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**Work Plan to Conduct Air Injection and  
Implement Monitored Natural Attenuation  
Hanson Aggregates Mission Valley Rock Facility  
7999 Athenour Way  
Sunol, Alameda County, California  
(SLIC Case #RO0000207 and  
GeoTracker ID T0600102092)**

**October 3, 2008  
001-09480-07**

Prepared for  
Hanson Aggregates Northern California  
3000 Busch Road  
Pleasanton, California 94566

Prepared by  
LFR Inc.  
1900 Powell Street, 12<sup>th</sup> Floor  
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October 3, 2008

Mr. Jerry Wickham  
Alameda County Environmental Health  
Environmental Health Services  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502-6577

**Subject: Work Plan to Conduct Air Injection and Implement Monitored Natural Attenuation, Hanson Aggregates Mission Valley Rock Facility, 7999 Athenour Way, Sunol, Alameda County, California (SLIC Case #RO0000207 and GeoTracker ID T0600102092)**

Dear Mr. Wickham:

This "Work Plan to Conduct Air Injection and Implement Monitored Natural Attenuation" ("Work Plan") was prepared by LFR Inc. (LFR), on behalf of Hanson Aggregates Northern California ("Hanson"), for the former Mission Valley Rock Company facility, located at 7999 Athenour Way in Sunol, Alameda County, California. This Work Plan has been prepared in response to a request by Alameda County Environmental Health staff included in their letter to Hanson dated July 24, 2008.

The Work Plan presents proposed methods and procedures to implement air injection and monitored natural attenuation to remediate petroleum-affected groundwater at the Hanson Sunol Asphalt Plant. A discussion of the hydrogeologic conceptual model that supports selection of this remedial strategy is also presented.

As requested, this Work Plan will be submitted electronically via the Alameda County Environmental Cleanup Oversight Program FTP website, and via the Regional Water Quality Control Board's GeoTracker electronic submittal system.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report are true and correct to the best of my knowledge. If you have any questions or comments concerning this Work Plan, please call me at (925) 426-4170 or Ron Goloubow of LFR at (510) 652-4500.

Sincerely,



Lee W. Cover  
Environmental Manager  
Hanson Aggregates Northern California

Attachment

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## CERTIFICATIONS

LFR Inc. has prepared this "Work Plan to Conduct Air Injection and Implement Monitored Natural Attenuation" to describe work conducted in the asphalt plant area of the Hanson Aggregates Mission Valley Rock Facility in Sunol, California, on behalf of Hanson Aggregates Northern California, in a manner consistent with the level of care and skill ordinarily exercised by professional engineers and geologists. This report was prepared under the technical direction of the undersigned California Professional Geologist and California Professional Engineer.\*



October 3, 2008

J. Scott Seyfried, P.G., C.HG.  
Principal Hydrogeologist  
California Professional Geologist (7374)  
Registered Hydrogeologist (764)

Date




10/03/08

E. Max MacLeod, P.E.  
Senior Project Engineer  
California Professional Civil Engineer (C69846)

Date

\* A professional geologist's or engineer's certification of conditions comprises a declaration of his or her professional judgment. It does not constitute a warranty or guarantee, expressed or implied, nor does it relieve any other party of its responsibility to abide by contract documents, applicable codes, standards, regulations, and ordinances.

## 1.0 INTRODUCTION

LFR Inc. (LFR) has prepared this Work Plan, on behalf of Hanson Aggregates of Northern California (“Hanson”), presenting proposed methods and procedures to implement air injection and monitored natural attenuation (MNA) to remediate petroleum-affected groundwater at the Hanson Sunol Asphalt Plant (“the Site”), located within the Hanson facility at 7999 Athenour Way in Sunol, Alameda County, California (Figures 1 and 2). If the implementation of air injection and MNA measures as presented in this Work Plan are effective, then these measures may be considered the “final remedy” for the affected groundwater at the Site. A discussion of the hydrogeologic conceptual model that supports selection of this remedial strategy is also presented. This Work Plan has been prepared in response to a request by Alameda County Environmental Health (ACEH) staff included in their letter to Hanson dated July 24, 2008.

### 1.1 Background

The Site is located within the approximately 588-acre property owned and operated by Hanson since early 2005, and previously by Mission Valley Rock Company since the 1950s. The Hanson Sunol facility is operated as an aggregate mining quarry with an asphalt manufacturing plant and a ready mix concrete plant. Additionally, various areas throughout the property are leased for industrial, agricultural, and storage purposes.

Results of several phases of investigation at the Site have revealed the presence of petroleum-affected soil and groundwater beneath the Site. These previous investigation results have been summarized in a recent site assessment report (LFR 2007), which includes a hydrogeologic Site Conceptual Model (SCM; Appendix A). In addition, groundwater flow and chemistry data are presented in routine monitoring reports prepared and submitted by Tait Environmental Management Inc.

In response to requests from ACEH to Hanson in 2006 for the implementation of an active groundwater remedy for the Site, Hanson completed a pilot test of air injection during January and February 2008 in accordance with an ACEH-approved Work Plan (LFR 2007b). Based on the results of that pilot test, LFR and Hanson recommended implementation of an air injection remedy and MNA for the affected groundwater at the Site (“Air Injection/MNA remedy”; LFR 2008).

In a letter dated May 1, 2008, ACEH stated that they did not concur with the recommendations presented in the “Air Sparge Pilot Test Completion Report” (LFR 2008), and requested that Hanson prepare a Corrective Action Plan for the Site with proposed cleanup levels for soil and groundwater, an evaluation of all areas affected by fuel releases from underground storage tanks (USTs), and an evaluation of three or more remedial alternatives. At the request of Hanson, ACEH met with representatives of Hanson, LFR, and Malcolm Pirnie (representing the technical

interests of Berkeley-Sunol Holdings, LLC) to discuss the Site on July 18, 2008. During that meeting, LFR presented components of the SCM that supported the selection of the Air Injection/MNA remedy. At the conclusion of that meeting, ACEH requested that Hanson submit a Work Plan presenting the components of the SCM discussed in that meeting, and the methodology to implement the proposed Air Injection/MNA remedy.

The ACEH request for a Work Plan was included in a letter from ACEH to Hanson dated July 24, 2008 that further requested that the Work Plan include the following:

- a summary of discussions held during the July 18, 2008 meeting
- a discussion of those elements of the SCM that were presented during the July 18 meeting
- a discussion of the expected effects of conducting the proposed air injection on groundwater contamination in the southern portion of the Site
- a discussion of the adequacy of plume delineation in the southern portion of the Site

This Work Plan is submitted in response to that request.

## 1.2 Report Organization

This Work Plan is presented in the following sections.

**Section 2.0** presents those elements of the SCM that were discussed during the July 18, 2008 meeting and includes a discussion of the adequacy of plume delineation in the southern portion of the Site.

**Section 3.0** presents the methodology to implement the proposed remedial approach of combining air injection with MNA, and includes a discussion of the expected effects of conducting the proposed air injection on groundwater contamination in the southern portion of the Site.

**Section 4.0** is a proposed schedule for the implementation of the proposed remedy.

## 2.0 ADDITIONS TO SITE CONCEPTUAL MODEL

Previous investigations at the Site included the advancement of approximately 17 temporary soil borings and installation and monitoring of 27 groundwater monitoring wells. One groundwater monitoring well has been abandoned, and currently 26 groundwater monitoring wells are present at the Site. The most recent groundwater monitoring wells (well clusters MW-9 through MW-12, installed during April and May 2006) were completed to depths designated as shallow (“S”, screened approximately from 5 to 10 feet below ground surface [bgs]), deep (“D”, screened approximately

between 15 and 25 feet bgs), and Livermore Formation (“LF”, screened approximately from 35 to 40 feet bgs and believed to be approximately within the top 5 to 10 feet of the Livermore Formation). These depth designations have been used to describe the screened intervals for other previous monitoring wells. A summary of existing groundwater data collected at the Site is presented in Appendix A. The locations of the groundwater monitoring wells and air injection wells are illustrated on Figure 3.

LFR developed an SCM based on regional and local hydrogeologic data, and local site use and history data. That SCM was presented in Appendix A of the “Site Assessment Report of Additional Lateral and Vertical Characterization for Interim Remediation at the Asphalt Plant” (LFR 2007a). The following sections present additional components to that SCM, which were presented to ACEH during the July 18, 2008 meeting and which relate specifically to the selection of the proposed Air Injection/MNA remedy. The following specific details of the SCM were modified during the July 18, 2008 meeting:

- Based on the current site usage, there are no known complete exposure pathways to human receptors.
- Future exposure pathways are unlikely and limited to a construction worker-type exposure scenario that could arise from potential future mining activities in the event that those potential future activities encounter affected media.
- Based on the soil and groundwater samples collected at the Site to date, there is no known source for the affected groundwater in the vadose zone (unsaturated soil). The analytical results of soil and groundwater samples collected at the Site indicate that the groundwater was likely affected by releases from the former USTs at the Site and the changes in the groundwater elevation and groundwater flow direction have resulted in the lateral and vertical distribution of the affected groundwater at the Site.

As discussed during the July 18 meeting, analysis of hydrocarbon composition data, trend data, and geochemical data indicates that four areas of affected groundwater have been identified at the Site. The locations of these areas are summarized below and illustrated on Figures 2 through 4).



## Areas of Affected Groundwater

Descriptive Parameter	Generalized Area			
	Northern Area	Former UST Area	Asphalt Plant	Downgradient (Southern) Area
Indicator Wells	MW-9 S/D/LF, MW-7S/D, MW-1	MW-10 S/D/LF, MW-5	MW-2S/M/D, MW-6S	MW-3, MW-6D, MW-11 S/D/LF
Chemical Composition	Predominantly TPHg; minor component of TPHd; no MTBE	Predominantly TPHg, low (< 10 µg/L) MTBE	TPHd, with MTBE	TPHg, TPHd, and MTBE from apparent upgradient areas
Concentration Trends	Decreasing trend for TPHg and BTEX compounds in 9S/LF; decreasing trend in benzene (only) in MW-9D	Decreasing trends for TPHg and TPHd and MTBE	Decreasing trends in MTBE; relatively flat trend for TPHd in shallow groundwater at MW-2S; decreasing TPHd trend in MW-6S	Decreasing from individual constituents (MTBE, BTEX compounds); some flat trends for TPHg and TPHd
Vertical Distribution	Highest concentrations in D interval	Highest concentrations in D interval	Highest concentrations of TPHd in S interval	S, D, and LF
Geochemistry	Reducing conditions (DO < 1 mg/L and elevated methane [MW-7])	Moderately reducing condition (DO < 1 mg/L, low methane)	Not known	Likely transition from moderately reducing (i.e., MW-5 area) to slightly aerobic (i.e., near background well MW-12)

### Notes:

µg/L = micrograms per liter

mg/L = milligrams per liter

BTEX = benzene, toluene, ethylbenzene, and total xylenes

DO = dissolved oxygen

MTBE = methyl tertiary-butyl ether

TPH = total petroleum hydrocarbons

TPHd = total petroleum hydrocarbons as diesel

TPHg = total petroleum hydrocarbons as gasoline

These generalized areas of groundwater impacts are discussed below.

## 2.1 Northern Area

Analytical results for groundwater samples collected at the Site indicate that an area of affected groundwater is located in the vicinity of well cluster MW-9 and extends south to the vicinity of well MW-7. This area is characterized as consisting predominantly of gasoline-range hydrocarbons concentrated in the “D” interval, and an absence of MTBE. Analytical results for groundwater samples collected from wells in this area of the Site indicate that concentrations of hydrocarbons, especially BTEX compounds, have generally decreased over time (Appendix A). However, TPH concentrations remain relatively elevated, especially in groundwater samples collected from well MW-9D, where TPHg was recently reported at 44 mg/L.

The presence of TPH in groundwater in this area of the Site has apparently resulted in a reducing groundwater condition relative to background, likely resulting from aerobic respiration (degradation) of petroleum hydrocarbons. This conclusion is supported with geochemical data collected from well MW-7 that indicate the presence of elevated concentrations of methane (3.5 mg/L) and reduced concentrations of sulfate (12.5 mg/L) relative to apparent background conditions as represented by data from MW-12 (0.004 mg/L methane and 71.8 mg/L sulfate; Figures 2 through 4 and Appendix A).

## 2.2 Former UST Area

Analytical results for groundwater samples collected from well cluster MW-10 indicate the presence of a different area of affected groundwater at the Site. This area is primarily comprised of TPHg-range hydrocarbons in the “D” interval, and is located in the general vicinity of former gasoline and diesel USTs (Figures 2 through 4). Relative to the affected groundwater in the northern area of the Site, concentrations of hydrocarbons detected in samples collected from wells located in the vicinity of former gasoline and diesel USTs are much lower (less than 1 mg/L) and exhibit consistent decreasing trends.

## 2.3 Asphalt Plant Area

Relatively elevated concentrations of TPHd in samples collected from well MW-2S (8.9 mg/L, March 2008) indicate the possible presence of an additional area of affected groundwater at the Site in the general vicinity of wells MW-2 and MW-6. Unlike the other two areas of affected groundwater at the Site, hydrocarbon impacts to groundwater near wells MW-2 and MW-6 appear to be more elevated in the shallowest interval, and are characterized by the presence of TPHd. This area of affected groundwater also is characterized as having somewhat elevated concentrations of MTBE (historically up to 410  $\mu\text{g/L}$  [MW-6S, August 2005]) in the S and D depth intervals. However, concentrations of MTBE in groundwater samples collected in this area show a consistent decreasing trend such that current levels are generally below 20  $\mu\text{g/L}$  (Appendix A).

## 2.4 Downgradient (Southern) Extent of Hydrocarbon Impacts to Groundwater and Monitoring Well Network

Results for groundwater data collected from temporary soil borings MIP-03 and MIP-6 (LFR 2007b) in conjunction with the analytical results for groundwater samples collected from wells MW-12S/D/LF and MW-4 (Figure 2) indicate that the downgradient extent of petroleum-affected groundwater associated with this Site has been delineated. Groundwater quality data from these locations indicate the limited and stable nature of the affected groundwater at the Site.

Analytical results from groundwater samples collected from wells MW-3 and MW-11 S/D/LF over time further characterize the downgradient impacts and hydrocarbon concentration trends within the areas of affected groundwater described above (Appendix A). For example, the historical trend data for MW-3 indicate a long-term decreasing trend in diesel-range hydrocarbons (from 12 mg/L in June 1998 to current concentrations that are below laboratory reporting limits [ $<0.050$  mg/L]), while MTBE data for that well show more of a consistent (flat) to slightly decreasing trend (Appendix A).

The presence of more elevated concentrations of TPH in samples collected from well MW-11D and MTBE in samples collected from well MW-11LF indicate that this well cluster is monitoring impacts from affected groundwater located in the upgradient direction. The concentrations of MTBE, which exist in samples where TPHg is below reporting limits, have likely migrated vertically downward from the D interval to the LF interval. It is important to note that concentrations of MTBE in samples collected from well MW-11LF have been decreasing (from 250  $\mu\text{g/L}$  in May 2006 to 150  $\mu\text{g/L}$  in June 2008).

Historical water quality data for samples collected from wells MW-3 and MW-11 S/D/LF indicate that these wells are providing representative water quality data regarding lateral extent and trend of petroleum hydrocarbons in groundwater at the Site. Given this linkage, data from these wells will be used to monitor the effectiveness of the active remedy proposed in the northern area of affected groundwater, and the ongoing MNA remedy for the remainder of the groundwater impacts.

## 3.0 PROPOSED REMEDIAL MEASURES

### 3.1 Remedial Approach and Rationale

As described above, the area of TPH-affected groundwater in the vicinity of well MW-9 appears to be contributing hydrocarbon mass to groundwater, and is contributing to an oxygen-limiting condition in groundwater. Air injection is likely to reverse this oxygen-limiting condition and create conditions favorable for the enhancement of biological degradation of petroleum hydrocarbons. The overall extent of the area of

affected groundwater in the vicinity of well MW-9 is limited, indicating that natural attenuation mechanisms have been effective at stabilizing the migration of the affected groundwater, and has resulted in decreasing trends in the majority of the plume. Given this SCM, the reduction of the hydrocarbon mass and an increase in the oxygen concentration in the groundwater in the northern area of affected groundwater would be expected to accelerate existing natural attenuation mechanisms throughout this area of affected groundwater (i.e., including the southern portion of the impact area), which would reduce the overall remedial time frame. Results from the air injection pilot test demonstrated that application of this technology using existing injection wells installed during the pilot test is likely to be sufficient to accomplish these objectives (LFR 2008).

## **3.2 Air Injection in Area of Affected Groundwater**

The following sections described proposed methods (air injection along with MNA) to address petroleum-affected groundwater beneath the Site.

### **3.2.1 Materials and Construction**

A conceptual drawing of the proposed air injection system is presented on Figure 5. As shown on that figure, the air injection system will include a compressor with the capacity to continuously produce a minimum air flow rate of up to 10 standard cubic feet per minute (scfm) to provide compressed air to the system. The compressor will be mounted on an approximately 80-gallon air tank. A pressure regulator will be placed between the compressor tank and a manifold fitted with two solenoid valves. The pressure regulator will be used to control the pressure of compressed air supplied to the manifold. Additionally, each line of the two compressed air lines leading to the injection well will pass through a pressure or flow regulator, which will be used to control the flow through each injection well. The pilot test of air injection demonstrated that there is little formation resistance to air injection and that relatively high air flow could be achieved with a relatively low injection pressure. Two solenoid valves that will normally be in the closed position will be mounted on the manifold. The valves will open for periods of time to allow a pulsed application of compressed air to enter into the two injection wells. A programmable timer will allow the system operator to specify the frequency of injection periods as well as the length of each injection period and non-injection period for each cycle. Downstream from the solenoids, each leg of the compressed air stream will be fitted with flow meters with a range of 0 to 10 scfm. From the flow meters the air will be routed through compressed air lines placed in conduit-installed trenches to the wellheads of OXY-1D and OXY-1LF.

### **3.2.2 Operations and Maintenance**

Operations and maintenance (O&M) will occur on a weekly basis. During these visits, operational data will be collected, machinery will be inspected, and system troubleshooting and optimization will be performed. Specific tasks will include recording pressure and flow data for the two injection wells, recording the “on” and

“off” periods and frequency of each solenoid’s programmed cycle, checking the system for air leaks, checking the oil level in the compressor, and verifying proper solenoid operation. The system is designed to offer operational flexibility, and the site O&M visits may also be used to change the injection period frequency, the injection times for the two wells, and the time between injection intervals.

Initial system operation will be conducted using a low-flow, pulsed approach. The individual regulators will be adjusted so that not more than 5 scfm of air is allowed to pass through either injection point. During pilot testing, 5 scfm flows were achieved at pressures approximately 2 pounds per square inch (psi) above the breakthrough pressure (the minimum pressure at which flow into the injection points begins). This correlated to air injection pressures of approximately 17 psi for OXY-1LF and 12 psi for OXY-1D. Additionally, the solenoids will be closed (stopping flow to the injection points), for one-third of the period. The two injection points (OXY-1D and OXY-1LF) will be operated in an alternating sequence so that their injection periods do not overlap. The proposed initial injection sequence is presented in the following table.

#### Proposed Initial Air Injection Sequence

Time Interval	OXY-1LF	OXY-1D
20 Minutes	Injection at Approximately 17 psi and 5 scfm	Off
10 Minutes	Off	Off
20 Minutes	Off	Injection at Approximately 12 psi and 5 scfm
10 Minutes	Off	Off

### 3.2.3 Performance Monitoring and Contingency Measures

Ongoing groundwater quality data collected from the existing quarterly groundwater monitoring program will be used to assess the performance of the air injection system in the northern area of affected groundwater, and the proposed MNA remedy for the remainder of the area of affected groundwater. Additional organic, inorganic, and microbial data will be collected during the first quarter of system operation as shown in Table 1.

Performance monitoring will be used to determine whether or not contingency measures should be taken to improve system performance. Specific contingency measures include:

- Increasing the flow rate of injected air,
- Increasing the percentage of injection time for either or both injection wells,
- Increasing or decreasing the frequency of system pulsing,
- Injecting air enriched with oxygen, and
- Adding ozone to the injection air.

### ***3.2.3.1 Increasing Injection Air Flow Rate***

If the flow rate of injected air is increased and sequencing remains the same, more oxygen is introduced into the targeted aquifer. The advantage of an increased flow rate is that it is likely to create a larger network of the small air channels that deliver oxygen to the groundwater. This leads directly to a larger volume of water with elevated DO, a positive development for the biodegradation of hydrocarbons found at the Site. Given that analytical results from soil-gas samples when considered in conjunction with California Occupational Safety and Health Administration (Cal/OSHA) permissible exposure limits (PELs) indicated that the increased risk to human health posed by air injection was not significant (LFR 2008), relatively higher flow rates (achievable at low pressures) can be considered if low flows do not deliver sufficient oxygen to the aquifer.

### ***3.2.3.2 Increasing the Percentage of Injection Time***

As with increasing the air flow rate at a particular well, increasing the percentage of time that an individual injection well is on will introduce more oxygen into the aquifer. If the time is increased to an interval that is too long, one or more preferential pathways in the air channel network can develop and most of the air will not reach the aquifer as a whole, but will follow the preferential pathway into the vadose zone. Most of the injected air is then wasted and does not enhance conditions for the aerobic biodegradation of dissolved hydrocarbons in site groundwater. Therefore, injection times over one hour are not considered optimal unless flow rates are quite low (less than 5 scfm).

### ***3.2.3.3 Altering the Frequency of System Pulsing***

Altering pulsing frequency can be done either independently or in conjunction with increasing the flow rate and altering the percentage of injection time. If the overall amount of air injected into the aquifer was estimated to be sufficient but the resultant volume of influence was too small, a more frequent, shorter duration, higher flow rate may be implemented. Many other combinations of flow alteration and frequency manipulation can be implemented using the regulators and the system timer to optimize the delivery of air into the affected groundwater.

### **3.2.3.4 Injecting Air Enriched with Oxygen**

It is expected that using air for injection will meet the oxygen demand required for the successful treatment of affected groundwater at the Site. If it is determined that a low flow rate is necessary at the Site, but the low flow rate does not meet the oxygen needs of aerobic degradation, enriching the injection air with oxygen will be considered. Using an oxygen generator or a zeolite filter, it is possible to increase the percentage of oxygen in the injection gas to over 90%. Oxygen-enriched injection may increase the rate of biodegradation or the volume of groundwater treated or both.

### **3.2.3.5 Adding Ozone to the Injection Air**

Ozone can be generated on site and added to the stream of air injected into the affected groundwater. Ozone will chemically oxidize the petroleum hydrocarbons in site groundwater and break down into oxygen. Ozone is a strong oxidizer and does not preferentially attack hydrocarbons, but rather scavenges electrons from all available sources. In the center of the injection area, this will likely oxidize the vast majority of beneficial hydrocarbon-degrading microbes. However, their function will be replaced by the direct oxidation of the hydrocarbons by the ozone. At the fringes of the injection area, the aerobic hydrocarbon-specific degrading microbes will benefit from the oxygen introduced by the breakdown of ozone into oxygen.

Ozone systems are significantly more expensive in original and O&M costs than air injection but have proven to be effective at many sites. Should other air/enriched-oxygen injection methods and adjustments fail to improve system performance, addition of ozone to the injected gas stream may be considered.

## **4.0 PROPOSED SCHEDULE**

LFR anticipates that following schedule:

- Approval of this work plan from ACEH - 3 weeks
- Finalize the design and specification for the remedial treatment system – 3 weeks
- Purchase/procurement of remedial equipment – 3 weeks
- Install remedial equipment (includes selection of contractor, trenching, and modification of existing well boxes – 3 weeks
- System start-up – 9 weeks after ACEH approval
- O&M – ongoing after system start-up
- Quarterly Reporting – LFR will transmit a summary report to ACEH 30 days after the system has operated for 3 months, and quarterly thereafter. The initial report will present the results of the system start-up and the initial groundwater monitoring conducted in accordance with Table 1. The subsequent quarterly monitoring reports

will present the results of the routine O&M and monitoring conducted for the treatment system.

LFR will inform ACEH of any significant changes to this schedule.

## 5.0 LIMITATIONS

The opinions and recommendations presented in this report are based upon the scope of services, information obtained through the performance of the services, and the schedule as agreed upon by LFR and the party for whom this report was originally prepared. This report is an instrument of professional service and was prepared in accordance with the generally accepted standards and level of skill and care under similar conditions and circumstances established by the environmental consulting industry. No representation, warranty, or guarantee, express or implied, is intended or given. To the extent that LFR relied upon any information prepared by other parties not under contract to LFR, LFR makes no representation as to the accuracy or completeness of such information. This report is expressly for the sole and exclusive use of the party for whom this report was originally prepared for a particular purpose. Only the party for whom this report was originally prepared and/or other specifically named parties have the right to make use of and rely upon this report. Reuse of this report or any portion thereof for other than its intended purpose, or if modified, or if used by third parties, shall be at the user's sole risk.

Results of any investigations or testing and any findings presented in this report apply solely to conditions existing at the time when LFR's investigative work was performed. It must be recognized that any such investigative or testing activities are inherently limited and do not represent a conclusive or complete characterization. Conditions in other parts of the Site may vary from those at the locations where data were collected. LFR's ability to interpret investigation results is related to the availability of the data and the extent of the investigation activities. As such, 100% confidence in environmental investigation conclusions cannot reasonably be achieved.

LFR, therefore, does not provide any guarantees, certifications, or warranties regarding any conclusions regarding environmental contamination of any such property. Furthermore, nothing contained in this document shall relieve any other party of its responsibility to abide by contract documents and applicable laws, codes, regulations, or standards.

## 6.0 REFERENCES

LFR Inc. (LFR). 2007a. Site Assessment Report of Additional Lateral and Vertical Characterization and Plan for Interim Remediation at the Asphalt Plant, Hanson Aggregates Mission Valley Rock Facility, 7999 Athenour Way, Sunol, Alameda County, California. April 10.



- . 2007b. Work Plan to Conduct a Groundwater Remediation Pilot Test at the Asphalt Plant and Additional Subsurface Characterization in the Former Diesel Spray Area, Hanson Aggregates Mission Valley Rock Facility, 7999 Athenour Way, Sunol, Alameda County, California. August 3.
  
- . 2008. Air Sparge Pilot Test Completion Report, Hanson Aggregates Mission Valley Rock Facility, 7999 Athenour Way, Sunol, Alameda County, California. March 28.

**Table 1**  
**Sampling Frequency for First Quarter of Operation of the**  
**Air Injection System and Monitored Natural Attenuation**  
**Hanson Aggregates Sunol Facility, Asphalt Plant**  
**7999 Athenour Way, Sunol, California**

	Field Parameters	Organic	Inorganic		Microbial	
	Temp, EC, pH, DO, ORP	TPHd, TPHg, BTEX, MTBE	Nitrate/Nitrite, TKN, Ortho- phosphate, BOD, COD, Fe	Fe + 2	HPC	SD (gasoline)
Well ID	Frequency	Frequency	Frequency	Frequency	Frequency	Frequency
MW-1	M	M	-	-	-	-
MW-7S	M	M	-	-	-	-
MW-7D	M	M	Q	Q	Q	Q
MW-8	M	M	-	-	-	-
MW-9S	M	M	Q	Q	Q	Q
MW-9D	M	M	Q	Q	Q	Q
MW-9LF	M	M	Q	Q	Q	Q
OXY-1S	-	Q	-	-	-	-
OXY-1D	-	Q	-	-	-	-
OXY-1LF	-	Q	-	-	-	-

**Notes:**

M = monthly for the first quarter

Q = at the end of the first quarter

- = not to be sampled for the given analyte

SG (gasoline) = specific degrader for gasoline count by EPA Method 9215-A

EC = electrical conductivity in microSiemens per centimeter (µS/cm)

DO = dissolved oxygen in milligrams per liter (mg/l)

ORP = oxidation-reduction potential in millivolts (mV)

TPHd = total petroleum hydrocarbons as diesel by EPA Method 8015

TPHg = total petroleum hydrocarbons as gasoline by EPA Method 8260B

BTEX = benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8260B

Temp = temperature in degrees Celsius (°C)

MTBE = methyl tertiary-butyl ether by EPA Method 8260B

nitrate and nitrite by EPA Method 354.1

TKN = total Kjeldahl nitrogen by EPA Method 4500

orthophosphate by EPA Method 365.3

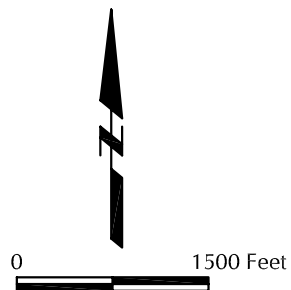
BOD = biological oxygen demand by EPA Method 5210B

COD = chemical oxygen demand by EPA Method 410.1

Fe = dissolved iron by EPA Method 410.1

Fe+2 = dissolved ferrous iron by EPA Method 410.1

HPC = heterotrophic plate count by EPA Method 9215-A



### Site Location Map

Hanson Aggregates, Sunol, California

SOURCE: GOOGLE EARTH PRO






Figure 1





**EXPLANATION:**

- 
**MW-9** Groundwater monitoring well  
(Single completion; nested and well cluster)
- 
**MIP-3** MIP boring / grab groundwater
- 
**B-1** Sonic boring / grab groundwater

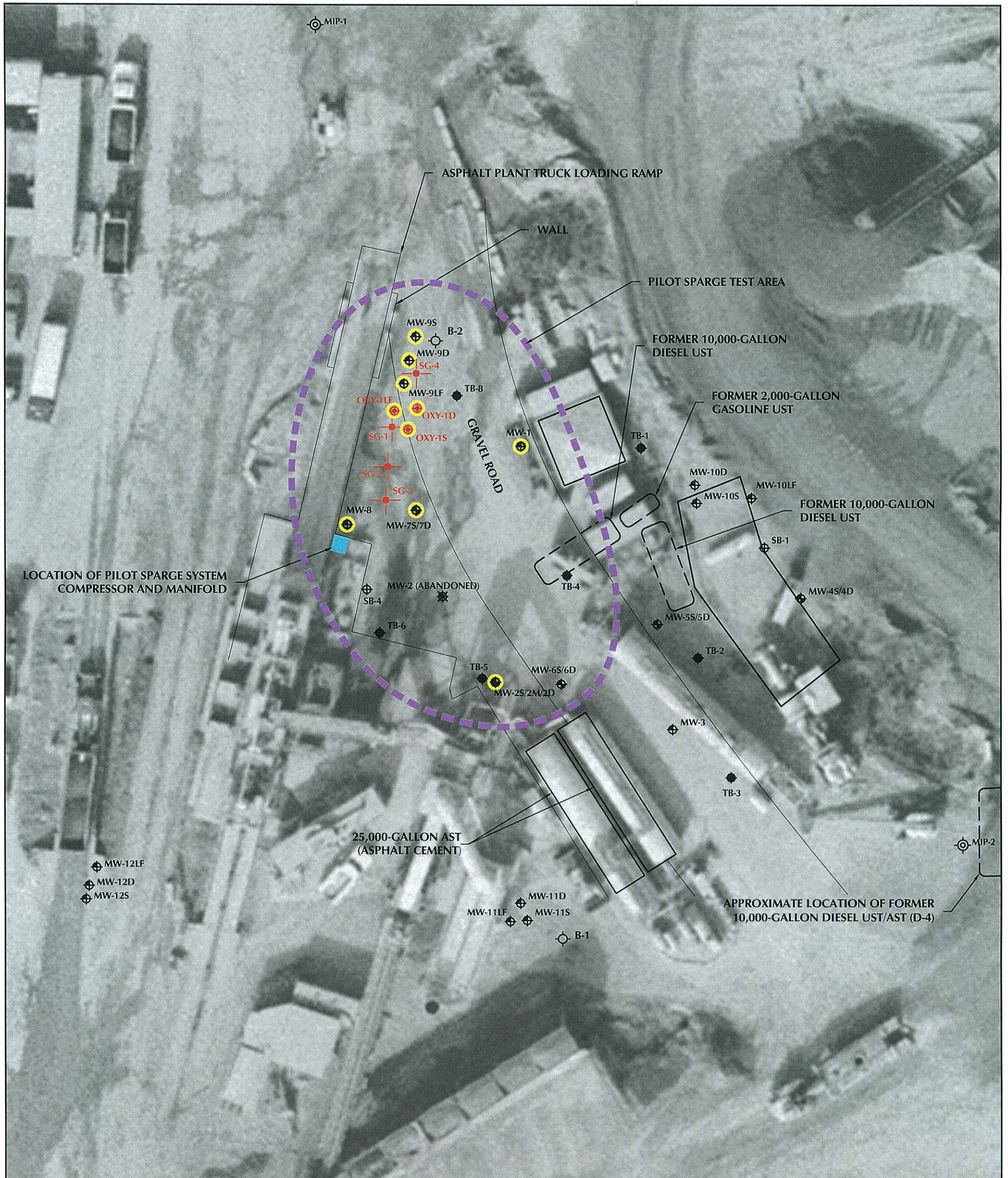
**Site Plan**

Hanson Aggregates, Sunol, California



**Figure 2**





LOCATION OF PILOT SPARGE SYSTEM COMPRESSOR AND MANIFOLD

ASPHALT PLANT TRUCK LOADING RAMP

WALL

PILOT SPARGE TEST AREA

FORMER 10,000-GALLON DIESEL UST

FORMER 2,000-GALLON GASOLINE UST

FORMER 10,000-GALLON DIESEL UST

25,000-GALLON AST (ASPHALT CEMENT)

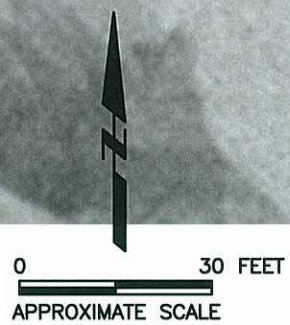
APPROXIMATE LOCATION OF FORMER 10,000-GALLON DIESEL UST/AST (D-4)

**EXPLANATION:**

- MW-9S Groundwater monitoring well by LFR Inc. (single completion; well cluster)
- MW-1 Groundwater monitoring well by Tait (single completion)
- MW-7S/7D Existing groundwater monitoring well by Tait (dual nested)
- MW-2S/2M/2D Existing groundwater monitoring well by Tait (triple nested)
- MW-2 Abandoned groundwater monitoring well
- TB-6 Grab groundwater sample location
- SB-4 Temporary soil boring location
- B-2 Sonic boring / grab groundwater
- MIP-3 MIP boring / grab groundwater
- OXY-1S Pilot test air injection well (approximate location)
- SG-1 Soil gas monitoring probe (approximate location)
- MW-9S Wells monitored during pilot test

AST = Aboveground storage tank  
 UST = Underground storage tank  
 MIP = Membrane Interface Probe

Pilot Sparge Test Area



**Site Plan Showing Locations of Air Sparging Wells**

Hanson Aggregates, Sunol, California



**Figure 3**



MW-7D	
2/28/07	
TPH-d	790 $\mu\text{g/l}$
TPH-g	6,800 $\mu\text{g/l}$
Benzene	29
Toluene	51
Ethylbenzene	460
m,p-Xylene	440
o-Xylene	51
MTBE	< 1.0
Chromium	< 0.050 mg/l
Chromium VI	< 0.0010
Sulfate as SO4	12.50
Bromide	< 0.500
Nitrate as NO3	< 0.500
Methane	3.510
BOD	5.40
COD	35
Ferrous Iron	2.12
Sulfide	0.15
Nitrite	0.140
DO (mg/l)	0.69 to 0.42
ORP (mV)	-226.7 to -241.4

MW-5D	
2/28/07	
TPH-d	< 500 $\mu\text{g/l}$
TPH-g	< 50 $\mu\text{g/l}$
Benzene	< 0.50
Toluene	< 0.50
Ethylbenzene	< 0.50
m,p-Xylene	< 1.0
o-Xylene	< 0.50
MTBE	1.6
Chromium	< 0.050 mg/l
Chromium VI	< 0.0010
Sulfate as SO4	33.80
Bromide	30.90
Nitrate as NO3	< 0.500
Methane	0.426
BOD	2.20
COD	51
Ferrous Iron	3.30
Sulfide	0.020
Nitrite	0.006
DO (mg/l)	0.65 to 0.23
ORP (mV)	-183.7 to -197.3

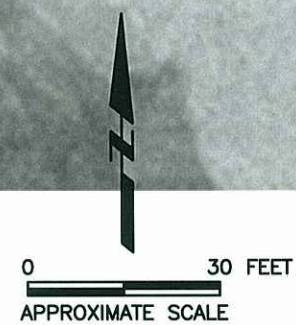


MW-12D	
2/28/07	
TPH-d	< 500 $\mu\text{g/l}$
TPH-g	51 $\mu\text{g/l}$
Benzene	< 0.50
Toluene	< 0.50
Ethylbenzene	< 0.50
m,p-Xylene	< 1.0
o-Xylene	< 0.50
MTBE	< 1.0
Chromium	< 0.050 mg/l
Chromium VI	< 0.025
Sulfate as SO4	71.80
Bromide	< 0.500
Nitrate as NO3	< 0.500
Methane	0.004
BOD	< 2.0
COD	< 2.0
Ferrous Iron	0.02
Sulfide	0.02
Nitrite	0.017
DO (mg/l)	1.06 to 0.43
ORP (mV)	136.8 to 145.9

**EXPLANATION:**

- MW-9S Groundwater monitoring well by LFR Inc. (single completion; well cluster)
- MW-1 Groundwater monitoring well by Tait (single completion)
- MW-7S/7D Existing groundwater monitoring well by Tait (dual nested)
- MW-2S/2M/2D Existing groundwater monitoring well by Tait (triple nested)
- MW-2 Abandoned groundwater monitoring well
- TB-1 Grab groundwater sample location
- SB-1 Temporary soil boring location
- B-2 Sonic boring / grab groundwater
- MIP-3 MIP boring / grab groundwater
- AST = Aboveground storage tank
- UST = Underground storage tank
- MIP = Membrane Interface Probe

- TPH-d Total Petroleum Hydrocarbons as Diesel
- TPH-g Total Petroleum Hydrocarbons as Gas
- BOD Biochemical Oxygen Demand
- COD Chemical Oxygen Demand
- DO Dissolved Oxygen
- ORP Oxidation Reduction Potential



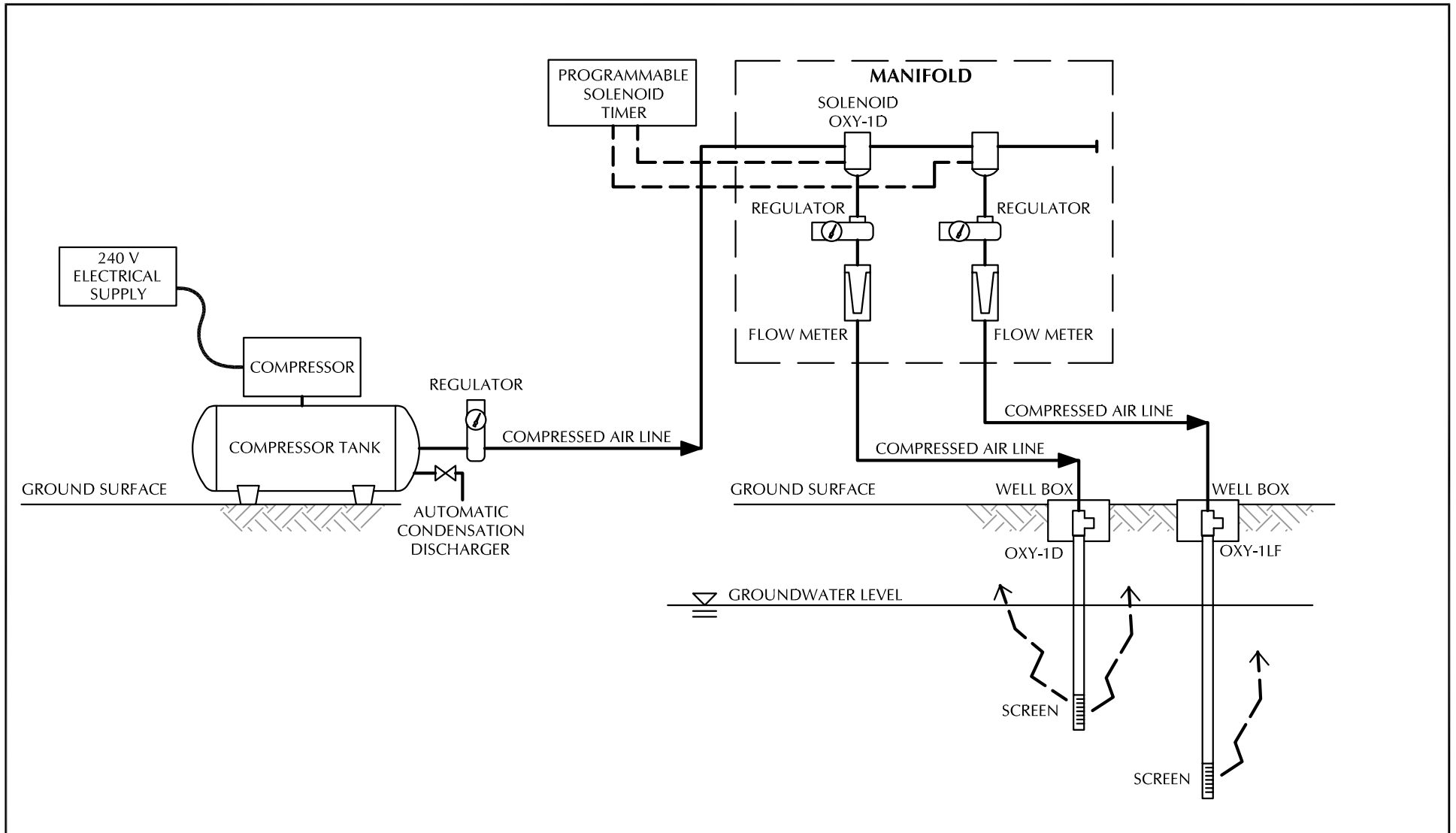
**Groundwater Analytical Results - Indicator Parameters**

Hanson Aggregates, Sunol, California



**Figure 4**





### Conceptual Drawing of Proposed Air Injection System

Hanson Aggregates, Sunol, California



Figure 5

## **APPENDIX A**

### **Historical Groundwater Analytical Results**



**Table 4**  
**Historical Groundwater Analytical Results**  
 Mission Valley Rock Company  
 Sunol, California

Well	Date	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	TAME (ug/L)	TBA (ug/L)	MTBE (ug/L)
MW-1	06/23/98	0.1	3100	19	2.3	91	48	ND< 2.0	ND< 10	110
	10/01/98	0.1	2300	3.1	4.2	5.0	15	ND< 2.0	ND< 10	ND< 0.5
	01/05/99	350	ND< 50	12	7.5	20	6.2	ND< 2.0	ND< 10	ND< 5.0
	03/29/99	190	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 0.5
	06/10/99	210	1800	1.2	0.9	1.5	4.6	ND< 2.0	ND< 10	ND< 0.5
	09/17/99	62	180	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 0.5
	12/27/99	290	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 0.5
	03/22/00	86	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 0.5
	06/30/00	70	450	2.1	ND< 0.5	2.1	1.4	ND< 2.0	ND< 10	7.6
	09/14/00	ND< 50	850	5.4	ND< 0.5	9.4	2.6	ND< 2.0	ND< 10	9.8
	12/20/00	ND< 1000	370	5.3	ND< 1.0	2.7	ND< 3.0	ND< 2.0	ND< 10	55
	03/22/01	ND< 1000	700	ND< 1.0	ND< 1.0	1.4	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	06/27/01	ND< 1000	170	ND< 1.0	ND< 1.0	1.2	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	09/21/01	ND< 1000	730	1.4	ND< 1.0	7.6	1.2	ND< 2.0	ND< 10	ND< 1.0
	12/27/01	1000	500	15	ND< 1.0	27	5.5	ND< 2.0	ND< 10	ND< 1.0
	03/29/02	12000	29000	50	ND< 25	960	290	ND< 2.0	ND< 10	ND< 25
	06/13/02	ND< 1000	1400	3.5	ND< 1.0	42	7.9	ND< 2.0	ND< 10	ND< 1.0
	09/27/02	1400	760	ND< 1.0	ND< 1.0	4.3	1.1	ND< 2.0	ND< 10	ND< 1.0
	12/03/02	ND< 1000	1600	ND< 1.0	ND< 1.0	ND< 1.0	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	03/31/03	ND< 1000	620	1.2	ND< 1.0	12	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	06/27/03	ND< 1000	0.61	ND< 1.0	ND< 1.0	ND< 1.0	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	09/19/03	ND< 1000	1.2	ND< 1.0	ND< 1.0	6.4	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	12/22/03	ND< 1000	0.49	ND< 1.0	ND< 1.0	3	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	01/17/05	ND< 50	63	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 1.0
	05/04/05	ND< 50	1200	ND< 0.5	ND< 0.5	8.5	1.2	ND< 2.0	ND< 10	ND< 1.0
	08/12/05	ND< 50	410	ND< 0.5	ND< 0.5	2.4	ND< 0.5	ND< 2.0	ND< 10	ND< 1.0
	12/13/05	ND< 50	750	3.8	ND< 0.5	4.2	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	03/03/06	ND< 50	310	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	06/13/06	ND< 50	96	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	09/06/06	ND< 50	920	ND< 0.5	ND< 0.5	5.3	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
12/05/06	ND< 50	1200	1.4	ND< 0.5	1.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0	
02/27/07	ND< 500	430	1.1	ND< 0.5	7.9	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0	
06/12/07	ND< 500	370	0.9	ND< 0.5	17	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0	
09/11/07	ND< 500	270	0.80	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0	
12/11/07	ND< 50	890	6.60	0.54	0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0	
03/11/08	ND< 50	660	ND< 0.50	ND< 0.50	4	4.9	ND< 2.0	ND< 10	ND< 1.0	
06/10/08	ND< 50	220	ND< 0.50	ND< 0.50	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0	

TPHd: diesel  
 TPHg: gasoline  
 TAME: tert amyl methyl ether  
 TBA: tert-butyl alcohol  
 MTBE: methyl tert-butyl ether  
 ug/L: micrograms per liter  
 ND: not detected above laboratory reporting limit

**Table 4**  
**Historical Groundwater Analytical Results**  
 Mission Valley Rock Company  
 Sunol, California

Well	Date	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	TAME (ug/L)	TBA (ug/L)	MTBE (ug/L)
MW-2	06/23/98	12000	2500	0.68	ND< 0.5	1.2	0.57	ND< 2.0	ND< 10	14
	10/01/98	4300	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 0.5
	01/05/99	38000	ND< 5000	ND< 1.0	ND< 50	51	190	ND< 2.0	ND< 10	ND< 500
	03/29/99	580	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 0.5
	06/10/99	4500	24000	38	27	41	98	ND< 2.0	ND< 10	ND< 0.5
	09/17/99	24000	1400	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	27
	12/27/99	2300	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 0.5
	03/22/00	620	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 0.5
	06/30/00	1700	270	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	17
	09/14/00	5800	130	ND< 0.5	ND< 0.5	ND< 0.5	0.94	ND< 2.0	ND< 10	12
	12/20/00	19000	1700	ND< 50	ND< 50	ND< 50	ND< 150	ND< 2.0	ND< 10	ND< 250
	03/22/01	610000	3300	ND< 1.0	ND< 1.0	ND< 1.0	ND< 1.0	ND< 2.0	ND< 10	9
	06/27/01	8800	1800	ND< 1.0	ND< 1.0	ND< 1.0	ND< 1.0	ND< 2.0	ND< 10	6.7
	09/21/01	530000	7000	ND< 50	ND< 50	ND< 50	ND< 50	ND< 2.0	ND< 10	ND< 50
	12/27/01	27000	310	ND< 1.0	ND< 1.0	ND< 1.0	ND< 1.0	ND< 2.0	ND< 10	62
	03/29/02	65000	130	ND< 1.0	ND< 1.0	ND< 1.0	ND< 1.0	ND< 2.0	ND< 10	30
	06/13/02	130000	460	ND< 1.0	ND< 1.0	ND< 1.0	ND< 1.0	ND< 2.0	ND< 10	24
	09/27/02	480000	290	ND< 1.0	ND< 1.0	ND< 1.0	ND< 1.0	ND< 2.0	ND< 10	16
	12/03/02	61000	1800	ND< 1.0	ND< 1.0	ND< 1.0	ND< 1.0	ND< 2.0	ND< 10	10
	03/31/03	5000	ND< 100	ND< 1.0	ND< 1.0	ND< 1.0	ND< 1.0	ND< 2.0	ND< 10	14
06/27/03	8.1	360	ND< 1.0	ND< 1.0	ND< 1.0	ND< 1.0	ND< 2.0	ND< 10	20	
09/19/03	85	12	ND< 1.0	ND< 1.0	ND< 1.0	ND< 1.0	ND< 2.0	ND< 10	15	
12/22/03	NS									
01/17/05	Abandoned									
MW-2S	01/17/05	1100	730	ND< 0.5	ND< 0.5	1.0	3.5	ND< 2.0	ND< 10	50
	05/04/05	8200	190	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	44
	08/12/05	6100	120	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	77
	12/12/05	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	26
	03/03/06	5900	160	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	21
	06/13/06	8700	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	22
	09/06/06	11000	190	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	29
	12/05/06	18000	ND< 50	ND< 0.5	ND< 50	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	38
	02/28/07	6600	140	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	33
	06/12/07	3700	90	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	12	19
	09/11/07	17000	ND< 50	ND< 2.5	ND< 2.5	ND< 2.5	ND< 0.5	ND< 10	ND< 50	46
	12/11/07	16000	ND< 50	ND< 2.5	ND< 2.5	ND< 2.5	ND< 0.5	ND< 10	ND< 50	16
	03/11/08	8900	50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	17
06/10/08	1100	72	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	25	

TPHd: diesel  
 TPHg: gasoline  
 TAME: tert amyl methyl ether  
 TBA: tert-butyl alcohol  
 MTBE: methyl tert-butyl ether  
 ug/L: micrograms per liter  
 ND: not detected above laboratory reporting limit

**Table 4**  
**Historical Groundwater Analytical Results**  
 Mission Valley Rock Company  
 Sunol, California

Well	Date	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	TAME (ug/L)	TBA (ug/L)	MTBE (ug/L)
MW-2M	01/17/05	4100	3300	6.5	1.7	89	82.2	ND< 2.0	ND< 10	38
	05/04/05	ND< 50	610	ND< 0.5	ND< 0.5	16	10.6	ND< 2.0	ND< 10	32
	08/12/05	ND< 50	460	ND< 0.5	ND< 0.5	2.5	1.2	ND< 2.0	ND< 10	56
	12/12/05	ND< 50	410	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	28
	03/03/06	ND< 50	290	ND< 0.5	ND< 0.5	0.5	ND< 1.0	ND< 2.0	ND< 10	17
	06/13/06	ND< 50	130	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	09/06/06	1900	330	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	22
	12/05/06	6100	340	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	37
	02/27/07	ND< 500	310	ND< 0.5	ND< 0.5	0.65	ND< 1.0	ND< 2.0	ND< 10	25
	06/12/07	350	290	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	14
	09/11/07	4900	220	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	14
	12/11/07	ND< 50	370	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	9.4
03/11/08	4000	230	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	7.4	
06/10/08	2800	330	ND< 0.5	ND< 0.5	ND< 0.5	1.0	ND< 2.0	ND< 10	10.0	
MW-2D	01/17/05	1800	1000	6.5	ND< 0.5	80	71	ND< 2.0	ND< 10	62
	05/04/05	ND< 50	250	ND< 0.5	ND< 0.5	4.6	1.6	ND< 2.0	ND< 10	72
	08/12/05	ND< 50	ND< 50	ND< 0.5	ND< 0.5	2.8	1.1	ND< 2.0	ND< 10	51
	12/12/05	ND< 50	200	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	39
	03/03/06	ND< 50	140	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	38
	06/13/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	36
	09/06/06	1700	230	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	27
	12/05/06	3000	150	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	37
	02/27/07	1100	140	ND< 0.5	ND< 0.5	0.63	1.1	ND< 2.0	ND< 10	25
	06/12/07	ND< 500	140	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	19
	09/11/07	4600	120	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	15
	12/11/07	ND< 50	250	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	22
	03/11/08	3400	98	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	7.5
	06/10/08	2900	170	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	15
MW-3	06/23/98	12000	300	0.80	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	150
	10/01/98	6400	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 0.5
	01/05/99	5600	ND< 100	1.6	1.4	ND< 1.0	ND< 1.0	ND< 2.0	ND< 10	110
	03/29/99	150	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 0.5
	06/10/99	620	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 0.5
	09/17/99	1500	ND< 230	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	89
	12/27/99	58	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 0.5
	03/22/00	94	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 0.5
	06/30/00	240	170	ND< 0.5	0.52	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	100
	09/14/00	850	170	0.81	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	68
	12/20/00	1600	230	ND< 1.0	ND< 1.0	ND< 1.0	ND< 3.0	ND< 2.0	ND< 10	80
	03/22/01	1100	140	ND< 1.0	ND< 1.0	ND< 1.0	ND< 1.0	ND< 2.0	ND< 10	83
	06/27/01						NS			
	09/21/01	3800	ND< 100	ND< 1.0	ND< 1.0	ND< 1.0	ND< 1.0	ND< 2.0	ND< 10	45
	12/27/01	3100	340	1.4	1.1	10	3.8	ND< 2.0	ND< 10	45
	03/29/02	1500	ND< 100	ND< 1.0	ND< 1.0	ND< 1.0	ND< 1.0	ND< 2.0	ND< 10	50
	06/13/02	ND< 1000	160	ND< 1.0	ND< 1.0	ND< 1.0	ND< 1.0	ND< 2.0	ND< 10	36
	09/27/02	ND< 1000	ND< 1000	ND< 1.0	ND< 1.0	ND< 1.0	ND< 1.0	ND< 2.0	ND< 10	43
	12/03/02	ND< 1000	ND< 100	ND< 1.0	ND< 1.0	ND< 1.0	ND< 1.0	ND< 2.0	ND< 10	41
	03/31/03	ND< 1000	ND< 100	ND< 2.5	ND< 2.5	ND< 2.5	ND< 2.5	ND< 2.0	ND< 10	92
06/27/03	1200	ND< 100	ND< 2.0	ND< 2.0	ND< 2.0	ND< 2.0	ND< 2.0	ND< 10	93	
09/19/03	ND< 1000	ND< 100	ND< 2.0	ND< 2.0	ND< 2.0	ND< 2.0	ND< 2.0	ND< 10	65	
12/22/03	5700	190	ND< 2.0	ND< 2.0	ND< 2.0	ND< 2.0	ND< 2.0	ND< 10	56	

TPHd: diesel  
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**Table 4**  
**Historical Groundwater Analytical Results**  
 Mission Valley Rock Company  
 Sunol, California

Well	Date	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	TAME (ug/L)	TBA (ug/L)	MTBE (ug/L)
	01/17/05	ND< 50	590	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	47
	05/04/05	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	190
	08/11/05	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	110
	12/13/05	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	75
	03/03/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	140
	06/12/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	100
	09/06/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	67
	12/05/06	ND< 50	82	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	39
	02/27/07	56	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	43
	06/12/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	45
	09/11/07	ND< 500	60	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	27
12/11/07	ND< 50	180	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	24	
03/11/08	ND< 50	98	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	120	36	
MW-4S	01/17/05	ND< 50	65	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 1.0
	05/04/05	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 1.0
	08/12/05	ND< 50	ND< 50	ND< 0.5	ND< 0.5	2.2	5.8	ND< 2.0	ND< 10	ND< 1.0
	12/12/05	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	03/03/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	06/12/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	09/05/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	12/04/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	02/26/07	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	06/11/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	09/10/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	12/10/07	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	03/10/08	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
06/09/08	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0	
MW-4D	01/17/05	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 1.0
	05/04/05	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 1.0
	08/12/05	ND< 50	410	ND< 0.5	2.2	10	25.5	ND< 2.0	ND< 10	ND< 1.0
	12/12/05	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	03/03/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	06/12/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	7.8
	09/05/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	12/04/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	02/26/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 1.0
	06/11/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 1.0
	09/10/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	12/10/07	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	03/10/08	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
06/09/08	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0	

TPHd: diesel  
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 MTBE: methyl tert-butyl ether  
 ug/L: micrograms per liter  
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 Mission Valley Rock Company  
 Sunol, California

Well	Date	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	TAME (ug/L)	TBA (ug/L)	MTBE (ug/L)
MW-5S	01/17/05	ND< 50	ND< 50	ND< 0.5	4.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 1.0
	05/04/05	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 1.0
	08/11/05	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	5.8
	12/12/05	ND< 50	ND< 50	3.4	1.3	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	03/03/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	06/12/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	09/05/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	5.4
	12/04/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	5.8
	02/26/07	360	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	3.2
	06/11/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	2.2
	09/10/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	2.0
	12/10/07	ND< 50	140	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	2.6
03/10/08	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	1.1	
06/09/08	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	4.2	
MW-5D	01/17/05	ND< 50	210	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 1.0
	05/04/05	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	10
	08/11/05	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	6.4
	12/12/05	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	03/03/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	4.7
	06/12/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	5.0
	09/05/06	ND< 50	ND< 50	ND< 0.5	0.60	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	5.3
	12/05/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	1.9
	02/28/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	1.6
	06/12/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	2.4
	09/11/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	1.2
	12/11/07	ND< 50	140	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	1.2
03/10/08	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	1.2	
06/09/08	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	3.8	
MW-6S	01/17/05	2800	1600	6.1	ND< 0.5	3.6	2.3	ND< 2.0	ND< 10	160
	05/04/05	ND< 50	750	ND< 0.5	ND< 0.5	3.0	ND< 0.5	ND< 2.0	ND< 10	160
	08/12/05	1300	1100	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	410
	12/12/05	ND< 50	1000	ND< 0.5	ND< 0.5	1.4	ND< 1.0	ND< 2.0	ND< 10	190
	03/03/06	ND< 50	940	ND< 0.5	ND< 0.5	4.9	ND< 1.0	ND< 2.0	ND< 10	60
	06/14/06	1300	650	ND< 0.5	1.7	1.9	2.0	ND< 2.0	ND< 10	ND< 1.0
	09/06/06	2400	750	ND< 0.5	ND< 0.5	0.7	0.5	ND< 2.0	ND< 10	200
	12/05/06	2600	1000	ND< 0.5	ND< 0.5	1.2	ND< 1.0	ND< 2.0	ND< 10	110
	02/27/07	3000	1100	0.79	ND< 0.5	1.1	ND< 1.0	ND< 2.0	ND< 10	54
	06/12/07	490	1200	ND< 0.5	ND< 0.5	1.6	ND< 1.0	ND< 2.0	ND< 10	47
	09/11/07	930	370	ND< 0.5	ND< 0.5	1.3	ND< 1.0	ND< 2.0	ND< 10	48
	12/11/07	5200	680	1.3	ND< 0.5	12.0	1.1	ND< 2.0	ND< 10	28
03/11/08	770	1400	13	1.6	210	21	ND< 2.0	ND< 10	5.3	
06/10/08	5600	690	ND< 0.5	ND< 0.5	22	1.8	ND< 2.0	ND< 10	23	

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Well	Date	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	TAME (ug/L)	TBA (ug/L)	MTBE (ug/L)
MW-6D	01/17/05	2100	1200	10	ND< 0.5	1.6	2.2	ND< 2.0	ND< 10	180
	05/04/05	ND< 50	360	2	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	360
	08/12/05	ND< 50	480	2	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	270
	12/12/05	ND< 50	240	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	92
	03/03/06	ND< 50	310	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	93
	06/14/06	ND< 50	130	ND< 0.5	3.0	1.1	2.6	ND< 2.0	ND< 10	69
	09/06/06	ND< 50	230	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	74
	12/06/06	1300	500	0.98	8.1	16	38.8	ND< 2.0	ND< 10	59
	02/27/07	470	150	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	48
	06/13/07	ND< 500	180	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	39
	09/12/07	ND< 500	130	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	28
	12/12/07	ND< 50	250	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	19
03/12/08	ND< 50	110	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	24	
06/10/08	ND< 50	140	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	31	
MW-7S	01/17/05	ND< 50	12000	10	89	590	1670	ND< 2.0	ND< 10	ND< 1.0
	05/04/05	520	1600	ND< 0.5	ND< 0.5	31	18.4	ND< 2.0	ND< 10	ND< 1.0
	08/12/05	ND< 50	660	ND< 0.5	ND< 0.5	5.5	ND< 0.5	ND< 2.0	ND< 10	ND< 1.0
	12/12/05	ND< 50	610	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	03/03/06	ND< 50	630	1.1	9	31	78	ND< 2.0	ND< 10	ND< 1.0
	06/14/06	ND< 50	430	ND< 0.5	ND< 0.5	6.1	14.5	ND< 2.0	ND< 10	ND< 1.0
	09/07/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	12/04/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	02/26/07	ND< 500	55	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	06/11/07	ND< 500	64	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	09/10/07	ND< 500	76	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	12/10/07	ND< 50	170	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
03/10/08	ND< 50	1500	13	16	25	24.5	ND< 2.0	ND< 10	ND< 1.0	
06/09/08	ND< 50	1300	3.6	2.4	5.8	2.2	ND< 2.0	ND< 10	ND< 1.0	
MW-7D	01/17/05	ND< 50	23000	350	1000	1800	5200	ND< 2.0	ND< 10	ND< 1.0
	05/04/05						NS			
	08/12/05	37	83000	550	2200	4400	10600	ND< 2.0	ND< 10	ND< 50
	12/12/05	150000	1300000	640	3100	21000	54800	ND< 2.0	ND< 10	ND< 50
	03/03/06	45000	71000	420	2400	4400	11300	ND< 2.0	ND< 10	ND< 1.0
	06/14/06	ND< 50	160000	310	2400	4500	9800	ND< 2.0	ND< 10	ND< 1.0
	09/07/06	22000	71000	360	8600	33000	87000	ND< 2.0	ND< 10	ND< 1.0
	12/06/06	12000	58000	160	1300	3900	5800	ND< 2.0	ND< 10	ND< 1.0
	02/28/07	790	6800	29	51	460	491	ND< 2.0	ND< 10	ND< 1.0
	06/13/07	23000	100000	270	950	4000	950	ND< 2.0	ND< 10	ND< 1.0
	09/12/07	3500	15000	72	340	1300	1940	ND< 2.0	ND< 10	ND< 1.0
	12/12/07	2500	19000	64	160	1100	2000	ND< 2.0	ND< 10	ND< 1.0
03/12/08	3100	32000	64	250	1800	2800	ND< 2.0	ND< 10	ND< 1.0	
06/11/08	4000	17000	67	100	610	610	ND< 2.0	ND< 10	ND< 1.0	

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Well	Date	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	TAME (ug/L)	TBA (ug/L)	MTBE (ug/L)
MW-8	01/17/05	ND< 50	120	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 1.0
	05/04/05	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 1.0
	08/12/05	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	ND< 1.0
	12/12/05	830	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	03/03/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	06/12/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	09/07/06	ND< 50	ND< 50	ND< 0.5	3.3	ND< 0.5	5.5	ND< 2.0	ND< 10	ND< 1.0
	12/04/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	02/26/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	06/11/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	09/10/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	12/10/07	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
03/10/08	ND< 50	54	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0	
06/09/08	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0	
MW-9S	05/05/06	ND< 50	1300	8.6	24	40	29.8	ND< 2.0	ND< 10	ND< 1.0
	06/14/06	ND< 50	330	ND< 0.5	ND< 0.5	3.0	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	09/07/06	ND< 50	240	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	12/05/06	ND< 50	190	ND< 0.5	ND< 0.5	0.76	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	02/27/07	ND< 500	130	0.79	0.58	8.4	1.0	ND< 2.0	ND< 10	ND< 1.0
	06/12/07	ND< 500	210	0.76	ND< 0.5	5.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	09/11/07	ND< 500	52	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	12/11/07	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
03/11/08	3000	10000	4.6	20	12	1800	ND< 2.0	ND< 10	ND< 1.0	
06/10/08	2700	1400	0.62	ND< 0.5	1.1	42	ND< 2.0	ND< 10	ND< 1.0	
MW-9D	05/05/06	13	88000	5500	15000	4200	15000	ND< 2.0	ND< 10	ND< 1.0
	06/14/06	ND< 50	76000	3200	13000	2700	9200	ND< 2.0	ND< 10	ND< 1.0
	09/07/06	5400	58000	1800	7400	2400	8000	ND< 2.0	ND< 10	ND< 1.0
	12/06/06	9100	170000	1800	6700	3400	7400	ND< 2.0	ND< 10	ND< 1.0
	02/28/07	4500	210000	1900	6200	2400	9000	ND< 2.0	ND< 10	ND< 1.0
	06/13/07	11000	42000	1600	5100	2600	2131	13	39	ND< 1.0
	09/12/07	4400	36000	990	5700	2800	4600	ND< 2.0	30	ND< 1.0
	12/12/07	3400	57000	880	5800	2800	9100	ND< 2.0	ND< 10	ND< 1.0
	03/12/08	6600	44000	510	3700	1500	8500	ND< 2.0	ND< 10	ND< 1.0
06/11/08	6600	39000	220	530	750	2070	ND< 2.0	ND< 10	ND< 1.0	
MW-9LF	05/05/06	ND< 50	5400	12	17	190	150	ND< 2.0	ND< 10	ND< 1.0
	06/14/06	ND< 50	1800	13	17	30	36	ND< 2.0	ND< 10	ND< 1.0
	09/07/06	ND< 50	1100	58	23	31	58	ND< 2.0	ND< 10	ND< 1.0
	12/05/06	290	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	31
	02/27/07	ND< 500	530	39	5	31	25.4	ND< 2.0	ND< 10	ND< 1.0
	06/12/07	ND< 500	280	14	0.92	3.8	4.5	ND< 2.0	ND< 10	ND< 1.0
	09/11/07	ND< 500	320	2.5	0.59	ND< 0.5	1.94	ND< 2.0	ND< 10	ND< 1.0
	12/11/07	ND< 50	310	ND< 0.5	0.89	ND< 0.5	2.22	ND< 2.0	ND< 10	ND< 1.0
	03/11/08	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
06/11/08	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0	

TPHd: diesel  
 TPHg: gasoline  
 TAME: tert amyl methyl ether  
 TBA: tert-butyl alcohol  
 MTBE: methyl tert-butyl ether  
 ug/L: micrograms per liter  
 ND: not detected above laboratory reporting limit

**Table 4**  
**Historical Groundwater Analytical Results**  
 Mission Valley Rock Company  
 Sunol, California

Well	Date	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	TAME (ug/L)	TBA (ug/L)	MTBE (ug/L)
MW-10S	05/05/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	06/13/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	09/07/06	ND< 50	93	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	12/05/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	02/26/07	ND< 500	54	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	06/12/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	09/11/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	12/11/07	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
MW-10D	03/11/08	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	06/10/08	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	05/05/06	ND< 50	5900	24	9	260	23	ND< 2.0	ND< 10	ND< 1.0
	06/13/06	ND< 50	2300	7.6	2.4	66	6.6	ND< 2.0	ND< 10	ND< 1.0
	09/07/06	ND< 50	2400	3.9	2.0	54	11.89	ND< 2.0	ND< 10	ND< 1.0
	12/06/06	ND< 50	1600	2.5	1.0	28	4	ND< 2.0	ND< 10	ND< 1.0
	02/27/07	200	850	2.7	0.90	28	2.3	ND< 2.0	ND< 10	ND< 1.0
	06/12/07	ND< 500	830	1.0	ND< 0.5	14	2.0	ND< 2.0	ND< 10	ND< 1.0
MW-10LF	09/11/07	ND< 500	780	ND< 0.5	ND< 0.5	1.7	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	12/11/07	ND< 50	1300	ND< 0.5	ND< 0.5	0.61	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	03/11/08	ND< 50	590	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	06/10/08	ND< 50	590	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	05/05/06	ND< 50	860	ND< 0.5	11	ND< 0.5	4.6	ND< 2.0	ND< 10	ND< 1.0
	06/13/06	ND< 50	780	2.0	2.4	1.1	4.2	ND< 2.0	ND< 10	ND< 1.0
	09/07/06	ND< 50	780	1.7	1.6	1.7	7.8	ND< 2.0	ND< 10	ND< 1.0
	12/05/06	190	610	0.5	0.56	ND< 0.5	1.5	ND< 2.0	ND< 10	3.7
MW-11S	02/27/07	ND< 500	580	1.0	1.1	0.51	3.6	ND< 2.0	ND< 10	ND< 1.0
	06/12/07	260	440	0.5	0.7	ND< 0.5	2.5	ND< 2.0	ND< 10	2.0
	09/11/07	ND< 500	130	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	3.0
	12/11/07	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	1.6
	03/11/08	ND< 50	210	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	06/10/08	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	1.2
	05/05/06	ND< 50	11000	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	8.4
	06/14/06	ND< 50	730	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
MW-11D	09/06/06	3300	1400	ND< 0.5	ND< 0.5	ND< 0.5	ND< 0.5	ND< 2.0	ND< 10	4.8
	12/06/06	1700	130	0.71	ND< 0.5	0.64	0.51	ND< 2.0	ND< 10	11
	02/27/07	540	300	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	4.3
	06/12/07	ND< 500	1800	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	4.3
	09/11/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	2.8
	12/11/07	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	1.5
	03/11/08	ND< 50	ND< 50	1.0	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	2.9
	06/10/08	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	2.4
MW-11D	05/05/06	ND< 50	13000	20	20	26	77	ND< 2.0	ND< 10	47
	06/14/06	18000	6500	12	4.4	11	22	ND< 2.0	ND< 10	26
	09/06/06	210000	33000	25	30	28	97	ND< 2.0	ND< 10	31
	12/06/06	190000	2100	15	23	29	101	ND< 2.0	ND< 10	19
	02/28/07	13000	7400	8.4	16	17	54	ND< 2.0	ND< 10	18
	06/13/07	6700	11000	6.2	7	13	39	ND< 2.0	ND< 10	15
	09/12/07	21000	3000	3.6	4.0	7.9	22	ND< 2.0	ND< 10	8.5
	12/12/07	48000	7700	3.0	3.0	11	30	ND< 2.0	ND< 10	7.0
MW-11D	03/12/08	63000	37000	2.2	0.82	7.0	20.4	ND< 2.0	21	8.9
	06/10/08	60000	2700	2.5	0.74	6.2	15.4	ND< 2.0	ND< 10	13

TPHd: diesel  
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 MTBE: methyl tert-butyl ether  
 ug/L: micrograms per liter  
 ND: not detected above laboratory reporting limit



**Table 4**  
**Historical Groundwater Analytical Results**  
 Mission Valley Rock Company  
 Sunol, California

Well	Date	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	TAME (ug/L)	TBA (ug/L)	MTBE (ug/L)
MW-11LF	05/05/06	ND< 50	1300	ND< 0.5	ND< 0.5	ND< 0.5	3	ND< 2.0	ND< 10	250
	06/14/06	1100	99	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	240
	09/06/06	5300	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	160
	12/04/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	240
	02/27/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	110
	06/11/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	110
	09/10/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	13	190
	12/10/07	ND< 50	120	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	86
	03/10/08	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	30	92
06/09/08	ND< 50	120	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	150	
MW-12S	05/05/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	06/13/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	09/07/06	ND< 50	81	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	12/05/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	210	ND< 1.0
	02/27/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	06/11/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	19	ND< 1.0
	09/10/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	12/10/07	ND< 50	120	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	03/10/08	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
06/09/08	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0	
MW-12D	05/05/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	06/13/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	09/06/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	12/04/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	02/28/07	ND< 500	51	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	06/11/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	09/11/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	12/10/07	ND< 50	140	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	03/10/08	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
06/09/08	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0	
MW-12LF	05/05/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	06/13/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	09/06/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	12/05/06	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	02/26/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	06/11/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	09/11/07	ND< 500	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	12/11/07	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
	03/10/08	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0
06/09/08	ND< 50	ND< 50	ND< 0.5	ND< 0.5	ND< 0.5	ND< 1.0	ND< 2.0	ND< 10	ND< 1.0	

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