	5	0	0.1
1	14	1990	14	68	51	56.4	198	4	0	0.43
1	15	1990	15	66	49	53.7	267	3	0	0.08
1	16	1990	16	58	48	49.6	303	4	0	0.04
1	17	1990	17	55	38	43.6	235	5	0	0.9
1	18	1990	18	58	36	38.5	308	4	0	0.01
1	19	1990	19	60	36	42.0	228	5	0	0
1	20	1990	20	64	35	38.8	320	5	0	0
1	21	1990	21	66	39	34.6	292	8	0	0
1	22	1990	22	74	38	37.2	319	3	0	0
1	23	1990	23	76	36	37.4	329	4	0	0
1	24	1990	24	76	36	39.8	347	8	0	0
1	25	1990	25	80	52	17.3	352	6	0	0
1	26	1990	26	73	42	37.3	298	4	0	0
1	27	1990	27	74	37	38.4	320	5	0	0
1	28	1990	28	76	35	24.0	363	4	0	0
1	29	1990	29	74	38	31.1	359	4	0	0
1	30	1990	30	64	35	40.9	266	5	0	0
1	31	1990	31	61	45	46.5	329	4	0	0.48
2	1	1990	32	58	42	42.6	274	6	0	0.16
2	2	1990	33	65	37	39.3	356	5	0	0
2	3	1990	34	67	33	33.2	337	4	0	0
2	4	1990	35	54	36	38.1	143	4	0	0.95
2	5	1990	36	60	41	40.2	341	3	0	0
2	6	1990	37	65	36	41.2	360	3	0	0
2	7	1990	38	63	37	41.5	293	3	0	0
2	8	1990	39	60	43	43.6	208	4	0	0.02
2	9	1990	40	66	36	38.5	377	4	0	0
2	10	1990	41	72	36	41.8	383	3	0	0
2	11	1990	42	77	39	45.2	371	4	0	0
2	12	1990	43	64	46	50.3	328	5	0	0
2	13	1990	44	60	47	49.5	208	6	0	0
2	14	1990	45	50	32	21.0	227	7	0	0
2	15	1990	46	55	28	21.2	396	5	0	0
2	16	1990	47	57	32	32.2	344	6	0	0
2	17	1990	48	55	46	45.7	59	6	0	0.84
2	18	1990	49	57	40	45.6	135	4	0	0.36
2	19	1990	50	57	36	38.0	426	5	0	0
2	20	1990	51	65	34	40.4	418	5	0	0
2	21	1990	52	72	36	43.7	394	3	0	0
2	22	1990	53	82	41	46.2	409	4	0	0
2	23	1990	54	82	42	46.4	439	4	0	0
2	24	1990	55	79	46	42.1	359	4	0	0

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
2	25	1990	56	77	50	42.5	344	4	0	0
2	26	1990	57	75	43	46.2	432	4	0	0
2	27	1990	58	71	42	49.1	426	4	0	0
2	28	1990	59	70	46	52.7	389	4	0	0
3	1	1990	60	69	49	54.9	277	4	0	0
3	2	1990	61	67	50	52.1	349	4	0	0
3	3	1990	62	68	49	54.4	394	5	0	0
3	4	1990	63	63	52	55.8	196	5	0	0
3	5	1990	64	59	44	43.1	381	7	0	0.14
3	6	1990	65	72	38	43.8	482	5	0	0.01
3	7	1990	66	75	40	44.3	475	4	0	0
3	8	1990	67	66	39	45.0	376	4	0	0
3	9	1990	68	58	51	52.0	147	4	0	0
3	10	1990	69	60	49	50.6	180	4	0	0
3	11	1990	70	58	45	45.2	319	7	0	0.26
3	12	1990	71	58	41	42.1	393	6	0	0.02
3	13	1990	72	60	37	38.8	423	5	0	0.05
3	14	1990	73	62	38	31.3	477	5	0	0
3	15	1990	74	78	38	44.2	463	4	0	0
3	16	1990	75	80	41	35.9	370	5	0	0
3	17	1990	76	79	44	40.0	531	4	0	0
3	18	1990	77	79	41	45.0	493	4	0	0
3	19	1990	78	78	47	46.0	482	4	0	0
3	20	1990	79	81	53	48.9	369	5	0	0
3	21	1990	80	85	50	51.7	519	4	0	0
3	22	1990	81	80	46	52.9	536	5	0	0
3	23	1990	82	78	49	54.1	534	5	0	0
3	24	1990	83	71	55	58.9	491	5	0	0
3	25	1990	84	73	53	54.8	464	5	0	0
3	26	1990	85	72	51	56.9	462	5	0	0
3	27	1990	86	64	55	55.6	456	5	0	0
3	28	1990	87	67	55	60.5	49	3	0	0.3
3	29	1990	88	61	48	52.2	308	4	0	0.05
3	30	1990	89	62	48	50.9	375	4	0	0
3	31	1990	90	64	46	51.3	462	4	0	0
4	1	1990	91	66	58	59.4	234	3	0	0.04
4	2	1990	92	76	56	56.4	542	4	0	0
4	3	1990	93	84	53	53.8	462	6	0	0.01
4	4	1990	94	74	58	64.4	265	4	0	0.22
4	5	1990	95	68	55	60.2	210	3	0	0.13
4	6	1990	96	66	55	59.0	545	4	0	0
4	7	1990	97	67	56	59.0	248	4	0	0
4	8	1990	98	67	53	54.3	358	5	0	0
4	9	1990	99	71	48	53.6	585	5	0	0
4	10	1990	100	78	51	53.2	430	5	0	0
4	11	1990	101	85	54	55.0	645	5	0	0
4	12	1990	102	86	51	54.7	642	4	0	0
4	13	1990	103	81	51	58.3	539	5	0	0
4	14	1990	104	69	54	55.5	568	5	0	0
4	15	1990	105	74	61	58.8	608	5	0	0
4	16	1990	106	67	55	53.6	348	5	0	0.15
4	17	1990	107	65	55	58.9	247	4	0	0.2
4	18	1990	108	69	53	57.9	428	4	0	0
4	19	1990	109	68	58	58.0	227	5	0	0
4	20	1990	110	69	53	56.2	231	4	0	0
4	21	1990	111	71	55	55.9	483	5	0	0
4	22	1990	112	71	54	51.4	547	5	0	0
4	23	1990	113	66	55	56.0	94	4	0	0.1
4	24	1990	114	68	54	52.9	555	5	0	0
4	25	1990	115	78	47	52.4	654	4	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
4	26	1990	116	84	48	52.2	677	5	0	0
4	27	1990	117	83	47	53.2	678	5	0	0
4	28	1990	118	79	54	56.0	675	6	0	0
4	29	1990	119	69	55	52.5	232	5	0	0
4	30	1990	120	62	48	42.6	258	5	0	0
5	1	1990	121	72	46	45.5	685	6	0	0
5	2	1990	122	74	43	48.4	680	5	0	0
5	3	1990	123	77	47	50.8	683	5	0	0
5	4	1990	124	93	50	57.4	690	5	0	0
5	5	1990	125	99	51	51.4	725	5	0	0
5	6	1990	126	100	61	49.4	729	5	0	0
5	7	1990	127	84	51	57.0	714	5	0	0
5	8	1990	128	76	52	53.7	706	6	0	0
5	9	1990	129	76	48	50.2	699	6	0	0
5	10	1990	130	65	56	49.8	330	6	0	0
5	11	1990	131	66	56	52.2	544	4	0	0
5	12	1990	132	74	50	52.8	643	4	0	0
5	13	1990	133	75	52	53.0	645	6	0	0
5	14	1990	134	70	56	52.6	469	6	0	0
5	15	1990	135	72	50	52.5	588	5	0	0
5	16	1990	136	81	46	54.6	684	5	0	0
5	17	1990	137	76	53	56.3	605	5	0	0
5	18	1990	138	73	56	51.9	716	5	0	0
5	19	1990	139	67	52	49.8	493	6	0	0
5	20	1990	140	74	51	52.6	672	5	0	0
5	21	1990	141	79	49	55.7	666	5	0	0
5	22	1990	142	87	50	55.5	697	5	0	0
5	23	1990	143	76	53	53.4	468	5	0	0
5	24	1990	144	76	52	54.5	724	5	0	0
5	25	1990	145	78	47	52.5	725	5	0	0
5	26	1990	146	74	51	53.5	695	5	0	0
5	27	1990	147	72	51	52.4	623	5	0	0
5	28	1990	148	68	54	57.7	301	7	0	0.47
5	29	1990	149	71	51	53.7	580	5	0	0.01
5	30	1990	150	71	52	54.5	572	5	0	0
5	31	1990	151	72	53	54.7	640	6	0	0
6	1	1990	152	75	48	51.8	719	5	0	0
6	2	1990	153	91	52	58.1	731	5	0	0
6	3	1990	154	97	54	57.5	745	5	0	0
6	4	1990	155	95	55	56.7	766	5	0	0
6	5	1990	156	88	51	59.4	743	5	0	0
6	6	1990	157	81	53	58.4	735	5	0	0
6	7	1990	158	87	53	59.7	620	5	0	0
6	8	1990	159	92	54	60.8	587	5	0	0
6	9	1990	160	93	58	67.5	303	4	0	0
6	10	1990	161	72	59	62.2	566	3	0	0
6	11	1990	162	79	47	57.0	539	5	0	0
6	12	1990	163	79	52	56.6	732	5	0	0
6	13	1990	164	71	57	53.9	634	5	0	0
6	14	1990	165	69	57	52.5	607	6	0	0
6	15	1990	166	70	52	49.0	564	5	0	0
6	16	1990	167	77	46	50.9	730	5	0	0
6	17	1990	168	71	59	57.8	600	5	0	0
6	18	1990	169	83	57	60.4	635	5	0	0
6	19	1990	170	84	52	57.5	752	5	0	0
6	20	1990	171	85	54	60.1	728	5	0	0
6	21	1990	172	86	57	61.5	700	5	0	0
6	22	1990	173	87	53	59.1	701	5	0	0
6	23	1990	174	90	54	59.8	733	5	0	0
6	24	1990	175	95	58	60.8	743	4	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
6	25	1990	176	98	58	54.9	744	4	0	0
6	26	1990	177	107	60	60.6	745	5	0	0
6	27	1990	178	104	64	59.0	751	5	0	0
6	28	1990	179	95	61	65.6	748	6	0	0
6	29	1990	180	90	59	63.4	658	5	0	0
6	30	1990	181	95	59	61.8	677	5	0	0
7	1	1990	182	93	58	61.2	726	5	0	0
7	2	1990	183	89	60	63.0	688	5	0	0
7	3	1990	184	89	56	59.9	738	5	0	0
7	4	1990	185	92	54	58.2	740	5	0	0
7	5	1990	186	91	55	58.6	744	5	0	0
7	6	1990	187	88	54	61.9	746	5	0	0
7	7	1990	188	81	58	61.7	688	6	0	0
7	8	1990	189	81	58	60.7	659	5	0	0
7	9	1990	190	86	58	62.4	701	5	0	0
7	10	1990	191	94	59	65.8	516	4	0	0
7	11	1990	192	98	66	62.6	626	5	0	0
7	12	1990	193	98	65	62.1	625	5	0	0
7	13	1990	194	91	62	63.3	639	4	0	0
7	14	1990	195	88	69	66.9	679	6	0	0
7	15	1990	196	83	67	67.1	682	6	0	0
7	16	1990	197	89	64	66.6	668	5	0	0
7	17	1990	198	91	57	63.7	693	5	0	0
7	18	1990	199	92	61	66.2	689	6	0	0
7	19	1990	200	95	61	68.1	707	5	0	0
7	20	1990	201	91	62	67.2	674	5	0	0
7	21	1990	202	89	62	66.6	690	5	0	0
7	22	1990	203	90	61	66.7	684	5	0	0
7	23	1990	204	83	66	64.7	608	7	0	0
7	24	1990	205	80	67	61.8	697	6	0	0
7	25	1990	206	83	57	56.7	706	5	0	0
7	26	1990	207	89	51	55.1	732	4	0	0
7	27	1990	208	90	51	55.6	741	5	0	0
7	28	1990	209	91	52	55.8	739	5	0	0
7	29	1990	210	92	52	57.5	744	5	0	0
7	30	1990	211	95	53	54.4	711	5	0	0
7	31	1990	212	97	58	61.6	725	5	0	0
8	1	1990	213	85	55	58.5	687	5	0	0
8	2	1990	214	83	57	58.4	680	5	0	0
8	3	1990	215	84	60	60.5	641	5	0	0
8	4	1990	216	87	63	63.8	636	5	0	0
8	5	1990	217	81	65	61.8	655	5	0	0
8	6	1990	218	92	58	64.1	611	6	0	0
8	7	1990	219	92	60	64.5	660	6	0	0
8	8	1990	220	88	66	66.4	605	5	0	0
8	9	1990	221	88	62	63.5	628	5	0	0
8	10	1990	222	89	65	66.4	623	5	0	0
8	11	1990	223	96	64	67.8	640	5	0	0
8	12	1990	224	84	66	63.2	606	5	0	0
8	13	1990	225	89	63	65.7	535	6	0	0
8	14	1990	226	72	65	64.6	114	5	0	0
8	15	1990	227	80	64	62.3	365	5	0	0
8	16	1990	228	78	64	58.5	637	5	0	0
8	17	1990	229	84	57	60.0	638	5	0	0
8	18	1990	230	78	66	61.7	596	5	0	0
8	19	1990	231	78	64	59.8	604	5	0	0
8	20	1990	232	77	59	55.2	650	5	0	0
8	21	1990	233	84	51	55.1	655	4	0	0
8	22	1990	234	85	52	55.9	641	5	0	0
8	23	1990	235	84	57	59.1	618	6	0	0

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
8	24	1990	236	80	62	58.7	503	4	0	0
8	25	1990	237	82	55	56.4	586	5	0	0
8	26	1990	238	83	56	55.8	640	5	0	0
8	27	1990	239	89	51	55.0	633	4	0	0
8	28	1990	240	95	56	57.5	604	4	0	0
8	29	1990	241	92	60	62.7	599	5	0	0
8	30	1990	242	90	55	59.1	621	4	0	0
8	31	1990	243	88	54	58.0	622	5	0	0
9	1	1990	244	86	56	59.3	583	5	0	0
9	2	1990	245	89	55	60.5	588	5	0	0
9	3	1990	246	93	56	61.5	569	5	0	0
9	4	1990	247	93	54	60.6	571	4	0	0
9	5	1990	248	95	63	64.8	550	5	0	0
9	6	1990	249	95	63	60.6	569	5	0	0
9	7	1990	250	100	60	54.9	577	4	0	0
9	8	1990	251	98	60	57.1	563	4	0	0
9	9	1990	252	104	61	59.5	593	4	0	0
9	10	1990	253	103	60	55.7	517	4	0	0
9	11	1990	254	104	55	56.6	589	4	0	0
9	12	1990	255	100	60	63.0	575	5	0	0
9	13	1990	256	85	59	57.3	569	5	0	0
9	14	1990	257	83	62	60.5	554	4	0	0
9	15	1990	258	88	56	59.2	558	4	0	0
9	16	1990	259	79	62	58.9	563	5	0	0
9	17	1990	260	78	62	59.2	551	5	0	0
9	18	1990	261	76	62	55.9	478	4	0	0
9	19	1990	262	77	56	55.3	392	5	0	0
9	20	1990	263	78	63	56.4	436	5	0	0
9	21	1990	264	80	58	56.7	416	4	0	0
9	22	1990	265	82	56	57.0	518	5	0	0
9	23	1990	266	81	56	58.3	490	4	0	0
9	24	1990	267	82	54	57.2	500	5	0	0
9	25	1990	268	89	53	58.0	564	4	0	0
9	26	1990	269	85	53	56.9	507	4	0	0
9	27	1990	270	78	52	55.4	491	5	0	0
9	28	1990	271	78	57	56.3	433	4	0	0
9	29	1990	272	80	54	58.1	444	4	0	0
9	30	1990	273	85	58	60.8	462	5	0	0
10	1	1990	274	88	59	65.3	211	4	0	0
10	2	1990	275	79	56	59.9	207	4	0	0
10	3	1990	276	87	57	59.3	464	4	0	0
10	4	1990	277	97	57	60.3	478	4	0	0
10	5	1990	278	91	57	58.6	464	4	0	0
10	6	1990	279	81	57	59.6	449	5	0	0
10	7	1990	280	76	53	55.1	389	4	0	0
10	8	1990	281	90	47	49.8	488	5	0	0
10	9	1990	282	94	59	16.2	503	7	0	0
10	10	1990	283	95	51	31.0	493	4	0	0
10	11	1990	284	88	51	46.6	472	4	0	0
10	12	1990	285	87	45	52.3	453	4	0	0
10	13	1990	286	79	47	52.6	446	4	0	0
10	14	1990	287	79	42	50.9	419	4	0	0
10	15	1990	288	79	54	58.0	316	4	0	0
10	16	1990	289	79	52	56.1	398	5	0	0
10	17	1990	290	84	53	58.2	389	4	0	0
10	18	1990	291	78	52	57.4	323	4	0	0
10	19	1990	292	82	55	61.3	218	4	0	0
10	20	1990	293	82	54	49.8	416	5	0	0
10	21	1990	294	88	50	18.8	441	5	0	0
10	22	1990	295	88	47	28.4	427	4	0	0

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
10	23	1990	296	90	47	33.3	421	4	0	0
10	24	1990	297	96	48	39.4	424	4	0	0
10	25	1990	298	96	51	40.1	419	4	0	0
10	26	1990	299	90	51	41.5	404	3	0	0
10	27	1990	300	89	46	44.8	396	4	0	0
10	28	1990	301	90	45	48.1	393	3	0	0
10	29	1990	302	76	48	37.4	323	5	0	0
10	30	1990	303	84	46	48.2	369	3	0	0
10	31	1990	304	78	48	47.3	389	4	0	0
11	1	1990	305	77	49	49.4	387	5	0	0
11	2	1990	306	71	43	34.1	389	5	0	0
11	3	1990	307	75	37	20.5	408	4	0	0
11	4	1990	308	82	40	21.1	410	4	0	0
11	5	1990	309	77	39	39.6	390	4	0	0
11	6	1990	310	73	45	36.2	371	6	0	0
11	7	1990	311	73	38	13.2	389	4	0	0
11	8	1990	312	79	38	16.7	379	4	0	0
11	9	1990	313	89	43	33.7	378	5	0	0
11	10	1990	314	92	48	35.9	382	3	0	0
11	11	1990	315	87	47	32.1	345	3	0	0
11	12	1990	316	89	53	38.5	284	3	0	0
11	13	1990	317	89	43	38.0	360	4	0	0
11	14	1990	318	81	44	40.9	346	4	0	0
11	15	1990	319	78	40	38.8	348	3	0	0
11	16	1990	320	77	43	45.7	255	4	0	0
11	17	1990	321	72	52	50.2	295	4	0	0
11	18	1990	322	69	55	49.0	320	5	0	0
11	19	1990	323	67	51	48.9	114	4	0	0
11	20	1990	324	64	53	49.1	186	4	0	0
11	21	1990	325	66	43	42.6	316	4	0	0
11	22	1990	326	80	42	37.8	352	5	0	0
11	23	1990	327	86	44	29.8	356	4	0	0
11	24	1990	328	78	43	37.7	335	4	0	0
11	25	1990	329	74	42	41.5	335	4	0	0
11	26	1990	330	60	41	36.3	324	7	0	0
11	27	1990	331	67	42	31.4	329	5	0	0
11	28	1990	332	73	31	26.4	343	7	0	0
11	29	1990	333	80	50	26.7	343	7	0	0
11	30	1990	334	73	42	33.6	257	3	0	0
12	1	1990	335	74	36	34.8	316	3	0	0
12	2	1990	336	81	35	35.6	334	4	0	0
12	3	1990	337	79	45	21.7	340	6	0	0
12	4	1990	338	79	39	30.5	326	3	0	0
12	5	1990	339	77	39	31.8	236	3	0	0
12	6	1990	340	83	35	36.3	333	5	0	0
12	7	1990	341	83	51	28.4	298	6	0	0
12	8	1990	342	85	39	33.5	321	3	0	0
12	9	1990	343	80	36	34.2	320	3	0	0
12	10	1990	344	78	38	31.6	314	3	0	0
12	11	1990	345	74	42	38.4	245	4	0	0
12	12	1990	346	65	47	43.7	189	3	0	0
12	13	1990	347	61	41	40.5	141	3	0	0
12	14	1990	348	66	37	39.6	280	4	0	0
12	15	1990	349	62	36	39.0	264	3	0	0
12	16	1990	350	59	40	37.3	272	4	0	0.05
12	17	1990	351	62	38	27.6	260	5	0	0
12	18	1990	352	64	36	33.7	302	5	0	0
12	19	1990	353	62	45	42.9	114	6	0	0.05
12	20	1990	354	57	34	34.1	138	7	0	0.25
12	21	1990	355	50	37	32.0	121	4	0	0.07

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
12	22	1990	356	52	32	25.2	296	5	0	0.05
12	23	1990	357	54	34	0.4	284	8	0	0
12	24	1990	358	66	40	4.0	317	7	0	0
12	25	1990	359	67	32	17.8	287	4	0	0
12	26	1990	360	70	36	19.4	319	4	0	0
12	27	1990	361	66	42	17.6	227	6	0	0
12	28	1990	362	64	36	34.0	302	4	0	0
12	29	1990	363	54	37	36.1	95	3	0	0.03
12	30	1990	364	67	35	31.0	320	4	0	0
12	31	1990	365	71	35	23.7	324	3	0	0
1	1	1991	1	73	34	29.7	316	3	0	0
1	2	1991	2	69	48	37.3	124	3	0	0
1	3	1991	3	59	51	46.4	42	2	0	0.1
1	4	1991	4	60	53	51.5	45	2	0	0.7
1	5	1991	5	68	48	48.7	237	3	0	0.03
1	6	1991	6	65	46	44.4	302	3	0	0
1	7	1991	7	64	47	44.0	231	3	0	0
1	8	1991	8	61	48	43.5	192	4	0	0
1	9	1991	9	56	47	42.5	73	3	0	0.09
1	10	1991	10	64	39	38.8	280	3	0	0.3
1	11	1991	11	69	38	39.9	273	3	0	0
1	12	1991	12	71	39	39.9	303	3	0	0
1	13	1991	13	74	49	42.4	313	3	0	0
1	14	1991	14	78	51	43.6	323	4	0	0
1	15	1991	15	74	47	44.4	318	4	0	0
1	16	1991	16	72	37	35.8	330	7	0	0
1	17	1991	17	73	48	37.0	339	6	0	0
1	18	1991	18	73	41	30.6	333	5	0	0
1	19	1991	19	68	42	39.0	327	5	0	0
1	20	1991	20	64	45	42.1	321	4	0	0
1	21	1991	21	65	48	40.8	272	8	0	0
1	22	1991	22	68	43	26.2	343	5	0	0
1	23	1991	23	69	35	29.6	347	4	0	0
1	24	1991	24	67	34	34.1	352	3	0	0
1	25	1991	25	68	31	31.5	322	3	0	0
1	26	1991	26	66	37	37.2	277	4	0	0
1	27	1991	27	65	41	39.7	342	5	0	0
1	28	1991	28	61	37	37.9	197	4	0	0
1	29	1991	29	66	40	38.8	341	5	0	0
1	30	1991	30	72	39	30.1	369	4	0	0
1	31	1991	31	74	30	29.0	293	3	0	0
2	1	1991	32	73	36	34.1	377	4	0	0
2	2	1991	33	70	36	36.7	277	4	0	0
2	3	1991	34	71	39	42.1	347	4	0	0
2	4	1991	35	78	35	41.7	380	4	0	0
2	5	1991	36	75	39	43.1	364	4	0	0
2	6	1991	37	74	44	44.9	371	5	0	0
2	7	1991	38	73	35	41.1	371	4	0	0
2	8	1991	39	78	40	40.6	387	4	0	0
2	9	1991	40	84	41	37.2	407	4	0	0
2	10	1991	41	81	42	37.0	411	4	0	0
2	11	1991	42	85	43	39.8	327	3	0	0
2	12	1991	43	73	50	45.3	322	4	0	0
2	13	1991	44	80	40	41.1	374	3	0	0
2	14	1991	45	84	41	41.5	372	3	0	0
2	15	1991	46	80	49	48.6	250	4	0	0
2	16	1991	47	63	50	47.3	344	4	0	0
2	17	1991	48	66	45	44.0	294	5	0	0
2	18	1991	49	72	42	40.8	430	5	0	0
2	19	1991	50	77	33	30.4	443	4	0	0

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
2	20	1991	51	81	39	33.9	450	5	0	0
2	21	1991	52	82	47	38.7	450	4	0	0
2	22	1991	53	76	35	37.6	404	4	0	0
2	23	1991	54	70	41	43.8	432	4	0	0
2	24	1991	55	70	44	43.5	402	5	0	0
2	25	1991	56	72	37	42.1	363	4	0	0
2	26	1991	57	72	44	45.2	397	4	0	0
2	27	1991	58	62	53	49.0	65	5	0	0.2
2	28	1991	59	59	52	47.2	155	9	0	1.77
3	1	1991	60	62	55	50.0	131	13	0	3.13
3	2	1991	61	65	52	48.5	387	3	0	0.11
3	3	1991	62	72	45	49.0	376	3	0	0
3	4	1991	63	75	51	51.7	366	4	0	0
3	5	1991	64	68	52	51.5	392	4	0	0
3	6	1991	65	63	44	43.7	432	3	0	0
3	7	1991	66	69	40	42.6	519	3	0	0
3	8	1991	67	72	41	34.8	547	4	0	0
3	9	1991	68	71	42	39.3	387	3	0	0
3	10	1991	69	63	48	47.2	248	3	0	0
3	11	1991	70	60	38	39.2	422	4	0	0.29
3	12	1991	71	64	39	37.9	493	4	0	0
3	13	1991	72	64	43	46.5	311	6	0	0
3	14	1991	73	60	42	42.2	410	4	0	0.32
3	15	1991	74	55	37	37.1	318	7	0	0.09
3	16	1991	75	61	36	38.1	565	5	0	0.22
3	17	1991	76	64	39	39.6	555	5	0	0
3	18	1991	77	72	37	41.4	573	5	0	0
3	19	1991	78	67	47	48.5	421	9	0	1.16
3	20	1991	79	56	42	42.6	425	6	0	1.01
3	21	1991	80	58	40	41.7	378	6	0	1.05
3	22	1991	81	63	43	44.2	462	5	0	0
3	23	1991	82	63	40	44.9	454	4	0	0
3	24	1991	83	61	46	44.9	408	4	0	0
3	25	1991	84	58	47	45.5	221	4	0	0.55
3	26	1991	85	56	41	41.4	310	6	0	0.7
3	27	1991	86	54	43	41.7	456	6	0	1.71
3	28	1991	87	64	46	46.6	368	5	0	0
3	29	1991	88	66	46	49.0	504	4	0	0
3	30	1991	89	78	42	49.7	610	4	0	0
3	31	1991	90	70	40	46.8	605	5	0	0
4	1	1991	91	63	51	48.0	458	5	0	0.04
4	2	1991	92	71	43	49.3	599	4	0	0
4	3	1991	93	78	44	52.3	607	4	0	0
4	4	1991	94	83	47	43.7	477	4	0	0
4	5	1991	95	86	50	46.7	630	4	0	0
4	6	1991	96	76	46	46.9	632	5	0	0
4	7	1991	97	70	56	49.0	486	4	0	0
4	8	1991	98	73	50	48.6	595	4	0	0
4	9	1991	99	84	44	43.4	657	5	0	0
4	10	1991	100	74	44	42.6	643	5	0	0
4	11	1991	101	67	43	31.4	467	5	0	0
4	12	1991	102	71	40	29.4	663	6	0	0
4	13	1991	103	72	39	37.5	655	5	0	0
4	14	1991	104	73	41	39.7	662	4	0	0
4	15	1991	105	69	41	41.9	573	4	0	0
4	16	1991	106	66	47	42.3	605	5	0	0
4	17	1991	107	61	52	39.7	309	4	0	0
4	18	1991	108	66	46	41.3	556	4	0	0
4	19	1991	109	72	51	44.5	632	4	0	0
4	20	1991	110	67	50	42.5	612	5	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
4	21	1991	111	68	52	46.2	581	5	0	0
4	22	1991	112	67	51	46.1	513	5	0	0.01
4	23	1991	113	62	53	46.6	208	4	0	0
4	24	1991	114	67	53	48.9	350	5	0	0
4	25	1991	115	66	50	45.0	472	5	0	0
4	26	1991	116	71	46	44.7	608	4	0	0
4	27	1991	117	74	44	44.0	662	4	0	0
4	28	1991	118	85	48	44.0	687	5	0	0
4	29	1991	119	83	51	37.3	701	5	0	0
4	30	1991	120	79	44	43.2	698	5	0	0
5	1	1991	121	67	50	44.0	520	5	0	0
5	2	1991	122	65	47	39.0	590	5	0	0
5	3	1991	123	69	48	43.9	606	4	0	0
5	4	1991	124	81	45	45.3	697	5	0	0
5	5	1991	125	93	48	43.6	709	4	0	0
5	6	1991	126	88	55	51.3	703	5	0	0
5	7	1991	127	82	54	49.3	563	6	0	0
5	8	1991	128	80	54	52.8	663	5	0	0
5	9	1991	129	67	48	41.6	595	6	0	0
5	10	1991	130	68	47	43.3	637	5	0	0
5	11	1991	131	71	46	42.3	675	4	0	0
5	12	1991	132	76	42	44.1	709	4	0	0
5	13	1991	133	72	44	44.2	711	5	0	0
5	14	1991	134	71	49	45.7	549	5	0	0
5	15	1991	135	79	47	48.1	708	5	0	0
5	16	1991	136	80	47	47.5	714	5	0	0
5	17	1991	137	73	52	48.0	680	6	0	0
5	18	1991	138	68	46	42.0	668	5	0	0
5	19	1991	139	70	44	42.0	711	5	0	0
5	20	1991	140	70	48	44.7	563	5	0	0
5	21	1991	141	68	53	44.8	460	5	0	0
5	22	1991	142	72	55	49.6	608	5	0	0
5	23	1991	143	79	50	50.3	620	5	0	0
5	24	1991	144	85	53	53.5	702	5	0	0
5	25	1991	145	78	51	49.4	714	5	0	0
5	26	1991	146	72	53	49.4	657	5	0	0
5	27	1991	147	70	49	45.2	648	5	0	0
5	28	1991	148	74	49	46.7	682	5	0	0
5	29	1991	149	73	55	49.6	653	5	0	0
5	30	1991	150	65	52	46.2	239	5	0	0
5	31	1991	151	70	48	43.9	661	5	0	0
6	1	1991	152	70	50	45.1	696	5	0	0
6	2	1991	153	74	46	46.9	714	5	0	0
6	3	1991	154	83	47	50.4	724	5	0	0
6	4	1991	155	76	52	51.2	698	5	0	0
6	5	1991	156	74	53	49.6	678	5	0	0
6	6	1991	157	81	53	50.2	703	5	0	0
6	7	1991	158	83	46	49.0	737	5	0	0
6	8	1991	159	79	50	50.6	592	5	0	0
6	9	1991	160	78	52	50.5	683	5	0	0
6	10	1991	161	78	55	53.0	660	5	0	0
6	11	1991	162	76	56	53.1	476	4	0	0
6	12	1991	163	80	55	53.1	613	5	0	0
6	13	1991	164	74	58	51.6	661	5	0	0
6	14	1991	165	73	58	51.1	685	5	0	0
6	15	1991	166	79	59	52.6	727	5	0	0
6	16	1991	167	78	57	52.3	726	5	0	0
6	17	1991	168	80	55	52.7	722	5	0	0
6	18	1991	169	76	57	53.8	595	5	0	0
6	19	1991	170	77	53	50.6	694	5	0	0

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
6	20	1991	171	76	51	49.2	724	5	0	0
6	21	1991	172	76	50	49.2	727	5	0	0
6	22	1991	173	76	50	47.8	724	5	0	0
6	23	1991	174	75	47	47.1	727	5	0	0
6	24	1991	175	73	57	50.3	737	5	0	0
6	25	1991	176	76	53	49.3	735	5	0	0
6	26	1991	177	78	55	51.2	709	5	0	0
6	27	1991	178	75	53	50.2	581	5	0	0
6	28	1991	179	77	54	50.0	731	5	0	0
6	29	1991	180	79	56	52.7	713	5	0	0
6	30	1991	181	85	51	53.0	739	5	0	0
7	1	1991	182	84	53	54.1	733	5	0	0
7	2	1991	183	85	53	54.0	718	5	0	0
7	3	1991	184	85	58	56.3	676	5	0	0
7	4	1991	185	82	56	55.2	673	5	0	0
7	5	1991	186	91	55	56.4	674	5	0	0
7	6	1991	187	82	59	56.3	255	4	0	0
7	7	1991	188	86	59	58.2	620	5	0	0
7	8	1991	189	84	60	58.0	676	5	0	0
7	9	1991	190	80	61	56.8	682	5	0	0
7	10	1991	191	74	60	56.7	562	6	0	0
7	11	1991	192	81	55	57.6	629	5	0	0
7	12	1991	193	84	57	59.7	688	5	0	0
7	13	1991	194	86	56	60.6	696	5	0	0
7	14	1991	195	87	57	60.7	684	5	0	0
7	15	1991	196	81	57	58.5	678	5	0	0
7	16	1991	197	81	53	57.2	666	5	0	0
7	17	1991	198	79	58	58.3	492	4	0	0
7	18	1991	199	80	59	58.5	541	5	0	0
7	19	1991	200	77	61	58.7	511	5	0	0
7	20	1991	201	74	61	59.4	394	5	0	0
7	21	1991	202	78	61	59.0	566	5	0	0
7	22	1991	203	79	58	59.2	563	5	0	0
7	23	1991	204	79	59	59.7	634	5	0	0
7	24	1991	205	81	61	60.5	635	5	0	0
7	25	1991	206	80	61	60.1	652	5	0	0
7	26	1991	207	81	58	59.3	640	5	0	0
7	27	1991	208	90	56	60.6	675	4	0	0
7	28	1991	209	92	54	60.6	693	4	0	0
7	29	1991	210	87	55	60.2	544	4	0	0
7	30	1991	211	80	60	61.7	441	4	0	0
7	31	1991	212	78	62	62.0	608	5	0	0
8	1	1991	213	79	62	63.0	591	5	0	0
8	2	1991	214	78	62	63.0	600	5	0	0
8	3	1991	215	76	61	62.0	592	5	0	0
8	4	1991	216	77	62	62.0	596	5	0	0
8	5	1991	217	76	61	60.0	600	5	0	0
8	6	1991	218	78	61	61.0	595	5	0	0
8	7	1991	219	79	59	60.0	569	5	0	0
8	8	1991	220	83	57	58.0	570	5	0	0
8	9	1991	221	82	58	59.0	520	5	0	0
8	10	1991	222	83	62	62.0	555	5	0	0
8	11	1991	223	85	64	65.0	591	5	0	0
8	12	1991	224	98	65	65.0	552	5	0	0
8	13	1991	225	95	68	67.0	535	5	0	0
8	14	1991	226	80	65	65.0	521	5	0	0
8	15	1991	227	86	65	64.7	664	5	0	0
8	16	1991	228	86	63	64.0	641	5	0	0
8	17	1991	229	85	61	63.1	620	5	0	0
8	18	1991	230	88	59	62.1	609	5	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
8	19	1991	231	84	57	59.1	570	5	0	0
8	20	1991	232	89	57	60.9	642	5	0	0
8	21	1991	233	89	59	63.0	588	5	0	0
8	22	1991	234	93	61	64.6	597	5	0	0
8	23	1991	235	91	63	64.9	571	6	0	0
8	24	1991	236	85	62	63.5	582	5	0	0
8	25	1991	237	87	61	62.9	593	5	0	0
8	26	1991	238	85	61	61.5	585	5	0	0
8	27	1991	239	82	57	58.0	594	5	0	0
8	28	1991	240	86	50	54.9	625	4	0	0
8	29	1991	241	87	50	56.0	609	4	0	0
8	30	1991	242	89	53	58.8	596	4	0	0
8	31	1991	243	87	53	58.7	580	4	0	0
9	1	1991	244	90	60	63.9	570	5	0	0
9	2	1991	245	91	63	66.2	557	5	0	0
9	3	1991	246	90	61	62.8	558	5	0	0
9	4	1991	247	85	62	62.6	503	5	0	0
9	5	1991	248	83	61	62.7	475	5	0	0
9	6	1991	249	85	63	63.8	489	4	0	0
9	7	1991	250	82	61	62.4	484	4	0	0
9	8	1991	251	82	56	58.9	540	5	0	0
9	9	1991	252	74	60	56.6	528	5	0	0
9	10	1991	253	76	53	53.8	561	4	0	0
9	11	1991	254	76	53	55.3	545	5	0	0
9	12	1991	255	77	55	57.4	433	4	0	0
9	13	1991	256	75	61	59.9	363	4	0	0
9	14	1991	257	75	61	59.7	397	4	0	0
9	15	1991	258	83	59	60.8	513	4	0	0
9	16	1991	259	89	53	58.7	536	4	0	0
9	17	1991	260	92	52	60.3	542	4	0	0
9	18	1991	261	90	58	61.9	458	4	0	0
9	19	1991	262	91	59	63.8	497	4	0	0
9	20	1991	263	89	63	66.0	233	3	0	0
9	21	1991	264	90	62	65.4	449	4	0	0
9	22	1991	265	92	63	65.5	478	4	0	0
9	23	1991	266	97	62	66.7	510	4	0	0
9	24	1991	267	99	63	66.9	516	4	0	0
9	25	1991	268	95	61	65.1	481	4	0	0
9	26	1991	269	88	61	63.6	391	5	0	0
9	27	1991	270	93	64	66.3	480	5	0	0
9	28	1991	271	90	60	63.4	488	4	0	0
9	29	1991	272	85	57	61.4	483	4	0	0
9	30	1991	273	94	58	63.0	487	4	0	0
10	1	1991	274	102	60	63.5	495	4	0	0
10	2	1991	275	102	62	62.5	499	4	0	0
10	3	1991	276	99	62	67.7	486	4	0	0
10	4	1991	277	84	57	60.0	447	4	0	0
10	5	1991	278	82	57	59.9	385	4	0	0
10	6	1991	279	88	56	60.9	452	4	0	0
10	7	1991	280	102	54	61.4	467	3	0	0
10	8	1991	281	94	54	60.5	424	4	0	0
10	9	1991	282	100	58	62.9	423	3	0	0
10	10	1991	283	103	67	51.8	451	7	0	0
10	11	1991	284	101	61	60.5	412	4	0	0
10	12	1991	285	90	66	61.7	424	4	0	0
10	13	1991	286	90	63	61.7	447	4	0	0
10	14	1991	287	88	58	60.0	448	4	0	0
10	15	1991	288	87	53	56.8	443	3	0	0
10	16	1991	289	84	53	54.4	434	4	0	0
10	17	1991	290	86	53	54.8	429	4	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
10	18	1991	291	91	50	55.0	429	3	0	0
10	19	1991	292	93	51	54.1	434	4	0	0
10	20	1991	293	84	48	51.4	414	4	0	0
10	21	1991	294	75	57	53.7	284	4	0	0
10	22	1991	295	68	61	54.1	63	3	0	0
10	23	1991	296	71	58	53.3	192	3	0	0
10	24	1991	297	70	51	50.2	415	4	0	0
10	25	1991	298	71	50	49.0	334	4	0	0
10	26	1991	299	67	53	51.1	123	4	0	0.39
10	27	1991	300	64	50	45.7	372	4	0	0.06
10	28	1991	301	71	45	44.6	379	4	0	0
10	29	1991	302	70	45	43.4	379	4	0	0
10	30	1991	303	74	46	41.9	399	4	0	0
10	31	1991	304	76	44	34.8	405	5	0	0
11	1	1991	305	79	38	38.0	398	3	0	0
11	2	1991	306	80	41	43.0	381	3	0	0
11	3	1991	307	90	44	48.0	390	3	0	0
11	4	1991	308	89	45	48.1	380	3	0	0
11	5	1991	309	88	47	48.3	373	4	0	0
11	6	1991	310	91	52	52.5	370	3	0	0
11	7	1991	311	84	49	52.7	359	3	0	0
11	8	1991	312	85	55	55.4	305	4	0	0
11	9	1991	313	70	52	50.9	310	4	0	0
11	10	1991	314	71	55	51.3	295	4	0	0
11	11	1991	315	82	52	52.1	335	4	0	0
11	12	1991	316	88	52	47.1	354	5	0	0
11	13	1991	317	86	50	46.3	353	4	0	0
11	14	1991	318	66	47	44.1	153	6	0	0.01
11	15	1991	319	66	46	40.1	330	5	0	0
11	16	1991	320	70	41	40.3	334	4	0	0
11	17	1991	321	70	41	39.8	314	4	0	0
11	18	1991	322	67	44	44.6	288	4	0	0.02
11	19	1991	323	80	40	40.3	347	7	0	0
11	20	1991	324	81	42	33.1	325	4	0	0
11	21	1991	325	79	46	46.5	309	3	0	0
11	22	1991	326	84	43	45.6	332	6	0	0
11	23	1991	327	77	49	14.9	334	9	0	0
11	24	1991	328	84	37	25.7	330	3	0	0
11	25	1991	329	87	40	34.9	328	3	0	0
11	26	1991	330	82	49	41.6	259	4	0	0
11	27	1991	331	73	47	36.5	278	5	0	0
11	28	1991	332	67	43	26.2	291	5	0	0
11	29	1991	333	62	40	33.4	173	6	0	0
11	30	1991	334	61	32	20.2	303	5	0	0.01
12	1	1991	335	64	30	11.2	315	4	0	0
12	2	1991	336	65	33	24.6	305	4	0	0
12	3	1991	337	74	35	25.9	299	6	0	0
12	4	1991	338	73	38	24.6	199	3	0	0
12	5	1991	339	67	43	30.0	180	3	0	0
12	6	1991	340	71	36	31.4	292	3	0	0
12	7	1991	341	60	35	31.9	226	3	0	0
12	8	1991	342	62	47	34.9	102	4	0	0
12	9	1991	343	71	51	40.0	140	7	0	0.1
12	10	1991	344	67	55	40.0	92	5	0	0.06
12	11	1991	345	61	51	42.5	106	2	0	0.05
12	12	1991	346	69	45	40.0	274	3	0	0.01
12	13	1991	347	73	42	35.8	288	3	0	0
12	14	1991	348	79	37	27.2	309	5	0	0
12	15	1991	349	80	37	26.5	263	4	0	0
12	16	1991	350	76	46	30.8	205	3	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
12	17	1991	351	60	48	39.2	66	3	0	0.1
12	18	1991	352	59	52	42.2	102	3	0	0.35
12	19	1991	353	60	42	29.2	251	5	0	0.16
12	20	1991	354	69	37	25.7	287	3	0	0
12	21	1991	355	70	39	27.0	286	4	0	0
12	22	1991	356	67	43	31.6	281	4	0	0
12	23	1991	357	71	41	31.5	212	3	0	0
12	24	1991	358	68	39	30.8	281	3	0	0
12	25	1991	359	66	37	30.2	249	3	0	0
12	26	1991	360	69	36	30.4	277	3	0	0
12	27	1991	361	73	45	27.4	272	4	0	0
12	28	1991	362	60	44	35.5	209	3	0	0.36
12	29	1991	363	61	40	32.8	184	5	0	0
12	30	1991	364	62	45	36.3	248	3	0	0.67
12	31	1991	365	67	38	31.7	295	3	0	0
1	1	1992	1	71	35	26.1	234	6	0	0
1	2	1992	2	72	52	27.2	228	9	0	0
1	3	1992	3	58	50	36.1	62	3	0	0.23
1	4	1992	4	68	48	39.2	297	3	0	0.19
1	5	1992	5	59	45	37.5	89	5	0	0.28
1	6	1992	6	57	43	34.5	218	3	0	1.68
1	7	1992	7	52	45	34.9	63	3	0	0.11
1	8	1992	8	65	44	21.5	311	6	0	0.45
1	9	1992	9	73	42	19.5	321	5	0	0
1	10	1992	10	77	45	22.9	323	5	0	0
1	11	1992	11	71	44	33.5	316	4	0	0
1	12	1992	12	65	39	25.9	323	4	0	0
1	13	1992	13	66	39	24.8	310	4	0	0
1	14	1992	14	69	35	24.8	316	3	0	0
1	15	1992	15	71	42	19.5	335	7	0	0
1	16	1992	16	76	44	15.4	342	6	0	0
1	17	1992	17	70	37	28.4	313	3	0	0
1	18	1992	18	69	34	25.3	209	7	0	0
1	19	1992	19	71	47	17.9	318	9	0	0
1	20	1992	20	71	39	27.8	331	4	0	0
1	21	1992	21	67	39	28.0	323	4	0	0
1	22	1992	22	72	34	27.8	344	3	0	0
1	23	1992	23	78	41	23.7	354	4	0	0
1	24	1992	24	83	36	28.5	351	3	0	0
1	25	1992	25	78	41	30.8	292	3	0	0
1	26	1992	26	68	37	33.9	317	3	0	0
1	27	1992	27	76	40	37.7	340	3	0	0
1	28	1992	28	72	38	28.9	234	3	0	0
1	29	1992	29	84	39	29.4	366	4	0	0
1	30	1992	30	84	44	23.7	362	5	0	0
1	31	1992	31	81	40	29.1	364	4	0	0
2	1	1992	32	70	46	37.3	265	4	0	0
2	2	1992	33	72	45	37.0	311	3	0	0
2	3	1992	34	78	39	29.6	370	4	0	0
2	4	1992	35	76	41	27.5	364	4	0	0
2	5	1992	36	74	45	36.4	185	3	0	0
2	6	1992	37	61	54	42.5	56	5	0	0.26
2	7	1992	38	64	50	42.3	281	4	0	1.18
2	8	1992	39	66	47	39.6	375	3	0	0
2	9	1992	40	65	43	36.6	345	4	0	0
2	10	1992	41	64	51	41.6	214	4	0	0.35
2	11	1992	42	64	50	40.4	187	3	0	0
2	12	1992	43	66	51	43.3	196	5	0	0.01
2	13	1992	44	61	48	38.6	290	5	0	1.53
2	14	1992	45	60	48	37.8	199	4	0	0.13

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
2	15	1992	46	60	43	36.5	143	5	0	0.22
2	16	1992	47	58	41	34.4	237	3	0	1.25
2	17	1992	48	64	47	39.1	355	3	0	0.01
2	18	1992	49	66	46	39.9	413	3	0	0
2	19	1992	50	69	43	38.5	417	4	0	0
2	20	1992	51	69	48	43.7	342	4	0	0
2	21	1992	52	73	53	47.6	357	4	0	0
2	22	1992	53	74	49	42.9	430	4	0	0
2	23	1992	54	82	43	33.8	487	5	0	0
2	24	1992	55	84	47	23.4	484	5	0	0
2	25	1992	56	84	43	35.3	468	4	0	0
2	26	1992	57	81	47	34.7	492	6	0	0
2	27	1992	58	83	48	30.6	495	6	0	0
2	28	1992	59	83	49	34.2	445	4	0	0
2	29	1992	60	73	50	36.9	336	3	0	0
3	1	1992	61	71	52	39.2	230	5	0	0
3	2	1992	62	63	51	42.3	159	6	0	0.53
3	3	1992	63	64	51	42.0	228	4	0	0.77
3	4	1992	64	62	51	42.8	265	4	0	0
3	5	1992	65	63	49	40.6	271	3	0	0
3	6	1992	66	61	48	39.4	199	4	0	0.02
3	7	1992	67	58	48	37.8	211	3	0	0.07
3	8	1992	68	62	43	37.0	396	4	0	0.44
3	9	1992	69	61	47	39.0	296	3	0	0.02
3	10	1992	70	69	46	41.1	463	4	0	0
3	11	1992	71	71	44	42.5	494	4	0	0
3	12	1992	72	71	45	41.4	506	4	0	0
3	13	1992	73	72	48	43.6	471	4	0	0
3	14	1992	74	72	42	39.9	475	4	0	0
3	15	1992	75	68	47	40.4	507	5	0	0
3	16	1992	76	65	46	39.8	451	4	0	0
3	17	1992	77	67	46	40.0	517	4	0	0
3	18	1992	78	66	45	39.2	456	4	0	0
3	19	1992	79	70	43	41.1	532	4	0	0
3	20	1992	80	67	50	42.0	166	6	0	0
3	21	1992	81	62	49	41.2	374	6	0	1.23
3	22	1992	82	63	46	39.8	215	4	0	0.11
3	23	1992	83	63	47	40.9	356	5	0	0.31
3	24	1992	84	71	44	40.8	567	3	0	0
3	25	1992	85	66	45	41.3	237	3	0	0
3	26	1992	86	68	52	43.9	263	4	0	0.25
3	27	1992	87	65	52	44.1	299	4	0	0.25
3	28	1992	88	62	53	44.9	184	3	0	0.03
3	29	1992	89	67	51	42.8	441	3	0	0
3	30	1992	90	63	52	42.9	311	4	0	0
3	31	1992	91	66	48	41.1	391	3	0	0
4	1	1992	92	67	48	41.1	285	3	0	0.18
4	2	1992	93	72	48	42.7	516	4	0	0
4	3	1992	94	77	47	46.1	597	4	0	0
4	4	1992	95	68	53	46.4	362	4	0	0
4	5	1992	96	63	56	43.8	183	4	0	0
4	6	1992	97	68	55	45.1	345	3	0	0
4	7	1992	98	73	51	44.1	571	4	0	0
4	8	1992	99	72	56	48.8	442	4	0	0
4	9	1992	100	72	54	47.6	555	5	0	0
4	10	1992	101	76	52	46.1	601	5	0	0
4	11	1992	102	75	52	45.8	619	5	0	0
4	12	1992	103	73	49	44.7	605	4	0	0
4	13	1992	104	74	53	46.5	587	5	0	0
4	14	1992	105	70	55	46.2	574	4	0	0

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
4	15	1992	106	70	51	45.0	523	4	0	0
4	16	1992	107	73	53	46.2	561	4	0	0
4	17	1992	108	76	52	47.8	523	4	0	0
4	18	1992	109	79	57	51.1	551	4	0	0
4	19	1992	110	83	52	44.3	673	4	0	0
4	20	1992	111	85	53	42.1	675	5	0	0
4	21	1992	112	81	50	45.4	642	4	0	0
4	22	1992	113	77	55	48.4	641	5	0	0
4	23	1992	114	82	50	46.6	666	4	0	0
4	24	1992	115	88	52	48.6	644	4	0	0
4	25	1992	116	91	55	50.1	643	4	0	0
4	26	1992	117	90	57	49.2	668	4	0	0
4	27	1992	118	92	54	48.2	688	4	0	0
4	28	1992	119	90	53	47.7	705	4	0	0
4	29	1992	120	85	51	49.1	624	4	0	0
4	30	1992	121	83	55	49.0	689	5	0	0
5	1	1992	122	82	54	46.9	696	5	0	0
5	2	1992	123	83	50	48.0	673	5	0	0
5	3	1992	124	83	53	47.2	616	4	0	0
5	4	1992	125	74	58	50.7	540	5	0	0
5	5	1992	126	74	59	51.8	348	4	0	0
5	6	1992	127	75	61	52.6	477	4	0	0.04
5	7	1992	128	75	62	52.6	462	4	0	0
5	8	1992	129	74	61	51.9	466	5	0	0.02
5	9	1992	130	66	59	48.8	214	4	0	0.01
5	10	1992	131	73	60	51.0	256	3	0	0
5	11	1992	132	75	60	50.1	398	3	0	0
5	12	1992	133	80	57	48.3	688	5	0	0
5	13	1992	134	80	57	48.6	690	5	0	0
5	14	1992	135	76	58	48.7	578	5	0	0
5	15	1992	136	76	59	48.8	590	5	0	0
5	16	1992	137	79	60	50.0	602	4	0	0
5	17	1992	138	78	57	50.2	571	5	0	0
5	18	1992	139	80	59	51.6	648	5	0	0
5	19	1992	140	78	58	50.3	602	5	0	0
5	20	1992	141	74	58	48.7	532	5	0	0
5	21	1992	142	74	58	49.2	643	5	0	0
5	22	1992	143	78	59	51.1	579	4	0	0
5	23	1992	144	75	58	51.0	504	4	0	0.25
5	24	1992	145	70	59	49.9	301	4	0	0.02
5	25	1992	146	76	59	50.6	488	4	0	0
5	26	1992	147	79	61	51.6	595	5	0	0
5	27	1992	148	77	61	49.8	653	5	0	0
5	28	1992	149	76	60	49.0	532	5	0	0
5	29	1992	150	69	60	50.2	285	4	0	0
5	30	1992	151	81	61	52.4	628	4	0	0
5	31	1992	152	85	62	54.1	655	5	0	0
6	1	1992	153	86	59	52.1	686	5	0	0
6	2	1992	154	85	57	52.3	645	4	0	0
6	3	1992	155	83	58	51.5	704	5	0	0
6	4	1992	156	80	60	52.7	657	5	0	0
6	5	1992	157	77	59	49.8	631	5	0	0
6	6	1992	158	67	59	46.1	249	4	0	0
6	7	1992	159	76	59	47.4	601	4	0	0
6	8	1992	160	78	59	50.0	687	5	0	0
6	9	1992	161	79	56	49.9	700	5	0	0
6	10	1992	162	68	62	49.3	566	4	0	0
6	11	1992	163	77	60	49.8	638	4	0	0
6	12	1992	164	80	55	47.7	655	4	0	0
6	13	1992	165	80	50	43.5	738	4	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
6	14	1992	166	74	52	45.0	544	5	0	0
6	15	1992	167	77	50	44.3	688	5	0	0
6	16	1992	168	80	51	45.8	731	4	0	0
6	17	1992	169	81	52	47.7	730	5	0	0
6	18	1992	170	84	55	50.1	734	5	0	0
6	19	1992	171	83	53	49.3	668	4	0	0
6	20	1992	172	85	52	47.9	736	5	0	0
6	21	1992	173	85	54	49.2	730	4	0	0
6	22	1992	174	90	52	49.9	364	3	0	0
6	23	1992	175	97	61	53.7	632	4	0	0
6	24	1992	176	97	59	53.2	718	4	0	0
6	25	1992	177	88	53	48.1	730	5	0	0
6	26	1992	178	82	53	49.8	696	5	0	0
6	27	1992	179	88	55	52.5	728	5	0	0
6	28	1992	180	91	57	51.7	724	5	0	0
6	29	1992	181	84	57	49.1	725	5	0	0
6	30	1992	182	79	55	48.2	730	5	0	0
7	1	1992	183	77	56	47.2	682	5	0	0
7	2	1992	184	82	52	48.9	692	4	0	0
7	3	1992	185	81	56	50.8	697	5	0	0
7	4	1992	186	90	59	52.9	686	5	0	0
7	5	1992	187	95	57	52.3	728	4	0	0
7	6	1992	188	95	59	51.4	521	4	0	0
7	7	1992	189	85	71	59.4	215	4	0	0.03
7	8	1992	190	94	71	61.3	535	4	0	0
7	9	1992	191	91	66	59.7	692	5	0	0
7	10	1992	192	87	68	59.8	682	5	0	0.01
7	11	1992	193	85	68	59.3	529	5	0	0.03
7	12	1992	194	80	66	56.9	287	4	0	0.05
7	13	1992	195	87	66	57.2	666	4	0	0
7	14	1992	196	91	62	56.0	635	4	0	0
7	15	1992	197	92	58	53.5	725	5	0	0
7	16	1992	198	96	58	55.0	710	5	0	0
7	17	1992	199	97	60	57.5	713	4	0	0
7	18	1992	200	105	62	58.9	714	5	0	0
7	19	1992	201	94	61	56.1	714	4	0	0
7	20	1992	202	93	63	56.4	705	5	0	0
7	21	1992	203	85	64	57.4	555	6	0	0
7	22	1992	204	83	62	55.9	608	4	0	0
7	23	1992	205	83	61	55.5	659	5	0	0
7	24	1992	206	80	61	54.5	524	4	0	0
7	25	1992	207	82	62	55.6	651	5	0	0
7	26	1992	208	87	59	56.5	645	5	0	0
7	27	1992	209	89	64	59.5	627	5	0	0
7	28	1992	210	90	63	58.2	613	5	0	0
7	29	1992	211	88	62	58.2	605	4	0	0
7	30	1992	212	88	65	59.6	578	5	0	0
7	31	1992	213	90	64	60.0	646	5	0	0
8	1	1992	214	91	66	61.4	514	5	0	0
8	2	1992	215	91	64	60.8	620	5	0	0
8	3	1992	216	89	65	60.0	562	5	0	0
8	4	1992	217	89	66	60.5	556	5	0	0
8	5	1992	218	88	65	59.9	593	4	0	0
8	6	1992	219	89	62	58.9	638	5	0	0
8	7	1992	220	90	65	59.9	624	5	0	0
8	8	1992	221	89	66	57.2	640	5	0	0
8	9	1992	222	94	65	58.2	641	5	0	0
8	10	1992	223	91	65	57.5	464	4	0	0
8	11	1992	224	97	64	58.6	630	5	0	0
8	12	1992	225	95	65	55.8	542	5	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
8	13	1992	226	98	69	61.0	272	4	0	0.14
8	14	1992	227	94	70	56.2	633	4	0	0
8	15	1992	228	99	69	57.6	633	4	0	0
8	16	1992	229	104	66	56.8	636	4	0	0
8	17	1992	230	104	67	57.0	637	5	0	0
8	18	1992	231	102	66	55.6	623	4	0	0
8	19	1992	232	97	66	54.9	606	4	0	0
8	20	1992	233	101	66	58.9	620	4	0	0
8	21	1992	234	94	64	53.7	614	5	0	0
8	22	1992	235	87	63	52.5	622	4	0	0
8	23	1992	236	92	55	45.0	652	5	0	0
8	24	1992	237	82	62	49.5	469	4	0	0
8	25	1992	238	89	60	49.1	577	4	0	0
8	26	1992	239	95	57	45.9	631	4	0	0
8	27	1992	240	95	57	45.6	616	4	0	0
8	28	1992	241	99	61	44.3	589	4	0	0
8	29	1992	242	90	57	49.2	563	5	0	0
8	30	1992	243	79	57	42.3	542	5	0	0
8	31	1992	244	77	55	43.6	554	4	0	0
9	1	1992	245	81	61	47.8	480	5	0	0
9	2	1992	246	84	61	48.9	523	5	0	0
9	3	1992	247	87	58	46.6	536	4	0	0
9	4	1992	248	85	57	41.8	596	4	0	0
9	5	1992	249	88	55	42.0	583	4	0	0
9	6	1992	250	87	55	44.9	571	4	0	0
9	7	1992	251	87	55	45.6	587	4	0	0
9	8	1992	252	87	52	46.4	584	4	0	0
9	9	1992	253	84	53	46.0	561	4	0	0
9	10	1992	254	86	56	48.6	565	4	0	0
9	11	1992	255	86	58	50.0	506	4	0	0
9	12	1992	256	89	52	46.0	552	4	0	0
9	13	1992	257	88	56	47.6	535	4	0	0
9	14	1992	258	90	57	47.9	537	4	0	0
9	15	1992	259	89	59	49.3	526	4	0	0
9	16	1992	260	95	61	51.5	547	4	0	0
9	17	1992	261	90	64	47.9	500	5	0	0
9	18	1992	262	94	62	48.4	531	4	0	0
9	19	1992	263	96	56	45.8	552	4	0	0
9	20	1992	264	95	52	44.0	555	4	0	0
9	21	1992	265	97	58	50.1	545	4	0	0
9	22	1992	266	102	65	55.1	511	4	0	0
9	23	1992	267	102	66	53.0	516	4	0	0
9	24	1992	268	99	65	49.9	518	4	0	0
9	25	1992	269	91	55	48.2	519	4	0	0
9	26	1992	270	96	52	43.5	516	4	0	0
9	27	1992	271	99	58	42.6	514	4	0	0
9	28	1992	272	99	60	47.5	509	4	0	0
9	29	1992	273	104	57	48.1	490	4	0	0
9	30	1992	274	98	64	51.1	469	4	0	0
10	1	1992	275	97	59	47.4	481	4	0	0
10	2	1992	276	80	56	44.8	487	4	0	0
10	3	1992	277	80	56	39.4	489	5	0	0
10	4	1992	278	82	52	40.8	437	4	0	0
10	5	1992	279	85	54	42.1	478	4	0	0
10	6	1992	280	89	54	44.7	470	4	0	0
10	7	1992	281	97	50	40.2	483	4	0	0
10	8	1992	282	94	56	33.6	442	4	0	0
10	9	1992	283	92	49	29.9	461	4	0	0
10	10	1992	284	90	51	36.8	451	4	0	0
10	11	1992	285	85	51	36.1	439	4	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
10	12	1992	286	83	50	43.2	443	4	0	0
10	13	1992	287	74	56	39.3	272	5	0	0
10	14	1992	288	76	62	37.1	313	4	0	0
10	15	1992	289	79	59	41.7	366	4	0	0
10	16	1992	290	80	54	40.8	404	5	0	0
10	17	1992	291	83	48	36.8	398	4	0	0
10	18	1992	292	78	54	38.1	384	4	0	0
10	19	1992	293	79	56	38.0	374	4	0	0
10	20	1992	294	79	51	39.2	317	4	0	0
10	21	1992	295	71	62	41.9	143	4	0	0
10	22	1992	296	86	56	41.4	356	5	0	0.03
10	23	1992	297	82	59	43.0	303	5	0	0.18
10	24	1992	298	76	56	41.1	390	4	0	0
10	25	1992	299	78	53	40.4	398	4	0	0
10	26	1992	300	79	53	40.8	296	3	0	0
10	27	1992	301	78	58	37.4	185	3	0	0
10	28	1992	302	71	56	40.8	238	3	0	0.07
10	29	1992	303	68	56	40.4	195	4	0	0.05
10	30	1992	304	68	54	42.9	118	4	0	0.14
10	31	1992	305	72	52	40.2	377	3	0	0.01
11	1	1992	306	82	47	37.6	389	3	0	0
11	2	1992	307	83	53	39.9	364	3	0	0
11	3	1992	308	80	52	34.3	374	8	0	0
11	4	1992	309	76	54	15.7	336	8	0	0
11	5	1992	310	79	47	27.2	364	3	0	0
11	6	1992	311	84	45	33.8	364	4	0	0
11	7	1992	312	81	49	36.7	364	4	0	0
11	8	1992	313	75	42	35.9	347	4	0	0
11	9	1992	314	69	57	42.2	158	3	0	0
11	10	1992	315	74	54	30.6	304	4	0	0
11	11	1992	316	78	49	11.9	365	5	0	0
11	12	1992	317	81	37	17.2	360	4	0	0
11	13	1992	318	85	34	28.2	354	3	0	0
11	14	1992	319	85	40	26.6	347	4	0	0
11	15	1992	320	81	43	27.4	287	3	0	0
11	16	1992	321	77	50	36.8	331	4	0	0
11	17	1992	322	73	50	40.3	307	4	0	0
11	18	1992	323	70	51	37.3	292	4	0	0
11	19	1992	324	75	43	30.5	277	4	0	0
11	20	1992	325	69	51	28.4	286	5	0	0
11	21	1992	326	70	33	12.3	274	3	0	0
11	22	1992	327	67	38	30.4	303	4	0	0
11	23	1992	328	67	51	37.5	268	4	0	0.05
11	24	1992	329	67	43	23.6	220	3	0	0
11	25	1992	330	73	44	18.7	307	4	0	0
11	26	1992	331	73	47	-3.8	322	8	0	0
11	27	1992	332	77	36	16.7	315	3	0	0
11	28	1992	333	76	35	25.1	299	4	0	0
11	29	1992	334	72	47	12.2	272	10	0	0
11	30	1992	335	74	45	7.5	316	6	0	0
12	1	1992	336	77	39	21.1	304	3	0	0
12	2	1992	337	69	44	28.6	226	5	0	0
12	3	1992	338	66	49	33.9	131	5	0	0
12	4	1992	339	61	44	34.1	114	3	0	0.16
12	5	1992	340	63	43	32.6	249	3	0	0.27
12	6	1992	341	65	47	31.2	243	4	0	0.04
12	7	1992	342	58	48	33.6	24	4	0	0.79
12	8	1992	343	63	41	30.9	267	2	0	0.38
12	9	1992	344	68	41	33.1	287	3	0	0
12	10	1992	345	72	38	32.5	286	3	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
12	11	1992	346	61	45	34.4	118	4	0	0
12	12	1992	347	60	39	25.8	286	4	0	0.11
12	13	1992	348	64	34	18.6	293	4	0	0
12	14	1992	349	64	35	13.5	294	4	0	0
12	15	1992	350	62	42	31.8	168	4	0	0
12	16	1992	351	66	38	20.4	284	4	0	0
12	17	1992	352	61	38	23.6	157	4	0	0
12	18	1992	353	57	41	23.1	279	4	0	0.17
12	19	1992	354	63	32	15.3	296	3	0	0
12	20	1992	355	62	34	15.5	256	3	0	0
12	21	1992	356	64	29	15.5	291	3	0	0
12	22	1992	357	67	39	27.1	226	3	0	0
12	23	1992	358	77	43	30.1	301	6	0	0
12	24	1992	359	74	37	35.1	296	3	0	0
12	25	1992	360	69	33	37.1	193	2	0	0
12	26	1992	361	73	43	33.7	291	3	0	0
12	27	1992	362	58	43	44.2	59	2	0	0
12	28	1992	363	60	49	50.7	115	2	0	0.93
12	29	1992	364	60	51	50.3	68	4	0	0.03
12	30	1992	365	61	42	45.1	288	3	0	0.21
12	31	1992	366	64	37	42.8	285	3	0	0
1	1	1993	1	63	39	43.6	208	3	0	0
1	2	1993	2	52	40	43.8	69	3	0	0.3
1	3	1993	3	59	37	35.5	300	4	0	0.07
1	4	1993	4	61	32	26.9	210	3	0	0
1	5	1993	5	65	41	38.6	234	4	0	0
1	6	1993	6	62	50	53.9	51	6	0	0.94
1	7	1993	7	63	59	60.7	47	9	0	2.07
1	8	1993	8	61	50	52.5	104	5	0	1.42
1	9	1993	9	55	50	49.2	102	3	0	0.09
1	10	1993	10	58	49	50.2	70	3	0	0.15
1	11	1993	11	57	39	39.3	187	3	0	0.09
1	12	1993	12	60	38	44.0	80	4	0	0.08
1	13	1993	13	64	56	56.1	222	5	0	1.11
1	14	1993	14	60	51	50.2	158	4	0	1.37
1	15	1993	15	59	53	54.1	45	4	0	0.35
1	16	1993	16	62	58	57.5	47	4	0	1.9
1	17	1993	17	62	52	52.2	203	5	0	0.72
1	18	1993	18	55	46	47.3	111	6	0	1.18
1	19	1993	19	57	42	42.7	220	3	0	0.4
1	20	1993	20	62	42	44.7	309	4	0	0
1	21	1993	21	66	44	48.2	289	3	0	0
1	22	1993	22	65	42	49.7	314	4	0	0
1	23	1993	23	77	45	45.8	363	6	0	0
1	24	1993	24	79	37	40.5	353	4	0	0
1	25	1993	25	77	49	37.0	267	8	0	0
1	26	1993	26	81	48	46.4	331	5	0	0
1	27	1993	27	76	44	45.7	348	3	0	0
1	28	1993	28	73	43	45.6	350	3	0	0
1	29	1993	29	70	43	48.3	340	4	0	0
1	30	1993	30	68	47	48.7	333	4	0	0
1	31	1993	31	65	46	48.9	253	4	0	0.4
2	1	1993	32	68	43	42.6	373	4	0	0
2	2	1993	33	72	43	43.6	308	4	0	0
2	3	1993	34	70	46	46.9	291	4	0	0
2	4	1993	35	76	46	49.1	320	4	0	0
2	5	1993	36	71	49	47.3	245	3	0	0
2	6	1993	37	76	41	49.1	381	3	0	0
2	7	1993	38	66	53	56.0	124	4	0	0.05
2	8	1993	39	62	52	54.0	196	7	0	2.08

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
2	9	1993	40	59	49	49.8	209	4	0	0.56
2	10	1993	41	61	47	48.5	397	3	0	0.05
2	11	1993	42	61	43	46.0	351	3	0	0
2	12	1993	43	64	45	48.0	381	4	0	0
2	13	1993	44	70	45	47.1	280	3	0	0
2	14	1993	45	63	43	47.5	366	4	0	0
2	15	1993	46	62	44	47.6	262	5	0	0
2	16	1993	47	58	45	44.9	198	3	0	0
2	17	1993	48	71	46	48.7	414	4	0	0
2	18	1993	49	65	50	48.8	129	6	0	0.15
2	19	1993	50	64	52	56.5	154	6	0	1
2	20	1993	51	62	46	49.6	266	6	0	1.09
2	21	1993	52	59	42	44.7	293	4	0	0.06
2	22	1993	53	63	43	46.7	422	4	0	0
2	23	1993	54	62	45	47.8	279	4	0	0
2	24	1993	55	60	46	46.4	310	5	0	0.5
2	25	1993	56	57	44	42.9	322	3	0	0
2	26	1993	57	58	41	42.6	180	3	0	0.02
2	27	1993	58	57	41	42.6	331	3	0	0.13
2	28	1993	59	59	41	42.7	417	5	0	0.16
3	1	1993	60	62	42	45.6	441	4	0	0
3	2	1993	61	67	42	47.4	463	4	0	0
3	3	1993	62	65	46	48.8	416	4	0	0
3	4	1993	63	75	42	48.9	474	4	0	0
3	5	1993	64	83	46	46.0	489	4	0	0
3	6	1993	65	85	46	48.7	506	4	0	0
3	7	1993	66	84	51	51.6	514	4	0	0
3	8	1993	67	79	49	53.9	463	4	0	0
3	9	1993	68	81	48	49.1	487	4	0	0
3	10	1993	69	73	42	47.8	512	4	0	0
3	11	1993	70	73	42	50.4	510	4	0	0
3	12	1993	71	85	44	50.4	438	5	0	0
3	13	1993	72	78	51	51.4	401	4	0	0
3	14	1993	73	71	51	54.8	489	5	0	0
3	15	1993	74	72	51	55.7	460	4	0	0
3	16	1993	75	75	49	55.4	489	4	0	0
3	17	1993	76	75	54	56.2	413	5	0	0
3	18	1993	77	70	51	54.4	512	4	0	0
3	19	1993	78	77	48	55.3	537	4	0	0
3	20	1993	79	74	51	56.1	404	4	0	0
3	21	1993	80	72	52	56.9	433	4	0	0
3	22	1993	81	75	51	57.2	476	4	0	0
3	23	1993	82	74	53	57.8	454	5	0	0
3	24	1993	83	65	57	55.1	491	4	0	0
3	25	1993	84	68	52	51.0	306	5	0	0
3	26	1993	85	57	47	48.0	241	5	0	0.76
3	27	1993	86	60	48	46.7	246	4	0	0.39
3	28	1993	87	60	45	45.5	346	4	0	0.51
3	29	1993	88	64	44	46.6	405	4	0	0.02
3	30	1993	89	68	48	51.4	563	4	0	0
3	31	1993	90	71	44	51.0	596	4	0	0
4	1	1993	91	66	52	51.9	472	5	0	0
4	2	1993	92	72	46	51.8	589	4	0	0
4	3	1993	93	79	51	54.4	597	4	0	0
4	4	1993	94	76	49	53.2	578	4	0	0
4	5	1993	95	63	51	51.7	323	4	0	0
4	6	1993	96	69	47	49.5	600	4	0	0
4	7	1993	97	75	44	49.5	609	4	0	0
4	8	1993	98	84	43	50.1	627	4	0	0
4	9	1993	99	78	48	52.1	625	4	0	0

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
4	10	1993	100	73	49	52.0	583	4	0	0
4	11	1993	101	76	46	51.7	631	4	0	0
4	12	1993	102	71	55	52.0	569	4	0	0
4	13	1993	103	79	50	53.0	566	5	0	0
4	14	1993	104	74	48	53.1	632	5	0	0
4	15	1993	105	74	48	53.0	573	5	0	0
4	16	1993	106	72	54	53.0	547	4	0	0
4	17	1993	107	72	54	53.0	474	4	0	0
4	18	1993	108	73	54	53.0	526	4	0	0
4	19	1993	109	83	45	53.6	650	4	0	0
4	20	1993	110	84	58	53.0	554	4	0	0
4	21	1993	111	84	55	52.7	670	4	0	0
4	22	1993	112	79	54	58.7	605	4	0	0
4	23	1993	113	73	52	55.5	597	4	0	0
4	24	1993	114	73	52	56.0	569	4	0	0
4	25	1993	115	79	53	57.0	552	5	0	0
4	26	1993	116	80	53	58.0	584	5	0	0
4	27	1993	117	74	58	58.9	603	6	0	0
4	28	1993	118	75	53	56.4	595	5	0	0
4	29	1993	119	82	49	58.5	640	4	0	0
4	30	1993	120	78	53	58.7	647	5	0	0
5	1	1993	121	85	53	59.0	647	5	0	0
5	2	1993	122	79	56	59.9	599	5	0	0
5	3	1993	123	72	58	57.6	591	5	0	0
5	4	1993	124	68	51	50.8	591	5	0	0
5	5	1993	125	74	46	52.5	668	4	0	0
5	6	1993	126	74	50	54.6	590	4	0	0
5	7	1993	127	76	52	56.1	584	4	0	0
5	8	1993	128	80	52	57.5	682	4	0	0
5	9	1993	129	94	49	57.8	701	5	0	0
5	10	1993	130	87	49	56.5	687	4	0	0
5	11	1993	131	72	57	59.5	572	5	0	0
5	12	1993	132	72	51	54.4	654	5	0	0
5	13	1993	133	80	48	54.2	661	4	0	0
5	14	1993	134	87	50	58.1	651	4	0	0
5	15	1993	135	85	56	58.0	552	4	0	0
5	16	1993	136	75	60	61.5	423	4	0	0
5	17	1993	137	79	59	61.7	602	5	0	0
5	18	1993	138	77	54	56.2	599	5	0	0
5	19	1993	139	79	49	55.7	713	4	0	0
5	20	1993	140	76	57	60.6	517	5	0	0
5	21	1993	141	76	57	58.4	648	5	0	0
5	22	1993	142	78	56	59.6	603	4	0	0
5	23	1993	143	70	59	58.8	298	4	0	0
5	24	1993	144	77	59	59.6	622	5	0	0
5	25	1993	145	80	55	59.6	687	5	0	0
5	26	1993	146	76	52	55.3	718	5	0	0
5	27	1993	147	74	50	54.3	668	4	0	0
5	28	1993	148	74	54	55.7	716	4	0	0
5	29	1993	149	80	50	55.9	715	4	0	0
5	30	1993	150	82	50	57.4	720	4	0	0
5	31	1993	151	79	55	60.2	662	4	0	0
6	1	1993	152	79	58	59.8	681	4	0	0
6	2	1993	153	75	61	61.6	564	4	0	0
6	3	1993	154	75	57	58.8	605	4	0	0
6	4	1993	155	74	55	57.0	607	4	0	0
6	5	1993	156	65	52	54.0	179	4	0	0.42
6	6	1993	157	67	50	51.3	489	4	0	0.17
6	7	1993	158	69	49	52.0	520	4	0	0
6	8	1993	159	75	53	57.4	554	3	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
6	9	1993	160	90	54	62.3	597	4	0	0
6	10	1993	161	93	55	63.5	566	4	0	0
6	11	1993	162	83	56	62.7	529	4	0	0
6	12	1993	163	80	61	62.0	595	4	0	0
6	13	1993	164	80	58	62.1	634	4	0	0
6	14	1993	165	85	54	62.1	607	4	0	0
6	15	1993	166	86	59	60.2	605	5	0	0
6	16	1993	167	82	53	54.2	743	5	0	0
6	17	1993	168	81	58	55.6	713	4	0	0
6	18	1993	169	90	54	58.2	726	5	0	0
6	19	1993	170	88	62	59.1	622	4	0	0
6	20	1993	171	87	59	57.8	699	4	0	0
6	21	1993	172	82	60	57.2	729	4	0	0
6	22	1993	173	78	63	56.9	638	5	0	0
6	23	1993	174	87	54	55.6	715	4	0	0
6	24	1993	175	88	58	59.8	716	4	0	0
6	25	1993	176	88	58	59.6	727	4	0	0
6	26	1993	177	86	61	60.9	701	5	0	0
6	27	1993	178	85	61	60.1	696	5	0	0
6	28	1993	179	88	59	58.9	680	4	0	0
6	29	1993	180	87	53	55.2	755	4	0	0
6	30	1993	181	86	53	54.7	735	5	0	0
7	1	1993	182	84	56	56.5	645	4	0	0
7	2	1993	183	82	60	57.5	651	5	0	0
7	3	1993	184	79	59	55.8	694	5	0	0
7	4	1993	185	77	60	53.7	705	4	0	0
7	5	1993	186	80	58	54.8	701	5	0	0
7	6	1993	187	84	58	57.6	673	5	0	0
7	7	1993	188	86	63	59.4	653	5	0	0
7	8	1993	189	84	63	58.9	707	5	0	0
7	9	1993	190	83	61	58.0	698	5	0	0
7	10	1993	191	85	57	57.2	672	5	0	0
7	11	1993	192	87	57	56.9	691	5	0	0
7	12	1993	193	82	57	56.9	633	4	0	0
7	13	1993	194	81	56	54.7	606	4	0	0
7	14	1993	195	80	55	53.8	668	5	0	0
7	15	1993	196	79	51	52.0	665	4	0	0
7	16	1993	197	80	57	54.4	664	5	0	0
7	17	1993	198	82	53	53.1	650	4	0	0
7	18	1993	199	82	55	55.5	544	4	0	0
7	19	1993	200	84	60	57.4	583	4	0	0
7	20	1993	201	80	59	55.7	570	5	0	0
7	21	1993	202	79	57	54.8	604	5	0	0
7	22	1993	203	82	57	55.9	621	4	0	0
7	23	1993	204	80	58	56.2	548	4	0	0
7	24	1993	205	80	63	56.6	635	5	0	0
7	25	1993	206	78	65	58.3	562	5	0	0
7	26	1993	207	79	64	58.3	581	5	0	0
7	27	1993	208	77	64	59.3	450	5	0	0
7	28	1993	209	73	64	59.3	273	4	0	0.02
7	29	1993	210	82	60	57.9	556	4	0	0
7	30	1993	211	89	57	58.7	670	4	0	0
7	31	1993	212	95	58	60.9	618	4	0	0
8	1	1993	213	96	59	62.0	656	4	0	0
8	2	1993	214	89	61	62.0	594	4	0	0
8	3	1993	215	89	64	62.7	585	5	0	0
8	4	1993	216	89	64	62.5	632	4	0	0
8	5	1993	217	91	62	62.2	630	5	0	0
8	6	1993	218	88	64	62.8	624	5	0	0
8	7	1993	219	82	59	57.7	620	5	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
8	8	1993	220	84	57	56.1	588	4	0	0
8	9	1993	221	91	60	59.6	549	4	0	0
8	10	1993	222	86	60	59.9	629	4	0	0
8	11	1993	223	89	55	57.3	635	4	0	0
8	12	1993	224	82	53	54.2	631	4	0	0
8	13	1993	225	79	55	53.1	640	4	0	0
8	14	1993	226	77	54	53.4	528	5	0	0
8	15	1993	227	80	60	54.8	597	4	0	0
8	16	1993	228	81	58	56.2	582	5	0	0
8	17	1993	229	84	55	56.3	592	4	0	0
8	18	1993	230	85	58	58.6	591	4	0	0
8	19	1993	231	84	56	56.7	613	4	0	0
8	20	1993	232	87	53	54.9	647	5	0	0
8	21	1993	233	88	49	53.4	641	4	0	0
8	22	1993	234	87	49	53.7	624	4	0	0
8	23	1993	235	86	57	58.4	608	4	0	0
8	24	1993	236	89	56	58.6	569	4	0	0
8	25	1993	237	90	57	58.3	574	4	0	0
8	26	1993	238	93	63	61.9	559	5	0	0
8	27	1993	239	86	63	60.2	550	4	0	0
8	28	1993	240	85	60	58.6	557	4	0	0
8	29	1993	241	81	60	58.1	516	4	0	0
8	30	1993	242	83	59	58.7	524	4	0	0
8	31	1993	243	81	63	59.9	425	4	0	0
9	1	1993	244	86	60	60.2	544	4	0	0
9	2	1993	245	87	61	61.0	550	4	0	0
9	3	1993	246	92	60	62.4	556	4	0	0
9	4	1993	247	92	61	62.5	550	4	0	0
9	5	1993	248	85	60	59.1	553	4	0	0
9	6	1993	249	88	58	57.9	564	4	0	0
9	7	1993	250	96	56	59.2	572	4	0	0
9	8	1993	251	100	56	61.8	567	4	0	0
9	9	1993	252	94	54	59.6	558	4	0	0
9	10	1993	253	93	58	61.7	542	4	0	0
9	11	1993	254	90	60	61.4	520	4	0	0
9	12	1993	255	74	61	56.7	513	5	0	0
9	13	1993	256	75	60	53.3	475	4	0	0
9	14	1993	257	77	61	54.8	515	4	0	0
9	15	1993	258	71	61	56.4	332	4	0	0
9	16	1993	259	69	59	53.2	225	4	0	0.01
9	17	1993	260	73	56	51.8	339	4	0	0
9	18	1993	261	76	51	49.9	549	4	0	0
9	19	1993	262	81	48	52.0	547	4	0	0
9	20	1993	263	71	55	52.7	372	4	0	0
9	21	1993	264	77	60	54.3	476	4	0	0
9	22	1993	265	80	55	54.4	468	4	0	0
9	23	1993	266	82	51	52.4	520	4	0	0
9	24	1993	267	86	45	50.3	526	4	0	0
9	25	1993	268	91	46	52.9	523	3	0	0
9	26	1993	269	100	50	52.9	534	4	0	0
9	27	1993	270	99	56	48.7	523	4	0	0
9	28	1993	271	96	61	52.6	463	4	0	0
9	29	1993	272	93	54	52.0	467	4	0	0
9	30	1993	273	94	55	56.5	466	4	0	0
10	1	1993	274	96	59	59.2	471	4	0	0
10	2	1993	275	93	57	57.1	466	4	0	0
10	3	1993	276	88	59	57.1	450	4	0	0
10	4	1993	277	79	60	53.5	384	4	0	0
10	5	1993	278	80	61	52.7	443	5	0	0
10	6	1993	279	76	57	49.7	457	4	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
10	7	1993	280	74	57	50.0	381	4	0	0
10	8	1993	281	73	59	49.2	272	4	0	0
10	9	1993	282	77	56	50.2	398	4	0	0
10	10	1993	283	78	53	49.6	404	4	0	0
10	11	1993	284	75	60	53.9	197	3	0	0.1
10	12	1993	285	82	57	52.2	455	4	0	0
10	13	1993	286	75	52	49.1	389	4	0	0
10	14	1993	287	77	53	47.4	414	4	0	0
10	15	1993	288	75	53	47.9	375	4	0	0
10	16	1993	289	67	55	47.6	158	3	0	0.06
10	17	1993	290	71	50	44.7	345	4	0	0.01
10	18	1993	291	73	50	44.4	408	4	0	0
10	19	1993	292	82	49	45.3	433	4	0	0
10	20	1993	293	90	46	41.4	441	3	0	0
10	21	1993	294	89	48	41.7	388	3	0	0
10	22	1993	295	86	54	50.0	344	3	0	0
10	23	1993	296	86	47	47.8	422	4	0	0
10	24	1993	297	81	45	46.0	368	3	0	0
10	25	1993	298	82	48	49.1	395	3	0	0
10	26	1993	299	86	43	43.4	398	4	0	0
10	27	1993	300	85	53	32.2	308	6	0	0
10	28	1993	301	87	46	38.9	280	3	0	0
10	29	1993	302	81	45	48.3	346	4	0	0
10	30	1993	303	88	47	44.4	378	4	0	0
10	31	1993	304	79	52	49.7	262	4	0	0
11	1	1993	305	77	51	47.5	341	4	0	0
11	2	1993	306	86	42	41.3	376	5	0	0
11	3	1993	307	89	47	35.2	385	5	0	0
11	4	1993	308	82	47	33.3	369	4	0	0
11	5	1993	309	79	38	44.6	362	3	0	0
11	6	1993	310	79	42	46.9	357	4	0	0
11	7	1993	311	76	46	45.5	345	3	0	0
11	8	1993	312	75	47	46.2	332	3	0	0
11	9	1993	313	80	44	45.6	342	3	0	0
11	10	1993	314	74	52	49.9	223	4	0	0
11	11	1993	315	64	54	46.2	248	6	0	0.56
11	12	1993	316	64	47	40.3	292	5	0	0
11	13	1993	317	65	45	39.9	291	4	0	0
11	14	1993	318	60	43	34.4	170	4	0	0.32
11	15	1993	319	70	39	35.1	339	4	0	0
11	16	1993	320	73	43	37.8	284	3	0	0
11	17	1993	321	72	42	40.4	321	3	0	0
11	18	1993	322	71	41	39.5	320	3	0	0
11	19	1993	323	80	40	40.6	321	5	0	0
11	20	1993	324	80	44	29.3	316	4	0	0
11	21	1993	325	73	36	35.5	183	3	0	0
11	22	1993	326	70	53	48.6	136	3	0	0
11	23	1993	327	66	51	45.8	212	3	0	0.3
11	24	1993	328	67	41	39.1	304	3	0	0
11	25	1993	329	74	34	30.8	333	5	0	0
11	26	1993	330	77	54	20.6	315	8	0	0
11	27	1993	331	76	43	26.5	220	4	0	0
11	28	1993	332	77	49	41.9	279	4	0	0
11	29	1993	333	74	45	41.3	313	3	0	0
11	30	1993	334	66	48	48.6	259	3	0	0.07
12	1	1993	335	75	40	39.4	315	3	0	0
12	2	1993	336	79	38	35.9	234	4	0	0
12	3	1993	337	81	49	32.7	312	5	0	0
12	4	1993	338	78	48	40.9	305	3	0	0
12	5	1993	339	74	39	43.1	301	3	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
12	6	1993	340	67	43	42.1	264	5	0	0
12	7	1993	341	68	37	37.5	294	3	0	0
12	8	1993	342	67	35	35.7	266	3	0	0
12	9	1993	343	69	38	39.1	269	3	0	0
12	10	1993	344	75	35	38.4	288	3	0	0
12	11	1993	345	65	47	42.5	186	5	0	0
12	12	1993	346	62	43	36.1	296	3	0	0.43
12	13	1993	347	71	38	36.8	295	3	0	0
12	14	1993	348	61	43	36.0	276	4	0	0
12	15	1993	349	58	43	35.8	280	4	0	0.32
12	16	1993	350	62	40	35.0	292	4	0	0
12	17	1993	351	67	34	32.8	266	3	0	0
12	18	1993	352	63	33	32.5	253	3	0	0
12	19	1993	353	65	45	40.5	255	3	0	0.08
12	20	1993	354	67	43	35.4	291	8	0	0
12	21	1993	355	67	41	32.2	295	4	0	0
12	22	1993	356	72	34	29.6	301	4	0	0
12	23	1993	357	73	33	30.3	262	6	0	0
12	24	1993	358	75	48	24.8	301	5	0	0
12	25	1993	359	76	47	32.8	272	5	0	0
12	26	1993	360	63	45	38.0	86	3	0	0
12	27	1993	361	68	44	42.7	275	3	0	0
12	28	1993	362	71	44	41.8	189	3	0	0
12	29	1993	363	75	43	33.4	311	5	0	0
12	30	1993	364	76	35	33.7	292	3	0	0
12	31	1993	365	75	44	38.2	306	3	0	0
1	1	1994	1	74	36	38.2	287	3	0	0
1	2	1994	2	82	38	40.2	287	3	0	0
1	3	1994	3	86	47	37.0	311	3	0	0
1	4	1994	4	82	43	43.1	290	4	0	0
1	5	1994	5	71	49	46.9	244	4	0	0
1	6	1994	6	75	42	37.4	311	4	0	0
1	7	1994	7	74	46	28.2	305	5	0	0
1	8	1994	8	72	42	33.0	286	3	0	0
1	9	1994	9	68	34	40.5	309	3	0	0
1	10	1994	10	74	33	34.8	319	5	0	0
1	11	1994	11	74	35	28.9	323	3	0	0
1	12	1994	12	80	36	33.5	327	5	0	0
1	13	1994	13	83	41	35.2	292	4	0	0
1	14	1994	14	81	51	41.2	247	4	0	0
1	15	1994	15	76	46	44.1	312	3	0	0
1	16	1994	16	72	37	41.4	318	3	0	0
1	17	1994	17	84	37	40.2	339	4	0	0
1	18	1994	18	83	38	38.5	335	3	0	0
1	19	1994	19	78	40	40.2	334	3	0	0
1	20	1994	20	77	40	41.5	327	3	0	0
1	21	1994	21	79	37	40.6	305	3	0	0
1	22	1994	22	82	43	43.8	290	3	0	0
1	23	1994	23	73	46	46.7	281	4	0	0
1	24	1994	24	68	44	44.8	292	5	0	0
1	25	1994	25	59	46	41.1	204	4	0	0.78
1	26	1994	26	60	43	38.0	243	4	0	0.11
1	27	1994	27	53	38	33.2	127	4	0	0.83
1	28	1994	28	64	39	33.6	359	5	0	0.07
1	29	1994	29	67	36	33.3	361	4	0	0
1	30	1994	30	68	42	38.7	373	5	0	0
1	31	1994	31	66	43	32.0	339	8	0	0
2	1	1994	32	65	48	4.3	265	7	0	0
2	2	1994	33	69	41	23.1	328	4	0	0
2	3	1994	34	66	43	39.0	218	3	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
2	4	1994	35	60	49	45.8	132	4	0	1.04
2	5	1994	36	65	47	42.8	300	3	0	0.16
2	6	1994	37	67	42	40.0	360	3	0	0
2	7	1994	38	60	49	42.8	72	6	0	0.32
2	8	1994	39	60	44	37.0	241	5	0	0.98
2	9	1994	40	65	41	37.8	394	4	0	0.01
2	10	1994	41	66	41	38.7	355	3	0	0
2	11	1994	42	65	45	37.3	392	4	0	0.03
2	12	1994	43	68	48	14.5	441	8	0	0
2	13	1994	44	73	51	20.2	412	7	0	0
2	14	1994	45	73	42	38.0	432	3	0	0
2	15	1994	46	76	38	38.6	434	4	0	0
2	16	1994	47	69	43	41.8	212	3	0	0
2	17	1994	48	60	44	42.3	85	4	0	1.15
2	18	1994	49	57	39	34.5	262	4	0	0.43
2	19	1994	50	59	40	34.3	436	4	0	0.26
2	20	1994	51	58	42	36.3	113	5	0	0.02
2	21	1994	52	60	41	35.4	367	4	0	0.06
2	22	1994	53	66	42	38.6	446	4	0	0
2	23	1994	54	72	36	35.8	471	3	0	0
2	24	1994	55	73	42	41.8	458	4	0	0
2	25	1994	56	71	41	41.3	438	4	0	0
2	26	1994	57	67	49	44.7	390	5	0	0
2	27	1994	58	63	49	42.9	179	3	0	0
2	28	1994	59	75	49	46.1	460	4	0	0
3	1	1994	60	82	46	35.8	496	3	0	0
3	2	1994	61	82	44	42.4	473	3	0	0
3	3	1994	62	75	45	45.8	477	4	0	0
3	4	1994	63	70	44	44.0	461	4	0	0
3	5	1994	64	64	48	42.9	369	4	0	0
3	6	1994	65	63	52	45.3	182	4	0	0.05
3	7	1994	66	62	49	42.2	179	3	0	1.06
3	8	1994	67	62	51	42.2	186	3	0	0.02
3	9	1994	68	70	51	45.6	468	4	0	0
3	10	1994	69	67	51	45.6	425	4	0	0
3	11	1994	70	64	49	42.2	320	5	0	0
3	12	1994	71	74	44	43.0	511	4	0	0
3	13	1994	72	85	44	43.1	540	4	0	0
3	14	1994	73	84	56	45.4	544	5	0	0
3	15	1994	74	80	52	50.1	518	4	0	0
3	16	1994	75	77	47	47.1	505	4	0	0
3	17	1994	76	79	46	44.6	528	4	0	0
3	18	1994	77	76	55	48.3	470	4	0	0
3	19	1994	78	65	52	48.5	275	5	0	1.25
3	20	1994	79	65	49	43.3	325	3	0	0.15
3	21	1994	80	69	48	44.9	549	4	0	0
3	22	1994	81	59	47	38.4	165	4	0	0
3	23	1994	82	63	45	37.8	470	4	0	0
3	24	1994	83	62	45	37.6	284	5	0	0
3	25	1994	84	59	45	38.8	233	3	0	0.67
3	26	1994	85	65	42	38.1	571	4	0	0.62
3	27	1994	86	74	44	42.5	587	4	0	0
3	28	1994	87	78	46	45.6	494	4	0	0
3	29	1994	88	75	46	44.9	569	4	0	0
3	30	1994	89	75	47	45.9	581	4	0	0
3	31	1994	90	74	53	49.2	580	5	0	0
4	1	1994	91	70	50	47.2	342	4	0	0
4	2	1994	92	74	54	49.0	578	4	0	0
4	3	1994	93	71	56	48.2	476	4	0	0
4	4	1994	94	69	50	44.3	475	4	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
4	5	1994	95	78	48	45.5	625	4	0	0
4	6	1994	96	75	46	43.3	616	4	0	0
4	7	1994	97	68	53	45.5	419	4	0	0
4	8	1994	98	64	51	43.4	332	5	0	0
4	9	1994	99	63	51	43.6	335	5	0	0.15
4	10	1994	100	69	47	42.8	641	4	0	0
4	11	1994	101	83	45	43.2	678	4	0	0
4	12	1994	102	86	50	45.8	579	4	0	0
4	13	1994	103	81	50	48.0	674	5	0	0
4	14	1994	104	69	51	46.5	607	5	0	0
4	15	1994	105	78	52	49.4	588	4	0	0
4	16	1994	106	79	51	49.5	572	4	0	0
4	17	1994	107	78	55	50.0	341	4	0	0
4	18	1994	108	81	53	50.1	656	4	0	0
4	19	1994	109	80	50	50.1	594	4	0	0
4	20	1994	110	77	56	51.9	535	4	0	0
4	21	1994	111	71	57	50.1	451	4	0	0
4	22	1994	112	73	56	48.7	648	5	0	0
4	23	1994	113	71	53	45.0	670	5	0	0
4	24	1994	114	62	49	39.8	537	6	0	0.38
4	25	1994	115	62	48	40.2	321	5	0	0.01
4	26	1994	116	57	47	39.5	236	3	0	0.65
4	27	1994	117	61	46	39.8	288	4	0	0.59
4	28	1994	118	65	46	40.3	571	4	0	0.13
4	29	1994	119	69	44	42.5	696	4	0	0
4	30	1994	120	71	49	45.3	486	4	0	0
5	1	1994	121	69	53	47.4	374	5	0	0
5	2	1994	122	73	50	46.8	597	4	0	0
5	3	1994	123	74	48	46.3	572	4	0	0
5	4	1994	124	74	50	47.5	628	5	0	0
5	5	1994	125	68	55	46.8	341	4	0	0
5	6	1994	126	69	53	44.7	601	5	0	0.05
5	7	1994	127	71	50	44.8	674	4	0	0.02
5	8	1994	128	67	50	44.5	345	4	0	0.1
5	9	1994	129	73	51	46.8	682	4	0	0
5	10	1994	130	74	56	49.9	471	4	0	0
5	11	1994	131	75	58	51.6	598	5	0	0
5	12	1994	132	65	56	48.2	220	4	0	0.02
5	13	1994	133	70	55	48.1	356	4	0	0.03
5	14	1994	134	72	57	50.4	365	4	0	0
5	15	1994	135	65	56	48.4	137	3	0	0.05
5	16	1994	136	70	53	45.3	628	4	0	0
5	17	1994	137	70	51	43.6	554	5	0	0
5	18	1994	138	67	47	40.9	563	4	0	0.05
5	19	1994	139	72	46	43.5	595	5	0	0
5	20	1994	140	77	45	44.9	727	4	0	0
5	21	1994	141	78	46	45.7	723	4	0	0
5	22	1994	142	72	54	47.6	632	5	0	0
5	23	1994	143	78	54	49.8	641	4	0	0
5	24	1994	144	62	56	47.9	121	3	0	0
5	25	1994	145	65	54	45.8	158	3	0	0.01
5	26	1994	146	74	57	50.2	455	4	0	0
5	27	1994	147	80	54	50.7	568	4	0	0
5	28	1994	148	83	49	49.5	714	4	0	0
5	29	1994	149	91	53	54.0	599	4	0	0
5	30	1994	150	77	58	54.3	268	4	0	0
5	31	1994	151	79	54	50.4	717	4	0	0
6	1	1994	152	87	50	50.7	716	4	0	0
6	2	1994	153	91	52	53.3	703	4	0	0
6	3	1994	154	89	52	53.2	679	4	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
6	4	1994	155	85	55	53.3	689	4	0	0
6	5	1994	156	76	51	48.8	701	5	0	0
6	6	1994	157	78	53	48.9	688	4	0	0
6	7	1994	158	81	51	49.6	706	4	0	0
6	8	1994	159	76	56	55.0	554	6	0	0
6	9	1994	160	87	53	61.1	698	4	0	0
6	10	1994	161	80	54	59.0	703	5	0	0
6	11	1994	162	76	58	59.6	476	4	0	0
6	12	1994	163	80	58	60.6	586	4	0	0
6	13	1994	164	80	59	60.5	640	5	0	0
6	14	1994	165	77	59	59.6	647	5	0	0
6	15	1994	166	74	59	58.6	492	5	0	0
6	16	1994	167	82	56	58.8	733	4	0	0
6	17	1994	168	85	51	57.1	746	4	0	0
6	18	1994	169	87	50	57.6	749	4	0	0
6	19	1994	170	86	50	58.2	747	4	0	0
6	20	1994	171	86	52	59.6	712	4	0	0
6	21	1994	172	86	53	60.1	670	4	0	0
6	22	1994	173	93	55	62.0	715	4	0	0
6	23	1994	174	96	57	65.4	719	4	0	0
6	24	1994	175	97	57	64.7	725	4	0	0
6	25	1994	176	98	57	64.6	734	4	0	0
6	26	1994	177	106	61	69.8	698	4	0	0
6	27	1994	178	95	64	68.6	663	5	0	0
6	28	1994	179	91	61	67.0	671	4	0	0
6	29	1994	180	91	62	67.4	642	5	0	0
6	30	1994	181	87	63	66.3	616	5	0	0
7	1	1994	182	84	64	66.1	340	5	0	0
7	2	1994	183	86	64	66.1	669	5	0	0
7	3	1994	184	87	63	65.6	699	5	0	0
7	4	1994	185	81	61	61.7	707	5	0	0
7	5	1994	186	82	57	60.1	715	5	0	0
7	6	1994	187	84	58	60.8	714	4	0	0
7	7	1994	188	84	59	62.4	663	4	0	0
7	8	1994	189	85	61	64.3	616	4	0	0
7	9	1994	190	86	60	64.4	606	4	0	0
7	10	1994	191	90	61	63.4	685	5	0	0
7	11	1994	192	90	58	63.6	704	4	0	0
7	12	1994	193	87	56	62.1	690	5	0	0
7	13	1994	194	84	59	62.4	651	5	0	0.01
7	14	1994	195	84	60	63.0	637	4	0	0
7	15	1994	196	87	59	63.7	683	5	0	0
7	16	1994	197	89	55	62.7	613	4	0	0
7	17	1994	198	83	63	65.0	541	4	0	0
7	18	1994	199	82	64	64.5	453	5	0	0
7	19	1994	200	77	63	59.0	459	5	0	0
7	20	1994	201	86	61	60.9	543	4	0	0
7	21	1994	202	86	60	60.6	629	4	0	0
7	22	1994	203	83	59	59.5	591	5	0	0
7	23	1994	204	85	62	61.4	633	5	0	0
7	24	1994	205	91	58	61.5	685	5	0	0
7	25	1994	206	94	57	62.4	673	5	0	0
7	26	1994	207	94	57	62.5	637	4	0	0
7	27	1994	208	86	58	60.4	529	6	0	0
7	28	1994	209	89	61	62.9	646	5	0	0
7	29	1994	210	82	60	60.1	363	4	0	0
7	30	1994	211	83	63	61.0	526	5	0	0
7	31	1994	212	86	63	61.9	639	5	0	0
8	1	1994	213	90	62	63.4	646	5	0	0
8	2	1994	214	94	61	62.0	600	5	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
8	3	1994	215	95	54	61.8	661	4	0	0
8	4	1994	216	92	55	60.9	672	4	0	0
8	5	1994	217	102	60	67.9	625	4	0	0
8	6	1994	218	96	63	67.0	624	5	0	0
8	7	1994	219	90	64	65.9	558	5	0	0
8	8	1994	220	89	64	64.4	576	5	0	0
8	9	1994	221	97	65	66.3	603	4	0	0
8	10	1994	222	97	71	68.8	607	5	0	0
8	11	1994	223	101	66	67.9	617	4	0	0
8	12	1994	224	104	72	73.2	447	4	0	0
8	13	1994	225	104	69	72.3	590	4	0	0
8	14	1994	226	95	71	69.2	608	4	0	0
8	15	1994	227	97	65	66.7	598	4	0	0
8	16	1994	228	93	66	66.0	590	5	0	0
8	17	1994	229	92	66	67.5	549	5	0	0
8	18	1994	230	89	68	67.0	569	5	0	0
8	19	1994	231	89	63	64.6	599	5	0	0
8	20	1994	232	89	63	63.7	607	5	0	0
8	21	1994	233	85	61	61.8	574	4	0	0
8	22	1994	234	85	60	60.7	588	4	0	0
8	23	1994	235	88	56	60.5	605	4	0	0
8	24	1994	236	93	58	61.1	601	4	0	0
8	25	1994	237	91	57	62.9	596	4	0	0
8	26	1994	238	84	62	64.0	208	3	0	0
8	27	1994	239	94	63	66.1	593	4	0	0
8	28	1994	240	93	61	65.9	590	4	0	0
8	29	1994	241	89	57	62.1	615	4	0	0
8	30	1994	242	83	60	61.2	554	4	0	0
8	31	1994	243	83	60	60.3	555	5	0	0
9	1	1994	244	85	59	60.2	566	5	0	0
9	2	1994	245	88	60	61.9	570	4	0	0
9	3	1994	246	86	59	61.2	573	4	0	0
9	4	1994	247	90	59	62.3	564	4	0	0
9	5	1994	248	95	62	65.6	564	4	0	0
9	6	1994	249	95	62	65.5	563	4	0	0
9	7	1994	250	93	60	60.7	567	4	0	0
9	8	1994	251	94	58	63.4	585	4	0	0
9	9	1994	252	95	57	61.3	574	4	0	0
9	10	1994	253	91	55	62.3	560	4	0	0
9	11	1994	254	82	57	59.0	569	5	0	0
9	12	1994	255	77	59	56.9	540	5	0	0
9	13	1994	256	76	56	55.1	557	4	0	0
9	14	1994	257	85	52	57.3	556	4	0	0
9	15	1994	258	90	53	59.0	557	4	0	0
9	16	1994	259	89	53	60.6	550	4	0	0
9	17	1994	260	86	60	62.2	513	4	0	0
9	18	1994	261	87	59	62.0	524	4	0	0
9	19	1994	262	84	59	60.7	528	4	0	0
9	20	1994	263	87	58	60.6	484	4	0	0
9	21	1994	264	84	55	58.7	441	4	0	0
9	22	1994	265	92	59	63.0	485	4	0	0
9	23	1994	266	87	59	62.1	440	4	0	0
9	24	1994	267	82	59	60.6	433	4	0	0
9	25	1994	268	98	56	66.1	496	4	0	0
9	26	1994	269	81	61	60.3	137	3	0	0
9	27	1994	270	97	66	66.3	452	4	0	0.02
9	28	1994	271	97	62	66.0	438	4	0	0.02
9	29	1994	272	84	60	63.3	208	3	0	0.03
9	30	1994	273	83	52	56.8	432	4	0	0.02
10	1	1994	274	81	59	59.5	474	5	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
10	2	1994	275	79	59	58.6	459	4	0	0
10	3	1994	276	68	60	55.0	104	3	0	0
10	4	1994	277	72	61	55.7	163	5	0	0.02
10	5	1994	278	72	53	51.6	318	5	0	0.01
10	6	1994	279	76	49	51.5	439	4	0	0
10	7	1994	280	85	51	56.5	468	4	0	0
10	8	1994	281	94	51	55.9	486	4	0	0
10	9	1994	282	94	59	56.5	484	5	0	0
10	10	1994	283	94	58	57.5	446	4	0	0
10	11	1994	284	91	57	59.8	459	4	0	0
10	12	1994	285	83	51	59.4	459	4	0	0
10	13	1994	286	71	56	53.5	443	5	0	0.01
10	14	1994	287	72	53	53.6	361	4	0	0
10	15	1994	288	68	54	52.1	336	5	0	0.02
10	16	1994	289	76	51	51.4	436	4	0	0.01
10	17	1994	290	78	47	49.3	441	4	0	0
10	18	1994	291	78	49	53.3	402	5	0	0
10	19	1994	292	78	44	51.5	422	4	0	0
10	20	1994	293	77	45	52.8	415	4	0	0
10	21	1994	294	79	47	54.3	414	4	0	0
10	22	1994	295	76	51	53.3	239	3	0	0
10	23	1994	296	76	51	52.8	236	3	0	0
10	24	1994	297	80	52	56.0	385	4	0	0
10	25	1994	298	73	53	54.2	370	4	0	0
10	26	1994	299	75	55	55.3	352	3	0	0
10	27	1994	300	82	50	55.5	388	4	0	0
10	28	1994	301	81	52	55.9	368	4	0	0
10	29	1994	302	72	53	52.7	303	4	0	0
10	30	1994	303	78	52	54.5	348	3	0	0
10	31	1994	304	88	45	53.4	393	4	0	0
11	1	1994	305	82	47	54.9	389	4	0	0
11	2	1994	306	62	51	52.3	91	4	0	0.02
11	3	1994	307	63	44	41.0	224	5	0	0
11	4	1994	308	68	36	35.9	377	4	0	0
11	5	1994	309	72	42	43.4	370	3	0	0
11	6	1994	310	72	41	47.0	377	3	0	0
11	7	1994	311	64	42	45.7	215	4	0	0
11	8	1994	312	69	47	49.0	269	3	0	0
11	9	1994	313	73	41	47.1	362	4	0	0
11	10	1994	314	59	43	42.3	101	3	0	0.46
11	11	1994	315	62	40	41.8	242	3	0	0.01
11	12	1994	316	63	42	43.3	293	4	0	0
11	13	1994	317	69	43	45.4	361	3	0	0
11	14	1994	318	75	36	41.2	381	4	0	0
11	15	1994	319	76	40	44.9	372	3	0	0
11	16	1994	320	60	41	46.0	215	4	0	0.07
11	17	1994	321	61	42	43.2	305	5	0	0
11	18	1994	322	57	37	37.2	302	5	0	0.08
11	19	1994	323	61	31	34.3	366	4	0	0
11	20	1994	324	65	31	36.5	359	3	0	0
11	21	1994	325	67	33	38.5	338	3	0	0
11	22	1994	326	72	37	44.1	255	6	0	0
11	23	1994	327	78	43	46.0	311	3	0	0
11	24	1994	328	74	45	45.0	275	3	0	0
11	25	1994	329	67	44	43.0	272	5	0	0
11	26	1994	330	59	51	45.0	259	8	0	0.17
11	27	1994	331	64	39	42.0	278	4	0	0
11	28	1994	332	67	38	40.0	285	4	0	0
11	29	1994	333	73	45	38.0	289	3	0	0
11	30	1994	334	81	49	36.0	277	3	0	0

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
12	1	1994	335	76	45	33.0	298	3	0	0
12	2	1994	336	72	41	32.0	273	4	0	0.02
12	3	1994	337	63	37	31.1	157	2	0	0.02
12	4	1994	338	60	38	33.9	184	2	0	0.04
12	5	1994	339	61	50	38.3	101	3	0	0.07
12	6	1994	340	63	48	34.6	223	3	0	0.02
12	7	1994	341	64	43	31.8	262	3	0	0.01
12	8	1994	342	67	36	23.2	331	5	0	0
12	9	1994	343	70	32	15.8	333	3	0	0.02
12	10	1994	344	70	39	24.1	182	4	0	0.02
12	11	1994	345	63	39	35.4	265	4	0	0.02
12	12	1994	346	65	44	37.4	274	3	0	0.02
12	13	1994	347	61	45	34.1	252	4	0	0.03
12	14	1994	348	63	41	30.5	297	4	0	0.02
12	15	1994	349	67	39	30.5	296	4	0	0.02
12	16	1994	350	74	32	27.9	309	3	0	0.01
12	17	1994	351	74	30	26.0	309	2	0	0.02
12	18	1994	352	71	33	30.2	301	3	0	0.01
12	19	1994	353	77	34	33.5	292	2	0	0.03
12	20	1994	354	80	33	32.5	311	3	0	0.01
12	21	1994	355	74	33	29.2	225	3	0	0.01
12	22	1994	356	63	48	37.8	56	4	0	0.17
12	23	1994	357	72	58	46.0	223	4	0	0.03
12	24	1994	358	59	51	41.0	54	3	0	0.31
12	25	1994	359	60	45	31.4	187	2	0	0.45
12	26	1994	360	70	46	34.9	293	3	0	0.01
12	27	1994	361	70	43	33.6	280	3	0	0.02
12	28	1994	362	58	48	33.9	86	4	0	0.03
12	29	1994	363	60	41	28.8	215	3	0	0
12	30	1994	364	62	39	29.0	291	3	0	0.02
12	31	1994	365	62	43	30.0	271	3	0	0
1	1	1995	1	67	42	31.8	272	3	0	0.02
1	2	1995	2	66	38	28.4	292	3	0	0.03
1	3	1995	3	56	46	33.6	69	3	0	0.71
1	4	1995	4	57	47	33.4	42	6	0	2.01
1	5	1995	5	61	50	34.2	189	8	0	0.12
1	6	1995	6	64	44	30.7	303	3	0	0
1	7	1995	7	65	45	31.6	131	4	0	0.8
1	8	1995	8	66	52	38.2	119	3	0	0.2
1	9	1995	9	69	50	36.6	264	3	0	0
1	10	1995	10	63	51	36.3	79	5	0	0.44
1	11	1995	11	63	54	39.1	92	1	0	0.2
1	12	1995	12	61	53	37.6	63	2	0	0.53
1	13	1995	13	68	53	37.1	224	2	0	0
1	14	1995	14	70	51	37.1	251	4	0	0.01
1	15	1995	15	63	52	34.5	152	5	0	0.28
1	16	1995	16	61	48	31.6	186	3	0	0.62
1	17	1995	17	66	45	29.8	326	3	0	0.01
1	18	1995	18	72	41	27.8	346	3	0	0
1	19	1995	19	67	42	33.0	332	3	0	0
1	20	1995	20	68	40	35.3	317	4	0	0
1	21	1995	21	63	46	39.3	263	3	0	0.16
1	22	1995	22	67	42	36.1	230	3	0	0
1	23	1995	23	64	51	39.4	174	4	0	0.08
1	24	1995	24	68	52	42.7	176	4	0	0.3
1	25	1995	25	60	52	39.6	114	7	0	1.44
1	26	1995	26	62	49	38.5	271	4	0	0.17
1	27	1995	27	63	49	39.2	223	3	0	0.05
1	28	1995	28	73	46	40.7	360	3	0	0
1	29	1995	29	79	45	41.5	359	4	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
1	30	1995	30	79	50	35.4	382	5	0	0
1	31	1995	31	83	41	41.9	374	3	0	0
2	1	1995	32	86	44	46.8	377	3	0	0
2	2	1995	33	86	45	47.0	380	3	0	0
2	3	1995	34	89	46	47.6	394	4	0	0
2	4	1995	35	85	46	47.6	400	3	0	0
2	5	1995	36	80	44	45.0	404	3	0	0
2	6	1995	37	77	42	43.3	394	4	0	0.01
2	7	1995	38	65	48	40.9	361	4	0	0
2	8	1995	39	63	47	38.0	252	3	0	0
2	9	1995	40	65	46	38.4	275	3	0	0
2	10	1995	41	67	41	36.7	392	4	0	0
2	11	1995	42	66	46	38.3	321	4	0	0
2	12	1995	43	65	49	38.0	336	3	0	0
2	13	1995	44	63	52	43.0	121	5	0	0.17
2	14	1995	45	62	54	43.6	123	6	0	0.99
2	15	1995	46	72	51	43.2	414	3	0	0.01
2	16	1995	47	74	46	41.5	397	3	0	0
2	17	1995	48	75	52	45.0	375	4	0	0.01
2	18	1995	49	85	45	43.8	451	3	0	0
2	19	1995	50	89	45	45.8	458	6	0	0
2	20	1995	51	88	56	51.5	444	6	0	0
2	21	1995	52	71	49	46.8	393	4	0	0
2	22	1995	53	70	51	45.6	321	3	0	0
2	23	1995	54	68	56	45.4	251	3	0	0
2	24	1995	55	70	53	44.6	415	4	0	0.01
2	25	1995	56	66	55	43.8	218	4	0	0
2	26	1995	57	69	54	44.2	345	4	0	0
2	27	1995	58	68	53	43.6	278	4	0	0
2	28	1995	59	64	50	40.1	106	3	0	0
3	1	1995	60	61	48	38.5	117	2	0	0.02
3	2	1995	61	68	47	40.1	199	3	0	0.05
3	3	1995	62	64	56	44.7	170	4	0	0.33
3	4	1995	63	64	55	43.3	155	3	0	0.08
3	5	1995	64	61	57	44.1	48	9	0	3.48
3	6	1995	65	70	56	45.2	309	4	0	0.08
3	7	1995	66	75	53	45.5	459	4	0	0
3	8	1995	67	80	52	45.8	470	3	0	0
3	9	1995	68	78	50	44.2	460	4	0	0
3	10	1995	69	70	55	43.6	169	4	0	0
3	11	1995	70	65	50	42.5	276	6	0	2.29
3	12	1995	71	65	48	39.7	493	4	0	0.08
3	13	1995	72	73	46	41.7	517	3	0	0
3	14	1995	73	78	50	46.6	487	3	0	0
3	15	1995	74	79	52	45.0	498	3	0	0.01
3	16	1995	75	76	50	45.5	510	4	0	0
3	17	1995	76	69	54	44.8	219	3	0	0.02
3	18	1995	77	75	55	47.2	350	3	0	0
3	19	1995	78	69	54	45.0	273	3	0	0
3	20	1995	79	74	57	47.1	355	4	0	0
3	21	1995	80	63	47	39.5	158	4	0	0.59
3	22	1995	81	67	45	36.8	544	4	0	0.01
3	23	1995	82	59	44	35.3	212	5	0	0.39
3	24	1995	83	63	44	34.6	464	5	0	0.03
3	25	1995	84	67	41	33.4	586	4	0	0
3	26	1995	85	72	36	31.8	597	4	0	0
3	27	1995	86	73	40	35.0	592	4	0	0
3	28	1995	87	72	41	37.1	591	4	0	0
3	29	1995	88	75	43	37.7	581	3	0	0
3	30	1995	89	76	47	36.8	604	5	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
3	31	1995	90	78	45	37.2	609	4	0	0
4	1	1995	91	76	42	39.7	586	4	0	0
4	2	1995	92	70	50	43.1	574	4	0	0
4	3	1995	93	82	45	44.2	609	4	0	0
4	4	1995	94	79	49	45.3	611	4	0	0
4	5	1995	95	72	46	42.6	608	4	0	0
4	6	1995	96	68	50	41.3	440	4	0	0
4	7	1995	97	68	46	39.5	488	4	0	0
4	8	1995	98	70	50	42.2	504	4	0	0.02
4	9	1995	99	70	47	39.5	554	4	0	0
4	10	1995	100	77	41	33.6	646	5	0	0
4	11	1995	101	81	47	40.5	639	4	0	0
4	12	1995	102	79	46	42.7	588	4	0	0.01
4	13	1995	103	74	47	44.4	553	5	0	0.01
4	14	1995	104	65	44	37.5	474	4	0	0.01
4	15	1995	105	66	43	36.5	551	4	0	0.01
4	16	1995	106	57	43	33.7	369	6	0	0.65
4	17	1995	107	62	45	37.1	419	4	0	0.03
4	18	1995	108	52	47	35.5	88	3	0	0.87
4	19	1995	109	58	45	34.7	220	4	0	0.03
4	20	1995	110	63	42	35.7	386	5	0	0.02
4	21	1995	111	67	46	37.2	592	4	0	0.02
4	22	1995	112	80	42	40.7	670	4	0	0.02
4	23	1995	113	84	46	43.0	680	5	0	0.01
4	24	1995	114	87	51	46.5	685	4	0	0.01
4	25	1995	115	77	45	45.0	670	4	0	0.02
4	26	1995	116	73	49	44.8	616	4	0	0.03
4	27	1995	117	71	51	43.5	574	4	0	0.01
4	28	1995	118	72	51	44.1	532	4	0	0.03
4	29	1995	119	76	54	46.6	616	4	0	0.01
4	30	1995	120	76	52	46.4	637	4	0	0.01
5	1	1995	121	75	56	47.7	556	5	0	0.02
5	2	1995	122	71	50	43.0	577	4	0	0.01
5	3	1995	123	74	52	44.5	639	4	0	0
5	4	1995	124	63	54	40.8	212	5	0	0
5	5	1995	125	62	50	37.7	383	7	0	0.02
5	6	1995	126	61	47	37.0	446	4	0	0.3
5	7	1995	127	60	49	37.9	154	3	0	0.04
5	8	1995	128	66	49	40.1	378	4	0	0
5	9	1995	129	72	48	41.8	629	4	0	0.01
5	10	1995	130	74	46	41.7	648	4	0	0
5	11	1995	131	74	55	45.9	580	4	0	0.02
5	12	1995	132	71	56	44.3	546	4	0	0.01
5	13	1995	133	66	52	40.5	438	5	0	0.11
5	14	1995	134	66	49	39.0	336	3	0	0.05
5	15	1995	135	71	49	41.3	610	4	0	0.01
5	16	1995	136	68	48	40.1	393	4	0	0.01
5	17	1995	137	73	48	42.1	640	4	0	0
5	18	1995	138	77	55	47.3	578	4	0	0.01
5	19	1995	139	79	53	47.8	630	4	0	0
5	20	1995	140	70	56	45.4	404	4	0	0
5	21	1995	141	72	54	44.4	513	4	0	0
5	22	1995	142	65	56	41.7	256	4	0	0.02
5	23	1995	143	63	55	41.6	207	3	0	0.03
5	24	1995	144	64	52	40.8	122	3	0	0.03
5	25	1995	145	64	53	41.3	210	3	0	0.05
5	26	1995	146	76	54	46.3	635	4	0	0
5	27	1995	147	76	55	46.8	559	4	0	0
5	28	1995	148	79	55	48.0	671	4	0	0
5	29	1995	149	85	56	51.4	635	4	0	0.02

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
5	30	1995	150	85	56	51.1	685	4	0	0.02
5	31	1995	151	78	55	48.5	643	5	0	0.01
6	1	1995	152	69	55	43.8	220	4	0	0.04
6	2	1995	153	69	57	44.3	252	4	0	0
6	3	1995	154	71	55	44.4	398	4	0	0
6	4	1995	155	80	54	47.6	516	4	0	0
6	5	1995	156	76	58	48.1	541	5	0	0
6	6	1995	157	78	52	44.8	698	4	0	0
6	7	1995	158	72	55	43.1	636	5	0	0
6	8	1995	159	72	51	41.9	686	4	0	0
6	9	1995	160	81	46	43.6	706	4	0	0
6	10	1995	161	89	50	48.3	709	4	0	0
6	11	1995	162	94	53	52.2	718	4	0	0
6	12	1995	163	88	54	51.5	712	4	0	0
6	13	1995	164	85	54	50.7	675	4	0	0
6	14	1995	165	76	54	46.8	605	4	0	0
6	15	1995	166	72	54	44.0	443	5	0	0
6	16	1995	167	65	52	40.8	385	5	0	0.31
6	17	1995	168	75	51	44.0	712	4	0	0.1
6	18	1995	169	82	49	46.5	725	4	0	0
6	19	1995	170	85	49	47.3	732	4	0	0
6	20	1995	171	80	50	46.5	728	4	0	0
6	21	1995	172	79	49	45.5	655	4	0	0
6	22	1995	173	86	51	49.2	670	4	0	0
6	23	1995	174	87	54	50.9	653	4	0	0
6	24	1995	175	85	54	50.3	652	4	0	0
6	25	1995	176	80	59	50.4	616	5	0	0
6	26	1995	177	84	60	52.5	625	4	0	0
6	27	1995	178	91	58	54.5	605	4	0	0
6	28	1995	179	89	57	53.3	626	4	0	0
6	29	1995	180	87	58	52.8	665	4	0	0
6	30	1995	181	92	55	53.0	697	4	0	0
7	1	1995	182	84	55	51.0	690	4	0	0
7	2	1995	183	85	51	48.6	719	4	0	0
7	3	1995	184	79	57	49.7	689	5	0	0
7	4	1995	185	80	60	51.0	596	4	0	0
7	5	1995	186	84	58	52.1	622	4	0	0
7	6	1995	187	88	61	54.9	691	4	0	0
7	7	1995	188	90	58	54.3	617	4	0	0
7	8	1995	189	95	59	56.8	664	5	0	0
7	9	1995	190	92	57	54.4	662	4	0	0
7	10	1995	191	94	60	54.1	580	4	0	0
7	11	1995	192	90	58	51.0	701	5	0	0
7	12	1995	193	88	52	48.4	703	4	0	0
7	13	1995	194	87	49	48.5	711	4	0	0
7	14	1995	195	86	53	50.6	679	4	0	0
7	15	1995	196	88	56	52.4	671	5	0	0
7	16	1995	197	94	63	57.8	604	5	0	0.06
7	17	1995	198	94	56	53.0	694	5	0	0
7	18	1995	199	92	57	54.2	686	4	0	0
7	19	1995	200	92	58	55.4	682	4	0	0
7	20	1995	201	91	53	50.9	695	4	0	0
7	21	1995	202	89	51	49.6	715	4	0	0
7	22	1995	203	85	55	51.3	698	4	0	0
7	23	1995	204	88	53	51.4	703	4	0	0
7	24	1995	205	86	56	52.7	680	5	0	0
7	25	1995	206	89	56	53.2	675	4	0	0
7	26	1995	207	98	55	55.7	672	4	0	0
7	27	1995	208	101	59	59.2	668	4	0	0
7	28	1995	209	101	61	59.5	645	4	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
7	29	1995	210	98	63	59.9	610	5	0	0
7	30	1995	211	88	63	56.3	654	5	0	0
7	31	1995	212	92	60	55.7	640	5	0	0
8	1	1995	213	94	60	56.6	641	4	0	0
8	2	1995	214	94	59	56.3	633	4	0	0
8	3	1995	215	97	59	57.6	654	4	0	0
8	4	1995	216	92	58	54.5	621	4	0	0
8	5	1995	217	96	56	54.8	663	4	0	0
8	6	1995	218	92	58	55.6	651	4	0	0
8	7	1995	219	95	59	56.4	623	4	0	0
8	8	1995	220	93	61	57.3	624	5	0	0
8	9	1995	221	93	61	56.6	627	4	0	0
8	10	1995	222	88	61	55.2	591	4	0	0
8	11	1995	223	97	57	54.1	642	4	0	0
8	12	1995	224	96	60	56.6	609	4	0	0
8	13	1995	225	96	59	53.2	635	4	0	0
8	14	1995	226	89	59	54.0	634	5	0	0
8	15	1995	227	87	59	53.8	628	5	0	0
8	16	1995	228	85	57	52.0	625	4	0	0
8	17	1995	229	86	58	52.3	635	4	0	0
8	18	1995	230	89	55	52.3	640	4	0	0
8	19	1995	231	88	54	51.7	618	4	0	0
8	20	1995	232	87	62	55.2	605	4	0	0
8	21	1995	233	89	65	56.9	592	5	0	0
8	22	1995	234	90	63	55.3	586	4	0	0
8	23	1995	235	90	61	54.8	597	4	0	0
8	24	1995	236	92	57	53.3	612	4	0	0
8	25	1995	237	97	58	53.9	612	4	0	0
8	26	1995	238	96	55	51.2	619	4	0	0
8	27	1995	239	97	57	52.1	603	4	0	0
8	28	1995	240	100	60	52.8	601	4	0	0
8	29	1995	241	102	61	54.8	615	4	0	0
8	30	1995	242	102	60	55.6	597	4	0	0
8	31	1995	243	99	61	57.4	499	4	0	0
9	1	1995	244	93	61	57.0	292	3	0	0
9	2	1995	245	101	65	61.6	529	4	0	0
9	3	1995	246	95	65	58.7	551	4	0	0
9	4	1995	247	96	62	56.8	562	5	0	0
9	5	1995	248	100	63	59.1	549	4	0	0
9	6	1995	249	95	69	58.7	406	4	0	0
9	7	1995	250	95	65	55.0	500	4	0	0
9	8	1995	251	89	59	52.7	556	4	0	0
9	9	1995	252	87	54	50.4	567	4	0	0
9	10	1995	253	86	57	51.8	560	4	0	0
9	11	1995	254	95	54	52.8	556	4	0	0
9	12	1995	255	95	56	53.3	547	4	0	0
9	13	1995	256	96	56	54.6	548	4	0	0
9	14	1995	257	94	57	55.3	528	4	0	0
9	15	1995	258	91	58	54.8	515	5	0	0
9	16	1995	259	82	63	53.8	480	4	0	0
9	17	1995	260	87	61	54.5	513	4	0	0
9	18	1995	261	85	56	51.0	523	4	0	0
9	19	1995	262	86	54	50.5	506	4	0	0
9	20	1995	263	89	56	52.7	503	4	0	0
9	21	1995	264	87	55	50.4	485	4	0	0
9	22	1995	265	86	53	49.4	483	4	0	0
9	23	1995	266	88	54	50.8	445	4	0	0
9	24	1995	267	91	55	52.6	501	4	0	0
9	25	1995	268	85	54	50.6	487	4	0	0
9	26	1995	269	79	57	49.4	466	4	0	0

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
9	27	1995	270	78	59	49.0	469	4	0	0
9	28	1995	271	75	61	48.0	327	4	0	0
9	29	1995	272	76	57	47.3	465	4	0	0
9	30	1995	273	91	51	48.1	490	3	0	0
10	1	1995	274	91	52	47.8	491	4	0	0
10	2	1995	275	97	54	50.0	498	4	0	0
10	3	1995	276	94	54	50.0	489	4	0	0
10	4	1995	277	83	50	48.3	474	4	0	0
10	5	1995	278	92	56	50.9	467	4	0	0
10	6	1995	279	83	49	46.8	458	4	0	0
10	7	1995	280	79	57	49.3	434	5	0	0
10	8	1995	281	76	59	48.9	402	4	0	0
10	9	1995	282	80	55	48.7	431	4	0	0
10	10	1995	283	82	50	46.3	427	3	0	0
10	11	1995	284	79	55	48.1	318	4	0	0
10	12	1995	285	78	61	49.7	295	4	0	0
10	13	1995	286	84	58	51.1	373	4	0	0
10	14	1995	287	85	53	49.1	411	3	0	0
10	15	1995	288	80	55	48.6	401	4	0	0
10	16	1995	289	77	56	46.9	419	3	0	0
10	17	1995	290	82	53	48.0	413	4	0	0
10	18	1995	291	77	51	45.1	313	3	0	0
10	19	1995	292	76	53	45.7	284	3	0	0
10	20	1995	293	86	51	48.2	394	3	0	0
10	21	1995	294	78	55	47.7	355	4	0	0
10	22	1995	295	78	53	46.2	366	3	0	0
10	23	1995	296	83	48	42.9	397	4	0	0
10	24	1995	297	84	46	43.3	406	4	0	0
10	25	1995	298	82	43	41.0	397	3	0	0
10	26	1995	299	83	41	42.3	388	3	0	0
10	27	1995	300	84	47	47.0	371	3	0	0
10	28	1995	301	74	47	44.9	215	4	0	0
10	29	1995	302	76	58	50.2	216	4	0	0
10	30	1995	303	76	59	48.9	345	3	0	0
10	31	1995	304	67	57	44.8	81	3	0	0
11	1	1995	305	65	54	41.9	120	3	0	0.22
11	2	1995	306	74	52	44.1	350	3	0	0.12
11	3	1995	307	78	50	45.1	342	3	0	0
11	4	1995	308	77	52	45.7	336	4	0	0
11	5	1995	309	81	47	44.9	352	4	0	0
11	6	1995	310	73	53	44.8	334	3	0	0
11	7	1995	311	77	49	46.0	341	3	0	0
11	8	1995	312	84	50	47.6	363	3	0	0
11	9	1995	313	74	45	42.5	352	3	0	0
11	10	1995	314	74	52	44.9	276	4	0	0
11	11	1995	315	82	48	45.7	363	4	0	0
11	12	1995	316	80	49	45.7	226	3	0	0
11	13	1995	317	83	44	44.6	356	3	0	0
11	14	1995	318	74	32	37.7	107	3	0	0
11	15	1995	319	74	50	45.8	327	4	0	0
11	16	1995	320	75	49	45.1	304	3	0	0
11	17	1995	321	82	47	46.0	331	3	0	0
11	18	1995	322	82	43	44.4	329	3	0	0
11	19	1995	323	84	43	44.3	343	3	0	0
11	20	1995	324	82	43	42.9	320	3	0	0
11	21	1995	325	72	41	40.8	292	3	0	0
11	22	1995	326	79	41	42.0	321	3	0	0
11	23	1995	327	86	42	44.2	318	3	0	0
11	24	1995	328	89	43	45.1	266	3	0	0
11	25	1995	329	83	46	44.6	256	3	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
11	26	1995	330	69	44	42.2	280	3	0	0
11	27	1995	331	77	44	38.4	318	5	0	0
11	28	1995	332	79	51	40.0	283	4	0	0
11	29	1995	333	84	43	42.8	314	3	0	0
11	30	1995	334	82	43	42.6	310	3	0	0
12	1	1995	335	78	43	42.3	302	3	0	0
12	2	1995	336	70	44	41.2	289	3	0	0
12	3	1995	337	72	44	41.3	283	3	0	0
12	4	1995	338	78	42	41.5	289	3	0	0
12	5	1995	339	80	46	44.1	254	3	0	0
12	6	1995	340	72	48	43.2	155	2	0	0
12	7	1995	341	62	45	38.8	91	2	0	0.03
12	8	1995	342	77	43	41.9	283	3	0	0
12	9	1995	343	78	39	40.0	289	3	0	0
12	10	1995	344	76	41	40.3	296	3	0	0
12	11	1995	345	74	43	39.8	237	3	0	0
12	12	1995	346	65	48	41.0	200	4	0	0
12	13	1995	347	62	53	41.7	149	4	0	0.12
12	14	1995	348	68	45	38.8	291	3	0	0.04
12	15	1995	349	73	43	39.3	260	3	0	0
12	16	1995	350	64	43	35.1	237	4	0	0
12	17	1995	351	70	37	32.4	305	4	0	0
12	18	1995	352	69	35	31.7	298	3	0	0
12	19	1995	353	63	43	36.4	249	4	0	0
12	20	1995	354	63	44	37.3	208	4	0	0
12	21	1995	355	64	40	34.4	286	4	0	0.25
12	22	1995	356	65	40	34.0	286	3	0	0
12	23	1995	357	56	43	31.7	88	5	0	0.17
12	24	1995	358	60	47	32.8	149	7	0	0
12	25	1995	359	67	45	32.6	174	6	0	0
12	26	1995	360	73	36	32.7	307	4	0	0
12	27	1995	361	71	38	32.7	303	3	0	0
12	28	1995	362	65	37	34.0	284	3	0	0
12	29	1995	363	70	40	35.9	262	3	0	0
12	30	1995	364	69	43	38.6	268	3	0	0
12	31	1995	365	68	44	39.6	261	4	0	0
1	1	1996	1	79	47	36.0	312	6	0	0
1	2	1996	2	73	38	32.0	288	6	0	0
1	3	1996	3	73	37	33.4	307	4	0	0
1	4	1996	4	65	38	35.4	293	3	0	0
1	5	1996	5	64	46	38.9	254	3	0	0
1	6	1996	6	77	41	37.9	285	3	0	0
1	7	1996	7	85	40	40.2	317	4	0	0
1	8	1996	8	79	39	37.6	304	3	0	0
1	9	1996	9	74	40	38.2	292	3	0	0
1	10	1996	10	75	41	37.9	306	3	0	0
1	11	1996	11	84	56	39.1	337	6	0	0
1	12	1996	12	84	38	36.1	334	3	0	0
1	13	1996	13	78	41	38.3	320	3	0	0
1	14	1996	14	75	41	38.9	315	3	0	0
1	15	1996	15	78	45	41.9	278	3	0	0
1	16	1996	16	67	45	40.2	202	5	0	0
1	17	1996	17	65	45	37.6	301	5	0	0.35
1	18	1996	18	67	44	37.7	326	4	0	0
1	19	1996	19	62	47	38.6	229	4	0	0.06
1	20	1996	20	70	40	35.1	344	4	0	0
1	21	1996	21	64	40	35.0	310	4	0	0
1	22	1996	22	55	43	33.5	215	4	0	0.86
1	23	1996	23	62	40	31.7	355	4	0	0
1	24	1996	24	61	38	30.8	348	3	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
1	25	1996	25	54	45	34.5	119	2	0	0.03
1	26	1996	26	64	44	37.2	311	3	0	0.02
1	27	1996	27	65	41	35.2	265	3	0	0.01
1	28	1996	28	64	48	39.2	247	3	0	0.09
1	29	1996	29	68	42	35.7	309	3	0	0
1	30	1996	30	64	47	37.6	169	3	0	0
1	31	1996	31	65	49	40.4	270	6	0	0.2
2	1	1996	32	62	51	40.0	235	5	0	0.94
2	2	1996	33	61	49	38.4	131	3	0	0.06
2	3	1996	34	61	49	38.4	134	3	0	0.07
2	4	1996	35	78	49	44.7	371	3	0	0.03
2	5	1996	36	78	51	47.1	327	3	0	0
2	6	1996	37	77	51	46.2	329	3	0	0
2	7	1996	38	92	47	48.9	398	3	0	0
2	8	1996	39	86	52	49.3	404	3	0	0
2	9	1996	40	67	46	43.2	268	3	0	0
2	10	1996	41	64	53	44.0	286	3	0	0
2	11	1996	42	68	48	42.6	255	3	0	0
2	12	1996	43	76	50	42.9	73	6	0	0.08
2	13	1996	44	71	49	44.9	284	3	0	0.02
2	14	1996	45	72	45	42.3	405	4	0	0.05
2	15	1996	46	72	45	41.1	337	4	0	0
2	16	1996	47	76	47	43.6	396	4	0	0
2	17	1996	48	65	47	40.7	293	3	0	0
2	18	1996	49	70	51	44.0	334	4	0	0
2	19	1996	50	74	52	45.6	305	4	0	0
2	20	1996	51	70	55	45.2	155	3	0	0
2	21	1996	52	62	52	41.1	63	3	0	0.11
2	22	1996	53	62	44	35.0	438	5	0	0.16
2	23	1996	54	74	36	33.9	469	4	0	0
2	24	1996	55	63	40	34.8	426	4	0	0
2	25	1996	56	51	43	33.1	105	4	0	0.35
2	26	1996	57	56	41	31.9	322	5	0	0.92
2	27	1996	58	58	39	30.6	419	4	0	0.07
2	28	1996	59	61	41	33.1	433	3	0	0.53
2	29	1996	60	67	38	34.0	472	4	0	0.01
3	1	1996	61	75	42	37.7	476	4	0	0
3	2	1996	62	76	44	38.8	493	3	0	0
3	3	1996	63	69	43	36.7	253	3	0	0
3	4	1996	64	62	45	38.6	188	4	0	0
3	5	1996	65	65	51	39.9	417	6	0	0.34
3	6	1996	66	72	47	38.8	496	4	0	0.06
3	7	1996	67	80	43	36.0	489	4	0	0
3	8	1996	68	86	40	39.2	509	3	0	0
3	9	1996	69	80	47	42.2	476	3	0	0
3	10	1996	70	74	43	39.2	518	4	0	0
3	11	1996	71	68	45	41.1	429	4	0	0
3	12	1996	72	66	49	39.8	360	4	0	0.01
3	13	1996	73	60	48	37.9	252	4	0	1.49
3	14	1996	74	66	45	37.8	457	3	0	0.06
3	15	1996	75	71	45	39.6	533	4	0	0
3	16	1996	76	71	42	39.3	539	4	0	0
3	17	1996	77	70	48	42.2	509	4	0	0
3	18	1996	78	78	50	45.0	545	4	0	0
3	19	1996	79	82	49	46.7	530	4	0	0
3	20	1996	80	79	50	44.7	482	4	0	0
3	21	1996	81	72	54	45.9	512	5	0	0
3	22	1996	82	68	54	43.7	405	4	0	0
3	23	1996	83	65	45	36.5	516	5	0	0
3	24	1996	84	69	42	35.6	548	4	0	0

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
3	25	1996	85	66	46	38.1	577	5	0	0
3	26	1996	86	73	45	39.0	581	4	0	0
3	27	1996	87	72	44	37.3	574	4	0	0
3	28	1996	88	63	46	38.5	247	6	0	0.03
3	29	1996	89	67	45	37.4	558	4	0	0.14
3	30	1996	90	75	43	39.0	579	4	0	0
3	31	1996	91	76	42	39.0	598	4	0	0
4	1	1996	92	77	43	40.5	595	4	0	0
4	2	1996	93	68	47	38.5	562	4	0	0.02
4	3	1996	94	71	44	38.7	582	4	0	0
4	4	1996	95	74	46	41.6	558	4	0	0
4	5	1996	96	86	48	42.6	606	4	0	0
4	6	1996	97	87	51	43.1	620	4	0	0
4	7	1996	98	89	50	46.2	641	4	0	0
4	8	1996	99	82	44	42.6	644	4	0	0
4	9	1996	100	71	47	41.2	606	4	0	0
4	10	1996	101	69	51	42.7	519	5	0	0
4	11	1996	102	71	49	41.3	596	4	0	0
4	12	1996	103	72	46	40.0	618	5	0	0
4	13	1996	104	76	47	41.6	629	4	0	0
4	14	1996	105	88	45	43.1	651	4	0	0
4	15	1996	106	86	49	45.6	626	5	0	0
4	16	1996	107	76	45	41.5	625	5	0	0
4	17	1996	108	71	53	43.5	501	4	0	0.14
4	18	1996	109	68	49	40.9	490	5	0	0.58
4	19	1996	110	74	43	37.7	663	4	0	0
4	20	1996	111	70	44	37.8	655	5	0	0
4	21	1996	112	71	45	39.5	658	4	0	0
4	22	1996	113	83	46	42.2	658	4	0	0
4	23	1996	114	92	49	47.0	669	4	0	0
4	24	1996	115	89	49	47.5	674	4	0	0
4	25	1996	116	86	50	48.3	630	4	0	0
4	26	1996	117	84	50	47.9	658	4	0	0
4	27	1996	118	79	54	47.7	618	5	0	0
4	28	1996	119	82	52	47.9	550	4	0	0
4	29	1996	120	94	49	46.2	705	7	0	0
4	30	1996	121	94	57	50.9	700	5	0	0
5	1	1996	122	89	54	50.7	687	5	0	0
5	2	1996	123	81	52	48.2	662	4	0	0
5	3	1996	124	78	54	47.0	630	5	0	0
5	4	1996	125	81	50	46.0	692	4	0	0
5	5	1996	126	83	48	45.0	704	4	0	0
5	6	1996	127	85	48	45.1	701	5	0	0
5	7	1996	128	78	49	44.4	687	5	0	0
5	8	1996	129	78	54	45.5	528	6	0	0
5	9	1996	130	79	51	45.7	683	4	0	0
5	10	1996	131	87	51	48.6	697	4	0	0
5	11	1996	132	95	53	51.5	706	4	0	0
5	12	1996	133	92	53	50.8	708	4	0	0
5	13	1996	134	83	49	46.5	708	5	0	0
5	14	1996	135	82	57	49.5	676	5	0	0
5	15	1996	136	84	54	48.9	665	5	0	0
5	16	1996	137	80	54	47.7	672	5	0	0
5	17	1996	138	84	58	50.6	672	5	0	0
5	18	1996	139	83	53	46.9	700	5	0	0
5	19	1996	140	78	56	47.1	696	5	0	0
5	20	1996	141	78	55	46.8	666	4	0	0
5	21	1996	142	80	51	45.0	699	5	0	0
5	22	1996	143	74	55	46.1	637	5	0	0
5	23	1996	144	75	50	43.0	696	5	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
5	24	1996	145	67	47	37.6	352	4	0	0.65
5	25	1996	146	71	49	41.1	536	4	0	0.02
5	26	1996	147	77	48	42.7	708	4	0	0
5	27	1996	148	72	52	43.8	522	4	0	0
5	28	1996	149	77	55	45.7	657	4	0	0
5	29	1996	150	74	57	46.2	641	5	0	0
5	30	1996	151	72	51	42.3	701	4	0	0
5	31	1996	152	79	50	44.8	643	4	0	0
6	1	1996	153	91	51	50.3	711	4	0	0
6	2	1996	154	96	54	52.6	616	4	0	0
6	3	1996	155	94	56	52.2	718	4	0	0
6	4	1996	156	87	54	50.4	693	5	0	0
6	5	1996	157	83	56	49.8	655	5	0	0
6	6	1996	158	86	55	50.3	667	5	0	0
6	7	1996	159	84	54	48.1	690	5	0	0
6	8	1996	160	89	54	50.0	709	4	0	0
6	9	1996	161	90	52	50.3	723	4	0	0
6	10	1996	162	88	53	50.0	686	5	0	0
6	11	1996	163	83	53	48.2	704	4	0	0
6	12	1996	164	80	57	48.3	721	5	0	0
6	13	1996	165	83	56	49.0	719	5	0	0
6	14	1996	166	84	55	48.9	697	5	0	0
6	15	1996	167	82	53	47.9	665	4	0	0
6	16	1996	168	81	54	48.0	636	4	0	0
6	17	1996	169	87	53	49.7	720	5	0	0
6	18	1996	170	90	50	48.1	688	4	0	0
6	19	1996	171	88	51	49.1	703	5	0	0
6	20	1996	172	83	55	49.1	651	5	0	0
6	21	1996	173	77	58	48.0	686	5	0	0
6	22	1996	174	78	56	46.9	715	5	0	0
6	23	1996	175	79	55	47.3	659	5	0	0
6	24	1996	176	78	58	48.3	581	4	0	0
6	25	1996	177	80	59	49.2	645	5	0	0
6	26	1996	178	72	57	44.1	607	5	0	0
6	27	1996	179	75	57	44.9	705	5	0	0
6	28	1996	180	83	51	45.6	714	5	0	0
6	29	1996	181	101	54	52.5	733	4	0	0
6	30	1996	182	100	59	51.6	723	4	0	0
7	1	1996	183	99	59	53.9	682	4	0	0
7	2	1996	184	93	58	53.3	568	4	0	0
7	3	1996	185	91	63	54.7	463	4	0	0
7	4	1996	186	93	60	53.3	695	4	0	0
7	5	1996	187	96	58	53.9	670	4	0	0
7	6	1996	188	92	56	52.0	697	4	0	0
7	7	1996	189	84	57	50.0	655	5	0	0
7	8	1996	190	82	58	49.6	662	5	0	0
7	9	1996	191	86	55	49.1	664	5	0	0
7	10	1996	192	83	59	50.6	318	4	0	0.1
7	11	1996	193	88	57	50.9	675	4	0	0
7	12	1996	194	85	57	50.3	688	5	0	0
7	13	1996	195	83	57	49.5	679	5	0	0
7	14	1996	196	81	59	49.8	618	5	0	0
7	15	1996	197	83	58	50.1	663	5	0	0
7	16	1996	198	79	64	51.0	714	6	0	0
7	17	1996	199	87	60	52.5	658	5	0	0
7	18	1996	200	90	59	52.9	694	5	0	0
7	19	1996	201	96	56	52.7	726	4	0	0
7	20	1996	202	97	56	53.7	698	5	0	0
7	21	1996	203	95	57	53.9	648	4	0	0
7	22	1996	204	98	58	54.9	682	5	0	0

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
7	23	1996	205	94	57	53.5	684	5	0	0
7	24	1996	206	95	60	56.0	654	5	0	0
7	25	1996	207	98	59	56.6	654	4	0	0
7	26	1996	208	100	62	58.1	511	4	0	0
7	27	1996	209	98	66	59.8	606	5	0	0
7	28	1996	210	99	61	57.5	638	4	0	0
7	29	1996	211	106	66	61.2	651	4	0	0
7	30	1996	212	106	64	61.4	665	4	0	0
7	31	1996	213	103	61	59.1	665	4	0	0
8	1	1996	214	99	61	58.3	644	5	0	0
8	2	1996	215	94	60	55.9	639	5	0	0
8	3	1996	216	90	60	54.2	600	5	0	0
8	4	1996	217	87	58	50.9	651	4	0	0
8	5	1996	218	86	58	50.8	648	5	0	0
8	6	1996	219	88	58	51.0	635	4	0	0
8	7	1996	220	90	59	53.6	550	4	0	0
8	8	1996	221	93	62	56.1	593	4	0	0
8	9	1996	222	97	61	57.4	602	4	0	0
8	10	1996	223	95	61	56.5	601	5	0	0
8	11	1996	224	99	61	57.4	610	5	0	0
8	12	1996	225	102	60	57.9	613	5	0	0
8	13	1996	226	103	62	59.8	619	4	0	0
8	14	1996	227	103	61	58.4	614	5	0	0
8	15	1996	228	101	71	62.5	469	4	0	0
8	16	1996	229	99	62	57.8	588	5	0	0
8	17	1996	230	93	59	54.6	598	4	0	0
8	18	1996	231	88	60	53.2	560	5	0	0
8	19	1996	232	94	59	54.3	617	5	0	0
8	20	1996	233	96	55	52.8	631	4	0	0
8	21	1996	234	98	56	53.7	622	4	0	0
8	22	1996	235	98	55	54.0	610	4	0	0
8	23	1996	236	102	58	57.8	588	4	0	0
8	24	1996	237	103	60	58.4	584	4	0	0
8	25	1996	238	103	59	56.1	593	4	0	0
8	26	1996	239	98	58	55.1	598	4	0	0
8	27	1996	240	99	56	54.2	602	4	0	0
8	28	1996	241	105	59	57.7	566	4	0	0
8	29	1996	242	108	62	60.2	544	4	0	0
8	30	1996	243	104	66	59.5	562	4	0	0
8	31	1996	244	102	61	57.1	577	4	0	0
9	1	1996	245	97	59	55.1	570	4	0	0
9	2	1996	246	91	59	54.1	539	4	0	0
9	3	1996	247	92	57	53.1	507	4	0	0
9	4	1996	248	91	61	54.4	518	4	0	0
9	5	1996	249	91	60	53.2	552	4	0	0
9	6	1996	250	95	57	53.8	554	4	0	0
9	7	1996	251	95	60	54.8	543	4	0	0
9	8	1996	252	96	62	56.3	545	4	0	0
9	9	1996	253	99	58	55.9	547	4	0	0
9	10	1996	254	99	59	56.1	544	4	0	0
9	11	1996	255	99	55	53.6	545	4	0	0
9	12	1996	256	90	53	48.2	547	4	0	0
9	13	1996	257	78	61	49.5	330	4	0	0
9	14	1996	258	81	62	50.8	455	4	0	0
9	15	1996	259	85	62	52.0	480	5	0	0
9	16	1996	260	83	65	52.2	508	4	0	0
9	17	1996	261	85	57	50.5	494	4	0	0
9	18	1996	262	84	61	51.7	444	4	0	0
9	19	1996	263	90	56	51.9	495	4	0	0
9	20	1996	264	93	58	53.8	498	5	0	0

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
9	21	1996	265	89	56	51.6	490	4	0	0
9	22	1996	266	83	62	52.0	434	4	0	0
9	23	1996	267	86	64	53.8	439	4	0	0
9	24	1996	268	86	63	52.4	472	5	0	0
9	25	1996	269	79	60	52.2	252	5	0	0
9	26	1996	270	77	62	52.8	319	4	0	0.12
9	27	1996	271	88	61	55.6	420	4	0	0
9	28	1996	272	93	57	55.8	481	4	0	0
9	29	1996	273	95	53	54.4	493	4	0	0
9	30	1996	274	86	57	53.5	482	4	0	0
10	1	1996	275	82	62	54.2	443	4	0	0
10	2	1996	276	82	59	52.0	440	4	0	0
10	3	1996	277	91	55	54.4	467	4	0	0
10	4	1996	278	81	58	54.0	419	4	0	0
10	5	1996	279	90	55	54.4	436	4	0	0
10	6	1996	280	95	59	58.4	410	4	0	0
10	7	1996	281	100	59	60.4	451	3	0	0
10	8	1996	282	98	54	56.9	458	3	0	0
10	9	1996	283	94	55	55.8	454	4	0	0
10	10	1996	284	95	55	55.2	460	3	0	0
10	11	1996	285	90	52	52.2	473	4	0	0
10	12	1996	286	87	47	49.4	460	3	0	0
10	13	1996	287	83	53	50.8	365	4	0	0
10	14	1996	288	81	56	51.3	397	4	0	0
10	15	1996	289	85	55	52.7	413	4	0	0
10	16	1996	290	78	32	43.4	479	4	0	0
10	17	1996	291	84	58	59.3	398	4	0	0
10	18	1996	292	83	54	57.3	410	4	0	0
10	19	1996	293	73	56	53.7	246	4	0	0
10	20	1996	294	76	52	52.4	419	4	0	0
10	21	1996	295	79	44	46.2	441	7	0	0
10	22	1996	296	83	47	47.3	436	5	0	0
10	23	1996	297	78	40	46.8	399	4	0	0
10	24	1996	298	78	45	50.0	392	4	0	0
10	25	1996	299	75	53	48.0	370	4	0	0.02
10	26	1996	300	72	46	46.6	343	4	0	0.14
10	27	1996	301	71	39	39.8	220	3	0	0
10	28	1996	302	71	47	46.7	287	4	0	0
10	29	1996	303	73	45	46.1	355	4	0	0
10	30	1996	304	69	46	45.8	97	5	0	0.82
10	31	1996	305	66	48	46.4	287	3	0	0.22
11	1	1996	306	79	42	47.7	411	5	0	0
11	2	1996	307	72	42	46.3	391	4	0	0
11	3	1996	308	72	51	51.2	387	4	0	0
11	4	1996	309	75	48	50.7	385	3	0	0
11	5	1996	310	69	51	49.0	321	4	0	0
11	6	1996	311	77	47	49.1	372	3	0	0
11	7	1996	312	89	41	50.0	392	4	0	0
11	8	1996	313	95	46	54.1	389	5	0	0
11	9	1996	314	99	56	61.4	365	4	0	0
11	10	1996	315	94	49	57.4	377	3	0	0
11	11	1996	316	91	49	56.4	371	3	0	0
11	12	1996	317	89	48	55.0	354	3	0	0
11	13	1996	318	88	48	56.3	338	3	0	0
11	14	1996	319	68	47	48.3	212	3	0	0
11	15	1996	320	64	53	49.1	168	5	0	0
11	16	1996	321	68	50	48.3	249	3	0	0
11	17	1996	322	73	46	48.6	334	3	0	0
11	18	1996	323	76	46	50.3	326	3	0	0
11	19	1996	324	71	49	49.7	246	3	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
11	20	1996	325	77	54	54.4	299	4	0	0
11	21	1996	326	72	56	54.4	94	3	0	0
11	22	1996	327	70	59	53.2	226	6	0	2.3
11	23	1996	328	73	52	51.0	338	3	0	0.31
11	24	1996	329	80	45	49.9	334	3	0	0
11	25	1996	330	81	47	50.9	289	3	0	0
11	26	1996	331	75	49	35.0	259	4	0	0
11	27	1996	332	74	47	26.9	340	4	0	0
11	28	1996	333	72	39	27.8	319	4	0	0
11	29	1996	334	62	43	27.9	323	4	0	0.1
11	30	1996	335	66	39	25.5	327	4	0	0.01
12	1	1996	336	68	40	25.8	326	3	0	0
12	2	1996	337	75	34	25.2	327	3	0	0
12	3	1996	338	74	39	27.0	329	3	0	0
12	4	1996	339	71	36	25.0	317	3	0	0
12	5	1996	340	64	38	27.0	195	3	0	0
12	6	1996	341	66	49	34.0	236	4	0	0.3
12	7	1996	342	71	43	31.8	307	3	0	0
12	8	1996	343	76	41	33.0	304	3	0	0
12	9	1996	344	66	45	32.5	175	5	0	0
12	10	1996	345	64	52	34.7	150	3	0	0.6
12	11	1996	346	62	55	37.5	86	2	0	0.36
12	12	1996	347	74	56	40.2	225	3	0	0.17
12	13	1996	348	65	48	33.7	194	3	0	0
12	14	1996	349	84	46	36.4	299	4	0	0
12	15	1996	350	71	55	26.0	324	9	0	0
12	16	1996	351	76	45	30.3	311	4	0	0
12	17	1996	352	74	40	28.5	256	6	0	0
12	18	1996	353	66	50	21.4	319	9	0	0
12	19	1996	354	73	32	24.9	313	3	0	0
12	20	1996	355	71	33	25.7	312	3	0	0
12	21	1996	356	60	34	23.7	229	3	0	0
12	22	1996	357	59	50	32.9	52	5	0	0
12	23	1996	358	65	43	30.7	297	3	0	0.13
12	24	1996	359	73	34	29.4	245	2	0	0
12	25	1996	360	71	37	26.8	317	3	0	0.13
12	26	1996	361	63	39	27.6	171	3	0	0
12	27	1996	362	61	47	31.6	98	3	0	0.01
12	28	1996	363	65	48	33.8	156	3	0	0.24
12	29	1996	364	66	44	31.9	237	3	0	0
12	30	1996	365	66	49	34.0	159	3	0	0
12	31	1996	366	68	54	37.4	148	2	0	0.02
1	1	1997	1	74	55	40.3	219	3	0	0.03
1	2	1997	2	66	61	41.8	84	3	0	0.08
1	3	1997	3	69	54	37.2	187	5	0	0.39
1	4	1997	4	67	51	34.4	177	3	0	0
1	5	1997	5	60	48	31.1	126	3	0	0.09
1	6	1997	6	62	41	25.3	307	5	0	0.03
1	7	1997	7	66	41	25.0	304	5	0	0
1	8	1997	8	67	33	23.3	320	3	0	0
1	9	1997	9	66	37	27.6	311	3	0	0
1	10	1997	10	66	35	27.9	277	3	0	0
1	11	1997	11	60	46	30.2	152	3	0	0
1	12	1997	12	53	45	27.8	44	4	0	0.9
1	13	1997	13	58	46	29.3	194	6	0	1.21
1	14	1997	14	58	45	28.5	113	2	0	0.15
1	15	1997	15	62	49	37.6	166	4	0	0
1	16	1997	16	69	43	42.3	332	3	0	0.43
1	17	1997	17	75	41	42.3	342	4	0	0
1	18	1997	18	79	38	41.8	357	4	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
1	19	1997	19	73	37	39.9	336	3	0	0
1	20	1997	20	63	41	39.6	247	3	0	0
1	21	1997	21	61	41	38.5	232	3	0	0
1	22	1997	22	62	48	42.3	131	3	0	0.02
1	23	1997	23	62	51	45.1	120	3	0	0.29
1	24	1997	24	68	50	45.6	315	3	0	0
1	25	1997	25	64	47	42.6	124	3	0	1.52
1	26	1997	26	66	56	48.5	186	5	0	0.27
1	27	1997	27	72	50	47.4	342	3	0	0
1	28	1997	28	78	46	47.7	343	3	0	0
1	29	1997	29	81	46	47.5	383	5	0	0
1	30	1997	30	77	47	45.7	382	4	0	0
1	31	1997	31	78	45	46.0	372	3	0	0
2	1	1997	32	69	41	42.1	375	3	0	0
2	2	1997	33	63	44	41.2	249	3	0	0
2	3	1997	34	71	40	42.4	386	3	0	0
2	4	1997	35	66	41	40.8	364	3	0	0
2	5	1997	36	65	44	41.9	342	4	0	0
2	6	1997	37	69	42	41.3	397	3	0	0
2	7	1997	38	69	41	39.2	338	4	0	0
2	8	1997	39	64	37	36.9	367	4	0	0
2	9	1997	40	67	41	41.3	400	3	0	0
2	10	1997	41	64	38	38.6	271	4	0	0
2	11	1997	42	63	47	42.3	348	3	0	0.31
2	12	1997	43	62	41	39.2	168	3	0	0
2	13	1997	44	73	39	40.9	446	5	0	0
2	14	1997	45	75	42	43.3	438	4	0	0
2	15	1997	46	82	37	43.9	382	4	0	0
2	16	1997	47	74	49	46.5	266	3	0	0
2	17	1997	48	64	38	38.6	331	5	0	0
2	18	1997	49	71	43	44.1	430	4	0	0.11
2	19	1997	50	75	40	43.7	440	3	0	0
2	20	1997	51	70	41	43.0	430	3	0	0
2	21	1997	52	76	39	43.0	459	4	0	0
2	22	1997	53	72	42	42.1	455	3	0	0
2	23	1997	54	67	37	39.6	452	4	0	0
2	24	1997	55	65	41	39.0	416	4	0	0
2	25	1997	56	69	36	36.7	475	5	0	0
2	26	1997	57	64	40	39.3	208	5	0	0
2	27	1997	58	54	50	40.7	85	5	0	0.28
2	28	1997	59	61	44	40.0	378	4	0	0.13
3	1	1997	60	66	36	36.1	497	4	0	0
3	2	1997	61	66	37	38.6	492	4	0	0
3	3	1997	62	65	37	38.5	499	4	0	0
3	4	1997	63	71	42	42.7	493	4	0	0
3	5	1997	64	82	40	43.8	531	4	0	0
3	6	1997	65	78	40	43.3	529	3	0	0
3	7	1997	66	76	37	41.3	513	3	0	0
3	8	1997	67	74	38	42.7	510	4	0	0
3	9	1997	68	89	39	48.8	535	3	0	0
3	10	1997	69	91	45	51.2	536	4	0	0
3	11	1997	70	85	51	52.0	511	4	0	0
3	12	1997	71	76	42	46.0	533	4	0	0
3	13	1997	72	80	39	46.0	542	3	0	0
3	14	1997	73	76	44	46.9	528	4	0	0
3	15	1997	74	71	46	45.7	497	4	0	0
3	16	1997	75	67	53	46.5	379	4	0	0
3	17	1997	76	72	48	46.9	526	4	0	0
3	18	1997	77	86	46	51.5	560	3	0	0
3	19	1997	78	95	49	54.5	564	4	0	0

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
3	20	1997	79	96	54	57.5	567	4	0	0
3	21	1997	80	84	44	49.2	539	4	0	0
3	22	1997	81	74	44	46.1	488	4	0	0
3	23	1997	82	64	54	46.4	229	4	0	0
3	24	1997	83	72	50	48.0	467	3	0	0
3	25	1997	84	87	46	50.7	566	4	0	0
3	26	1997	85	80	45	48.4	564	4	0	0
3	27	1997	86	70	55	49.2	528	5	0	0
3	28	1997	87	68	55	48.2	357	4	0	0
3	29	1997	88	74	54	50.9	529	4	0	0
3	30	1997	89	66	56	48.1	240	3	0	0
3	31	1997	90	66	51	45.8	285	4	0	0
4	1	1997	91	67	45	43.3	463	5	0	0
4	2	1997	92	61	42	36.8	318	5	0	0
4	3	1997	93	64	36	37.1	333	3	0	0.04
4	4	1997	94	65	45	42.7	398	4	0	0.16
4	5	1997	95	65	52	45.8	351	4	0	0
4	6	1997	96	68	47	44.3	620	4	0	0
4	7	1997	97	72	45	45.7	611	5	0	0
4	8	1997	98	73	43	45.2	607	4	0	0
4	9	1997	99	66	49	44.5	533	5	0	0
4	10	1997	100	69	46	44.3	630	5	0	0
4	11	1997	101	70	47	45.3	606	5	0	0
4	12	1997	102	73	44	45.3	619	4	0	0
4	13	1997	103	80	44	46.8	635	4	0	0
4	14	1997	104	79	45	46.8	634	4	0	0
4	15	1997	105	78	50	48.0	573	1	0	0
4	16	1997	106	80	45	49.7	641	1	0	0
4	17	1997	107	80	46	52.9	639	1	0	0
4	18	1997	108	79	49	51.9	635	1	0	0
4	19	1997	109	74	59	56.9	491	1	0	0
4	20	1997	110	81	57	59.0	542	1	0	0
4	21	1997	111	82	53	58.6	616	1	0	0
4	22	1997	112	83	53	57.8	608	1	0	0
4	23	1997	113	77	53	54.6	648	1	0	0
4	24	1997	114	74	51	50.3	645	1	0	0
4	25	1997	115	83	43	43.6	667	1	0	0
4	26	1997	116	90	53	43.2	671	1	0	0
4	27	1997	117	86	50	51.1	670	1	0	0
4	28	1997	118	72	55	54.4	626	1	0	0
4	29	1997	119	72	57	54.0	655	1	0	0
4	30	1997	120	77	54	55.2	561	1	0	0
5	1	1997	121	77	53	56.2	625	1	0	0
5	2	1997	122	86	49	53.3	661	1	0	0
5	3	1997	123	88	50	50.7	608	1	0	0
5	4	1997	124	86	50	50.7	543	1	0	0
5	5	1997	125	91	52	51.5	664	1	0	0
5	6	1997	126	89	54	51.5	670	1	0	0
5	7	1997	127	87	56	52.9	686	1	0	0
5	8	1997	128	84	53	57.2	667	1	0	0
5	9	1997	129	80	55	59.0	534	6	0	0
5	10	1997	130	83	58	62.0	548	4	0	0
5	11	1997	131	80	61	61.0	541	5	0	0
5	12	1997	132	86	60	62.2	532	4	0	0
5	13	1997	133	83	58	60.7	646	5	0	0
5	14	1997	134	85	55	59.8	664	4	0	0
5	15	1997	135	95	58	62.6	683	4	0	0
5	16	1997	136	86	60	63.9	611	5	0	0
5	17	1997	137	84	59	61.8	579	4	0	0
5	18	1997	138	79	62	62.1	411	4	0	0

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
5	19	1997	139	77	60	59.8	547	5	0	0
5	20	1997	140	79	57	58.9	592	4	0	0
5	21	1997	141	81	61	60.2	660	5	0	0
5	22	1997	142	81	58	59.7	656	5	0	0
5	23	1997	143	81	56	58.7	627	5	0	0
5	24	1997	144	76	60	60.8	498	5	0	0.07
5	25	1997	145	76	59	57.3	676	5	0	0
5	26	1997	146	83	56	59.7	657	4	0	0
5	27	1997	147	92	55	57.8	617	4	0	0
5	28	1997	148	97	59	53.8	689	4	0	0
5	29	1997	149	95	61	62.2	702	5	0	0
5	30	1997	150	88	57	62.8	700	5	0	0
5	31	1997	151	91	61	62.4	708	5	0	0
6	1	1997	152	88	57	61.1	715	5	0	0
6	2	1997	153	82	60	60.5	681	5	0	0
6	3	1997	154	83	63	61.4	676	5	0	0
6	4	1997	155	79	62	59.5	673	5	0	0
6	5	1997	156	75	62	57.8	514	5	0	0
6	6	1997	157	74	59	57.4	330	4	0	0
6	7	1997	158	73	61	60.9	288	4	0	0
6	8	1997	159	78	61	59.8	676	5	0	0
6	9	1997	160	81	63	61.0	672	5	0	0
6	10	1997	161	82	63	60.4	694	5	0	0
6	11	1997	162	77	60	59.2	573	4	0	0
6	12	1997	163	74	61	56.7	595	6	0	0
6	13	1997	164	67	54	51.3	365	6	0	0.04
6	14	1997	165	73	54	53.4	496	4	0	0
6	15	1997	166	78	59	58.8	699	5	0	0
6	16	1997	167	82	55	59.9	681	5	0	0
6	17	1997	168	86	60	63.0	674	5	0	0
6	18	1997	169	85	60	63.8	666	5	0	0
6	19	1997	170	84	59	62.0	705	5	0	0
6	20	1997	171	84	60	61.9	673	5	0	0
6	21	1997	172	79	60	58.5	705	5	0	0
6	22	1997	173	81	56	57.2	729	5	0	0
6	23	1997	174	79	55	56.4	722	5	0	0
6	24	1997	175	82	53	55.8	721	5	0	0
6	25	1997	176	83	58	60.5	662	5	0	0
6	26	1997	177	83	61	61.4	667	5	0	0
6	27	1997	178	83	57	59.4	674	5	0	0
6	28	1997	179	83	57	58.9	730	5	0	0
6	29	1997	180	84	52	56.1	738	5	0	0
6	30	1997	181	82	54	55.9	724	5	0	0
7	1	1997	182	90	53	55.6	749	4	0	0
7	2	1997	183	96	53	48.8	741	4	0	0
7	3	1997	184	97	55	47.1	761	4	0	0
7	4	1997	185	95	52	56.8	734	5	0	0
7	5	1997	186	90	56	62.0	713	4	0	0
7	6	1997	187	91	55	61.3	728	5	0	0
7	7	1997	188	83	58	61.3	694	5	0	0
7	8	1997	189	84	58	59.3	723	5	0	0
7	9	1997	190	84	59	59.7	707	5	0	0
7	10	1997	191	83	60	61.5	680	5	0	0
7	11	1997	192	79	60	58.8	596	5	0	0
7	12	1997	193	78	58	57.4	680	5	0	0
7	13	1997	194	83	53	58.6	707	4	0	0
7	14	1997	195	89	61	63.6	701	5	0	0
7	15	1997	196	90	56	61.2	581	4	0	0
7	16	1997	197	94	61	65.1	658	5	0	0
7	17	1997	198	88	61	64.6	676	5	0	0

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
7	18	1997	199	86	60	63.6	655	5	0	0
7	19	1997	200	81	57	59.6	679	5	0	0
7	20	1997	201	80	56	59.4	629	4	0	0
7	21	1997	202	80	55	59.8	472	4	0	0
7	22	1997	203	87	64	66.6	585	4	0	0
7	23	1997	204	83	62	64.2	653	5	0	0
7	24	1997	205	80	62	61.5	601	5	0	0
7	25	1997	206	82	62	63.0	646	5	0	0
7	26	1997	207	81	57	58.8	689	5	0	0
7	27	1997	208	80	55	58.5	620	4	0	0
7	28	1997	209	79	59	59.9	635	5	0	0
7	29	1997	210	75	64	62.5	376	4	0	0
7	30	1997	211	83	60	61.5	653	5	0	0
7	31	1997	212	93	55	60.3	692	4	0	0
8	1	1997	213	101	58	60.1	675	4	0	0
8	2	1997	214	100	60	50.3	654	4	0	0
8	3	1997	215	97	64	58.9	587	4	0	0
8	4	1997	216	100	64	61.2	649	4	0	0
8	5	1997	217	105	63	62.5	645	4	0	0
8	6	1997	218	102	67	67.0	631	5	0	0
8	7	1997	219	91	66	66.4	574	5	0	0
8	8	1997	220	86	64	67.7	577	5	0	0
8	9	1997	221	82	67	65.0	520	5	0	0
8	10	1997	222	79	61	61.3	541	4	0	0
8	11	1997	223	82	59	59.9	624	5	0	0
8	12	1997	224	83	58	60.4	578	4	0	0
8	13	1997	225	88	55	60.2	643	4	0	0
8	14	1997	226	86	62	64.5	560	5	0	0
8	15	1997	227	81	64	65.1	431	5	0	0
8	16	1997	228	80	64	65.6	498	5	0	0
8	17	1997	229	85	62	63.3	570	4	0	0
8	18	1997	230	90	58	62.7	464	3	0	0
8	19	1997	231	92	65	66.1	599	4	0	0
8	20	1997	232	94	67	69.5	602	4	0	0
8	21	1997	233	91	65	66.3	614	5	0	0
8	22	1997	234	96	67	67.0	604	4	0	0
8	23	1997	235	96	65	63.9	609	4	0	0
8	24	1997	236	95	62	64.3	608	4	0	0
8	25	1997	237	84	65	63.0	543	6	0	0
8	26	1997	238	91	57	62.3	631	4	0	0
8	27	1997	239	93	58	62.0	619	4	0	0
8	28	1997	240	90	58	63.9	629	4	0	0
8	29	1997	241	88	56	61.6	628	4	0	0
8	30	1997	242	90	57	62.2	615	4	0	0
8	31	1997	243	91	59	62.3	601	4	0	0
9	1	1997	244	91	60	63.1	455	4	0	0
9	2	1997	245	94	64	63.7	557	4	0	0
9	3	1997	246	96	69	65.0	490	4	0	0
9	4	1997	247	99	68	68.4	563	4	0	0
9	5	1997	248	96	67	70.1	561	4	0	0
9	6	1997	249	92	64	68.6	558	5	0	0
9	7	1997	250	94	64	66.0	573	4	0	0
9	8	1997	251	95	64	63.2	549	4	0	0
9	9	1997	252	97	65	63.4	547	3	0	0
9	10	1997	253	97	64	65.3	554	3	0	0
9	11	1997	254	86	61	63.7	568	4	0	0
9	12	1997	255	85	59	61.4	559	5	0	0
9	13	1997	256	89	58	62.0	572	4	0	0
9	14	1997	257	96	59	61.9	332	3	0	0
9	15	1997	258	80	69	66.8	123	2	0	0.1

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
9	16	1997	259	96	69	69.0	472	4	0	0.04
9	17	1997	260	94	65	63.9	529	2	0	0
9	18	1997	261	93	60	50.8	518	2	0	0
9	19	1997	262	88	58	55.4	543	2	0	0
9	20	1997	263	84	57	56.1	539	3	0	0
9	21	1997	264	93	54	58.8	544	3	0	0
9	22	1997	265	98	55	56.8	542	2	0	0
9	23	1997	266	99	68	47.5	532	2	0	0
9	24	1997	267	104	66	63.8	477	6	0	0
9	25	1997	268	76	68	64.0	462	6	0	1.29
9	26	1997	269	80	64	64.5	400	5	0	0.2
9	27	1997	270	89	60	65.0	489	5	0	0
9	28	1997	271	94	62	65.5	491	4	0	0
9	29	1997	272	84	62	66.0	453	4	0	0
9	30	1997	273	86	66	66.5	451	4	0	0
10	1	1997	274	82	68	67.0	443	4	0	0
10	2	1997	275	80	67	66.8	309	4	0	0
10	3	1997	276	83	66	65.9	416	4	0	0
10	4	1997	277	82	67	66.4	419	4	0	0
10	5	1997	278	82	66	66.0	425	5	0	0
10	6	1997	279	75	63	62.4	244	5	0	0
10	7	1997	280	69	54	52.4	280	5	0	0.04
10	8	1997	281	76	53	53.6	465	4	0	0
10	9	1997	282	84	50	55.1	430	4	0	0
10	10	1997	283	77	51	54.9	444	5	0	0
10	11	1997	284	69	51	48.9	390	6	0	0.09
10	12	1997	285	79	45	42.0	477	4	0	0
10	13	1997	286	87	58	26.7	484	8	0	0
10	14	1997	287	97	55	32.1	481	6	0	0
10	15	1997	288	99	52	41.3	473	4	0	0
10	16	1997	289	98	53	50.2	468	4	0	0
10	17	1997	290	94	53	41.7	457	4	0	0
10	18	1997	291	88	51	49.1	450	4	0	0
10	19	1997	292	79	46	52.3	433	4	0	0
10	20	1997	293	73	56	54.4	351	5	0	0
10	21	1997	294	74	57	53.6	394	4	0	0
10	22	1997	295	76	53	57.1	393	4	0	0.05
10	23	1997	296	73	59	58.3	310	4	0	0
10	24	1997	297	71	53	53.7	282	4	0	0
10	25	1997	298	79	43	39.5	433	5	0	0
10	26	1997	299	81	48	30.3	427	5	0	0
10	27	1997	300	76	42	40.0	398	4	0	0
10	28	1997	301	76	46	45.8	399	4	0	0
10	29	1997	302	78	44	43.9	390	3	0	0
10	30	1997	303	85	44	45.0	384	3	0	0
10	31	1997	304	89	49	48.4	384	3	0	0
11	1	1997	305	95	48	50.5	384	3	0	0
11	2	1997	306	98	60	38.7	396	5	0	0
11	3	1997	307	94	62	40.7	390	3	0	0
11	4	1997	308	90	51	46.9	370	3	0	0
11	5	1997	309	83	49	49.1	370	3	0	0
11	6	1997	310	83	43	51.0	359	3	0	0
11	7	1997	311	76	47	52.8	328	3	0	0
11	8	1997	312	73	51	53.4	333	3	0	0
11	9	1997	313	76	47	51.3	343	4	0	0
11	10	1997	314	64	53	54.2	64	4	0	0.14
11	11	1997	315	64	50	51.6	190	2	0	0.45
11	12	1997	316	69	52	51.9	317	1	0	0
11	13	1997	317	61	53	54.3	59	1	0	0.33
11	14	1997	318	66	49	52.0	265	3	0	0.09

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
11	15	1997	319	68	50	50.6	288	4	0	0.05
11	16	1997	320	71	47	48.2	294	4	0	0
11	17	1997	321	71	46	48.5	327	4	0	0
11	18	1997	322	76	41	45.0	339	3	0	0
11	19	1997	323	73	43	44.2	325	3	0	0
11	20	1997	324	73	52	55.7	271	3	0	0.02
11	21	1997	325	74	47	50.2	274	3	0	0
11	22	1997	326	84	46	46.5	283	3	0	0
11	23	1997	327	79	49	43.4	257	3	0	0
11	24	1997	328	72	46	49.4	181	3	0	0
11	25	1997	329	75	51	54.3	223	3	0	0
11	26	1997	330	70	52	55.6	126	5	0	0.45
11	27	1997	331	64	47	49.3	254	3	0	0.4
11	28	1997	332	70	43	47.1	314	3	0	0
11	29	1997	333	67	42	47.6	296	2	0	0
11	30	1997	334	61	50	52.7	92	3	0	0.2
12	1	1997	335	63	44	48.2	251	3	0	0.15
12	2	1997	336	68	50	52.2	263	4	0	0
12	3	1997	337	72	45	49.0	292	3	0	0
12	4	1997	338	72	49	43.8	302	4	0	0
12	5	1997	339	73	48	44.2	192	4	0	0
12	6	1997	340	69	54	54.0	153	5	0	0.34
12	7	1997	341	66	54	56.7	176	5	0	0.6
12	8	1997	342	61	44	45.8	206	4	0	0.26
12	9	1997	343	63	37	38.7	301	4	0	0.06
12	10	1997	344	66	34	28.9	307	3	0	0
12	11	1997	345	63	32	26.5	305	6	0	0
12	12	1997	346	64	38	15.2	309	6	0	0
12	13	1997	347	77	39	29.1	292	4	0	0
12	14	1997	348	70	34	33.8	279	3	0	0
12	15	1997	349	68	37	43.0	364	3	0	0
12	16	1997	350	71	35	42.1	272	2	0	0
12	17	1997	351	72	41	38.5	270	2	0	0
12	18	1997	352	65	40	44.4	158	5	0	0
12	19	1997	353	70	41	39.7	282	3	0	0.13
12	20	1997	354	69	37	35.3	285	3	0	0
12	21	1997	355	55	40	42.7	69	3	0	0.11
12	22	1997	356	62	33	37.9	248	3	0	0.18
12	23	1997	357	65	36	37.6	285	4	0	0
12	24	1997	358	62	42	38.8	287	4	0	0
12	25	1997	359	59	32	23.7	296	4	0	0
12	26	1997	360	65	30	26.8	298	3	0	0
12	27	1997	361	70	31	28.2	302	3	0	0
12	28	1997	362	71	34	33.0	215	5	0	0
12	29	1997	363	77	41	36.9	183	3	0	0
12	30	1997	364	78	43	45.4	222	3	0	0
12	31	1997	365	81	50	47.5	255	3	0	0
1	1	1998	1	77	45	43.7	285	2	0	0
1	2	1998	2	64	42	48.7	99	3	0	0.07
1	3	1998	3	59	53	53.9	79	3	0	0.04
1	4	1998	4	62	45	46.2	210	3	0	0.18
1	5	1998	5	62	39	40.9	298	3	0	0.1
1	6	1998	6	65	38	33.9	299	3	0	0
1	7	1998	7	66	36	35.2	260	3	0	0
1	8	1998	8	66	43	44.1	238	3	0	0
1	9	1998	9	61	47	50.7	62	4	0	0.83
1	10	1998	10	61	53	54.8	146	4	0	2.22
1	11	1998	11	65	49	51.9	222	3	0	0.09
1	12	1998	12	60	47	49.9	88	2	0	0
1	13	1998	13	64	52	55.4	218	2	0	0.09

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
1	14	1998	14	65	47	51.3	267	3	0	0
1	15	1998	15	61	51	53.1	94	3	0	0
1	16	1998	16	69	53	57.1	255	3	0	0.13
1	17	1998	17	72	46	53.2	304	3	0	0
1	18	1998	18	69	44	52.4	274	3	0	0
1	19	1998	19	61	47	47.4	235	4	0	0.15
1	20	1998	20	70	41	52.0	329	2	0	0
1	21	1998	21	69	44	47.6	292	3	0	0
1	22	1998	22	69	43	43.9	335	3	0	0
1	23	1998	23	70	39	43.2	337	3	0	0
1	24	1998	24	68	41	47.2	323	3	0	0
1	25	1998	25	76	43	48.6	354	3	0	0
1	26	1998	26	74	42	46.2	319	3	0	0
1	27	1998	27	67	45	49.1	334	3	0	0
1	28	1998	28	67	49	49.3	340	5	0	0
1	29	1998	29	61	48	51.3	107	3	0	0.66
1	30	1998	30	67	45	48.3	362	3	0	0.1
1	31	1998	31	61	42	45.9	178	3	0	0
2	1	1998	32	66	44	48.2	327	3	0	0
2	2	1998	33	69	47	49.4	327	4	0	0
2	3	1998	34	66	50	48.5	29	5	0	1.17
2	4	1998	35	61	46	48.2	248	4	0	0.85
2	5	1998	36	64	46	48.2	311	3	0	0
2	6	1998	37	59	48	47.3	74	5	0	0.23
2	7	1998	38	64	45	49.0	226	4	0	0.63
2	8	1998	39	63	51	52.2	175	4	0	1.31
2	9	1998	40	63	46	48.5	315	3	0	0.33
2	10	1998	41	67	41	44.8	379	3	0	0
2	11	1998	42	64	47	50.2	270	3	0	0
2	12	1998	43	67	44	49.0	297	3	0	0
2	13	1998	44	65	47	51.4	246	3	0	0
2	14	1998	45	59	52	52.2	71	5	0	1.37
2	15	1998	46	60	45	46.4	293	4	0	0.79
2	16	1998	47	61	44	45.8	276	5	0	0
2	17	1998	48	59	46	47.2	171	4	0	1.15
2	18	1998	49	65	45	47.0	427	4	0	0
2	19	1998	50	60	43	46.4	191	3	0	0
2	20	1998	51	60	46	44.8	392	5	0	0.77
2	21	1998	52	63	44	46.9	328	4	0	0
2	22	1998	53	61	51	53.8	133	4	0	0.16
2	23	1998	54	65	50	53.6	155	5	0	0.28
2	24	1998	55	60	48	47.5	251	4	0	1.32
2	25	1998	56	62	42	44.7	448	4	0	0
2	26	1998	57	71	46	52.3	392	3	0	0
2	27	1998	58	66	43	47.0	461	4	0	0
2	28	1998	59	71	41	46.3	472	3	0	0
3	1	1998	60	74	43	48.3	478	3	0	0
3	2	1998	61	68	42	49.0	458	3	0	0
3	3	1998	62	65	52	52.9	348	3	0	0
3	4	1998	63	66	49	51.3	448	3	0	0
3	5	1998	64	65	46	48.5	336	4	0	0
3	6	1998	65	59	45	45.4	314	5	0	0.21
3	7	1998	66	65	39	41.1	512	4	0	0
3	8	1998	67	67	41	44.1	504	3	0	0
3	9	1998	68	73	40	46.8	494	3	0	0
3	10	1998	69	80	45	37.5	535	4	0	0
3	11	1998	70	81	45	38.6	536	4	0	0
3	12	1998	71	75	45	47.4	482	3	0	0
3	13	1998	72	66	50	50.5	298	4	0	0
3	14	1998	73	61	48	49.2	253	3	0	0.18

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
3	15	1998	74	71	45	51.8	494	4	0	0
3	16	1998	75	63	56	55.1	127	3	0	0.02
3	17	1998	76	66	54	55.7	251	3	0	0.05
3	18	1998	77	71	53	55.8	474	3	0	0
3	19	1998	78	76	50	53.6	515	4	0	0
3	20	1998	79	70	44	51.7	374	3	0	0
3	21	1998	80	71	50	54.5	477	3	0	0
3	22	1998	81	81	47	55.2	550	3	0	0
3	23	1998	82	82	48	54.4	562	3	0	0
3	24	1998	83	74	44	52.2	567	4	0	0
3	25	1998	84	64	52	54.4	151	3	0	0.57
3	26	1998	85	62	49	51.8	271	5	0	0.64
3	27	1998	86	69	50	56.3	456	3	0	0.09
3	28	1998	87	54	43	44.1	208	7	0	1.22
3	29	1998	88	54	41	41.9	327	4	0	0.69
3	30	1998	89	62	40	43.3	492	4	0	0.01
3	31	1998	90	58	43	44.6	197	4	0	0
4	1	1998	91	55	42	44.0	358	4	0	0.86
4	2	1998	92	65	45	47.7	477	4	0	0
4	3	1998	93	65	44	47.8	504	4	0	0.03
4	4	1998	94	59	42	44.0	286	3	0	0.2
4	5	1998	95	63	42	47.4	432	4	0	0
4	6	1998	96	61	43	46.5	356	4	0	0.06
4	7	1998	97	62	44	47.2	435	4	0	0.02
4	8	1998	98	67	41	47.0	619	4	0	0
4	9	1998	99	70	42	49.0	619	3	0	0
4	10	1998	100	70	43	50.2	623	3	0	0
4	11	1998	101	62	49	49.5	200	5	0	0.01
4	12	1998	102	61	47	46.7	559	5	0	0.89
4	13	1998	103	63	43	45.2	459	4	0	0
4	14	1998	104	61	48	47.3	511	4	0	0.16
4	15	1998	105	60	45	45.3	540	4	0	0.12
4	16	1998	106	66	42	44.9	638	5	0	0
4	17	1998	107	73	42	43.9	656	4	0	0
4	18	1998	108	76	44	45.7	654	3	0	0
4	19	1998	109	80	46	49.4	656	4	0	0
4	20	1998	110	84	49	56.2	651	3	0	0
4	21	1998	111	87	50	58.6	652	3	0	0
4	22	1998	112	76	54	59.6	586	4	0	0
4	23	1998	113	69	56	55.6	534	4	0	0
4	24	1998	114	68	52	52.1	576	4	0	0
4	25	1998	115	66	52	53.4	343	3	0	0
4	26	1998	116	75	46	52.1	630	3	0	0
4	27	1998	117	82	48	52.6	659	3	0	0
4	28	1998	118	84	49	52.3	662	3	0	0
4	29	1998	119	83	49	54.3	659	3	0	0
4	30	1998	120	80	53	60.7	588	4	0	0
5	1	1998	121	72	51	52.9	643	3	0	0
5	2	1998	122	76	49	55.0	606	5	0	0
5	3	1998	123	76	59	58.1	624	4	0	0.01
5	4	1998	124	73	57	58.1	472	4	0	0
5	5	1998	125	68	55	57.3	334	4	0	0.24
5	6	1998	126	70	54	56.4	424	3	0	0.39
5	7	1998	127	69	54	55.0	470	4	0	0
5	8	1998	128	66	54	56.7	213	3	0	0.16
5	9	1998	129	63	56	56.0	193	3	0	0
5	10	1998	130	69	52	53.2	627	4	0	0.03
5	11	1998	131	65	51	51.6	311	4	0	0
5	12	1998	132	63	50	51.0	232	4	0	0.1
5	13	1998	133	63	48	50.5	416	4	0	1.15

OUTPUT PATH = P:\Projects\Poway\Modeling\Weather\Poway\ Mixed ESC/Poway

Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
5	14	1998	134	67	47	50.8	615	4	0	0.11
5	15	1998	135	72	47	52.1	700	4	0	0
5	16	1998	136	71	49	54.4	642	4	0	0
5	17	1998	137	76	48	53.2	723	4	0	0
5	18	1998	138	80	47	52.3	688	4	0	0
5	19	1998	139	74	47	53.6	676	4	0	0
5	20	1998	140	71	54	55.0	584	4	0	0
5	21	1998	141	72	55	55.3	698	4	0	0
5	22	1998	142	72	54	56.0	598	4	0	0
5	23	1998	143	72	53	55.7	588	4	0	0
5	24	1998	144	73	58	59.0	567	4	0	0
5	25	1998	145	68	58	59.1	227	4	0	0.04
5	26	1998	146	65	48	48.5	577	5	0	0.01
5	27	1998	147	71	48	51.4	683	4	0	0
5	28	1998	148	78	55	58.0	581	4	0	0
5	29	1998	149	71	50	55.1	599	4	0	0
5	30	1998	150	75	48	53.4	716	4	0	0
5	31	1998	151	76	50	55.2	683	4	0	0
6	1	1998	152	79	50	55.0	733	4	0	0
6	2	1998	153	75	49	53.8	698	4	0	0
6	3	1998	154	70	57	55.4	508	5	0	0
6	4	1998	155	71	54	56.0	451	3	0	0
6	5	1998	156	74	49	55.5	719	4	0	0
6	6	1998	157	72	58	58.8	352	4	0	0
6	7	1998	158	66	53	52.7	263	3	0	0
6	8	1998	159	70	56	57.9	376	4	0	0.01
6	9	1998	160	71	57	57.8	457	3	0	0
6	10	1998	161	71	59	59.2	284	3	0	0
6	11	1998	162	67	59	59.9	211	4	0	0
6	12	1998	163	67	54	53.8	366	4	0	0
6	13	1998	164	77	52	55.8	704	4	0	0
6	14	1998	165	81	52	58.5	676	4	0	0
6	15	1998	166	80	56	61.2	668	4	0	0
6	16	1998	167	70	57	59.6	271	3	0	0
6	17	1998	168	79	55	58.5	687	4	0	0
6	18	1998	169	83	52	59.7	697	4	0	0
6	19	1998	170	83	59	61.8	662	5	0	0
6	20	1998	171	79	61	59.6	654	4	0	0
6	21	1998	172	85	55	59.2	700	5	0	0
6	22	1998	173	82	49	57.1	686	4	0	0
6	23	1998	174	80	58	59.0	681	4	0	0
6	24	1998	175	80	55	57.6	678	5	0	0
6	25	1998	176	82	57	58.7	656	4	0	0
6	26	1998	177	84	57	62.2	707	4	0	0
6	27	1998	178	86	59	63.7	712	4	0	0
6	28	1998	179	88	59	65.1	669	4	0	0
6	29	1998	180	88	55	61.6	716	4	0	0
6	30	1998	181	87	54	59.9	725	4	0	0
7	1	1998	182	85	58	62.1	715	4	0	0
7	2	1998	183	79	61	62.4	648	5	0	0
7	3	1998	184	77	59	59.9	584	4	0	0
7	4	1998	185	81	58	61.0	662	4	0	0
7	5	1998	186	84	59	62.2	665	4	0	0
7	6	1998	187	93	57	65.0	693	4	0	0
7	7	1998	188	89	64	66.9	680	4	0	0
7	8	1998	189	89	63	64.8	595	4	0	0
7	9	1998	190	90	60	63.2	698	4	0	0
7	10	1998	191	89	60	63.0	693	4	0	0
7	11	1998	192	90	57	62.1	730	4	0	0
7	12	1998	193	88	57	63.3	686	4	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
7	13	1998	194	86	57	62.9	684	4	0	0
7	14	1998	195	92	56	62.6	706	4	0	0
7	15	1998	196	95	53	61.7	724	4	0	0
7	16	1998	197	102	59	65.2	708	4	0	0
7	17	1998	198	103	64	67.3	667	4	0	0
7	18	1998	199	98	66	65.8	582	4	0	0
7	19	1998	200	89	63	66.5	632	5	0	0
7	20	1998	201	88	64	66.2	473	4	0	0
7	21	1998	202	86	62	66.5	507	4	0	0
7	22	1998	203	82	65	65.9	478	4	0	0
7	23	1998	204	80	63	63.9	608	4	0	0
7	24	1998	205	83	64	65.4	606	5	0	0
7	25	1998	206	90	63	67.7	655	4	0	0
7	26	1998	207	97	61	68.0	663	4	0	0
7	27	1998	208	97	63	67.7	682	4	0	0
7	28	1998	209	100	63	69.3	673	4	0	0
7	29	1998	210	86	63	67.0	598	4	0	0
7	30	1998	211	83	63	64.2	581	5	0	0
7	31	1998	212	86	53	58.7	711	4	0	0
8	1	1998	213	92	52	60.2	717	4	0	0
8	2	1998	214	96	55	63.4	670	4	0	0
8	3	1998	215	104	57	61.2	679	4	0	0
8	4	1998	216	97	61	65.9	654	4	0	0
8	5	1998	217	91	61	66.4	632	5	0	0
8	6	1998	218	87	60	65.7	638	4	0	0
8	7	1998	219	92	60	65.6	633	4	0	0
8	8	1998	220	95	58	64.4	661	4	0	0
8	9	1998	221	96	67	70.2	234	3	0	0
8	10	1998	222	91	71	72.8	627	4	0	0
8	11	1998	223	95	67	70.7	626	4	0	0
8	12	1998	224	96	68	70.0	619	4	0	0
8	13	1998	225	99	68	69.4	557	4	0	0
8	14	1998	226	94	65	68.3	627	5	0	0
8	15	1998	227	86	64	67.1	621	5	0	0
8	16	1998	228	84	65	65.9	610	5	0	0
8	17	1998	229	83	63	65.5	570	4	0	0
8	18	1998	230	87	59	61.6	657	5	0	0
8	19	1998	231	86	55	59.5	651	4	0	0
8	20	1998	232	88	56	60.8	641	4	0	0
8	21	1998	233	95	58	61.2	636	4	0	0
8	22	1998	234	96	61	60.0	617	4	0	0
8	23	1998	235	96	65	63.8	608	4	0	0
8	24	1998	236	88	63	66.1	609	4	0	0
8	25	1998	237	89	61	65.5	584	4	0	0
8	26	1998	238	89	63	65.8	608	4	0	0
8	27	1998	239	90	63	62.7	558	4	0	0
8	28	1998	240	98	60	63.0	610	4	0	0
8	29	1998	241	108	67	70.4	541	4	0	0
8	30	1998	242	104	68	66.4	590	4	0	0
8	31	1998	243	103	66	61.4	613	5	0	0
9	1	1998	244	98	72	68.6	550	4	0	0
9	2	1998	245	102	66	70.9	563	4	0	0
9	3	1998	246	99	72	71.9	370	5	0	0.13
9	4	1998	247	75	69	69.3	124	4	0	0
9	5	1998	248	87	69	70.6	512	4	0	0
9	6	1998	249	86	68	67.9	553	4	0	0
9	7	1998	250	85	66	68.1	543	4	0	0
9	8	1998	251	85	64	67.7	472	4	0	0
9	9	1998	252	83	67	66.9	484	4	0	0
9	10	1998	253	86	62	64.4	575	4	0	0

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
9	11	1998	254	84	57	60.5	590	4	0	0
9	12	1998	255	87	49	55.6	600	4	0	0
9	13	1998	256	86	50	58.3	590	4	0	0
9	14	1998	257	84	56	61.5	528	4	0	0
9	15	1998	258	85	60	63.5	502	4	0	0
9	16	1998	259	82	61	63.3	469	4	0	0
9	17	1998	260	86	58	63.8	519	4	0	0
9	18	1998	261	87	50	58.3	579	4	0	0
9	19	1998	262	81	49	57.1	553	4	0	0
9	20	1998	263	78	63	60.7	420	4	0	0
9	21	1998	264	74	61	61.0	329	4	0	0
9	22	1998	265	75	62	59.3	363	4	0	0
9	23	1998	266	74	55	56.9	453	4	0	0
9	24	1998	267	76	56	56.2	503	4	0	0
9	25	1998	268	73	56	56.8	401	3	0	0
9	26	1998	269	67	57	58.8	144	2	0	0
9	27	1998	270	77	54	56.6	481	4	0	0.05
9	28	1998	271	77	51	55.5	524	4	0	0
9	29	1998	272	74	56	56.6	416	4	0	0
9	30	1998	273	74	55	57.9	465	4	0	0
10	1	1998	274	79	62	61.5	465	4	0	0
10	2	1998	275	75	60	61.0	431	5	0	0
10	3	1998	276	73	58	56.7	446	4	0	0
10	4	1998	277	76	50	53.1	496	4	0	0
10	5	1998	278	86	49	50.9	498	5	0	0
10	6	1998	279	93	51	35.8	521	4	0	0
10	7	1998	280	89	49	35.5	500	3	0	0
10	8	1998	281	86	49	43.5	495	3	0	0
10	9	1998	282	82	47	51.7	496	4	0	0
10	10	1998	283	79	50	54.4	481	4	0	0
10	11	1998	284	81	48	55.8	463	3	0	0
10	12	1998	285	79	48	56.5	441	4	0	0
10	13	1998	286	78	52	57.0	368	4	0	0
10	14	1998	287	75	51	56.5	419	4	0	0
10	15	1998	288	70	59	57.0	347	5	0	0
10	16	1998	289	73	52	50.9	444	3	0	0
10	17	1998	290	82	55	26.3	483	6	0	0
10	18	1998	291	84	47	34.1	473	4	0	0
10	19	1998	292	83	44	40.0	457	4	0	0
10	20	1998	293	84	46	49.8	442	4	0	0
10	21	1998	294	78	45	53.0	405	3	0	0
10	22	1998	295	85	47	52.4	433	3	0	0
10	23	1998	296	88	51	56.8	381	3	0	0
10	24	1998	297	85	56	56.7	335	4	0	0
10	25	1998	298	70	55	56.4	330	4	0	0.07
10	26	1998	299	71	53	54.2	312	3	0	0.09
10	27	1998	300	75	52	55.6	378	4	0	0
10	28	1998	301	75	51	55.1	399	4	0	0
10	29	1998	302	71	53	56.8	323	3	0	0
10	30	1998	303	69	50	52.2	289	3	0	0
10	31	1998	304	75	45	50.8	399	3	0	0
11	1	1998	305	76	46	51.2	398	3	0	0
11	2	1998	306	74	45	49.9	397	3	0	0
11	3	1998	307	78	44	50.3	385	3	0	0
11	4	1998	308	80	43	50.0	390	3	0	0
11	5	1998	309	70	43	48.4	368	3	0	0
11	6	1998	310	69	49	51.0	351	4	0	0
11	7	1998	311	70	45	48.6	366	4	0	0
11	8	1998	312	59	54	53.2	73	4	0	0.68
11	9	1998	313	65	47	48.1	367	4	0	0.09

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Month	Day	Year	Cum.Day	Tmax deg F	Tmin deg F	Dew Pnt deg F	Solar Rad Langleys	Avg Ws miles/hr	Cloud cover tenths	Precipitation in.
11	10	1998	314	72	41	39.6	382	3	0	0
11	11	1998	315	63	45	44.2	127	3	0	0.02
11	12	1998	316	71	40	44.3	368	3	0	0
11	13	1998	317	80	45	43.2	372	4	0	0
11	14	1998	318	81	43	43.7	368	3	0	0
11	15	1998	319	77	41	44.9	361	3	0	0
11	16	1998	320	76	40	47.4	348	3	0	0
11	17	1998	321	67	50	52.3	246	3	0	0
11	18	1998	322	69	45	50.3	326	3	0	0
11	19	1998	323	79	40	43.7	293	5	0	0
11	20	1998	324	79	43	30.5	360	3	0	0
11	21	1998	325	80	42	35.9	354	3	0	0
11	22	1998	326	79	43	41.0	345	3	0	0
11	23	1998	327	75	38	46.8	326	3	0	0
11	24	1998	328	70	45	51.3	319	4	0	0
11	25	1998	329	75	46	49.9	272	3	0	0
11	26	1998	330	82	42	47.1	328	3	0	0
11	27	1998	331	67	46	48.9	167	3	0	0
11	28	1998	332	61	52	53.3	128	5	0	0.3
11	29	1998	333	63	46	48.7	205	3	0	0.1
11	30	1998	334	70	43	48.4	322	3	0	0
12	1	1998	335	64	44	49.1	245	3	0	0
12	2	1998	336	62	50	52.1	174	2	0	0.17
12	3	1998	337	66	50	51.9	286	4	0	0
12	4	1998	338	60	47	46.4	282	3	0	0.04
12	5	1998	339	58	43	43.5	292	4	0	0
12	6	1998	340	58	37	37.9	258	5	0	0.36
12	7	1998	341	64	31	31.0	329	3	0	0
12	8	1998	342	64	32	30.0	322	3	0	0
12	9	1998	343	68	33	31.6	332	5	0	0
12	10	1998	344	71	35	22.4	333	4	0	0
12	11	1998	345	71	34	30.4	322	3	0	0
12	12	1998	346	81	34	35.5	325	3	0	0
12	13	1998	347	84	42	37.3	320	4	0	0
12	14	1998	348	61	41	45.6	203	4	0	0
12	15	1998	349	78	40	46.0	310	5	0	0
12	16	1998	350	85	39	44.8	310	5	0	0
12	17	1998	351	83	39	43.6	310	3	0	0
12	18	1998	352	64	43	48.2	251	4	0	0
12	19	1998	353	59	52	53.3	100	3	0	0.07
12	20	1998	354	56	43	43.0	229	4	0	0.1
12	21	1998	355	56	36	36.0	225	3	0	0
12	22	1998	356	60	34	34.0	226	3	0	0
12	23	1998	357	59	40	40.0	249	4	0	0
12	24	1998	358	67	37	37.0	240	4	0	0
12	25	1998	359	74	38	38.0	242	4	0	0
12	26	1998	360	72	42	42.0	249	3	0	0
12	27	1998	361	74	42	42.0	227	3	0	0
12	28	1998	362	77	44	44.0	189	5	0	0
12	29	1998	363	77	45	45.0	192	3	0	0
12	30	1998	364	73	44	44.0	264	3	0	0
12	31	1998	365	71	42	42.0	271	3	0	0

Written by: **R. EL-Sherbiny** Date: **04/18/07** Reviewed by: **B. Gross** Date: **04/18/07**

Client: **County of San Diego** Project: **Poway Landfill** Project/Proposal No.: **SC0233-9** Task No.: **5**

ATTACHMENT B

SOILS DATA

Laboratory Report for GeoSyntec Consultants

(Project # SC0233-09-05)

March 6, 2007

Daniel B. Stephens & Associates, Inc.

6020 Academy NE, Suite 100 • Albuquerque, New Mexico 87109

March 6, 2007

Mr. Christopher Gale
GeoSyntec Consultants
10875 Rancho Bernardo Rd., Suite 200
San Diego, CA 92127
(858) 674-6559

Re: DBS&A Laboratory Report for GeoSyntec Consultants (Project # SC0233-09-05)

Dear Mr. Gale:

Enclosed is the final report for GeoSyntec Consultants (Project # SC0233-09-05). Please review this report and provide any comments as samples will be held for a maximum of 30 days. After 30 days samples will be returned or disposed of in an appropriate manner.
All testing results were evaluated subjectively for consistency and reasonableness, and the results appear to be reasonably representative of the material tested. However, DBS&A does not assume any responsibility for interpretations or analyses based on the data enclosed, nor can we guarantee that these data are fully representative of the undisturbed materials at the field site. We recommend that careful evaluation of these laboratory results be made for your particular application.

The testing utilized to generate the enclosed final report employs methods that are standard for the industry. The results do not constitute a professional opinion by DBS&A, nor can the results affect any professional or expert opinions rendered with respect thereto by DBS&A. You have acknowledged that all the testing undertaken by us, and the final report provided, constitutes mere test results using standardized methods, and cannot be used to disqualify DBS&A from rendering any professional or expert opinion, having waived any claim of conflict of interest by DBS&A.

We are pleased to provide this service to GeoSyntec Consultants and look forward to future laboratory testing on other projects. If you have any questions about the enclosed data, please do not hesitate to call.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.
LABORATORY / TESTING FACILITY

Joleen Hines
Laboratory Supervising Manager

Enclosure

Daniel B. Stephens & Associates, Inc.
6020 Academy NE, Suite 100 505-822-9400
Albuquerque, NM 87109 FAX 505-822-8877

Summaries

Daniel B. Stephens & Associates, Inc.

Summary of Tests Performed

Laboratory Sample Number	Initial Soil Properties[1] (θ, ρ_d, ϕ)	Saturated Hydraulic Conductivity[2]		Moisture Characteristics[3]					Unsaturated Hydraulic Conductivity	Particle Size[4]			Effective Porosity	Particle Density	Air Permeability	1/3, 15 Bar Points and Water Holding Capacity	Atterberg Limits	Proctor Compaction
		CH	FH	HC	PP	TH	WP	RH		DS	WS	H						
P-1	X			X	X		X	X	X		X						X	X
P-2	X			X	X		X	X	X		X						X	X
P-3	X			X	X		X	X	X		X						X	X

[1] θ = Initial moisture content, ρ_d = Dry bulk density, ϕ = Calculated porosity
[2] CH = Constant head, FH = falling head
[3] HC = Hanging column, PP = Pressure plate, TH = Thermocouple psychrometer, WP = Water activity meter, RH = Relative humidity box
[4] DS = Dry sieve, WS = Wet sieve, H = Hydrometer

Summary of Sample Volume Changes

	Received Data	Proctor Data		Remold Values*	Actual Remold Data			*Final* Measured Changed Densities**		
Sample Number	Moisture Content (% g/g)	Optimum Moisture Content (% g/g)	Maximum Dry Bulk Density (g/cm^3)	Target Remold Densities (g/cm^3)	Moisture Content (%, g/g)	Dry Bulk Density (g/cm^3)	% of Maximum Dry Bulk Density (%)	Final Measured Dry Bulk Density (g/cm^3)	Final % Volume Change (%)	Final % of Maximum Dry Bulk Density (%)
P-1	9.2	10.0	2.05	1.85	10.4	1.84	89.8%	----	----	----
P-2	12.5	11.6	1.94	1.75	11.1	1.75	90.2%	1.66	(+) 5.6%	85.6%
P-3	12.9	11.5	1.97	1.77	11.8	1.78	90.4%	1.71	(+) 3.3%	86.8%

*Provided by the client

**Final Measured Changed Densities: Volume change measurements were obtained after saturated hydraulic conductivity testing and throughout unsaturated hydraulic conductivity testing. The reported values are the final sample dimensions.

Note: (+) denotes observed sample swelling, and (-) denotes observed sample settling.

---- = Not Applicable, no volume change occurred.

Summary of Initial Moisture Content, Dry Bulk Density Wet Bulk Density and Calculated Porosity

Sample Number	Moisture Content				Dry Bulk Density (g/cm^3)	Wet Bulk Density (g/cm^3)	Calculated Porosity (%)
	As Received		Remolded				
	Gravimetric (%, g/g)	Volumetric (%, cm^3/cm^3)	Gravimetric (%, g/g)	Volumetric (%, cm^3/cm^3)			
P-1	9.2	NA	10.4	19.1	1.84	2.03	30.7
P-2	12.5	NA	11.1	19.5	1.75	1.95	33.9
P-3	12.9	NA	11.8	20.9	1.78	1.98	33.0

NA = Not analyzed

--- = This sample was not remolded

Summary of Saturated Hydraulic Conductivity Tests

Sample Number	K_{sat} (cm/sec)	K_{sat} Gravel Corrected (cm/sec)	Method of Analysis: Constant Head Flexible Wall	Method of Analysis: Falling Head Flexible Wall
P-1	9.96E-05	7.59E-05		X
P-2	2.12E-07	1.67E-07		X
P-3	7.46E-06	6.87E-06		X

Summary of Calculated Unsaturated Hydraulic Properties

Sample Number	α (cm^{-1})	N (dimensionless)	θ_r (% vol)	θ_s (% vol)	Oversize Corrected θ_r (% vol)	Oversize Corrected θ_s (% vol)
P-1	0.0111	1.2309	0.00	35.55	0.00	29.23
P-2	0.0007	1.2044	0.00	35.19	0.00	29.83
P-3	0.0074	1.1705	0.00	36.03	0.00	34.06

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

NA = Not analyzed

Summary of Moisture Characteristics of the Initial Drainage Curve

Sample Number	Pressure Head (-cm water)	Moisture Content (%, cm^3/cm^3)
P-1	0	35.3
	14	35.1
	32	34.7
	92	29.7
	510	23.9
	8260	13.2
	851293	3.1
P-2	0	35.9
	54	35.9
	510	31.5
	2244	29.7
	5303	26.0
	13053	23.3
	851293	8.8
P-3	0	36.1
	54	35.0
	102	32.8
	217	30.7
	510	28.0
	18152	16.9
	851293	6.9

Summary of Particle Size Characteristics

Sample Number	d_{10} (mm)	d_{50} (mm)	d_{60} (mm)	C_u	C_c	Method	ASTM Classification	USDA Classification	
P-1	0.024	0.49	0.94	39	1.00	WS	Silty sand with gravel (SM)g	Loamy Sand †	(Est)
P-2	0.0050	0.33	0.59	118	1.3	WS	Clayey sand with gravel (SC)g	Sandy Loam †	(Est)
P-3	0.018	0.31	0.42	23	1.9	WS	Clayey sand (SC)	Loamy Sand	(Est)

d_{50} = Median particle diameter

Est = Reported values for d_{10}, C_u, C_c, and soil classification are estimates, since extrapolation was required to obtain the d_{10} diameter

$$C_u = \frac{d_{60}}{d_{10}}$$

$$C_c = \frac{(d_{30})^2}{(d_{10})(d_{60})}$$

DS = Dry sieve

H = Hydrometer

WS = Wet sieve

† Greater than 10% of sample is coarse material

Summary of Atterberg Tests

Sample Number	Liquid Limit	Plastic Limit	Plasticity Index	Classification
P-1	---	---	---	ML
P-2	38	22	16	CL
P-3	38	22	16	CL

--- = Soil requires visual-manual classification due to non-plasticity

Summary of Proctor Compaction Tests

Sample Number	Measured: Optimum Moisture Content (% g/g)	Measured: Maximum Dry Bulk Density (g/cm^3)	Oversize Corrected: Optimum Moisture Content (% g/g)	Oversize Corrected: Maximum Dry Bulk Density (g/cm^3)
P-1	10.0	2.05	7.6	2.16
P-2	11.6	1.94	9.1	2.06
P-3	11.5	1.97	10.6	2.01

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

NA = Not analyzed

Laboratory Data and Graphical Plots

Initial Properties

Summary of Initial Moisture Content, Dry Bulk Density Wet Bulk Density and Calculated Porosity

Sample Number	Moisture Content				Dry Bulk Density (g/cm^3)	Wet Bulk Density (g/cm^3)	Calculated Porosity (%)
	As Received		Remolded				
	Gravimetric (%, g/g)	Volumetric (%, cm^3/cm^3)	Gravimetric (%, g/g)	Volumetric (%, cm^3/cm^3)			
P-1	9.2	NA	10.4	19.1	1.84	2.03	30.7
P-2	12.5	NA	11.1	19.5	1.75	1.95	33.9
P-3	12.9	NA	11.8	20.9	1.78	1.98	33.0

NA = Not analyzed

--- = This sample was not remolded

Daniel B. Stephens & Associates, Inc.

Data for Initial Moisture Content, Bulk Density, Porosity, and Percent Saturation

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-1
Date/Time Sampled: 1/3/07 1010
GeoSyntec Project #: SC0233-09-05

	As Received	Remolded
Test Date:	11-Jan-07	17-Jan-07
Field weight of sample* (g):	811.80	862.06
Tare weight, ring (g):	0.00	223.91
Tare weight, pan/plate (g):	213.39	0.00
Tare weight, other (g):	0.00	0.00
Dry weight of sample (g):	547.79	578.21
Sample volume (cm^3):	NA	314.64
Assumed particle density (g/cm^3):	2.65	2.65
Gravimetric Moisture Content (% g/g):	9.2	10.4
Volumetric Moisture Content (% vol):	NA	19.1
Dry bulk density (g/cm^3):	NA	1.84
Wet bulk density (g/cm^3):	NA	2.03
Calculated Porosity (% vol):	NA	30.7
Percent Saturation:	NA	62.1

Laboratory analysis by:	T. Bowekaty	T. Bowekaty
Data entered by:	T. Bowekaty	J. Hines
Checked by:	J. Hines	J. Hines

Comments:

* Weight including tares
NA = Not analyzed
--- = This sample was not remolded

Daniel B. Stephens & Associates, Inc.

Data for Initial Moisture Content, Bulk Density, Porosity, and Percent Saturation

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-2
Date/Time Sampled: 1/3/07 0922
GeoSyntec Project #: SC0233-09-05

	As Received	Remolded
Test Date:	11-Jan-07	17-Jan-07
Field weight of sample* (g):	811.29	839.35
Tare weight, ring (g):	0.00	221.82
Tare weight, pan/plate (g):	207.97	0.00
Tare weight, other (g):	0.00	0.00
Dry weight of sample (g):	536.23	555.63
Sample volume (cm^3):	NA	317.09
Assumed particle density (g/cm^3):	2.65	2.65
Gravimetric Moisture Content (% g/g):	12.5	11.1
Volumetric Moisture Content (% vol):	NA	19.5
Dry bulk density (g/cm^3):	NA	1.75
Wet bulk density (g/cm^3):	NA	1.95
Calculated Porosity (% vol):	NA	33.9
Percent Saturation:	NA	57.6

Laboratory analysis by:	T. Bowekaty	T. Bowekaty
Data entered by:	T. Bowekaty	J. Hines
Checked by:	J. Hines	J. Hines

Comments:

* Weight including tares
NA = Not analyzed
--- = This sample was not remolded

Daniel B. Stephens & Associates, Inc.

Data for Initial Moisture Content, Bulk Density, Porosity, and Percent Saturation

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-3
Date/Time Sampled: 1/3/07 0840
GeoSyntec Project #: SC0233-09-05

	As Received	Remolded
Test Date:	11-Jan-07	17-Jan-07
Field weight of sample* (g):	894.06	845.79
Tare weight, ring (g):	0.00	221.25
Tare weight, pan/plate (g):	265.78	0.00
Tare weight, other (g):	0.00	0.00
Dry weight of sample (g):	556.32	558.86
Sample volume (cm^3):	NA	314.80
Assumed particle density (g/cm^3):	2.65	2.65
Gravimetric Moisture Content (% g/g):	12.9	11.8
Volumetric Moisture Content (% vol):	NA	20.9
Dry bulk density (g/cm^3):	NA	1.78
Wet bulk density (g/cm^3):	NA	1.98
Calculated Porosity (% vol):	NA	33.0
Percent Saturation:	NA	63.2

Laboratory analysis by:	T. Bowekaty	T. Bowekaty
Data entered by:	T. Bowekaty	J. Hines
Checked by:	J. Hines	J. Hines

Comments:

* Weight including tares
NA = Not analyzed
--- = This sample was not remolded

Saturated Hydraulic Conductivity

Summary of Saturated Hydraulic Conductivity Tests

Sample Number	K_{sat} (cm/sec)	K_{sat} Gravel Corrected (cm/sec)	Method of Analysis: Constant Head Flexible Wall	Method of Analysis: Falling Head Flexible Wall
P-1	9.96E-05	7.59E-05		X
P-2	2.12E-07	1.67E-07		X
P-3	7.46E-06	6.87E-06		X

Daniel B. Stephens & Associates, Inc.

Saturated Hydraulic Conductivity
Flexible Wall Falling Head-Rising Tail Method

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-1
Date/Time Sampled: 1/3/07 1010
GeoSyntec Project #: SC0233-09-05

Remolded or Initial Sample Properties

Initial Mass (g):	638.02
Diameter (cm):	7.267
Length (cm):	7.586
Area (cm^2):	41.48
Volume (cm^3):	314.64
Dry Density (g/cm^3):	1.84
Dry Density (pcf):	114.92
Water Content (%, g/g):	10.2
Water Content (%, vol):	18.7
Porosity (%, vol):	30.5
Saturation (%):	61.2

Final (Post Test) Sample Properties

Saturated Mass (g):	692.97
Dry Mass (g):	579.18
Diameter (cm):	7.267
Length (cm):	7.586
Area (cm^2):	41.48
Volume (cm^3):	314.64
Dry Density (g/cm^3):	1.84
Dry Density (pcf):	114.92
Water Content (%, g/g):	19.6
Water Content (%, vol):	36.2
Porosity (%, vol):	30.5
Saturation (%):*	118.4

Test and Sample Conditions

Permeant liquid used: Water
Sample Preparation: ☐ In situ sample, extruded ☑ Remolded Sample
Number of Lifts: 3
Split: # 4 Sieve
Percent Coarse Material (%): See Sieve
Particle Density(g/cm^3): 2.65 ☑ Assumed ☐ Measured
Cell pressure (PSI): 35.0
Influent pressure (PSI): 33.0
Effluent pressure (PSI): 33.0
Panel Used: ☐ A ☑ B ☐ C
Reading: ☑ Annulus ☐ Pipette
B-Value (% saturation) prior to test*: 0.98
Date/Time: 1/24/07 905

* Per ASTM D5084 percent saturation is ensured (B-Value ≥ 95%) prior to testing, as post test saturation values may be exaggerated or skewed during depressurizing and sample removal.

Laboratory analysis by: D. O'Dowd
Data entered by: D. O'Dowd
Checked by: J. Hines

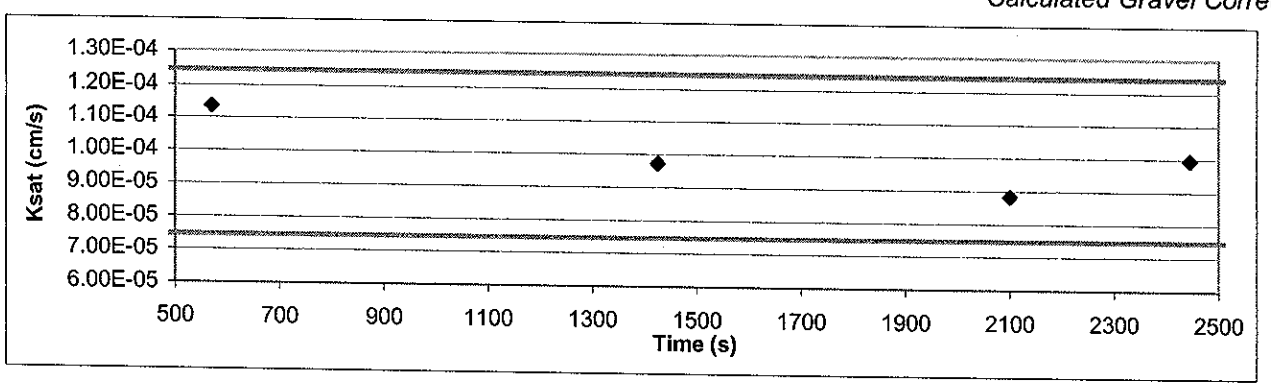
Daniel B. Stephens & Associates, Inc.

Saturated Hydraulic Conductivity
Flexible Wall Falling Head-Rising Tail Method

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-1
Date/Time Sampled: 1/3/07 1010
GeoSyntec Project #: SC0233-09-05

Date	Time	Temp (°C)	Influent Pipette Reading	Effluent Pipette Reading	Gradient (ΔH/ΔL)	Average Flow (cm^3)	Elapsed Time (s)	Ratio (outflow to inflow)	Change in Head (Not to exceed 25%)	k_{sat} T°C (cm/s)	k_{sat} Corrected (cm/s)
Test # 1:											
24-Jan-07	09:07:30	21.4	9.20	17.80	1.31	2.86	570	1.00	17%	1.17E-04	1.13E-04
24-Jan-07	09:17:00	21.4	9.95	17.05	1.08						
Test # 2:											
24-Jan-07	09:17:00	21.4	9.95	17.05	1.08	2.95	855	0.94	22%	1.00E-04	9.71E-05
24-Jan-07	09:31:15	21.4	10.75	16.30	0.84						
Test # 3:											
24-Jan-07	09:31:15	21.4	10.75	16.30	0.84	1.72	675	1.00	16%	9.14E-05	8.84E-05
24-Jan-07	09:42:30	21.4	11.20	15.85	0.71						
Test # 4:											
24-Jan-07	09:42:30	21.4	11.20	15.85	0.71	0.86	345	1.25	10%	1.03E-04	9.95E-05
24-Jan-07	09:48:15	21.4	11.40	15.60	0.64						

***Average Ksat* (cm/sec):** **9.96E-05**
Calculated Gravel Corrected Average Ksat (cm/sec): 7.69E-05



ASTM Required Range (+/- 25%)

Ksat (-25%) (cm/s): 7.47E-05

Ksat (+25%) (cm/s): 1.24E-04

Daniel B. Stephens & Associates, Inc.

Saturated Hydraulic Conductivity
Flexible Wall Falling Head-Rising Tail Method

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-2
Date/Time Sampled: 1/3/07 0922
GeoSyntec Project #: SC0233-09-05

Remolded or Initial Sample Properties	
Initial Mass (g):	617.23
Diameter (cm):	7.288
Length (cm):	7.601
Area (cm^2):	41.72
Volume (cm^3):	317.09
Dry Density (g/cm^3):	1.73
Dry Density (pcf):	108.22
Water Content (%, g/g):	12.3
Water Content (%, vol):	21.3
Porosity (%, vol):	34.6
Saturation (%):	61.6

Final (Post Test) Sample Properties	
Saturated Mass (g):	675.14
Dry Mass (g):	549.66
Diameter (cm):	7.288
Length (cm):	7.601
Area (cm^2):	41.72
Volume (cm^3):	317.09
Dry Density (g/cm^3):	1.73
Dry Density (pcf):	108.22
Water Content (%, g/g):	22.8
Water Content (%, vol):	39.6
Porosity (%, vol):	34.6
Saturation (%):*	114.4

Test and Sample Conditions	
Permeant liquid used:	Water
Sample Preparation:	☐ In situ sample, extruded ☑ Remolded Sample
Number of Lifts:	3
Split:	# 4 Sieve
Percent Coarse Material (%):	See Sieve
Particle Density(g/cm^3):	2.65 ☑ Assumed ☐ Measured
Cell pressure (PSI):	36.0
Influent pressure (PSI):	34.0
Effluent pressure (PSI):	33.0
Panel Used:	☐ A ☐ B ☑ C
Reading:	☐ Annulus ☑ Pipette
B-Value (% saturation) prior to test*:	1.00
Date/Time:	1/25/07 1350

* Per ASTM D5084 percent saturation is ensured (B-Value ≥ 95%) prior to testing, as post test saturation values may be exaggerated or skewed during depressurizing and sample removal.

Laboratory analysis by: D. O'Dowd
Data entered by: D. O'Dowd
Checked by: J. Hines

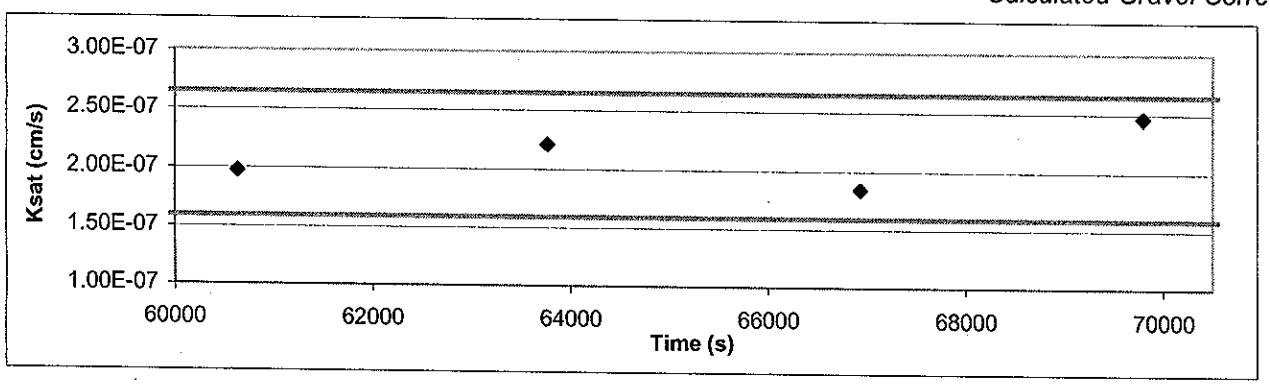
Daniel B. Stephens & Associates, Inc.

Saturated Hydraulic Conductivity
Flexible Wall Falling Head-Rising Tail Method

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-2
Date/Time Sampled: 1/3/07 0922
GeoSyntec Project #: SC0233-09-05

Date	Time	Temp (°C)	Influent Pipette Reading	Effluent Pipette Reading	Gradient (ΔH/ΔL)	Average Flow (cm^3)	Elapsed Time (s)	Ratio (outflow to inflow)	Change in Head (Not to exceed 25%)	k_{sat} T°C (cm/s)	k_{sat} Corrected (cm/s)
Test # 1:											
25-Jan-07	14:59:15	22.1	3.50	19.60	11.70	4.89	60630	0.85	15%	2.06E-07	1.97E-07
26-Jan-07	07:49:45	21.8	9.60	14.40	9.98						
Test # 2:											
26-Jan-07	07:49:45	21.8	9.60	14.40	9.98	0.26	3135	1.00	1%	2.31E-07	2.21E-07
26-Jan-07	08:42:00	21.8	9.90	14.10	9.89						
Test # 3:											
26-Jan-07	08:42:00	21.8	9.90	14.10	9.89	0.22	3165	1.00	1%	1.92E-07	1.84E-07
26-Jan-07	09:34:45	21.8	10.15	13.85	9.82						
Test # 4:											
26-Jan-07	09:34:45	21.8	10.15	13.85	9.82	0.26	2865	1.00	1%	2.57E-07	2.46E-07
26-Jan-07	10:22:30	21.8	10.45	13.55	9.72						

***Average Ksat* (cm/sec):** **2.12E-07**
Calculated Gravel Corrected Average Ksat (cm/sec): 1.67E-07



ASTM Required Range (+/- 25%)

Ksat (-25%) (cm/s): 1.59E-07

Ksat (+25%) (cm/s): 2.65E-07

Daniel B. Stephens & Associates, Inc.

Saturated Hydraulic Conductivity
Flexible Wall Falling Head-Rising Tail Method

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-3
Date/Time Sampled: 1/3/07 0840
GeoSyntec Project #: SC0233-09-05

Remolded or Initial Sample Properties

Initial Mass (g):	620.9
Diameter (cm):	7.265
Length (cm):	7.594
Area (cm^2):	41.45
Volume (cm^3):	314.80
Dry Density (g/cm^3):	1.76
Dry Density (pcf):	109.86
Water Content (%, g/g):	12.1
Water Content (%, vol):	21.3
Porosity (%, vol):	33.6
Saturation (%):	63.3

Final (Post Test) Sample Properties

Saturated Mass (g):	693.9
Dry Mass (g):	553.97
Diameter (cm):	7.265
Length (cm):	7.594
Area (cm^2):	41.45
Volume (cm^3):	314.80
Dry Density (g/cm^3):	1.76
Dry Density (pcf):	109.86
Water Content (%, g/g):	25.3
Water Content (%, vol):	44.5
Porosity (%, vol):	33.6
Saturation (%):*	132.3

Test and Sample Conditions

Permeant liquid used: Water
Sample Preparation: ☐ In situ sample, extruded ☑ Remolded Sample
Number of Lifts: 3
Split: # 4 Sieve
Percent Coarse Material (%): See Sieve
Particle Density(g/cm^3): 2.65 ☑ Assumed ☐ Measured
Cell pressure (PSI): 35.0
Influent pressure (PSI): 33.0
Effluent pressure (PSI): 33.0
Panel Used: ☑ D ☐ E ☐ F
Reading: ☐ Annulus ☑ Pipette
B-Value (% saturation) prior to test*: 0.95
Date/Time: 1/24/04 1000

* Per ASTM D5084 percent saturation is ensured (B-Value ≥ 95%) prior to testing, as post test saturation values may be exaggerated or skewed during depressurizing and sample removal.

Laboratory analysis by: D. O'Dowd
Data entered by: D. O'Dowd
Checked by: J. Hines

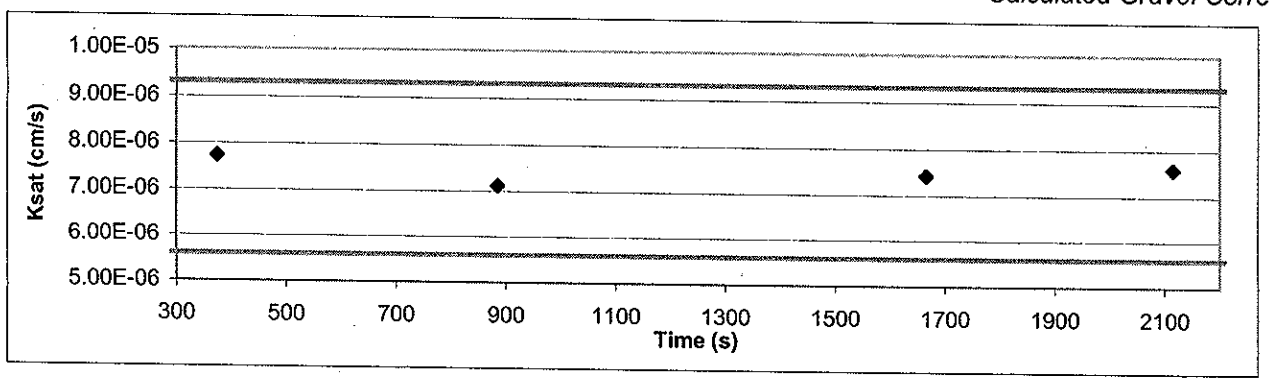
Daniel B. Stephens & Associates, Inc.

Saturated Hydraulic Conductivity
Flexible Wall Falling Head-Rising Tail Method

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-3
Date/Time Sampled: 1/3/07 0840
GeoSyntec Project #: SC0233-09-05

Date	Time	Temp (°C)	Influent Pipette Reading	Effluent Pipette Reading	Gradient (ΔH/ΔL)	Average Flow (cm^3)	Elapsed Time (s)	Ratio (outflow to inflow)	Change in Head (Not to exceed 25%)	k_{sat} T°C (cm/s)	k_{sat} Corrected (cm/s)
Test # 1:											
24-Jan-07	10:10:15	21.5	4.75	18.25	2.05	0.22	375	1.00	4%	8.01E-06	7.73E-06
24-Jan-07	10:16:30	21.5	5.00	18.00	1.98						
Test # 2:											
24-Jan-07	10:16:30	21.5	5.00	18.00	1.98	0.26	510	1.00	5%	7.37E-06	7.11E-06
24-Jan-07	10:25:00	21.5	5.30	17.70	1.89						
Test # 3:											
24-Jan-07	10:25:00	21.5	5.30	17.70	1.89	0.39	780	1.00	7%	7.69E-06	7.42E-06
24-Jan-07	10:38:00	21.5	5.75	17.25	1.75						
Test # 4:											
24-Jan-07	10:38:00	21.5	5.75	17.25	1.75	0.22	450	1.00	4%	7.86E-06	7.59E-06
24-Jan-07	10:45:30	21.5	6.00	17.00	1.67						

***Average Ksat* (cm/sec):** **7.46E-06**
Calculated Gravel Corrected Average Ksat (cm/sec): 6.87E-06



ASTM Required Range (+/- 25%)

Ksat (-25%) (cm/s): 5.60E-06

Ksat (+25%) (cm/s): 9.33E-06

Moisture Retention Characteristics

Summary of Calculated Unsaturated Hydraulic Properties

Sample Number	α (cm^{-1})	N (dimensionless)	θ_r (% vol)	θ_s (% vol)	Oversize Corrected θ_r (% vol)	Oversize Corrected θ_s (% vol)
P-1	0.0111	1.2309	0.00	35.55	0.00	29.23
P-2	0.0007	1.2044	0.00	35.19	0.00	29.83
P-3	0.0074	1.1705	0.00	36.03	0.00	34.06

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

NA = Not analyzed

Summary of Moisture Characteristics of the Initial Drainage Curve

Sample Number	Pressure Head (-cm water)	Moisture Content (%, cm^3/cm^3)
P-1	0	35.3
	14	35.1
	32	34.7
	92	29.7
	510	23.9
	8260	13.2
	851293	3.1
P-2	0	35.9
	54	35.9
	510	31.5
	2244	29.7
	5303	26.0
	13053	23.3
	851293	8.8
P-3	0	36.1
	54	35.0
	102	32.8
	217	30.7
	510	28.0
	18152	16.9
	851293	6.9

Daniel B. Stephens & Associates, Inc.

Moisture Retention Data

Hanging Column/Pressure Plate/Thermocouple

(Main Drainage Curve)

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-1
Date/Time Sampled: 1/3/07 1010
GeoSyntec Project #: SC0233-09-05

Dry wt. of sample (g): 578.21
Tare wt., ring (g): 223.91
Tare wt., screen & clamp (g): 27.38
Sample volume (cm^3): 314.64

Saturated weight at 0 cm tension* (g): 940.70
Volume of water[1] in saturated sample (cm^3): 111.20
Saturated moisture content (% vol): 35.34
Sample bulk density (g/cm^3): 1.84

	Date/Time	Weight* (g)	Matric Potential (-cm water)	Moisture Content[1] (% vol)
Hanging column:	26-Jan-07 / 13:20	940.70	0.00	35.34
	02-Feb-07 / 14:00	940.00	13.90	35.12
	08-Feb-07 / 08:15	938.80	32.00	34.74
	15-Feb-07 / 08:55	923.00	91.50	29.72
Pressure plate:	22-Feb-07 / 11:00	904.70	509.90	23.90

Comments:

* Weight including tares
[1] Assumed density of water is 1.0 g/cm^3

Laboratory analysis by: T. Bowekaty/D. O'Dowd
Data entered by: D. O'Dowd/J. Hines
Checked by: J. Hines

Daniel B. Stephens & Associates, Inc.

Moisture Retention Data

Water Activity Meter/Relative Humidity Box

(Main Drainage Curve)

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-1
Date/Time Sampled: 1/3/07 1010
GeoSyntec Project #: SC0233-09-05

Dry weight of water activity meter sample* (g): 157.20
Tare weight, jar (g): 115.96
Sample bulk density (g/cm^3): 1.84

	Date/Time	Weight* (g)	Matric Potential (-cm water)	Moisture Content† (% vol)
Water Activity Meter:	23-Jan-07 / 12:40	160.17	8260.4	13.23

Dry weight of relative humidity box sample* (g): 92.76
Tare weight (g): 41.72
Sample bulk density (g/cm^3): 1.84

	Date/Time	Weight* (g)	Matric Potential (-cm water)	Moisture Content† (% vol)
Relative humidity box:	24-Jan-07 / 10:30	93.62	851293	3.09

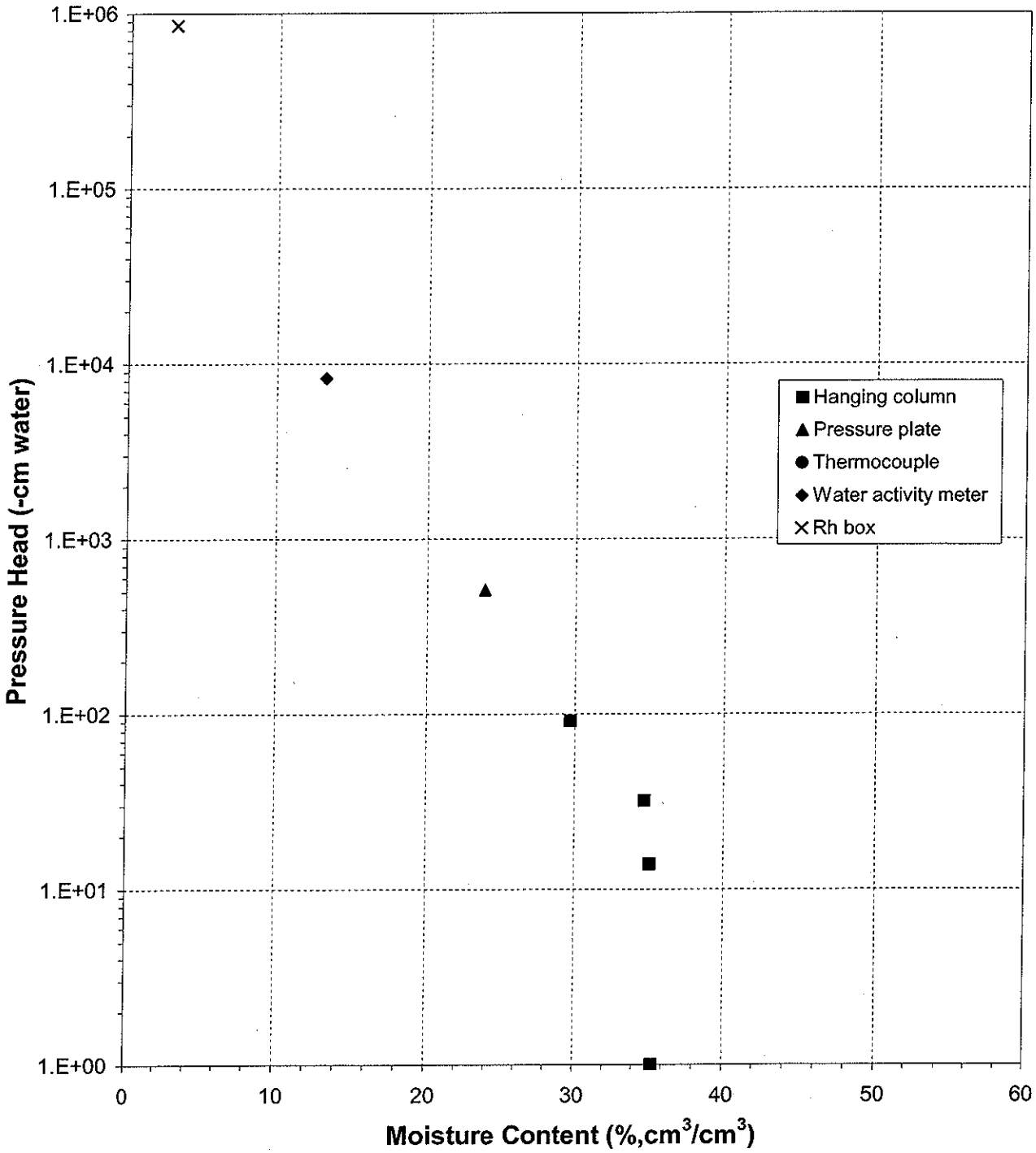
Comments:

* Weight including tares
† Assumed density of water is 1.0 g/cm^3

Laboratory analysis by: C. Krous/T. Bowekaty
Data entered by: D. O'Dowd/J. Hines
Checked by: J. Hines

Water Retention Data Points

Sample Number: P-1



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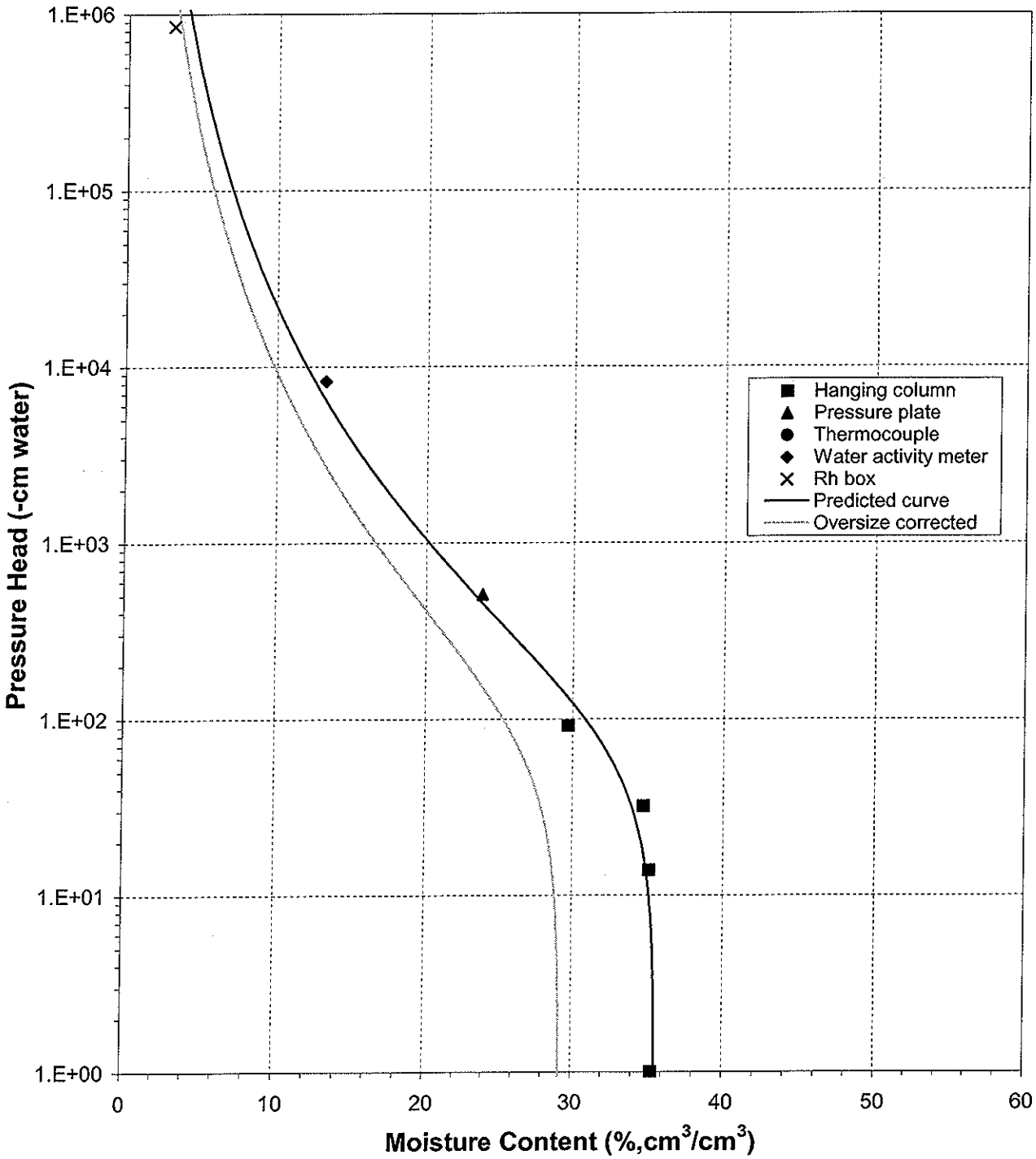
Predicted Water Retention Curve and Data Points

Sample Number: P-1



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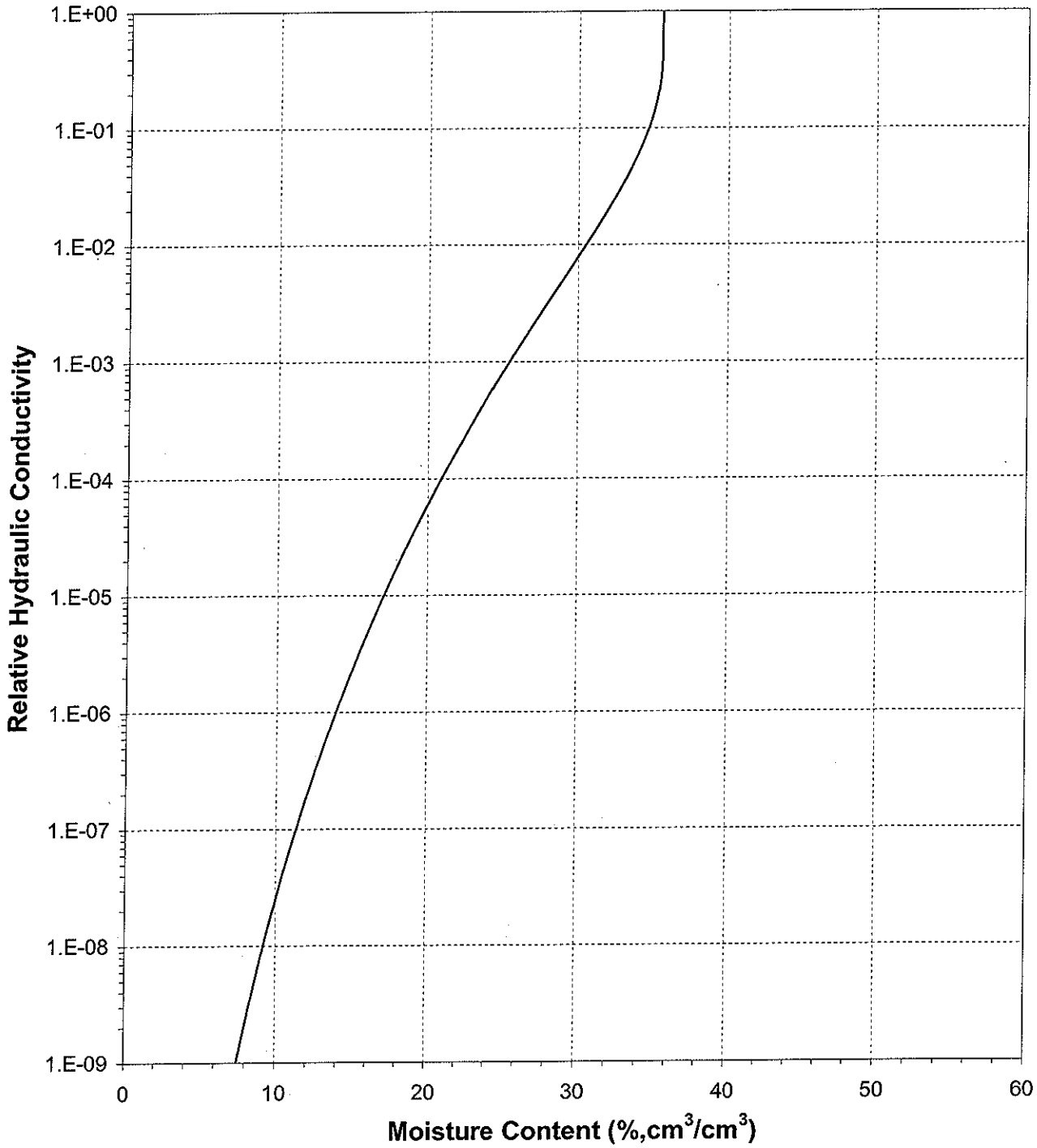
Plot of Relative Hydraulic Conductivity vs Moisture Content

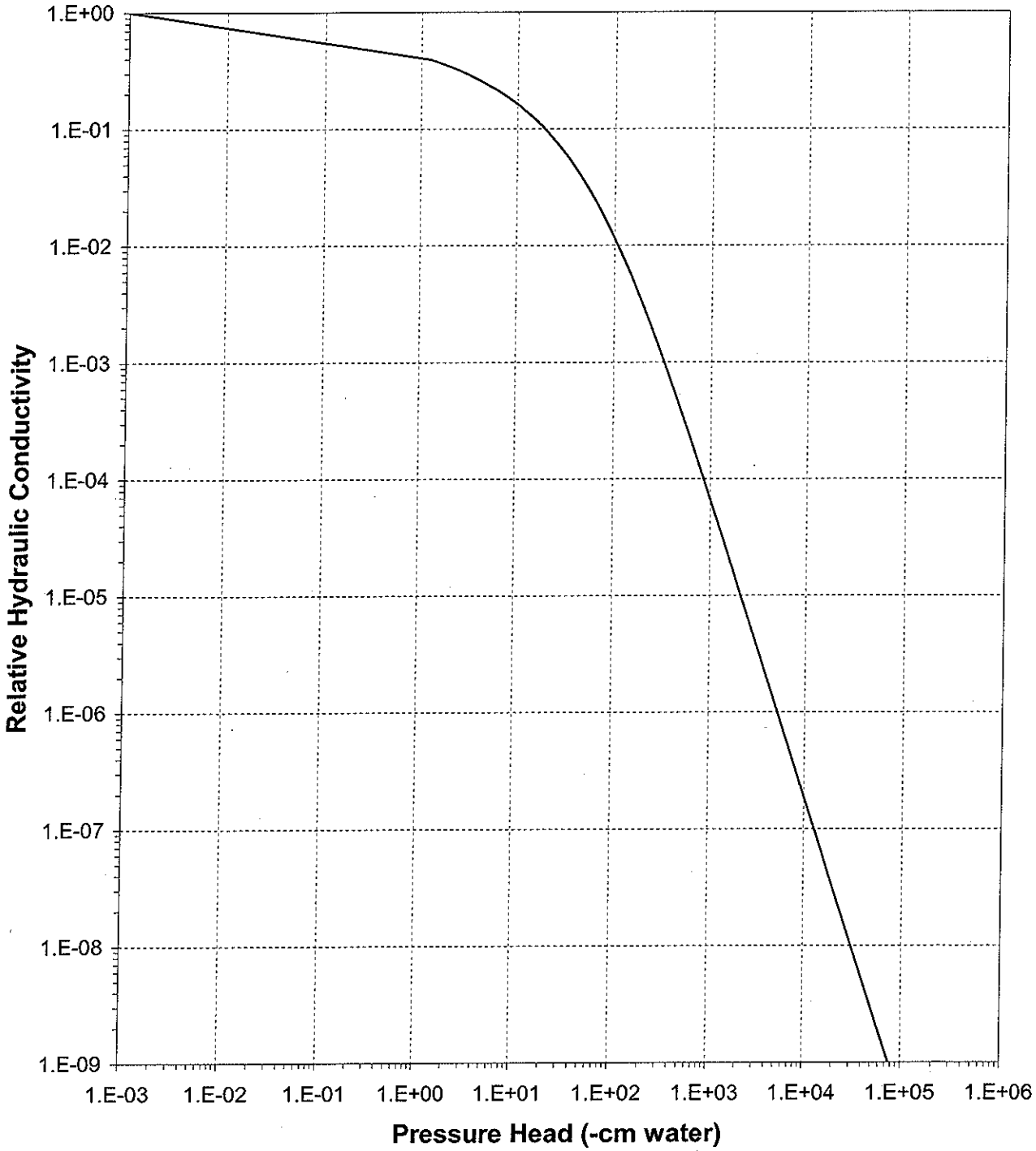
Sample Number: P-1



Daniel B. Stephens & Associates, Inc.

Plot of Relative Hydraulic Conductivity vs Pressure Head

Sample Number: P-1



Daniel B. Stephens & Associates, Inc.

Oversize Correction Data Sheet

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-1
Date/Time Sampled: 1/3/07 1010
GeoSyntec Project #: SC0233-09-05

Split (3/4", 3/8", #4): #4
Calculated Porosity of Fines (% vol): 30.7

	Coarse Fraction	Fines Fraction	Composite
Subsample Mass (g):	1037.82	3328.18	4366.00
Bulk Density (g/cm^3):	2.65	1.84	1.98
Volume of Solids (cm^3):	391.63	1255.92	1647.55
Volume of Voids (cm^3):	0.00	555.15	555.15
Total Volume (cm^3):	391.63	1811.07	2202.70
Volumetric Fraction (%):	17.78	82.22	100.00
Initial Moisture Content (% vol):	0.00	19.05	15.66
Saturated Moisture Content (% vol):	0.00	35.55	29.23
Residual Moisture Content (% vol):	0.00	0.00	0.00
Ksat (cm/sec):	NA	1.0E-04	7.6E-05

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NA = Not analyzed

Laboratory analysis by: T. Bowekaty/D. O'Dowd
Data entered by: D. O'Dowd/J. Hines
Checked by: J. Hines

Daniel B. Stephens & Associates, Inc.

Moisture Retention Data

Hanging Column/Pressure Plate/Thermocouple

(Main Drainage Curve)

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-2
Date/Time Sampled: 1/3/07 0922
GeoSyntec Project #: SC0233-09-05

Dry wt. of sample (g): 555.63
Tare wt., ring (g): 221.82
Tare wt., screen & clamp (g): 28.49
Sample volume (cm^3): 317.09

Saturated weight at 0 cm tension* (g): 919.90
Volume of water[1] in saturated sample (cm^3): 113.96
Saturated moisture content (% vol): 35.94
Sample bulk density (g/cm^3): 1.75

	Date/Time	Weight* (g)	Matric Potential (-cm water)	Moisture Content[1] (% vol)
Hanging column:	26-Jan-07 / 13:05	919.90	0.00	35.94
	01-Feb-07 / 08:30	919.90	53.50	35.94
Pressure plate:	13-Feb-07 / 12:20	905.80	509.90	31.49
	26-Feb-07 / 15:50	900.10	2243.56	29.70

Comments:

* Weight including tares
[1] Assumed density of water is 1.0 g/cm^3

Laboratory analysis by: T. Bowekaty/D. O'Dowd
Data entered by: D. O'Dowd/J. Hines
Checked by: J. Hines

Daniel B. Stephens & Associates, Inc.

Moisture Retention Data

Water Activity Meter/Relative Humidity Box

(Main Drainage Curve)

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-2
Date/Time Sampled: 1/3/07 0922
GeoSyntec Project #: SC0233-09-05

Dry weight of water activity meter sample* (g): 139.11
Tare weight, jar (g): 112.74
Sample bulk density (g/cm°): 1.75

	Date/Time	Weight* (g)	Matric Potential (-cm water)	Moisture Content† (% vol)
Water Activity Meter:	23-Jan-07 / 14:53	143.02	5303.0	25.98
	22-Jan-07 / 17:01	142.62	13053.4	23.32

Dry weight of relative humidity box sample* (g): 79.34
Tare weight (g): 36.64
Sample bulk density (g/cm^3): 1.75

	Date/Time	Weight* (g)	Matric Potential (-cm water)	Moisture Content† (% vol)
Relative humidity box:	24-Jan-07 / 10:30	81.47	851293	8.75

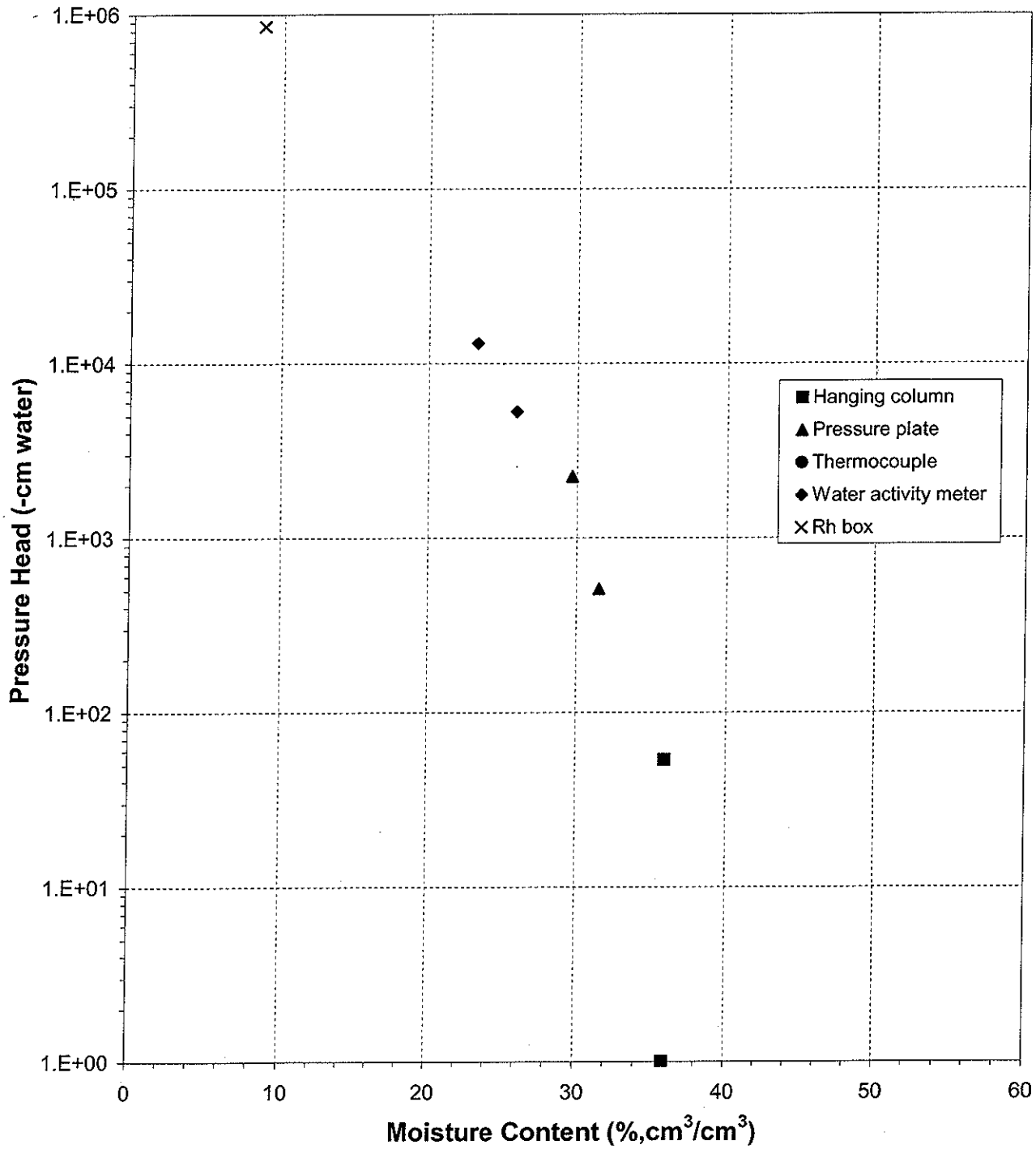
Comments:

* Weight including tares
† Assumed density of water is 1.0 g/cm^3

Laboratory analysis by: C. Krous/T. Bowekaty
Data entered by: D. O'Dowd/J. Hines
Checked by: J. Hines

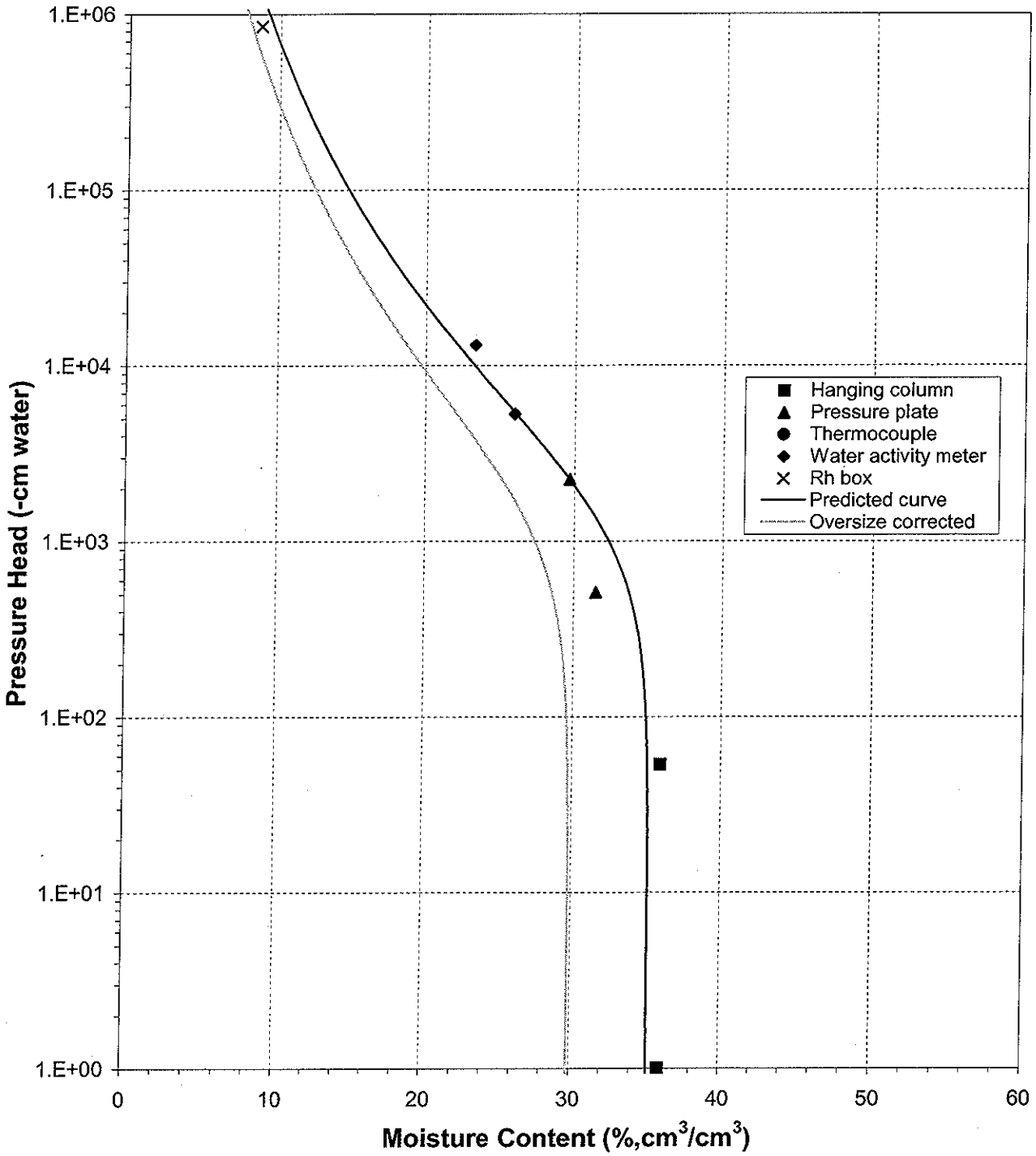
Water Retention Data Points

Sample Number: P-2



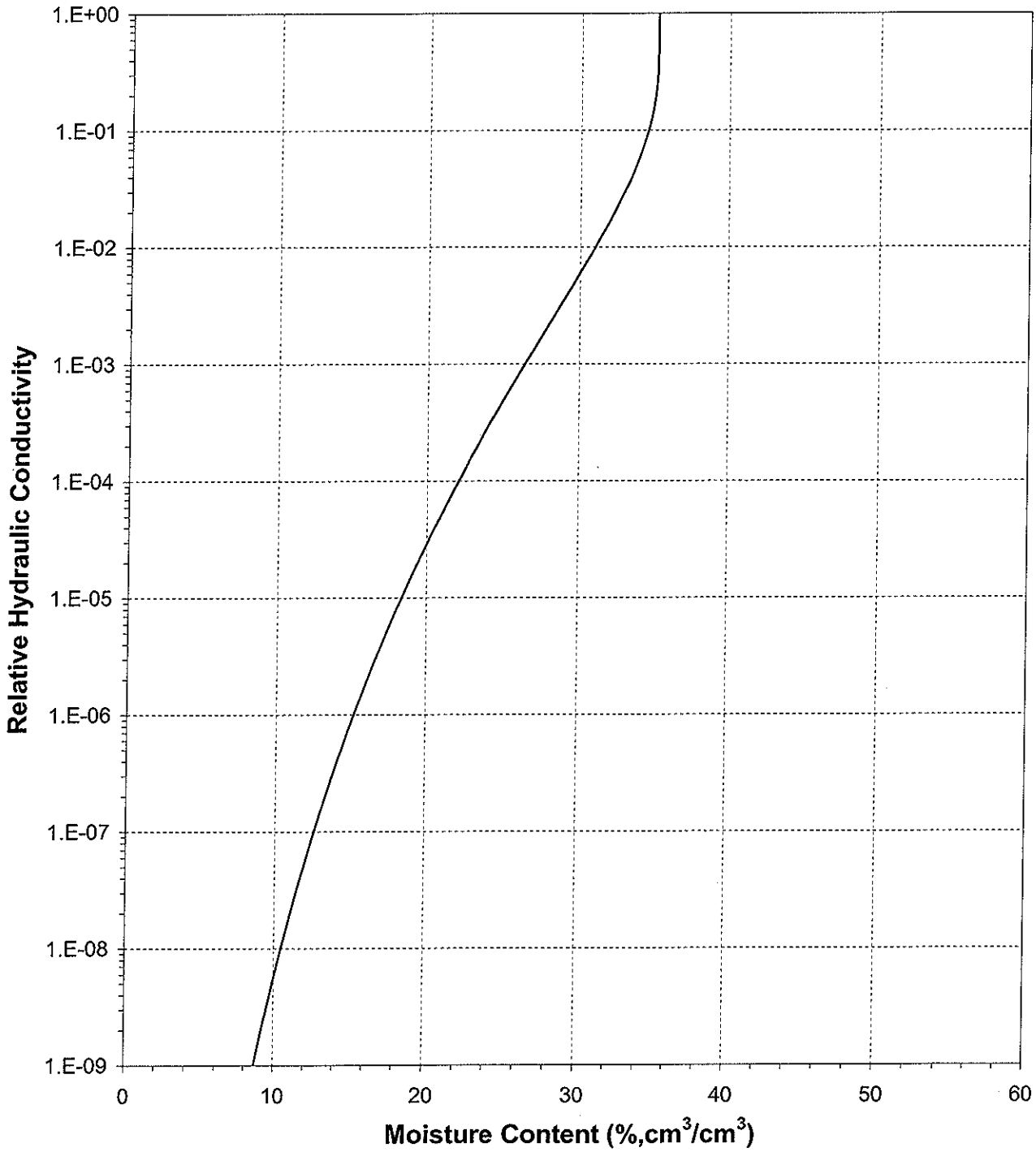
Predicted Water Retention Curve and Data Points

Sample Number: P-2



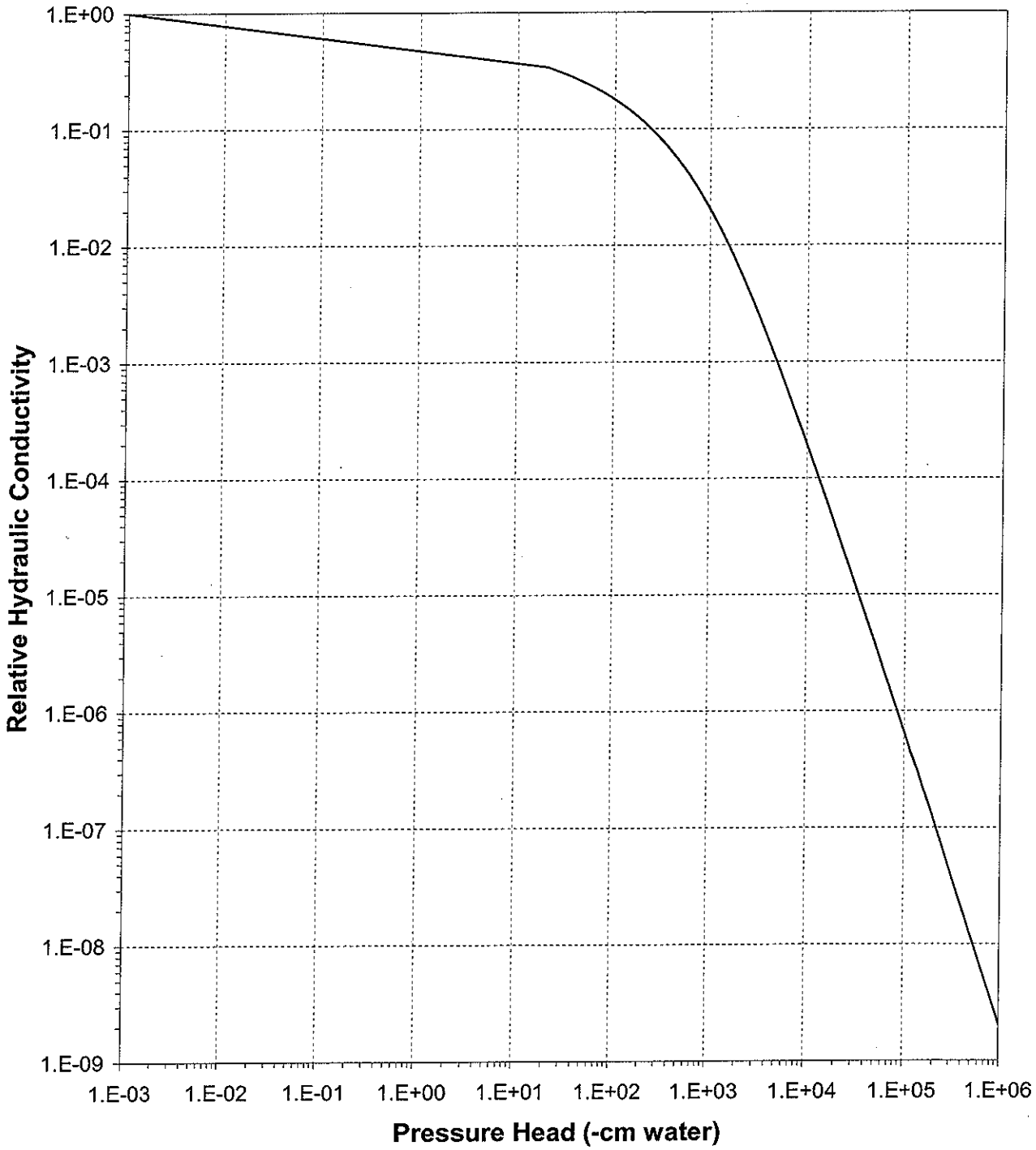
Plot of Relative Hydraulic Conductivity vs Moisture Content

Sample Number: P-2



Plot of Relative Hydraulic Conductivity vs Pressure Head

Sample Number: P-2



Daniel B. Stephens & Associates, Inc.

Oversize Correction Data Sheet

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-2
Date/Time Sampled: 1/3/07 0922
GeoSyntec Project #: SC0233-09-05

Split (3/4", 3/8", #4): #4
Calculated Porosity of Fines (% vol)*:* 33.9

	Coarse Fraction	Fines Fraction	Composite
Subsample Mass (g)*:*	1016.43	3738.57	4755.00
Bulk Density (g/cm^3)*:*	2.65	1.75	1.89
Volume of Solids (cm^3)*:*	383.56	1410.78	1794.34
Volume of Voids (cm^3)*:*	0.00	722.74	722.74
Total Volume (cm^3)*:*	383.56	2133.52	2517.08
Volumetric Fraction (%)*:*	15.24	84.76	100.00
Initial Moisture Content (% vol)*:*	0.00	19.52	16.55
Saturated Moisture Content (% vol)*:*	0.00	35.19	29.83
Residual Moisture Content (% vol)*:*	0.00	0.00	0.00
Ksat (cm/sec)*:*	NA	2.1E-07	1.7E-07

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NA = Not analyzed

Laboratory analysis by: T. Bowekaty/D. O'Dowd
Data entered by: D. O'Dowd/J. Hines
Checked by: J. Hines

Daniel B. Stephens & Associates, Inc.

Moisture Retention Data

Hanging Column/Pressure Plate/Thermocouple

(Main Drainage Curve)

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-3
Date/Time Sampled: 1/3/07 0840
GeoSyntec Project #: SC0233-09-05

Dry wt. of sample (g): 558.86
Tare wt., ring (g): 221.25
Tare wt., screen & clamp (g): 28.18
Sample volume (cm^3): 314.80

Saturated weight at 0 cm tension* (g): 921.90
Volume of water[1] in saturated sample (cm^3): 113.61
Saturated moisture content (% vol): 36.09
Sample bulk density (g/cm^3): 1.78

	Date/Time	Weight* (g)	Matric Potential (-cm water)	Moisture Content[1] (% vol)
Hanging column:	26-Jan-07 / 09:50	921.90	0.00	36.09
	01-Feb-07 / 08:30	918.50	53.50	35.01
	07-Feb-07 / 08:30	911.50	101.50	32.79
	13-Feb-07 / 12:43	905.00	217.00	30.72
Pressure plate:	22-Feb-07 / 10:55	896.50	509.90	28.02

Comments:

* Weight including tares
[1] Assumed density of water is 1.0 g/cm^3

Laboratory analysis by: T. Bowekaty/D. O'Dowd
Data entered by: D. O'Dowd/J. Hines
Checked by: J. Hines

Daniel B. Stephens & Associates, Inc.

Moisture Retention Data

Water Activity Meter/Relative Humidity Box

(Main Drainage Curve)

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-3
Date/Time Sampled: 1/3/07 0840
GeoSyntec Project #: SC0233-09-05

Dry weight of water activity meter sample* (g): 152.06
Tare weight, jar (g): 113.43
Sample bulk density (g/cm^3): 1.78

	Date/Time	Weight* (g)	Matric Potential (-cm water)	Moisture Content† (% vol)
Water Activity Meter:	23-Jan-07 / 13:10	155.73	18152.4	16.87

Dry weight of relative humidity box sample* (g): 87.44
Tare weight (g): 41.64
Sample bulk density (g/cm^3): 1.78

	Date/Time	Weight* (g)	Matric Potential (-cm water)	Moisture Content† (% vol)
Relative humidity box:	24-Jan-07 / 10:30	89.22	851293	6.93

Comments:

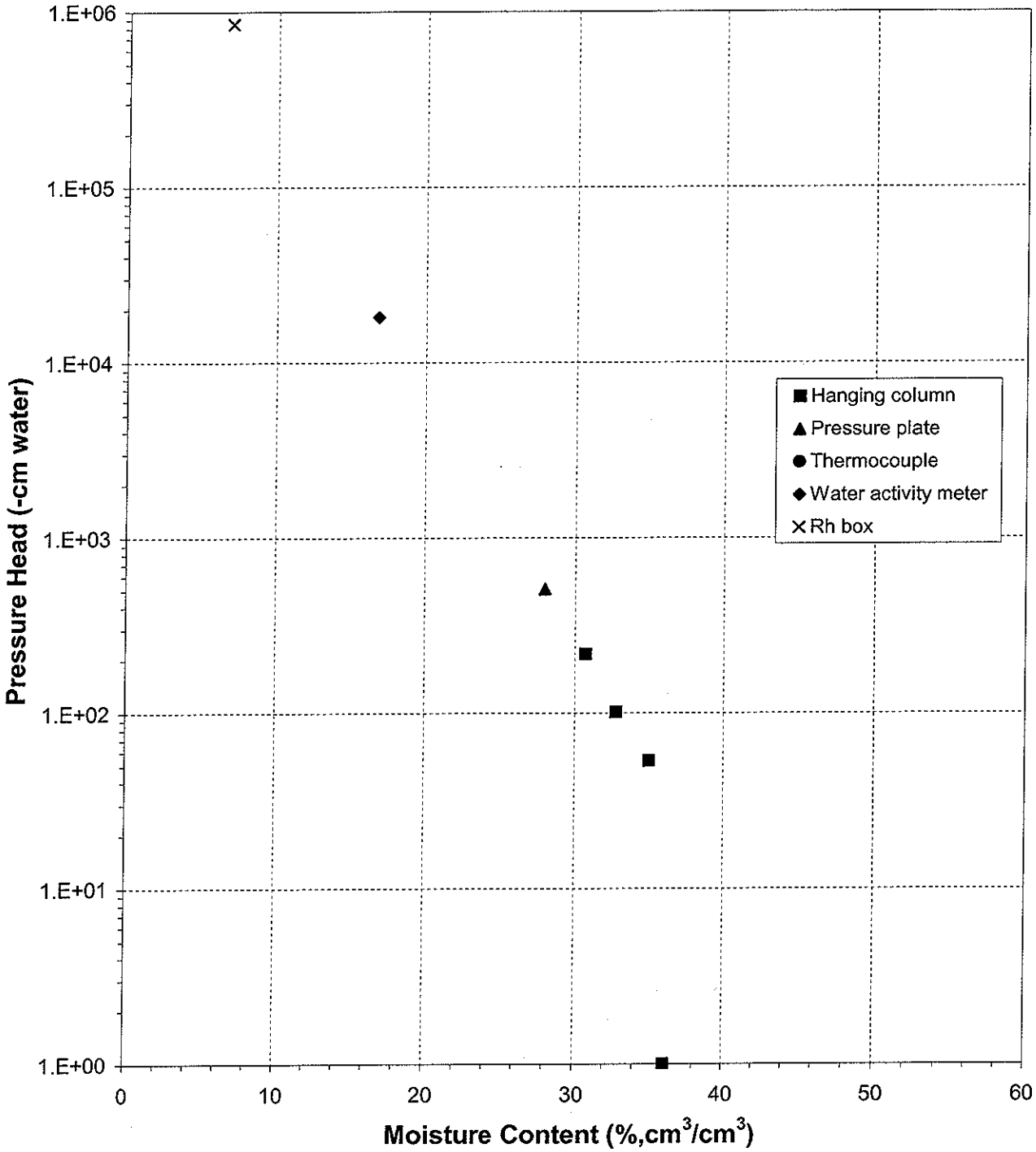
* Weight including tares
† Assumed density of water is 1.0 g/cm^3

Laboratory analysis by: C. Krous/T. Bowekaty
Data entered by: D. O'Dowd/J. Hines
Checked by: J. Hines

Daniel B. Stephens & Associates, Inc.

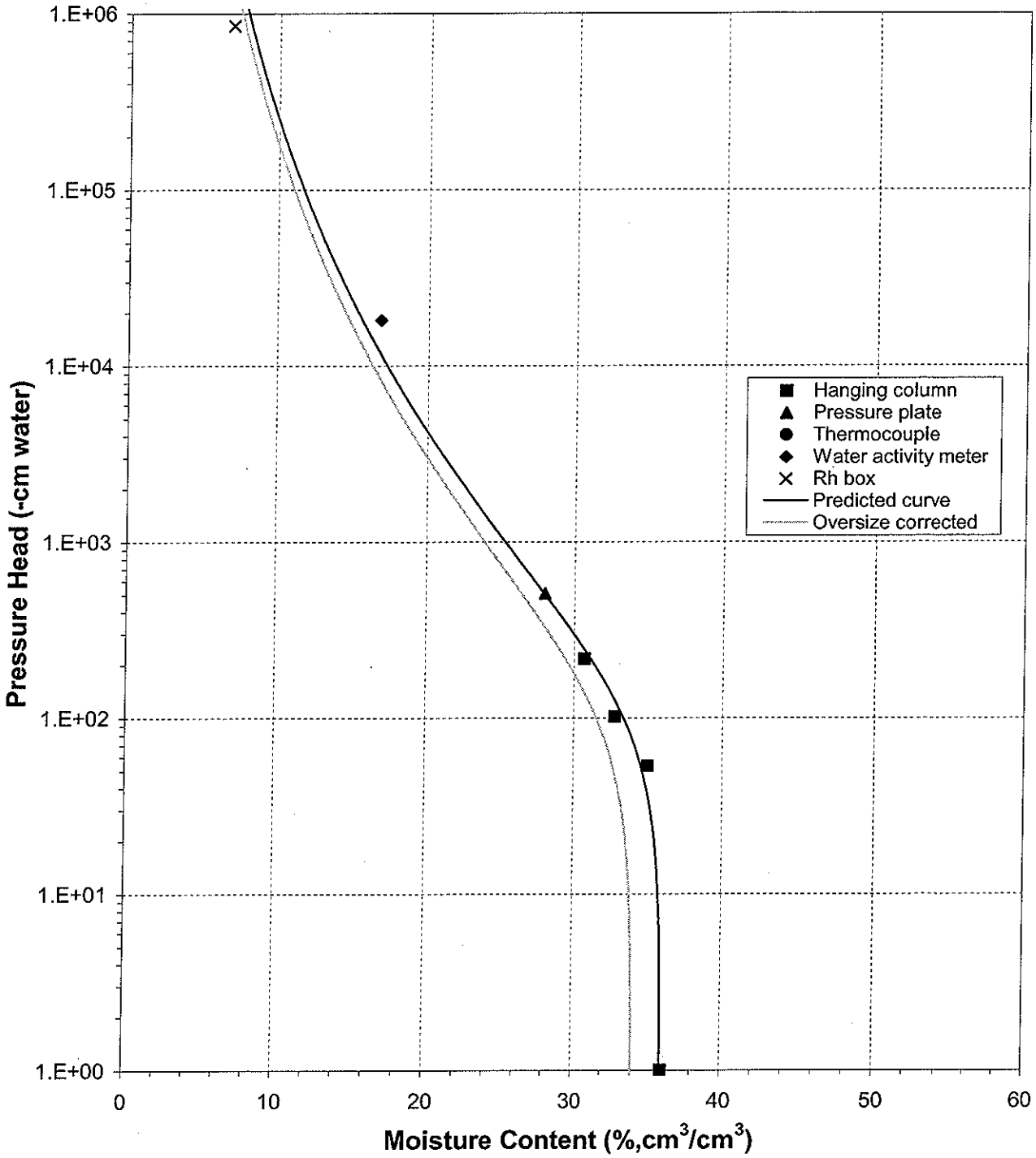
Water Retention Data Points

Sample Number: P-3



Predicted Water Retention Curve and Data Points

Sample Number: P-3



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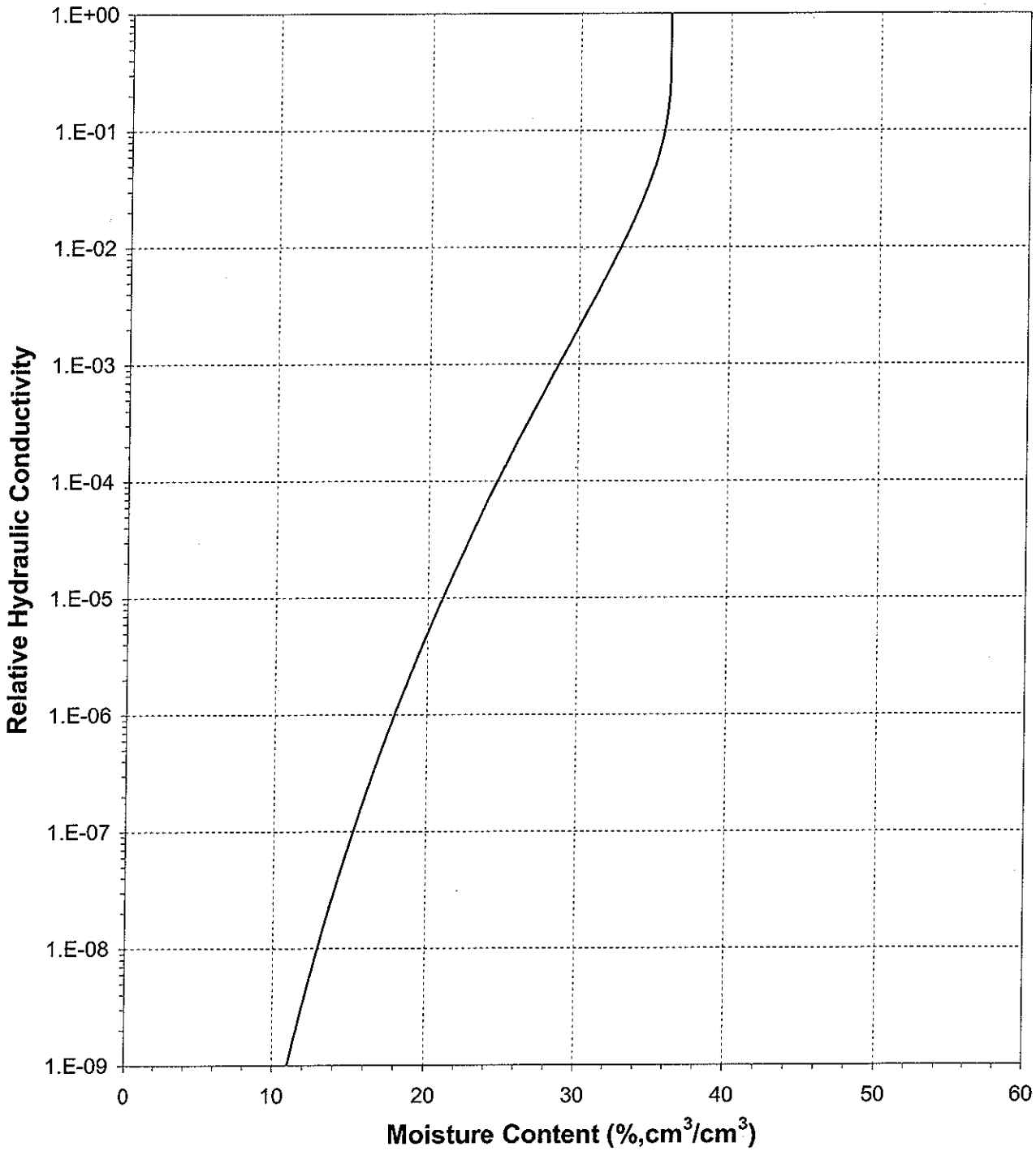
Plot of Relative Hydraulic Conductivity vs Moisture Content

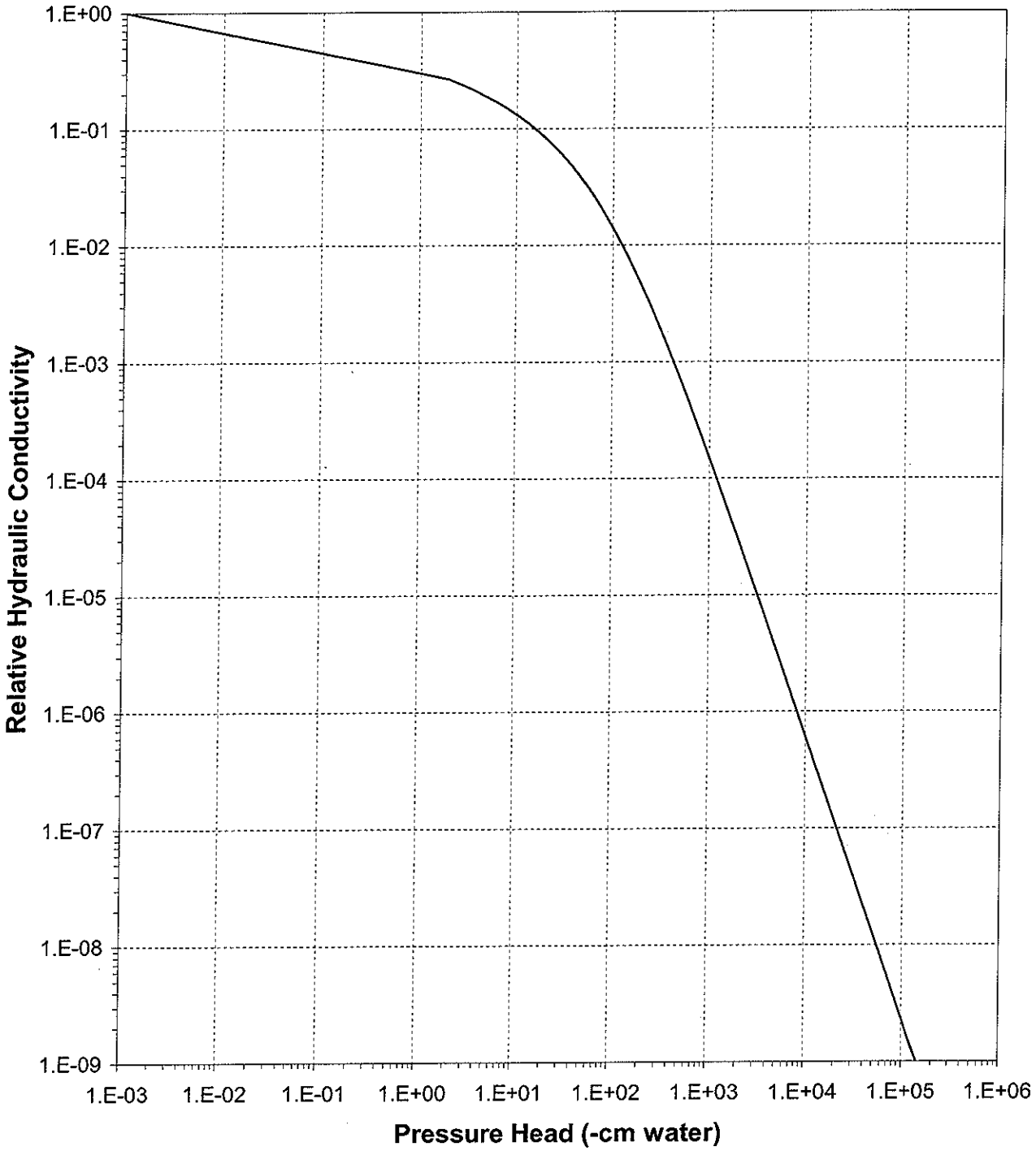
Sample Number: P-3



Daniel B. Stephens & Associates, Inc.

Plot of Relative Hydraulic Conductivity vs Pressure Head

Sample Number: P-3



Daniel B. Stephens & Associates, Inc.

Oversize Correction Data Sheet

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-3
Date/Time Sampled: 1/3/07 0840
GeoSyntec Project #: SC0233-09-05

Split (3/4", 3/8", #4): #4
Calculated Porosity of Fines (% vol)*:* 33.0

	Coarse Fraction	Fines Fraction	Composite
Subsample Mass (g)*:*	324.38	3751.62	4076.00
Bulk Density (g/cm^3)*:*	2.65	1.78	1.82
Volume of Solids (cm^3)*:*	122.41	1415.71	1538.11
Volume of Voids (cm^3)*:*	0.00	697.53	697.53
Total Volume (cm^3)*:*	122.41	2113.23	2235.64
Volumetric Fraction (%)*:*	5.48	94.52	100.00
Initial Moisture Content (% vol)*:*	0.00	20.86	19.72
Saturated Moisture Content (% vol)*:*	0.00	36.03	34.06
Residual Moisture Content (% vol)*:*	0.00	0.00	0.00
Ksat (cm/sec)*:*	NA	7.5E-06	6.9E-06

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NA = Not analyzed

Laboratory analysis by: T. Bowekaty/D. O'Dowd
Data entered by: D. O'Dowd/J. Hines
Checked by: J. Hines

Particle Size Analysis

Summary of Particle Size Characteristics

Sample Number	d_{10} (mm)	d_{50} (mm)	d_{60} (mm)	C_u	C_c	Method	ASTM Classification	USDA Classification	
P-1	0.024	0.49	0.94	39	1.00	WS	Silty sand with gravel (SM)g	Loamy Sand †	(Est)
P-2	0.0050	0.33	0.59	118	1.3	WS	Clayey sand with gravel (SC)g	Sandy Loam †	(Est)
P-3	0.018	0.31	0.42	23	1.9	WS	Clayey sand (SC)	Loamy Sand	(Est)

d_{50} = Median particle diameter

Est = Reported values for d_{10}, C_u, C_c, and soil classification are estimates, since extrapolation was required to obtain the d_{10} diameter

$$C_u = \frac{d_{60}}{d_{10}}$$

$$C_c = \frac{(d_{30})^2}{(d_{10})(d_{60})}$$

DS = Dry sieve

H = Hydrometer

WS = Wet sieve

† Greater than 10% of sample is coarse material

Daniel B. Stephens & Associates, Inc.

Particle Size Analysis
Wet Sieve Data (#10 Split)

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-1
Date/Time Sampled: 1/3/07 1010
GeoSyntec Project #: SC0233-09-05
Test Date: 11-Jan-07

Initial Dry Weight of Sample (g): 4366.00
Weight Passing #10 (g): 3043.90
Weight Retained #10 (g): 1322.10
Weight of Hydrometer Sample (g): 56.74
Calculated Weight of Sieve Sample (g): 81.38
Shape: Angular
Hardness: Hard and durable

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10						
	3"	75	415.85	415.85	3950.15	90.48
	2"	50	0.00	415.85	3950.15	90.48
	1.5"	38.1	215.64	631.49	3734.51	85.54
	1"	25	139.66	771.15	3594.85	82.34
	3/4"	19.0	65.75	836.90	3529.10	80.83
	3/8"	9.5	69.28	906.18	3459.82	79.24
	4	4.75	131.64	1037.82	3328.18	76.23
	10	2.00	284.28	1322.10	3043.90	69.72
-10			(Based on calculated sieve wt.)			
	20	0.85	9.01	33.65	47.73	58.65
	40	0.425	8.84	42.49	38.89	47.79
	60	0.250	7.74	50.23	31.15	38.28
	140	0.106	10.88	61.11	20.27	24.91
	200	0.075	2.81	63.92	17.46	21.45
	dry pan		0.07	63.99	17.39	
	wet pan			17.39	0.00	

d_{10} (mm): 0.024 d_{50} (mm): 0.49
d_{16} (mm): 0.043 d_{60} (mm): 0.94
d_{30} (mm): 0.15 d_{84} (mm): 31

Median Particle Diameter--d_{50} (mm): 0.49
Uniformity Coefficient, Cu--$[d_{60}/d_{10}]$ (mm): 39
Coefficient of Curvature, Cc--$[(d_{30})^2/(d_{10}*d_{60})]$ (mm): 1.00
Mean Particle Diameter--$[(d_{16}+d_{50}+d_{84})/3]$ (mm): 11

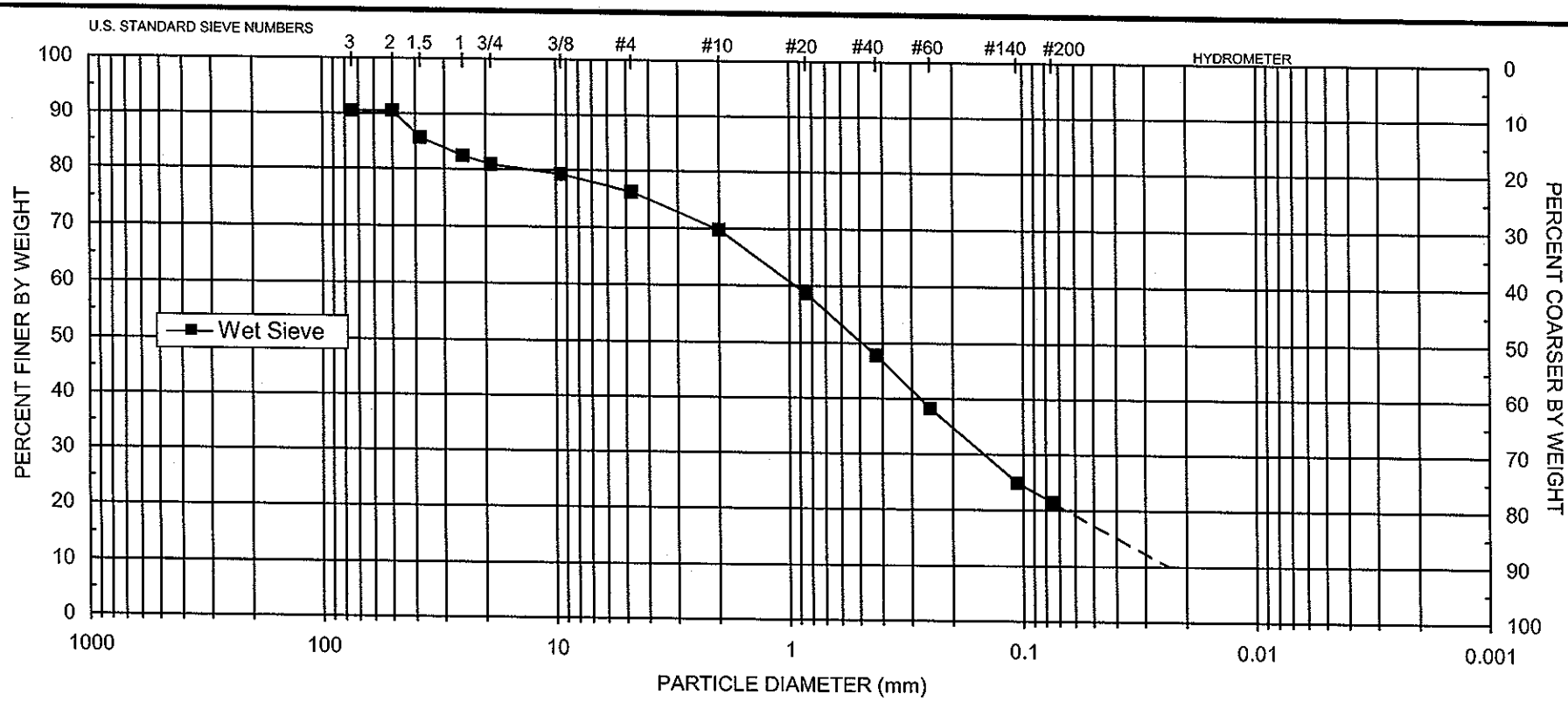
Note: Reported values for d_{10}, C_u, C_c, and soil classification are estimates, since extrapolation was required to obtain the d_{10} diameter

Classification of fines (visual method): ML

ASTM Soil Classification: Silty sand with gravel (SM)g
USDA Soil Classification: Loamy Sand †

† Greater than 10% of sample is coarse material

Laboratory analysis by: T. Bowekaty
Data entered by: T. Bowekaty
Checked by: J. Hines



UNIFIED	COBBLES	GRAVEL: Coarse, Fine	SAND: Coarse, Medium, Fine	SILT OR CLAY		
USDA	COBBLES	GRAVEL	SAND: Very coarse, Coarse, Medium, Fine, Very fine	SILT	CLAY	

d_{10} = **0.024**	d_{30} = **0.15**	d_{50} = **0.49**	d_{60} = **0.94**	C_u = **39**	C_c = **1.00**

SAMPLE NUMBER	GEOSYNTEC PROJECT #	ASTM CLASSIFICATION	USDA CLASSIFICATION
P-1	**SC0233-09-05**	**Silty sand with gravel (SM)g**	**Loamy Sand †**

† Greater than 10% of sample is coarse material

Note: Reported values for d_{10}, C_u, C_c, and ASTM classification are estimates, since extrapolation was required to obtain the d_{10} diameter

Daniel B. Stephens & Associates, Inc.

Daniel B. Stephens & Associates, Inc.

Particle Size Analysis
Wet Sieve Data (#10 Split)

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-2
Date/Time Sampled: 1/3/07 0922
GeoSyntec Project #: SC0233-09-05
Test Date: 11-Jan-07

Initial Dry Weight of Sample (g): 4755.00
Weight Passing #10 (g): 3534.72
Weight Retained #10 (g): 1220.28
Weight of Hydrometer Sample (g): 57.53
Calculated Weight of Sieve Sample (g): 77.39
Shape: Angular
Hardness: Hard and durable

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10						
	3"	75	0.00	0.00	4755.00	100.00
	2"	50	782.62	782.62	3972.38	83.54
	1.5"	38.1	0.00	782.62	3972.38	83.54
	1"	25	0.00	782.62	3972.38	83.54
	3/4"	19.0	48.79	831.41	3923.59	82.52
	3/8"	9.5	114.29	945.70	3809.30	80.11
	4	4.75	70.73	1016.43	3738.57	78.62
	10	2.00	203.85	1220.28	3534.72	74.34
-10			(Based on calculated sieve wt.)			
	20	0.85	6.66	26.52	50.87	65.73
	40	0.425	8.33	34.85	42.54	54.97
	60	0.250	7.74	42.59	34.80	44.97
	140	0.106	8.39	50.98	26.41	34.13
	200	0.075	2.11	53.09	24.30	31.40
	dry pan		0.13	53.22	24.17	
	wet pan			24.17	0.00	

d_{10} (mm): 0.0050 d_{50} (mm): 0.33
d_{16} (mm): 0.011 d_{60} (mm): 0.59
d_{30} (mm): 0.063 d_{84} (mm): 51

Median Particle Diameter--d_{50} (mm): 0.33
Uniformity Coefficient, Cu--$[d_{60}/d_{10}]$ (mm): 118
Coefficient of Curvature, Cc--$[(d_{30})^2/(d_{10}*d_{60})]$ (mm): 1.3
Mean Particle Diameter--$[(d_{16}+d_{50}+d_{84})/3]$ (mm): 17

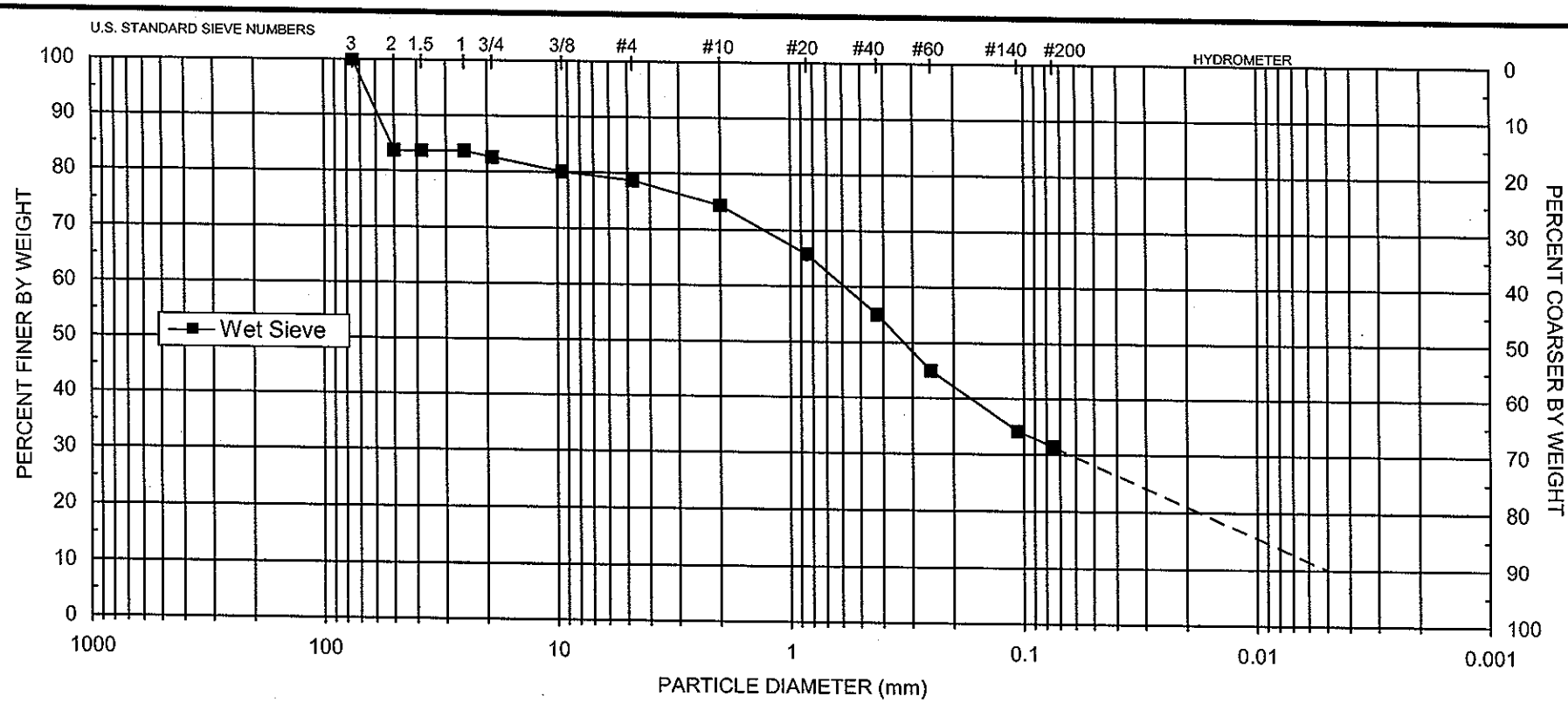
Note: Reported values for d_{10}, C_u, C_c, and soil classification are estimates, since extrapolation was required to obtain the d_{10} diameter

Classification of fines: CL

ASTM Soil Classification: Clayey sand with gravel (SC)g
USDA Soil Classification: Sandy Loam †

† Greater than 10% of sample is coarse material

Laboratory analysis by: T. Bowekaty
Data entered by: T. Bowekaty
Checked by: J. Hines



UNIFIED	COBBLES	GRAVEL: Coarse, Fine	SAND: Coarse, Medium, Fine	SILT OR CLAY		
USDA	COBBLES	GRAVEL	SAND: Very coarse, Coarse, Medium, Fine, Very fine	SILT	CLAY	

d_{10} = **0.0050**	d_{30} = **0.063**	d_{50} = **0.33**	d_{60} = **0.59**	C_u = **118**	C_c = **1.3**

SAMPLE NUMBER	GEOSYNTEC PROJECT #	ASTM CLASSIFICATION	USDA CLASSIFICATION
P-2	**SC0233-09-05**	**Clayey sand with gravel (SC)g**	**Sandy Loam †**

† Greater than 10% of sample is coarse material

Note: Reported values for d_{10}, C_u, C_c, and ASTM classification are estimates, since extrapolation was required to obtain the d_{10} diameter

Daniel B. Stephens & Associates, Inc.

Daniel B. Stephens & Associates, Inc.

Particle Size Analysis
Wet Sieve Data (#10 Split)

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-3
Date/Time Sampled: 1/3/07 0840
GeoSyntec Project #: SC0233-09-05
Test Date: 12-Jan-07

Initial Dry Weight of Sample (g): 4076.00
Weight Passing #10 (g): 3693.35
Weight Retained #10 (g): 382.65
Weight of Hydrometer Sample (g): 61.20
Calculated Weight of Sieve Sample (g): 67.54
Shape: Angular
Hardness: Hard and durable

Test Fraction	Sieve Number	Diameter (mm)	Wt. Retained	Cum Wt. Retained	Wt. Passing	% Passing
+10						
	3"	75	0.00	0.00	4076.00	100.00
	2"	50	0.00	0.00	4076.00	100.00
	1.5"	38.1	205.63	205.63	3870.37	94.96
	1"	25	26.33	231.96	3844.04	94.31
	3/4"	19.0	27.03	258.99	3817.01	93.65
	3/8"	9.5	31.02	290.01	3785.99	92.88
	4	4.75	34.37	324.38	3751.62	92.04
	10	2.00	58.27	382.65	3693.35	90.61
-10			(Based on calculated sieve wt.)			
	20	0.85	6.87	13.21	54.33	80.44
	40	0.425	13.35	26.56	40.98	60.67
	60	0.250	12.52	39.08	28.46	42.14
	140	0.106	9.83	48.91	18.63	27.58
	200	0.075	2.35	51.26	16.28	24.10
	dry pan		0.13	51.39	16.15	
	wet pan			16.15	0.00	

d_{10} (mm): 0.018
d_{16} (mm): 0.034
d_{30} (mm): 0.12
d_{50} (mm): 0.31
d_{60} (mm): 0.42
d_{84} (mm): 1.1

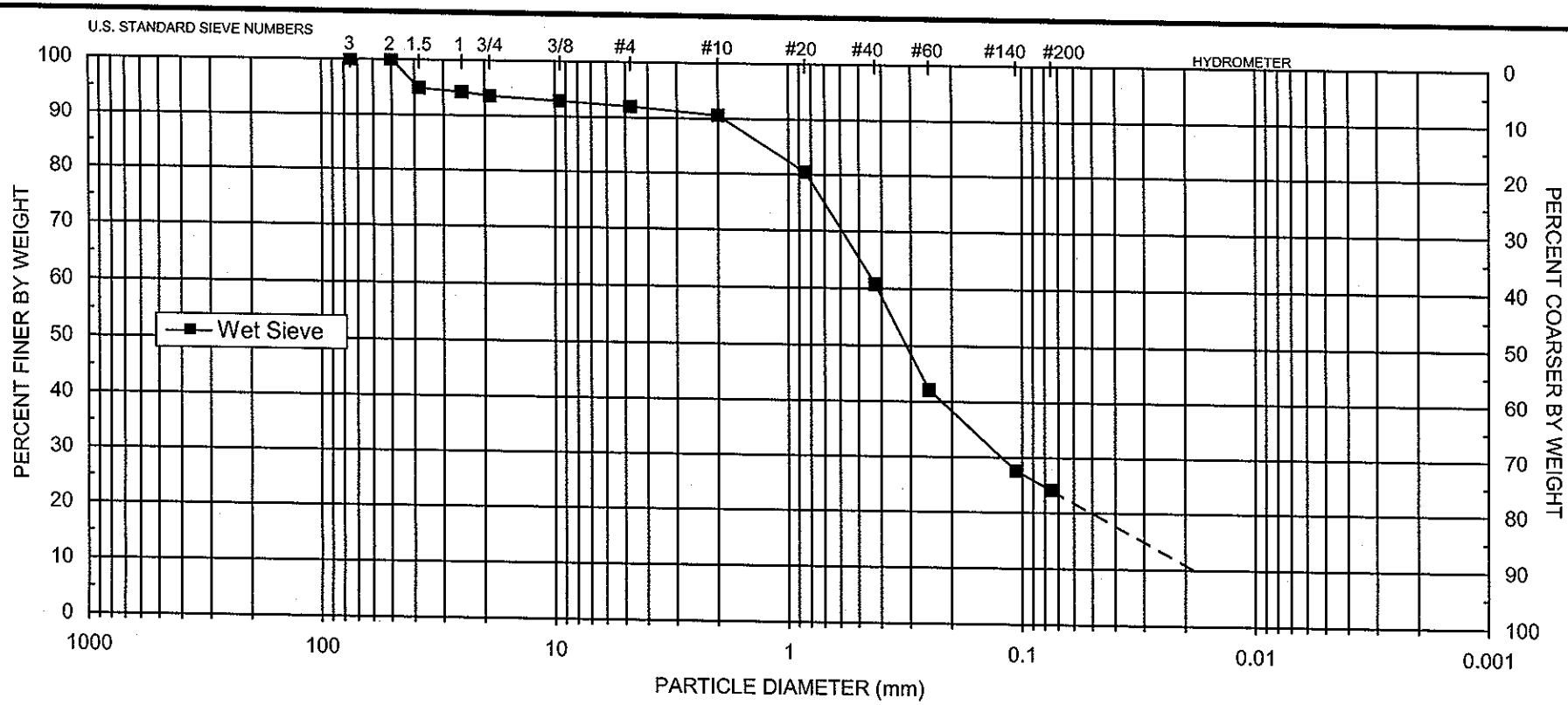
Median Particle Diameter--d_{50} (mm): 0.31
Uniformity Coefficient, Cu--$[d_{60}/d_{10}]$ (mm): 23
Coefficient of Curvature, Cc--$[(d_{30})^2/(d_{10}*d_{60})]$ (mm): 1.9
Mean Particle Diameter--$[(d_{16}+d_{50}+d_{84})/3]$ (mm): 0.48

Note: Reported values for d_{10}, C_u, C_c, and soil classification are estimates, since extrapolation was required to obtain the d_{10} diameter

Classification of fines: CL

ASTM Soil Classification: Clayey sand (SC)
USDA Soil Classification: Loamy Sand

Laboratory analysis by: T. Bowekaty
Data entered by: T. Bowekaty
Checked by: J. Hines



UNIFIED	COBBLES	GRAVEL: Coarse, Fine	SAND: Coarse, Medium, Fine	SILT OR CLAY		
USDA	COBBLES	GRAVEL	SAND: Very coarse, Coarse, Medium, Fine, Very fine	SILT	CLAY	

d_{10} = **0.018**	d_{30} = **0.12**	d_{50} = **0.31**	d_{60} = **0.42**	C_u = **23**	C_c = **1.9**

SAMPLE NUMBER	GEOSYNTEC PROJECT #	ASTM CLASSIFICATION	USDA CLASSIFICATION
P-3	**SC0233-09-05**	**Clayey sand (SC)**	**Loamy Sand**

Note: Reported values for d_{10}, C_u, C_c, and ASTM classification are estimates, since extrapolation was required to obtain the d_{10} diameter

Daniel B. Stephens & Associates, Inc.

Atterberg Limits/
Identification of Fines

Summary of Atterberg Tests

Sample Number	Liquid Limit	Plastic Limit	Plasticity Index	Classification
P-1	---	---	---	ML
P-2	38	22	16	CL
P-3	38	22	16	CL

--- = Soil requires visual-manual classification due to non-plasticity

Daniel B. Stephens & Associates, Inc.

Atterberg Limits

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-1
Date/Time Sampled: 1/3/07 1010
GeoSyntec Project #: SC0233-09-05

Test Date: 24-Jan-07

Liquid Limit

	Trial 1	Trial 2	Trial 3
Number of drops:			
Pan number:			
Weight of pan plus moist soil (g):			
Weight of pan plus dry soil (g)			
Weight of pan (g):			
Gravimetric moisture content (% g/g):	---	---	---
Liquid Limit:	---		

Plastic Limit

	Trial 1	Trial 2
Pan number:		
Weight of pan plus moist soil (g):		
Weight of pan plus dry soil (g)		
Weight of pan (g):		
Gravimetric moisture content (% g/g):	---	---
Plastic Limit:	---	

Results

Percent of Sample Retained on #40 Sieve: See Sieve

Liquid Limit: ---
Plastic Limit: ---
Plasticity Index: ---

Classification (Visual Method): ML

Comments:

--- = Soil requires visual-manual classification due to non-plasticity

Laboratory analysis by: D. O'Dowd
Data entered by: J. Hines
Checked by: J. Hines

Daniel B. Stephens & Associates, Inc.

Data for Description and Identification of Fines
(Visual-Manual Proceedure)

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-1
Date & Time Sampled: 1/3/07 1010
ID: SC0233-09-05

Test Date: 24-Jan-07

Visual-manual classification of material passing the #40 sieve in lieu of Atterberg analysis due to non-plasticity:

Descriptive Information:

Color of Moist Sample: Very Dark Gray (5YR 3/1)
Odor: None
Moisture Condition: Moist
HCl Reaction: Weak

Preliminary Identification:

Dry Strength: Low
Dilatency: Slow
Toughness: low
Plasticity: Non-plastic

Identification of Inorganic Fine Grained Soils:

Silt (ML): Low dry strength, rapid dilatency, low toughness & non-plastic.

Laboratory analysis by: D. O'Dowd
Data entered by: D. O'Dowd
Checked by: J. Hines

Daniel B. Stephens & Associates, Inc.

Atterberg Limits

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-2
Date/Time Sampled: 1/3/07 0922
GeoSyntec Project #: SC0233-09-05

Test Date: 24-Jan-07

Liquid Limit

	Trial 1	Trial 2	Trial 3
Number of drops:	35	21	17
Pan number:	LL1	LL2	LL3
Weight of pan plus moist soil (g):	207.49	208.12	215.60
Weight of pan plus dry soil (g)	204.94	204.75	210.48
Weight of pan (g):	196.89	196.99	198.75
Gravimetric moisture content (% g/g):	31.68	43.43	43.65
Liquid Limit:	38		

Plastic Limit

	Trial 1	Trial 2
Pan number:	PL1	PL2
Weight of pan plus moist soil (g):	204.35	201.52
Weight of pan plus dry soil (g)	203.79	200.81
Weight of pan (g):	201.28	197.59
Gravimetric moisture content (% g/g):	22.31	22.05
Plastic Limit:	22	

Results

Percent of Sample Retained on #40 Sieve: See Sieve

Liquid Limit: 38
Plastic Limit: 22
Plasticity Index: 16

Classification: CL

Comments:

--- = Soil requires visual-manual classification due to non-plasticity

Laboratory analysis by: D. O'Dowd
Data entered by: J. Hines
Checked by: J. Hines

Daniel B. Stephens & Associates, Inc.

Atterberg Limits

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-3
Date/Time Sampled: 1/3/07 0840
GeoSyntec Project #: SC0233-09-05

Test Date: 24-Jan-07

Liquid Limit

	Trial 1	Trial 2	Trial 3
Number of drops:	35	22	16
Pan number:	LL1	LL2	LL3
Weight of pan plus moist soil (g):	214.58	213.35	215.06
Weight of pan plus dry soil (g)	210.36	209.40	210.48
Weight of pan (g):	198.91	199.05	198.92
Gravimetric moisture content (% g/g):	36.86	38.16	39.62
Liquid Limit:	38		

Plastic Limit

	Trial 1	Trial 2
Pan number:	PL1	PL2
Weight of pan plus moist soil (g):	196.93	201.96
Weight of pan plus dry soil (g)	195.86	201.06
Weight of pan (g):	190.94	196.90
Gravimetric moisture content (% g/g):	21.75	21.63
Plastic Limit:	22	

Results

Percent of Sample Retained on #40 Sieve: See Sieve

Liquid Limit: 38
Plastic Limit: 22
Plasticity Index: 16

Classification: CL

Comments:

--- = Soil requires visual-manual classification due to non-plasticity

Laboratory analysis by: D. O'Dowd
Data entered by: J. Hines
Checked by: J. Hines

Proctor Compaction

Summary of Proctor Compaction Tests

Sample Number	Measured		Oversize Corrected	
	Optimum Moisture Content (% g/g)	Maximum Dry Bulk Density (g/cm^3)	Optimum Moisture Content (% g/g)	Maximum Dry Bulk Density (g/cm^3)
P-1	10.0	2.05	7.6	2.16
P-2	11.6	1.94	9.1	2.06
P-3	11.5	1.97	10.6	2.01

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

NA = Not analyzed

Daniel B. Stephens & Associates, Inc.

Proctor Compaction Data

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-1
Date/Time Sampled: 1/3/07 1010
GeoSyntec Project #: SC0233-09-05
Test Date: 16-Jan-07
As Received Moisture Content (% g/g): 9.24

Split (3/4", 3/8", #4): #4
Mass of coarse material (g): 1037.82
Mass of fines material (g): 3328.18
Mold weight (g): 4215
Mold volume (cm^3): 940.32
Compaction Method: Modified A
Preparation Method: Dry
Type of Rammer: Mechanical

Trial	Weight of Mold and Compacted Soil (g)	Weight of Container and Wet Soil (g)	Weight of Container and Dry Soil (g)	Weight of Container (g)	Dry Bulk Density (g/cm^3)	Moisture Content (% g/g)
1	6238	1169.97	1110.23	265.78	2.01	7.07
2	6289	841.57	792.64	212.04	2.03	8.43
3	6337	1084.13	1003.14	213.39	2.05	10.26
4	6316	973.83	896.74	266.48	1.99	12.23
5	6245	945.85	852.28	212.72	1.88	14.63

Soil Fractions
Coarse Fraction (% g/g): 23.8
Fines Fraction (% g/g): 76.2

Properties of Coarse Material
Assumed particle density (g/cm^3): 2.65
Assumed Initial Moisture Content (% g/g): 0.0

Oversize Corrected Values for Dry Bulk Density and Moisture Content

Trial	Dry Bulk Density of Composite (g/cm^3)	Moisture Content of Composite (% g/g)
1	2.13	5.39
2	2.15	6.42
3	2.16	7.82
4	2.11	9.32
5	2.02	11.15

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NA = Not analyzed

Laboratory analysis by: T. Bowekaty
Data entered by: T. Bowekaty
Checked by: J. Hines

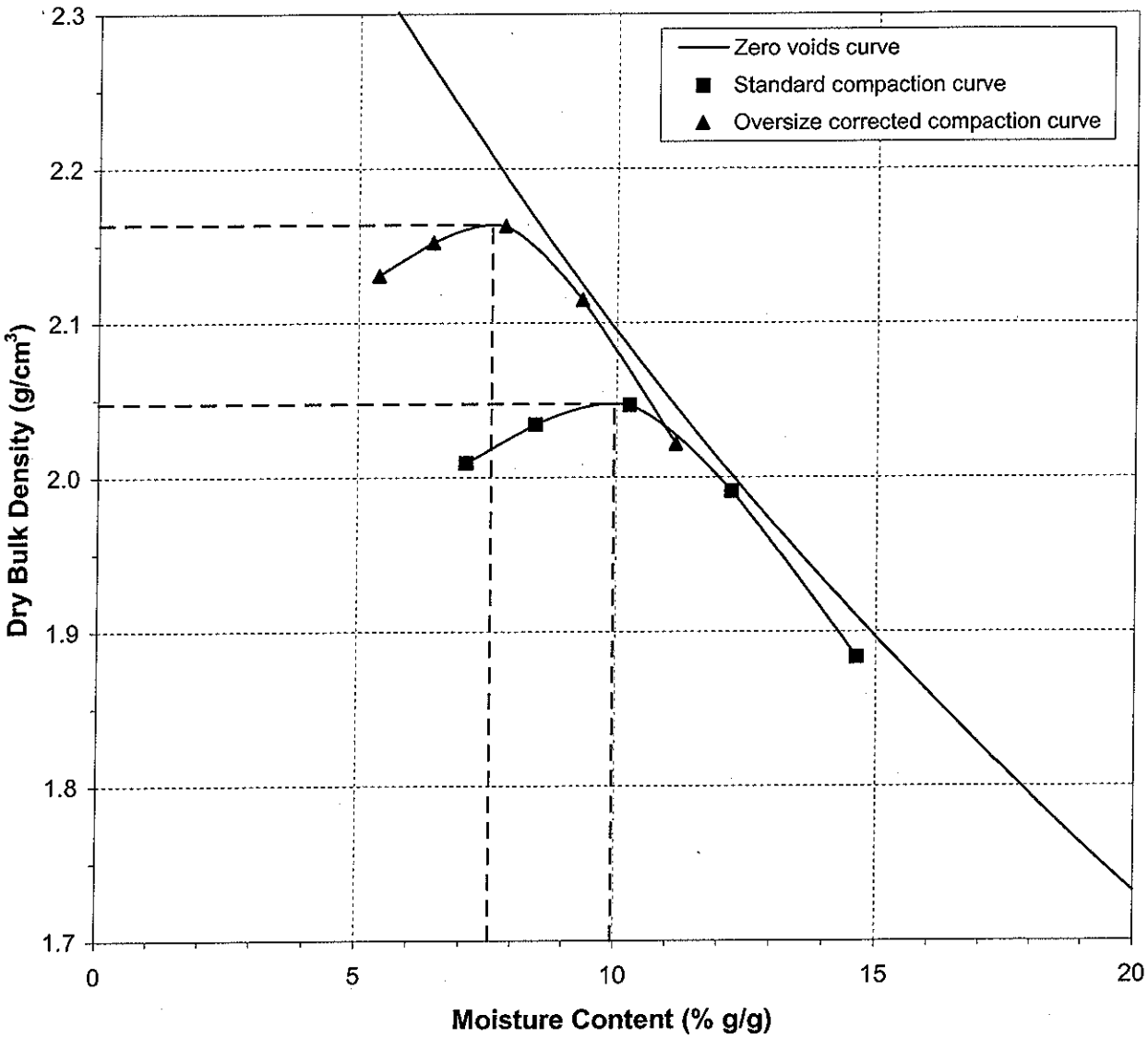
Daniel B. Stephens & Associates, Inc.

Proctor Compaction Data Points with Fitted Curve

Sample Number: P-1

	Measured	Corrected
Optimum Moisture Content (% g/g):	10.0	7.6
Maximum Dry Bulk Density (g/cm³):	2.05	2.16

Test Date: 16-Jan-07



--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

NA = Not analyzed

Laboratory analysis by: T. Bowekaty
Data entered by: T. Bowekaty
Checked by: J. Hines

Daniel B. Stephens & Associates, Inc.

Proctor Compaction Data

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-2
Date/Time Sampled: 1/3/07 0922
GeoSyntec Project #: SC0233-09-05
Test Date: 16-Jan-07
As Received Moisture Content (% g/g): 12.51

Split (3/4", 3/8", #4): #4
Mass of coarse material (g): 1016.43
Mass of fines material (g): 3738.57
Mold weight (g): 4215
Mold volume (cm^3): 940.32
Compaction Method: Modified A
Preparation Method: Dry
Type of Rammer: Mechanical

Trial	Weight of Mold and Compacted Soil (g)	Weight of Container and Wet Soil (g)	Weight of Container and Dry Soil (g)	Weight of Container (g)	Dry Bulk Density (g/cm^3)	Moisture Content (% g/g)
1	6058	846.52	802.73	286.81	1.81	8.49
2	6185	989.61	919.76	208.50	1.91	9.82
3	6261	844.88	775.39	208.70	1.94	12.26
4	6264	999.83	903.41	209.76	1.91	13.90
5	6239	862.11	773.93	212.71	1.86	15.71

Soil Fractions
Coarse Fraction (% g/g): 21.4
Fines Fraction (% g/g): 78.6

Properties of Coarse Material
Assumed particle density (g/cm^3): 2.65
Assumed Initial Moisture Content (% g/g): 0.0

Oversize Corrected Values for Dry Bulk Density and Moisture Content

Trial	Dry Bulk Density of Composite (g/cm^3)	Moisture Content of Composite (% g/g)
1	1.94	6.67
2	2.03	7.72
3	2.06	9.64
4	2.03	10.93
5	1.99	12.35

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NA = Not analyzed

Laboratory analysis by: T. Bowekaty
Data entered by: T. Bowekaty
Checked by: J. Hines

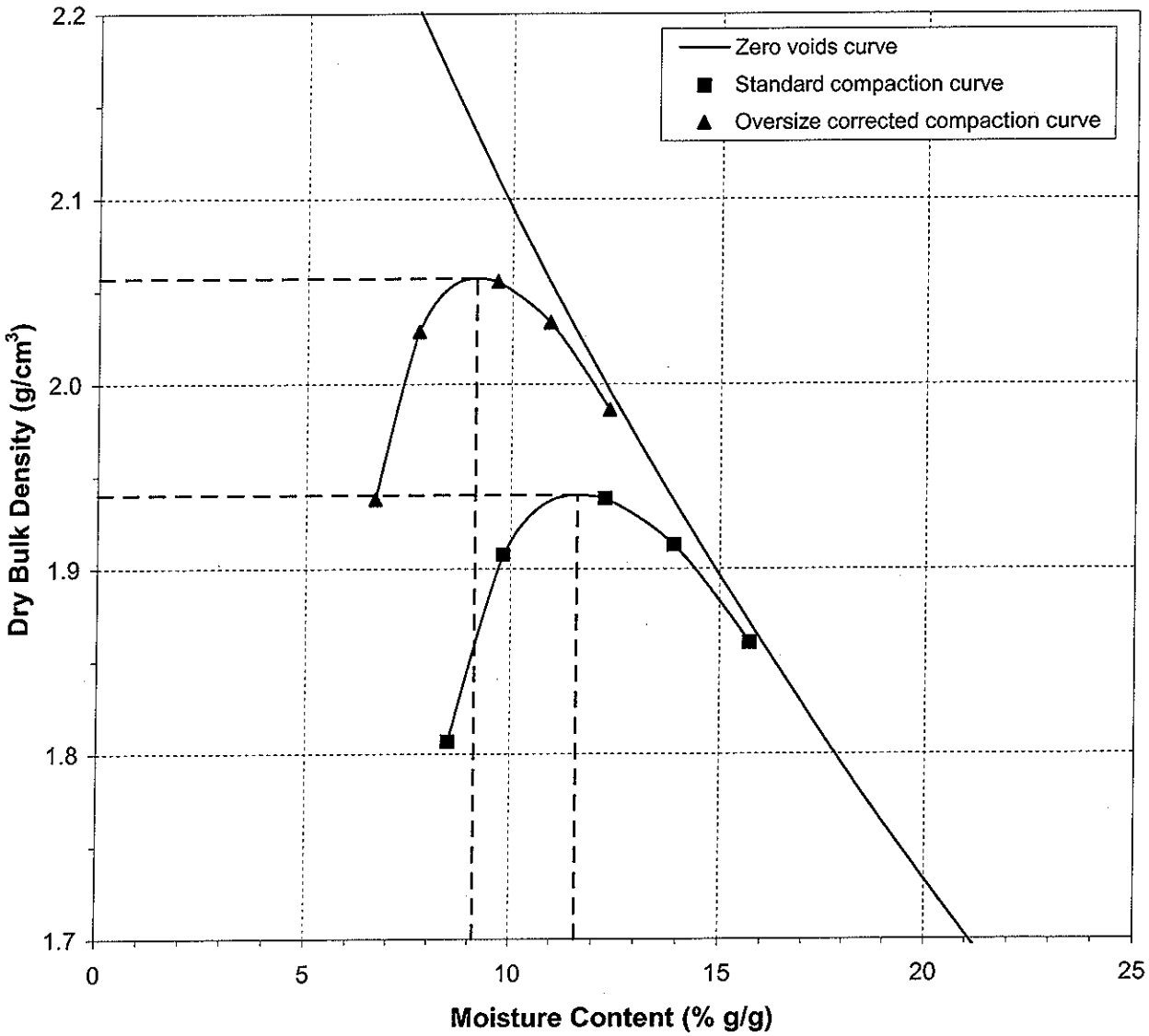
Daniel B. Stephens & Associates, Inc.

Proctor Compaction Data Points with Fitted Curve

Sample Number: P-2

	Measured	Corrected
Optimum Moisture Content (% g/g):	11.6	9.1
Maximum Dry Bulk Density (g/cm^3):	1.94	2.06

Test Date: 16-Jan-07



--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

NA = Not analyzed

Laboratory analysis by: T. Bowekaty
Data entered by: T. Bowekaty
Checked by: J. Hines

Daniel B. Stephens & Associates, Inc.

Proctor Compaction Data

Job Name: GeoSyntec Consultants
Job Number: LB07.0004.00
Sample Number: P-3
Date/Time Sampled: 1/3/07 0840
GeoSyntec Project #: SC0233-09-05
Test Date: 16-Jan-07
As Received Moisture Content (% g/g): 12.94

Split (3/4", 3/8", #4): #4
Mass of coarse material (g): 324.38
Mass of fines material (g): 3751.62
Mold weight (g): 4215
Mold volume (cm^3): 940.32
Compaction Method: Modified A
Preparation Method: Dry
Type of Rammer: Mechanical

Trial	Weight of Mold and Compacted Soil (g)	Weight of Container and Wet Soil (g)	Weight of Container and Dry Soil (g)	Weight of Container (g)	Dry Bulk Density (g/cm^3)	Moisture Content (% g/g)
1	6138	1012.99	952.06	209.21	1.89	8.20
2	6233	953.68	885.73	207.69	1.95	10.02
3	6282	725.76	671.24	209.64	1.97	11.81
4	6272	814.23	742.46	208.60	1.93	13.44
5	6220	856.85	769.63	212.68	1.84	15.66

Soil Fractions
Coarse Fraction (% g/g): 8.0
Fines Fraction (% g/g): 92.0

Properties of Coarse Material
Assumed particle density (g/cm^3): 2.65
Assumed Initial Moisture Content (% g/g): 0.0

Oversize Corrected Values for Dry Bulk Density and Moisture Content

Trial	Dry Bulk Density of Composite (g/cm^3)	Moisture Content of Composite (% g/g)
1	1.93	7.55
2	1.99	9.22
3	2.01	10.87
4	1.97	12.37
5	1.89	14.41

--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass
NA = Not analyzed

Laboratory analysis by: T. Bowekaty
Data entered by: T. Bowekaty
Checked by: J. Hines

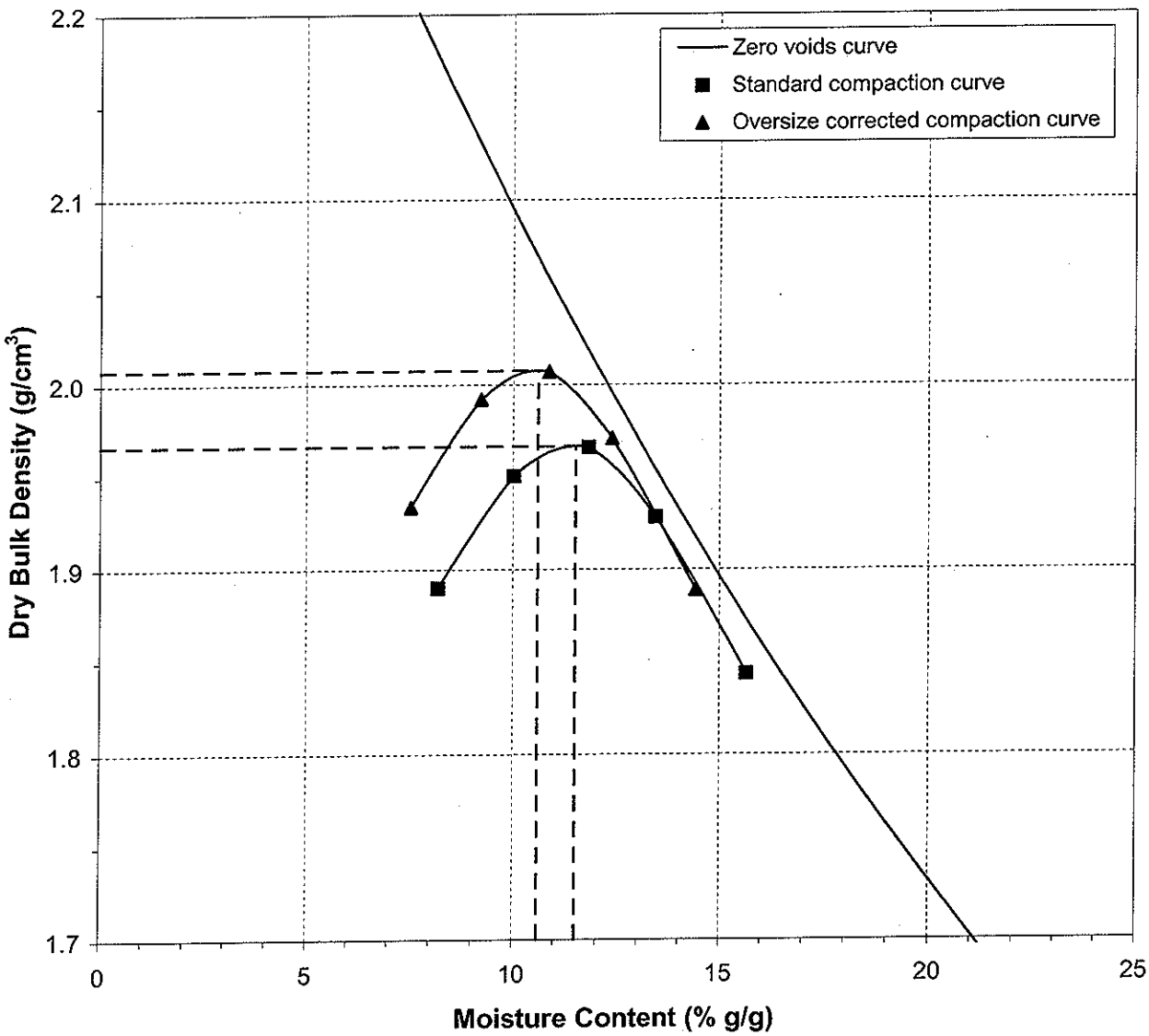
Daniel B. Stephens & Associates, Inc.

Proctor Compaction Data Points with Fitted Curve

Sample Number: P-3

	Measured	Corrected
Optimum Moisture Content (% g/g):	11.5	10.6
Maximum Dry Bulk Density (g/cm³):	1.97	2.01

Test Date: 16-Jan-07



--- = Oversize correction is unnecessary since coarse fraction < 5% of composite mass

NA = Not analyzed

Laboratory analysis by: T. Bowekaty
Data entered by: T. Bowekaty
Checked by: J. Hines

Laboratory Tests and Methods

Tests and Methods

Dry Bulk Density:	ASTM D4531; ASTM D6836
Moisture Content:	ASTM D2216; ASTM D6836
Calculated Porosity:	ASTM D2435; Klute, A. 1986. Porosity. Chp.18-2.1, pp. 444-445, in A. Klute (ed.), Methods of Soil Analysis, American Society of Agronomy, Madison, WI
Saturated Hydraulic Conductivity:	
Falling Head Rising Tail: (Flexible Wall)	ASTM D5084
Hanging Column Method:	ASTM D6836; Klute, A. 1986. Porosity. Chp.26, in A. Klute (ed.), Methods of Soil Analysis, American Society of Agronomy, Madison, WI
Pressure Plate Method:	ASTM D6836; ASTM D2325
Water Potential (Dewpoint Potentiometer) Method:	ASTM D6836; Rawlins, S.L. and G.S. Campbell, 1986. Water Potential: Thermocouple Psychrometry. Chp. 24, pp. 597-619, in A. Klute (ed.), Methods of Soil Analysis, Part 1. American Society of Agronomy, Madison, WI.
Relative Humidity (Box) Method:	Karathanasis & Hajek. 1982. Quantitative Evaluation of Water Adsorption on Soil Clays.SSA Journal 46:1321-1325; Campbell, G. and G. Gee. 1986. Water Potential: Miscellaneous Methods.Chp. 25, pp. 631-632, in A. Klute (ed.), Methods of Soil Analysis, American Society of Agronomy, Madison, WI
Moisture Retention Characteristics & Calculated Unsaturated Hydraulic Conductivity:	ASTM D6836; van Genuchten, M.T. 1980. A closed-form equation for predicting the hydraulic conductivity of unsaturated soils. SSSAJ 44:892-898; van Genuchten, M.T., F.J. Leij, and S.R. Yates. 1991. The RETC code for quantifying the hydraulic functions of unsaturated soils. Robert S. Kerr Environmental Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Ada, Oklahoma. EPA/600/2091/065. December 1991
Particle Size Analysis:	ASTM D422
Atterberg Limits:	ASTM D4318
Proctor Compaction Test:	ASTM D698
Course Fraction (Gravel) Correction (calc):	ASTM D4718; Bouwer, H. and Rice, R.C. 1984. Hydraulic Properties of Stony Vadose Zones. Groundwater Vol. 22, No. 6

Written by:	**R. EL-Sherbiny**	Date:	**04/18/07**	Reviewed by:	**B. Gross**	Date:	**04/18/07**
Client:	**County of San Diego**	Project:	**Poway Landfill**	Project/Proposal No.:	**SC0233-9**	Task No.:	**5**

ATTACHMENT C

UNSAT-H MODEL INPUT AND OUTPUT

Written by: **R. EL-Sherbiny** Date: **04/18/07** Reviewed by: **B. Gross** Date: **04/18/07**

Client: **County of San Diego** Project: **Poway Landfill** Project/Proposal No.: **SC0233-9** Task No.: **5**

UNSAT-H Input (Existing Cover System, 3-ft thick)

```
Poway Existing Cover, LAI = 1.2, root depth approx. 6 in.
1,1,                             IPLANT,NGRAV
365,1,365,                       IFDEND,IDTBEG,IDTEND
1989,10,0,1,0,                   IYS,NYEARS,ISTEAD,IFLIST,NFLIST
0,24.0,                          NPRINT,STOPHR
1,6,1,1.0E-6,                    ISMETH,INMAX,ISWDIF,DMAXBA
1.0,1.0E-15,0.0,                 DELMAX,DELMIN,OUTTIM
1.5,1.0E-7,0.0,0.0,0.0,          RFACT,RAINIF,DHTOL,DHMAX,DHFACT
4,3,0.0,                         KOPT,KEST,WTF
0,1,2,1,                         ITOPBC,IEVOPT,NFHOUR,LOWER
0.0,1.0E+06,0.0,0.99,            HIRRI,HDRY,HTOP,RHA
1,0,1,                           IETOPT,ICLOUD,ISHOPT
1,1.0,                           IRAIN,HPR
0,0,0,0,0,                       IHYS,AIRTOL,HYSTOL,HYSMXH,HYFILE
0,0,0,                           IHEAT,ICONVH,DMAXHE
0,0,0,0,                         UPPERH,TSMEAN,TSAMP,QHCTOP
0,0.0,0.0,                       LOWERH,QHLEAK,TGRAD
1,0.66,290.93,0.24,              IVAPOR,TORT,TSOIL,VAPDIF
1,51,                            matn,npt
1,0.00,1,0.20,1,0.40,1,0.60,
1,0.80,1,1.00,1,1.24,1,1.53,
1,1.87,1,2.29,1,2.79,1,3.38,
1,4.10,1,4.96,1,5.99,1,7.23,
1,8.72,1,10.50,1,12.64,1,15.21,
1,18.29,1,21.99,1,26.42,1,31.75,
1,38.14,1,45.72,1,53.30,1,59.69,
1,65.02,1,69.45,1,73.15,1,76.23,
1,78.80,1,80.94,1,82.72,1,84.21,
1,85.45,1,86.48,1,87.34,1,88.06,
1,88.65,1,89.15,1,89.57,1,89.91,
1,90.20,1,90.44,1,90.64,1,90.84,
1,91.04,1,91.24,1,91.44,
0 to 36 in (91 cm)    layer 1:  Average Measured
    0.31,    0.000,    0.0064,      1.202,
0 to 36 in (91 cm):  conductivity k = 2.76 x 10-5 cm/s
     2.0,    0.0995,   0.0064,      1.202,       0.5,
0,                               NDAY
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
```

```
1300.0,1300.0,1300.0,
1,1,1,1,1,365,                    LEAF,NFROOT,NUPTAK,NFPET,NSOW,NHRVST
0.0,                              BARE
4,                                NDLAI
47,0.0,82,1.2,283,1.2,318,0.0,    IDLAI,VLAI
1.163,0.129,0.020,                AA,B1,B2 (based on annual cheatgrass and data
in Fayer (2000))
82,82,82,82,82,82,82,82,82,82,          day on which roots reach corrspd node
82,82,82,82,82,82,82,82,82,82,
365,365,365,365,365,365,365,365,365,365,
365,365,365,365,365,365,365,365,365,365,
365,365,365,365,365,365,365,365,365,365,
365,
15300.0,860.0,90.0,                 HW,HD,HN for layer 1
0.0,0.52,0.5,0.1,3.7,               PETPC(1:5)
0.25,220.0,2.0,1000.0,              albedo,elev.(m),wind height,atm.press.
c:\Poway\
Poway
txt
```

UNSAT-H Summary Output (Existing Cover System, 3-ft thick)

```
Created using BSUM300 Version 3.01; all units are cm
 First file in series is P36b1989.res
 Year  Precip     PET  Transp    Evap  Runoff   Drain   Store  TimeStp MasBalErr
 ---- ------- ------- ------- ------- ------- ------- ------- -------- ---------
 Initial storage =                                       18.244
    1  11.481 150.697   3.365   8.101   3.041   0.088  15.130    21795  -0.00062
    2  20.472 157.152   3.841   9.373   7.725   0.038  14.627    23529  -0.00193
    3  40.462 155.981   4.227   8.857  25.781   0.038  16.188    22886  -0.00141
    4  41.427 176.235   4.412  14.691  21.309   0.056  17.150    24510  -0.00174
    5  58.522 145.827   5.574  13.408  39.579   0.405  16.700    56246   0.00543
    6  37.465 148.865   5.682  13.732  18.169   0.090  16.493    26366  -0.00271
    7  53.162 159.958   6.336  16.733  30.562   0.129  15.899    27498  -0.00340
    8  37.236 177.402   3.980  15.182  17.157   0.050  16.769    25467  -0.00235
    9  31.293 153.444   3.081  13.845  14.082   0.046  17.009    23511  -0.00164
   10  64.948 128.824   9.089  16.034  39.338   0.386  17.111    25465  -0.00208
 ---- ------- ------- ------- ------- ------- ------- ------- -------- ---------
 SUM= 396.4691554.385  49.588 129.956 216.744   1.326                   -0.01244
```

Note:
Average annual drainage = 13.26 mm / 10 years = 1.3 mm (0.05 in.)

Written by: **R. EL-Sherbiny** Date: **04/18/07** Reviewed by: **B. Gross** Date: **04/18/07**

Client: **County of San Diego** Project: **Poway Landfill** Project/Proposal No.: **SC0233-9** Task No.: **5**

UNSAT-H Input (Existing Cover System, 4-ft thick)

```
Poway Existing Cover, LAI = 1.2, root depth approx. 6 in.
1,1,                             IPLANT,NGRAV
365,1,365,                       IFDEND,IDTBEG,IDTEND
1989,10,0,1,0,                   IYS,NYEARS,ISTEAD,IFLIST,NFLIST
0,24.0,                          NPRINT,STOPHR
1,6,1,1.0E-6,                    ISMETH,INMAX,ISWDIF,DMAXBA
1.0,1.0E-15,0.0,                 DELMAX,DELMIN,OUTTIM
1.5,1.0E-7,0.0,0.0,0.0,          RFACT,RAINIF,DHTOL,DHMAX,DHFACT
4,3,0.0,                         KOPT,KEST,WTF
0,1,2,1,                         ITOPBC,IEVOPT,NFHOUR,LOWER
0.0,1.0E+06,0.0,0.99,            HIRRI,HDRY,HTOP,RHA
1,0,1,                           IETOPT,ICLOUD,ISHOPT
1,1.0,                           IRAIN,HPR
0,0,0,0,0,                       IHYS,AIRTOL,HYSTOL,HYSMXH,HYFILE
0,0,0,                           IHEAT,ICONVH,DMAXHE
0,0,0,0,                         UPPERH,TSMEAN,TSAMP,QHCTOP
0,0.0,0.0,                       LOWERH,QHLEAK,TGRAD
1,0.66,290.93,0.24,              IVAPOR,TORT,TSOIL,VAPDIF
1,54,                            matn,npt
1,0.00,1,0.20,1,0.40,1,0.60,
1,0.80,1,1.00,1,1.24,1,1.53,
1,1.87,1,2.29,1,2.79,1,3.38,
1,4.10,1,4.96,1,5.99,1,7.23,
1,8.72,1,10.50,1,12.64,1,15.21,
1,18.29,1,21.99,1,26.42,1,31.75,
1,38.14,1,45.81,1,55.01,1,66.91,
1,76.11,1,83.78,1,90.17,1,95.50,
1,99.93,1,103.63,1,106.71,1,109.28,
1,111.42,1,113.20,1,114.69,1,115.93,
1,116.96,1,117.82,1,118.54,1,119.13,
1,119.63,1,120.05,1,120.39,1,120.68,
1,120.92,1,121.12,1,121.32,1,121.52,
1,121.72,1,121.92,
0 to 48 in (122 cm)    layer 1:  Average Measured
    0.31,    0.000,    0.0064,      1.202,
0 to 48 in (122 cm):  conductivity k = 2.76 x 10-5 cm/s
     2.0,    0.0995,   0.0064,      1.202,       0.5,
0,                              NDAY
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
```

```
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,
1,1,1,1,1,365,                    LEAF,NFROOT,NUPTAK,NFPET,NSOW,NHRVST
0.0,                              BARE
4,                                NDLAI
47,0.0,82,1.2,283,1.2,318,0.0,    IDLAI,VLAI
1.163,0.129,0.020,                AA,B1,B2 (based on annual cheatgrass and data
in Fayer (2000))
82,82,82,82,82,82,82,82,82,82,          day on which roots reach corrspd node
82,82,82,82,82,82,82,82,82,82,
365,365,365,365,365,365,365,365,365,365,
365,365,365,365,365,365,365,365,365,365,
365,365,365,365,365,365,365,365,365,365,
365,365,365,365,
15300.0,860.0,90.0,                 HW,HD,HN for layer 1
0.0,0.52,0.5,0.1,3.7,               PETPC(1:5)
0.25,220.0,2.0,1000.0,              albedo,elev.(m),wind height,atm.press.
c:\Poway\
Poway
txt
```

UNSAT-H Summary Output (Existing Cover System, 4-ft thick)

```
Created using BSUM300 Version 3.01; all units are cm
 First file in series is P48b1989.res
 Year  Precip     PET  Transp    Evap  Runoff   Drain   Store  TimeStp MasBalErr
 ---- ------- ------- ------- ------- ------- ------- ------- -------- ---------
 Initial storage =                                      24.326
    1  11.481 150.697   3.368   8.102   3.041   0.102  21.195    21806  -0.00061
    2  20.472 157.152   3.917   9.393   7.729   0.058  20.571    23463  -0.00191
    3  40.462 155.981   4.311   8.883  25.801   0.046  21.993    24118  -0.00103
    4  41.427 176.235   4.442  14.706  21.317   0.053  22.903    24543  -0.00174
    5  58.522 145.827   5.158  13.363  39.569   0.229  23.101    55278   0.00504
    6  37.465 148.865   5.772  13.758  18.179   0.125  22.735    26450  -0.00271
    7  53.162 159.958   6.345  16.767  30.586   0.127  22.075    27422  -0.00330
    8  37.236 177.402   4.059  15.202  17.163   0.078  22.812    25442  -0.00231
    9  31.293 153.444   3.163  13.886  14.093   0.059  22.905    23456  -0.00158
   10  64.948 128.824   8.728  16.022  39.345   0.227  23.534    25484  -0.00205
 ---- ------- ------- ------- ------- ------- ------- ------- -------- ---------
 SUM= 396.4691554.385  49.264 130.081 216.824   1.104                   -0.01220
```

Note:
Average annual drainage = 11.04 mm / 10 years = 1.1 mm (0.04 in.)

Written by: **R. EL-Sherbiny** Date: **04/18/07** Reviewed by: **B. Gross** Date: **04/18/07**

Client: **County of San Diego** Project: **Poway Landfill** Project/Proposal No.: **SC0233-9** Task No.: **5**

UNSAT-H Input (Existing Cover System, 6-ft thick)

```
Poway Existing Cover, LAI = 1.2, root depth approx. 6 in.
1,1,                             IPLANT,NGRAV
365,1,365,                       IFDEND,IDTBEG,IDTEND
1989,10,0,1,0,                   IYS,NYEARS,ISTEAD,IFLIST,NFLIST
0,24.0,                          NPRINT,STOPHR
1,6,1,1.0E-6,                    ISMETH,INMAX,ISWDIF,DMAXBA
1.0,1.0E-15,0.0,                 DELMAX,DELMIN,OUTTIM
1.5,1.0E-7,0.0,0.0,0.0,          RFACT,RAINIF,DHTOL,DHMAX,DHFACT
4,3,0.0,                         KOPT,KEST,WTF
0,1,2,1,                         ITOPBC,IEVOPT,NFHOUR,LOWER
0.0,1.0E+06,0.0,0.99,            HIRRI,HDRY,HTOP,RHA
1,0,1,                           IETOPT,ICLOUD,ISHOPT
1,1.0,                           IRAIN,HPR
0,0,0,0,0,                       IHYS,AIRTOL,HYSTOL,HYSMXH,HYFILE
0,0,0,                           IHEAT,ICONVH,DMAXHE
0,0,0,0,                         UPPERH,TSMEAN,TSAMP,QHCTOP
0,0.0,0.0,                       LOWERH,QHLEAK,TGRAD
1,0.66,290.93,0.24,              IVAPOR,TORT,TSOIL,VAPDIF
1,59,                            matn,npt
1,0.00,1,0.20,1,0.40,1,0.60,
1,0.80,1,1.00,1,1.24,1,1.53,
1,1.87,1,2.29,1,2.79,1,3.38,
1,4.10,1,4.96,1,5.99,1,7.23,
1,8.72,1,10.50,1,12.64,1,15.21,
1,18.29,1,21.99,1,26.42,1,31.75,
1,38.14,1,45.81,1,55.01,1,66.05,
1,79.30,1,91.44,1,103.58,1,116.83,
1,127.87,1,137.07,1,144.74,1,151.13,
1,156.46,1,160.89,1,164.59,1,167.67,
1,170.24,1,172.38,1,174.16,1,175.65,
1,176.89,1,177.92,1,178.78,1,179.50,
1,180.09,1,180.59,1,181.01,1,181.35,
1,181.64,1,181.88,1,182.08,1,182.28,
1,182.48,1,182.68,1,182.88,
0 to 72 in (183 cm)    layer 1:  Average Measured
    0.31,    0.000,    0.0064,      1.202,
0 to 72 in (183 cm):  conductivity k = 2.76 x 10-5 cm/s
     2.0,    0.0995,   0.0064,      1.202,       0.5,
0,                             NDAY
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
```

```
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,1300.0,
1300.0,1300.0,1300.0,
1,1,1,1,1,365,                    LEAF,NFROOT,NUPTAK,NFPET,NSOW,NHRVST
0.0,                              BARE
4,                                NDLAI
47,0.0,82,1.2,283,1.2,318,0.0,    IDLAI,VLAI
1.163,0.129,0.020,                AA,B1,B2 (based on annual cheatgrass and data
in Fayer (2000))
82,82,82,82,82,82,82,82,82,82,          day on which roots reach corrspd node
82,82,82,82,82,82,82,82,82,82,
365,365,365,365,365,365,365,365,365,365,
365,365,365,365,365,365,365,365,365,365,
365,365,365,365,365,365,365,365,365,365,
365,365,365,365,365,365,365,365,365,
15300.0,860.0,90.0,                 HW,HD,HN for layer 1
0.0,0.52,0.5,0.1,3.7,               PETPC(1:5)
0.25,220.0,2.0,1000.0,              albedo,elev.(m),wind height,atm.press.
c:\Poway\
Poway
txt
```

UNSAT-H Summary Output (Existing Cover System, 6-ft thick)

```
Created using BSUM300 Version 3.01; all units are cm
 First file in series is P72b1989.res
 Year  Precip     PET  Transp    Evap  Runoff   Drain   Store  TimeStp MasBalErr
 ---- ------- ------- ------- ------- ------- ------- ------- -------- ---------
 Initial storage =                                       36.489
    1  11.481 150.697   3.368   8.102   3.042   0.110  33.349    21804  -0.00063
    2  20.472 157.152   3.941   9.396   7.730   0.091  32.665    23446  -0.00192
    3  40.462 155.981   4.372   8.902  25.812   0.072  33.972    22872  -0.00138
    4  41.427 176.235   4.501  14.738  21.333   0.066  34.763    24450  -0.00176
    5  58.522 145.827   5.107  13.364  39.584   0.104  35.119    58197   0.00644
    6  37.465 148.865   5.697  13.705  18.155   0.130  34.901    26407  -0.00272
    7  53.162 159.958   6.342  16.757  30.579   0.118  34.271    27525  -0.00339
    8  37.236 177.402   4.057  15.198  17.162   0.109  34.985    25366  -0.00229
    9  31.293 153.444   3.212  13.908  14.098   0.085  34.976    23507  -0.00165
   10  64.948 128.824   8.715  16.024  39.365   0.114  35.708    25563  -0.00204
 ---- ------- ------- ------- ------- ------- ------- ------- -------- ---------
 SUM= 396.4691554.385  49.312 130.093 216.858   0.997                   -0.01133
```

Note:
Average annual drainage = 9.97 mm / 10 years = 1.0 mm (0.04 in.)

Written by: **R. EL-Sherbiny** Date: **04/18/07** Reviewed by: **B. Gross** Date: **04/18/07**

Client: **County of San Diego** Project: **Poway Landfill** Project/Proposal No.: **SC0233-9** Task No.: **5**

UNSAT-H Input (Prescriptive Cover System)

```
Poway Title 27 Cover, LAI = 1.2, root depth approx. 6 in.
1,1,                             IPLANT,NGRAV
365,1,365,                       IFDEND,IDTBEG,IDTEND
1989,10,0,1,0,                   IYS,NYEARS,ISTEAD,IFLIST,NFLIST
0,24.0,                          NPRINT,STOPHR
1,10,1,5.0E-7,                   ISMETH,INMAX,ISWDIF,DMAXBA
1.0,1.0E-15,0.0,                 DELMAX,DELMIN,OUTTIM
1.5,1.0E-7,0.0,0.0,0.0,          RFACT,RAINIF,DHTOL,DHMAX,DHFACT
4,3,0.0,                         KOPT,KEST,WTF
0,1,2,1,                         ITOPBC,IEVOPT,NFHOUR,LOWER
0.0,1.0E+06,0.0,0.99,            HIRRI,HDRY,HTOP,RHA
1,0,1,                           IETOPT,ICLOUD,ISHOPT
1,1.0,                           IRAIN,HPR
0,0,0,0,0,                       IHYS,AIRTOL,HYSTOL,HYSMXH,HYFILE
0,0,0,                           IHEAT,ICONVH,DMAXHE
0,0,0,0,                         UPPERH,TSMEAN,TSAMP,QHCTOP
0,0.0,0.0,                       LOWERH,QHLEAK,TGRAD
1,0.66,290.93,0.24,              IVAPOR,TORT,TSOIL,VAPDIF
2,77,                            matn,npt
1,0.00,1,0.20,1,0.40,1,0.60,
1,0.80,1,1.00,1,1.24,1,1.53,
1,1.87,1,2.29,1,2.79,1,3.38,
1,4.10,1,4.96,1,5.99,1,7.23,
1,8.72,1,10.50,1,12.64,1,15.24,
1,17.84,1,19.98,1,21.76,1,23.25,
1,24.49,1,25.52,1,26.38,1,27.10,
1,27.69,1,28.19,1,28.61,1,28.95,
1,29.24,1,29.48,1,29.68,1,29.88,
1,30.08,1,30.28,1,30.48,2,30.68,
2,30.88,2,31.08,2,31.28,2,31.48,
2,31.72,2,32.01,2,32.35,2,32.77,
2,33.27,2,33.86,2,34.58,2,35.44,
2,36.47,2,37.71,2,39.20,2,40.98,
2,43.12,2,45.72,2,48.32,2,50.46,
2,52.24,2,53.73,2,54.97,2,56.00,
2,56.86,2,57.58,2,58.17,2,58.67,
2,59.09,2,59.43,2,59.72,2,59.96,
2,60.16,2,60.36,2,60.56,2,60.76,
2,60.96,
0 to 12 in (30.48 cm)    layer 1:  Measured for Sample P-1
    0.292,    0.000,    0.0111,      1.231,
0 to 12 in (30.48 cm):  conductivity k = 1.0 x 10-4 cm/s
      2.0,    0.360,    0.0111,      1.231,       0.5,
12 to 24 in (60.96 cm)    layer 2:  Measured for Sample P-2
    0.298,    0.000,    0.0007,      1.204,
12 to 24 in (60.96 cm):  conductivity k = 1.0 x 10-6 cm/s
    2.0,     0.0036,    0.0007,      1.204,       0.5,
0,                               NDAY
530.0,530.0,530.0,530.0,
```

```
530.0,530.0,530.0,530.0,
530.0,530.0,530.0,530.0,
530.0,530.0,530.0,530.0,
530.0,530.0,530.0,530.0,
530.0,530.0,530.0,530.0,
530.0,530.0,530.0,530.0,
530.0,530.0,530.0,530.0,
530.0,530.0,530.0,530.0,
530.0,530.0,530.0,9200.0,
9200.0,9200.0,9200.0,9200.0,
9200.0,9200.0,9200.0,9200.0,
9200.0,9200.0,9200.0,9200.0,
9200.0,9200.0,9200.0,9200.0,
9200.0,9200.0,9200.0,9200.0,
9200.0,9200.0,9200.0,9200.0,
9200.0,9200.0,9200.0,9200.0,
9200.0,9200.0,9200.0,9200.0,
9200.0,9200.0,9200.0,9200.0,
9200.0,
1,1,1,1,1,365,                    LEAF,NFROOT,NUPTAK,NFPET,NSOW,NHRVST
0.0,                              BARE
4,                          NDLAI
47,0.0,82,1.2,283,1.2,318,0.0,    IDLAI,VLAI
1.163,0.129,0.020,                AA,B1,B2 (based on annual cheatgrass and data
in Fayer (2000))
82,82,82,82,82,82,82,82,82,82,                day on which roots reach corrspd
node
82,82,82,82,82,82,82,82,82,82,
365,365,365,365,365,365,365,365,365,365,
365,365,365,365,365,365,365,365,365,365,
365,365,365,365,365,365,365,365,365,365,
365,365,365,365,365,365,365,365,365,365,
365,365,365,365,365,365,365,365,365,365,
365,365,365,365,365,365,365,
15300.0,1150.0,50.0,                HW,HD,HN for layer 1
15300.0,2500.0,860.0,              HW,HD,HN for layer 2
0.0,0.52,0.5,0.1,3.7,               PETPC(1:5)
0.25,220.0,2.0,1000.0,              albedo,elev.(m),wind height,atm.press.
c:\Poway\
Poway
Txt
```

Written by: **R. EL-Sherbiny** Date: **04/18/07** Reviewed by: **B. Gross** Date: **04/18/07**

Client: **County of San Diego** Project: **Poway Landfill** Project/Proposal No.: **SC0233-9** Task No.: **5**

UNSAT-H Summary Output (Prescriptive Cover System)

Created using BSUM300 Version 3.01; all units are cm
First file in series is p-t27b1989.res

Year	Precip	PET	Transp	Evap	Runoff	Drain	Store	TimeStp	MasBalErr
Initial storage =							11.899		
1	11.481	150.697	3.547	8.449	1.165	0.138	10.080	20255	-0.00014
2	20.472	157.152	5.167	10.945	3.820	0.356	10.265	28667	0.00091
3	40.462	155.981	5.751	10.827	20.574	1.054	12.400	1186902	0.12048
4	41.427	176.235	6.140	19.148	13.830	1.012	13.653	445630	0.04382
5	58.522	145.827	5.885	17.433	34.760	2.551	11.446	1096660	0.10016
6	37.465	148.865	8.242	17.081	10.838	0.761	11.978	158576	0.01136
7	53.162	159.958	8.878	20.837	23.007	1.667	10.616	1356546	0.13474
8	37.236	177.402	6.372	17.958	9.355	0.415	13.745	159232	0.00754
9	31.293	153.444	4.353	18.053	8.195	0.786	13.627	260812	0.02480
10	64.948	128.824	9.577	19.461	34.354	3.288	11.753	1472115	0.14171
SUM=	396.469	1554.385	63.911	160.192	159.898	12.028			0.58539

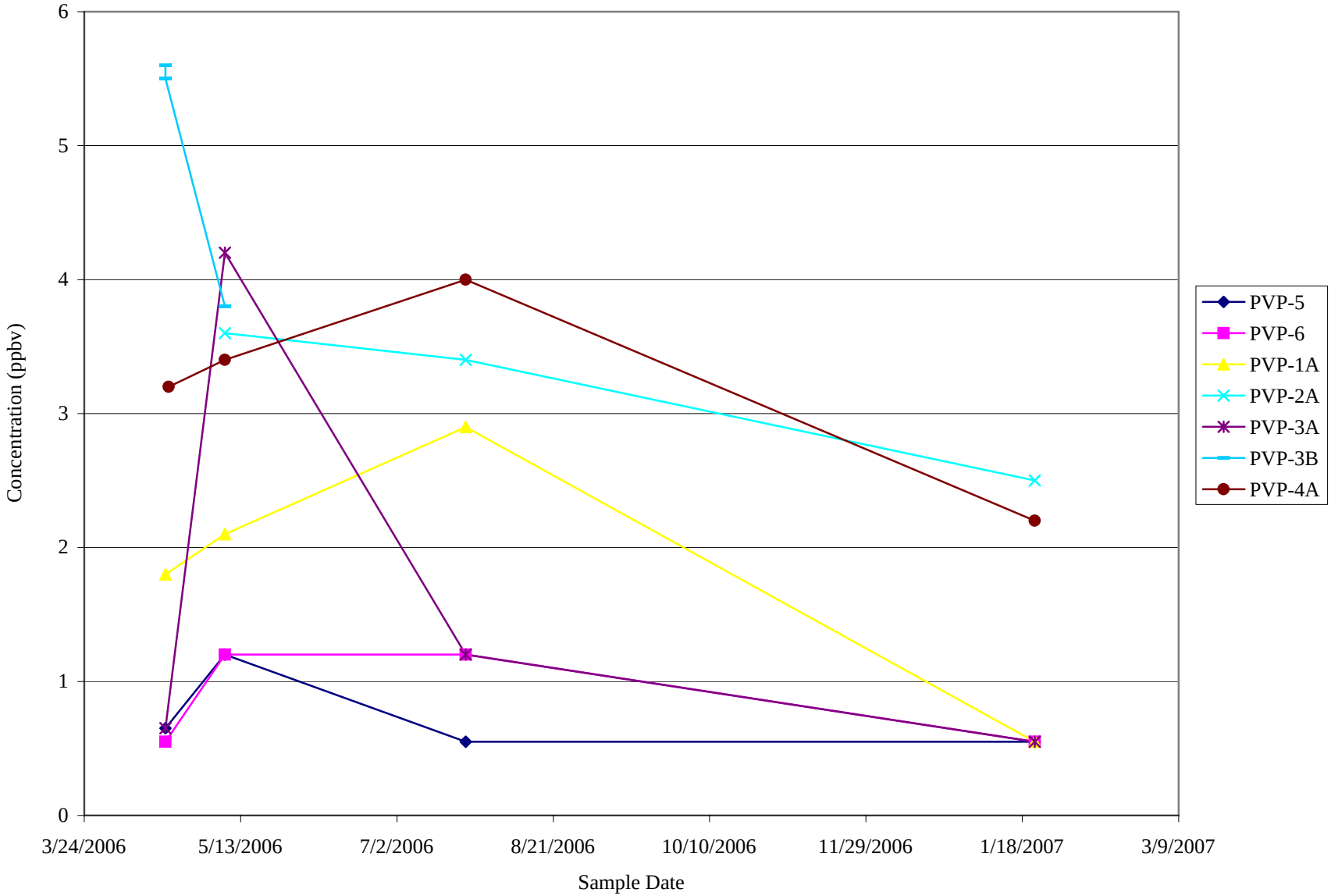
Note:
Average annual drainage = 120 mm / 10 years = 12 mm (0.5 in.)

APPENDIX F

Soil Vapor Time Series Plots

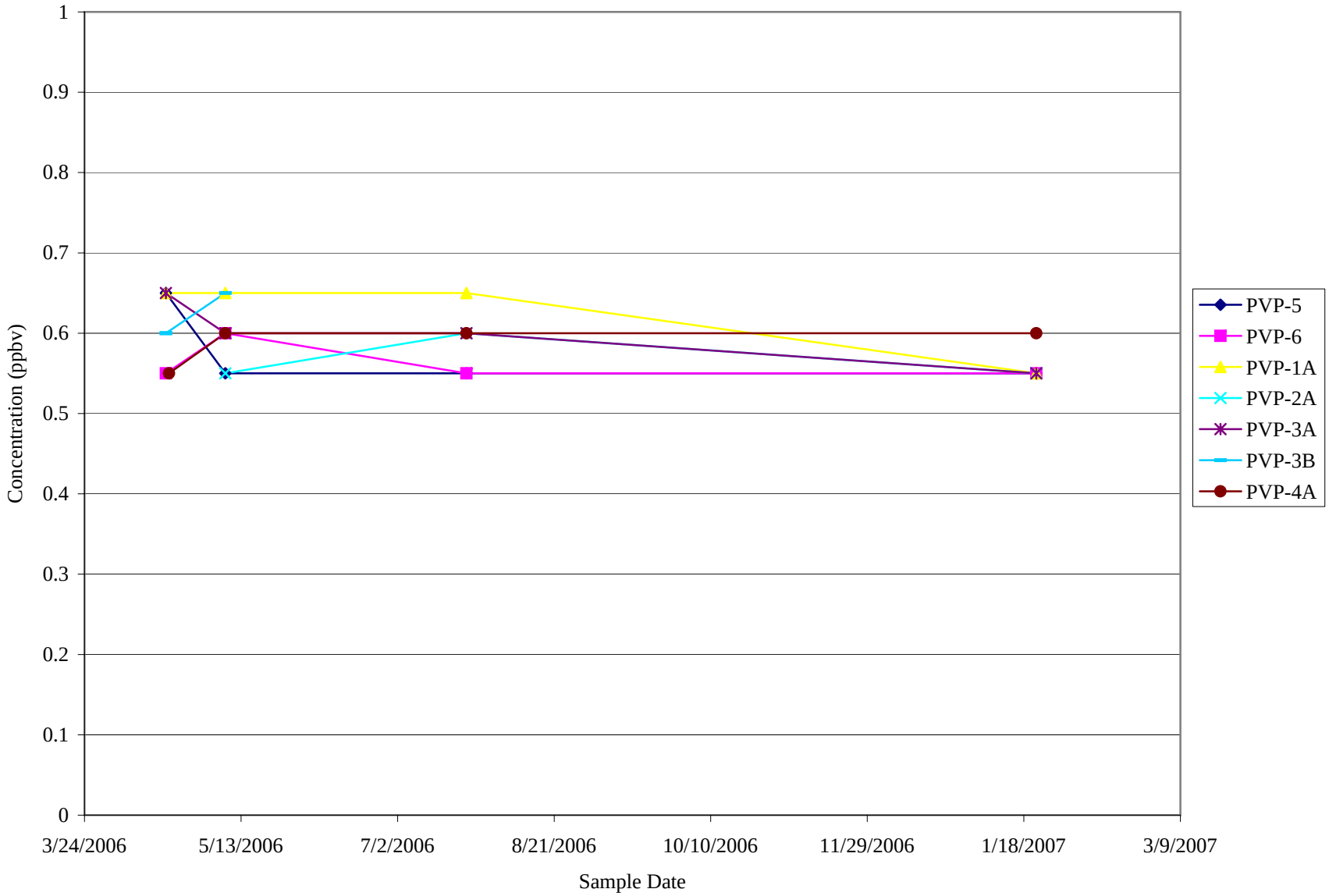
Time-Series Plot for Tetrachloroethene in Onsite Soil Vapor
Poway Landfill

Geosyntec consultants



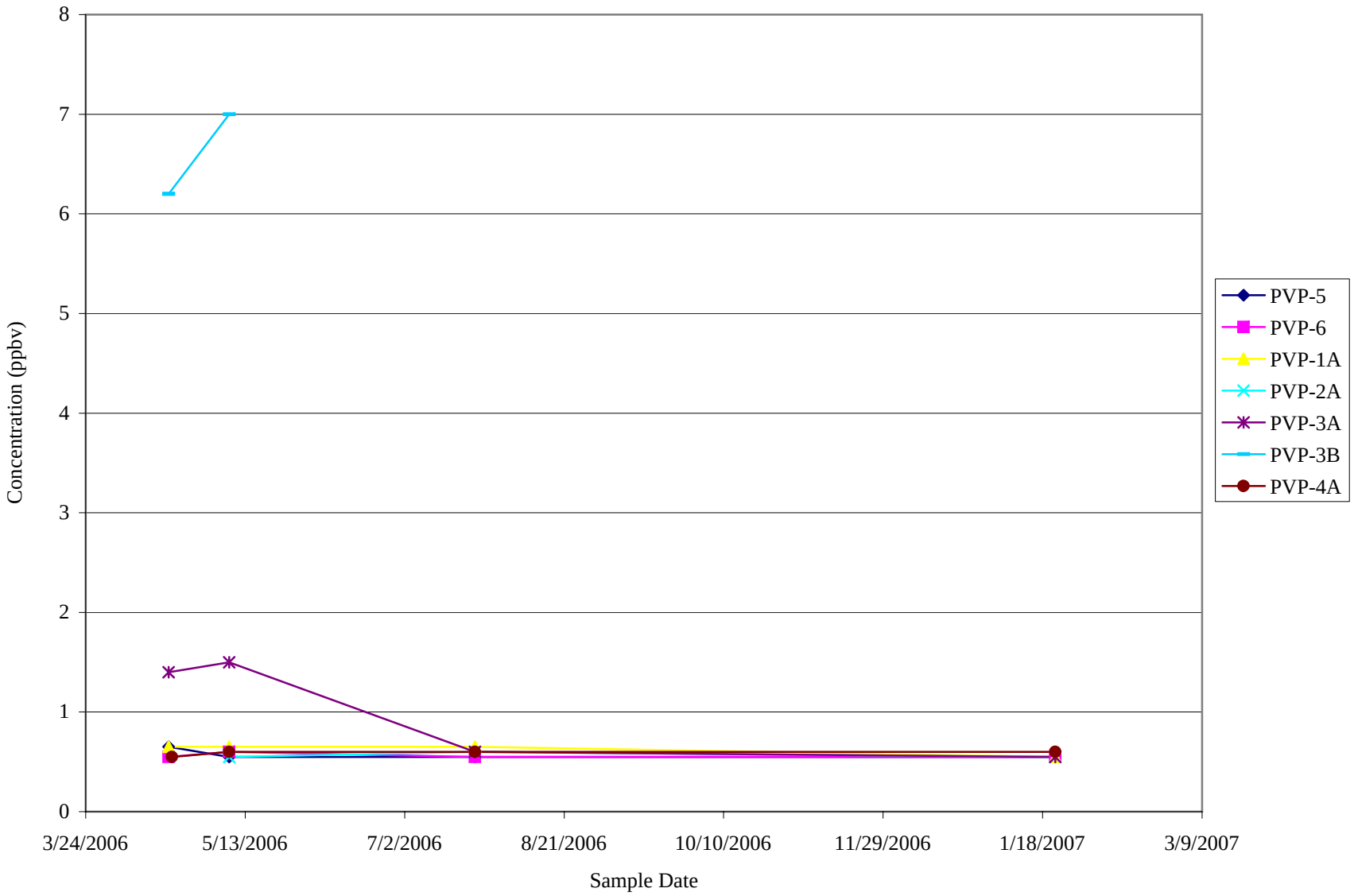
Time-Series Plot for Trichloroethene in Onsite Soil Vapor
Poway Landfill

Geosyntec consultants



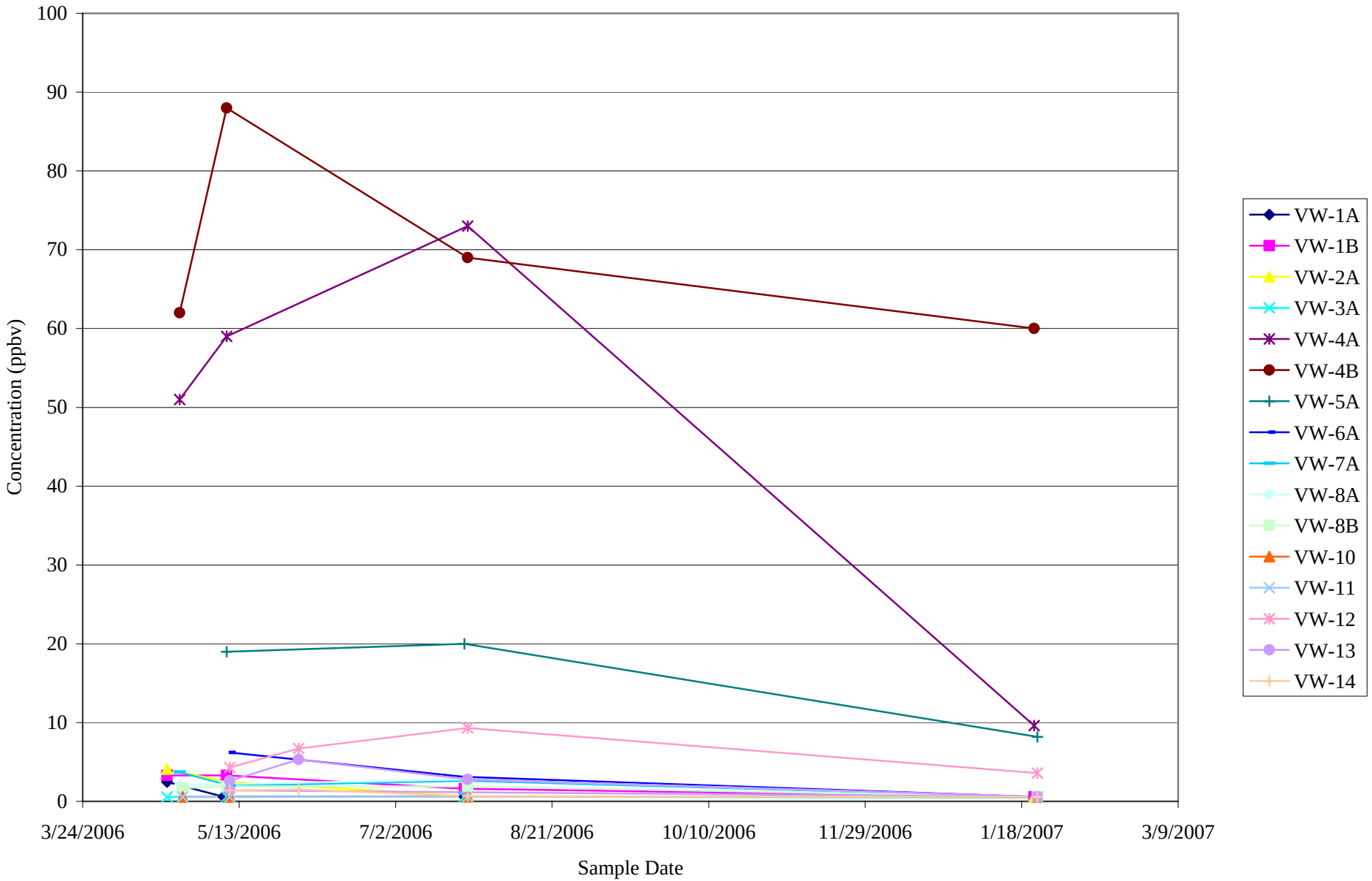
Time-Series Plot for Benzene in Onsite Soil Vapor
Poway Landfill

Geosyntec consultants



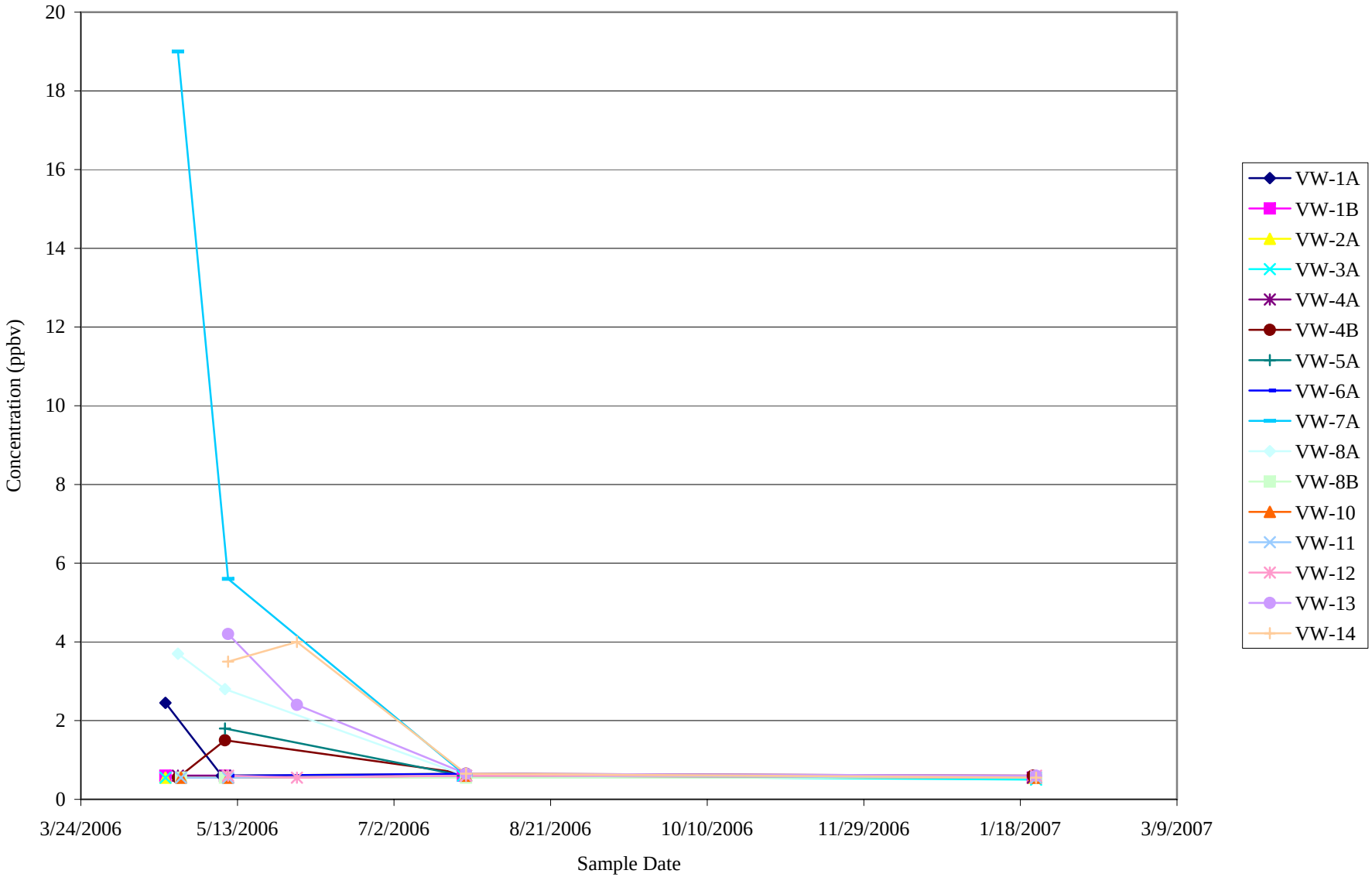
Time-Series Plot for Tetrachloroethene in Offsite Soil Vapor
Poway Landfill

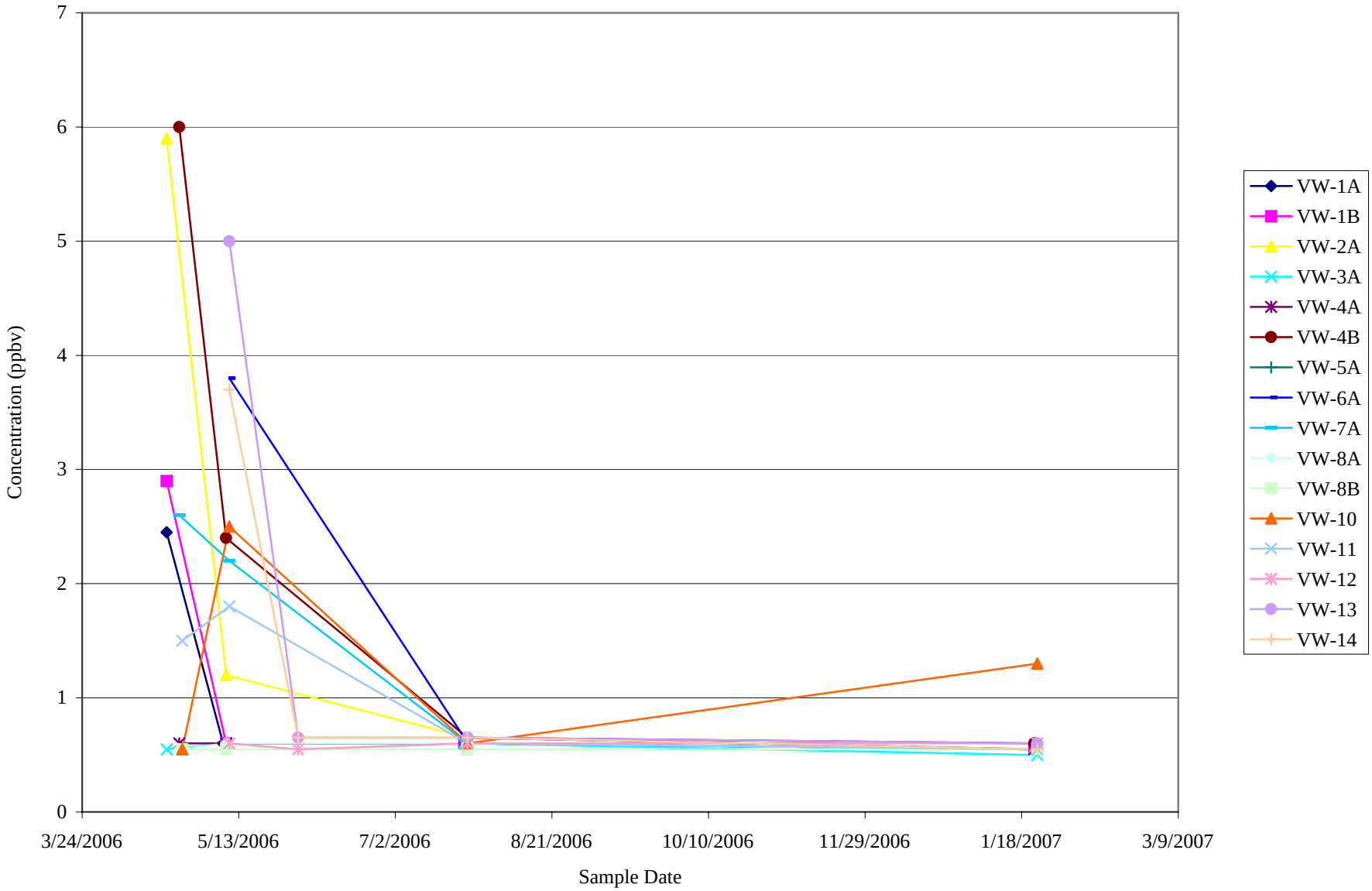
Geosyntec consultants



Time-Series Plot for Trichloroethene in Offsite Soil Vapor
Poway Landfill

Geosyntec consultants



Time-Series Plot of Benzene in Offsite Soil Vapor
Poway Landfill

Geosyntec consultants