DOWNEY | BRAND
ATTORNEYS LLP

Nicole E. Granquist
ngranquist@downeybrand.com
916/520-5369 Direct
916/520-5769 Fax

621 Capitol Mall, 18th Floor
Sacramento, CA 95814
916/444-1000 Main
916/444-2100 Fax
downeybrand.com

February 22, 2013

VIA FEDERAL EXPRESS

Ms. Dyan Whyte
Assistant Executive Officer
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

Re: *Submittal of Workplans Re Water Code section 13260 Request for Report of Waste Discharge*

Dear Ms. Whyte:

Enclosed, and in response to the Regional Water Quality Control Board, San Francisco Bay Region's, ("Regional Water Board") January 22, 2013 Notice of Violation of California Water Code section 13260, Lehigh Southwest Cement Company ("Lehigh") timely encloses the following requested documents:

- Revised Workplan for Characterization of Eastern and Western Materials Storage Areas, Permanente Quarry
- Workplan for Pond Characterization, Permanente Quarry

Lehigh also encloses a response to the Staff Comments provided with your January 22, 2013 correspondence. the Order's requirements, Lehigh is concerned that submittal quality will suffer, which will further frustrate the parties' efforts towards accurate and appropriate regulation.

If you or your staff have any questions regarding the enclosed documents, or would like to discuss further, please do not hesitate to contact me.

Very truly yours,

Nicole E. Granquist

Nicole E. Granquist

Cc: Lindsay Whalin, Regional Water Quality Control Board, San Francisco Bay Region
Ellen Howard, Counsel, State Water Resources Control Board (Letter via Email)
John Gillan, Deputy General Counsel, Lehigh
Greg Knapp, Director Environmental Region West, Lehigh

WORKPLAN FOR CHARACTERIZATION OF EASTERN AND WESTERN MATERIALS STORAGE AREAS, PERMANENTE QUARRY

Santa Clara County, California

PROFESSIONAL GEOLOGIST
JOHN G. BENNETT
No. 7567
STATE OF CALIFORNIA

Expires 8/31/14

Submitted to:
San Francisco Bay Regional Water Quality Control Board
1515 Clay St., Suite 1400
Oakland, CA 94612

Prepared by:
Strategic Engineering & Science, Inc.
17701 Cowan, Suite 210
Irvine, CA 92614

February 22, 2012

TABLE OF CONTENTS

1.0 INTRODUCTION

On behalf of Lehigh Southwest Cement Company (Lehigh), Strategic Engineering and Science, Inc. (SES) submits this proposed workplan for further characterization of materials comprised within the East and West Materials Storage Areas (EMSA and WMSA) at the Permanente Facility, located in Cupertino, California (Site). This workplan defines the approach that will be implemented to collect and analyze samples from these areas. The EMSA and WMSA are further described in subsequent sections.

1.1 Project Background

In a letter dated July 20, 2012 (Letter), the San Francisco Bay Regional Water Quality Control Board (RWQCB) directed Lehigh to submit a Report of Waste Discharge (ROWD) pursuant to Title 27 of the California Code of Regulations and to provide additional information related to the EMSA and WMSA. The Letter requested Lehigh to characterize material in the EMSA and WMSA for purposes of evaluating whether a discharge to waters of the State might occur that may have the potential to cause pollution or contamination.

On behalf of Lehigh, Downey Brand LLP responded to the RWQCB in a letter dated October 1, 2012. This response proposed that Lehigh submit a workplan to further characterize the EMSA and WMSA in order to facilitate classification of the materials in these areas, and to establish applicable regulatory requirements. A previous version of this workplan was submitted to the RWQCB on November 30, 2012. On January 22, 2013, the RWQCB issued a Notice of Violation, and requested a revised version of the workplan addressing RWQCB staff comments. This workplan satisfies the RWQCB's request, and is intended to inform the overall process of determining whether the requirements of Title 27 are applicable or necessary.

1.2 Site Description

The Site consists of a limestone and aggregate mining operation in the unincorporated foothills of western Santa Clara County, approximately two miles west of the City of Cupertino (Figure 1). It occupies a portion of a 3,510-acre property owned by Hanson Permanente Cement, Inc., and is operated by Lehigh.

The Site comprises approximately 614 acres (Figure 2) of existing and planned operational areas, including an open pit (North Quarry), overburden stockpiles, crushing and processing facilities, exploration areas, access roads, administrative offices, and equipment storage. The Site also includes undisturbed areas located south of the North Quarry, which buffer the operations from adjacent land uses. The main operational areas of the Site include:

- **North Quarry:** The North Quarry is where mineral extraction currently occurs. It consists of an open pit with elevations ranging from approximately 750 to 1,750 feet above mean sea level (amsl). Limestone and other rock types mined from the North

Quarry are crushed and either used for cement production at the adjacent cement plant or processed into aggregate products at the Rock Plant. Historically, the North Quarry has filled with a mixture of surface water and groundwater to an approximate elevation of 775 feet amsl, except when it is dewatered for mining.

- **EMSA:** The EMSA is located east of the North Quarry and is currently the primary storage area for overburden which includes the rock removed from North Quarry that is not suitable for either cement or aggregate production. Rock Plant fines are also deposited in the EMSA. In addition, historical uses of this area are documented in EMCON (1993), and are described further in Section 1.4.6. Reclamation of this area, consisting of grading and capping, will occur consistent with the 2012 Amended Reclamation Plan (ARP). Elevations of the EMSA range from 550 to 920 feet amsl.

- **WMSA:** The WMSA is a second overburden storage area, located west of the North Quarry, which no longer accepts overburden for storage. Elevations of the WMSA range from 1,500 to 1,975 feet amsl. During future reclamation, most of the materials from the WMSA will be used to backfill the North Quarry, and the remaining materials will be regraded and reclaimed.

- **Rock Plant:** The Rock Plant is located in the southeast portion of the Site, and processes mined material into aggregate products. The Rock Plant occupies gentle slopes and ranges in elevation from 580 to 770 feet amsl. The Rock Plant has not been operational since October 2011.

The overburden materials described above are composed of non-limestone rock materials (i.e., greenstones, metabasalts, and graywacke) and some low-grade limestone not suitable for use as aggregate.

As described in the recently certified Environmental Impact Report (Santa Clara County, 2011) for the ARP for the North Quarry, EMSA and WMSA, reclamation will occur in three phases. The first phase is the completion of mining in the North Quarry. During this phase, the EMSA will be reclaimed and overburden will be used to backfill and buttress the west wall of the North Quarry. The second phase is the excavation of the WMSA, and backfilling and recontouring of the North Quarry to an elevation of 990 ft amsl, and filling the slopes of the south, southwest and west sides of the quarry using material from the WMSA. The third phase occurs after backfilling and contouring of the slopes is completed, and consists of re-vegetation, maintenance and monitoring in the former mining and overburden storage areas, together with the closure of ancillary mining facilities.

1.3 Site Geology and Hydrogeology

The Site lies entirely within the Franciscan Terrane (Franciscan) (Golder, 2010b). The Franciscan is an assemblage of rocks, or mélange, composed primarily of altered meta-volcanic rocks (i.e., greenstone), graywacke and meta-graywacke units separated by zones of highly sheared matrix oftentimes comprised of mudstone or shale (Blake and Jones, 1981). At the Site, the "blocks" in the matrix are primarily comprised of limestone (with chert interbeds) and graywacke which are "floating" in the highly sheared greenstone matrix. Most major structural boundaries in the Franciscan are fault boundaries, as contrasted with depositional geologic contacts. Within major blocks, i.e., a limestone block, geologic contacts can be discerned. Specific rock types are:

- Metabasalt is medium to dark gray and fine-grained, and commonly contains abundant milky calcite veins and scattered pyrite crystals. Vesicles are present locally and occasionally filled with calcite. Chlorite content is variable but generally low.

- Greenstone developed from the same parent lithologies as metabasalt, but has higher chlorite content. It is greenish-gray and contains scattered pyrite crystals and opaque minerals. Vesicles, calcite-filled vesicles, and milky calcite veins occur locally.

- Graywacke ranges from yellowish brown to black, and is generally very fine grained to fine grained, although local conglomeratic intervals exist. Slickensides are common, and may be coated with graphite. Scattered milky calcite veins and pyrite occur locally.

- Limestone is light gray to medium dark gray, and fine to medium grained. Stylolites (contacts marked by irregular interlocking penetrations of the two sides) are common and black chert nodules are usually present in concentrations of 15% or less. The limestone is locally dolomitic.

- Fault breccia is dark gray to black and may be clast- or matrix-supported. The matrix consists of soft, very fine fault gouge. Clasts are limestone, greenstone, graywacke, or metabasalt, or some combination thereof. This unit may be highly sheared and deformed, and well-developed slickensides are common. Milky calcite veins and scattered pyrite occur locally.

The occurrence of groundwater at the Site is almost exclusively within secondary openings such as joints, fractures, shear zones, and faults. In general, groundwater occurs under unconfined conditions; however, the structural complexity also locally creates perched and semi-confined conditions. The hydraulic properties of the Franciscan are highly variable. Most published values for hydraulic conductivity of the Franciscan are low, and in the range of 1×10^{-5} to 1×10^{-6} cm/sec. Well yields are typically low, in the range of a few gallons per minute (gpm) to tens of gpm. Specific yields are very low, and are on the order of less than 3% (DWR Bulletin, 1975).

The depth to groundwater under the EMSA and WMSA varies due to the undulating topography of these areas. Groundwater under the EMSA occurs at depths of between 100 and 160 feet, and under the WMSA at depths of between 700 and 1,000 feet (Golder, 2010b).

1.4 Previous Work and Existing Data

Recent site characterization work, such as Golder (2010b) and SES (2011), was performed to address hydrologic aspects of the ARP. A variety of tests were conducted on the geologic materials present in the North Quarry and on the overburden removed as part of previous mining activities. These tests included determining the total metals content and the leachability of general minerals and metals from these materials. Leachability was determined using the Modified California Assessment Manual Waste Extraction Test (CAM WET) and wall washing tests. In addition, North Quarry water runoff from the west wall was analyzed for general minerals and metals. Acid-base accounting testing was done to confirm that the materials do not have acid generating potential (Golder, 2010b). Pre-existing water quality and EMSA characterization data are summarized below.

1.4.1 Total Metals Results

Table 1 provides the total concentrations determined from rock boring samples collected in the North Quarry, the Exploration Area located immediately south of North Quarry, and the EMSA. Because the Exploration Area has similar rock types to those mined from North Quarry, these data are generally applicable to similar material types in the WMSA and EMSA.

These results indicate that the limestone occurrences at the Site are heterogeneous, and that single rock samples of North Quarry limestone (B1-1 and B1-2 in Table 1) have significantly different concentrations of several trace constituents. This is due to the presence of various grades of limestone at the Site. Therefore, the composite samples which consist of a variety of limestone grades, are representative of overall bulk rock composition.

1.4.2 Modified CAM WET Results

CAM WET tests were conducted using de-ionized water on the composite boring samples described above. These tests indicate that the mined material (limestone) contains leachable molybdenum and selenium (Table 2). The overburden materials such as graywacke, fault breccia, greenstone, metabasalt, and chert have lower leachability for molybdenum and very limited selenium leachability.

These data indicate that the leachable fraction of the total concentrations present in mined materials is small. For example, total concentrations of selenium range from 2.4 to 15 mg/kg in mined material, whereas the CAM WET leachate results are significantly lower at <0.38 to 6 µg/l. None of the CAM WET leachate concentrations exceed their respective Total Threshold Limit Concentration (TTLC) or Soluble Threshold Limit Concentration (STLC), indicating that the materials would not be considered a hazardous waste.

1.4.3 Wall Washing Results

Wall washing tests were performed on exposed faces within the North Quarry in 2009 (Golder, 2010b). These tests involved washing an approximately one-meter square area of rock face with a known volume of water. The resultant wash water was analyzed for dissolved and total metal concentrations and general minerals. The results are provided in Table 3.

These wall washing samples provide an indication as to the amount of dissolved constituents that could be potentially leached out during a rainstorm for the various rock types. The amount of wash water added was approximately equivalent to a 0.25 inch rainstorm event. The measured total recoverable concentrations include the metals contained in solid particles washed off the walls as well as dissolved in the wash water, and are therefore higher than the dissolved values which reflect the concentrations in the wash water only.

Similar to the CAM WET results above, the dissolved constituent concentrations from the wall wash tests are very low compared to the bulk rock concentrations in Table 1. The dissolved concentration also is typically less than the total recoverable concentration in the wall wash samples (also shown in Table 3).

1.4.4 Acid Generating Potential

All the major rock types, included graywacke, limestone, chert, fault breccia, greenstone, and metabasalt were found to have no potential for acid generation (Golder, 2010b). The ratio of neutralization potential to acid generation potential ranged from four for fault breccia, to the hundreds and thousands for greenstone and metabasalt. Typically, a ratio of greater than three (Hutchison et. al., 1992) indicates there is no acid generating potential.

Net neutralization capacity consists of the difference between the rock's neutralization capacity and its acid generating capacity. Neutralizing capacities for onsite lithologies range from 58 kg (calcium carbonate equivalent – $CaCO3$) per ton (/t) for graywacke to 867 kg (calcium carbonate equivalent - $CaCO3$)/t for metabasalt. Typically, values above 20 kg ($CaCO3$)/t are considered non-acid generating.

1.4.5 Recent Geotechnical Investigations

Geotechnical investigations were performed on the WMSA and EMSA (Golder, 2008 and 2010a) to evaluate the stability of these areas. During these investigations, five borings were installed in the WMSA and five in the EMSA (Figures 2 and 3). WMSA borings were installed through the overburden material and just into the surface of the underlying bedrock, to a maximum depth of 158 feet. EMSA borings were installed in native soils to a maximum depth of 45 feet. Groundwater was not encountered during these investigations.

1.4.6 Subsurface Investigations, Dry Canyon Storage Area and Former Impoundment Area

Previous subsurface investigations documented by a *June 10, 1993 Environmental Evaluation Report prepared by EMCON for the Kaiser Aluminum & Chemical Corporation* (EMCON, 1993) were conducted to investigate subareas within the current footprint of the EMSA, including the Dry Canyon Storage Area (DCSA) and the Former Impoundment Area (FIA). Documented uses of the DCSA include storage of concrete castings, containers, and drums, beginning in 1941. Storage of manufacturing material, overburden, and rock materials from the North Quarry that are not suitable for either cement or aggregate production continues in the EMSA to present day.

The FIA was previously occupied by a surface impoundment, which stored water. Based on aerial photography, the FIA was not present as of 1950, appears earliest in an aerial photos dated 1974, and remains visible as of 1980 photo. The FIA had been backfilled with 20 to 35 feet of cement fill materials as of 1987, when subsurface investigations documented in EMCON (1993) began in that area.

Five borings were drilled into the FIA, and four into the DCSA. Soil samples were collected at regular intervals. Most samples were analyzed for PCBs, petroleum hydrocarbons, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs), and cyanide. SES has compiled and reviewed the data available from these borings (Table 5).

A summary of relevant findings from EMCON (1993) pertaining to the FIA include the following.

- Separate samples of fill material from the FIA contained mercury at 32.5 mg/kg (surface sample), and cadmium at 104 mg/kg (20 feet bgs). These concentrations exceed their respective TTLCs.

- Two samples of sludge material from the FIA at depth contained TPH-diesel concentrations of 20,000 and 4,700 mg/kg, exceeding its Environmental Screening Level for Industrial Soils (published by the RWQCB; ESLs) of 83 mg/kg. One or both of these samples contained concentrations of acetone, toluene, xylenes, 1,2,4-trichlorobenzene, and PCBs exceeding ESLs. Three samples of fill and one sample of underlying native sandstone contained soluble selenium at concentrations exceeding its STLC.

- Three samples of fill and one sample of underlying native sandstone contained soluble selenium at concentrations exceeding its STLC.

- One sludge sample contained an Aroclor-1260 (a PCB) concentration of exceeding its ESL.

- Two fill samples and one native soil sample contained methylene chloride concentrations slightly exceeding the ESL.

- Most of the samples analyzed for cobalt, including both fill and native samples, contained ESL exceedences.

Analyses conducted on soil samples collected from the DCSA include the following:

- One fill sample collected contained a PCB concentration exceeding its ESL.

- Three fill samples contained methylene chloride concentrations slightly exceeding the ESL.

- One fill sample contained a cadmium concentration exceeding its ESL.

- Of three samples analyzed for cobalt, two contained concentrations exceeding its ESL.

Investigation work described in EMCON (1993) appears to be a relatively comprehensive investigation of the DCSA and FIA. Multiple borings were drilled in multiple phases at locations selected based on historical aerial photographs depicting the specific locations of the previous activities conducted. Soil samples collected during these investigations were analyzed for a wide variety of contaminants, which were selected based on documented previous uses of the areas. In most cases, native soils were encountered and sampled to document the bottom most extent of contaminants encountered, if any.

1.5 WMSA AND EMSA MATERIAL CHARACTERIZATION OBJECTIVES AND SCOPE

The objectives of the proposed additional sampling and analysis to characterize the WMSA and EMSA materials are as follows:

- Comply with the RWQCB's request for additional characterization data as described in its Letter.

- Obtain additional information on the mass and physical and geochemical characteristics of the non-limestone materials in the WMSA that can be used for construction of overburden disposal unit covers and for the North Quarry backfill cover.

Data collected to meet the first objective will be suitable for classifying the materials in accordance with Title 27, Section 22480. Each waste classification has its own prescriptive management requirements (Title 27, Section 22490). Data collected to meet the second objective will be used to further identify materials which do not have leaching characteristics that could pose a threat to water quality, and would therefore be suitable for use as closure cover. Section 2.8.7 of the ARP includes provisions for such non-limestone material covers.

2.0 FIELD SAMPLING APPROACH

2.1 Scope of work

This investigation will be focused on further characterizing the WMSA and EMSA materials, and to assist with a determination as to whether the requirements of Title 27 are applicable or necessary. Project objectives will be accomplished by conducting five soil borings in the WMSA and four soil borings in the EMSA.

2.2 Sampling Locations and Rationale

Soil boring locations were selected to provide spatial coverage of the EMSA and WMSA and to fill in gaps between prior geotechnical borings performed by Golder (Figures 2 and 3). The locations are also biased towards areas where the overburden materials are expected to be relatively thick. In addition, soil borings were intentionally proposed within the former DCSA and FIA to confirm the results of EMCON (1993), although we believe EMCON describes relatively comprehensive characterization of those areas. Actual boring locations may vary slightly from those shown, for reasons such as physical access.

2.3 Pre-field activities

A Health and Safety Plan (HSP), in compliance with 9 CFR 1910.120 and which describes the basic safety requirements for the fieldwork described below, will be utilized for this work.

The Underground Service Alert of Southern California will be notified as is required by law. Santa Clara Valley Water District (District) permits will be applied for and obtained for soil borings. Such permits are required for all exploratory soils borings 45 feet deep or greater. The District indicates that 10 days should be allowed for approval of exploratory soil boring permit applications.

In accordance with the site-specific requirements, clearance will also be obtained from the mine's management and the field work will be supervised by Mine Safety and Health Administration (MSHA) certified personnel since the Site is an operating mine.

2.4 Drilling and Sampling Methodology

A sonic drilling rig will be used to implement this project. The sonic rig was selected based on the following rationale:

- Proven ability to penetrate coarse- and fine-grained sediments that are anticipated to be present in the EMSA and WMSA.

- Ability to penetrate many bedrock materials, resulting in a higher probability that the onsite geologist can identify the depth at which native soil occurs. Previous works did not explicitly identify this contact.

- Capability of providing continuous soil samples, which will reduce or eliminate the need to infer the nature of lithologies between samples.

Borings will be terminated upon encountering native geologic materials. Table 4 describes anticipated depths of each soil boring. Based on existing subsurface data for the Site, groundwater will not be encountered and the borings will therefore not present a potential for vertical contaminant migration. Golder (2008 and 2010a) previously drilled multiple borings into the EMSA to a maximum depth of 45 feet below native surface, whereas proposed borings will penetrate only about 10 feet below native. Golder's borings into the WMSA extended up to 30 feet into native formations. None of these borings encountered groundwater. Therefore, in addition to advancement of a temporary casing during sonic drilling, the proposed drilling program is not expected to create a vertical conduit for contaminants.

Samples will be collected at each change in lithology, or at a minimum frequency of once every five vertical feet. A total of approximately 150 to 200 discrete samples will be collected. At the conclusion of each boring, portions of the samples collected from each lithology will be composited. Compositing will be conducted on these samples to realistically represent the disposition of materials within the EMSA and WMSA, which collectively consist of a "composite" of a variety of geologic materials. Each composite sample will represent a given lithology at a given borehole, and will be submitted to the laboratory for the analytical schedule described in Section 2.8. The remaining discrete samples will be stored, but will not be analyzed unless the analyses of the composite samples provided inconsistent results. In this case, the discrete samples used for the composites in question would be individually analyzed using selected tests.

2.5 Soil Logging and Field Observations

The lithologies in each boring will be logged and described using the United Soil Classification System (USCS). These descriptions will be logged on graphical boring log sheets. In addition, a daily field log will be maintained, which will contain other pertinent information.

A chain-of-custody form will be completed for the samples to document all handlers and for sample control.

2.6 Soil Sample Compositing

As described in Section 2.4, samples from each observed lithology of a particular soil boring will be composited and homogenized before being transferred to the laboratory. Sample compositing and homogenizing will be performed in the field pursuant to EPA (2011). The basic steps of compositing and homogenizing will be as follows:

1. Equal volumes of each subsample collected from each occurrence of a given lithology will be combined into a single container.

2. The container will be shaken by hand for approximately 10 seconds to begin the homogenization process.

3. Further homogenizing will be accomplished by “quartering.” The first step of quartering requires that the sample be poured into a pan.

4. The sample mass in the pan will be divided into four quarters. Each quarter will be mixed individually by stirring with a spatula, spoon, or similar instrument.

5. Two of the quarters located diagonally from one another will be combined and placed in a bowl, where it will be stirred using a spoon for approximately 10 seconds. The remaining two quarters will be discarded.

6. The homogenized composite sample will be placed in a laboratory container.

2.7 Constituents of Concern

Constituents of concern (COCs) were defined based on an assessment of constituents consistently found at substantial concentrations during previous investigations, such as those documented in EMCON (1993). The discussion below summarizes our assessment of COCs.

2.7.1 pH Conditions and Acid Generation Potential

Previous rinsate, pond sampling, and acid generating potential analyses indicate that acid mine drainage is not an issue at the Site. Available pond monitoring data indicate that pH conditions have been near neutral to slightly alkaline. In general, limestone is the most abundant rock type encountered at the Site. Composed primarily of calcium carbonate, limestone will impart buffering capacity to waters it interacts with. Previous Acid Base Accounting (ABA) characterization performed at the Site (see Section 1.4.4) suggests that the geologic materials at the Site are not acid generating. However, in response to the request of the RWQCB, additional ABA analyses will be conducted as described below.

2.7.2 Metals

Available data indicates that some mining and production related materials, such as those stored in the EMSA, may have naturally elevated concentrations of metals such as selenium, especially the limestone. Results of metals analyses indicate that the limestone occurrences at the Site are heterogeneous with respect to metals content, and that single rock samples of North Quarry limestone have significantly different concentrations of several trace constituents. This is due to the presence of various grades of limestone at the Site. In addition, EMCON (1993) results suggest the presence of potentially elevated cobalt and antimony concentrations.

CAM WET data suggest that the mined material (limestone) contains leachable selenium to varying degrees. Similarly, in general, available water quality data from the ponds and other surface waters indicates the presence of selenium, and occasionally elevated concentrations of cadmium, nickel, antimony, or molybdenum.

Based on the available data pertaining to rock materials, and ongoing concerns relative to metals at the Site, selenium, cadmium, cobalt, nickel, antimony, and molybdenum will be considered COCs.

2.7.3 Petroleum Hydrocarbons

Petroleum hydrocarbons were found at elevated concentrations in samples collected at depth representing the FIA (EMCON, 1993). It is unlikely that petroleum affected fill materials occurring at depth within the FIA or DCSA would affect surface waters that flow into the ponds, and previous data do not suggest we believe that further characterization of petroleum. However, petroleum hydrocarbons such as gasoline, oil, grease, and diesel fuel are used by vehicles, facilities, and equipment at the Site. Therefore, we will consider petroleum hydrocarbons (as gasoline, diesel, and motor oil) a COC.

2.7.4 Volatile Organic Compounds

Based on the previous data, VOCs were detected rarely and at relatively low concentrations in the FIA and DCSA (EMCON, 1993). In addition, the VOCs are mainly relegated to sludge material present at a depth that is likely now greater than 30 feet bgs.

Although VOCs were likely used and stored in previous onsite laboratories and in the Shop, use and storage of VOCs has been nearly or completely discontinued at the site. Based on the lack of significant previous detections and unlikely use or storage at the Site, no further assessment of VOCs is warranted.

2.7.5 Other Pollutants

Other pollutants such as PCBs, SVOCs, pesticides, and cyanide have previously been investigated at the Site. These constituents are not considered COCs due to lack of consistent or any detections. None of these compounds are currently used at the Site. And except for PCBs, Lehigh believes that these compounds were never used at the Site.

2.7.6 Constituents of Concern Summary

In summary, the COCs for for this investigation will consist of selenium, cadmium, molybdenum, nickel, antimony, cobalt, petroleum hydrocarbons (gasoline, diesel, and motor oil).

2.8 Analytical Schedule

All composite soil samples will be submitted to a state-certified analytical laboratory. Standard analytical turnaround time will be requested. These samples will be analyzed as follows:

- Title 22 Metals (EPA 6010/7470).

- Samples having Title 22 metals exceeding 10 times the Soluble Threshold Limit Concentration (STLC), if any, will undergo a CAM Waste Extraction Test (WET) using deionized water. Leachate from the test will be analyzed only for metals exceeding ten times the STLC.

- Petroleum hydrocarbons – gasoline, diesel, and motor oil ranges (EPA method 8015)

- One composite sample of each primary lithology observed during drilling will be selected for ABA analyses. Therefore, we anticipate a total of between five and ten samples to be analyzed for ABA, assuming that all primary onsite lithologies are identified during drilling.

With the possible exception of ABA analyses, laboratory analyses will be performed using EPA SW-846 methodologies at a California state-certified environmental laboratory.

2.9 Laboratory Data Validation and Laboratory Quality Control

The data received from the laboratory will be reviewed for accuracy, precision, and completeness. The data will be checked to verify that all pertinent information is included, all appropriate forms are signed and dated, and holding times and Quality Control sample acceptance criteria have been met.

2.10 Boring Abandonment

Following drilling activities, all borings will be backfilled in accordance with the boring permit conditions defined by the District. In general, we anticipate that this will involve backfilling each soil boring with hydrated bentonite, possibly mixed with neat cement or similar materials.

2.11 Equipment Decontamination

All reusable down-hole equipment used during drilling or sampling will be decontaminated. Decontamination will consist of cleaning reusable down-hole tools with laboratory grade detergent and rinsing twice with potable water, or with a pressurized steam cleaner. Drilling and sampling equipment will be decontaminated between each boring. Equipment used for sample compositing and homogenization will be decontaminated between each sample.

2.12 Investigation Derived Waste

Soil cuttings will be disposed of on the material storage area where they were derived from. Decontamination water will be drained onto the surface of the EMSA or WMSA. It will not be allowed to flow beyond the perimeter of the applicable material storage area.

3.0 DATA EVALUATION AND REPORTING

Based upon the results of previous tasks, a report will be prepared. The report will summarize the work completed, including the following elements:

- Description of the field procedures.
- Tables summarizing analytical data.
- Discussion of the analytical results and comparison with relevant regulatory criteria.
- A presentation and discussion of the boring logs.
- Comparison of the soil data with TTLC and STLC criteria, and comparison of WET test results with waste classification criteria and applicable water quality criteria.
- Conclusions and recommendations.

4.0 REFERENCES

Blake, M.C., Jr. and Jones, D.L., 1981. The Franciscan Assemblage and Related Rocks in Northern California: A Reinterpretation. *In* The Geotectonic Development of California, W.G. Ernst, Editor.

Department of Water Resources, 1975. Bulletin No. 118-1, Evaluation of Ground Water Resources: South San Francisco Bay, Volume III: Northern Santa Clara County Area, December 1975.

EMCON, 1993, Environmental Evaluation Report, Permanente Facility – Cupertino, California.

Environmental Protection Agency (EPA), 2011, Region 4 Science and Ecosystem Support Division, Soil Sampling Operating Procedure.

Golder Associates, 2008, Geotechnical Evaluations and Design Recommendations, West Materials Storage Area.

Golder Associates, 2010a, Geotechnical Evaluations and Design Recommendations, East Materials Storage Area.

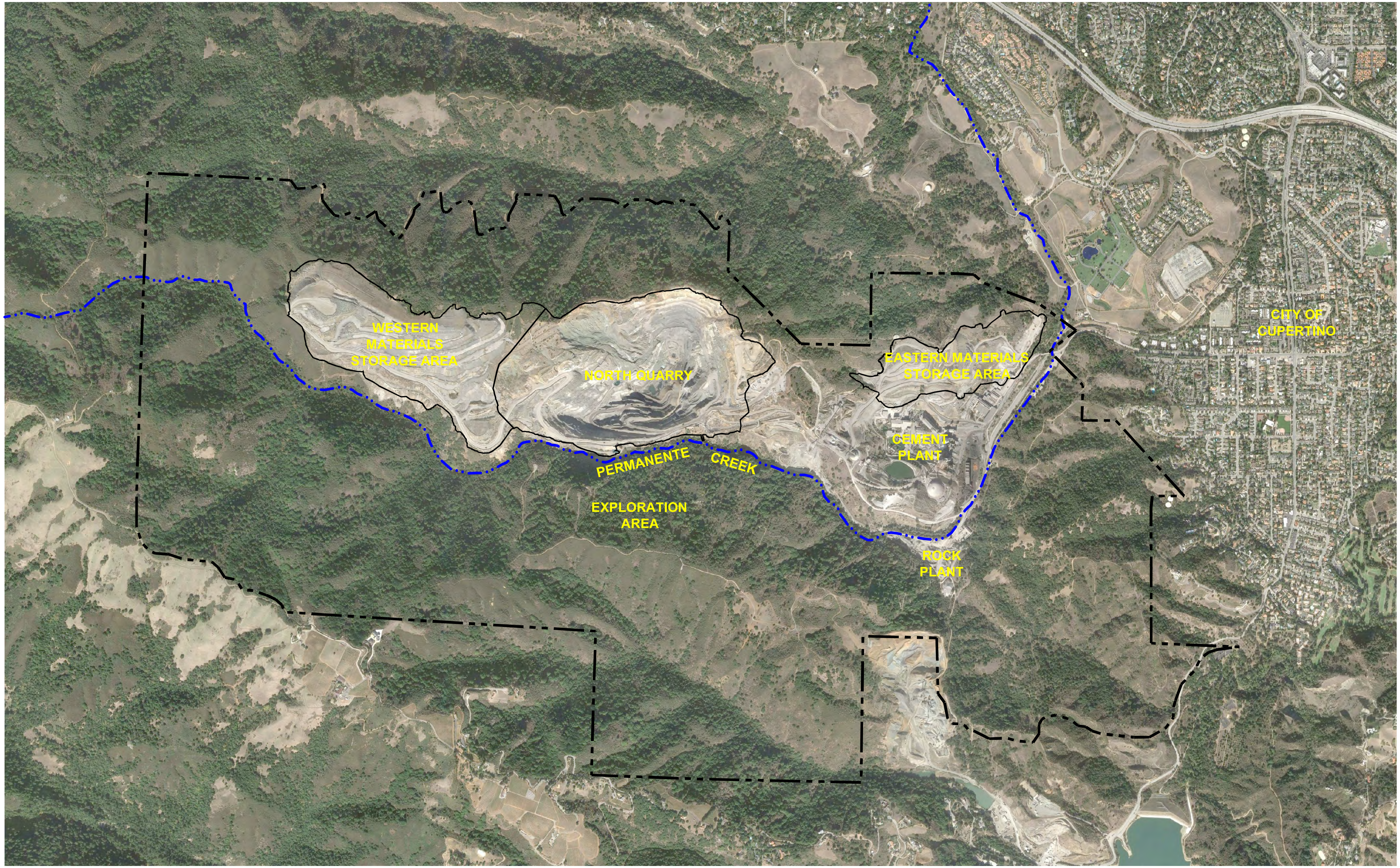
Golder Associates, 2010b, Hydrologic Investigation, Permanente Quarry Reclamation Plan Update, Santa Clara County, California.

Hutchison et al., 1992, Mine Waste Management. 654 p.

Santa Clara County, 2011, Lehigh Permanente Quarry Reclamation Plan Amendment, Environmental Impact Report, December.

Strategic Engineering and Science, 2011, Reclamation Water Quality, Permanente Quarry, Santa Clara County, California.

FIGURES



LEGEND

PROPERTY BOUNDARY

N

0 1,800 3,600

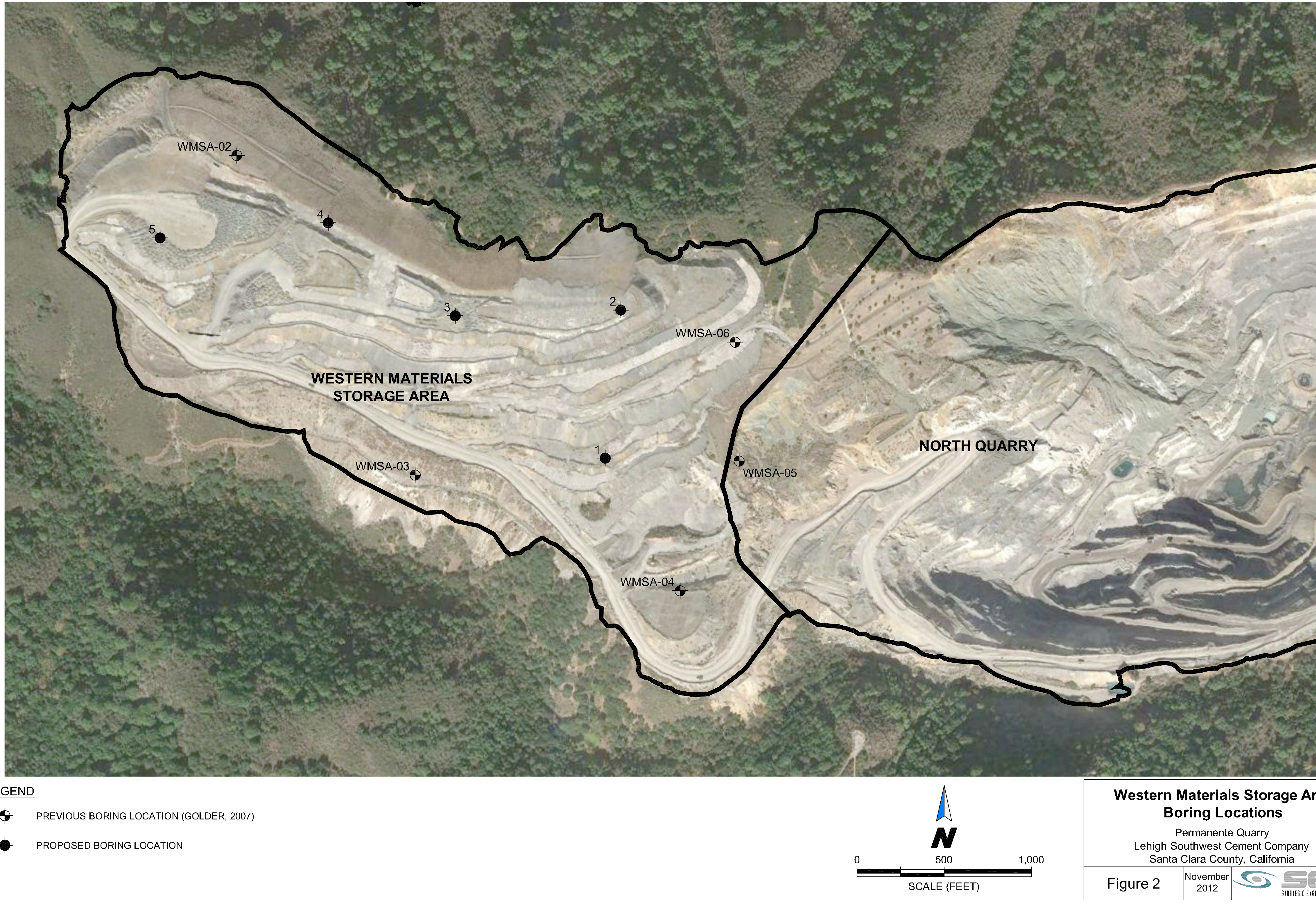
SCALE (FEET)

Site Vicinity Map

Permanente Quarry
Lehigh Southwest Cement Company
Santa Clara County, California

Figure 1	November 2012	SES STRATEGIC ENGINEERING & SCIENCE

P:\CAD\0182 Permanente Quarry\Tsk 01\Fig\0182_Permanente Quarry Nov 2012.dwg 11/27/12 10:41



P:\CAD\0182 Permanente Quarry\Tsk 01\Fig\0182_Permanente Quarry Nov 2012.dwg 11/30/12 13:15

LEGEND

PREVIOUS BORING LOCATION (GOLDER, 2007)

PROPOSED BORING LOCATION

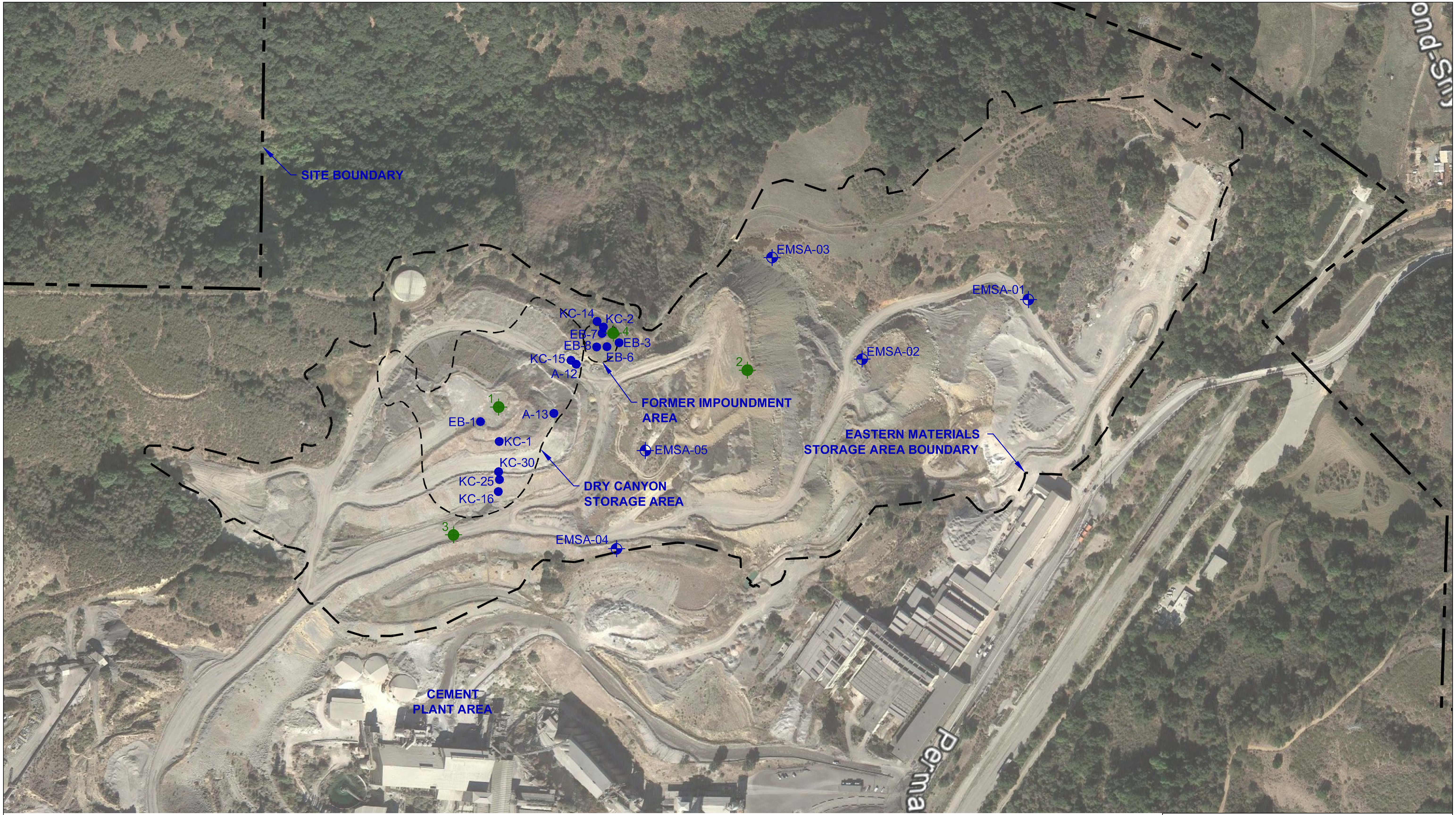
Western Materials Storage Area
Boring Locations

Permanente Quarry
Lehigh Southwest Cement Company
Santa Clara County, California

Figure 2

November 2012

SES STRATEGIC ENGINEERING & SCIENCE



LEGEND

- PREVIOUS BORING LOCATION (WOODWARD CLYDE, 1989 AND 1990)
- PREVIOUS BORING LOCATION (GOLDER, 2007)
- PROPOSED BORING LOCATION

Eastern Material Storage Area
Boring Locations

Permanente Quarry
Lehigh Southwest Cement Company
Santa Clara County, California

Figure 3

February 2013

SES STRATEGIC ENGINEERING & SCIENCE

TABLES

TABLE 1
MINED MATERIAL AND OVERBURDEN CONSTITUENT CONCENTRATIONS

Constituent	units	C-1	C-2	C-3	C-4	C-5	GT1-2-08-213	Average of Detections for SQ	B1-1	B1-2	B1-3	B1-4	B2-1	Average of Detections for NQ	B2-2
		SQ Boring Composite	SQ Boring Composite	SQ Boring Composite	SQ Boring Composite	SQ Boring Composite	SQ Boring Composite		NQ Single Sample	NQ Single Sample	NQ Single Sample	NQ Single Sample	NQ Composite		EMSA OB Composite
		Graywacke	Limestone	Flt. Breccia	Greenstone	Metabasalt	Chert		Limestone	Limestone	Metavolcan.	Graywacke			
		(7/1/09)	(7/1/09)	(7/1/09)	(7/1/09)	(7/1/09)	(7/1/09)	mg/kg	(1/22/10)	(1/22/10)	(1/22/10)	(1/22/10)	(2/10/10)	mg/kg	(2/10/10)
Antimony	mg/kg	ND (<1.7)	6.5	4.2	ND (<1.7)	ND (<1.7)	5.3	3.09	ND (<1.7)	ND (<1.7)	ND (<1.7)	ND (<1.7)	ND (<1.7)	ND (<1.7)	ND (<1.7)
Arsenic	mg/kg	5.1	8.4	2.4	ND (<0.71)	4.8	5.7	4.46	ND (<0.71)	2.7	ND (<0.71)	7.5	2.7	2.7	2.6
Asbestos	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	60	800	180	46	110	560	292.7	940	290	590	49	ND (<0.13)	373.8	750
Beryllium	mg/kg	0.17	0.3	ND (<0.026)	ND (<0.026)	0.032	0.11	0.106	ND (<0.026)	ND (<0.026)	ND (<0.026)	ND (<0.026)	ND (<0.026)	ND (<0.026)	ND (<0.026)
Cadmium	mg/kg	0.071	0.068	ND (<0.033)	ND (<0.033)	ND (<0.033)	0.15	0.056	ND (<0.033)	6.5	ND (<0.033)	ND (<0.033)	ND (<0.033)	1.3	ND (<0.033)
Chromium IV	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium Compounds	mg/kg	95	29	260	400	110	6.6	150.1	ND (<0.045)	30	200	35	130	79.0	110
Cobalt	mg/kg	20	21	34	93	26	8.4	33.7	ND (<0.18)	ND (<0.18)	37	10	27	14.8	23
Copper	mg/kg	50	56	56	45	62	27	49.3	ND (<0.13)	48	47	37	44	35	44
Fluoride Salts	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg	9.7	6.8	8.3	ND (<0.59)	11	2	6.3	ND (<0.59)	ND (<0.59)	ND (<0.59)	ND (<0.59)	ND (<0.59)	ND (<0.59)	ND (<0.59)
Mercury	mg/kg	0.033	0.15	0.053	ND (<0.014)	ND (<0.014)	ND (<0.014)	0.043	ND (<0.014)	0.77	0.16	ND (<0.014)	0.12	0.21	0.11
Molybdenum	mg/kg	0.22	2.3	ND (<0.18)	ND (<0.18)	1	0.74	0.74	ND (<0.18)	20	ND (<0.18)	ND (<0.18)	ND (<0.18)	4	ND (<0.18)
Nickel	mg/kg	120	120	250	1,200	100	220	335	ND (<0.12)	59	230	71	180	108	150
Selenium	mg/kg	10	8.5	15	15	13	2.4	10.7	ND (<0.76)	6.6	ND (<0.76)	ND (<0.76)	ND (<0.76)	1.6	ND (<0.76)
Silver	mg/kg	ND (<0.086)	0.63	0.13	ND (<0.086)	0.16	ND (<0.086)	0.17	ND (<0.086)	ND (<0.086)	ND (<0.086)	0.86	ND (<0.086)	0.21	ND (<0.086)
Thallium	mg/kg	ND (<0.94)	ND (<0.94)	0.97	ND (<0.94)	ND (<0.94)	ND (<0.94)	0.55	ND (<0.94)	1.2	ND (<0.94)	ND (<0.94)	ND (<0.94)	0.6	ND (<0.94)
Vanadium	mg/kg	64	15	75	53	70	5.9	47.2	ND (<0.062)	560	80	27	67	146.8	56
Zinc	mg/kg	250	67	75	64	71	150	112.8	14	180	73	51	72	78	75

Notes:
ND = Not detected at the specified detection limit.
When an ND was included in the calculation of an average value, it was assumed to be one half the detection limit.
If all samples were ND, then the lowest detection limit was retained.

TABLE 2
OVERBURDEN LEACHABILITY BY MODIFIED CAM WET

Constituent	units	C-1 SQ Boring Composite Graywacke (7/1/09)	C-2 SQ Boring Composite Limestone (7/1/09)	C-3 SQ Boring Composite Flt. Breccia (7/1/09)	C-4 SQ Boring Composite Greenstone (7/1/09)	C-5 SQ Boring Composite Metabasalt (7/1/09)	GT1-2-08-213 SQ Boring Composite Chert (7/1/09)	Average of Detections for SQ (µg/L)
Antimony	µg/L	7.2	1.5	5.8	0.98	8.5	3.2	4.53
Arsenic	µg/L	3	1.3	6.2	2.7	7.3	1.2	3.6
Asbestos	µg/L	--	--	--	--	--	--	--
Barium	µg/L	59	220	120	37	120	170	121
Beryllium	µg/L	ND (<0.18)	ND (<0.18)	ND (<0.18)	ND (<0.18)	ND (<0.18)	ND (<0.18)	ND (<0.18)
Cadmium	µg/L	ND (<0.13)	ND (<0.13)	ND (<0.13)	ND (<0.13)	ND (<0.13)	ND (<0.13)	ND (<0.13)
Chromium (total)	µg/L	ND (<0.55)	ND (<0.55)	ND (<0.55)	1.9	ND (<0.55)	ND (<0.55)	0.55
Cobalt	µg/L	0.29	0.15	0.13	0.34	0.1	0.25	0.21
Copper	µg/L	1.3	ND (<0.68)	ND (<0.68)	ND (<0.68)	ND (<0.68)	1.2	0.64
Fluoride Salts	µg/L	--	--	--	---	---	--	--
Lead	µg/L	1.2	0.11	ND (<0.054)	ND (<0.054)	0.09	0.12	0.262
Mercury	µg/L	ND (<0.016)	0.21	ND (<0.016)	ND (<0.016)	ND (<0.016)	ND (<0.016)	0.042
Molybdenum	µg/L	11	27	7.3	2.3	28	12	14.6
Nickel	µg/L	1.7	1.7	2	8.1	0.89	3.2	2.93
Selenium	µg/L	ND (<0.38)	6	ND (<0.38)	ND (<0.38)	0.58	ND (<0.38)	1.22
Silver	µg/L	ND (<0.065)	ND (<0.065)	ND (<0.065)	ND (<0.065)	ND (<0.065)	ND (<0.065)	ND (<0.065)
Thallium	µg/L	ND (<0.11)	ND (<0.11)	ND (<0.11)	ND (<0.11)	ND (<0.11)	ND (<0.11)	ND (<0.11)
Vanadium	µg/L	1.5	ND (<1.2)	12	18	4.9	ND (<1.2)	6.27
Zinc	µg/L	22	8.1	11	11	10	37	16.5
Manganese	µg/L	5.2	2.5	7.5	3	3.1	1.2	3.8
Calcium	mg/L	18	16	13	17	11	14	14.8
Magnesium	mg/L	4.3	4.2	6.8	8.3	5.4	14	7.2
Sodium	mg/L	8.8	4.0	7.9	5.9	6.6	2.7	6.0
Potassium	mg/L	3.7	2.8	3.9	0.96	4.1	2.0	2.9
Total Alkalinity	mg/L	37	42	56	76	46	49	51
Chloride	mg/L	1.6	1.1	1.3	2.0	1.3	1.4	1.45
Sulfate	mg/L	22	12	16	3	8.8	29	15.1
pH	number	8.11	8.16	8.24	8.29	8.36	8.27	8.2
EC	µmhos/cm	160	130	160	160	130	190	155

Notes:
ND = Not detected at the specified detection limit.
When an ND was included in the calculation of an average value, it was assumed to be one half the detection limit.
If all samples were ND, then the lowest detection limit was retained.

TABLE 3

MINED MATERIALS AND OVERBURDEN LEACHABILITY

		Wall Washing Results						North Quarry	WMSA Runoff
		Graywacke	Limestone - High Grade	Limestone - Medium to High	Limestone - high and med/low	Chert	Greenstone		
	Sample	GW-01	HG-01	MG-01	HMG-01	CT-01	GS-01		
	Date	11/24/09	11/24/09	11/24/09	11/24/09	11/24/09	11/24/09	01/13/10	01/13/10
	Age	> 5 years	> 5 years	2 months	1 year	< 1 month	< 1 month	NA	NA
Field Parameters									
pH	s.u.	6.94	7.87	7.53	7.32	7.53	8.95	7.94	7.9
Specific Conductance	µS/cm	283	137	42	46	78	94	NA	NA
Temperature	°C	18.6	16.43	13.78	11.91	17.35	18.36	NA	NA
Dissolved Oxygen	mg/L	6.57	7.42	7.95	16.5	8.03	7.4	NA	NA
ORP		70	-32.7	11.4	25.1	92.8	73.7	NA	NA
Lab Parameters - Dissolved									
Aluminum	µg/L	1,800	220	59	220	1400	650	<38	<38
Antimony	µg/L	0.43	0.56	<0.17	0.18	<0.17	<0.17	8.2	0.86
Arsenic	µg/L	33	20	21	22	16	12	4.5	1.3
Barium	µg/L	150	79	83	180	520	660	41	24
Beryllium	µg/L	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
Boron	µg/L	28	19	14	24	52	52	69	31
Cadmium	µg/L	<0.13	0.2	<0.13	<0.13	<0.13	<0.13	0.53	<0.13
Chromium	µg/L	<0.55	0.81	<0.55	<0.55	3.6	2.6	<0.55	<0.55
Copper	µg/L	2.1	2.1	<0.68	0.86	<0.68	1.1	1.5	1.2
Iron	µg/L	720	130	11	160	1400	970	<9.3	<9.3
Lead	µg/L	0.29	0.063	<0.054	0.065	<0.054	<0.054	<0.054	<0.054
Manganese	µg/L	8.6	19	2.6	1.2	7.9	11	21	14
Mercury	µg/L	NA	NA	NA	NA	NA	NA	0.0107	NA
Molybdenum	µg/L	2.6	98	6.7	14	1.4	0.37	540	120
Nickel	µg/L	1.7	9.9	0.91	4.9	5.9	3.5	160	3.4
Selenium	µg/L	<0.38	49	14	0.7	<0.38	<0.38	82	29
Silver	µg/L	<0.065	<0.065	<0.065	<0.065	<0.065	<0.065	<0.065	<0.065
Thallium	µg/L	0.22	<0.11	<0.11	<0.11	<0.11	<0.11	0.39	<0.11
Vanadium	µg/L	2.9	44	<1.2	6.3	7.3	39	400	2.6
Zinc	µg/L	7.5	23	3.6	16	6.6	5.8	120	28
Calcium	mg/L	7.8	46	31	34	17	21	210	160
Magnesium	mg/L	6.1	1.7	2.2	2.6	6.6	3.1	36	42
Sodium	mg/L	4.2	1.6	1.2	2.3	6.1	7.3	22	24
Potassium	mg/L	1.2	0.43	0.21	0.85	1.8	0.86	0.85	2
Lab Parameters - Total Recoverable									
Aluminum	µg/L	77,000	40,000	28,000	1,800,000	960,000	990,000	720	87,000
Antimony	µg/L	<4.0	7.7	6.8	<20	<4.0	<4.0	7.9	1.6
Arsenic	µg/L	80	88	81	290	<22	<22	3.7	21
Barium	µg/L	2,800	7,900	13,000	140,000	12,000	23,000	59	4,200
Beryllium	µg/L	6.7	<4.0	<4.0	92	36	30	<0.20	1.1
Boron	µg/L	33	36	86	650	160	230	70	52
Cadmium	µg/L	14	45	6.6	680	5.7	5.1	1.3	5.8
Chromium	µg/L	120	490	63	4,500	7,000	7,100	6	370
Copper	µg/L	160	420	370	17,000	2,000	3,100	3.3	170
Iron	µg/L	100,000	83,000	69,000	2,400,000	1,100,000	940,000	1,200	160,000
Lead	µg/L	130	25	43	1,300	27	15	0.5	17
Manganese	µg/L	3,000	2,000	7,200	56,000	22,000	44,000	38	3,000
Mercury	µg/L	0.032	<0.016	<0.016	0.032	<0.016	<0.016	<0.016	1.5
Molybdenum	µg/L	16	320	23	<23	<4.6	<4.6	630	140
Nickel	µg/L	210	1,300	1,100	150,000	9,300	5,800	180	460
Selenium	µg/L	<11	230	60	160	<11	<11	73	33

TABLE 3
MINED MATERIALS AND OVERBURDEN LEACHABILITY

		Wall Washing Results						North Quarry	WMSA Runoff
		Graywacke	Limestone - High Grade	Limestone - Medium to High	Limestone - high and med/low	Chert	Greenstone		
Silver	µg/L	2	5.4	3.4	<8.8	<1.8	<1.8	<0.088	0.89
Thallium	µg/L	<2.2	4.3	<2.2	57	<2.2	<2.2	0.24	0.79
Vanadium	µg/L	230	960	220	2100	<100	<52	430	350
Zinc	µg/L	460	3,300	700	390,000	2,800	2,100	140	600
Calcium	mq/L	180	1,000	3,100	33,000	2,300	1,500	230	1,000
Magnesium	mq/L	44	67	68	1,700	1,600	1,700	40	160
Sodium	mq/L	4.2	3.6	3.9	8.5	5.4	5.6	23	25
Potassium	mg/L	13	4.1	4	64	14	4.2	1.0	8.2
General Chemistry									
Ammonia as N	mg/L	0.22	0.038	0.025	0.16	0.84	4.9	<0.025	0.095
Bicarbonate	mg/L	50	25	24	41	68	57	200	71
Carbonate	mg/L	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<5.0	<5.0
Chloride	mg/L	1.3	0.95	0.97	1.4	1.3	0.44	13	25
Electrical Conductivity	µmhos/cm	101	259	199	222	135	160	1,130	1,090
Fluoride	mg/L	1.3	0.34	0.46	0.86	2.4	1.2	0.14	0.22
Hardness (as $CaCO_3$)	mg/L	45	120	86	96	69	64	673	580
Nitrate as N	mg/L-N	0.31	0.28	1.4	12	0.49	6.7	0.73	7.6
Nitrite as N	mg/L-N	0.015	0.012	<0.0081	<0.0081	0.049	0.12	<0.0081	<0.0081
pH	s.u.	7.89	8.06	7.95	8.09	8.16	8.24	7.94	7.90
Sulfate	mg/L	4.9	100	61	15	2.6	3.3	550	550
Total Alkalinity (as $CaCO_3$)	mg/L	41	20	20	33	56	47	170	58
Total Dissolved Solids	mg/L	61	110	65	91	67	100	790	900
Total Phosphorus	mg/L	2.2	4.1	3.7	140	91	100	<0.016	1.8
Total Suspended Solids	mg/L	3,400	540	4,800	68,000	35,000	50,000	18	3,600
Turbidity	NT Units	1,600	850	2,500	44,000	28,000	23,000	NA	NA

TABLE 4:
Summary of Anticipated Boring Elevations and Completion Depths

Western Materials Storage Area Borings

Boring	Approx. Boring Elevation	Estimated Depth to Pre-development Elevation	Estimated Boring Depth
1	1820	1740	80
2	1950	1820	130
3	1950	1800	150
4	1950	1780	170
5	1980	1700	280

Eastern Materials Storage Area Borings

Boring	Approx. Boring Elevation	Estimated Depth to Pre-development Elevation	Estimated Boring Depth
1	820	780	40
2	760	700	60
3	760	660	100
4	820	760	60

Table 5: Dry Canyon Storage and Former Impoundment Area (EMCON, 1993)

			Former Impoundment Area																				
		Sample ID	**EB-3**				**EB-6**			**EB-7**			**EB-8**					**KC-2**	**KC-14**				
		Date	6/24/1991				3/24/1992			3/23/1992			3/25/1992					7/24/1989	7/17/1990				
		Sample Depth	0.5'-1'	10'-10.5'	20'-20.5'	24'-24.5'	34.5'-35'	36'-36.5'	38.5'-39'	31'-31.5'	35'-35.5'	44'-44.5'	23.5'-24'	25.5'-26'	31'-31.5'	35.5'-36'	41'-41.5'	5'-20'	0'	4'-4.5'	14'-14.5'	24'-24.5'
Material Type	Environmental Screening Levels - Industrial Land Use (Table C)	TTLC or STLC	Fill	Fill	Fill	Native	Cement Fill	Fill	Native	Cement Fill	Sludge	Native	Sludge	Sludge	Native	Native	Native	Fill	Fill	Fill	Fill	Native
Metals (mg/kg)																							
Aluminum, Al	NE	NE					10,200	17,000	11,000	4,870	17,600	12,800	13,100	16,000	5,200	11,300	11,800					
Antimony, Sb	410	500					<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<100		<5.0		
Arsenic, As	46	500					1	2	2	2	5	2	2	3	2	1	2	2.8	11.35	5.18	<5.0	<5.0
Barium, Ba	5,000	10,000					223	118	78	468	193	100	206	138	396	165	215	440	400	397	487	220
Beryllium, Be	1,900	75					<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<5.0	<0.5	<0.5	<0.5
Boron, B	200,000	NE					10	13	<10	12	58	13	31	15	11	13	<10					
Cadmium, Cd	1,000	100	75	97	104	<1	<1	3	<1	37	2	<1	<1	<1	83	<1	<1	50	42.2	39.7	71.8	12.9
Calcium, Ca	NE	NE					5,808	14,800	6,090	163,000	152,000	6,530	5,660	1,960	158,000	2,670	4,710					
Chromium, Cr	5,000	2,500					9	17	11	44	16	15	16	16	43	11	11	40	57.2	29.3	51.2	20.6
Colbalt, Co	1.6	8,000					**5**	**6**	**4**	**2**	**2**	**6**	**6**	**8**	**3**	**4**	**6**	<10		**3.75**		
Copper, Cu	5,000	2,500					25	36	14	62	126	11	33	16	45	35	31	60		34.9		
Iron, Fe	NE	NE					10,600	13,700	10,600	7,400	7,690	16,200	12,400	16,600	6,500	10,200	12,000					
Lead, Pb	320	1,000	117	116	127	<20	<20	<20	<20	61	59	<20	<20	<20	131	<20	<20	70	50.5	57.9	103	33.9
Magnesium, Mg		NE					3,070	3,220	2,230	1,140	12,900	3,570	20,300	4,180	1,610	6,720	3,660					
Manganese, Mn		NE					568	211	208	77	104	284	426	398	99	434	446					
Mercury, Hg	87	20	1.2	1.8	1.6	<0.2	<0.2	<0.2	<0.2	2.2	<0.2	<0.2	0.3	<0.2	1.1	<0.2	<0.2	9.4	0.27	0.45	1.47	0.87
Molybdenum, Mo	5,000	3,500					<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10		<2.0		
Nickel, Ni	5,000	2,000					13	13	<10	20	13	20	19	20	15	11	15	30	63.2	26.8	20.8	14.8
Potassium, K		NE					2,800	12,000	5,200	15,000	11,000	2,800	3,600	4,400	13,000	3,300	3,000					
Selenium, Se	5,000	100	18	33	48	<1	<1	1	<1	16	<1	<1	<1	<1	28	<1	<1	19	5.6	8.62	17.94	<5.0
Silicon, Si		NE					2,780	2,640	2,510	1,100	4,810	967	2,440	2,808	1,940	1,730	2,350					
Silver, Ag	5,000	500					<2	<2	<2	4	<2	<2	<2	<2	8	<2	<2	6		5.3		
Sodium, Na		NE					1,280	1,990	1,920	2,000	4,330	1,640	2,570	2,160	2,190	1,100	1,240					
Thallium, Tl	10	700					<1	<1	<1	<1	<1	<1	<1	<1	**12**	<1	<1	**60**		<7.5		
Tin, Sn		NE					30	39	30	21	31	43	35	46	18	30	34					
Vanadium, V	5,000	2,400					17	28	17	108	29	25	25	24	97	18	20	140		122		
Zinc, Zn	5,000	5,000	167	268	147	48	50	50	33	138	182	48	40	38	172	33	48	250	463	112	187	59.5
WET Metals (mg/L)																							
Cadmium, Cd		1.0	0.43	0.17	0.74					<0.05					0.08							
Lead, Pb		5.0	<0.25	<0.25	<0.25					<0.5	<0.5				<0.5							
Mercury, Hg		0.2								<0.001												
Selenium, Se		1.0	1.04	1.74	1.64					0.68					4.85							
Inorganic Compounds (mg/kg)																							
Cyanide	0.0036	NE					<0.5	<0.5	<0.5	<0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<10	<10	<10
Fluoride		1,800					5.1	15.4	14.6	6.4	120	7.0	13.5	4.0	14.2	13.7	9.2	1,000	0.6	1.5	4.50	4.98
Sulfate		NE					590	6,100	3,900	4,600	4,700	1,000	500	1,100	9,900	410	700					
Total Petroleum Hydrocarbons (mg/kg)																							
Diesel	83	NE					<10	24		36	66		**20,000**	**4,700**								
Petroleum Hydrocarbons (Heavy)	5,000																			380	100	40
Volatile Organic Compounds (mg/kg)																							
Acetone	0.5	NE	0.104	0.096	0.116	<0.050	<1	0.076	<0.050	0.093	0.101	<0.050	<0.45	**1**	<1	<1	<1	<2		<2.5	<2.5	<2.5
Benzene	0.044																	<0.1		<0.125	<0.125	<0.125
Bromodichloromethane	1.8																	<0.1		<0.125	<0.125	<0.125
Bromoform	2.2																	<0.1		<0.125	<0.125	<0.125
Bromomethane	0.35																	<0.2		<0.25	<0.25	<0.25
2-Butanone							<0.5	<0.010	<0.010	<0.010	0.013	<0.010	0.17	<0.5	<0.5	<0.5	<0.5	<0.2		<0.25	<0.25	<0.25
Carbon Disulfide																		<0.1		<0.125	<0.125	<0.125
Carbon Tetrachloride	0.11																	<0.1		<0.125	<0.125	<0.125
Chlorobenzene	1.5																	<0.1		<0.125	<0.125	<0.125
Chloroethane	1.1																	<0.2		<0.25	<0.25	<0.25
2-Chloroethylvinyl Ether																		<0.2		<0.25	<0.25	<0.25
Chloroform	2.1																	<0.1		<0.125	<0.125	<0.125
Chloromethane	24																	<0.2		<0.25	<0.25	<0.25
Dibromochloromethane	8.3																	<0.1		<0.125	<0.125	<0.125
1,1-Dichloroethane	0.2						<0.05	<0.005	<0.005	<0.005	0.047	<0.005	<0.045	<0.05	<0.05	<0.05	<0.05	<0.1		<0.125	<0.125	<0.125
1,2-Dichloroethane	0.0045																	<0.1		<0.125	<0.125	<0.125
1,1-Dichloroethene	1																	<0.1		<0.125	<0.125	<0.125
Trans-1,2-Dichloroethene																		<0.1		<0.125	<0.125	<0.125
1,2-Dichloropropane	0.12																	<0.1		<0.125	<0.125	<0.125
Cis-1,3-Dichloropropene																		<0.1		<0.125	<0.125	<0.125
Trans-1,3-Dichloropropene																		<0.1		<0.125	<0.125	<0.125
Ethyl Benzene	3.3						<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	0.13	0.40	0.35	0.48	0.10	<0.1		<0.125	<0.125	<0.125
2-Hexanone							<0.5	<0.010	<0.010	<0.010	<0.010	<0.010	1.9	0.9	<0.5	<0.5	<0.5	<0.2		<0.25	<0.25	<0.25
Methylene Chloride	0.077						<0.5	<0.010	<0.010	0.022	<0.010	<0.010	<0.090	<0.5	<0.5	<0.5	<0.5	**0.1**		<0.125	**0.183**	**0.2**
4-Methyl-2-Pentanone																		<0.2		<0.25	<0.25	<0.25
Styrene	1.5																	<0.1		<0.125	<0.125	<0.125
1,1,2,2-Tetrachloroethane	0.018																	<0.1		<0.125	<0.125	<0.125
Tetrachloroethene (PCE)	0.7						<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.045	<0.05	0.19	<0.05	<0.05	<0.1		<0.125	<0.125	<0.125
Toluene	2.9						<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	**8.8**	0.45	0.39	0.50	<0.5	<0.1		<0.125	<0.125	<0.125
1,1,1-Trichloroethane	7.8																	<0.1		<0.125	0.539	0.148
1,1,2-Trichloroethane	0.07																	<0.1		<0.125	<0.125	<0.125
Trichloroethene (TCE)	0.46						<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.045	<0.05	0.09	<0.05	<0.05	<0.1		<0.125	<0.125	<0.125
Trichlorofluoromethane																		<0.1		<0.25	<0.25	<0.25
Vinyl Acetate																		<0.2		<0.25	<0.25	<0.25
Vinyl Chloride	0.085																	<0.2		<0.25	<0.25	<0.25
Total Xylenes	2.3						<0.05	<0.005	<0.005	<0.005	0.041	<0.005	2.1	**2.4**	1.0	**3.2**	0.13	<0.1		<0.125	<0.125	<0.125

Table 5: Dry Canyon Storage and Former Impoundment Area (EMCON, 1993)

			Former Impoundment Area																			
		Sample ID	**EB-3**				**EB-6**			**EB-7**			**EB-8**					**KC-2**	**KC-14**			
		Date	6/24/1991				3/24/1992			3/23/1992			3/25/1992					7/24/1989	7/17/1990			
		Sample Depth	0.5'-1'	10'-10.5'	20'-20.5'	24'-24.5'	34.5'-35'	36'-36.5'	38.5'-39'	31'-31.5'	35'-35.5'	44'-44.5'	23.5'-24'	25.5'-26'	31'-31.5'	35.5'-36'	41'-41.5'	5'-20'	0'	4'-4.5'	14'-14.5'	24'-24.5'
Material Type	Environmental Screening Levels - Industrial Land Use (Table C)	TTLC or STLC	Fill	Fill	Fill	Native	Cement Fill	Fill	Native	Cement Fill	Sludge	Native	Sludge	Sludge	Native	Native	Native	Fill	Fill	Fill	Fill	Native
Semivolatile Organic Compounds (mg/kg)																						
Acenaphthene	16																	<0.3				
Acenaphthylene	13																	<0.3				
Anthracene	2.8																	<0.3				
Benzidine																		<0.3				
Benzo(a)anthracene	12						<0.3	<0.3		<0.3	0.9		<4.0	<1.0				<0.3				
Benzo(b)fluoranthene	46						<0.3	<0.3		<0.3	0.8		<4.0	<1.0				<0.3				
Benzo(k)fluoranthene	5.1						<0.3	<0.3		<0.3	0.3		<4.0	<1.0				<0.3				
Benzo(g,h,i)perylene	27						<0.3	<0.3		<0.3	0.5		<4.0	<1.0				<0.3				
Benzo(a)pyrene	5.3						<0.3	<0.3		<0.3	0.6		<4.0	<1.0				<0.3				
Benzoic Acid																		<2				
Benzyl Alcohol																		<0.3				
4-Bromophenyl Phenyl Ether																		<0.3				
Butyl Benzyl Phthalate																		<0.3				
Di-N-Butyl Phthalate																		<0.3				
4-Chloroaniline	0.053																	<0.3				
Bis(2-Chloroethoxy)Methane																		<0.3				
Bis(2-Chloroethyl)Ether	0.00007																	<0.3				
Bis(2-Chloroisopropyl)Ether	0.13																	<0.3				
4-Chloro-3-Methylphenol																		<0.3				
2-Chloronaphthalene																		<0.3				
2-Chlorophenol	0.012																	<0.3				
4-Chlorophenyl Phenyl Ether																		<0.3				
Chrysene	23						<0.3	<0.3		<0.3	1.8		<4.0	<1.0				<0.3				
Dibenzo(a,h)anthracene	9.9																	<0.3				
Dibenzofuran																		<0.3				
1,2-Dichlorobenzene	1.1																	<0.3				
1,3-Dichlorobenzene	7.4																	<0.3				
1,4-Dichlorobenzene	0.59																	<0.3				
3,3'-Dichlorobenzidine	0.015																	<1				
2,4-Dichlorophenol	0.3																	<0.3				
Diethyl Phthalate	0.035																	<0.3				
2,4-Dimethylphenol	0.67																	<0.3				
Dimethyl Phthalate	0.035																	<0.3				
4,6-Dinitro-2-Methylphenol																		<2				
2,4-Dinitrophenol	0.042																	<2				
2,4-Dinitrotoluene	0.00074																	<0.3				
2,6-Dinitrotoluene																		<0.3				
1,2-Diphenylhydrazine																		<0.3				
Bis(2-Ethylhexyl)Phthalate	780																	<0.3				
Fluoranthene	60						<0.3	<0.3		<0.3	0.6		<4.0	<1.0				<0.3				
Fluorene	8.9						<0.3	<0.3		<0.3	<0.3		4.6	3.4				<0.3				
Hexachlorobutadiene	4.3																	<0.3				
Hexachlorobenzene	38																	<0.3				
Hexachlorocyclopentadiene	0.0098																	<0.3				
Hexachloroethane	5.8																	<0.3				
Indeno(1,2,3-Cd)Pyrene	15																	<0.3				
Isophorone																		<0.3				
2-Methylnaphthalene	0.25																	<0.3				
2-Methylphenol																		<0.3				
4-Methylphenol																		<0.3				
N-Nitro Dimethylamine																		<0.3				
Naphthalene	1.2						<0.1	0.5		<0.1	<0.1		<4	<1				<0.3				
2-Nitroaniline																		<2				
3-Nitroaniline																		<2				
4-Nitroaniline																		<2				
Nitrobenzene							<0.3	<0.3		<0.3	<0.3		<4.0	4.0				<0.3				
2-Nitrophenol																		<0.3				
4-Nitrophenol																		<2				
N-Nitrosodiphenylamine																		<0.3				
N-Nitrosodi-N-Propylamine																		<0.3				
Di-N-Octyl Phthalate																		<0.3				
Pentachlorophenol	480																	<2				
Phenanthrene	11						<0.3	<0.3		<0.3	0.5		8.8	4.8				<0.3				
Phenol	0.076						<0.3	<0.3		<0.3	**0.4**		<4.0	<1.0				<0.3				
Pyrene	85						<0.3	<0.3		<0.3	0.9		<4.0	<1.0				<0.3				
1,2,4-Trichlorobenzene	1.5						<0.3	<0.3		<0.3	<0.3		**9.4**	**8.4**				<0.3				
2,4,5-Trichlorophenol	0.18																	<0.3				
2,4,6-Trichlorophenol	1.2																	<0.3				

Table 5: Dry Canyon Storage and Former Impoundment Area (EMCON, 1993)

			Former Impoundment Area																			
		Sample ID	EB-3				EB-6			EB-7			EB-8					KC-2	KC-14			
		Date	6/24/1991				3/24/1992			3/23/1992			3/25/1992					7/24/1989	7/17/1990			
		Sample Depth	0.5'-1'	10'-10.5'	20'-20.5'	24'-24.5'	34.5'-35'	36'-36.5'	38.5'-39'	31'-31.5'	35'-35.5'	44'-44.5'	23.5'-24'	25.5'-26'	31'-31.5'	35.5'-36'	41'-41.5'	5'-20'	0'	4'-4.5'	14'-14.5'	24'-24.5'
Material Type	Environmental Screening Levels - Industrial Land Use (Table C)	TTLC or STLC	Fill	Fill	Fill	Native	Cement Fill	Fill	Native	Cement Fill	Sludge	Native	Sludge	Sludge	Native	Native	Native	Fill	Fill	Fill	Fill	Native
Polychlorinated Biphenyls (ug/kg)																						
Aroclor 1260							<1,000	<1,000		<1,000	<1,000		31,000	<1,000								
Aldrin	4,000																	<10		<10	<20	<1.65
a-BHC																		<10		<10	<20	<1.65
b-BHC																		<10		<10	<20	<1.65
d-BHC																		<10		<10	<20	<1.65
g-BHC																		<10		<10	<20	<1.65
Chlordane	15,000																	<250		<250	<500	<50
4,4'-DDD	290,000																	<10		<10	<20	<1.65
4,4'-DDE	200,000																	<10		<10	<20	<1.65
4,4'-DDT	4,300																	<10		<10	<20	<1.65
Dieldrin	2.3																	<10		<10	<20	<1.65
Endosulfan I	4.6																	<10		<10	<20	<1.65
Endosulfan II	4.6																	<10		<10	<20	<1.65
Endosulfan Sulfate																		<10		<10	<20	<1.65
Endrin	0.65																	<10		<10	<20	<1.65
Endrin Aldehyde																		<10		<10	<20	<1.65
Heptachlor	13																	<10		<10	<20	<1.65
Heptachlor Epoxide	14																	<10		<10	<20	<1.65
Methoxychlor	19,000																	<250		<10	<20	<1.65
Toxaphene	0.42																	<250		<250	<500	<50
PCB-1016	6,300																	<200		<80	<200	<20
PCB-1221	6,300																	<200		<80	<200	<20
PCB-1232	6,300																	<200		<80	<200	<20
PCB-1242	6,300																	<200		<80	<200	<20
PCB-1248	6,300																	<200		<80	<200	<20
PCB-1254	6,300																	<200		<80	<200	<20
PCB-1260	6,300																	<200		<80	<200	<20

Notes

ND or "<"- Not detected above laboratory reporting limits

Bold - Exceedence relative to environmental screening levels, Summary Table C Deep Soils Groundwater is a Current or Potential Source of Drinking Water, Commercial/industrial land use

Gray Cell - Not analyzed

Table 5: Dry Canyon Storage and Former Impoundment Area (EMCON, 1993)

			Dry Canyon Storage Area																								
		Sample ID	A-12	A-13	EB-1				KC-1	KC-15								KC-16									
		Date	7/25/1989	7/25/1989	6/28/1991				7/19/1989	7/26/1990								7/26/1990									
		Sample Depth	5'-20'	5'-15'	0'-0.5'	14.5'-15'	24.5'-25'	29'-29.5'	5'-20'	0'	4.5'	15'-15.5'	25'-25.5'	35'-35.5'	45'-45.5'	55'-55.5'	65'-65.5'	0'	4.5'	14'-14.5'	24'-24.5'	34.5'-35'	44'-45.5'	54'-54.5'	64'-64.5'	73.5'-74.5'	84'-84.5'
Material Type	Environmental Screening Levels - Industrial Land Use (Table C)	TTLC or STLC	Fill	Fill	Fill	Fill	Native	Native	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Native	Native	Fill	Fill	Fill	Fill	Fill	Fill	Native	Native	Native	Native
Metals (mg/kg)																											
Aluminum, Al	NE	NE																									
Antimony, Sb	410	500	<100	<100					<100																		
Arsenic, As	46	500	3.0	0.5					2.8	<5.0		<5.0	7.4	6.0	9.5	9.7	<5.0	5.4	<5.0	5.5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	7.3
Barium, Ba	5,000	10,000	490	510					410	648		678	617	236	625	132	660	851	134	560	907	408	378	361	767	307	362
Beryllium, Be	1,900	75	<1	<1					<1	<0.5		<0.5	0.599	0.664	0.954	0.736	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron, B	200,000	NE																									
Cadmium, Cd	1,000	100	80	<10	3	<1	<1	<1	**50**	<1.00		1.27	1.00	1.42	<1.00	1.33	1.60	<10	1.92	21.2	2.01	1.88	2.53	6.32	68.6	12.7	90.0
Calcium, Ca	NE	NE																									
Chromium, Cr	5,000	2,500	50	30	266	19	19	24	50	66.5		29.8	25.5	27.3	25.4	40.1	32.1	58.3	40.3	69.1	29.0	152	29.2	113	28.7	65.3	47.3
Colbalt, Co	1.6	8,000	<10	**10**					**10**																		
Copper, Cu	5,000	2,500	40	60					90																		
Iron, Fe	NE	NE																									
Lead, Pb	320	1,000	120	20	23	<20	<20	<20	80	5.70		5.57	19.6	43.1	15.1	12.9	6.68	<5.00	79.6	56.3	9.61	7.50	8.35	19.7	68.8	13.7	60.2
Magnesium, Mg		NE																									
Manganese, Mn		NE																									
Mercury, Hg	87	20	9.2	2.1	<0.2	<0.2	<0.2	<0.2	3.1	0.57		0.30	0.24	<0.1	<0.1	0.27	0.30	3.23	<0.1	0.56	0.81	2.20	12.6	0.51	<0.1	0.11	0.16
Molybdenum, Mo	5,000	3,500	<10	<10					<10																		
Nickel, Ni	5,000	2,000	40	30					40	52.0		50.0	27.6	25.8	58.6	43.2	37.9	85.3	16.0	36.9	28.0	34.1	15.4	55.2	8.75	10.8	11.3
Potassium, K		NE																									
Selenium, Se	5,000	100	17	0.3	<1	<1	<1	<1	9.8	<5.0		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	17.3	<5.0	<5.0	<5.0	<5.0	11.1	<5.0	6.0
Silicon, Si		NE																									
Silver, Ag	5,000	500	16	<5					10																		
Sodium, Na		NE																									
Thallium, Tl	10	700	**50**	<50					<50																		
Tin, Sn		NE																									
Vanadium, V	5,000	2,400	90	40					110																		
Zinc, Zn	5,000	5,000	150	140	357	40	50	68	160	115		53.9	121	69.7	91.9	64.0	46.7	92.3	123	140	77.9	47.6	53.5	83.1	243	296	446
WET Metals (mg/L)																											
Cadmium, Cd		1.0							0.1																		
Lead, Pb		5.0							<0.1																		
Mercury, Hg		0.2							<0.01																		
Selenium, Se		1.0																									
Inorganic Compounds (mg/kg)																											
Cyanide	0.0036	NE	<0.5								<10	<10	<10	<10	<10	<10	<10			<10	<10	<10	<10	<10	<10	<10	<10
Fluoride		1,800	880						570	0.5		0.94	1.60	8.13	5.77	2.20	0.82	0.4	0.46	1.29	0.37	0.34	0.39	3.89	1.23	0.99	1.04
Sulfate		NE																									
Total Petroleum Hydrocarbons (mg/kg)																											
Diesel	83	NE																									
Petroleum Hydrocarbons (Heavy)	5,000											27	32	2,900	3,100	<10	40		120	190	530	1,200	50	40	60	<10	<10
Volatile Organic Compounds (mg/kg)																											
Acetone	0.5	NE	<2	<2	0.193	<0.05	<0.05	<0.05			<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5			<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Benzene	0.044		<0.1	<0.1	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
Bromodichloromethane	1.8		<0.1	<0.1	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
Bromoform	2.2		<0.1	<0.1	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
Bromomethane	0.35		<0.2	<0.2	<0.005	<0.005	<0.005	<0.005			<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25			<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
2-Butanone			<0.2	<0.2	<0.01	<0.01	<0.01	<0.01			<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25			<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Carbon Disulfide			<0.1	<0.1	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
Carbon Tetrachloride	0.11		<0.1	<0.1	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
Chlorobenzene	1.5		<0.1	<0.1	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
Chloroethane	1.1		<0.2	<0.2	<0.005	<0.005	<0.005	<0.005			<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25			<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
2-Chloroethylvinyl Ether			<0.2	<0.2	<0.01	<0.01	<0.01	<0.01			<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25			<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Chloroform	2.1		<0.1	<0.1	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
Chloromethane	24		<0.2	<0.2	<0.005	<0.005	<0.005	<0.005			<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25			<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Dibromochloromethane	8.3		<0.1	<0.1	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
1,1-Dichloroethane	0.2		<0.1	<0.1	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
1,2-Dichloroethane	0.0045		<0.1	<0.1	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
1,1-Dichloroethene	1		<0.1	<0.1	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
Trans-1,2-Dichloroethene			<0.1	<0.1	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
1,2-Dichloropropane	0.12		<0.1	<0.1	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
Cis-1,3-Dichloropropene			<0.1	<0.1	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
Trans-1,3-Dichloropropene			<0.1	<0.1	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
Ethyl Benzene	3.3		<0.1	0.3	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
2-Hexanone			<0.2	<0.2	<0.01	<0.01	<0.01	<0.01			<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25			<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Methylene Chloride	0.077		**0.2**	**0.2**	<0.025	<0.025	<0.025	<0.025			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			**0.147**	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
4-Methyl-2-Pentanone			<0.2	<0.2	<0.01	<0.01	<0.01	<0.01			<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25			<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Styrene	1.5		<0.1	<0.1	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
1,1,2,2-Tetrachloroethane	0.018		<0.1	<0.1	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
Tetrachloroethene (PCE)	0.7		<0.1	<0.1	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
Toluene	2.9		<0.1	<0.1	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
1,1,1-Trichloroethane	7.8		<0.1	<0.1	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
1,1,2-Trichloroethane	0.07		<0.1	<0.1	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
Trichloroethene (TCE)	0.46		<0.1	<0.1	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
Trichlorofluoromethane			<0.1	<0.1	<0.005	<0.005	<0.005	<0.005			<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25			<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Vinyl Acetate			<0.2	<0.2	<0.01	<0.01	<0.01	<0.01			<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25			<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Vinyl Chloride	0.085		<0.2	<0.2	<0.005	<0.005	<0.005	<0.005			<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25			<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Total Xylenes	2.3		<0.1	2	<0.005	<0.005	<0.005	<0.005			<0.125	<0.125	<0.125	0.212	<0.125	<0.125	<0.125			<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125

Table 5: Dry Canyon Storage and Former Impoundment Area (EMCON, 1993)

			Dry Canyon Storage Area																								
		Sample ID	A-12	A-13	EB-1				KC-1	KC-15								KC-16									
		Date	7/25/1989	7/25/1989	6/28/1991				7/19/1989	7/26/1990								7/26/1990									
		Sample Depth	5'-20'	5'-15'	0'-0.5'	14.5'-15'	24.5'-25'	29'-29.5'	5'-20'	0'	4.5'	15'-15.5'	25'-25.5'	35'-35.5'	45'-45.5'	55'-55.5'	65'-65.5'	0'	4.5'	14'-14.5'	24'-24.5'	34.5'-35'	44'-45.5'	54'-54.5'	64'-64.5'	73.5'-74.5'	84'-84.5'
Material Type	Environmental Screening Levels - Industrial Land Use (Table C)	TTLC or STLC	Fill	Fill	Fill	Fill	Native	Native	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Native	Native	Fill	Fill	Fill	Fill	Fill	Fill	Native	Native	Native	Native
Semivolatile Organic Compounds (mg/kg)																											
Acenaphthene	16			<0.3																							
Acenaphthylene	13			<0.3																							
Anthracene	2.8			<0.3																							
Benzidine				<0.3																							
Benzo(a)anthracene	12			<0.3																							
Benzo(b)fluoranthene	46			<0.3																							
Benzo(k)fluoranthene	5.1			<0.3																							
Benzo(g,h,i)perylene	27			<0.3																							
Benzo(a)pyrene	5.3			<0.3																							
Benzoic Acid				<2																							
Benzyl Alcohol				<0.3																							
4-Bromophenyl Phenyl Ether				<0.3																							
Butyl Benzyl Phthalate				<0.3																							
Di-N-Butyl Phthalate				<0.3																							
4-Chloroaniline	0.053			<0.3																							
Bis(2-Chloroethoxy)Methane				<0.3																							
Bis(2-Chloroethyl)Ether	0.00007			<0.3																							
Bis(2-Chloroisopropyl)Ether	0.13			<0.3																							
4-Chloro-3-Methylphenol				<0.3																							
2-Chloronaphthalene				<0.3																							
2-Chlorophenol	0.012			<0.3																							
4-Chlorophenyl Phenyl Ether				<0.3																							
Chrysene	23			<0.3																							
Dibenzo(a,h)anthracene	9.9			<0.3																							
Dibenzofuran				<0.3																							
1,2-Dichlorobenzene	1.1			<0.3																							
1,3-Dichlorobenzene	7.4			<0.3																							
1,4-Dichlorobenzene	0.59			<0.3																							
3,3'-Dichlorobenzidine	0.015			<1																							
2,4-Dichlorophenol	0.3			<0.3																							
Diethyl Phthalate	0.035			<0.3																							
2,4-Dimethylphenol	0.67			<0.3																							
Dimethyl Phthalate	0.035			<0.3																							
4,6-Dinitro-2-Methylphenol				<2																							
2,4-Dinitrophenol	0.042			<2																							
2,4-Dinitrotoluene	0.00074			<0.3																							
2,6-Dinitrotoluene				<0.3																							
1,2-Diphenylhydrazine				<0.3																							
Bis(2-Ethylhexyl)Phthalate	780			<0.3																							
Fluoranthene	60			<0.3																							
Fluorene	8.9			<0.3																							
Hexachlorobutadiene	4.3			<0.3																							
Hexachlorobenzene	38			<0.3																							
Hexachlorocyclopentadiene	0.0098			<0.3																							
Hexachloroethane	5.8			<0.3																							
Indeno(1,2,3-Cd)Pyrene	15			<0.3																							
Isophorone				<0.3																							
2-Methylnaphthalene	0.25			<0.3																							
2-Methylphenol				<0.3																							
4-Methylphenol				<0.3																							
N-Nitro Dimethylamine				<0.3																							
Naphthalene	1.2			<0.3																							
2-Nitroaniline				<2																							
3-Nitroaniline				<2																							
4-Nitroaniline				<2																							
Nitrobenzene				<0.3																							
2-Nitrophenol				<0.3																							
4-Nitrophenol				<2																							
N-Nitrosodiphenylamine				<0.3																							
N-Nitrosodi-N-Propylamine				<0.3																							
Di-N-Octyl Phthalate				<0.3																							
Pentachlorophenol	480			<2																							
Phenanthrene	11			<0.3																							
Phenol	0.076			<0.3																							
Pyrene	85			<0.3																							
1,2,4-Trichlorobenzene	1.5			<0.3																							
2,4,5-Trichlorophenol	0.18			<0.3																							
2,4,6-Trichlorophenol	1.2			<0.3																							

Table 5: Dry Canyon Storage and Former Impoundment Area (EMCON, 1993)

			Dry Canyon Storage Area																								
		Sample ID	**A-12**	**A-13**	**EB-1**				**KC-1**	**KC-15**								**KC-16**									
		Date	7/25/1989	7/25/1989	6/28/1991				7/19/1989	7/26/1990								7/26/1990									
		Sample Depth	5'-20'	5'-15'	0'-0.5'	14.5'-15'	24.5'-25'	29'-29.5'	5'-20'	0'	4.5'	15'-15.5'	25'-25.5'	35'-35.5'	45'-45.5'	55'-55.5'	65'-65.5'	0'	4.5'	14'-14.5'	24'-24.5'	34.5'-35'	44'-45.5'	54'-54.5'	64'-64.5'	73.5'-74.5'	84'-84.5'
Material Type	Environmental Screening Levels - Industrial Land Use (Table C)	TTLC or STLC	Fill	Fill	Fill	Fill	Native	Native	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Native	Native	Fill	Fill	Fill	Fill	Fill	Fill	Native	Native	Native	Native
Polychlorinated Biphenyls (ug/kg)																											
Aroclor 1260																											
Aldrin	4,000		<10	<10	<8	<8	<8	<8			<10	<10	<1.67	<16.6	<8.29	<3.34	<8.28			<10	<10	<10	<10	<10	<10	<2	<2
a-BHC			<10	<10	<8	<8	<8	<8			<10	<10	<1.67	<16.6	<8.29	<3.34	<8.28			<10	<10	<10	<10	<10	<10	<2	<2
b-BHC			<10	<10	<8	<8	<8	<8			<10	<10	<1.67	<16.6	<8.29	<3.34	<8.28			<10	<10	<10	<10	<10	<10	<2	<2
d-BHC			<10	<10	<8	<8	<8	<8			<10	<10	<1.67	<16.6	<8.29	<3.34	<8.28			<10	<10	<10	<10	<10	<10	<2	<2
g-BHC			<10	<10	<8	<8	<8	<8			<10	<10	<1.67	<16.6	<8.29	<3.34	<8.28			<10	<10	<10	<10	<10	<10	<2	<2
Chlordane	15,000		<250	<250							<200	<200	<33	<330	<170	<67	<170			<200	<200	<200	<200	<200	<200	<40	<40
4,4'-DDD	290,000		<10	<10	<16	<16	<16	<16			<10	<10	<1.67	<16.6	<8.29	<3.34	<8.28			<10	<10	<10	<10	<10	<10	<2	<2
4,4'-DDE	200,000		<10	<10	<16	<16	<16	<16			<10	<10	<1.67	<16.6	<8.29	<3.34	<8.28			<10	<10	<10	<10	<10	<10	<2	<2
4,4'-DDT	4,300		<10	<10	<16	<16	<16	<16			<10	<10	<1.67	<16.6	<8.29	<3.34	<8.28			<10	<10	<10	<10	<10	<10	<2	<2
Dieldrin	2.3		<10	<10	<16	<16	<16	<16			<10	<10	<1.67	<16.6	<8.29	<3.34	<8.28			<10	<10	<10	<10	<10	<10	<2	<2
Endosulfan I	4.6		<10	<10	<8	<8	<8	<8			<10	<10	<1.67	<16.6	<8.29	<3.34	<8.28			<10	<10	<10	<10	<10	<10	<2	<2
Endosulfan II	4.6		<10	<10	<16	<16	<16	<16			<10	<10	<1.67	<16.6	<8.29	<3.34	<8.28			<10	<10	<10	<10	<10	<10	<2	<2
Endosulfan Sulfate			<10	<10	<16	<16	<16	<16			<10	<10	<1.67	<16.6	<8.29	<3.34	<8.28			<10	<10	<10	<10	<10	<10	<2	<2
Endrin	0.65		<10	<10	<16	<16	<16	<16			<10	<10	<1.67	<16.6	<8.29	<3.34	<8.28			<10	<10	<10	<10	<10	<10	<2	<2
Endrin Aldehyde			<10	<10	<16	<16	<16	<16			<10	<10	<1.67	<16.6	<8.29	<3.34	<8.28			<10	<10	<10	<10	<10	<10	<2	<2
Heptachlor	13		<10	<10	<8	<8	<8	<8			<10	<10	<1.67	<16.6	<8.29	<3.34	<8.28			<10	<10	<10	<10	<10	<10	<2	<2
Heptachlor Epoxide	14		<10	<10	<8	<8	<8	<8			<10	<10	<1.67	<16.6	<8.29	<3.34	<8.28			<10	<10	<10	<10	<10	<10	<2	<2
Methoxychlor	19,000		<25	<25							<10	<10	<1.67	<16.6	<8.29	<3.34	<8.28			<10	<10	<10	<10	<10	<10	<2	<2
Toxaphene	0.42		<250	<250	<160	<160	<160	<160			<200	<200	<33	<330	<170	<67	<170			<200	<200	<200	<200	<200	<200	<40	<40
PCB-1016	6,300		<200	<200	<80	<80	<80	<80			<20	<20	<10	<500	<50	<10	<50			<10	<10	<10	<10	<10	<10	<20	<20
PCB-1221	6,300		<200	<200	<80	<80	<80	<80			<100	<100	<10	<500	<50	<10	<50			<10	<10	<10	<10	<10	<10	<100	<100
PCB-1232	6,300		<200	<200	<80	<80	<80	<80			<20	<20	<10	<500	<50	<10	<50			<10	<10	<10	<10	<10	<10	<20	<20
PCB-1242	6,300		<200	<200	<80	<80	<80	<80			<20	<20	<10	<500	<50	<10	<50			<10	<10	<10	<10	<10	<10	<20	<20
PCB-1248	6,300		<200	<200	<80	<80	<80	<80			<20	<20	<10	<500	<50	<10	<50			<10	<10	<10	<10	<10	<10	<20	<20
PCB-1254	6,300		<200	<200	<160	<160	<160	<160			<20	<20	<10	<500	<50	<10	<50			<10	<10	<10	<10	<10	<10	<20	<20
PCB-1260	6,300		<200	400	<160	<160	<160	<160			<10	<10	40	**8,100**	<50	<10	<50			<10	<10	<10	<10	<10	<10	<10	<10

Notes

ND or "<"- Not detected above laboratory reporting limits

Bold - Exceedence relative to environmental screening levels, Summary Table C Deep Soils Groundwater is a Current or Potential Source of Drinking Water, Commercial/industrial land use

Gray Cell - Not analyzed