FOR CONTRACT NO.: 04-3A0904

INFORMATION HANDOUT

4 Foundation Reports Received date:07/07/10
(Including:
Walnut Creek MS,
Half Moon Bay MS,
San Mateo-Hayward MS
and Ravenswood PP)

Asbestos and Lead Survey Report, April 7, 2010.

<u>Non-Stormwater Information Package:</u>

(1) Estimated groundwater seepage rates in the project area

(2) RWQCB General Waste Discharge Requirements for Order No. R2-2006-0075, NPDES General Permit No. CAG912002

(3) Local POTW facility information

(4) Assessment of Environmental and Geotechnical Conditions Prior to Fuel Storage Tank Replacement (also covers soil conditions)

(5) Dewatering Handout(Replace Underground Storage Tanks)

ROUTE: 04-ALA-SM-CC-92,84,1-PM Var

Memorandum

Flex your power!
Be energy efficient!

To: MR. JOE ESFANDIARY
Branch Chief
Structure Design Branch 1
Office of Transportation Architecture
Structure Design Services &
Earthquake Engineering
Division of Engineering Services

Attn: Mr. Chandrashekhar Bapat

Date: July 7, 2010

File: 04-ALA-92
04-3A0901
Fuel Storage Tank
Ravenswood Pumping Plant

From: CAROLINE CHEN
Transportation Engineer
Office of Geotechnical Design-West
Division of Engineering Services

MAHMOOD MOMENZADEH
Chief, Branch C
Office of Geotechnical Design-West
Division of Engineering Services

Subject: Foundation Report

PROJECT DESCRIPTION

This report presents the Foundation Recommendations for the proposed above ground fuel storage tank to replace the existing underground tanks at Ravenswood Pumping Plant located off of Route 84 in Menlo Park, California.

GEOLOGY AND SUBSURFACE CONDITIONS

Subsurface Conditions

Due to the potential presence of hazardous material(s) at the site, the Department contracted Shaw Environmental, Inc. to conduct the geotechnical investigation and prepare the geotechnical logs. One boring (B-1) was drilled for geotechnical design purpose and two borings were drilled at various locations in the facility for environmental assessment, in October 2009. The 1.5” and 2.5” Split Spoon method with a CME 75 rig were used in the field investigation. Only Log of Test Boring (LOTB) in Caltrans format for B-1 will be provided by Shaw Environmental, Inc. based on the task order.

Boring B-1 was drilled to a depth of 81.5 feet right next to the proposed above ground fuel storage tank. The existing ground elevation is 6.3 ft, based on email from Caltrans designer (Daniel Chang), and is assumed to be the top of borehole elevation for analysis and recommendations.

Based on the aforementioned borings, the subsurface of the proposed facility consists of about 13 feet of dense to very dense silty sand with gravel, underlain by layers of stiff to very stiff clay and loose silty sand to depth of 51 ft, below which 5 ft of dense silty sand was encountered followed by stiff to hard fat clay to the exploration depth. It should be noted that a 5 to 10 foot layer of loose silty sand was consistently encountered at Boring B-1 and the two environmental borings at about 18 feet depth below ground. The water table was measured in borings B-1 at about 18 feet below ground, and between 18 and 28 feet below ground in the environmental borings.

SCOUR POTENTIAL

The structure does not span any watercourse. Therefore, there is no scour potential at the site.

SEISMIC DATA AND LIQUEFACTION POTENTIAL

Hossain Salimi of the Office of Geotechnical Design-West provided final seismic recommendations for this structure on December 8, 2009. The report concluded there is a moderate to high potential for soil liquefaction from 18 feet to about 28 feet below ground at the site during a seismic event.

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CORROSION

No corrosion tests were performed for this site. For purpose of this report we recommend to use foundation material suitable for corrosive soil conditions since layers of clayey material are anticipated to be corrosive.

FOUNDATION RECOMMENDATIONS

The fuel tank is proposed to be supported on slab with grade beams around the slab perimeter. The bottom of the beams is at approximate depth 1.0 ft below existing ground, or Elevation 5.3 ft. Slab and beams are anticipated to be founded on dense silty sand with gravel or stiff sandy silt. Allowable bearing capacity 2000 psf is recommended. Modulus of subgrade reaction 150 kips/ft^3 is recommended.

Settlement induced by the liquefaction of soil from 18 feet to about 28 feet below ground at the site during a seismic event is estimated to be 2 inches, and differential settlement 1.5 inches. Proposed structure should be designed for these settlements. Structure Designer indicated in our previous communication that structure can be designed for the provided estimated settlements. Office of Geotechnical Design West should be contacted for further evaluation and recommendation if settlement becomes an issue for structure design.

CONSTRUCTION CONSIDERATIONS

Slabs and spread footings shall be placed neat against competent materials. Dense silty sand with gravel or stiff sandy silt is anticipated at the bottom of the beam/footing. If differing soil conditions are encountered at that level, Office of Geotechnical Design West should be contacted for further evaluation and recommendations.

The recommendations contained in this report are based on specific project information including structure type, support locations, and design loads that have been provided by the Office of Bridge Design-West. If any changes are made during final project design, the Office of Geotechnical Design-West, should review those changes to determine if these foundation recommendations are still applicable

If you have any questions or need additional information, please contact Caroline Chen at 916-227-5386 or Mahmood Momenzadeh at 510-286-5732.

c. TPokrywka, MMomenzadeh, CChen, HSalimi, Daily File, Route File, Translab File
Project Manager
District Design Chief

Memorandum

Flex your power!
Be energy efficient!

To: MR. JOE ESFANDIARY
Branch Chief
Structure Design Branch 1
Office of Transportation Architecture
Structure Design Services &
Earthquake Engineering
Division of Engineering Services

Attn: Mr. Chandrashekhar Bapat

Date: July 7, 2010

File: 04-ALA-92
04-3A0901
Above Ground Fuel Storage Tank
Walnut Creek Maintenance Station

From: CAROLINE CHEN
Transportation Engineer
Office of Geotechnical Design-West
Division of Engineering Services

MAHMOOD MOMENZADEH
Chief, Branch C
Office of Geotechnical Design-West
Division of Engineering Services

Subject: Foundation Report

PROJECT DESCRIPTION

This report presents the Foundation Recommendations for the proposed above ground fuel storage tank and canopies to replace the existing underground tanks at the Walnut Creek East and West Maintenance Stations located at 2616 and 2581 North Main Street in Walnut Creek, California.

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GEOLOGY AND SUBSURFACE CONDITIONS

Subsurface Conditions

Due to the potential presence of hazardous material(s) at the site, the Department contracted Shaw Environmental, Inc. to conduct the geotechnical investigation and prepare the geotechnical logs. One boring (B-4) was drilled for geotechnical design purpose and three borings were drilled at various locations in the facility for environmental assessment, in October 2009. The 1.5” and 2.5” Split Spoon method with a CME 75 rig were used in the field investigation. Only Log of Test Boring (LOTB) in Caltrans format for B-4 will be provided by Shaw Environmental, Inc. based on the task order.

Boring B-4 was drilled to a depth of 81.5 feet below ground in the center of the proposed above ground fuel storage tanks at the West Maintenance Station. The existing ground elevation is 143.7 ft, based on email from Caltrans designer (Daniel Chang), and is assumed to be the top of borehole elevation for analysis and recommendations.

Based on the aforementioned borings, the subsurface around the existing facility consists of 2 to 4 feet of clay with sand underlain by interbedded layers of medium dense to dense silty sand/sandy silt. The subsurface at the proposed above ground facility consists of interbedded and alternating layers of dense to very dense silty sand/sandy silt and poorly graded sand/sand with gravel. The water table was measured at boring B-4 to be 58 feet below ground. The groundwater fluctuates with amount of precipitation and could be higher than the measure values.

SCOUR POTENTIAL

The structure does not span any watercourse. Therefore, there is no scour potential at the site.

SEISMIC DATA AND LIQUEFACTION POTENTIAL

Hossain Salimi of the Office of Geotechnical Design-West provided final seismic recommendations for this structure on December 7, 2009. The report concluded the potential for soil liquefaction during a seismic event is considered minimal.
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CORROSION

No corrosion tests were performed for this site. The existing soils underlying the site is assumed to be non-corrosive considering the soil in the upper zone which the slabs will be founded on is sand and sandy silt with gravel.

FOUNDATION RECOMMENDATIONS

The fuel tank is proposed to be supported on slab with grade beams around the slab perimeter. The bottom of the beams is at approximate depth 0.8 ft below existing ground, or Elevation 142.9 ft. The canopies are to be supported on spread footings with bottom of footing at approximate depth 3.3 ft, or Elevation 140.4 ft. Slab and footings are anticipated to be founded on stiff sandy silt or clay with sand. Allowable bearing capacity 2000 psf is recommended. Modulus of subgrade reaction 100 kips/ft^3 is recommended.

CONSTRUCTION CONSIDERATIONS

Slabs and spread footings shall be placed neat against competent materials. Stiff sandy silt/clay with sand with no organic materials is anticipated at the bottom of the beam/footing. If differing soil conditions are encountered at that level, Office of Geotechnical Design West should be contacted for further evaluation and recommendations.

The recommendations contained in this report are based on specific project information including structure type, support locations, and design loads that have been provided by the Office of Bridge Design-West. If any changes are made during final project design, the Office of Geotechnical Design-West, should review those changes to determine if these foundation recommendations are still applicable

If you have any questions or need additional information, please contact Caroline Chen at 916-227-5386 or Mahmood Momenzadeh at 510-286-5732.

c. TPokrywka, MMomenzadeh, CChen, HSalimi, Daily File, Route File, Translab File
Project Manager
District Design Chief

Memorandum

Flex your power!
Be energy efficient!

To: MR. JOE ESFANDIARY
Branch Chief
Structure Design Branch 1
Office of Transportation Architecture
Structure Design Services &
Earthquake Engineering
Division of Engineering Services

Attn: Mr. Chandrashekhar Bapat

Date: July 7, 2010

File: 04-ALA-92
04-3A0901
Above Ground Fuel Storage Tank
Half Moon Bay
Maintenance Station

From: CAROLINE CHEN
Transportation Engineer
Office of Geotechnical Design-West
Division of Engineering Services

MAHMOOD MOMENZADEH
Chief, Branch C
Office of Geotechnical Design-West
Division of Engineering Services

Subject: Foundation Report

PROJECT DESCRIPTION

This report presents the Foundation Recommendations for the proposed above ground fuel storage tank and canopies located in Half Moon Bay Maintenance Station located at 2203 Cabrillo Highway in Half Moon Bay, California. The proposed tank is to replace the existing underground tank located about 50 feet southeast to the proposed one.

GEOLOGY AND SUBSURFACE CONDITIONS

Subsurface Conditions

Due to the potential presence of hazardous material(s) at the site, the Department contracted Shaw Environmental, Inc. to conduct the geotechnical investigation and prepare the geotechnical logs. One boring (B-4) was drilled for geotechnical design purpose and three borings were drilled at various locations in the facility for environmental assessment, in October 2009. The 1.5” and 2.5” Split Spoon method with a CME 75 rig were used in the field investigation. Only Log of Test Boring (LOTB) in Caltrans format for B-4 will be provided by Shaw Environmental, Inc. based on the task order.

Boring B-4 was drilled to a depth of 81.5 feet below ground in the center of the proposed above ground fuel storage tank. The existing ground elevation is 82.0 ft, based on email from Daniel Chang of Caltrans, and is assumed to be the top of borehole elevation for analysis and recommendations.

Based on the aforementioned borings, the subsurface consists of about 5 ft of soft sandy silt at the top, underlain by 9 ft of stiff clay and silt. Very dense poorly graded sand was encountered from depth 14 ft to 63 ft, underlain by hard mudstone. The water table was encountered at Boring B-4, about 33 ft below existing ground.

SCOUR POTENTIAL

The structure does not span any watercourse. Therefore, there is no scour potential at the site.

SEISMIC DATA AND LIQUEFACTION POTENTIAL

Hossain Salimi of the Office of Geotechnical Design-West provided final seismic recommendations for this structure on December 3, 2009. The report concluded the potential for soil liquefaction during a seismic event is considered minimal.

CORROSION

No corrosion tests were performed for this site. The clayey soil at the upper 15 ft may be corrosive. Recommendation in the following section includes excavating this soil layer and replacing with structure fill. Therefore, the site is considered non-corrosive.

FOUNDATION RECOMMENDATIONS

The fuel tank is proposed to be supported on slab with beams around the slab perimeter. The bottom of the beams is at approximate depth 0.8 ft below existing ground, or Elevation 81.2 ft. The canopies are proposed to be supported on spread footings with bottom of footing at approximate depth 3.3 ft, or Elevation 78.7 ft. It is recommended the top five ft of soft silt to be removed and replaced with structural backfill compacted to 95% of relative density. Allowable bearing capacity 2000 psf is recommended. Modulus of subgrade reaction 150 kips/ft^3 is recommended.

CONSTRUCTION CONSIDERATIONS

- Localized seepage water may be encountered during excavation to install slab and spread footing even though groundwater table is anticipated to be lower than bottom of footing elevation and the over-excavation depth. Contractor shall dewater the excavation site using sump and pump or other suitable methods if needed.

- Stiff clay is anticipated at the bottom of the recommended over-excavation. If differing soil conditions are encountered at that level, Office of Geotechnical Design West should be contacted for further evaluation and recommendations.

The recommendations contained in this report are based on specific project information including structure type, support locations, and design loads that have been provided by the Office of Bridge Design-West. If any changes are made during final project design, the Office of Geotechnical Design-West, should review those changes to determine if these foundation recommendations are still applicable

If you have any questions or need additional information, please contact Caroline Chen at 916-227-5386 or Mahmood Momenzadeh at 510-286-5732.

c. TPokrywka, MMomenzadeh, CChen, HSalimi, Daily File, Route File, Translab File
John Mook, PCE-PPRM
Project Manager
District Design Chief

Memorandum

Flex your power!
Be energy efficient!

To: MR. JOE ESFANDIARY
Branch Chief
Structure Design Branch 1
Office of Transportation Architecture
Structure Design Services &
Earthquake Engineering
Division of Engineering Services

Attn: Mr. Chandrashekhar Bapat

Date: July 7, 2010

File: 04-ALA-92
04-3A0901
Fuel Storage Tank
San Mateo-Hayward
Maintenance Station

From: CAROLINE CHEN
Transportation Engineer
Office of Geotechnical Design-West
Division of Engineering Services

MAHMOOD MOMENZADEH
Chief, Branch C
Office of Geotechnical Design-West
Division of Engineering Services

Subject: Foundation Report

PROJECT DESCRIPTION

This report presents the Foundation Recommendations for the proposed above ground fuel storage tank (AGT) and canopies located at San Mateo-Hayward Maintenance Station, 5500 West Jackson Street in the City of Hayward, California. The existing underground fuel storage tanks (UST) will be removed and the entire excavated area will be backfilled. The proposed tank is to be built in the Western Tank Complex, with approximately two thirds of the structure constructed within the boundary of the existing UST.

GEOLOGY AND SUBSURFACE CONDITIONS

Subsurface Conditions

Due to the potential presence of hazardous material(s) at the site, the Department contracted Shaw Environmental, Inc. to conduct the geotechnical investigation and prepare the geotechnical boring logs. Two borings (B-1 and B-8) was drilled for geotechnical design purpose and five borings were drilled at various locations in the facility for environmental assessment, in October 2009. The 1.5” and 2.5” Split Spoon

method with a CME 75 rig were used in the field investigation. Only Log of Test Borings (LOTBs) in Caltrans format for B-1and B-8 will be provided by Shaw Environmental, Inc. based on the task order.

Boring B-1was drilled at the Eastern Tank Complex. Boring B-8 was drilled approximately 120 ft southeast to the existing UST and the proposed above ground tank. The existing ground elevation is 14.50 ft, based on email from Caltrans designer (Daniel Chang), and is assumed to be the top of borehole elevation for analysis and recommendations.

Based on the aforementioned borings, the subsurface consists of about 30 feet of mostly loose to medium dense silty sand, sandy silt, and silty gravel with sand, underlain by stiff clay up to depth of 43 to 53 ft, overlaying medium dense to dense sand to approximate depth 63 ft. Below that firm to stiff clay was encountered to depth 74 ft, underlain by medium dense sand. The water table was encountered at all borings, ranging from 12 to 18 ft below existing ground.

Majority of the proposed tank is to be built within the boundary of the existing UST. The existing UST will be removed and the entire excavated area will be backfilled before constructing the new AGT. According to the plans provided by the Structure Designer, the excavated and backfilled area is approximately 14 ft deep from existing ground surface. Class 3 Permeable Material is recommended to backfill the excavated area based on the Material Recommendations made by Samia Ara, Caltrans material design engineer, dated 3/31/2009.

SCOUR POTENTIAL

The structure does not span any watercourse. Therefore, there is no scour potential at the site.

SEISMIC DATA AND LIQUEFACTION POTENTIAL

Hossain Salimi of the Office of Geotechnical Design-West provided final seismic recommendations for this structure on December 2, 2009. The report concluded the soil from depth 10 to about 30 feet below ground is considered to be susceptible to a moderate to high liquefaction potential during a strong seismic event.

CORROSION

No corrosion tests were performed for this site. It is assumed to be non-corrosive considering the soil in the upper zone which the slabs will be founded on is silty sand and

sandy silt with gravel, or Class 3 Permeable Material which is recommended to backfill the UST area.

FOUNDATION RECOMMENDATIONS

Due to the presence of loose silty sand/sandy silt at the top 10 ft and the liquefiable soil layer beneath to depth 30 ft, spread footing is not feasible foundation for proposed structure. Class 90 (Alt "X") is recommended. Based on the plans provided by the structure designer, two of the four piles will be driven entirely through native soil, and the other two will be driven through the backfill at the top 14 ft. Class 3 Permeable Material is recommended to backfill the area. Relative compaction of 95% is recommended for the area within 2 ft of final ground surface, and 90% for the remaining zone.

The recommendations are presented on Table 2. Predrilling to Elevation 0.0 ft is recommended for the piles to be driven through the backfilled zone. After driving the pile, the annular space around the pile should be filled with pea gravel or loose sand to ground surface. Downdrag due to potential liquefaction of the loose to medium dense layer is estimated to be 44 kips per pile. The required ultimate capacity to be used in the Gates formula to verify pile capacity during pile installation is 180 kips for piles driven through backfill, and 270 kips for piles driven outside the backfilled zone to account for the driving resistance contributed by the liquefiable layer and the overlying soil layer.

Table 2 Pile Data Table

Pile Type	Design Loading (kip)	Nominal Resistance (kip)		Design Tip Elevation (ft)	Specified Tip Elevation (ft)	Cut-off Elevation (ft)
		Compression	Tension			
Class 90 Alt "X"	90	180	70	-39.5 (1) -23.5 (2)	-39.5	13.90

Notes:

1. Pile tip elevations are controlled by the following demands: (1) Compression; (2) Tension.
2. Predrill to Elevation 0.0 is recommended for piles to be driven through backfilled zone.
3. For use of Gates formula, the Required Driving Resistance for piles driven outside the backfilled area is 270 kips, and 180 kips for piles driven through backfill.

Settlement induced by the liquefaction of soil from the depth of 18 feet to about 28 feet below ground at the site during a seismic event is estimated to be in the order of 6 inches.

The differential settlement between the proposed tank and the surrounding ground is estimated to be 6 inches considering the tank being supported on piles. It is recommended that utilities connections should be designed accordingly to account for this differential settlement.

CONSTRUCTION CONSIDERATIONS

Piles may be unable to achieve the required capacity when driven to the specified tip elevation. If this happens during pile installation, piles should be allowed to set up for 24 to 48 hours or even longer and then restruck.

The recommendations contained in this report are based on specific project information including structure type, support locations, and design loads that have been provided by the Office of Bridge Design-West. If any changes are made during final project design, the Office of Geotechnical Design-West, should review those changes to determine if these foundation recommendations are still applicable

If you have any questions or need additional information, please contact Caroline Chen at 916-227-5386 or Mahmood Momenzadeh at 510-286-5732.

c. TPokrywka, MMomenzadeh, CChen, Daily File, Route File, Translab File
Project Manager
District Design Chief

February 11, 2010
Contract 04A2902, TO#7
Project No.: 136529

Mr. William A. Whiteley, P.E.
California Department of Transportation, District 4
Mail Station 8C
P.O. Box 23660
Oakland, California 94623-0660

Re: Assessment of Environmental and Geotechnical Conditions Prior to Fuel Storage Tank Replacement

Caltrans Half Moon Bay Maintenance Station
SM 1 PM 26.9
2203 South Cabrillo Highway, Half Moon Bay, California

Caltrans San Mateo-Hayward Bridge Toll Plaza Maintenance Station
ALA 92 PM 2.6
5500 West Jackson Street, Hayward, California

Caltrans Ravenswood Slough Pumping Plant
SM 84 PM 28
Highway 84, Menlo Park, California

Caltrans Walnut Creek East and West Maintenance Stations
CC 680 PM 15.6
2616 and 2581 North Main Street, Walnut Creek, California

Dear Mr. Whiteley:
Shaw Environmental, Inc. (Shaw) is pleased to submit this report. Five copies of this report and 2 CD's with a PDF version of this report are being submitted in accordance with Contract No. 04A2902, Task Order No. 007. If you have any questions, please contact our office.

Sincerely,
SHAW ENVIRONMENTAL, INC.

Andrew D. Lehane

Andrew D. Lehane, P.E.
Project Manager

ASSESSMENT OF ENVIRONMENTAL AND GEOTECHNICAL CONDITIONS PRIOR TO FUEL STORAGE TANK REPLACEMENT

Caltrans Half Moon Bay Maintenance Station
SM 1 PM 26.9
2203 South Cabrillo Highway, Half Moon Bay, California

Caltrans San Mateo-Hayward Bridge Toll Plaza Maintenance Station
ALA 92 PM 2.6
5500 West Jackson Street, Hayward, California

Caltrans Ravenswood Slough Pumping Plant
SM 84 PM 28
Highway 84, Menlo Park, California

Caltrans Walnut Creek East and West Maintenance Stations
CC 680 PM 15.6
2616 and 2581 North Main Street, Walnut Creek, California

February 11, 2010

Prepared for:

California Department of Transportation
District 4
P.O. Box 23660
Oakland, California 94623-0660

Prepared by:

Shaw Environmental, Inc.
2033 Gateway Place, 5th Floor
San Jose, California 95110

Task Order No.: 007
E.A. No.: 04-3A0901
Contract No.: 04A2902
Project No.: 13652

ASSESSMENT OF ENVIRONMENTAL AND GEOTECHNICAL CONDITIONS PRIOR TO FUEL STORAGE TANK REPLACEMENT

Shaw Environmental, Inc. (Shaw) has prepared this report at the request and authorization of the California Department of Transportation (Caltrans) District 4 under Contract No. 04A2902, Task Order No. 007. The report was requested by Caltrans to assess site conditions prior to the replacement of the underground fuel storage tanks with above-ground fuel storage tanks. The scope of work was self-directed by Caltrans and was not requested by a regulatory agency.

The services described in this report were performed consistent with generally accepted professional consulting principles and practices, and our agreement with Shaw's client. No other warranty, express or implied, is made. This report is solely for the use and information of Shaw's client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk. Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. Shaw is not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services.

The contents of this report do not necessarily reflect the official views or policies of the State of California. This report does not constitute a standard, specification, or regulation.

SHAW ENVIRONMENTAL, INC.

Timothy L. Ripp, CHG 786 Task Order Manager	Andrew D. Lehane, RCE 55798 Project Manager

CALIFORNIA DEPARTMENT OF TRANSPORTATION, DISTRICT 4
HAZARDOUS WASTE BRANCH – OFFICE OF ENVIRONMENTAL ENGINEERING

Reviewed By:	**Approved By:**	**Approved By:**
William A. Whiteley, PE Task Order Manager	Ray Boyer, PE District Branch Chief	Allen Baradar, PE, REA District Office Chief

February 11, 2010
Project 136529

Mr. William Whiteley, PE
California Department of Transportation, District 4
Mail Station 8C
111 Grand Avenue
Oakland, California 94623

Re: Assessment of Environmental and Geotechnical Conditions Prior to Fuel Storage Tank Replacement:

Caltrans Half Moon Bay Maintenance Station
SM 1 PM 26.9
2203 South Cabrillo Highway, Half Moon Bay, California

Caltrans San Mateo-Hayward Bridge Toll Plaza Maintenance Station
ALA 92 PM 2.6
5500 West Jackson Street, Hayward, California

Caltrans Ravenswood Slough Pumping Plant
SM 84 PM 28
Highway 84, Menlo Park, California

Caltrans Walnut Creek East and West Maintenance Stations
CC 680 PM 15.6
2616 and 2581 North Main Street, Walnut Creek, California

Dear Mr. Whiteley:

Shaw Environmental, Inc. (Shaw) is pleased to submit this report to document assessment activities performed at the four California Department of Transportation (Caltrans) sites referenced above. These activities were performed in accordance with Caltrans Contract No. 04A2902, Task Order No. 007.

BACKGROUND

The assessment activities described in this report were requested by Caltrans to assess site conditions prior to the replacement of underground fuel storage tanks with above-ground fuel storage tanks at four Caltrans facilities located in the San Francisco Bay Area. These activities were self-directed by Caltrans and have not been requested by any regulatory agency. The locations, configurations, and uses of the existing underground fuel storage tanks vary between the four subject Caltrans sites. A brief description of each of the four sites follows:

Caltrans Half Moon Bay Maintenance Station

The Caltrans Half Moon Bay Maintenance Station (Half Moon Bay site) is located at 2203 Cabrillo Highway, or Highway 1, in Half Moon Bay, California (Figure 1). The property is currently occupied by Caltrans and is used as a maintenance facility.

Based on information provided to Shaw by Caltrans, the existing fueling system at the subject site includes one 10,000-gallon underground gasoline storage tank and one 4,000-gallon underground diesel storage tank located in a common excavation in the west-central portion of the site. The underground fuel storage tank complex is overlain by a product dispenser island that includes two product dispensers.

Local topography dips gently to the west toward the Pacific Ocean. Based on surficial topography and local drainage patterns, groundwater in the site vicinity is anticipated to flow toward the west.

At the inception of this project, Shaw was not aware of any previous environmental assessment activities associated with the Half Moon Bay site. However, Shaw has subsequently learned that several exploratory borings had been previously drilled, and that four groundwater monitoring wells presently remain in place at the Half Moon Bay site. The existing groundwater monitoring wells were not sampled as part of the current investigation. Based on discussions between Shaw and the San Mateo County Department of Environmental Health, Groundwater Protection Program (SMCDEH), Shaw understands that additional site investigation activities may be required to complete the site assessment begun in relation to the preexisting case at this site. Those activities are not part of the scope of work under this task order.

Caltrans San Mateo-Hayward Bridge Maintenance Station

The Caltrans San Mateo-Hayward Bridge Maintenance Station (Hayward site) is located at 5500 West Jackson Street, or Highway 92, in Hayward, California (Figure 2). The property is currently occupied by Caltrans and is used as a maintenance facility; toll operations for the San Mateo-Hayward Bridge are also present at this location.

Based on information provided to Shaw by Caltrans, there are two discrete existing fueling systems in service at the Hayward site. The western fueling system includes one 2,000-gallon underground gasoline storage tank and one 2,000-gallon underground diesel storage tank located in a common excavation in the western portion of the site. The underground fuel storage tank complex is overlain by a product dispenser island that includes two product dispensers. The eastern fueling system includes one 2,500-gallon underground diesel storage tank located in an excavation in the eastern portion of the site, adjacent to a building.

Local topography dips gently to the west toward the San Francisco Bay. Based on surficial topography and local drainage patterns, groundwater in the site vicinity is anticipated to flow toward the west.

Shaw is not aware of any previous environmental assessment or remediation activities associated with the existing underground fuel storage tank system at the Hayward site.

Caltrans Ravenswood Pumping Plant

The Caltrans Ravenswood Pumping Plant (Ravenswood site) is located on Highway 84, in Menlo Park, California (Figure 3). The property is currently occupied by Caltrans and is used as a pumping plant.

Based on information provided to Shaw by Caltrans, one 3,000-gallon underground diesel storage tank is located in an excavation to the west of the pumping station building.

Local topography dips gently to the northeast toward the San Francisco Bay. Based on surficial topography and local drainage patterns, groundwater in the site vicinity is anticipated to flow toward the northeast, although extraction from the pumping plant itself is likely to significantly influence local groundwater flow.

Shaw is not aware of any previous environmental assessment or remediation activities associated with the existing underground fuel storage tank system at the Ravenswood site.

Caltrans Walnut Creek East and West Maintenance Stations

The Caltrans Walnut Creek East and West Maintenance Stations (Walnut Creek sites) are two discrete properties located at 2616 and 2581 North Main Street, respectively, in Walnut Creek, California (Figure 4). The properties are currently occupied by Caltrans and used as maintenance facilities.

Based on information provided to Shaw by Caltrans, the existing fueling system at the Caltrans East site includes one 8,000-gallon underground gasoline storage tank and one 4,000-gallon underground diesel storage tank located in a common excavation in the central portion of the Caltrans East site. The underground fuel storage tank complex is overlain by a product dispenser island that includes two product dispensers.

Local topography dips gently to the northeast. Based on surficial topography and local drainage patterns, groundwater in the vicinity of the Walnut Creek sites is anticipated to flow toward the northeast.

Shaw is not aware of any previous environmental assessment or remediation activities associated with the existing underground fuel storage tank system at the Walnut Creek sites.

SCOPE OF WORK

The objectives of this investigation were to assess current environmental conditions in the locations of the existing underground fuel storage tanks prior to their removal, and to assess geotechnical conditions in the locations of the proposed above-ground fuel storage tanks that will be installed to replace the current underground storage tanks. To achieve these objectives, the same general scope of work was applied to each of the four Caltrans sites. Details of the typical scope of work and site-specific deviations from the typical scopes are described below.

Pre-Field Activities

Prior to commencement of field activities, a pre-work task order meeting and pre-work site meeting were attended by Mr. William Whiteley of Caltrans, Mr. Andrew Lehane of Shaw, and Mr. Timothy Ripp of Shaw on September 9, 2009. At the pre-work task order and site meeting, scopes of work and field conditions were verified and site logistical and safety considerations were discussed. The boring locations were also marked in the field during the pre-work task order and site meeting.

Exploratory boring permits were obtained from the appropriate oversight agencies, including the SMCDEH for the Half Moon Bay and Ravenswood sites, the Alameda County Public Works Agency (ACPWA) for the Hayward site, and the Costa County Department of Environmental Health (CCCDEH) for the Walnut Creek site.

Underground Service Alert was notified at least 48 hours in advance of field activities so that member companies could mark subsurface utility locations. In addition, a subcontracted underground utility locator performed field screening of boring locations on October 1 and 2, 2009, to assist in the avoidance of underground utilities.

A site-specific Health and Safety Plan was also prepared for each of the four sites for use during field drilling activities.

Exploratory Borings

The typical scope of work for each site included the drilling and sampling of three exploratory borings in the vicinity of each underground fuel storage tank complex, and the drilling and sampling of one exploratory boring in the vicinity of the proposed above-ground fuel storage tanks. All borings were drilled with 6-inch diameter hollow-stem auger drilling equipment or 5-inch diameter mud rotary drilling equipment using a truck-mounted drill rig. Each of the environmental assessment borings was drilled to the depth of first-encountered groundwater for the collection of a groundwater sample, or to a maximum depth of 30 feet below ground surface (bgs) in the absence of groundwater. Each of the geotechnical borings was drilled to a depth of 80 feet bgs.

Field drilling activities were performed between October 6, 2009 and October 22, 2009. Further details of the field procedures used during the drilling of the exploratory borings are described in Attachment A.

Site-specific variations from the typical scope of work were as follows:

Half Moon Bay Site

At the Half Moon Bay site, three environmental assessment borings, designated B-1 through B-3, were drilled around the existing underground fuel storage tank complex (Figure 5). Borings B-1 through B-3 were each drilled to a total depth of 30 feet bgs, as groundwater was not encountered at shallower depths. Groundwater samples were therefore not collected from borings B-1 through B-3. One geotechnical boring, designated B-4, was drilled to the prescribed depth of 80 feet bgs, although mud rotary drilling techniques were necessary to attain this depth.

Hayward Site

In the vicinity of the eastern fueling system at the Hayward site, a proposed environmental boring designated B-1 and a proposed geotechnical boring designated B-4 were replaced by a single exploratory boring, designated B-1, which was drilled to a depth of 80 feet bgs and used to collect both the environmental and geotechnical samples (Figure 6). Mud rotary techniques were used to drill the deeper portion of boring B-1. Two additional environmental borings, designated B-2 and B-3, were also drilled in the vicinity of the eastern fueling system as proposed. Borings B-2 and B-3 were drilled to total depths of 16-1/2 feet bgs and 21-1/2 feet bgs, respectively. Groundwater samples were collected from borings B-1, B-2, and B-3.

In the vicinity of the western fueling system at the Hayward site, three environmental borings, designated B-5 through B-7, were drilled to depths ranging from 16-1/2 feet bgs to 21-1/2 feet bgs, and groundwater samples were collected from each of these three borings. One geotechnical boring, designated B-8, was also drilled to the target depth of 80 feet bgs as proposed, using mud rotary drilling techniques.

Ravenswood Site

At the Ravenswood site, a proposed environmental boring designated B-1 and a proposed geotechnical boring designated B-4 were replaced by a single exploratory boring, designated B-1, which was drilled to a depth of 80 feet bgs and used to collect both the environmental and geotechnical samples (Figure 7). Mud rotary techniques were used to drill the deeper portion of boring B-1. Two additional environmental borings, designated B-2 and B-3, were drilled in their proposed locations to respective depths of 31-1/2 feet bgs and 21-1/2 feet. Groundwater samples were collected from borings B-1, B-2, and B-3.

Walnut Creek Site

Three environmental assessment borings, designated B-1 through B-3, were drilled around the existing underground fuel storage tank complex at the Walnut Creek East site (Figure 8). Borings B-1 through B-3 were each drilled to a total depth of 30 feet bgs, as groundwater was not encountered at shallower depths. Groundwater samples were therefore not collected from borings B-1 through B-3. In the location of the proposed above-ground fuel tanks at the Walnut Creek West site, one geotechnical boring, designated B-4, was drilled to the prescribed depth of 80 feet bgs.

Soil and Groundwater Analysis

Selected soil samples and all groundwater samples collected from the environmental borings drilled during this project were analyzed for the presence of total petroleum hydrocarbons calculated as gasoline (TPH-g), total petroleum hydrocarbons calculated as

diesel (TPH-d), benzene, toluene, ethylbenzene and xylenes (BTEX compounds), methyl tert-butyl ether (MtBE), and lead. Soil samples were analyzed for the presence of total lead, while groundwater samples were analyzed for the presence of dissolved lead due to sample filtration prior to analysis. In addition, one soil sample from each environmental boring was analyzed for the presence of total arsenic and one groundwater sample from each site was analyzed for the presence of dissolved arsenic.

Selected soil samples collected from the geotechnical borings drilled during this investigation were analyzed for unit weight and moisture content. Selected soil samples were also analyzed for gradation or Atterberg limits, as appropriate for the grain size distribution of the sample.

The laboratory analytical procedures used during this investigation are further described in Attachment A. All laboratory analyses were performed by California state certified analytical laboratories.

Post-Field Activities

Upon completion of the field activities at each of the four subject Caltrans sites, solid investigation-derived wastes including drill cuttings and drilling mud, and liquid investigation-derived wastes comprised of tool rinsate, were stored on site pending characterization and appropriate disposal. All wastes were stored in sealed, labeled 55-gallon drums, at the facilities where they were generated. A total of nine drums of solid waste and one drum of liquid waste were generated and stored at the Half Moon Bay site. Fourteen drums of solid waste and one drum of liquid waste were generated at the Hayward site. The Ravenswood site produced six drums of solid waste and one drum of liquid waste. Eight drums of solid waste and one drum of liquid waste were generated at the Walnut Creek site.

Laboratory analytical data for in-situ soil samples collected at each site were provided to Denbeste Transportation, Inc. (Denbeste) of Windsor, California for profiling and disposal of all investigation-derived wastes.

Upon completion of waste characterization, all solid wastes were transported by Denbeste to the Waste Management Altamont Landfill and Resource Recovery facility, located in Livermore, California. Similarly, all liquid wastes were transported by Denbeste to Waste Management Altamont Landfill and Resource Recovery facility, located in Livermore, California. All solid and liquid wastes were transported and disposed as non-hazardous waste.

FINDINGS

Descriptions of the subsurface geologic conditions, soil analytical data, and groundwater analytical data for each of the four subject sites are described below.

Subsurface Conditions

Site-specific discussions of the lithologic conditions encountered during drilling activities at the four subject sites are presented below. The locations of exploratory borings drilled at the Half Moon Bay, Hayward, Ravenswood, and Walnut Creek sites are depicted on Figures 5 through 8, respectively. Boring logs for all exploratory borings drilled during this project are presented in Attachment B.

Half Moon Bay Site

According to the United States Geologic Survey (USGS) online resource *Geology of the Onshore Part of San Mateo County, California: Derived from the Digital Database Open-File 98-137* (USGS Open-File 98-137), the surficial earth materials in the vicinity of the Half Moon Bay site are Pleistocene Marine terrace deposits (Qmt).

As observed during the drilling of borings B-1 through B-4 during the current investigation, the uppermost portion of the Marine terrace deposits is comprised of predominantly fine-grained sediments including black, high and low plasticity clay and silt (CH, CL, and ML) to a depth varying from approximately 3 to approximately 13 feet bgs.

The uppermost predominantly fine-grained deposits are generally underlain by yellowish brown, silty, fine-grained sand (SM) to a depth varying from approximately 13 to approximately 18 feet bgs. In all borings drilled during this investigation, a well sorted yellowish brown to olive gray fine sand (SP) was encountered at a depth varying from approximately 13 to approximately 18 feet bgs. In the locations of borings B-1 through B-3, this well-sorted fine sand was present to a depth of at least 31-1/2 feet bgs, the maximum depth explored by those borings. In the location of geotechnical boring B-4, the well-sorted fine sand was present to a depth of 63 feet bgs.

The predominantly coarse-grained, unconsolidated sediments described above are underlain by a hard, medium dark gray mudstone that occurred to a depth of at least 81-1/2 feet bgs, as logged during the drilling of exploratory boring B-4. Based on lithologic descriptions and stratigraphic relationships described in USGS Open-File 98-137, the mudstone encountered in boring B-4 appears to be a member of the Pliocene and upper Miocene Purisima Formation.

Groundwater was encountered at a depth of approximately 33 feet bgs during the October 2009 drilling of boring B-4, the only boring drilled during this investigation to reach this depth. Groundwater was encountered within the well-sorted yellowish brown to olive gray fine sand horizon that comprises the majority of the Marine terrace deposits underlying the site. Based on the low observed moisture content described for the Purisima mudstone underlying the Marine terrace deposits, the mudstone may act as a functional aquitard between the Marine terrace deposits and potential deeper water-bearing horizons. The determination of a groundwater flow direction or hydraulic gradient were not included in the scope of this project.

Hayward Site

A review of the USGS online resource titled *Preliminary Geologic Map Emphasizing Bedrock Formations in Alameda County California, Open-File 96-252* (USGS Open-File 96-252) indicates that the site vicinity is underlain by Undivided surficial deposits (Qu). These sediments are considered to be underlain at depth by bedrock of the Franciscan Complex (KJf), which is of Cretaceous to Jurassic age.

Boring logs prepared during the current investigation of the Hayward site suggest that the site is underlain by a relatively thick placement of imported fill material to a depth of approximately 28 feet bgs in the location of boring B-1 and to a depth of approximately 33 feet bgs in the location of boring B-8. Borings B-1 and B-8 were the only borings drilled during the current investigation to reach the depth of the base of the imported fill. As logged in borings drilled for this investigation, the imported fill materials are generally comprised of moderate yellowish brown to brownish gray silty sand (SM) with gravel, sandy silt (ML) with gravel, and lesser silty gravel (GM) with sand. The fill materials tend to be relatively well-graded, with the soil names varying as a factor of the localized distributions of the silt, sand, and gravel components.

The uppermost native sediments underlying the fill materials include dark greenish gray to greenish black clay with 10% fine sand. In the location of B-1 this clay was described as a low plasticity clay (CL), while in the location of B-8, it was described as a high plasticity clay (CH). While not specifically differentiated in the geologic reference materials reviewed for the Hayward site, these clays are commonly referred to as Bay Mud.

In the location of boring B-1, the Bay Mud is underlain by an approximate 5-foot thickness of moderate olive brown silty sand to sand (SP-SM) between the approximate depths of 43 and 48 feet bgs. The silty sand to sand is fine-grained and well-rounded and contains 10% silty fines. This lithology was not observed in the location of boring B-8.

A moderate yellowish brown silty sand (SM) was encountered at a depth of approximately 48 feet bgs in B-1, underlying the olive brown silty sand to sand described

above. In the location of B-8, this yellowish brown silty sand was encountered at the depth of 53 feet bgs, directly underlying the Bay Mud in that location. The yellowish brown silty sand was noted to be fine-grained, well sorted, and well rounded, and includes 25 to 30% silty fines.

At the depth of approximately 58 feet bgs in the locations of both B-1 and B-8, a dark yellowish brown to olive gray well-sorted sand (SP) was encountered. This sand is fine-grained with 10% medium sand at the upper contact, but coarsens with depth. As logged at the depth of 70 feet bgs in the boring for B-1, this sand is medium-grained with trace coarse sand and fine gravel and 30% fine sand. This sand is approximately 15 feet thick as logged in B-1, but is of a lesser thickness in the location of B-8.

In the location of B-8, a deeper occurrence of Bay Mud occurs from the depths of approximately 63 feet bgs to 73 feet bgs, although the depth of the lower contact is uncertain due to poor sample recovery at the 70 to 71-1/2-foot depth sample interval.

Underlying the well-sorted (SP) sand in B-1 and the lower occurrence of Bay Mud in B-8, a well-graded sand (SW) was encountered in both borings at the depth of approximately 73 feet bgs. The well-graded sand is dark yellowish-brown and contains a relatively uniform distribution of fine to coarse sand with 15% well-rounded fine gravel.

In the location of B-8, a grayish olive green medium sand (SP) with 30% fine sand was encountered at a depth of approximately 78 feet, an was present to the depth of 81-1/2 feet bgs, the maximum depth explored by B-8.

In the, location of B-1, a deeper occurrence of Bay Mud was encountered at the depth of 80-1/2 feet bgs, and was the deepest lithology encountered in the 81-1/2 foot boring.

Groundwater was encountered at a depth of approximately 12 feet bgs in the borings drilled for the investigation of the Hayward site. Groundwater occurred within the artificial fill materials that immediately underlie the bridge structure. Groundwater flow directions or hydraulic gradients were not determined during this investigation.

Ravenswood Site

According to USGS Open-File 98-137, the surficial earth materials in the immediate vicinity of the Ravenswood site consist of Holocene Bay Mud (Qhbm), although Holocene Basin deposits (Qhb), Floodplain deposits (Qhfp), and Natural levee deposits (Qhl) are also noted to occur in the vicinity of the Ravenswood site.

The portion of the Ravenswood site explored by the current investigation is underlain by artificial fill materials to a depth of approximately 13 to approximately 18 feet bgs. These fill materials are variable in color and were logged as silt (ML) with sand and

gravel in the locations of borings B-2 and B-3 and silty sand (SM) with gravel in the location of boring B-1. The fill materials appear to have been placed during the installation of the large concrete sump that forms the inlet structure for the Caltrans pumping plant.

In the location of boring B-1, the surficial artificial fill materials are underlain by a greenish black, low plasticity clay (CL) with lesser fine sand and fine gravel. This low plasticity clay, which was approximately 8 feet thick in the location of B-1, was not observed in the locations of borings B-2 or B-3. This greenish black clay is likely the Bay Mud described in USGS Open-File 98-137.

A yellowish brown silty sand (SM) underlies the greenish black clay in the location of B-1, and directly underlies the surficial artificial fill materials in the locations of B-2 and B-3. This silty sand is generally yellowish brown, and consists of well-sorted fine sand with 25 to 40% fines. In the location of boring B-2, this silty sand also includes 15% medium sand and trace coarse sand and fine gravel. The logged thickness of this silty sand varied from approximately 2-1/2 feet in the locations of borings B-1 and B-3 to approximately 5 feet in the location of B-2. This lithologic horizon and those that underlie it probably correspond to the Basin deposits, Floodplain deposits, and Natural levee deposits described in USGS Open-File 98-137.

Underlying the silty sand described above, moderate yellow brown to dark yellow brown predominantly fine-grained sediments were encountered at depths of approximately 18 feet to approximately 24 feet bgs. These sediments were logged as clay (CL) in the location of boring B-1, but varied to silt (ML) in the locations of borings B-2 and B-3. These predominantly fine-grained sediments included 25 to 30% fine sand in all boring locations, and trace medium sand and 10% fine gravel as logged in the location of B-2. This horizon of yellow brown silt and clay was approximately 28 feet thick as observed in B-1, and was the deepest lithology encountered by borings B-2 and B-3.

A moderate yellow brown silty fine sand (SM) containing 30% silt was logged between the depths of 51 feet and 56-1/2 feet bgs in boring B-1.

The lower fine silty sand was immediately underlain by a mottled medium brown and bluish gray sandy silt (ML) that contained 40% fine sand. This silt was approximately 2 feet thick as logged in boring B-1, and was logged to a depth of approximately 58 feet bgs.

Underlying the mottled silt, a medium bluish gray high plasticity clay was logged from the depth of approximately 58 feet bgs to a depth of 81-1/2 feet bgs, the maximum depth explored during this investigation.

First-encountered groundwater typically occurred at a depth of approximately 18 feet bgs during the October 2009 drilling of borings B-1 through B-3 at the Ravenswood site, and generally occurs within the yellowish brown silty sand that underlies Bay Mud and surficial artificial fill materials. A groundwater flow direction or hydraulic gradient were not determined as part of the scope of this investigation.

Walnut Creek Site

As depicted in a USGS online resource titled *Preliminary Geologic Map Emphasizing Bedrock Formations in Contra Costa County California, Open-File 94-622* (USGS Open-File 94-622), the immediate vicinity of the subject site is underlain by Undivided Quaternary deposits (Qu). However, bedrock formations outcropping in the extended vicinity of the site, and potentially underlying it, include Miocene to Paleocene sandstones and shales that dip at high angles to the northeast or southwest, and are overturned in many locations. An additional USGS resource, *Quaternary Geology of Contra Costa County, and Surrounding Areas: Derived from the Digital Database Open-File 97-98* (USGS Open-File 97-98) describes the sediments underlying the immediate site vicinity as undifferentiated gravels (Qtu) of Pleistocene or Pliocene age.

Because the area investigated by environmental borings B-1 through B-3 is located approximately 650 feet to the east-northeast of the location of geotechnical boring B-4, and because of the relatively variable lithologies occurring locally, correlation of the specific lithologic units observed at the two sites is probably impractical. For this reason, the two sites are described independently as follows.

The area of borings B-1 through B-3 is immediately underlain by a grayish- to brownish-black clay (CL) containing 10 to 15% fine sand. The surficial clay was logged to a depth of 2-1/2 to 4 feet bgs.

The uppermost clay in the area of boring B-1 through B-3 is underlain by moderate yellow-brown to dark yellow-brown sandy silt (ML) that includes 25 to 40% fine sand. The yellow-brown silt coarsens locally to fine-grained silty sand (SM) that commonly contains 40% silty fines. The silty sand tends to strongly resemble the sandy silt, and the contacts between the lithologies appear to be gradational. The combined sandy silt and silty sand lithologies occur to a depth of approximately 28 feet bgs in the location of boring B-3, and to a depth of at least 31-1/2 feet bgs in the locations of borings B-1 and B-2, the maximum depth explored by those borings.

A moderate yellow-brown well-sorted fine sand (SP) without fines was observed at a depth of approximately 28 feet bgs in the location of boring B-3, and was present to a depth of at least 31-1/2 feet bgs, the maximum depth explored by B-3.

Groundwater was not encountered during the October 2009 drilling of borings B-1 through B-3 at the Walnut Creek East site.

Boring B-4 was drilled in the location of the proposed above-ground fuel storage tanks on the Walnut Creek West site, and was advanced to a total depth of 81-1/2 feet bgs. Predominantly coarse-grained lithologies predominated in the location of boring B-4, and generally included well-sorted fine-grained sands (SP) and silty sands (SM) at depths shallower than 40 feet bgs. At greater depths, the predominantly coarse-grained lithologies included increasing volumes of medium- to coarse-grained sand and fine gravel, and were more commonly logged as well-graded sands (SW) and gravels (GW). The predominantly coarse-grained lithologies were interrupted by horizons of silt or clay between the approximate depths of 3 and 8 feet bgs, 16 and 18 feet bgs, 33 and 36 feet bgs, and 43 and 46 feet bgs. A significant sequence of predominantly fine-grained sediments also occurred between the depths of 61 and 73 feet bgs.

Groundwater was encountered at a depth of approximately 58 feet bgs during the October 2009 drilling of boring B-4.

Unconfined first-encountered groundwater occurred at a depth of approximately 58 feet bgs during the October 2009 drilling of boring B-4 at the Walnut Creek West site, within a well-graded sand or poorly-graded gravel. As noted above, the water-bearing sand and gravel at this depth are underlain by an approximate 12-foot thickness of clay and silt, but moisture content logged within the clay and silt suggest that they do not function as a competent aquitard between the water-bearing lithology and deeper coarse-grained sediments. A groundwater flow direction or hydraulic gradient were not determined as part of the scope of this investigation.

Soil Analytical Data

Selected soil samples collected from the environmental borings drilled during this project were analyzed for the presence of TPH-g, TPH-d, BTEX compounds, MtBE, total lead, and total arsenic. The results of these laboratory analyses are summarized in Table 1.

Selected soil samples collected from the geotechnical borings drilled during this investigation were analyzed for unit weight, moisture content, and gradation or Atterberg limits. The results of these laboratory analyses are summarized in Table 2.

The laboratory methods used during this investigation are further described in Attachment A. The laboratory analytical reports for all environmental and geotechnical soils analyses performed during this investigation are presented in Attachment C. Site-specific findings are summarized below.

Half Moon Bay Site

The soil sample collected at the depth of 5 to 6-1/2 feet bgs from environmental boring B-3 at the Half Moon Bay site contained 160 mg/kg TPH-d, 0.026 mg/kg benzene, 0.009 mg/kg toluene, and 0.055 mg/kg MtBE, but did not contain detectable concentrations of TPH-g, ethylbenzene, or xylenes. The certified analytical laboratory indicated an atypical chromatogram pattern for this TPH-d detection. This was the only shallow soil sample analyzed from the Half Moon Bay site to contain detectable concentrations of any petroleum hydrocarbon analytes.

Each of the soil samples collected from Half Moon Bay borings B-1 through B-3 at the depth of 30 to 31-1/2 feet bgs contained detectable concentrations of petroleum hydrocarbon analytes. Of these soil samples, the soil sample from boring B-1contained 0.008 mg/kg benzene, the soil sample from boring B-2 contained 0.015 mg/kg benzene and 0.055 mg/kg MtBE, and the soil sample from B-3 contained 1.3 mg/kg TPH-g, 0.19 mg/kg benzene, 0.16 mg/kg toluene, 0.015 mg/kg ethylbenzene, and 0.095 mg/kg total xylenes. These were the only detections of any of requested analytes in the soil samples collected from borings B-1 through B-3 at this depth interval.

Concentrations of total lead and total arsenic ranged from 2.4 mg/kg to 7.9 mg/kg, and from 4.4 mg/kg to 14 mg/kg, respectively, in soil samples analyzed from Half Moon Bay borings B-1 through B-3.

Geotechnical analysis of soil samples collected from Half Moon Bay geotechnical boring B-4 generally supported the lithologic descriptions logged from hand sample inspection during field drilling activities. However, sieve analyses classified the well-sorted yellowish brown to olive gray fine sand (SP) that comprises the lower portion of the Marine terrace deposits as a silty sand (SM), rather than a poorly graded sand (SP).

Dry densities ranged from 94.5 lbs/ft^3 to 114.0 lbs/ft^3 in soil samples analyzed for this parameter. Moisture content ranged from 14.6% to 25.2% in analyzed soil samples.

Hayward Site

None of the soil samples analyzed from the Hayward site contained detectable concentrations of any of the requested petroleum hydrocarbon analytes: TPH-g, TPH-d, BTEX compounds, or MtBE. Maximum concentrations of 7.8 mg/kg total lead and 9.8 mg/kg total arsenic were detected in soil samples analyzed from the Hayward site.

Geotechnical analyses performed on soil samples from the Hayward site suggest that the silt or clay content of the predominantly coarse-grained lithologies was generally higher than that estimated in the field, and that the gravel content was, in some cases, lower than that logged in the field. These refinements to the logged lithologies should be considered

in evaluating the engineering properties of these lithologies for the placement of the proposed above-ground fuel storage tanks.

Dry densities of 84.4 lbs/ft^3 to 124.0 lbs/ft^3 were determined for soil samples analyzed for this parameter. Moisture content ranged from 7.8% to 32.6% in soil samples analyzed for the Hayward site.

Ravenswood Site

The only petroleum hydrocarbon analyte detected in any of the soil samples collected at the Ravenswood site was TPH-d; and all of these TPH-d quantifications were characterized by the analytical laboratory as atypical. A TPH-d concentration of 160 mg/kg was detected in the soil sample collected from boring B-1 at the depth of 5 to 6-1/2 feet bgs. A concentration of 17 mg/kg TPH-d was detected in the soil sample from the 15 to 16-1/2 foot depth from B-2. The soil samples collected from boring B-3 at the depths of 10 to 11-1/2 feet bgs and 15 to 16-1/2 feet bgs contained TPH-d concentrations of 160 mg/kg and 14 mg/kg, respectively.

Concentrations of total arsenic ranged from 2.3 to 5.3 mg/kg in Ravenswood site soil samples analyzed for total arsenic. Total lead concentrations of 2.1 to 32 mg/kg were detected in soil samples analyzed from the Ravenswood site.

Geotechnical analysis of soil samples collected from Ravenswood geotechnical boring B-1 provided excellent verification of the lithologic descriptions logged during field drilling activities. Dry densities of 87.5 lbs/ft^3 to 130.5 lbs/ft^3 were determined for soil samples analyzed for this parameter. Moisture content ranged from 8.0% to 46.4% in soil samples analyzed for the Ravenswood site.

Walnut Creek Site

Soil samples analyzed from environmental borings B-1 through B-3 at the Walnut Creek East site were free from detectable concentrations of TPH-g, TPH-d, BTEX compounds, or MtBE.

Concentrations of 3.6 mg/kg to 6.8 mg/kg total lead and 2.7 mg/kg to 4.2 mg/kg total arsenic were detected in the environmental soil samples analyzed from the Walnut Creek site.

Laboratory geotechnical properties for soil samples collected from the Walnut Creek site were generally in good agreement with lithologic descriptions logged during drilling. However, sieve analyses commonly indicated silt or clay content of the predominantly coarse-grained lithologies that was higher than that estimated in the field. Dry densities of 97.8 lbs/ft^3 to 116.6 lbs/ft^3 were determined for soil samples analyzed for this

parameter. Moisture content ranged from 5.3% to 20.8% in soil samples analyzed from the Walnut Creek site.

Groundwater Analytical Data

Selected groundwater samples collected from the environmental borings drilled during this project were analyzed for the presence of TPH-g, TPH-d, BTEX compounds, MtBE, dissolved lead, and dissolved arsenic. The results of these laboratory analyses are summarized in Table 3. The laboratory methods used during this investigation are further described in Attachment A. The certified analytical laboratory reports for groundwater analyses are presented in Attachment C. Site-specific findings are summarized below.

Half Moon Bay Site

Because groundwater was not encountered at a depth shallower than 31-1/2 feet bgs, the total depth explored by environmental borings B-1 through B-3 at the Half Moon Bay site, groundwater samples were not collected for laboratory analysis.

Hayward Site

Of the groundwater samples collected from the Hayward site, only the samples from borings B-1 through B-3, in the vicinity of the eastern underground fuel storage tank complex, contained detectable concentrations of any of the requested petroleum hydrocarbon analytes. Groundwater samples from borings B-1 through B-3 contained concentrations of TPH-d ranging from 110 µg/L to 140 µg/L, but did not contain detectable concentrations of any of the other requested petroleum hydrocarbon analytes.

Ravenswood Site

Groundwater samples from borings B-1 through B-3 at the Ravenswood site contained concentrations of TPH-d ranging from 110 µg/L in the sample from boring B-3 to 150 µg/L in each of the groundwater samples from borings B-1 and B-2. The certified analytical laboratory reported atypical chromatogram patterns for all three of these TPH-d analyses. None of the other requested petroleum hydrocarbon analytes were detected in any of the three groundwater samples from the Ravenswood site.

Walnut Creek Site

Groundwater samples were not collected or analyzed at the Walnut Creek site because groundwater occurred at a depth greater than the maximum target depth for environmental borings B-1 though B-3.

CONCLUSIONS

The following conclusions are based on the data generated during the current investigation and limited historical data available to Shaw at the time of this report.

Half Moon Bay Site

Based on the findings of the current investigation, relatively low concentrations of petroleum hydrocarbons are likely to be encountered in soils during the removal of the existing underground fuel storage tanks. This is particularly likely in the vicinity of the southeast corner of the existing underground fuel storage tank complex. Based on the data generated during this investigation, it appears unlikely that excavation of soils in this area will generate soils that will require disposal as hazardous waste by California Code of Regulations, Title 22, Section 66261.20 *Characteristics of Hazardous Waste* (Title 22).

Based on conditions encountered during the field work, it appears unlikely that groundwater will be encountered during the removal of the existing underground fuel storage tanks.

The geotechnical data summarized in Table 2, and presented in greater detail in Attachment D, are submitted for use by Caltrans in determining the appropriateness of the proposed location for the installation of the replacement above-ground fuel storage tanks. These data may also be used by Caltrans to determine what additional measures, if any, may be required to prepare that area to accommodate the installation of the above-ground tanks.

Shaw understands that additional investigation activities may be requested of Caltrans by the SMCDEH with respect to a preexisting leaking underground storage tank case at this site. Shaw recommends that Caltrans evaluate additional efforts with respect to the preexisting case in the context of any additional sampling or remediation efforts to address removal of the existing underground storage tanks.

Hayward Site

Based on the data generated during this investigation, it appears unlikely that extensive petroleum hydrocarbon impact to soils will be encountered during the removal of the existing underground fuel storage tanks at the Hayward site. It also appears unlikely that excavation will generate soils that will require disposal as hazardous waste by Title 22.

Groundwater may be encountered during the removal of the existing underground fuel storage tanks from the Hayward site. While petroleum hydrocarbon impact to groundwater appears to be limited to relatively low concentrations of diesel range

hydrocarbons, groundwater should be contained and disposed appropriately if dewatering is necessary for tank removal or backfilling.

The geotechnical data summarized in Table 2, and presented in greater detail in Attachment D, are submitted for use by Caltrans in planning for the installation of the replacement above-ground fuel storage tanks.

Ravenswood Site

Based on the findings of this investigation, relatively low concentrations of diesel range hydrocarbons are likely to be encountered in soils during the removal of the existing underground fuel storage tanks. It appears unlikely that excavated soils will require disposal as hazardous waste by California Code of Regulations, Title 22, Section 66261.20 *Characteristics of Hazardous Waste* (Title 22).

Groundwater may be encountered during the removal of the existing underground fuel storage tanks from the Ravenswood site. While petroleum hydrocarbon impact to groundwater appears to be limited to relatively low concentrations of diesel range hydrocarbons, groundwater should be contained and disposed appropriately if dewatering is necessary for tank removal or backfilling.

The geotechnical data summarized in Table 2, and presented in greater detail in Attachment D, are submitted for use by Caltrans in planning for the installation of the replacement above-ground fuel storage tanks.

Walnut Creek Site

Based on the data generated during this investigation, it appears unlikely that extensive petroleum hydrocarbon impact to soils will be encountered during the removal of the existing underground fuel storage tanks at the Walnut Creek East site. It also appears unlikely that excavation will generate soils that will require disposal as hazardous waste by Title 22.

Based on conditions encountered during the field work, it appears unlikely that groundwater will be encountered during the removal of the existing underground fuel storage tanks from the Walnut Creek East site.

The geotechnical data summarized in Table 2, and presented in greater detail in Attachment D, are submitted for use by Caltrans in planning for the installation of the replacement above-ground fuel storage tanks at the Walnut Creek West site.

Should you have any questions or require additional information, please call.

Sincerely,

Shaw Environmental, Inc.

Timothy L. Ripp
Task Order Manager
CHG 786

Andrew D. Lehane
Project Manager
RCE 55798

Attachments: Table 1 – Soil Analytical Data
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Table 1
Soil Analytical Data

Caltrans Underground Storage Tank Replacement Sites
San Francisco Bay Area, California

Boring ID	Sample Depth (feet)	Date Sampled	TPH-g (mg/kg)	TPH-d (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Total Xylenes (mg/kg)	MtBE (mg/kg)	TTLC Lead (mg/kg)	TTLC Arsenic (mg/kg)
Half Moon Bay site											
B-1	5 - 6-1/2	10/06/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	5.0	14
	10 - 11-1/2	10/06/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	4.8	NA
	15 - 16-1/2	10/06/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	3.3	NA
	30 - 31-1/2	10/06/09	<1.0	<10	0.008	<0.005	<0.005	<0.010	<0.050	2.6	NA
B-2	5 - 6-1/2	10/06/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	5.2	4.4
	10 - 11-1/2	10/06/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	6.0	NA
	15 - 16-1/2	10/06/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	3.1	NA
	30 - 31-1/2	10/06/09	<1.0	<10	0.015	<0.005	<0.005	<0.010	0.055	2.5	NA
B-3	5 - 6-1/2	10/06/09	<1.0	160*	0.026	0.009	<0.005	<0.010	0.055	7.9	4.9
	10 - 11-1/2	10/06/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	3.9	NA
	15 - 16-1/2	10/06/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	4.3	NA
	30 - 31-1/2	10/06/09	1.3	<10	0.19	0.16	0.015	0.095	<0.10	2.4	NA
Hayward site											
B-1	5 - 6-1/2	10/19/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	<4.0	7.2
	10 - 11-1/2	10/19/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	4.3	NA
	15 - 16-1/2	10/19/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	<4.0	NA
B-2	5 - 6-1/2	10/19/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	<4.0	6.2
	10 - 11-1/2	10/19/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	<4.0	NA
	15 - 16-1/2	10/19/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	2.0	NA
B-3	5 - 6-1/2	10/19/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	<4.0	7.5
	10 - 11-1/2	10/19/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	7.8	NA
	15 - 16-1/2	10/19/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	<4.0	NA
	20 - 21-1/2	10/19/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	<4.0	NA
B-5	5 - 6-1/2	10/20/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	4.2	8.7
	10 - 11-1/2	10/20/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	4.2	NA
	15 - 16-1/2	10/20/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	<4.0	NA

Table 1
Soil Analytical Data

Caltrans Underground Storage Tank Replacement Sites
San Francisco Bay Area, California

Boring ID	Sample Depth (feet)	Date Sampled	TPH-g (mg/kg)	TPH-d (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Total Xylenes (mg/kg)	MtBE (mg/kg)	TTLC Lead (mg/kg)	TTLC Arsenic (mg/kg)
Hayward site (cont'd)											
B-6	5 - 6-1/2	10/20/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	<4.0	9.8
	10 - 11-1/2	10/20/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	2.1	NA
	15 - 16-1/2	10/20/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	2.0	NA
B-7	5 - 6-1/2	10/20/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	<2.0	4.6
	10 - 11-1/2	10/20/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	5.0	NA
	15 - 16-1/2	10/20/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	<4.0	NA
Ravenswood site											
B-1	5 - 6-1/2	10/09/09	<1.0	160*	<0.005	<0.005	<0.005	<0.010	<0.050	16	4.0
	10 - 11-1/2	10/09/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	2.6	NA
	15 - 16-1/2	10/09/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	6.6	NA
	20 - 21-1/2	10/09/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	7.7	NA
B-2	5 - 6-1/2	10/08/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	8.1	5.2
	10 - 11-1/2	10/08/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	7.9	NA
	15 - 16-1/2	10/08/09	<1.0	17*	<0.005	<0.005	<0.005	<0.010	<0.050	2.1	NA
	20 - 21-1/2	10/08/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	9.2	NA
B-3	5 - 6-1/2	10/09/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	8.2	2.3
	10 - 11-1/2	10/09/09	<1.0	160*	<0.005	<0.005	<0.005	<0.010	<0.050	32	NA
	15 - 16-1/2	10/09/09	<1.0	14*	<0.005	<0.005	<0.005	<0.010	<0.050	6.3	NA
	20 - 21-1/2	10/09/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	3.9	NA
Walnut Creek site											
B-1	5 - 6-1/2	10/10/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	3.6	2.7
	10 - 11-1/2	10/10/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	6.0	NA
	15 - 16-1/2	10/10/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	4.8	NA
	30 - 31-1/2	10/10/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	4.5	NA
B-2	5 - 6-1/2	10/10/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	3.8	4.2
	10 - 11-1/2	10/10/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	6.8	NA
	15 - 16-1/2	10/10/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	5.6	NA
	30 - 31-1/2	10/10/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	3.7	NA

Table 1
Soil Analytical Data

Caltrans Underground Storage Tank Replacement Sites
San Francisco Bay Area, California

Boring ID	Sample Depth (feet)	Date Sampled	TPH-g (mg/kg)	TPH-d (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Total Xylenes (mg/kg)	MtBE (mg/kg)	TTLC Lead (mg/kg)	TTLC Arsenic (mg/kg)
Walnut Creek site (cont'd)											
B-3	5 - 6-1/2	10/12/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	5.2	4.0
	10 - 11-1/2	10/12/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	5.7	NA
	15 - 16-1/2	10/12/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	5.5	NA
	30 - 31-1/2	10/12/09	<1.0	<10	<0.005	<0.005	<0.005	<0.010	<0.050	4.3	NA

TPH-g = Total petroleum hydrocarbons calculated as gasoline
TPH-d = Total petroleum hydrocarbons calculated as diesel
MtBE = Methyl tert-butyl ether
TTLC = Total threshold limit concentration
mg/kg = Milligrams per kilogram
<1.0 = Not detected at specified detection limit
NA = Not analyzed
* = Laboratory noted atypical chromatogram pattern for this analysis
Analysis for TPH-g and TPH-d performed by gas chromatography by EPA Method 8015B.
Analysis for benzene, toluene, ethylbenzene, xylenes, and MtBE performed by gas chromatography by EPA Method 8021B.
Analysis for TTLC lead performed by EPA Method 6010/200.7.

Table 2
Soil Geotechnical Data

Caltrans Underground Storage Tank Replacement Sites
San Francisco Bay Area, California

Boring ID	Sample Depth (feet)	Date Sampled	Dry Density (lbs/ft^3)	Moisture Content (%)	----------Gradation---------- Gravel (%)	Sand (%)	Fines (%)	----------Atterberg Limits---------- Liquid Limit (%)	Plastic Limit (%)	Plasticity index
Half Moon Bay site										
B-4	5 - 6-1/2	10/06/09	94.5	25.2				38	23	15
	10 - 11-1/2	10/06/09	100.2	22.5				39	20	19
	15 - 16-1/2	10/06/09	111.1	15.5		71.5	28.5			
	20 - 21-1/2	10/06/09	107.1	19.4		62.1	37.9			
	25 - 26-1/2	10/06/09	114.0	15.5						
	30 - 31-1/2	10/06/09	110.3	17.8		63.1	36.9			
	35 - 36-1/2	10/06/09	100.8	21.8						
	40 - 41-1/2	10/07/09	104.6	21.8						
	45 - 46-1/2	10/07/09	104.0	21.3						
	50 - 51-1/2	10/07/09	103.2	21.8		91.5	8.5			
	55 - 56-1/2	10/07/09	104.7	19.9						
	60 - 61-1/2	10/07/09	106.2	19.5		89.6	10.4			
	65 - 66-1/2	10/07/09	99.6	22.3				57	27	30
	75 - 76-1/2	10/08/09	109.1	14.6				47	26	21
	80 - 81-1/2	10/08/09	*	*						
Hayward site										
B-1	5 - 6-1/2	10/19/09	*	14.2						
	10 - 11-1/2	10/19/09	*	15.0				53	22	31
	15 - 16-1/2	10/19/09	107.7	10.5	20.9	47.9	31.2			
	30 - 31-1/2	10/20/09	84.4	14.4				55	26	29
	35 - 36-1/2	10/20/09	88.6	30.7				56	23	33
	40 - 41-1/2	10/20/09	107.9	19.0						
	45 - 46-1/2	10/20/09	109.0	19.2	0.8	53.2	46.0			
	50 - 51-1/2	10/20/09	105.5	20.4						
	60 - 61-1/2	10/20/09	*	22.2						
	65 - 66-1/2	10/20/09	107.4	18.8						
	70 - 71-1/2	10/21/09	110.3	17.4	0.4	88.9	10.7			
	75 - 76-1/2	10/21/09	124.0	12.0	15.1	74.4	10.5			
	80 - 81-1/2	10/21/09	113.0	17.0				57	24	33

Table 2
Soil Geotechnical Data

Caltrans Underground Storage Tank Replacement Sites
San Francisco Bay Area, California

Boring ID	Sample Depth (feet)	Date Sampled	Dry Density (lbs/ft^3)	Moisture Content (%)	----------Gradation---------- Gravel (%)	Sand (%)	Fines (%)	----------Atterberg Limits---------- Liquid Limit (%)	Plastic Limit (%)	Plasticity index
Hayward site (cont'd)										
B-8	5 - 6-1/2	10/21/09	119.2	7.8						
	10 - 11-1/2	10/21/09	*	9.8	22.7	44.3	33.0			
	15 - 16-1/2	10/21/09	89.1	9.4						
	20 - 21-1/2	10/21/09	*	20.9						
	25 - 26-1/2	10/21/09	109.8	16.3	20.3	48.2	31.5			
	30 - 31-1/2	10/21/09	112.6	14.6						
	35 - 36-1/2	10/21/09	103.6	22.4				55	22	33
	40 - 41-1/2	10/21/09	121.5	19.0				47	20	27
	45 - 46-1/2	10/21/09	*	21.4				40	20	20
	50 - 51-1/2	10/21/09	100.1	25.4						
	55 - 56-1/2	10/21/09	*	24.5						
	60 - 61-1/2	10/21/09	108.9	19.8	0.2	76.9	22.9			
	65 - 66-1/2	10/21/09	87.4	32.6				50	20	30
	75 - 76-1/2	10/21/09	112.3	14.1						
	80 - 81-1/2	10/21/09	121.5	14.1	11.5	67.4	21.1			
Ravenswood site										
B-1	5 - 6-1/2	10/09/09	130.5	8.0	3.3	65.1	31.6			
	10 - 11-1/2	10/09/09	129.4	8.6	15.1	65.3	19.6			
	15 - 16-1/2	10/09/09	*	*				*	*	*
	25 - 26-1/2	10/09/09	107.9	19.4						
	35 - 36-1/2	10/09/09	93.3	28.4				49	21	28
	40 - 41-1/2	10/09/09	100.4	24.1						
	45 - 46-1/2	10/09/09	95.4	28.1				45	24	21
	50 - 51-1/2	10/09/09	104.9	21.7						
	55 - 56-1/2	10/09/09	99.9	23.4		49.4	50.6			
	60 - 61-1/2	10/09/09	103.6	22.5				52	13	39
	65 - 66-1/2	10/09/09	87.5	46.4						
	70 - 71-1/2	10/09/09	100.2	24.6				55	24	31
	75 - 76-1/2	10/09/09	93.9	27.7						
	80 - 81-1/2	10/09/09	96.8	24.8						

Table 2
Soil Geotechnical Data

Caltrans Underground Storage Tank Replacement Sites
San Francisco Bay Area, California

Boring ID	Sample Depth (feet)	Date Sampled	Dry Density (lbs/ft^3)	Moisture Content (%)	----------Gradation---------- Gravel (%)	Sand (%)	Fines (%)	----------Atterberg Limits---------- Liquid Limit (%)	Plastic Limit (%)	Plasticity index
Walnut Creek site										
B-4	5 - 6-1/2	10/12/09	109.6	17.2				47	22	25
	10 - 11-1/2	10/12/09	102.2	14.5		73.5	26.5			
	15 - 16-1/2	10/12/09	98.1	19.0						
	20 - 21-1/2	10/12/09	97.8	19.6				36	15	21
	25 - 26-1/2	10/12/09	110.5	15.6						
	30 - 31-1/2	10/12/09	103.3	8.9		78.5	21.5			
	35 - 36-1/2	10/12/09	100.4	6.7						
	40 - 41-1/2	10/12/09	116.6	5.3	24.5	65.8	9.7			
	45 - 46-1/2	10/12/09	111.5	13.7						
	50 - 51-1/2	10/12/09	108.9	13.0						
	55 - 56-1/2	10/12/09	111.1	6.0	23.1	69.6	7.3			
	60 - 61-1/2	10/12/09	104.8	20.8						
	65 - 66-1/2	10/12/09	112.1	17.2				50	22	28
	70 - 71-1/2	10/12/09	114.4	15.5				44	16	28
	75 - 76-1/2	10/12/09	114.2	15.8	16.9	66.8	16.3			
	80 - 81-1/2	10/12/09	110.4	18.9						

Analysis for dry density performed by ASTM Method D-2937.
Analysis for moisture content performed by Caltrans method CT-226.
Analysis for gradation performed by Caltrans method CT-202.
Analysis for Atterberg Limits performed by Caltrans method CT-204.
* = Analysis could not be performed due to distrubance of sample.

Table 3
Groundwater Analytical Data

Caltrans Underground Storage Tank Replacement Sites
San Francisco Bay Area, California

Sample ID	Sample Date	TPH-g (µg/L)	TPH-d (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylenes (µg/L)	MtBE (µg/L)	Dissolved Lead (µg/L)	Dissolved Arsenic (µg/L)
Half Moon Bay site										
----------Groundwater samples were not collected or analyzed----------										
Hayward site										
B-1 - GW - 16.5	10/19/09	<50	110	<0.50	<0.50	<0.50	<1.5	<2.5	<5	<10
B-2 - GW - 16.5	10/19/09	<50	140	<0.50	<0.50	<0.50	<1.5	<2.5	<5	NA
B-3 - GW - 21.5	10/19/09	<50	110	<0.50	<0.50	<0.50	<1.5	<2.5	<5	NA
B-5- GW - 16.5	10/20/09	<50	<100	<0.50	<0.50	<0.50	<1.5	<2.5	<5	<10
B-6 - GW - 16.5	10/20/09	<50	<100	<0.50	<0.50	<0.50	<1.5	<2.5	<5	NA
B-7 - GW - 21.5	10/20/09	<50	<100	<0.50	<0.50	<0.50	<1.5	<2.5	<5	NA
Ravenswood site										
B-1 - GW - 21.5	10/09/09	<50	150*	<0.50	<0.50	<0.50	<1.5	<2.5	<50	NA
B-2 - GW - 31.5	10/09/09	<50	150*	<0.50	<0.50	<0.50	<1.5	<2.5	<50	NA
B-3 - GW - 21.5	10/09/09	<50	110*	<0.50	<0.50	<0.50	<1.5	<2.5	<50	<100
Walnut Creek site										
----------Groundwater samples were not collected or analyzed----------										

TPH-g = Total petroleum hydrocarbons calculated as gasoline
TPH-d = Total petroleum hydrocarbons calculated as diesel
MtBE = Methyl tert-butyl ether
µg/L = Micrograms per liter
<1.0 = Not detected at specified detection limit
NA = Not analyzed
* = Laboratory noted atypical chromatogram pattern for this analysis

Analysis for TPH-g and TPH-d performed by gas chromatography by EPA Method 8015B.
Analysis for benzene, toluene, ethylbenzene, xylenes, and MtBE performed by gas chromatography by EPA Method 8021B.
Analysis for TTLC lead performed by EPA Method 6010/200.7.

N

0 50 100 200 Feet

Shaw® Shaw Environmental, Inc.

CALIFORNIA DEPARTMENT OF TRANSPORTATION
HALF MOON BAY MAINTENANCE STATION
2203 CABRILLO HIGHWAY
HALF MOON BAY, CALIFORNIA

FIGURE 1

SITE MAP
HALF MOON BAY SITE

F:\GIS\CALTRANS\GIS_Documents\Project_Maps\HalfMoonBay_site.mxd Karen.Black 11/05/09

N

0 100 200 400
Feet

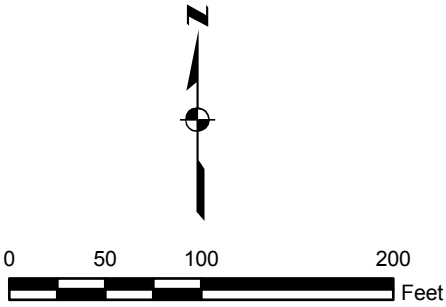
Shaw® Shaw Environmental, Inc.

CALIFORNIA DEPARTMENT OF TRANSPORTATION
SAN MATEO-HAYWARD BRIDGE MAINTENANCE STATION
5500 WEST JACKSON STREET
HAYWARD, CALIFORNIA

FIGURE 2

SITE MAP
HAYWARD SITE

F:\GIS\CALTRANS\GIS_Documents\Project_Maps\Hayward_site.mxd Karen.Black 11/05/09



Shaw® Shaw Environmental, Inc.

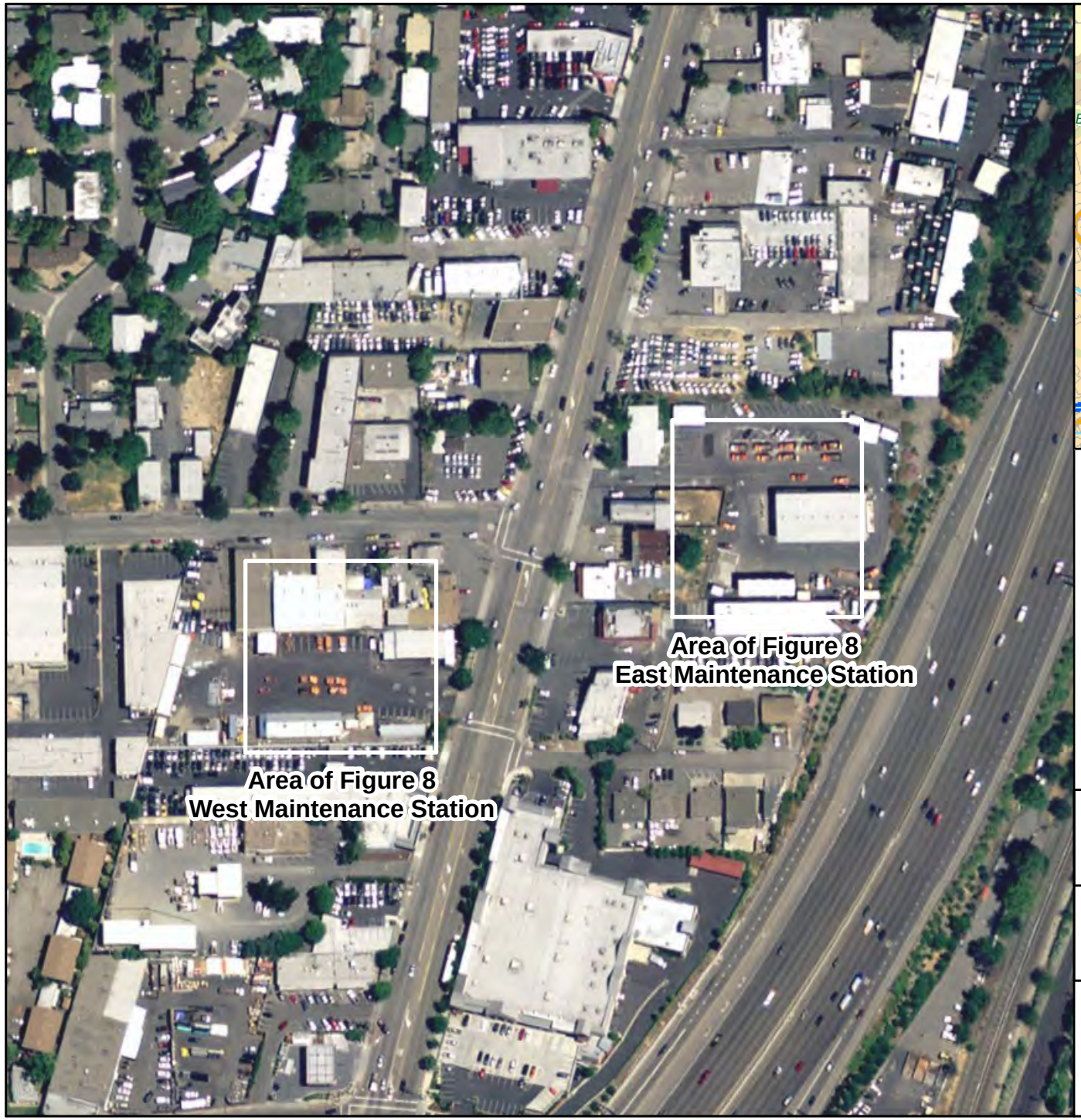
CALIFORNIA DEPARTMENT OF TRANSPORTATION
RAVENSWOOD PUMPING PLANT
HIGHWAY 84
MENLO PARK, CALIFORNIA

FIGURE 3

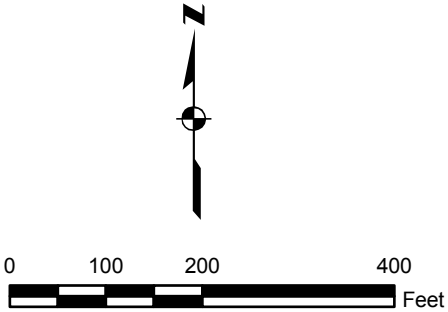
SITE MAP
RAVENSWOOD SITE

F:\GIS\CALTRANS\GIS_Documents\Project_Maps\Ravenswood_site.mxd Karen.Black 11/05/09

F:\GIS\CALTRANS\GIS_Documents\Project_Maps\WalnutCreek_site.mxd Karen.Black 11/05/09



LOCATION MAP



Shaw® Shaw Environmental, Inc.

CALIFORNIA DEPARTMENT OF TRANSPORTATION
WALNUT CREEK EAST & WEST MAINTENANCE STATIONS
2616 & 2581 NORTH MAIN STREET
WALNUT CREEK, CALIFORNIA

FIGURE 4

SITE MAP
WALNUT CREEK SITE

Legend

Exploratory Boring Location and Designation

N

0 15 30 60 Feet

Shaw® Shaw Environmental, Inc.

CALIFORNIA DEPARTMENT OF TRANSPORTATION
HALF MOON BAY MAINTENANCE STATION
2203 CABRILLO HIGHWAY
HALF MOON BAY, CALIFORNIA

FIGURE 5

EXPLORATORY BORING LOCATION MAP
HALF MOON BAY SITE

F:\GIS\CALTRANS\GIS_Documents\Project_Maps\HalfMoonBay_tank_area.mxd Karen.Black 11/05/09

F:\GIS\CALTRANS\GIS_Documents\Project_Maps\Hayward_tank_area.mxd Karen.Black 11/05/09

Legend

⊕ Exploratory Boring Location and Designation

N

0 30 60 Feet

Shaw® Shaw Environmental, Inc.

CALIFORNIA DEPARTMENT OF TRANSPORTATION
SAN MATEO-HAYWARD BRIDGE MAINTENANCE STATION
5500 WEST JACKSON STREET
HAYWARD, CALIFORNIA

FIGURE 6

EXPLORATORY BORING LOCATION MAP
HAYWARD SITE

Legend

Exploratory Boring Location and Designation

N

0 15 30 60 Feet

Shaw® Shaw Environmental, Inc.

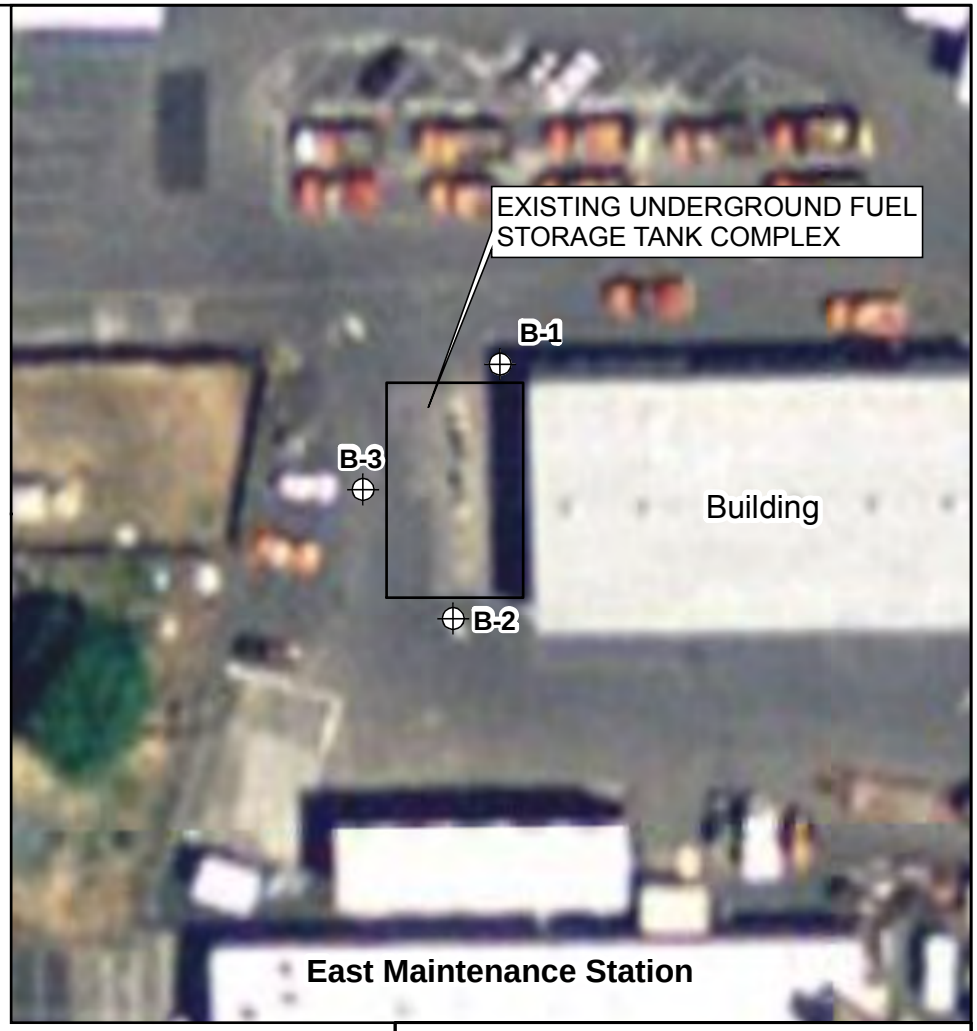
CALIFORNIA DEPARTMENT OF TRANSPORTATION
RAVENSWOOD PUMPING PLANT
HIGHWAY 84
MENLO PARK, CALIFORNIA

FIGURE 7

EXPLORATORY BORING LOCATION MAP
RAVENSWOOD SITE

F:\GIS\CALTRANS\GIS_Documents\Project_Maps\Ravenswood_tank_area.mxd Karen.Black 11/05/09

F:\GIS\CALTRANS\GIS_Documents\Project_Maps\WalnutCreek_tank_area.mxd Karen.Black 11/05/09



Legend

⌖ Exploratory Boring Location and Designation

N

0 50 100 Feet

Shaw® Shaw Environmental, Inc.

CALIFORNIA DEPARTMENT OF TRANSPORTATION
WALNUT CREEK EAST & WEST MAINTENANCE STATIONS
2616 & 2581 NORTH MAIN STREET
WALNUT CREEK, CALIFORNIA

FIGURE 8

EXPLORATORY BORING LOCATION MAP
WALNUT CREEK SITE

ATTACHMENT A

FIELD AND LABORATORY PROCEDURES

ATTACHMENT A

FIELD AND LABORATORY PROCEDURES

Exploratory Borings

The exploratory borings were drilled with 6-inch diameter hollow-stem auger drilling equipment or 5-inch diameter mud rotary drilling equipment as necessitated by field drilling conditions. The borings were logged by a Shaw geologist using the Unified Soil Classification System and standard geologic techniques. Soil samples for logging and potential laboratory analysis were collected at depth intervals of 5 feet or less, by advancing a 1-1/2 inch diameter or 2-1/2 inch diameter split spoon sampler lined with brass or stainless steel sample liners into undisturbed soil beyond the tip of the auger. The sampler was driven by an automatic 140-pound hammer with a 30-inch drop.

Soil samples for potential chemical analysis were retained in the brass sample liners, capped with Teflon® sheets and plastic end caps, labeled, and placed in sealed plastic bags. These samples were transported on ice to the laboratory accompanied by chain-of-custody documentation. Soil samples for potential geotechnical analysis were retained in the stainless steel sample liners, and placed in plastic sheaths and sealed plastic cylinders to retain sample moisture content. Soil samples for potential geotechnical analysis were transported at ambient temperature.

Groundwater 'grab' samples were collected from environmental borings that encountered groundwater using disposable or decontaminated bailers. The groundwater samples were decanted into EPA-approved containers which vary in size, composition, and preservative, depending on the analyses to be performed. The samples were labeled and placed on ice for transport to the laboratory accompanied by chain-of-custody documentation.

Upon completion of drilling and sampling activities, all borings were back-filled with neat cement grout to the existing site grade. All down-hole drilling equipment was steam-cleaned prior to drilling, and between boring locations.

Laboratory Procedures

Selected soil and groundwater samples were analyzed for the presence of total petroleum hydrocarbons calculated as gasoline (TPH-g) and total petroleum hydrocarbons calculated as diesel (TPH-d) by EPA Method 8015B. Laboratory analysis for benzene, toluene, ethylbenzene and xylenes (BTEX compounds) and methyl tert-butyl ether (MtBE) was performed by EPA Method 8021B. Prior to analysis, sample extraction was performed by the purge-and-trap technique, vacuum distillation, or direct injection. Laboratory analysis was performed using gas chromatography, with final detection by photo-ionization detection or electrolytic conductivity detection.

Selected soil and groundwater samples were analyzed for the presence of lead or arsenic by EPA Method 6010, which uses inductively coupled plasma (ICP) to determine metals concentrations in liquid samples. Liquid sample extracts from soil samples were prepared by acid digestion using EPA Method 200.7 to quantify the total threshold limit concentration (TTLC) within a soil sample. Liquid extracts from groundwater samples were prepared by mechanical filtration to determine the dissolved concentrations of the metal analytes within the groundwater samples.

Selected soil samples were analyzed for in-place density using ASTM Method D2937. Selected soil samples were also analyzed for moisture content by Caltrans Method CT226. Selected predominantly coarse-grained soil samples were subjected to grain size determination by sieve analysis using Caltrans Method CT202. Selected predominantly fine-grained soil samples were analyzed to determine their Atterberg plasticity and liquid limits by Caltrans Method CT204.

All analyses were performed by a California state-certified laboratory.

ATTACHMENT B

BORING LOGS

Drilling Log

Soil Boring
B-1

Project *Caltrans* Owner *Caltrans*
Location *2203 Cabrillo Hwy., Half Moon Bay, California* Proj. No. *136529*
Surface Elev. *NA* Total Hole Depth *31.5 ft.* North *NA* East *NA*
Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter *6 in.*
Screen: Dia *NA* Length *NA* Type/Slot *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *Portland Cement* Rig/Core *CME 75/Hollow Stem Auger*
Drill Co. *Moore Twining Associates* Method *1.5" Split Spoon*
Driller *S. Riley* Log By *Bryan Stempson* Date *10/6/09* Permit # *09-1670*
Checked By *Timothy L. Ripp* License No. *CHG 786*

COMMENTS
Location west of fuel dispensers.

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
0						Asphalt/fill.
					CH	FAT CLAY; black (N1); 100% fines, high plasticity; trace fine gravel; soft; weakly indurated; damp
						SILTY SAND; moderate yellowish brown (10YR 5/4); 65% fine sand, sub- to well-rounded; 35% fines, low plasticity; trace fine gravel and mica; loose; weakly indurated; damp
5		10% B-1-6.5	2 3 3			
10	0.3	100% B-1-11.5	2 4 3		SM	Possible oxidation of soil present. Mottled moderate brown (5Y 4/4) and moderate yellowish brown (10Y 5/4). Fines increase to 40%, fine sand decreases to 60%.
15	0.4	100% B-1-16.5	4 7 10			Fine sand increases to 75%, fines decrease to 25%, medium dense.
						POORLY GRADED SAND; moderate yellowish brown (10Y 5/4); 100% fine sand, sub- to well-rounded; trace mica; medium dense; weakly indurated; damp
20	0.0	100% B-1-21.5	6 12 16			
25	18.6	100% B-1-26.5	10 16 24		SP	Dense.
30	21.7	100% B-1-31.5	11 13 23			
						Boring terminated at 31.5 feet (planned depth).
35						

Drilling Log

Soil Boring
B-2

Project *Caltrans* Owner *Caltrans*
Location *2203 Cabrillo Hwy., Half Moon Bay, California* Proj. No. *136529*
Surface Elev. *NA* Total Hole Depth *31.5 ft.* North *NA* East *NA*
Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter *6 in.*
Screen: Dia *NA* Length *NA* Type/Slot *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *Portland Cement* Rig/Core *CME 75/Hollow Stem Auger*
Drill Co. *Moore Twining Associates* Method *1.5" Split Spoon*
Driller *S. Riley* Log By *Bryan Stempson* Date *10/6/09* Permit # *09-1670*
Checked By *Timothy L. Ripp* License No. *CHG 786*

COMMENTS
Location north of fuel dispensers.

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
0						Asphalt/fill.
						FAT CLAY; black (N1); 100% fines, high plasticity; soft; weakly indurated; damp
5	0.1	100% B-2-6.5	2 2 4		CH	Olive gray (5Y 3/2); trace fine and medium sand.
10	0.0	100% B-2-11.5	4 8 9		ML	SANDY SILT; mottled moderate yellowish brown (10YR 5/4), dark yellowish orange (10YR 6/6), possible oxidation staining; 60% fines, nonplastic to low plasticity; 40% fine sand, trace medium and coarse sand; stiff; weakly indurated; damp
15	2.3	100% B-2-16.5	5 7 10		SM	SILTY SAND; moderate yellowish brown (10YR 5/4); 70% fine sand, sub- to well-rounded; 30% fines; medium dense; weakly indurated; damp
20	4.1	100% B-2-21.5	10 10 19		SP	POORLY GRADED SAND; moderate brown (10YR 5/4); 100% fine sand, sub- to well-rounded; trace mica; medium dense; weakly indurated; damp
25	10.3	100% B-2-26.5	15 31 45			Dense.
30	12.8	100% B-2-31.5	8 11 12			Medium dense.
						Boring terminated at 31.5 feet (planned depth).
35						

Drilling Log

Soil Boring
B-3

Project *Caltrans* Owner *Caltrans*
Location *2203 Cabrillo Hwy., Half Moon Bay, California* Proj. No. *136529*
Surface Elev. *NA* Total Hole Depth *31.5 ft.* North *NA* East *NA*
Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter *6 in.*
Screen: Dia *NA* Length *NA* Type/Slot *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *Portland Cement* Rig/Core *CME 75/Hollow Stem Auger*
Drill Co. *Moore Twining Associates* Method *1.5" Split Spoon*
Driller *S. Riley* Log By *Bryan Stempson* Date *10/6/09* Permit # *09-1670*
Checked By *Timothy L. Ripp* License No. *CHG 786*

COMMENTS
Location southeast of fuel dispensers.

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
0						Asphalt/fill.
	0.1				CH	FAT CLAY; black (N1); 100% fines, high plasticity; firm; weakly indurated; damp; petroleum odor
5	0.2	100% B-3-6.5	1 3 2			Trace fine gravel. Soft.
10	0.3	100% B-3-11.5	3 4 6		SM	SILTY SAND; moderate yellowish brown (10YR 5/4); 70% very fine sand, sub- to well-rounded; 30% fines; trace mica; loose; weakly indurated; damp
15	1.2	100% B-3-16.5	4 7 10		SP	POORLY GRADED SAND; light olive gray (5Y 5/2); 100% fine sand, sub- to well-rounded; trace mica; loose; weakly indurated; damp
20	6.3	100% B-3-21.5	11 9 14			Grayish olive (10Y 4/2).
25	539	100% B-3-26.5	14 30 50			Moderate yellowish brown (10YR 5/4). Petroleum odor, very dense.
30	643	100% B-3-31.5	8 13 23			Dense, moist.
						Boring terminated at 31.5 feet (planned depth).
35						

Drilling Log

Soil Boring
B-4

Project *Caltrans* Owner *Caltrans*
Location *2203 Cabrillo Hwy., Half Moon Bay, California* Proj. No. *136529*
Surface Elev. *NA* Total Hole Depth *81.5 ft.* North *NA* East *NA*
Top of Casing *NA* Water Level Initial ▽ *33 ft.* Static *NA* Diameter *6 in.*
Screen: Dia *NA* Length *NA* Type/Slot *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *Portland Cement* Rig/Core *CME 75/Hollow Stem Auger/Mud Rotary*
Drill Co. *Moore Twining Associates* Method *1.5" Split Spoon*
Driller *S. Riley* Log By *Bryan Stempson* Date *10/8/09* Permit # *09-1670*
Checked By *Timothy L. Ripp* License No. *CHG 786*

COMMENTS
Geotech boring. Switch to mud rotary at 65'.

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
						Bare Ground
0	0.0				ML	SANDY SILT; black (N1); 65% fines, nonplastic to low plasticity; 20% fine sand, 10% medium sand, 5% coarse sand; soft; weakly indurated; damp
2						
4						
6	2.4	100% B-4-6.5	5 9 9		CL	SANDY LEAN CLAY; pale yellowish brown (10YR 6/2); 70% fines, low plasticity; 30% fine sand; stiff; weakly indurated; damp Unconfined strength 2.5 tons/ft^2.
8						
10	2.2	100% B-4-11.5	3 8 10		ML	SANDY SILT; pale yellowish brown (10YR 6/2); 60% fines, nonplastic to low plasticity; 40% fine sand; stiff; weakly indurated; damp Unconfined strength 2.5 tons/ft^2.
12						
14	2.3	100% B-4-16.5	9 39 50		SP	POORLY GRADED SAND; moderate yellowish brown (10YR 5/4); 100% fine sand, sub- to well-rounded; very dense; weakly indurated; damp Unconfined strength 2.5 tons/ft^2.
16						
18						
20	2.5	100% B-4-21.5	9 16 22			Dense. Unconfined strength >4.5 tons/ft^2.
22						
24						

Continued Next Page

Drilling Log

Soil Boring
B-4

Project *Caltrans* Owner *Caltrans*

Location *2203 Cabrillo Hwy., Half Moon Bay, California* Proj. No. *136529*

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
24						
26	2.1	100% B-4-26.5	25 50/6			Very dense; refusal after advancing sampler 12". Unconfined strength 2.5 tons/ft^2.
28						
30	28	100% B-4-31.5	9 15 27			Dense. Unconfined strength >4.5 tons/ft^2.
32						
34						
36	0.8	100% B-4-36.5	23 38 50/5			Wet, very dense. Unconfined strength 1.5 tons/ft^2.
38						
40	1.2	100% B-4-41.5	50/6		SP	Unconfined strength 0.5 tons/ft^2.
42						
44						
46	1.1	100% B-4-46.5	24 50/6			Unconfined strength 0.5 tons/ft^2.
48						
50	1.5	100% B-4-51.5	50/5			Unconfined strength >4.5 tons/ft^2.
52						
54						

Continued Next Page

Drilling Log

Soil Boring
B-4

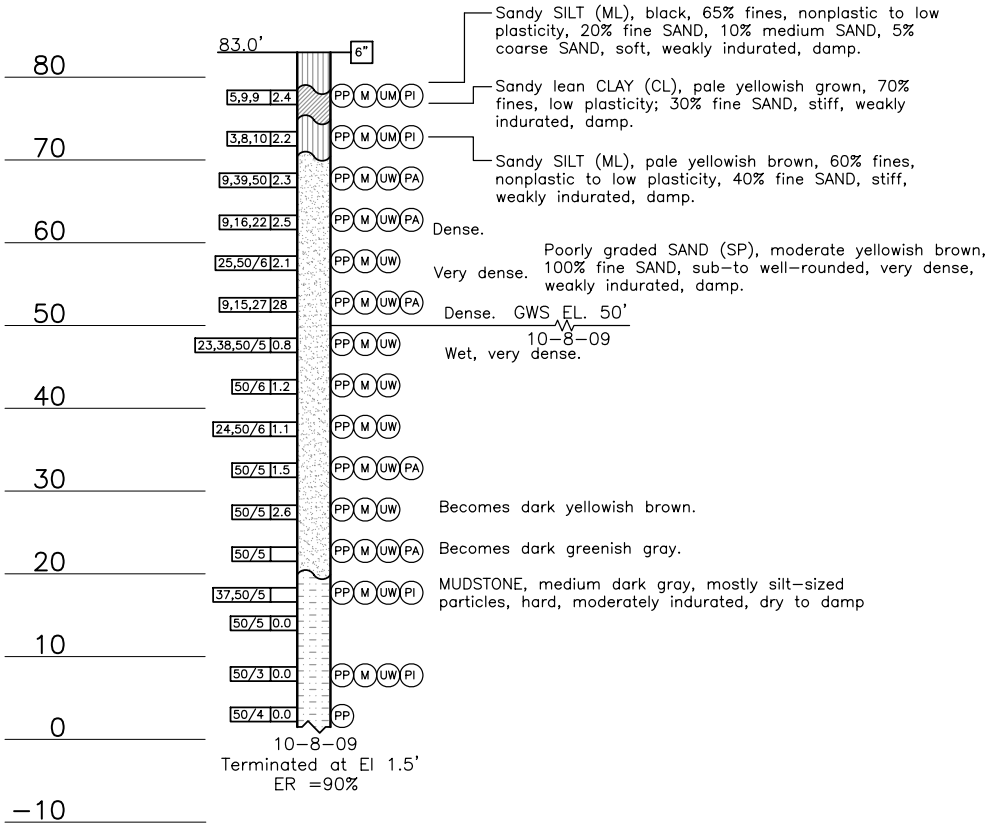
Project *Caltrans* Owner *Caltrans*

Location *2203 Cabrillo Hwy., Half Moon Bay, California* Proj. No. *136529*

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
	2.6	100% B-4-56.5	50/5			Dark yellowish brown (10YR 4/2).
56						Unconfined strength 1.0 tons/ft^2.
58					SP	
60		100% B-4-61.5	50/5			Dark greenish gray (5G 4/1).
62						Unconfined strength 3.0 tons/ft^2.
						Driller notes possible lithology change; hard drilling
64						MUDSTONE; medium dark gray (N4); mostly silt-sized particles; hard; moderately indurated; dry to damp
66		100% B-4-66.5	37 50/5			Switch to mud rotary.
68						
70	0.0	100%	50/5			Unconfined strength >4.5 tons/ft^2.
72						
74						
76	0.0	65% B-4-76.5	50/3			Unconfined strength >4.5 tons/ft^2.
78						
80	0.0	50% B-4-81.5	50/4			Unconfined strength >4.5 tons/ft^2.
82						Boring terminated at 81.5 feet (planned depth).
84						

LOG OF TEST BORING - BORING B-4
CALTRANS HALF MOON BAY MAINTENANCE STATION
SM 1 PM 26.9
2203 SOUTH CABRILLO HIGHWAY, HALF MOON BAY, CA

HALF MOON BAY
BORING B–4



Drilling Log

Soil Boring
B-1

Project *Caltrans* Owner *Caltrans*
Location *5500 W. Jackson St., Hayward, California* Proj. No. *136529*
Surface Elev. *NA* Total Hole Depth *81.5 ft.* North *NA* East *NA*
Top of Casing *NA* Water Level Initial *13 ft.* Static *NA* Diameter *6 in.*
Screen: Dia *NA* Length *NA* Type/Slot *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *Portland Cement* Rig/Core *CME 75/Hollow Stem Auger/Mud Rotary*
Drill Co. *Moore Twining Associates* Method *2.5" Split Spoon*
Driller *S. Riley* Log By *Bryan Stempson* Date *10/21/09* Permit # *W2009-0784*
Checked By *Timothy L. Ripp* License No. *CHG 786*

COMMENTS
Environmental and geotech boring. At 20', PID malfunctioned (unknown error). Switch to mud rotary at 70'.

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
0						Asphalt.
2, 4					SM	SILTY SAND WITH GRAVEL; moderate yellowish brown (10YR 5/4); trace coarse sand, 10% medium sand, 40% fine sand, sub- to well-rounded; 15% gravel, sub- to well-rounded; 35% fines; loose; weakly indurated; damp
6	0.1	100% B-1-6.5	5 7 9		ML	SANDY SILT; moderate yellowish brown (10YR 5/4); 60% fines, low plasticity; 10% medium sand, 20% fine sand; 10% gravel; stiff; weakly indurated; damp
8						
10	0.2	100% B-1-11.5	2 3 3			Soft.
12						
14					SM	SILTY SAND WITH GRAVEL; moderate yellowish brown (10YR 5/4); 5% coarse sand, 10% medium sand, 35% fine sand, sub- to well-rounded; 15% gravel; 35% fines; loose; weakly indurated; moist
16	0.2	100% B-1-16.5/B-1-GW-16.5	2 3 4			
18						
20		0%	2 4 4			
22						
24						

Continued Next Page

Drilling Log

Soil Boring
B-1

Project *Caltrans* Owner *Caltrans*

Location *5500 W. Jackson St., Hayward, California* Proj. No. *136529*

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
24						
26		0%	4 7 8		SM	
28						FAT CLAY; greenish black (5G 2/1); 90% fines, moderate to high plasticity; 10% fine sand; firm; weakly indurated; wet
30		100% B-1-31.5	2 5 5			
32						
34						
36		100% B-1-36.5	6 9 11		CH	Damp, stiff.
38						
40		100% B-1-41.5	8 13 11			Dark greenish gray (5GY 4/1).
42						
44						POORLY GRADED SAND WITH SILT; moderate olive brown (10Y 4/2); 90% fine sand, well-rounded; 10% fines; medium dense; weakly indurated; wet
46		65% B-1-46.5	6 9 11		SP SM	
48						SILTY SAND; moderate yellowish brown (10YR 5/4); 70% fine sand, well-rounded; 30% fines; medium dense; weakly indurated; wet
50		100% B-1-51.5	6 7 10		SM	
52						
54						

Continued Next Page

Drilling Log

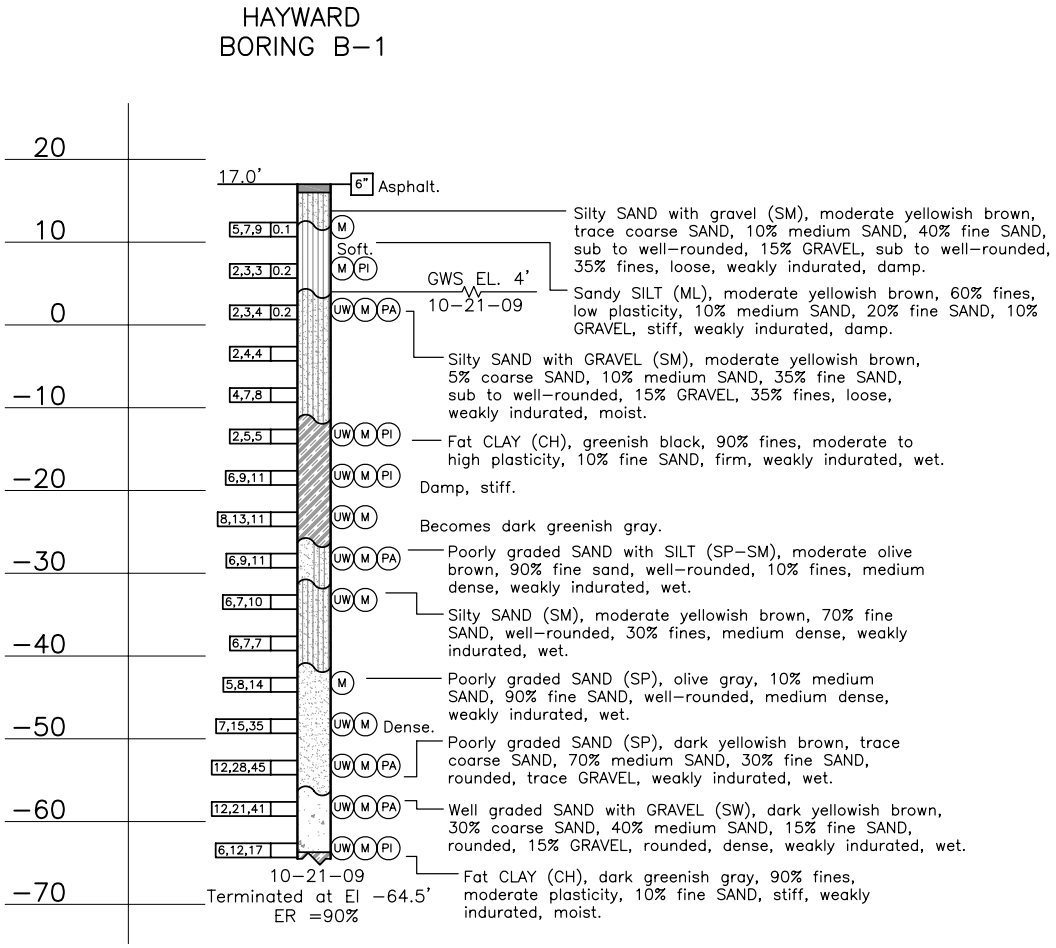
Soil Boring
B-1

Project *Caltrans* Owner *Caltrans*

Location *5500 W. Jackson St., Hayward, California* Proj. No. *136529*

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
56		0%	6 7 7		SM	
58						POORLY GRADED SAND; olive gray (5Y 3/2); 10% medium sand, 90% fine sand, well-rounded; medium dense; weakly indurated; wet; switch to 1.5" split spoon 60-65'
60		100% B-1-61.5	5 8 14			
62						
64						
66		65% B-1-66.5	7 15 35		SP	Dense.
68						
70		65% B-1-71.5	12 28 45			POORLY GRADED SAND; dark yellowish brown (10YR 4/2); trace coarse sand, 70% medium sand, 30% fine sand, rounded; trace gravel, rounded; dense; weakly indurated; wet
72						
74						WELL GRADED SAND WITH GRAVEL; dark yellowish brown (10YR 4/2); 30% coarse sand, 40% medium sand, 15% fine sand, rounded; 15% gravel, rounded; dense; weakly indurated; wet
76		65% B-1-76.5	12 21 41		SW	
78						
80		100% B-1-81.5	6 12 17		CH	FAT CLAY; dark greenish gray (5G 4/1); 90% fines, moderate plasticity; 10% fine sand; stiff; weakly indurated; moist
82						Boring terminated at 81.5 feet (planned depth).
84						

LOG OF TEST BORING - BORING B-1
CALTRANS SAN MATEO-HAYWARD BRIDGE TOLL PLAZA MAINTENANCE STATION
ALA 92 PM 2.6
5500 WEST JACKSON STREET, HAYWARD, CA



Drilling Log

Soil Boring
B-2

Project Caltrans | Owner Caltrans
Location 5500 W. Jackson St., Hayward, California | Proj. No. 136529
Surface Elev. NA | Total Hole Depth 16.5 ft. | North NA | East NA
Top of Casing NA | Water Level Initial ▽ 12 ft. | Static NA | Diameter 6 in.
Screen: Dia NA | Length NA | Type/Slot NA
Casing: Dia NA | Length NA | Type NA
Fill Material Portland Cement | Rig/Core CME 75/Hollow Stem Auger
Drill Co. Moore Twining Associates | Method 1.5" Split Spoon
Driller S. Riley | Log By Bryan Stempson | Date 10/19/09 | Permit # W2009-0784
Checked By Timothy L. Ripp | License No. CHG 786

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
0						Asphalt.
					SM	SILTY SAND WITH GRAVEL; moderate yellowish brown (10YR 5/4); 10% coarse sand, 10% medium sand, 40% fine sand, rounded to subrounded; 20% fine gravel, rounded to subrounded; 20% fines; loose; weakly indurated; moist
5	0.7	100% B-2-6.5	4 4 6			
10	0.7	100% B-2-11.5	2 2 2			Wet.
▽						
15	1.0	100% B-2-16.5/B-2-GW-16.5				
						Boring terminated at 16.5 feet (first water).
20						
25						
30						
35						

Drilling Log

Soil Boring
B-3

Project *Caltrans* Owner *Caltrans*
Location *5500 W. Jackson St., Hayward, California* Proj. No. *136529*
Surface Elev. *NA* Total Hole Depth *21.5 ft.* North *NA* East *NA*
Top of Casing *NA* Water Level Initial *18 ft.* Static *NA* Diameter *6 in.*
Screen: Dia *NA* Length *NA* Type/Slot *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *Portland Cement* Rig/Core *CME 75/Hollow Stem Auger*
Drill Co. *Moore Twining Associates* Method *1.5" Split Spoon*
Driller *S. Riley* Log By *Bryan Stempson* Date *10/19/09* Permit # *W2009-0784*
Checked By *Timothy L. Ripp* License No. *CHG 786*

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
0						Asphalt.
						SILTY SAND; moderate yellowish brown (10YR 5/4); 5% coarse sand, 15% medium sand, 40% fine sand, subrounded to rounded; 10% fine gravel, subrounded to rounded; 30% fines; medium dense; weakly indurated; damp
5	0.3	100% B-3-6.5	9 11 9			
10	0.0	100% B-3-11.5	1 2 3		SM	SILTY SAND WITH GRAVEL; moderate yellowish brown (10YR 5/4); 5% coarse sand, 15% medium sand, 35% fine sand, subrounded to rounded; 20% fine gravel, subrounded to rounded; 25% fines; medium dense; weakly indurated; damp
15	0.1	65% B-3-16.5	2 2 4			
20	0.0	100% B-3-21.5/B-3-GW-21.5	2 2 4			
						Boring terminated at 21.5 feet (first water).
25						
30						
35						

Drilling Log

Soil Boring
B-5

Project *Caltrans* Owner *Caltrans*
Location *5500 W. Jackson St., Hayward, California* Proj. No. *136529*
Surface Elev. *NA* Total Hole Depth *16.5 ft.* North *NA* East *NA*
Top of Casing *NA* Water Level Initial *12 ft.* Static *NA* Diameter *6 in.*
Screen: Dia *NA* Length *NA* Type/Slot *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *Portland Cement* Rig/Core *CME 75/Hollow Stem Auger*
Drill Co. *Moore Twining Associates* Method *1.5" Split Spoon*
Driller *S. Riley* Log By *Bryan Stempson* Date *10/20/09* Permit # *W2009-0784*
Checked By *Timothy L. Ripp* License No. *CHG 786*

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
0						Asphalt.
					ML	SANDY SILT; moderate yellowish brown (10YR 5/4); 70% fines, nonplastic to low plasticity; trace coarse sand, 5% medium sand, 25% fine sand; trace fine gravel; soft; weakly indurated; damp
5	0.0	65% B-5-6.5	3 2 2			
10	0.0	100% B-5-11.5	1 2 1		SM	SILTY SAND; moderate yellowish brown (10YR 5/4); trace coarse sand, 15% medium sand, 40% fine sand, sub- to well-rounded; 10% gravel; 35% fines; very loose; weakly indurated; wet
15	0.0	65% B-5-16.5/B-5-GW-16.5	2 3 3			
						Boring terminated at 16.5 feet (first water).
20						
25						
30						
35						

Drilling Log

Soil Boring
B-6

Project *Caltrans* Owner *Caltrans*
Location *5500 W. Jackson St., Hayward, California* Proj. No. *136529*
Surface Elev. *NA* Total Hole Depth *16.5 ft.* North *NA* East *NA*
Top of Casing *NA* Water Level Initial *12 ft.* Static *NA* Diameter *6 in.*
Screen: Dia *NA* Length *NA* Type/Slot *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *Portland Cement* Rig/Core *CME 75/Hollow Stem Auger*
Drill Co. *Moore Twining Associates* Method *1.5" Split Spoon*
Driller *S. Riley* Log By *Bryan Stempson* Date *10/20/09* Permit # *W2009-0784*
Checked By *Timothy L. Ripp* License No. *CHG 786*

COMMENTS
PID manfunctioning (unknown error).

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
0						Asphalt.
					ML	GRAVELLY SILT WITH SAND; brownish gray (5YR 4/1); 60% fines, low plasticity; 25% gravel; trace coarse sand, 5% medium sand, 10% fine sand; soft; weakly indurated; damp
5		100% B-6-6.5	5 4 4		ML	GRAVELLY SILT WITH SAND; moderate yellowish brown (10YR 5/4); 55% fines, nonplastic to low plasticity; 30% gravel; trace coarse sand, 5% medium sand, 10% fine sand; firm; weakly indurated; moist
10		35% B-6-11.5	2 1 2		GP	POORLY GRADED GRAVEL WITH SAND; moderate yellowish brown (10YR 5/4); 70% gravel, subrounded; 20% coarse sand, 5% medium sand, 5% fine sand, subrounded; very loose; weakly indurated; wet
15		35% B-6-16.5/B-6-GW-16.5				
						Boring terminated at 16.5 feet (first water).
20						
25						
30						
35						

Drilling Log

Soil Boring
B-7

Project *Caltrans* Owner *Caltrans*
Location *5500 W. Jackson St., Hayward, California* Proj. No. *136529*
Surface Elev. *NA* Total Hole Depth *21.5 ft.* North *NA* East *NA*
Top of Casing *NA* Water Level Initial *16 ft.* Static *NA* Diameter *6 in.*
Screen: Dia *NA* Length *NA* Type/Slot *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *Portland Cement* Rig/Core *CME 75/Hollow Stem Auger*
Drill Co. *Moore Twining Associates* Method *1.5" Split Spoon*
Driller *S. Riley* Log By *Bryan Stempson* Date *10/20/09* Permit # *W2009-0784*
Checked By *Timothy L. Ripp* License No. *CHG 786*

COMMENTS
PID manfunctioning (unknown error).

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
0						Asphalt.
					ML	GRAVELLY SILT WITH SAND; brownish gray (5YR 4/1); 60% fines, low plasticity; 25% gravel; trace coarse sand, 5% medium sand, 10% fine sand; soft; weakly indurated; damp
5		100% B-7-6.5	4 5 4			SANDY SILT; moderate yellowish brown (10YR 5/4); 60% fines, low plasticity; trace coarse sand, 10% medium sand, 20% fine sand; 10% gravel; firm; weakly indurated; damp
10		35% B-7-11.5	2 1 1		SM	SILTY SAND; moderate yellowish brown (10YR 5/4); 5% coarse sand, 15% medium sand, 40% fine sand, sub- to well-rounded; 10% gravel, sub- to well-rounded; 30% fines; very loose; weakly indurated; wet
15		100% B-7-16.5	2 1 2			Coarse sand increases to 10%, fines decrease to 25%.
20		0% B-7-GW-21.5	2 2 3			
						Boring terminated at 21.5 feet (first water).
25						
30						
35						

Drilling Log

Soil Boring
B-8

Project *Caltrans* Owner *Caltrans*
Location *5500 W. Jackson St., Hayward, California* Proj. No. *136529*
Surface Elev. *NA* Total Hole Depth *81.5 ft.* North *NA* East *NA*
Top of Casing *NA* Water Level Initial ▽ *13 ft.* Static *NA* Diameter *6 in.*
Screen: Dia *NA* Length *NA* Type/Slot *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *Portland Cement* Rig/Core *CME 75/Hollow Stem Auger/Mud Rotary*
Drill Co. *Moore Twining Associates* Method *2.5" Split Spoon*
Driller *S. Riley* Log By *Bryan Stempson* Date *10/22/09* Permit # *W2009-0784*
Checked By *Timothy L. Ripp* License No. *CHG 786*

COMMENTS
Geotech boring. PID malfunctioning (unknown error). Switch to mud rotary at 65'.

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
0						Asphalt.
2, 4					ML	GRAVELLY SILT WITH SAND; brownish gray (5YR 4/1); 60% fines, low plasticity; 25% gravel; trace coarse sand, 5% medium sand, 10% fine sand; soft; weakly indurated; damp
6		100% B-8-6.5	6 13 10		SM	SILTY SAND; moderate yellowish brown (10YR 5/4); 5% coarse sand, 10% medium sand, 35% fine sand, sub- to well-rounded; 15% gravel, sub- to well-rounded; 35% fines; medium dense; weakly indurated; damp
8						
10		65% B-8-11.5	2 3 4			Fine sand decreases to 25%, gravel increases to 25%; moist, loose.
12						
14					GM	SILTY GRAVEL WITH SAND; moderate yellowish brown (10YR 5/4); 60% gravel; trace coarse sand, 5% medium sand, 10% fine sand; 25% fines; very loose; weakly indurated; wet
16		65% B-8-16.5 (SPT sample)	2 2 2			
18						
20		35% B-8-21.5	2 2 2			
22						
24						

Continued Next Page

Drilling Log

Soil Boring
B-8

Project *Caltrans* Owner *Caltrans*

Location *5500 W. Jackson St., Hayward, California* Proj. No. *136529*

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
24						
26		65% B-8-26.5	2 2 3			
28					GM	
30		65% B-8-31.5	5 7 11			
32						
34						LEAN CLAY; dark greenish gray (5G 4/1); 90% fines, low plasticity; 10% fine sand; stiff; weakly indurated; moist
36		100% B-8-36.5	4 5 10			
38						
40		100% B-8-41.5				Moderate yellowish brown (10YR 5/4).
42						
44					CL	
46		100% B-8-46.5	5 6 7			
48						LEAN CLAY WITH SAND; moderate yellowish brown (10YR 5/4); 75% fines, low plasticity; 25% fine sand; stiff; weakly indurated; moist
50		100% B-8-51.5	4 6 8			
52						
54					SM	SILTY SAND; moderate yellowish brown (10YR 5/4); 75% fine sand, well-rounded; 25% fines; loose; weakly indurated; wet

Continued Next Page

Drilling Log

Soil Boring
B-8

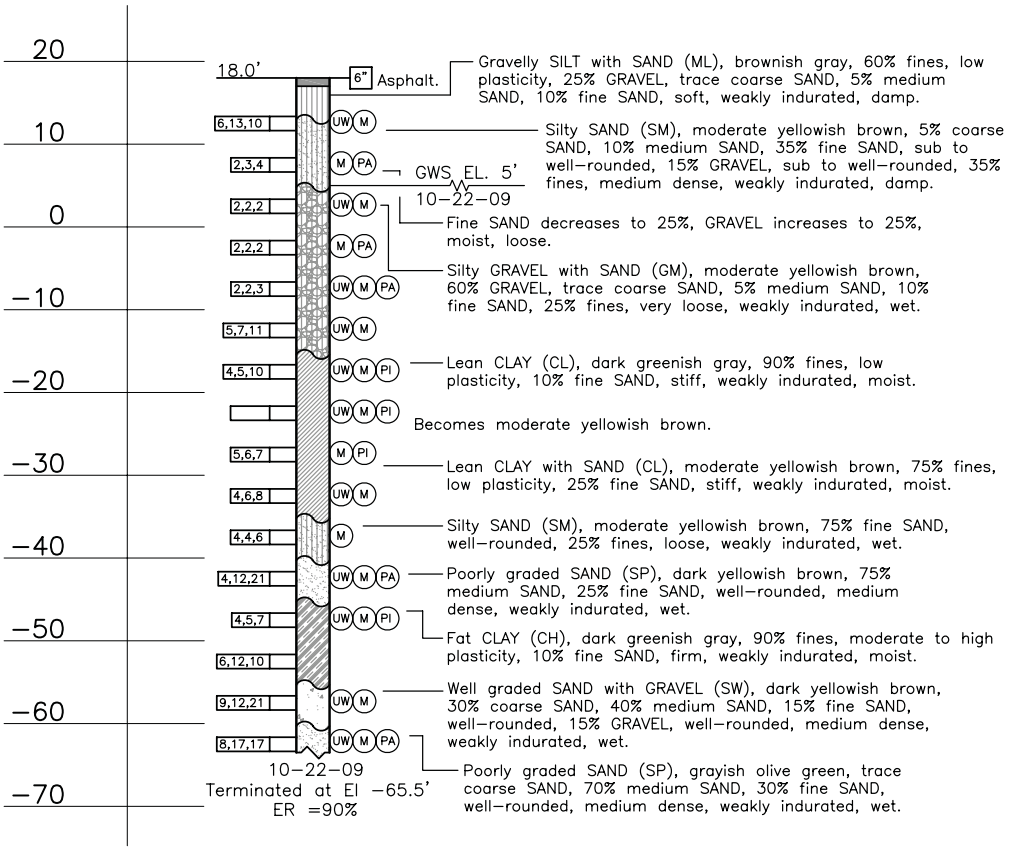
Project *Caltrans* Owner *Caltrans*

Location *5500 W. Jackson St., Hayward, California* Proj. No. *136529*

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
56		100% B-8-56.5 (SPT sample)	4 4 6		SM	
58						POORLY GRADED SAND; dark yellowish brown (10YR 4/2); 75% medium sand, 25% fine sand, well-rounded; medium dense; weakly indurated; wet
60		100% B-8-61.5	4 12 21		SP	
62						
64						FAT CLAY; dark greenish gray (5G 4/1); 90% fines, moderate to high plasticity; 10% fine sand; firm; weakly indurated; moist
66		100% B-8-66.5	4 5 7			
68					CH	
70		0%	6 12 10			
72						
74						WELL GRADED SAND WITH GRAVEL; dark yellowish brown (10YR 4/2); 30% coarse sand, 40% medium sand, 15% fine sand, well-rounded; 15% gravel, well-rounded; medium dense; weakly indurated; wet
76		65% B-8-76.5	9 12 21		SW	
78						POORLY GRADED SAND; grayish olive green (5GY 3/2); trace coarse sand, 70% medium sand, 30% fine sand, well-rounded; medium dense; weakly indurated; wet
80		100% B-8-81.5	8 17 17		SP	
82						Boring terminated at 81.5 feet (planned depth).
84						

LOG OF TEST BORING - BORING B-8
CALTRANS SAN MATEO-HAYWARD BRIDGE TOLL PLAZA MAINTENANCE STATION
ALA ROUTE 92 PM 2.6
5500 WEST JACKSON STREET, HAYWARD, CA

HAYWARD
BORING B–8



Drilling Log

Soil Boring
B-1

Project *Caltrans* Owner *Caltrans*
Location *Ravenswood Pumping Plant, Menlo Park, California* Proj. No. *136529*
Surface Elev. *NA* Total Hole Depth *81.5 ft.* North *NA* East *NA*
Top of Casing *NA* Water Level Initial ▽ *18 ft.* Static *NA* Diameter *6 in.*
Screen: Dia *NA* Length *NA* Type/Slot *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *Portland Cement* Rig/Core *CME 75/Hollow Stem Auger/Mud Rotary*
Drill Co. *Moore Twining Associates* Method *2.5" Split Spoon*
Driller *S. Riley* Log By *Bryan Stempson* Date *10/10/09* Permit # *09-1668*
Checked By *Timothy L. Ripp* License No. *CHG 786*

COMMENTS
Environmental and geotech boring. Switch to mud rotary at 21.5'.

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
						Bare Ground
0	3.0					SILTY SAND WITH GRAVEL; moderate olive brown (5Y 4/4); trace coarse sand, 5% medium sand, 60% fine sand, sub- to well-rounded; 20% fines; 15% gravel, sub- to well-rounded; loose; weakly indurated; dry; possible fill material
2						
4						
6	1.1	100% B-1-6.5	17 33 50/5		SM	Very dense.
8						
10	1.8	100% B-1-11.5	6 17 21			Damp.
12						
14						LEAN CLAY WITH SAND; greenish black (5GY 2/1); 80% fines, low plasticity; 15% fine sand; 5% fine gravel; very stiff; weakly indurated; damp
16	1.1	100% B-1-16.5	6 24 12		CL	
18 ▽						
20	1.2	100% B-1-21.5 (no geotech)/B-1-GW-21.5	2 2 2		SM	SILTY SAND; moderate yellowish brown (10YR 5/4); 60% fine sand, sub- to well-rounded; 40% fines; very loose; weakly indurated; wet; switch to mud rotary
22						
24					CL	SANDY CLAY; moderate yellowish brown (10YR 5/4); 70% fines, low

Continued Next Page

Drilling Log

Soil Boring
B-1

Project *Caltrans* Owner *Caltrans*
Location *Ravenswood Pumping Plant, Menlo Park, California* Proj. No. *136529*

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
24						plasticity; 30% fine sand; firm; weakly indurated; wet
26	0.6	100% B-1-26.5	2 5 5			
28						
30		0%	3 4 4			
32						
34						
36	0.5	100% B-1-36.5	6 5 7		CL	
38						
40	0.3	100% B-1-41.5	21 5 6			
42						
44						CLAY; moderate yellowish brown (10YR 5/4); all fines, moderate plasticity; stiff; wet
46	1.5	100% B-1-46.5	5 8 10			
48						
50	1.0	100% B-1-51.5	4 7 9			
52					SM	SILTY SAND; moderate yellowish brown (10YR 5/4); 70% fine sand, well-rounded; 30% fines; loose; weakly indurated; moist
54						

Continued Next Page

Drilling Log

Soil Boring
B-1

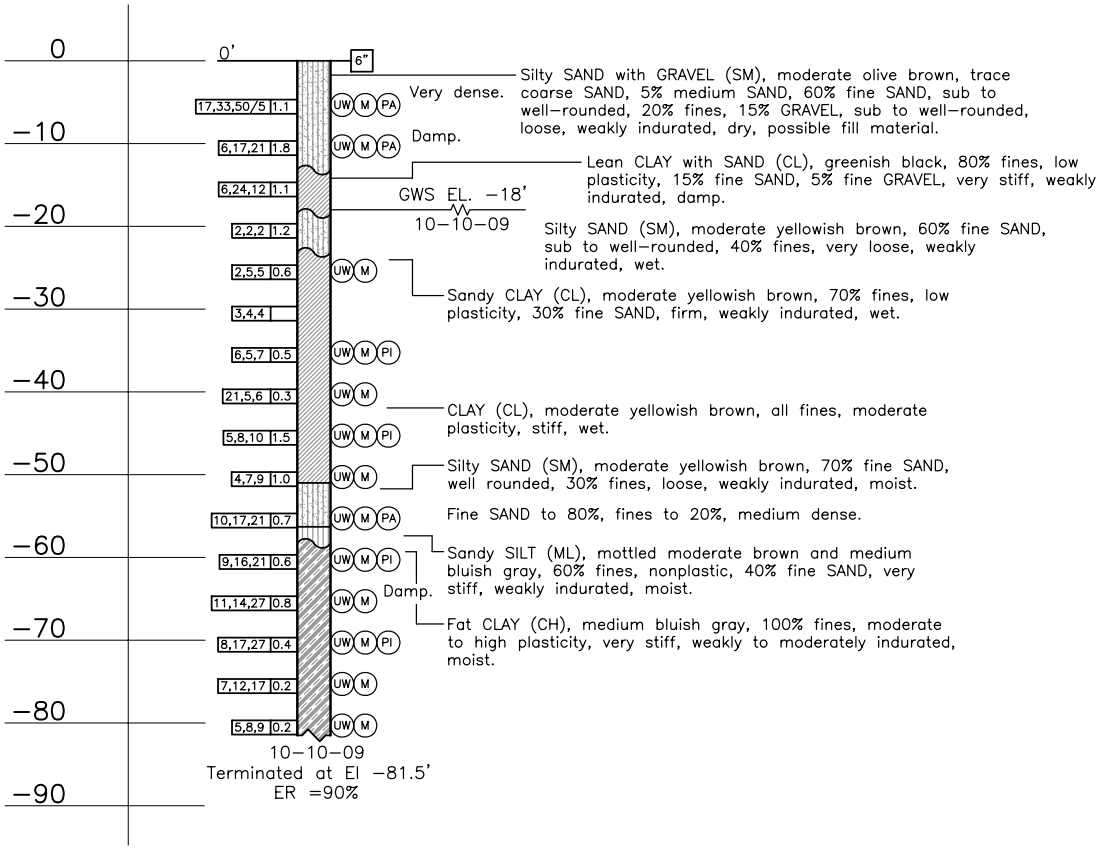
Project *Caltrans* Owner *Caltrans*

Location *Ravenswood Pumping Plant, Menlo Park, California* Proj. No. *136529*

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
56	0.7	100% B-1-56.5	10 17 21		SM	Fine sand increases to 80%, fines decrease to 20%, medium dense.
58					ML	SANDY SILT; mottled moderate brown (5YR 4/4) and medium bluish gray (5B 5/1); 60% fines, nonplastic; 40% fine sand; very stiff; weakly indurated; moist
60	0.6	100% B-1-61.5	9 16 21		CH	FAT CLAY; medium bluish gray (5B 5/1); 100% fines, moderate to high plasticity; very stiff; weakly to moderately indurated; moist
62						
64						
66	0.8	100% B-1-66.5	11 14 27			Damp.
68						
70	0.4	100% B-1-71.5	8 17 27			
72						
74						
76	0.2	100% B-1-76.5	7 12 17			
78						
80	0.2	100% B-1-81.5	5 8 9			
82						Boring terminated at 81.5 feet (planned depth).
84						

LOG OF TEST BORING - BORING B-1
CALTRANS RAVENSWOOD SLOUGH PUMPING PLANT
SM 84 PM 28
HIGHWAY 84, MENLO PARK, CA

RAVENSWOOD
BORING B–1



Drilling Log

Soil Boring
B-2

COMMENTS

Project *Caltrans* Owner *Caltrans*
Location *Ravenswood Pumping Plant, Menlo Park, California* Proj. No. *136529*
Surface Elev. *NA* Total Hole Depth *31.5 ft.* North *NA* East *NA*
Top of Casing *NA* Water Level Initial ▽ *28 ft.* Static *NA* Diameter *6 in.*
Screen: Dia *NA* Length *NA* Type/Slot *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *Portland Cement* Rig/Core *CME 75/Hollow Stem Auger*
Drill Co. *Moore Twining Associates* Method *1.5" Split Spoon*
Driller *S. Riley* Log By *Bryan Stempson* Date *10/9/09* Permit # *09-1668*
Checked By *Timothy L. Ripp* License No. *CHG 786*

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
0						Asphalt.
	0.7				ML	SANDY SILT WITH GRAVEL; mottled moderate yellowish brown (10YR 5/4) and dark greenish gray (5G 4/1); 55% fines, nonplastic to low plasticity; 25% fine sand, 5% medium sand, trace coarse sand, sub- to well-rounded; 15% gravel, sub- to well-rounded; firm; weakly indurated; damp to moist; possible fill
5	0.3	35% B-2-6.5	2 7 6		ML	Firm.
10	1.0	50% B-2-11.5	3 2 3		ML	Soft, moist.
15	0.7	100% B-2-16.5	9 9 9		SM	SILTY SAND; moderate yellowish brown (10YR 5/4); 60% fine sand, 15% medium sand, trace coarse sand, sub- to well-rounded; trace gravel; 25% fines; trace mica; weakly indurated; moist
20	0.8	65% B-2-21.5	2 3 3		ML	SANDY SILT; moderate yellowish brown (10YR 5/4); 60% fines, nonplastic to low plasticity; 30% fine sand, trace medium sand; 10% gravel; soft; weakly indurated; moist
25	0.1	65% B-2-26.5	2 4 4		ML	Gravel decreases to 5%, fine sand decreases to 25%, fines increases to 70%.
30		55% B-2-31.5/B-2-GW-31.5	3 3 4		ML	
						Boring terminated at 31.5 feet (planned depth).
35						

Drilling Log

Soil Boring
B-3

COMMENTS

Project Caltrans | Owner Caltrans
Location Ravenswood Pumping Plant, Menlo Park, California | Proj. No. 136529
Surface Elev. NA | Total Hole Depth 21.5 ft. | North NA | East NA
Top of Casing NA | Water Level Initial ▽ 18 ft. | Static NA | Diameter 6 in.
Screen: Dia NA | Length NA | Type/Slot NA
Casing: Dia NA | Length NA | Type NA
Fill Material Portland Cement | Rig/Core CME 75/Hollow Stem Auger
Drill Co. Moore Twining Associates | Method 1.5" Split Spoon
Driller S. Riley | Log By Bryan Stempson | Date 10/9/09 | Permit # 09-1668
Checked By Timothy L. Ripp | License No. CHG 786

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
0						Asphalt.
2	0.7					SANDY SILT WITH GRAVEL; mottled dark yellowish brown (10YR 4/2) and dark greenish gray (5Y 4/1); 55% fines, nonplastic to low plasticity; trace coarse sand, 5% medium sand, 25% fine sand, sub- to well-rounded; 15% gravel, sub- to well-rounded; soft; weakly indurated; damp; possible fill material
4						
6	1.0	100% B-3-6.5	4 6 8			Stiff.
8						
10	0.9	100% B-3-11.5	2 9 5		ML	Moist.
12						
14						
16	0.5	100% B-3-16.5	5 4 5			Dark yellowish brown (10YR 4/2).
18 ▽						
20					SM	SILTY SAND; grayish olive (10Y 4/2); 75% fine sand, sub- to well-rounded; 25% fines; very loose; weakly indurated; wet
	0.4	100% B-3-21.5/B-3-GW-21.5	0 2 2		ML	SILT WITH SAND; dark yellowish brown (10YR 5/4); 75% fines, nonplastic to low plasticity; 25% fine sand; very soft; wet
22						Boring terminated at 21.5 feet (first water).
24						

Drilling Log

Soil Boring
B-1

Project *Caltrans* Owner *Caltrans*
Location *2616 N. Main St., Walnut Creek, California* Proj. No. *136529*
Surface Elev. *NA* Total Hole Depth *31.5 ft.* North *NA* East *NA*
Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter *6 in.*
Screen: Dia *NA* Length *NA* Type/Slot *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *Portland Cement* Rig/Core *CME 75/Hollow Stem Auger*
Drill Co. *Moore Twining Associates* Method *1.5" Split Spoon*
Driller *S. Riley* Log By *Bryan Stempson* Date *10/10/09* Permit # *WP0013234*
Checked By *Timothy L. Ripp* License No. *CHG 786*

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
0						Asphalt.
	0.3				CL	LEAN CLAY WITH SAND; grayish black (N2); 85% fines, low plasticity; 15% fine sand; firm; weakly indurated; damp
						SANDY SILT; moderate yellowish brown (10YR 5/4); 65% fines, low plasticity to nonplastic; 35% fine sand; firm; weakly indurated; damp
5	0.4	100% B-1-6.5	2 3 4			
						SILT WITH SAND; moderate yellowish brown (10YR 5/4); 75% fines, nonplastic to low plasticity; 25% fine sand; stiff; weakly indurated; damp
10	0.1	100% B-1-11.5	6 9 14			
15	0.2	100% B-1-16.5	5 7 10		ML	
20	0.0	100% B-1-21.5	6 8 10			Fines decrease to 65%, fine sand increases to 35%.
25	0.0	100% B-1-26.5	7 9 16			
					SM	SILTY SAND; moderate yellowish brown (10YR 5/4); 60% fine sand, sub- to well-rounded; 40% fines; medium dense; weakly indurated; damp
30		100% B-1-31.5	8 9 13			Fine sand increases to 75%, fines decrease to 25%.
						Boring terminated at 31.5 feet (planned depth).
35						

Drilling Log

Soil Boring
B-2

Project *Caltrans* Owner *Caltrans*
Location *2616 N. Main St., Walnut Creek, California* Proj. No. *136529*
Surface Elev. *NA* Total Hole Depth *31.5 ft.* North *NA* East *NA*
Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter *6 in.*
Screen: Dia *NA* Length *NA* Type/Slot *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *Portland Cement* Rig/Core *CME 75/Hollow Stem Auger*
Drill Co. *Moore Twining Associates* Method *1.5" Split Spoon*
Driller *S. Riley* Log By *Bryan Stempson* Date *10/10/09* Permit # *WP0013234*
Checked By *Timothy L. Ripp* License No. *CHG 786*

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
0						Asphalt.
	0.3				CL	LEAN CLAY WITH SAND; grayish black (N2); 85% fines, low plasticity; 15% fine sand; firm; weakly indurated; damp
					ML	SILT WITH SAND; moderate yellowish brown (10YR 5/4); 75% fines, nonplastic to low plasticity; 25% fine sand; firm; weakly indurated; damp
5	0.2	100% B-2-6.5	4 6 10			
						SANDY SILT; 65% fines, nonplastic to low plasticity; 35% fine sand; firm; weakly indurated; damp
						SILT WITH SAND; dark yellowish brown (10YR 4/2); 80% fines, nonplastic to low plasticity; 20% fine sand; firm; weakly indurated; damp
10	0.0	100% B-2-11.5	4 7 10			
					SM	SILTY SAND; moderate yellowish brown (10YR 5/4); 65% fine sand, sub- to well-rounded; 35% fines; loose; weakly indurated; damp
15	0.0	100% B-2-16.5	5 8 9			
					ML	SILT WITH SAND; dark yellowish brown (10YR 4/2); 80% fines, low plasticity; 20% fine sand; stiff; weakly indurated; damp
20	0.0	100% B-2-21.5	4 5 9			
25	0.0	100% B-2-26.5	4 6 8			
					SM	SILTY SAND; moderate yellowish brown (10YR 5/2); 70% fine sand, sub- to well-rounded; 30% fines; loose; weakly indurated; damp
30	0.0	100% B-2-31.5	7 9 10			
						Boring terminated at 31.5 feet (planned depth).
35						

Drilling Log

Soil Boring
B-3

Project *Caltrans* Owner *Caltrans*
Location *2616 N. Main St., Walnut Creek, California* Proj. No. *136529*
Surface Elev. *NA* Total Hole Depth *31.5 ft.* North *NA* East *NA*
Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter *6 in.*
Screen: Dia *NA* Length *NA* Type/Slot *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *Portland Cement* Rig/Core *CME 75/Hollow Stem Auger*
Drill Co. *Moore Twining Associates* Method *1.5" Split Spoon*
Driller *S. Riley* Log By *Bryan Stempson* Date *10/12/09* Permit # *WP0013234*
Checked By *Timothy L. Ripp* License No. *CHG 786*

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
0						Asphalt.
	0.0				CL	LEAN CLAY; brownish black (5YR 2/1); 90% fines, moderate plasticity; 10% fine sand; firm; weakly indurated; damp Dusky brown (5YR 2/2).
						LEAN CLAY WITH SAND; dusky brown (5YR 2/2); 75% fines, low plasticity; 25% fine sand; firm; weakly indurated; damp
5	0.0	100% B-3-6.5	3 5 9			SANDY SILT; moderate yellowish brown (10YR 5/4); 60% fines, nonplastic to low plasticity; 40% fine sand; firm; weakly indurated; damp Stiff.
10	0.0	100% B-3-11.5	4 6 10		ML	
15	0.0	100% B-3-16.5	3 5 7			Fines increase to 70%, fine sand decreases to 30%.
20	0.0	100% B-3-21.5	3 6 9		SM	SILTY SAND; moderate yellowish brown (10YR 5/4); 60% fine sand, sub- to well-rounded; 40% fines; medium dense; weakly indurated; damp
25	0.0	100% B-3-26.5	6 10 14			Fine sand increases to 75%, fines decrease to 25%.
30	0.0	100% B-3-31.5	6 12 16		SP	POORLY GRADED SAND; moderate yellowish brown (10YR 5/4); 100% fine sand, sub- to well-rounded; medium dense; weakly indurated; damp
						Boring terminated at 31.5 feet (planned depth).
35						

Drilling Log

Soil Boring
B-4

Project *Caltrans* Owner *Caltrans*
Location *2616 N. Main St., Walnut Creek, California* Proj. No. *136529*
Surface Elev. *NA* Total Hole Depth *81.5 ft.* North *NA* East *NA*
Top of Casing *NA* Water Level Initial ▽ *58 ft.* Static *NA* Diameter *6 in.*
Screen: Dia *NA* Length *NA* Type/Slot *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *Portland Cement* Rig/Core *CME 75/Hollow Stem Auger*
Drill Co. *Moore Twining Associates* Method *2.5" Split Spoon*
Driller *S. Riley* Log By *Bryan Stempson* Date *10/13/09* Permit # *WP0013234*
Checked By *Timothy L. Ripp* License No. *CHG 786*

COMMENTS
Geotech boring.

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
0						Asphalt.
2					SW	WELL GRADED SAND WITH GRAVEL; dark yellowish brown (10YR 4/2); 15% coarse sand, 15% medium sand, 40% fine sand, sub- to well-rounded; 30% gravel, sub- to well-rounded; loose; weakly indurated; damp
4	0.2					SANDY SILT; grayish black (N2); 70% fines, low plasticity; 30% fine sand; firm; weakly indurated; damp
6	0.0	100% B-4-6.5	9 17 26		ML	Fine sand increases to 40%, fines decrease to 60%, trace medium sand; moderate yellowish brown (10YR 5/4), very stiff.
8						POORLY GRADED SAND; moderate yellowish brown (10YR 5/4); 100% fine sand, sub- to well-rounded; loose; weakly indurated; damp
10	13.6	100% B-4-11.5	4 7 8			
12					SP	
14						
16	3.8	100% B-4-16.5	5 9 10			Medium sand increases to 20%, fine sand decreases to 80%.
18					CL	LEAN CLAY WITH SAND; moderate yellowish brown (10YR 5/4); 85% fines, moderate plasticity; 15% fine sand; stiff; weakly indurated; damp
20	2.3	100% B-4-21.5	7 10 20		SM	SILTY SAND; moderate yellowish brown (10YR 5/4); 70% fine sand, sub- to well-rounded; 30% fines; medium dense; weakly indurated; damp
22						
24						

Continued Next Page

Drilling Log

Soil Boring
B-4

Project *Caltrans* Owner *Caltrans*

Location *2616 N. Main St., Walnut Creek, California* Proj. No. *136529*

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
24						
26	1.5	100% B-4-26.5	8 28 47		SM	Fines increase to 40%, fine sand decreases to 60%; dense.
28						
30	0.6	100% B-4-31.5	13 28 50		SP	POORLY GRADED SAND; moderate yellowish brown (10YR 5/4); 100% fine sand, rounded; very dense; weakly indurated; damp
32						
34					ML	SANDY SILT; dark yellowish brown (10YR 5/4); 70% fines, nonplastic to low plasticity; 30% fine sand; very stiff; weakly indurated; damp
36	0.6	100% B-4-36.5	21 50/6		SP	POORLY GRADED SAND; dark yellowish brown (10YR 4/2); 80% fine sand, 20% medium sand, rounded; very dense; weakly indurated; damp
38						
40	3.2	100% B-4-41.5	25 50/6		SW	WELL GRADED SAND; dark yellowish brown (10YR 4/2); 15% coarse sand, 25% medium sand, 60% fine sand, rounded; trace gravel, rounded; very dense; weakly indurated; damp
42						
44					ML	SANDY SILT; dark yellowish brown (10YR 4/2); 60% fines, nonplastic to low plasticity; 5% coarse sand, 10% medium sand, 20% fine sand, rounded; 5% gravel, rounded; hard; weakly indurated; damp
46	0.8	100% B-4-46.5	25 42 50/5		SW	WELL GRADED SAND; dark yellowish brown (10YR 4/2); 15% coarse sand, 25% medium sand, 60% fine sand, rounded; trace gravel, rounded; very dense; weakly indurated; damp
48						
50	1.0	100% B-4-51.5	8 25 33		SM	SILTY SAND; dark yellowish brown (10YR 4/2); trace coarse sand, 10% medium sand, 60% fine sand, rounded; 30% fines; dense; weakly indurated; damp
52					GW	WELL GRADED GRAVEL WITH SAND; moderate yellowish brown (10YR 5/4); 60% gravel, rounded; 10% coarse sand, 10% medium sand, 20% fine sand, rounded; dense; weakly indurated; damp
54					SW	WELL GRADED SAND WITH GRAVEL; moderate yellowish brown (10YR 5/4); 15% coarse sand, 50% medium sand, 20% fine sand, rounded; 15% gravel, rounded; dense; weakly indurated; moist

Continued Next Page

Drilling Log

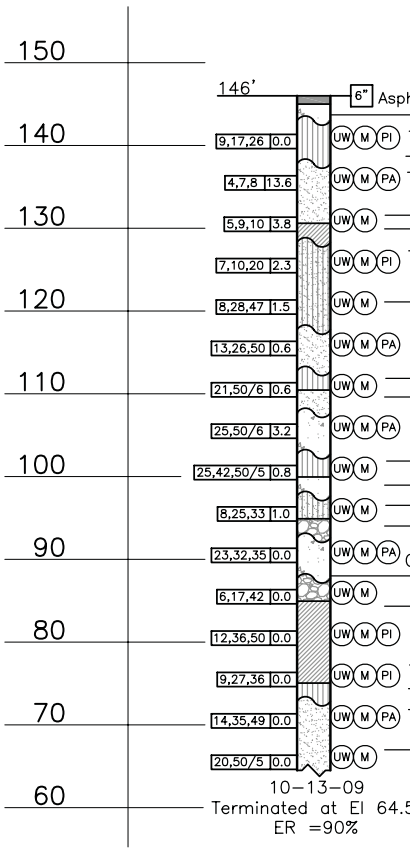
Soil Boring
B-4

Project *Caltrans* Owner *Caltrans*

Location *2616 N. Main St., Walnut Creek, California* Proj. No. *136529*

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic Descriptions are Based on the USCS.
56	0.0	100% B-4-56.5	23 32 35		SW	
58					GP	POORLY GRADED GRAVEL WITH SAND; brownish black (5YR 2/1); 70% fine gravel, rounded; 15% coarse sand, 10% medium sand, 5% fine sand, rounded; medium dense; weakly indurated; wet
60	0.0	100% B-4-61.5	6 17 42		CL	LEAN CLAY WITH SAND; dark yellowish brown (10YR 4/2); 85% fines, low plasticity; 15% fine sand; hard; weakly indurated; damp
62						
64						LEAN CLAY WITH GRAVEL; dark yellowish brown (10YR 4/2); 60% fines, low plasticity; 30% fine and coarse gravel, rounded; 10% coarse sand, trace medium sand; hard; weakly indurated; wet; gravel and clay zones possibly interbedded, lenses not observed
66	0.0	100% B-4-66.5	12 36 50			
68						LEAN CLAY WITH SAND; dark yellowish brown (10YR 4/2); 85% fines, low plasticity; 15% fine sand; trace gravel; very stiff; weakly indurated; damp
70	0.0	100% B-4-71.5	9 27 36		ML	SILT WITH SAND; dark greenish gray (5G 4/1); 75% fines, nonplastic to low plasticity; 25% fine sand; trace gravel; hard; moderately indurated; damp
72						
74					SP	POORLY GRADED SAND WITH GRAVEL; dark greenish gray (5G 4/1); trace coarse sand, 15% medium sand, 70% fine sand, rounded; 15% gravel, rounded; dense; weakly indurated; wet
76	0.0	100% B-4-76.5	14 35 49			
78						
80	0.0	100% B-4-81.5	20 50/5			Greenish black (5GY 2/1).
82						Boring terminated at 81.5 feet (planned depth).
84						

LOG OF TEST BORING - BORING B-4
CALTRANS WALNUT CREEK WEST MAINTENANCE STATION
CC 680 PM 15.6
2581 NORTH MAIN STREET, WALNUT CREEK, CA



Well graded SAND with GRAVEL (SW), dark yellowish brown, 15% coarse SAND, 15% medium SAND, 40% fine SAND, sub to well-rounded, 30% GRAVEL, sub to well-rounded, loose, weakly indurated, damp.

Sandy SILT (ML), grayish black, 70% fines, low plasticity, 30% fine SAND, firm, weakly indurated, damp.

Fine SAND increases to 40%, fines decrease to 60%, trace medium SAND, moderate yellowish brown, very stiff.

Poorly graded SAND (SP), moderate yellowish brown, 100% fine SAND, sub to well-rounded, loose, weakly indurated, damp.

Medium SAND increases to 20%, fine SAND decreases to 60%

Lean CLAY with SAND (CL), moderate yellowish brown, 85% fines, moderate plasticity, 15% fine SAND, stiff, weakly indurated, damp.

Silty SAND (SM), moderate yellowish brown, 70% fine SAND, sub to well-rounded, 30% fines, medium dense, weakly indurated, damp

Fines increase to 40%, fine SAND decreases to 60%, dense

Poorly graded SAND (SP), moderate yellowish brown, 100% fine SAND, rounded, very dense, weakly indurated, damp.

Sandy SILT (ML), dark yellowish brown, 70% fines, monplastic to low plasticity, 30% fine SAND, very stiff, weakly indurated, damp.

Poorly graded SAND (SP), dark yellowish brown, 80% fine SAND, 20% medium SAND, rounded, very dense, weakly indurated, damp.

Well graded SAND (SW), dark yellowish brown, 15% coarse SAND, 25% medium SAND, 60% fine SAND, rounded, trace GRAVEL, rounded, very dense, weakly indurated, damp.

Sandy SILT (ML), dark yellowish brown, 60% fines, nonplastic to low plasticity, 5% coarse SAND, 10% medium SAND, 20% fine SAND, rounded, 5% GRAVEL, rounded, hard, weakly indurated, damp.

Well graded SAND (SW), dark yellowish brown, 15% coarse SAND, 25% medium SAND, 60% fine SAND, rounded, trace GRAVEL, rounded, very dense, weakly indurated, damp.

Silty SAND (SM), dark yellowish brown, trace coarse SAND, 10% medium SAND, 60% fine SAND, rounded, 30% fines, dense, weakly induratd, damp.

Well graded GRAVEL with SAND (GW), moderate yellowish brown, 60% GRAVEL, rounded, 10% coarse SAND, 10% medium SAND, 20% fine SAND, rounded, dense, weakly indurated, damp.

Well graded SAND with GRAVEL (SW), moderate yellowish brown, 15% coarse SAND, 50% medium SAND, 20% fine SAND, rounded, 15% gravel, rounded, dense, weakly indurated, moist.

Poorly graded GRAVEL with SAND (GP), brownish black, 70% fine GRAVEL, rounded, 15% coarse SAND, 10% medium SAND, 5% fine SAND, rounded, medium dense, weakly indurated, wet.

Lean CLAY with SAND (CL), dark yellowish brown, 85% fines, low plasticity, 15% fine SAND, hard, weakly indurated, damp.

Lean CLAY with GRAVEL (CL), dark yellowish brown, 60% fines, low plasticity, 30% fine and coarse GRAVEL, rounded, 10% coarse SAND, trace medium SAND, hard, weakly indurated, wet, GRAVEL and CLAY zones possibly interbedded.

Lean CLAY with SAND (CL), dark yellowish brown, 85% fines, low plasticity, 15% fine SAND, trace GRAVEL, very stiff, weakly indurated, damp.

SILT with SAND (ML), dark greenish gray, 75% fines, nonplstic to low plasticity, 25% fine SAND, trace gravel, hard, moderately induated, damp.

Poorly graded SAND with GRAVEL (SP), dark greenish gray, trace coarse SAND, 15% medium SAND, 70% fine SAND, rounded, 15% GRAVEL, rounded, dense, weakly indurated, wet.

Becomes greenish black.

ATTACHMENT C

CERTIFIED ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION

MOORE TWINING ASSOCIATES, INC.
EST. 1952
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

October 30, 2009

Work Order #: 9J12008

Tim Ripp
Shaw Environmental - Concord
4005 Port Chicago Highway
Concord, CA 94520

RE: Caltrans - 136529

Enclosed are the analytical results for samples received by our laboratory on 10/12/09 . For your reference, these analyses have been assigned laboratory work order number 9J12008.

All analyses have been performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, Moore Twining Associates, Inc. (MTA) is not responsible for use of less than complete reports. Results apply only to samples analyzed.

If you have any questions, please feel free to contact us at the number listed above.

Sincerely,

Moore Twining Associates, Inc.

Ronald J. Boquist
Director of Analytical Chemistry

MOORE TWINING ASSOCIATES, INC.
EST. 1899
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Halfmoon Bay Project Manager: Tim Ripp	Reported: 10/30/09

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B-1-6.5	9J12008-01	Soil	10/06/09 10:41	10/12/09 10:44
B-1-11.5	9J12008-02	Soil	10/06/09 10:50	10/12/09 10:44
B-1-16.5	9J12008-03	Soil	10/06/09 10:57	10/12/09 10:44
B-1-31.5	9J12008-06	Soil	10/06/09 11:30	10/12/09 10:44
B-2-6.5	9J12008-07	Soil	10/06/09 13:45	10/12/09 10:44
B-2-11.5	9J12008-08	Soil	10/06/09 13:55	10/12/09 10:44
B-2-16.5	9J12008-09	Soil	10/06/09 14:03	10/12/09 10:44
B-2-31.5	9J12008-12	Soil	10/06/09 14:28	10/12/09 10:44
B-3-6.5	9J12008-13	Soil	10/06/09 08:55	10/12/09 10:44
B-3-11.5	9J12008-14	Soil	10/06/09 09:02	10/12/09 10:44
B-3-16.5	9J12008-15	Soil	10/06/09 09:09	10/12/09 10:44
B-3-31.5	9J12008-18	Soil	10/06/09 09:42	10/12/09 10:44

MOORE TWINING ASSOCIATES, INC.
EST. 1899
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Halfmoon Bay Project Manager: Tim Ripp	Reported: 10/30/09

B-1-6.5

9J12008-01 (Soil) Sampled:10/06/09 10:41

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Arsenic		**14**	2.0	mg/kg	1	T9J1318	10/13/09	10/15/09	EPA 6010B
Lead		**5.0**	2.0	mg/kg	1	T9J1318	10/13/09	10/15/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/16/09	EPA 8015B
Surrogate: o-Terphenyl			*49.0 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/16/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*91.6 %*	*75-125*		*T9J1506*	*10/15/09*	*10/15/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*92.7 %*	*75-125*		*T9J1506*	*10/15/09*	*10/15/09*	*EPA 8015B/8021B*

MOORE TWINING ASSOCIATES, INC.
EST. 1894
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Halfmoon Bay Project Manager: Tim Ripp	Reported: 10/30/09

B-1-11.5

9J12008-02 (Soil) Sampled: 10/06/09 10:50

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**4.8**	2.0	mg/kg	1	T9J1318	10/13/09	10/15/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/16/09	EPA 8015B
Surrogate: o-Terphenyl			*22.7 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/16/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*100 %*	*75-125*		*T9J1506*	*10/15/09*	*10/15/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*101 %*	*75-125*		*T9J1506*	*10/15/09*	*10/15/09*	*EPA 8015B/8021B*

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California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

Shaw Environmental - Concord	Project: Caltrans - 136529	
4005 Port Chicago Highway	Project Number: Caltrans - Halfmoon Bay	Reported:
Concord CA, 94520	Project Manager: Tim Ripp	10/30/09

B-1-16.5

9J12008-03 (Soil) Sampled:10/06/09 10:57

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**3.3**	2.0	mg/kg	1	T9J1318	10/13/09	10/15/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/16/09	EPA 8015B
Surrogate: o-Terphenyl			*40.8 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/16/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*101 %*	*75-125*		*T9J1506*	*10/15/09*	*10/15/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*102 %*	*75-125*		*T9J1506*	*10/15/09*	*10/15/09*	*EPA 8015B/8021B*

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
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Shaw Environmental - Concord	Project: Caltrans - 136529	
4005 Port Chicago Highway	Project Number: Caltrans - Halfmoon Bay	Reported:
Concord CA, 94520	Project Manager: Tim Ripp	10/30/09

B-1-31.5

9J12008-06 (Soil) Sampled: 10/06/09 11:30

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**2.6**	2.0	mg/kg	1	T9J1318	10/13/09	10/15/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/16/09	EPA 8015B
Surrogate: o-Terphenyl			*27.6 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/16/09*	*EPA 8015B*
Volatile Organics									
Benzene		**0.0078**	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*99.0 %*	*75-125*		*T9J1506*	*10/15/09*	*10/15/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*98.3 %*	*75-125*		*T9J1506*	*10/15/09*	*10/15/09*	*EPA 8015B/8021B*

MOORE TWINING ASSOCIATES, INC.
EST. 1969
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Halfmoon Bay Project Manager: Tim Ripp	Reported: 10/30/09

B-2-6.5

9J12008-07 (Soil) Sampled:10/06/09 13:45

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Arsenic		**4.4**	2.0	mg/kg	1	T9J1318	10/13/09	10/15/09	EPA 6010B
Lead		**5.2**	2.0	mg/kg	1	T9J1318	10/13/09	10/15/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/16/09	EPA 8015B
Surrogate: o-Terphenyl			*51.2 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/16/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*102 %*	*75-125*		*T9J1506*	*10/15/09*	*10/15/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*103 %*	*75-125*		*T9J1506*	*10/15/09*	*10/15/09*	*EPA 8015B/8021B*

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

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Shaw Environmental - Concord	Project: Caltrans - 136529	
4005 Port Chicago Highway	Project Number: Caltrans - Halfmoon Bay	Reported:
Concord CA, 94520	Project Manager: Tim Ripp	10/30/09

B-2-11.5

9J12008-08 (Soil) Sampled:10/06/09 13:55

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**6.0**	2.0	mg/kg	1	T9J1318	10/13/09	10/15/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/16/09	EPA 8015B
Surrogate: o-Terphenyl			*42.7 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/16/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*96.5 %*	*75-125*		*T9J1506*	*10/15/09*	*10/15/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*98.4 %*	*75-125*		*T9J1506*	*10/15/09*	*10/15/09*	*EPA 8015B/8021B*

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Shaw Environmental - Concord	Project: Caltrans - 136529	
4005 Port Chicago Highway	Project Number: Caltrans - Halfmoon Bay	Reported:
Concord CA, 94520	Project Manager: Tim Ripp	10/30/09

B-2-16.5

9J12008-09 (Soil) Sampled:10/06/09 14:03

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		3.1	2.0	mg/kg	1	T9J1318	10/13/09	10/15/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/16/09	EPA 8015B
Surrogate: o-Terphenyl			*33.8 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/16/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*100 %*	*75-125*		*T9J1506*	*10/15/09*	*10/15/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*102 %*	*75-125*		*T9J1506*	*10/15/09*	*10/15/09*	*EPA 8015B/8021B*

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Halfmoon Bay Project Manager: Tim Ripp	Reported: 10/30/09

B-2-31.5

9J12008-12 (Soil) Sampled:10/06/09 14:28

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**2.5**	2.0	mg/kg	1	T9J1318	10/13/09	10/15/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/16/09	EPA 8015B
Surrogate: o-Terphenyl			*25.7 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/16/09*	*EPA 8015B*
Volatile Organics									
Benzene		**0.015**	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		**0.055**	0.050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*99.9 %*	*75-125*		*T9J1506*	*10/15/09*	*10/15/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*99.8 %*	*75-125*		*T9J1506*	*10/15/09*	*10/15/09*	*EPA 8015B/8021B*

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Shaw Environmental - Concord	Project: Caltrans - 136529	
4005 Port Chicago Highway	Project Number: Caltrans - Halfmoon Bay	Reported:
Concord CA, 94520	Project Manager: Tim Ripp	10/30/09

B-3-6.5

9J12008-13 (Soil) Sampled:10/06/09 08:55

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Arsenic		**4.9**	2.0	mg/kg	1	T9J1318	10/13/09	10/15/09	EPA 6010B
Lead		**7.9**	2.0	mg/kg	1	T9J1318	10/13/09	10/15/09	EPA 6010B
Semi-Volatile Organics									
Diesel	AJ	**160**	100	mg/kg	10	T9J1507	10/15/09	10/16/09	EPA 8015B
Surrogate: o-Terphenyl	SC		*345 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/16/09*	*EPA 8015B*
Volatile Organics									
Benzene		**0.026**	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Toluene		**0.0092**	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)	SI		*73.3 %*	*75-125*		*T9J1506*	*10/15/09*	*10/15/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)	SI		*73.3 %*	*75-125*		*T9J1506*	*10/15/09*	*10/15/09*	*EPA 8015B/8021B*

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Halfmoon Bay Project Manager: Tim Ripp	Reported: 10/30/09

B-3-11.5

9J12008-14 (Soil) Sampled:10/06/09 09:02

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**3.9**	2.0	mg/kg	1	T9J1318	10/13/09	10/15/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/16/09	EPA 8015B
Surrogate: o-Terphenyl			*31.0 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/16/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)			*97.7 %*	*75-125*		*T9J1506*	*10/15/09*	*10/15/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)			*96.3 %*	*75-125*		*T9J1506*	*10/15/09*	*10/15/09*	*EPA 8015B/8021B*

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Shaw Environmental - Concord	Project: Caltrans - 136529	
4005 Port Chicago Highway	Project Number: Caltrans - Halfmoon Bay	Reported:
Concord CA, 94520	Project Manager: Tim Ripp	10/30/09

B-3-16.5

9J12008-15 (Soil) Sampled:10/06/09 09:09

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**4.3**	2.0	mg/kg	1	T9J1318	10/13/09	10/15/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/16/09	EPA 8015B
Surrogate: o-Terphenyl			*19.5 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/16/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1506	10/15/09	10/15/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)			*103 %*	*75-125*		*T9J1506*	*10/15/09*	*10/15/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)			*101 %*	*75-125*		*T9J1506*	*10/15/09*	*10/15/09*	*EPA 8015B/8021B*

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Shaw Environmental - Concord	Project: Caltrans - 136529	
4005 Port Chicago Highway	Project Number: Caltrans - Halfmoon Bay	Reported:
Concord CA, 94520	Project Manager: Tim Ripp	10/30/09

B-3-31.5

9J12008-18 (Soil) Sampled:10/06/09 09:42

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**2.4**	2.0	mg/kg	1	T9J1318	10/13/09	10/15/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/16/09	EPA 8015B
Surrogate: o-Terphenyl			*21.9 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/16/09*	*EPA 8015B*
Volatile Organics									
Benzene		**0.19**	0.010	mg/kg	1	T9J1506	10/15/09	10/16/09	EPA 8015B/8021B
Toluene		**0.16**	0.010	mg/kg	1	T9J1506	10/15/09	10/16/09	EPA 8015B/8021B
Ethylbenzene		**0.015**	0.010	mg/kg	1	T9J1506	10/15/09	10/16/09	EPA 8015B/8021B
Xylenes, total		**0.095**	0.020	mg/kg	1	T9J1506	10/15/09	10/16/09	EPA 8015B/8021B
Gasoline		**1.3**	1.0	mg/kg	1	T9J1506	10/15/09	10/16/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.10	mg/kg	1	T9J1506	10/15/09	10/16/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)			*102 %*	*75-125*		*T9J1506*	*10/15/09*	*10/16/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)			*103 %*	*75-125*		*T9J1506*	*10/15/09*	*10/16/09*	*EPA 8015B/8021B*

Notes and Definitions

SI	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
SC	The surrogate recovery for this sample cannot be accurately quantified due to interference from coelution of compounds.
QM	The spike recovery for this QC sample is outside of established control limits due to matrix interference.
AJ	Heavier hydrocarbon than diesel
ug/L	micrograms per liter (parts per billion concentration units)
mg/kg	milligrams per kilogram (parts per million concentration units)
mg/L	milligrams per Liter (parts per million concentration units)
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference

MOORE TWINING ASSOCIATES, INC.
EST. 1968
California ELAP Certificate #1371

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Shaw Environmental - Concord	Project: Caltrans - 136529	
4005 Port Chicago Highway	Project Number: Caltrans - Halfmoon Bay	Reported:
Concord CA, 94520	Project Manager: Tim Ripp	10/30/09

Metals - Totals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9J1318										
Blank (T9J1318-BLK1)				Prepared: 10/13/09 Analyzed: 10/15/09						
Lead	ND	2.0	mg/kg							
Arsenic	ND	2.0	mg/kg							
LCS (T9J1318-BS1)				Prepared: 10/13/09 Analyzed: 10/15/09						
Lead	19.4	2.0	mg/kg	20.0		97.0	75-125		20	
Arsenic	37.2	2.0	mg/kg	40.0		93.0	75-125		20	
LCS Dup (T9J1318-BSD1)				Prepared: 10/13/09 Analyzed: 10/15/09						
Arsenic	37.6	2.0	mg/kg	40.0		94.0	75-125	1.04	20	
Lead	19.7	2.0	mg/kg	20.0		98.3	75-125	1.38	20	
Matrix Spike (T9J1318-MS1)		Source: 9J12008-03		Prepared: 10/13/09 Analyzed: 10/15/09						
Arsenic	39.2	2.0	mg/kg	39.7	1.45	95.0	75-125		20	
Lead	22.8	2.0	mg/kg	19.8	3.25	98.4	75-125		20	
Matrix Spike (T9J1318-MS2)		Source: 9J12008-12		Prepared: 10/13/09 Analyzed: 10/15/09						
Lead	21.9	2.0	mg/kg	20.0	2.47	97.3	75-125		20	
Arsenic	39.0	2.0	mg/kg	39.9	1.91	92.8	75-125		20	
Matrix Spike Dup (T9J1318-MSD1)		Source: 9J12008-03		Prepared: 10/13/09 Analyzed: 10/15/09						
Arsenic	39.0	2.0	mg/kg	40.0	1.45	93.9	75-125	0.470	20	
Lead	22.5	2.0	mg/kg	20.0	3.25	96.1	75-125	1.48	20	
Matrix Spike Dup (T9J1318-MSD2)		Source: 9J12008-12		Prepared: 10/13/09 Analyzed: 10/15/09						
Lead	21.9	2.0	mg/kg	19.9	2.47	97.4	75-125	0.0427	20	
Arsenic	38.9	2.0	mg/kg	39.8	1.91	92.9	75-125	0.0515	20	

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

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Shaw Environmental - Concord	Project: Caltrans - 136529	
4005 Port Chicago Highway	Project Number: Caltrans - Halfmoon Bay	Reported:
Concord CA, 94520	Project Manager: Tim Ripp	10/30/09

Semi-Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9J1507										
Blank (T9J1507-BLK1)				Prepared & Analyzed: 10/15/09						
Surrogate: o-Terphenyl	*ND*		*mg/kg*	*0.400*		*53.0*	*11.8-130*			
Diesel	ND	10	mg/kg							
Blank (T9J1507-BLK2)				Prepared: 10/15/09 Analyzed: 10/16/09						
Surrogate: o-Terphenyl	*ND*		*mg/kg*	*0.400*		*48.1*	*11.8-130*			
Diesel	ND	10	mg/kg							
LCS (T9J1507-BS1)				Prepared & Analyzed: 10/15/09						
Surrogate: o-Terphenyl	*0.399*		*mg/kg*	*0.400*		*99.8*	*11.8-130*			
Diesel	22.2	10	mg/kg	25.0		88.8	70-130		20	
LCS (T9J1507-BS2)				Prepared: 10/15/09 Analyzed: 10/16/09						
Surrogate: o-Terphenyl	*0.377*		*mg/kg*	*0.400*		*94.2*	*11.8-130*			
Diesel	21.6	10	mg/kg	25.0		86.2	70-130		20	
LCS Dup (T9J1507-BSD1)				Prepared & Analyzed: 10/15/09						
Surrogate: o-Terphenyl	*0.372*		*mg/kg*	*0.400*		*92.9*	*11.8-130*			
Diesel	21.2	10	mg/kg	25.0		84.7	70-130	4.72	20	
LCS Dup (T9J1507-BSD2)				Prepared: 10/15/09 Analyzed: 10/16/09						
Surrogate: o-Terphenyl	*0.282*		*mg/kg*	*0.400*		*70.6*	*11.8-130*			
Diesel	20.2	10	mg/kg	25.0		80.8	70-130	6.47	20	
Matrix Spike (T9J1507-MS1)		**Source: 9J12008-03**		Prepared: 10/15/09 Analyzed: 10/16/09						
Surrogate: o-Terphenyl	*0.442*		*mg/kg*	*0.400*		*111*	*11.8-130*			
Diesel	21.9	10	mg/kg	25.0	ND	87.6	70-130		20	
Matrix Spike (T9J1507-MS2)		**Source: 9J12009-01**		Prepared: 10/15/09 Analyzed: 10/16/09						
Surrogate: o-Terphenyl	*0.326*		*mg/kg*	*0.400*		*81.4*	*11.8-130*			
Diesel	14.4	10	mg/kg	25.0	ND	57.7	70-130		20	QM
Matrix Spike Dup (T9J1507-MSD1)		**Source: 9J12008-03**		Prepared: 10/15/09 Analyzed: 10/16/09						
Surrogate: o-Terphenyl	*0.358*		*mg/kg*	*0.400*		*89.5*	*11.8-130*			
Diesel	18.6	10	mg/kg	25.0	ND	74.6	70-130	16.1	20	
Matrix Spike Dup (T9J1507-MSD2)		**Source: 9J12009-01**		Prepared: 10/15/09 Analyzed: 10/16/09						
Surrogate: o-Terphenyl	*0.360*		*mg/kg*	*0.400*		*89.9*	*11.8-130*			
Diesel	15.6	10	mg/kg	25.0	ND	62.6	70-130	8.14	20	QM

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

MOORE TWINING ASSOCIATES, INC.
EST. 1898
California ELAP Certificate #1371

2527 Fresno Street
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Shaw Environmental - Concord	Project: Caltrans - 136529	
4005 Port Chicago Highway	Project Number: Caltrans - Halfmoon Bay	Reported:
Concord CA, 94520	Project Manager: Tim Ripp	10/30/09

Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9J1506										
Blank (T9J1506-BLK1)				Prepared & Analyzed: 10/15/09						
Surrogate: 4-Bromofluorobenzene (PID)	*0.0627*		*mg/kg*	*0.0625*		*100*	*75-125*			
Surrogate: 4-Bromofluorobenzene (FID)	*0.0637*		*mg/kg*	*0.0625*		*102*	*75-125*			
Benzene	ND	0.0050	mg/kg							
Toluene	ND	0.0050	mg/kg							
Ethylbenzene	ND	0.0050	mg/kg							
Xylenes, total	ND	0.010	mg/kg							
Gasoline	ND	1.0	mg/kg							
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg							
LCS (T9J1506-BS1)				Prepared: 10/15/09 Analyzed: 10/16/09						
Surrogate: 4-Bromofluorobenzene (FID)	*0.0627*		*mg/kg*	*0.0625*		*100*	*70-130*			
Surrogate: 4-Bromofluorobenzene (PID)	*0.0619*		*mg/kg*	*0.0625*		*99.1*	*70-130*			
Benzene	0.0450	0.0050	mg/kg	0.0500		90.1	70-130		20	
Toluene	0.0441	0.0050	mg/kg	0.0500		88.2	70-130		20	
Ethylbenzene	0.0433	0.0050	mg/kg	0.0500		86.6	70-130		20	
Xylenes, total	0.130	0.010	mg/kg	0.150		86.7	70-130		20	
Gasoline	2.48	1.0	mg/kg	2.50		99.3	70-130		20	
Methyl tert-Butyl Ether (MTBE)	0.239	0.050	mg/kg	0.250		95.7	70-130		20	
LCS Dup (T9J1506-BSD1)				Prepared: 10/15/09 Analyzed: 10/16/09						
Surrogate: 4-Bromofluorobenzene (FID)	*0.0612*		*mg/kg*	*0.0625*		*98.0*	*70-130*			
Surrogate: 4-Bromofluorobenzene (PID)	*0.0628*		*mg/kg*	*0.0625*		*101*	*70-130*			
Benzene	0.0451	0.0050	mg/kg	0.0500		90.2	70-130	0.168	20	
Toluene	0.0442	0.0050	mg/kg	0.0500		88.3	70-130	0.143	20	
Ethylbenzene	0.0433	0.0050	mg/kg	0.0500		86.6	70-130	0.0139	20	
Xylenes, total	0.130	0.010	mg/kg	0.150		86.5	70-130	0.171	20	
Gasoline	2.58	1.0	mg/kg	2.50		103	70-130	3.91	20	
Methyl tert-Butyl Ether (MTBE)	0.250	0.050	mg/kg	0.250		100	70-130	4.43	20	

Chain of Custody
Moore Twining Associates, Inc.

2527 Fresno Street,
Fresno, CA, 93721

9J12008 10.9°C

Page 1 of 2
Ship Date: 10/10/09
Date/Time Results Required: Standard
Lab's Work Order #:_____

SHAW Environmental and Infrastructure, Inc.

Send Report To : Tim Ripp
eMail : tim.ripp@shawgrp.com
Phone : (510) 427-8350
Address: 5500 Port Chicago Highway
City/State : Concor, CA

Sampler Name: B. Stempson
Sampler Signature:

Project Name: Caltrans - 136529
Caltrans - Halfmoon Bay
C98807.0100

Client Sample ID	Matrix	Target Depth	Date/Time Sampled	Container	# of Cont.	Preservative	Lab's Sample #	TPH-g 8015B	TPH-d 8015B	BTEX 8021B MTBE	Total Lead 6010 & 200.7	Total Arsenic 6010 & 200.7		ASTM Method - d854	ASTM Method C-29	Moisture Content - CT 226	Sieve Analysis - CT-202	Atterburg Limits - CT-204	HOLD
B-1-6.5	Soil	6.5	10/6/09 1041	6" Sleeve	1	Ice		X	X	X	X	X			metal Sleeve				
B-1-11.5		11.5	10/6/09 1050					X	X	X	X								
B-1-16.5		16.5	10/6/09 1057					X	X	X	X								
B-1-21.5		21.5	10/6/09 1106																X
B-1-26.5		26.5	10/6/09 1116																X
B-1-31.5		31.5	10/6/09 1130					X	X	X	X								
B-2-6.5		6.5	10/6/09 1345					X	X	X	X	X							
~~B-3~~ B-2-11.5		11.5	10/6/09 1355					X	X	X	X								
~~B-3~~ B-2-16.5		16.5	10/6/09 1403					X	X	X	X								
B-2-21.5		21.5	10/6/09 1411																X

Relinquished by/Co.:	Received by/Co: MTA	Date/Time/Temp:	10/10/09 1655
Relinquished by/Co.: MTA	Received by/Co: MTA	Date/Time/Temp:	10-10-09 2000
Relinquished by/Co.:	Received by/Co: 10/12/09 @ 10:44	Date/Time/Temp:	

Were samples Received In Good Condition? X Yes __No Samples on Ice? X Yes __No Method of Shipment: _____

NOTE: EH - Extract and Hold

* INDICATES ELEVATED PID READING

C:\Documents and Settings\Bryan.Stempson\My Documents\CaltransCOC.xls

9J12008 10.9°C

Chain of Custody
Moore Twining Associates, Inc.

2527 Fresno Street,
Fresno, CA, 93721

Page 2 of 2
Ship Date: 10/10/09
Date/Time Results Required: Standard
Lab's Work Order #: _____

Shaw SHAW Environmental and Infrastructure, Inc.

Send Report To : Tim Ripp
eMail : tim.ripp@shawgrp.com
Phone : (510) 427-8350
Address: 5500 Port Chicago Highway
City/State : Concor, CA

Sampler Name: Bryan Stempson
Sampler Signature:

Project Name: Caltrans - 136529
CALTRANS - HALF MOON BAY
C98807.0100

Client Sample ID	Matrix	Target Depth	Date/Time Sampled	Container	# of Cont.	Preservative	Lab's Sample #	TPH-g 8015B	TPH-d 8015B	BTEX 8021B MTBE	Total Lead 6010 & 200.7	Total Arsenic 6010 & 200.7		ASTM Method - d854	ASTM Method C-29	Moisture Content - CT 226	Sieve Analysis - CT-202	Atterburg Limits - CT-204	HOLD
B-2-26.5	Soil	26.5	10/6/09 1419	6" sleeve	1	Ice									metal	sleeve			X
B-2-31.5		31.5	10/6/09 1428					X	X	X	X								
B-3-6.5		6.5	10/6/09 0855					X	X	X	X	X							
B-3-11.5		11.5	10/6/09 0902					X	X	X	X								
B-3-16.5		16.5	10/6/09 0909					X	X	X	X								
B-3-21.5		21.5	10/6/09 0917																X
B-3-26.5 *		26.5	10/6/09 0929																X
B-3-31.5 *		31.5	10/6/09 0942					X	X	X	X								

Relinquished by/Co.: Received by/Co: MTA Date/Time/Temp: 10/10/09 1655
Relinquished by/Co.: MTA Received by/Co: Date/Time/Temp: 10-10-09 2000
Relinquished by/Co.: Received by/Co: 10/12/09 @ 10:44 Date/Time/Temp:

Were samples Received In Good Condition? X Yes __No Samples on Ice? X Yes __No Method of Shipment: _____

NOTE: EH - Extract and Hold

* INDICATES ~~HIGH~~ ELEVATED PID READING

C:\Documents and Settings\Bryan.Stempson\My Documents\CaltransCOC.xls

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

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November 11, 2009

Work Order #: 9J26009

Tim Ripp
Shaw Environmental - Concord
4005 Port Chicago Highway
Concord, CA 94520

RE: Caltrans - 136529

Enclosed are the analytical results for samples received by our laboratory on 10/26/09 . For your reference, these analyses have been assigned laboratory work order number 9J26009.

All analyses have been performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, Moore Twining Associates, Inc. (MTA) is not responsible for use of less than complete reports. Results apply only to samples analyzed.

If you have any questions, please feel free to contact us at the number listed above.

Sincerely,

Moore Twining Associates, Inc.

Ronald J. Boquist
Director of Analytical Chemistry

MOORE TWINING ASSOCIATES, INC.
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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: San Mateo - Hayward Bridge Project Manager: Tim Ripp	Reported: 11/11/09

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B-1-6.5	9J26009-01	Soil	10/19/09 14:15	10/26/09 10:16
B-1-11.5	9J26009-02	Soil	10/19/09 14:32	10/26/09 10:16
B-1-16.5	9J26009-03	Soil	10/19/09 14:40	10/26/09 10:16
B-1-GW-16.5	9J26009-04	Ground Water	10/19/09 15:25	10/26/09 10:16
B-1-GW-16.5	9J26009-05	Ground Water	10/19/09 15:25	10/26/09 10:16
B-1-GW-16.5	9J26009-06	Ground Water	10/19/09 15:25	10/26/09 10:16
B-2-6.5	9J26009-07	Soil	10/19/09 09:30	10/26/09 10:16
B-2-11.5	9J26009-08	Soil	10/19/09 09:40	10/26/09 10:16
B-2-16.5	9J26009-09	Soil	10/19/09 09:50	10/26/09 10:16
B-2-GW-16.5	9J26009-10	Ground Water	10/19/09 10:05	10/26/09 10:16
B-2-GW-16.5	9J26009-11	Ground Water	10/19/09 10:05	10/26/09 10:16
B-2-GW-16.5	9J26009-12	Ground Water	10/19/09 10:05	10/26/09 10:16
B-3-6.5	9J26009-13	Soil	10/19/09 12:02	10/26/09 10:16
B-3-11.5	9J26009-14	Soil	10/19/09 12:10	10/26/09 10:16
B-3-16.5	9J26009-15	Soil	10/19/09 12:10	10/26/09 10:16
B-3-21.5	9J26009-16	Soil	10/19/09 12:25	10/26/09 10:16
B-3-GW-21.5	9J26009-17	Ground Water	10/19/09 12:57	10/26/09 10:16
B-3-GW-21.5	9J26009-18	Ground Water	10/19/09 12:57	10/26/09 10:16
B-3-GW-21.5	9J26009-19	Ground Water	10/19/09 12:57	10/26/09 10:16
B-5-6.5	9J26009-20	Soil	10/20/09 08:30	10/26/09 10:16
B-5-11.5	9J26009-21	Soil	10/20/09 08:38	10/26/09 10:16
B-5-16.5	9J26009-22	Soil	10/20/09 08:45	10/26/09 10:16
B-5-GW-16.5	9J26009-23	Ground Water	10/20/09 08:55	10/26/09 10:16
B-5-GW-16.5	9J26009-24	Ground Water	10/20/09 08:55	10/26/09 10:16
B-5-GW-16.5	9J26009-25	Ground Water	10/20/09 08:55	10/26/09 10:16
B-7-6.5	9J26009-26	Soil	10/20/09 09:52	10/26/09 10:16
B-7-11.5	9J26009-27	Soil	10/20/09 10:00	10/26/09 10:16
B-7-16.5	9J26009-28	Soil	10/20/09 10:05	10/26/09 10:16

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: San Mateo - Hayward Bridge Project Manager: Tim Ripp	**Reported:** 11/11/09

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B-7-GW-21.5	9J26009-29	Ground Water	10/20/09 10:20	10/26/09 10:16
B-7-GW-21.5	9J26009-30	Ground Water	10/20/09 10:20	10/26/09 10:16
B-7-GW-21.5	9J26009-31	Ground Water	10/20/09 10:20	10/26/09 10:16
B-6-GW-16.5	9J26009-32	Ground Water	10/20/09 11:40	10/26/09 10:16
B-6-GW-16.5	9J26009-33	Ground Water	10/20/09 11:40	10/26/09 10:16
B-6-GW-16.5	9J26009-34	Ground Water	10/20/09 11:40	10/26/09 10:16
B-6-6.5	9J26009-35	Soil	10/19/09 11:25	10/26/09 10:16
B-6-11.5	9J26009-36	Soil	10/19/09 11:32	10/26/09 10:16
B-6-16.5	9J26009-37	Soil	10/19/09 11:36	10/26/09 10:16
Trip Blank	9J26009-38	Water	10/24/09 15:00	10/26/09 10:16

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: San Mateo - Hayward Bridge Project Manager: Tim Ripp	**Reported:** 11/11/09

B-1-6.5

9J26009-01 (Soil) Sampled:10/19/09 14:15

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Arsenic		7.2	4.0	mg/kg	2	T9K0801	11/08/09	11/10/09	EPA 6010B
Lead		ND	4.0	mg/kg	2	T9K0801	11/08/09	11/10/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J2911	10/29/09	10/30/09	EPA 8015B
Surrogate: o-Terphenyl			*44.3 %*	*11.8-130*		*T9J2911*	*10/29/09*	*10/30/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*102 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*104 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Gasoline		ND	1.0	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*104 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B*

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: San Mateo - Hayward Bridge Project Manager: Tim Ripp	**Reported:** 11/11/09

B-1-11.5

9J26009-02 (Soil) Sampled:10/19/09 14:32

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**4.3**	2.0	mg/kg	1	T9K0801	11/08/09	11/09/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J2911	10/29/09	10/30/09	EPA 8015B
Surrogate: o-Terphenyl			*37.5 %*	*11.8-130*		*T9J2911*	*10/29/09*	*10/30/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*104 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*107 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Gasoline		ND	1.0	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*107 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B*

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: San Mateo - Hayward Bridge Project Manager: Tim Ripp	Reported: 11/11/09

B-1-16.5

9J26009-03 (Soil) Sampled:10/19/09 14:40

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		ND	4.0	mg/kg	2	T9K0801	11/08/09	11/10/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J2911	10/29/09	10/30/09	EPA 8015B
Surrogate: o-Terphenyl			*29.2 %*	*11.8-130*		*T9J2911*	*10/29/09*	*10/30/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)			*103 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)			*100 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Gasoline		ND	1.0	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*103 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B*

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: San Mateo - Hayward Bridge Project Manager: Tim Ripp	**Reported:** 11/11/09

B-1-GW-16.5

9J26009-04 (Ground Water) Sampled:10/19/09 15:25

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Volatile Organics									
Benzene		ND	0.50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Toluene		ND	0.50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Ethylbenzene		ND	0.50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Xylenes, total		ND	1.5	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	2.5	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*105 %*	*75-125*		*T9J2709*	*10/27/09*	*10/27/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*121 %*	*75-125*		*T9J2709*	*10/27/09*	*10/27/09*	*EPA 8015B/8021B*
Gasoline		ND	50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*121 %*	*75-125*		*T9J2709*	*10/27/09*	*10/27/09*	*EPA 8015B*

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: San Mateo - Hayward Bridge Project Manager: Tim Ripp	Reported: 11/11/09

B-1-GW-16.5

9J26009-05 (Ground Water) Sampled:10/19/09 15:25

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics									
Diesel		**110**	100	µg/L	1	T9K0218	11/02/09	11/03/09	EPA 8015B
Surrogate: o-Terphenyl			*80.2 %*	*34-150*		*T9K0218*	*11/02/09*	*11/03/09*	*EPA 8015B*

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B-1-GW-16.5

9J26009-06 (Ground Water) Sampled:10/19/09 15:25

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Dissolved									
Arsenic		ND	0.010	mg/L	1	T9K0101	11/01/09	11/02/09	EPA 200.7
Lead		ND	0.0050	mg/L	1	T9K0101	11/01/09	11/02/09	EPA 200.7

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: San Mateo - Hayward Bridge Project Manager: Tim Ripp	**Reported:** 11/11/09

B-2-6.5

9J26009-07 (Soil) Sampled:10/19/09 09:30

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Arsenic		**6.2**	4.0	mg/kg	2	T9K0801	11/08/09	11/10/09	EPA 6010B
Lead		ND	4.0	mg/kg	2	T9K0801	11/08/09	11/10/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J2911	10/29/09	10/31/09	EPA 8015B
Surrogate: o-Terphenyl			*37.9 %*	*11.8-130*		*T9J2911*	*10/29/09*	*10/31/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*102 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*103 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Gasoline		ND	1.0	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*103 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B*

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B-2-11.5

9J26009-08 (Soil) Sampled:10/19/09 09:40

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		ND	4.0	mg/kg	2	T9K0801	11/08/09	11/10/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J2911	10/29/09	10/31/09	EPA 8015B
Surrogate: o-Terphenyl			*40.5 %*	*11.8-130*		*T9J2911*	*10/29/09*	*10/31/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*101 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*103 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Gasoline		ND	1.0	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*103 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B*

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B-2-16.5

9J26009-09 (Soil) Sampled:10/19/09 09:50

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**2.0**	2.0	mg/kg	1	T9K0801	11/08/09	11/09/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J2911	10/29/09	10/31/09	EPA 8015B
Surrogate: o-Terphenyl			*36.1 %*	*11.8-130*		*T9J2911*	*10/29/09*	*10/31/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)			*102 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)			*100 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Gasoline		ND	1.0	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*102 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B*

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B-2-GW-16.5

9J26009-10 (Ground Water) Sampled:10/19/09 10:05

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Volatile Organics									
Benzene		ND	0.50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Toluene		ND	0.50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Ethylbenzene		ND	0.50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Xylenes, total		ND	1.5	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	2.5	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*104 %*	*75-125*		*T9J2709*	*10/27/09*	*10/27/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*122 %*	*75-125*		*T9J2709*	*10/27/09*	*10/27/09*	*EPA 8015B/8021B*
Gasoline		ND	50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*122 %*	*75-125*		*T9J2709*	*10/27/09*	*10/27/09*	*EPA 8015B*

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B-2-GW-16.5

9J26009-11 (Ground Water) Sampled:10/19/09 10:05

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics									
Diesel		**140**	100	µg/L	1	T9K0218	11/02/09	11/03/09	EPA 8015B
Surrogate: o-Terphenyl			*98.4 %*	*34-150*		*T9K0218*	*11/02/09*	*11/03/09*	*EPA 8015B*

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B-2-GW-16.5

9J26009-12 (Ground Water) Sampled:10/19/09 10:05

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Dissolved									
Lead		ND	0.0050	mg/L	1	T9K0101	11/01/09	11/02/09	EPA 200.7

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B-3-6.5

9J26009-13 (Soil) Sampled:10/19/09 12:02

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Arsenic		7.5	4.0	mg/kg	2	T9K0801	11/08/09	11/10/09	EPA 6010B
Lead		ND	4.0	mg/kg	2	T9K0801	11/08/09	11/10/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J2911	10/29/09	10/31/09	EPA 8015B
Surrogate: o-Terphenyl			*53.1 %*	*11.8-130*		*T9J2911*	*10/29/09*	*10/31/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*103 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*104 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Gasoline		ND	1.0	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*104 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B*

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B-3-11.5

9J26009-14 (Soil) Sampled:10/19/09 12:10

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		7.8	2.0	mg/kg	1	T9K0801	11/08/09	11/09/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J2911	10/29/09	10/31/09	EPA 8015B
Surrogate: o-Terphenyl			*70.5 %*	*11.8-130*		*T9J2911*	*10/29/09*	*10/31/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)			*99.3 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)			*97.4 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Gasoline		ND	1.0	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*99.3 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B*

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B-3-16.5

9J26009-15 (Soil) Sampled:10/19/09 12:10

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		ND	4.0	mg/kg	2	T9K0801	11/08/09	11/10/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J2911	10/29/09	10/31/09	EPA 8015B
Surrogate: o-Terphenyl			*44.5 %*	*11.8-130*		*T9J2911*	*10/29/09*	*10/31/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*99.9 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*101 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Gasoline		ND	1.0	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*101 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B*

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B-3-21.5

9J26009-16 (Soil) Sampled:10/19/09 12:25

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		ND	4.0	mg/kg	2	T9K0801	11/08/09	11/10/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J2911	10/29/09	10/31/09	EPA 8015B
Surrogate: o-Terphenyl			*31.3 %*	*11.8-130*		*T9J2911*	*10/29/09*	*10/31/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)			*104 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)			*103 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Gasoline		ND	1.0	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*104 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B*

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B-3-GW-21.5

9J26009-17 (Ground Water) Sampled:10/19/09 12:57

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Volatile Organics									
Benzene		ND	0.50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Toluene		ND	0.50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Ethylbenzene		ND	0.50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Xylenes, total		ND	1.5	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	2.5	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*105 %*	*75-125*		*T9J2709*	*10/27/09*	*10/27/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*120 %*	*75-125*		*T9J2709*	*10/27/09*	*10/27/09*	*EPA 8015B/8021B*
Gasoline		ND	50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*120 %*	*75-125*		*T9J2709*	*10/27/09*	*10/27/09*	*EPA 8015B*

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B-3-GW-21.5

9J26009-18 (Ground Water) Sampled:10/19/09 12:57

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics									
Diesel		**110**	100	µg/L	1	T9K0218	11/02/09	11/03/09	EPA 8015B
Surrogate: o-Terphenyl			*79.0 %*	*34-150*		*T9K0218*	*11/02/09*	*11/03/09*	*EPA 8015B*

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B-3-GW-21.5

9J26009-19 (Ground Water) Sampled:10/19/09 12:57

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Dissolved									
Lead		ND	0.0050	mg/L	1	T9K0101	11/01/09	11/02/09	EPA 200.7

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B-5-6.5

9J26009-20 (Soil) Sampled:10/20/09 08:30

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Arsenic		8.7	4.0	mg/kg	2	T9K0801	11/08/09	11/10/09	EPA 6010B
Lead		4.2	4.0	mg/kg	2	T9K0801	11/08/09	11/10/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J2911	10/29/09	10/31/09	EPA 8015B
Surrogate: o-Terphenyl			*22.9 %*	*11.8-130*		*T9J2911*	*10/29/09*	*10/31/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J2908	10/29/09	10/30/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J2908	10/29/09	10/30/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J2908	10/29/09	10/30/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J2908	10/29/09	10/30/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J2908	10/29/09	10/30/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)			*102 %*	*75-125*		*T9J2908*	*10/29/09*	*10/30/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)			*100 %*	*75-125*		*T9J2908*	*10/29/09*	*10/30/09*	*EPA 8015B/8021B*
Gasoline		ND	1.0	mg/kg	1	T9J2908	10/29/09	10/30/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*102 %*	*75-125*		*T9J2908*	*10/29/09*	*10/30/09*	*EPA 8015B*

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B-5-11.5

9J26009-21 (Soil) Sampled:10/20/09 08:38

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		4.2	2.0	mg/kg	1	T9K0801	11/08/09	11/09/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J2911	10/29/09	10/31/09	EPA 8015B
Surrogate: o-Terphenyl			*18.9 %*	*11.8-130*		*T9J2911*	*10/29/09*	*10/31/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*102 %*	*75-125*		*T9J2908*	*10/29/09*	*10/29/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*104 %*	*75-125*		*T9J2908*	*10/29/09*	*10/29/09*	*EPA 8015B/8021B*
Gasoline		ND	1.0	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*104 %*	*75-125*		*T9J2908*	*10/29/09*	*10/29/09*	*EPA 8015B*

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B-5-16.5

9J26009-22 (Soil) Sampled:10/20/09 08:45

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		ND	4.0	mg/kg	2	T9K0801	11/08/09	11/10/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J2911	10/29/09	10/31/09	EPA 8015B
Surrogate: o-Terphenyl			*20.0 %*	*11.8-130*		*T9J2911*	*10/29/09*	*10/31/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)			*103 %*	*75-125*		*T9J2908*	*10/29/09*	*10/29/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)			*102 %*	*75-125*		*T9J2908*	*10/29/09*	*10/29/09*	*EPA 8015B/8021B*
Gasoline		ND	1.0	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*103 %*	*75-125*		*T9J2908*	*10/29/09*	*10/29/09*	*EPA 8015B*

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B-5-GW-16.5

9J26009-23 (Ground Water) Sampled:10/20/09 08:55

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Volatile Organics									
Benzene		ND	0.50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Toluene		ND	0.50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Ethylbenzene		ND	0.50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Xylenes, total		ND	1.5	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	2.5	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)			*120 %*	*75-125*		*T9J2709*	*10/27/09*	*10/27/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)			*104 %*	*75-125*		*T9J2709*	*10/27/09*	*10/27/09*	*EPA 8015B/8021B*
Gasoline		ND	50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*120 %*	*75-125*		*T9J2709*	*10/27/09*	*10/27/09*	*EPA 8015B*

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B-5-GW-16.5

9J26009-24 (Ground Water) Sampled:10/20/09 08:55

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics									
Diesel		ND	100	µg/L	1	T9K0218	11/02/09	11/03/09	EPA 8015B
Surrogate: o-Terphenyl			*63.2 %*	*34-150*		*T9K0218*	*11/02/09*	*11/03/09*	*EPA 8015B*

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B-5-GW-16.5

9J26009-25 (Ground Water) Sampled:10/20/09 08:55

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Dissolved									
Arsenic		ND	0.010	mg/L	1	T9K0101	11/01/09	11/02/09	EPA 200.7
Lead		ND	0.0050	mg/L	1	T9K0101	11/01/09	11/02/09	EPA 200.7

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B-7-6.5

9J26009-26 (Soil) Sampled:10/20/09 09:52

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Arsenic		4.6	2.0	mg/kg	1	T9K0801	11/08/09	11/09/09	EPA 6010B
Lead		ND	2.0	mg/kg	1	T9K0801	11/08/09	11/09/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J2911	10/29/09	10/31/09	EPA 8015B
Surrogate: o-Terphenyl			*34.6 %*	*11.8-130*		*T9J2911*	*10/29/09*	*10/31/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)			*102 %*	*75-125*		*T9J2908*	*10/29/09*	*10/29/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)			*101 %*	*75-125*		*T9J2908*	*10/29/09*	*10/29/09*	*EPA 8015B/8021B*
Gasoline		ND	1.0	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*102 %*	*75-125*		*T9J2908*	*10/29/09*	*10/29/09*	*EPA 8015B*

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B-7-11.5

9J26009-27 (Soil) Sampled:10/20/09 10:00

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		5.0	2.0	mg/kg	1	T9K0801	11/08/09	11/09/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J2911	10/29/09	10/31/09	EPA 8015B
Surrogate: o-Terphenyl			*33.2 %*	*11.8-130*		*T9J2911*	*10/29/09*	*10/31/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*102 %*	*75-125*		*T9J2908*	*10/29/09*	*10/29/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*104 %*	*75-125*		*T9J2908*	*10/29/09*	*10/29/09*	*EPA 8015B/8021B*
Gasoline		ND	1.0	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*104 %*	*75-125*		*T9J2908*	*10/29/09*	*10/29/09*	*EPA 8015B*

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B-7-16.5

9J26009-28 (Soil) Sampled:10/20/09 10:05

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		ND	4.0	mg/kg	2	T9K0801	11/08/09	11/10/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J2911	10/29/09	10/31/09	EPA 8015B
Surrogate: o-Terphenyl			*20.1 %*	*11.8-130*		*T9J2911*	*10/29/09*	*10/31/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)			*103 %*	*75-125*		*T9J2908*	*10/29/09*	*10/29/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)			*102 %*	*75-125*		*T9J2908*	*10/29/09*	*10/29/09*	*EPA 8015B/8021B*
Gasoline		ND	1.0	mg/kg	1	T9J2908	10/29/09	10/29/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*103 %*	*75-125*		*T9J2908*	*10/29/09*	*10/29/09*	*EPA 8015B*

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B-7-GW-21.5

9J26009-29 (Ground Water) Sampled:10/20/09 10:20

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Volatile Organics									
Benzene		ND	0.50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Toluene		ND	0.50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Ethylbenzene		ND	0.50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Xylenes, total		ND	1.5	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	2.5	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)			*119 %*	*75-125*		*T9J2709*	*10/27/09*	*10/27/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)			*104 %*	*75-125*		*T9J2709*	*10/27/09*	*10/27/09*	*EPA 8015B/8021B*
Gasoline		ND	50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*119 %*	*75-125*		*T9J2709*	*10/27/09*	*10/27/09*	*EPA 8015B*

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B-7-GW-21.5

9J26009-30 (Ground Water) Sampled:10/20/09 10:20

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics									
Diesel		ND	100	µg/L	1	T9K0218	11/02/09	11/03/09	EPA 8015B
Surrogate: o-Terphenyl			*77.5 %*	*34-150*		*T9K0218*	*11/02/09*	*11/03/09*	*EPA 8015B*

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B-7-GW-21.5

9J26009-31 (Ground Water) Sampled:10/20/09 10:20

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Dissolved									
Lead		ND	0.0050	mg/L	1	T9K0101	11/01/09	11/02/09	EPA 200.7

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: San Mateo - Hayward Bridge Project Manager: Tim Ripp	**Reported:** 11/11/09

B-6-GW-16.5

9J26009-32 (Ground Water) Sampled:10/20/09 11:40

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Volatile Organics									
Benzene		ND	0.50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Toluene		ND	0.50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Ethylbenzene		ND	0.50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Xylenes, total		ND	1.5	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	2.5	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*105 %*	*75-125*		*T9J2709*	*10/27/09*	*10/27/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*119 %*	*75-125*		*T9J2709*	*10/27/09*	*10/27/09*	*EPA 8015B/8021B*
Gasoline		ND	50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*119 %*	*75-125*		*T9J2709*	*10/27/09*	*10/27/09*	*EPA 8015B*

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B-6-GW-16.5

9J26009-33 (Ground Water) Sampled:10/20/09 11:40

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Semi-Volatile Organics									
Diesel		ND	100	µg/L	1	T9K0218	11/02/09	11/03/09	EPA 8015B
Surrogate: o-Terphenyl			*66.3 %*	*34-150*		*T9K0218*	*11/02/09*	*11/03/09*	*EPA 8015B*

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B-6-GW-16.5

9J26009-34 (Ground Water) Sampled:10/20/09 11:40

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Dissolved									
Lead		ND	0.0050	mg/L	1	T9K0101	11/01/09	11/02/09	EPA 200.7

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B-6-6.5

9J26009-35 (Soil) Sampled:10/19/09 11:25

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Arsenic		9.8	4.0	mg/kg	2	T9K0801	11/08/09	11/10/09	EPA 6010B
Lead		ND	4.0	mg/kg	2	T9K0801	11/08/09	11/10/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J2911	10/29/09	10/31/09	EPA 8015B
Surrogate: o-Terphenyl			*23.6 %*	*11.8-130*		*T9J2911*	*10/29/09*	*10/31/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*103 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*104 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Gasoline		ND	1.0	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*104 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B*

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B-6-11.5

9J26009-36 (Soil) Sampled:10/19/09 11:32

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**2.1**	2.0	mg/kg	1	T9K0801	11/08/09	11/09/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J2911	10/29/09	10/31/09	EPA 8015B
Surrogate: o-Terphenyl			*41.7 %*	*11.8-130*		*T9J2911*	*10/29/09*	*10/31/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*105 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*106 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Gasoline		ND	1.0	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*106 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B*

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B-6-16.5

9J26009-37 (Soil) Sampled:10/19/09 11:36

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**2.0**	2.0	mg/kg	1	T9K0801	11/08/09	11/09/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J2911	10/29/09	10/31/09	EPA 8015B
Surrogate: o-Terphenyl			*32.7 %*	*11.8-130*		*T9J2911*	*10/29/09*	*10/31/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)			*105 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)			*103 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B/8021B*
Gasoline		ND	1.0	mg/kg	1	T9J2803	10/28/09	10/28/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*105 %*	*75-125*		*T9J2803*	*10/28/09*	*10/28/09*	*EPA 8015B*

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Trip Blank

9J26009-38 (Water) Sampled:10/24/09 15:00

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Volatile Organics									
Benzene		ND	0.50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Toluene		**3.7**	0.50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Ethylbenzene		**0.59**	0.50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Xylenes, total		**3.8**	1.5	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	2.5	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)			*119 %*	*75-125*		*T9J2709*	*10/27/09*	*10/27/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)			*103 %*	*75-125*		*T9J2709*	*10/27/09*	*10/27/09*	*EPA 8015B/8021B*
Gasoline		ND	50	µg/L	1	T9J2709	10/27/09	10/27/09	EPA 8015B
Surrogate: 4-Bromofluorobenzene (FID)			*119 %*	*75-125*		*T9J2709*	*10/27/09*	*10/27/09*	*EPA 8015B*

Notes and Definitions

QM	The spike recovery for this QC sample is outside of established control limits due to matrix interference.
ug/L	micrograms per liter (parts per billion concentration units)
mg/kg	milligrams per kilogram (parts per million concentration units)
mg/L	milligrams per Liter (parts per million concentration units)
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference

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Metals - Totals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9K0801										
Blank (T9K0801-BLK1)				Prepared: 11/08/09 Analyzed: 11/09/09						
Arsenic	ND	0.020	mg/kg							
Lead	ND	0.020	mg/kg							
LCS (T9K0801-BS1)				Prepared: 11/08/09 Analyzed: 11/09/09						
Lead	0.192	0.020	mg/kg	0.200		96.0	75-125		20	
Arsenic	0.367	0.020	mg/kg	0.400		91.8	75-125		20	
LCS Dup (T9K0801-BSD1)				Prepared: 11/08/09 Analyzed: 11/09/09						
Lead	0.193	0.020	mg/kg	0.200		96.4	75-125	0.364	20	
Arsenic	0.370	0.020	mg/kg	0.400		92.5	75-125	0.841	20	
Matrix Spike (T9K0801-MS1)		Source: 9J26009-27		Prepared: 11/08/09 Analyzed: 11/09/09						
Lead	23.4	2.0	mg/kg	19.9	5.03	92.4	75-125		20	
Arsenic	40.9	2.0	mg/kg	39.7	5.40	89.4	75-125		20	
Matrix Spike (T9K0801-MS2)		Source: 9J26009-35		Prepared: 11/08/09 Analyzed: 11/10/09						
Lead	20.3	4.0	mg/kg	19.9	2.79	87.9	75-125		20	
Arsenic	48.5	4.0	mg/kg	39.8	9.78	97.3	75-125		20	
Matrix Spike Dup (T9K0801-MSD1)		Source: 9J26009-27		Prepared: 11/08/09 Analyzed: 11/09/09						
Lead	27.6	2.0	mg/kg	20.0	5.03	113	75-125	16.4	20	
Arsenic	41.9	2.0	mg/kg	40.0	5.40	91.1	75-125	2.23	20	
Matrix Spike Dup (T9K0801-MSD2)		Source: 9J26009-35		Prepared: 11/08/09 Analyzed: 11/10/09						
Arsenic	44.2	4.0	mg/kg	39.9	9.78	86.2	75-125	9.19	20	
Lead	20.3	4.0	mg/kg	20.0	2.79	87.9	75-125	0.399	20	

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Metals - Dissolved - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9K0101										
Blank (T9K0101-BLK1)				Prepared: 11/01/09 Analyzed: 11/02/09						
Lead	ND	0.0050	mg/L							
Arsenic	ND	0.010	mg/L							
LCS (T9K0101-BS1)				Prepared: 11/01/09 Analyzed: 11/02/09						
Lead	0.109	0.0050	mg/L	0.100		109	85-115		20	
Arsenic	0.212	0.010	mg/L	0.200		106	85-115		20	
LCS Dup (T9K0101-BSD1)				Prepared: 11/01/09 Analyzed: 11/02/09						
Arsenic	0.210	0.010	mg/L	0.200		105	85-115	1.09	20	
Lead	0.107	0.0050	mg/L	0.100		107	85-115	1.39	20	
Matrix Spike (T9K0101-MS1)		Source: 9J26010-04		Prepared: 11/01/09 Analyzed: 11/02/09						
Arsenic	0.210	0.010	mg/L	0.200	ND	105	70-130		20	
Lead	0.103	0.0050	mg/L	0.100	ND	103	70-130		20	
Matrix Spike (T9K0101-MS2)		Source: 9J28030-02		Prepared: 11/01/09 Analyzed: 11/02/09						
Lead	0.104	0.0050	mg/L	0.100	ND	104	70-130		20	
Arsenic	0.226	0.010	mg/L	0.200	0.0139	106	70-130		20	
Matrix Spike Dup (T9K0101-MSD1)		Source: 9J26010-04		Prepared: 11/01/09 Analyzed: 11/02/09						
Arsenic	0.212	0.010	mg/L	0.200	ND	106	70-130	1.28	20	
Lead	0.105	0.0050	mg/L	0.100	ND	105	70-130	1.82	20	
Matrix Spike Dup (T9K0101-MSD2)		Source: 9J28030-02		Prepared: 11/01/09 Analyzed: 11/02/09						
Lead	0.103	0.0050	mg/L	0.100	ND	103	70-130	0.969	20	
Arsenic	0.224	0.010	mg/L	0.200	0.0139	105	70-130	0.934	20	

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Semi-Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9J2911										
Blank (T9J2911-BLK1)				Prepared: 10/29/09 Analyzed: 10/30/09						
Surrogate: o-Terphenyl	*ND*		*mg/kg*	*0.400*		*64.6*	*11.8-130*			
Diesel	ND	10	mg/kg							
LCS (T9J2911-BS1)				Prepared: 10/29/09 Analyzed: 10/30/09						
Surrogate: o-Terphenyl	*0.337*		*mg/kg*	*0.400*		*84.3*	*11.8-130*			
Diesel	20.7	10	mg/kg	25.0		82.8	70-130		20	
LCS Dup (T9J2911-BSD1)				Prepared: 10/29/09 Analyzed: 10/30/09						
Surrogate: o-Terphenyl	*0.412*		*mg/kg*	*0.400*		*103*	*11.8-130*			
Diesel	24.9	10	mg/kg	25.0		99.7	70-130	18.5	20	
Matrix Spike (T9J2911-MS1)		**Source: 9J26009-20**		Prepared: 10/29/09 Analyzed: 10/31/09						
Surrogate: o-Terphenyl	*0.215*		*mg/kg*	*0.400*		*53.8*	*11.8-130*			
Diesel	9.50	10	mg/kg	25.0	ND	38.0	70-130		20	QM
Matrix Spike Dup (T9J2911-MSD1)		**Source: 9J26009-20**		Prepared: 10/29/09 Analyzed: 10/31/09						
Surrogate: o-Terphenyl	*0.224*		*mg/kg*	*0.400*		*55.9*	*11.8-130*			
Diesel	9.03	10	mg/kg	25.0	ND	36.1	70-130	5.02	20	QM
Batch T9K0218										
Blank (T9K0218-BLK1)				Prepared: 11/02/09 Analyzed: 11/03/09						
Surrogate: o-Terphenyl	*4.30*		*µg/L*	*8.00*		*53.8*	*34-150*			
Diesel	ND	100	µg/L							
LCS (T9K0218-BS1)				Prepared: 11/02/09 Analyzed: 11/03/09						
Surrogate: o-Terphenyl	*7.13*		*µg/L*	*8.00*		*89.2*	*34-150*			
Diesel	461	100	µg/L	500		92.1	70-130		20	

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Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9J2709										
Blank (T9J2709-BLK1)				Prepared & Analyzed: 10/27/09						
Surrogate: 4-Bromofluorobenzene (FID)	*28.6*		*µg/L*	*25.0*		*114*	*75-125*			
Surrogate: 4-Bromofluorobenzene (FID)	*28.6*		*µg/L*	*25.0*		*114*	*75-125*			
Surrogate: 4-Bromofluorobenzene (PID)	*25.1*		*µg/L*	*25.0*		*100*	*75-125*			
Gasoline	ND	50	µg/L							
Benzene	ND	0.50	µg/L							
Toluene	ND	0.50	µg/L							
Ethylbenzene	ND	0.50	µg/L							
Xylenes, total	ND	1.5	µg/L							
Methyl tert-Butyl Ether (MTBE)	ND	2.5	µg/L							
LCS (T9J2709-BS1)				Prepared & Analyzed: 10/27/09						
Surrogate: 4-Bromofluorobenzene (FID)	*26.5*		*µg/L*	*25.0*		*106*	*70-130*			
Surrogate: 4-Bromofluorobenzene (PID)	*26.0*		*µg/L*	*25.0*		*104*	*70-130*			
Surrogate: 4-Bromofluorobenzene (FID)	*26.5*		*µg/L*	*25.0*		*106*	*75-125*			
Benzene	19.1	0.50	µg/L	20.0		95.7	70-130		20	
Gasoline	1120	50	µg/L	1000		112	70-130		20	
Toluene	18.9	0.50	µg/L	20.0		94.4	70-130		20	
Ethylbenzene	20.2	0.50	µg/L	20.0		101	70-130		20	
Xylenes, total	62.1	1.5	µg/L	60.0		104	70-130		20	
Methyl tert-Butyl Ether (MTBE)	92.7	2.5	µg/L	100		92.7	70-130		20	
LCS Dup (T9J2709-BSD1)				Prepared & Analyzed: 10/27/09						
Surrogate: 4-Bromofluorobenzene (PID)	*26.2*		*µg/L*	*25.0*		*105*	*70-130*			
Surrogate: 4-Bromofluorobenzene (FID)	*26.6*		*µg/L*	*25.0*		*106*	*75-125*			
Surrogate: 4-Bromofluorobenzene (FID)	*26.6*		*µg/L*	*25.0*		*106*	*70-130*			
Gasoline	1080	50	µg/L	1000		108	70-130	3.86	20	
Benzene	19.9	0.50	µg/L	20.0		99.7	70-130	4.13	20	
Toluene	19.6	0.50	µg/L	20.0		98.2	70-130	3.87	20	
Ethylbenzene	21.1	0.50	µg/L	20.0		106	70-130	4.18	20	
Xylenes, total	64.7	1.5	µg/L	60.0		108	70-130	4.09	20	
Methyl tert-Butyl Ether (MTBE)	101	2.5	µg/L	100		101	70-130	8.23	20	
Batch T9J2803										
Blank (T9J2803-BLK1)				Prepared & Analyzed: 10/28/09						
Surrogate: 4-Bromofluorobenzene (FID)	*0.0652*		*mg/kg*	*0.0625*		*104*	*75-125*			
Surrogate: 4-Bromofluorobenzene (FID)	*0.0652*		*mg/kg*	*0.0625*		*104*	*75-125*			
Surrogate: 4-Bromofluorobenzene (PID)	*0.0642*		*mg/kg*	*0.0625*		*103*	*75-125*			

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: San Mateo - Hayward Bridge Project Manager: Tim Ripp	Reported: 11/11/09

Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9J2803										
Blank (T9J2803-BLK1)				Prepared & Analyzed: 10/28/09						
Benzene	ND	0.0050	mg/kg							
Gasoline	ND	1.0	mg/kg							
Toluene	ND	0.0050	mg/kg							
Ethylbenzene	ND	0.0050	mg/kg							
Xylenes, total	ND	0.010	mg/kg							
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg							
LCS (T9J2803-BS1)				Prepared & Analyzed: 10/28/09						
Surrogate: 4-Bromofluorobenzene (PID)	*0.0621*		*mg/kg*	*0.0625*		*99.3*	*70-130*			
Surrogate: 4-Bromofluorobenzene (FID)	*0.0608*		*mg/kg*	*0.0625*		*97.3*	*70-130*			
Surrogate: 4-Bromofluorobenzene (FID)	*0.0608*		*mg/kg*	*0.0625*		*97.3*	*75-125*			
Benzene	0.0472	0.0050	mg/kg	0.0500		94.5	70-130		20	
Gasoline	2.49	1.0	mg/kg	2.50		99.5	70-130		20	
Toluene	0.0458	0.0050	mg/kg	0.0500		91.7	70-130		20	
Ethylbenzene	0.0453	0.0050	mg/kg	0.0500		90.7	70-130		20	
Xylenes, total	0.137	0.010	mg/kg	0.150		91.6	70-130		20	
Methyl tert-Butyl Ether (MTBE)	0.246	0.050	mg/kg	0.250		98.4	70-130		20	
LCS Dup (T9J2803-BSD1)				Prepared & Analyzed: 10/28/09						
Surrogate: 4-Bromofluorobenzene (PID)	*0.0615*		*mg/kg*	*0.0625*		*98.4*	*70-130*			
Surrogate: 4-Bromofluorobenzene (FID)	*0.0587*		*mg/kg*	*0.0625*		*94.0*	*75-125*			
Surrogate: 4-Bromofluorobenzene (FID)	*0.0587*		*mg/kg*	*0.0625*		*94.0*	*70-130*			
Benzene	0.0475	0.0050	mg/kg	0.0500		94.9	70-130	0.470	20	
Gasoline	2.52	1.0	mg/kg	2.50		101	70-130	1.39	20	
Toluene	0.0453	0.0050	mg/kg	0.0500		90.7	70-130	1.13	20	
Ethylbenzene	0.0444	0.0050	mg/kg	0.0500		88.8	70-130	2.09	20	
Xylenes, total	0.134	0.010	mg/kg	0.150		89.1	70-130	2.74	20	
Methyl tert-Butyl Ether (MTBE)	0.257	0.050	mg/kg	0.250		103	70-130	4.16	20	
Batch T9J2908										
Blank (T9J2908-BLK1)				Prepared & Analyzed: 10/29/09						
Surrogate: 4-Bromofluorobenzene (FID)	*0.0668*		*mg/kg*	*0.0625*		*107*	*75-125*			
Surrogate: 4-Bromofluorobenzene (FID)	*0.0668*		*mg/kg*	*0.0625*		*107*	*75-125*			
Surrogate: 4-Bromofluorobenzene (PID)	*0.0653*		*mg/kg*	*0.0625*		*104*	*75-125*			
Gasoline	ND	1.0	mg/kg							
Benzene	ND	0.0050	mg/kg							
Toluene	ND	0.0050	mg/kg							
Ethylbenzene	ND	0.0050	mg/kg							

MOORE TWINING ASSOCIATES, INC.
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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: San Mateo - Hayward Bridge Project Manager: Tim Ripp	**Reported:** 11/11/09

Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9J2908										
Blank (T9J2908-BLK1)				Prepared & Analyzed: 10/29/09						
Xylenes, total	ND	0.010	mg/kg							
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg							
LCS (T9J2908-BS1)				Prepared & Analyzed: 10/29/09						
Surrogate: 4-Bromofluorobenzene (FID)	*0.0620*		*mg/kg*	*0.0625*		*99.2*	*70-130*			
Surrogate: 4-Bromofluorobenzene (PID)	*0.0625*		*mg/kg*	*0.0625*		*100*	*70-130*			
Surrogate: 4-Bromofluorobenzene (FID)	*0.0620*		*mg/kg*	*0.0625*		*99.2*	*75-125*			
Benzene	0.0484	0.0050	mg/kg	0.0500		96.8	70-130		20	
Gasoline	2.47	1.0	mg/kg	2.50		98.6	70-130		20	
Toluene	0.0467	0.0050	mg/kg	0.0500		93.5	70-130		20	
Ethylbenzene	0.0464	0.0050	mg/kg	0.0500		92.8	70-130		20	
Xylenes, total	0.140	0.010	mg/kg	0.150		93.3	70-130		20	
Methyl tert-Butyl Ether (MTBE)	0.257	0.050	mg/kg	0.250		103	70-130		20	
LCS Dup (T9J2908-BSD1)				Prepared & Analyzed: 10/29/09						
Surrogate: 4-Bromofluorobenzene (FID)	*0.0638*		*mg/kg*	*0.0625*		*102*	*75-125*			
Surrogate: 4-Bromofluorobenzene (PID)	*0.0634*		*mg/kg*	*0.0625*		*101*	*70-130*			
Surrogate: 4-Bromofluorobenzene (FID)	*0.0638*		*mg/kg*	*0.0625*		*102*	*70-130*			
Benzene	0.0465	0.0050	mg/kg	0.0500		93.0	70-130	4.07	20	
Gasoline	2.52	1.0	mg/kg	2.50		101	70-130	2.12	20	
Toluene	0.0450	0.0050	mg/kg	0.0500		90.0	70-130	3.83	20	
Ethylbenzene	0.0447	0.0050	mg/kg	0.0500		89.3	70-130	3.85	20	
Xylenes, total	0.135	0.010	mg/kg	0.150		90.3	70-130	3.34	20	
Methyl tert-Butyl Ether (MTBE)	0.249	0.050	mg/kg	0.250		99.8	70-130	2.83	20	

Chain of Custody
Moore Twining Associates, Inc.

Shaw SHAW Environmental and Infrastructure, Inc.

Send Report To : Tim Ripp
eMail : tim.ripp@shawgrp.com
Phone : (510) 427-8350
Address: 5500 Port Chicago Highway
City/State : Concor, CA

Sampler Name: B. STEMPSON
Sampler Signature:

2527 Fresno Street,
Fresno, CA, 93721

9526009 13.7°C

Project Name: Caltrans - 136529
SAN MATEO - HAYWARD BRIDGE
C928 04.0120

Page 1 of 4
Ship Date: 10/22/09
Date/Time Results Required: Standard
Lab's Work Order #:

Client Sample ID	Matrix	Target Depth	Date/Time Sampled	Container	# of Cont.	Preservative	Lab's Sample #	TPH-g 8015B	TPH-d 8015B	BTEX 8021B MTBE	Total Lead 6010 & 200.7	Total Arsenic 6010 & 200.7		ASTM Method - d854	ASTM Method C-29	Moisture Content - CT 226	Sieve Analysis - CT-202	Atterburg Limits - CT-204	
B-1-6.5	S	6.5	10/19/09 1415	SLEEVE	1	Ice		X	X	X	X	X							
B-1-11.5	S	11.5	10/19/09 1432	|	|	|		X	X	X	X								
B-1-16.5	S	16.5	10/19/09 1440	|	|	|		X	X	X	X								
B-1-GW-16.5	GW	16.5	10/19/09 1525	VOA	3	HCl			X	X									
B-1-GW-16.5	GW	16.5	10/19/09 1525	1-L AMB	1	Ice		X											
B-1-GW-16.5 *	GW	16.5	10/19/09 1525	500 mL POLY	1	Ice					X	X							
B-2-6.5	S	6.5	10/19/09 0930	SLEEVE	1	Ice		X	X	X	X	X							
B-2-11.5	S	11.5	10/19/09 0940	|	|	|		X	X	X	X								
B-2-16.5	S	16.5	10/19/09 0950	|	|	|		X	X	X	X								
B-2-GW-16.5	GW	16.5	10/19/09 1005	VOA	4	HCl			X	X									

Relinquished by/Co.: Received by/Co: MTA Date/Time/Temp: 10/22/09 1330
Relinquished by/Co.: Received by/Co: Date/Time/Temp: 10-26-09 730
Relinquished by/Co.: Received by/Co: Date/Time/Temp: 10/26/09 1016

Were samples Received In Good Condition? X Yes __No Samples on Ice? X Yes __No Method of Shipment:

NOTE: EH - Extract and Hold

* LAB FILTER

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Chain of Custody
Moore Twining Associates, Inc.

SHAW Environmental and Infrastructure, Inc.

Send Report To : Tim Ripp
eMail : tim.ripp@shawgrp.com
Phone : (510) 427-8350
Address: 5500 Port Chicago Highway
City/State : Concor, CA

Sampler Name: B. Stempson
Sampler Signature:

2527 Fresno Street,
Fresno, CA, 93721

13.7°C

9026009

Project Name: Caltrans - 136529
SAN MATEO - HAYWARD BRIDGE
C98804.0100

Page 2 of 4
Ship Date: 10/22/09
Date/Time Results Required: Standard
Lab's Work Order #:

Client Sample ID	Matrix	Target Depth	Date/Time Sampled	Container	# of Cont.	Preservative	Lab's Sample #	TPH-g 8015B	TPH-d 8015B	BTEX 8021B MTBE 10	Total Lead 6010 & 200.7	Total Arsenic 6010 & 200.7		ASTM Method - d854	ASTM Method C-29	Moisture Content - CT 226	Sieve Analysis - CT-202	Atterburg Limits - CT-204	
B-2-GW-16.5	GW	16.5	10/19/09 1005	1-L Amb	1	Ice			X										
B-2-GW-16.5 *	GW	16.5	10/19/09 1005	500mL Poly	1	Ice					X								
B-3-6.5	S	6.5	10/19/09 1202	Sleeve	1	Ice		X	X	X	X	X							
B-3-11.5		11.5	10/19/09 1210					X	X	X	X								
B-3-16.5		16.5	10/19/09 1219					X	X	X	X								
B-3-21.5		21.5	10/19/09 1205					X	X	X	X								
B-3-GW-21.5	GW	21.5	10/19/09 1257	VOA	4	HCl		X		X									
B-3-GW-21.5			10/19/09 1257	1-L Amb	1	Ice			X										
*B-3-GW-21.5			10/19/09 1257	500mL Poly	1	Ice					X								
B-5-6.5	S	6.5	10/20/09 0830	Sleeve	1	Ice		X	X	X	X	X							

Relinquished by/Co.: Received by/Co: MTA Date/Time/Temp: 10/22/09 1350
Relinquished by/Co.: Received by/Co: Date/Time/Temp: 10-26-09 720
Relinquished by/Co.: Received by/Co: Date/Time/Temp: 10/26/09 1016

Were samples Received In Good Condition? X Yes __No
Samples on Ice? X Yes __No
Method of Shipment:

NOTE: EH - Extract and Hold

* LAB FILTER

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Chain of Custody
Moore Twining Associates, Inc.

SHAW Environmental and Infrastructure, Inc.

Send Report To : Tim Ripp
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Phone : (510) 427-8350
Address: 5500 Port Chicago Highway
City/State : Concor, CA

Sampler Name: B. Stempson
Sampler Signature:

2527 Fresno Street,
Fresno, CA, 93721

13.7°C

9J26009

Project Name: Caltrans - 136529
San Mateo Hayward Bridge
C98804.0100

Page 3 of 4
Ship Date: 10/22/09
Date/Time Results Required: Standard
Lab's Work Order #:

Client Sample ID	Matrix	Target Depth	Date/Time Sampled	Container	# of Cont.	Preservative	Lab's Sample #	TPH-g 8015B	TPH-d 8015B	BTEX 8021B MTBE	Total Lead 6010 & 200.7	Total Arsenic 6010 & 200.7		ASTM Method - d854	ASTM Method C-29	Moisture Content - CT 226	Sieve Analysis - CT-202	Atterburg Limits - CT-204	
B-5-11.5	S	11.5	10/20/09 0838	Sleeve	1	Ice		X	X	X	X								
B-5-16.5		16.5	10/20/09 0845					X	X	X	X								
B-5-GW-16.5	GW	16.5	10/20/09 0855	VOA	4	HCl		X		X									
B-5-GW-16.5			10/20/09 0855	1-L Amb	1	Ice			X										
B-5-GW-16.5 *			10/20/09 0855	500 ml Poly	1						X	X							
B-7-6.5	S	6.5	10/20/09 0952	Sleeve	1	Ice		X	X	X	X	X							
B-7-11.5		11.5	10/20/09 1000					X	X	X	X								
B-7-16.5		16.5	10/20/09 1005					X	X	X	X								
B-7-GW-21.5	GW	21.5	10/20/09 1020	VOA	4	HCl		X		X									
B-7-GW-21.5		21.5	10/20/09 1020	1-L Amb	1	Ice			X										

Relinquished by/Co.:	Received by/Co: MTA	Date/Time/Temp: 10/22/09	1350
Relinquished by/Co.:	Received by/Co:	Date/Time/Temp: 10-26-09	730
Relinquished by/Co.:	Received by/Co:	Date/Time/Temp: 10/26/09	1016

Were samples Received In Good Condition? Yes No
Samples on Ice? Yes No
Method of Shipment:
NOTE: EH - Extract and Hold

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Chain of Custody
Moore Twining Associates, Inc.

Shaw SHAW Environmental and Infrastructure, Inc.

Send Report To : Tim Ripp
eMail : tim.ripp@shawgrp.com
Phone : (510) 427-8350
Address: 5500 Port Chicago Highway
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Sampler Name: B. STEMPSON
Sampler Signature:

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Fresno, CA, 93721

13.70C

9J26009

Project Name: Caltrans - 136529
SAN MATEO HAYWARD BRIDGE
C98804.0100

Page 4 of 4
Ship Date: 10/22/09
Date/Time Results Required: Standard
Lab's Work Order #:

Client Sample ID	Matrix	Target Depth	Date/Time Sampled	Container	# of Cont.	Preservative	Lab's Sample #	TPH-g 8015B	TPH-d 8015B	BTEX 8021B MTBE	Total Lead 6010 & 200.7	Total Arsenic 6010 & 200.7		ASTM Method - d854	ASTM Method C-29	Moisture Content - CT 226	Sieve Analysis - CT-202	Atterburg Limits - CT-204	
* B-7-GW-21.5	GW	21.5	10/20/09 1020	500 ML Poly	1	Ice					X								
B-6-GW-16.5		16.5	10/20/09 1140	VOA	4	HCl		X		X									
B-6-GW-16.5			10/20/09 1140	1-L AMB	1	Ice			X										
B-6-GW-16.5 *			10/20/09 1140	500 ML Poly	1	Ice					X								
B-6-6.5	S	6.5	10/20/09 1125	Sleeve	1	Ice		X	X	X	X	X							
B-6-11.5		11.5	10/20/09 1132					X	X	X	X								
B-6-16.5		16.5	10/20/09 1136					X	X	X	X								
Trip Blank	W	—	10/24/09 1500	VOA HCL	2	HCL		X		X									

Relinquished by/Co.: Received by/Co: Date/Time/Temp: 10/22/09 1330
Relinquished by/Co.: Received by/Co: Date/Time/Temp: 10-26-09 730
Relinquished by/Co.: Received by/Co: Date/Time/Temp: 10/26/09 1016

Were samples Received In Good Condition? X Yes __No
Samples on Ice? X Yes __No
Method of Shipment:

NOTE: EH - Extract and Hold

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MOORE TWINING ASSOCIATES, INC.
EST. 1898
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
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October 30, 2009

Work Order #: 9J12007

Tim Ripp
Shaw Environmental - Concord
4005 Port Chicago Highway
Concord, CA 94520

RE: Caltrans - 136529

Enclosed are the analytical results for samples received by our laboratory on 10/12/09 . For your reference, these analyses have been assigned laboratory work order number 9J12007.

All analyses have been performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, Moore Twining Associates, Inc. (MTA) is not responsible for use of less than complete reports. Results apply only to samples analyzed.

If you have any questions, please feel free to contact us at the number listed above.

Sincerely,

Moore Twining Associates, Inc.

Ronald J. Boquist
Director of Analytical Chemistry

MOORE TWINING ASSOCIATES, INC.
EST. 1974
California ELAP Certificate #1371

2527 Fresno Street
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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Menlo Park (Ravenswood) Project Manager: Tim Ripp	Reported: 10/30/09

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B-1-6.5	9J12007-01	Soil	10/09/09 13:50	10/12/09 10:42
B-1-11.5	9J12007-02	Soil	10/09/09 14:05	10/12/09 10:42
B-1-16.5	9J12007-03	Soil	10/09/09 14:25	10/12/09 10:42
B-1-21.5	9J12007-04	Soil	10/09/09 14:39	10/12/09 10:42
B-2-6.5	9J12007-05	Soil	10/08/09 17:30	10/12/09 10:42
B-2-11.5	9J12007-06	Soil	10/08/09 17:44	10/12/09 10:42
B-2-16.5	9J12007-07	Soil	10/08/09 17:52	10/12/09 10:42
B-2-21.5	9J12007-08	Soil	10/08/09 18:02	10/12/09 10:42
B-3-6.5	9J12007-11	Soil	10/09/09 10:06	10/12/09 10:42
B-3-11.5	9J12007-12	Soil	10/09/09 10:16	10/12/09 10:42
B-3-16.5	9J12007-13	Soil	10/09/09 10:26	10/12/09 10:42
B-3-21.5	9J12007-14	Soil	10/09/09 10:40	10/12/09 10:42
B-1-GW-21.5	9J12007-15	Ground Water	10/09/09 14:55	10/12/09 10:42
B-2-GW-31.5	9J12007-16	Ground Water	10/09/09 07:25	10/12/09 10:42
B-3-GW-21.5	9J12007-17	Ground Water	10/09/09 11:00	10/12/09 10:42
Trip Blanks	9J12007-18	Water	10/09/09 15:00	10/12/09 10:42

Toluene, Ethylbenzene, and Xylenes were detected in the Trip Blank (9J12007-18). However, none of these analytes were detected in any other aqueous samples that were associated with this Trip Blank. Therefore, the quality of the analytical data should not be affected.

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Menlo Park (Ravenswood) Project Manager: Tim Ripp	Reported: 10/30/09

B-1-6.5

9J12007-01 (Soil) Sampled:10/09/09 13:50

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Arsenic		**4.0**	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Lead		**16**	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Semi-Volatile Organics									
Diesel	AJ	**160**	100	mg/kg	10	T9J1507	10/15/09	10/16/09	EPA 8015B
Surrogate: o-Terphenyl	SC		*401 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/16/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*83.8 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*86.7 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*

MOORE TWINING ASSOCIATES, INC.
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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Menlo Park (Ravenswood) Project Manager: Tim Ripp	Reported: 10/30/09

B-1-11.5

9J12007-02 (Soil) Sampled:10/09/09 14:05

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		2.6	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/15/09	EPA 8015B
Surrogate: o-Terphenyl			*38.7 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/15/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)			*98.8 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)			*97.5 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Menlo Park (Ravenswood) Project Manager: Tim Ripp	Reported: 10/30/09

B-1-16.5

9J12007-03 (Soil) Sampled:10/09/09 14:25

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		6.6	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/15/09	EPA 8015B
Surrogate: o-Terphenyl			*29.4 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/15/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*96.5 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*98.0 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Menlo Park (Ravenswood) Project Manager: Tim Ripp	Reported: 10/30/09

B-1-21.5

9J12007-04 (Soil) Sampled:10/09/09 14:39

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		7.7	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/15/09	EPA 8015B
Surrogate: o-Terphenyl			*23.5 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/15/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*99.3 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*101 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Menlo Park (Ravenswood) Project Manager: Tim Ripp	Reported: 10/30/09

B-2-6.5

9J12007-05 (Soil) Sampled:10/08/09 17:30

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Arsenic		**5.2**	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Lead		**8.1**	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/15/09	EPA 8015B
Surrogate: o-Terphenyl			*56.8 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/15/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)			*94.7 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)			*93.8 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Menlo Park (Ravenswood) Project Manager: Tim Ripp	Reported: 10/30/09

B-2-11.5

9J12007-06 (Soil) Sampled:10/08/09 17:44

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		7.9	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/15/09	EPA 8015B
Surrogate: o-Terphenyl			*20.9 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/15/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)			*98.0 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)			*95.1 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Menlo Park (Ravenswood) Project Manager: Tim Ripp	Reported: 10/30/09

B-2-16.5

9J12007-07 (Soil) Sampled:10/08/09 17:52

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**2.1**	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Semi-Volatile Organics									
Diesel	AJ	**17**	10	mg/kg	1	T9J1507	10/15/09	10/15/09	EPA 8015B
Surrogate: o-Terphenyl			*79.6 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/15/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*98.6 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*102 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*

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B-2-21.5

9J12007-08 (Soil) Sampled: 10/08/09 18:02

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**9.2**	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/15/09	EPA 8015B
Surrogate: o-Terphenyl			*56.6 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/15/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)			*104 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)			*102 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*

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Shaw Environmental - Concord	Project: Caltrans - 136529	
4005 Port Chicago Highway	Project Number: Caltrans - Menlo Park (Ravenswood)	Reported:
Concord CA, 94520	Project Manager: Tim Ripp	10/30/09

B-3-6.5

9J12007-11 (Soil) Sampled:10/09/09 10:06

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Arsenic		**2.3**	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Lead		**8.2**	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/15/09	EPA 8015B
Surrogate: o-Terphenyl			*46.1 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/15/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*97.3 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*98.6 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*

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Shaw Environmental - Concord	Project: Caltrans - 136529	
4005 Port Chicago Highway	Project Number: Caltrans - Menlo Park (Ravenswood)	Reported:
Concord CA, 94520	Project Manager: Tim Ripp	10/30/09

B-3-11.5

9J12007-12 (Soil) Sampled:10/09/09 10:16

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**32**	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Semi-Volatile Organics									
Diesel	AJ	**160**	100	mg/kg	10	T9J1507	10/15/09	10/16/09	EPA 8015B
Surrogate: o-Terphenyl	SC		*358 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/16/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*94.3 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*97.9 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Menlo Park (Ravenswood) Project Manager: Tim Ripp	Reported: 10/30/09

B-3-16.5

9J12007-13 (Soil) Sampled:10/09/09 10:26

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**6.3**	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Semi-Volatile Organics									
Diesel	AJ	**14**	10	mg/kg	1	T9J1507	10/15/09	10/17/09	EPA 8015B
Surrogate: o-Terphenyl			*87.9 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/17/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)			*103 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)			*99.7 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Menlo Park (Ravenswood) Project Manager: Tim Ripp	**Reported:** 10/30/09

B-3-21.5

9J12007-14 (Soil) Sampled: 10/09/09 10:40

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**3.9**	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/16/09	EPA 8015B
Surrogate: o-Terphenyl			*12.9 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/16/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1605	10/16/09	10/16/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*99.0 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*101 %*	*75-125*		*T9J1605*	*10/16/09*	*10/16/09*	*EPA 8015B/8021B*

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

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Shaw Environmental - Concord	Project: Caltrans - 136529	
4005 Port Chicago Highway	Project Number: Caltrans - Menlo Park (Ravenswood)	Reported:
Concord CA, 94520	Project Manager: Tim Ripp	10/30/09

B-1-GW-21.5

9J12007-15 (Ground Water) Sampled:10/09/09 14:55

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Dissolved									
Lead	D2	ND	0.050	mg/L	10	T9J2402	10/24/09	10/28/09	EPA 200.7
Semi-Volatile Organics									
Diesel	A	**150**	100	µg/L	1	T9J1311	10/13/09	10/14/09	EPA 8015B
Surrogate: o-Terphenyl			*81.2 %*	*34-150*		*T9J1311*	*10/13/09*	*10/14/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.50	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Toluene		ND	0.50	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Ethylbenzene		ND	0.50	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Xylenes, total		ND	1.5	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	2.5	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Gasoline		ND	50	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)			*117 %*	*75-125*		*T9J1407*	*10/14/09*	*10/14/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)			*102 %*	*75-125*		*T9J1407*	*10/14/09*	*10/14/09*	*EPA 8015B/8021B*

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Menlo Park (Ravenswood) Project Manager: Tim Ripp	Reported: 10/30/09

B-2-GW-31.5

9J12007-16 (Ground Water) Sampled:10/09/09 07:25

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Dissolved									
Lead	D2	ND	0.050	mg/L	10	T9J2402	10/24/09	10/28/09	EPA 200.7
Semi-Volatile Organics									
Diesel	A	**150**	100	µg/L	1	T9J1311	10/13/09	10/14/09	EPA 8015B
Surrogate: o-Terphenyl			*71.5 %*	*34-150*		*T9J1311*	*10/13/09*	*10/14/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.50	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Toluene		ND	0.50	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Ethylbenzene		ND	0.50	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Xylenes, total		ND	1.5	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	2.5	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Gasoline		ND	50	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*100 %*	*75-125*		*T9J1407*	*10/14/09*	*10/14/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*116 %*	*75-125*		*T9J1407*	*10/14/09*	*10/14/09*	*EPA 8015B/8021B*

MOORE TWINING ASSOCIATES, INC.
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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Menlo Park (Ravenswood) Project Manager: Tim Ripp	Reported: 10/30/09

B-3-GW-21.5

9J12007-17 (Ground Water) Sampled:10/09/09 11:00

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Dissolved									
Arsenic	D2	ND	0.10	mg/L	10	T9J2402	10/24/09	10/28/09	EPA 200.7
Lead	D2	ND	0.050	mg/L	10	T9J2402	10/24/09	10/28/09	EPA 200.7
Semi-Volatile Organics									
Diesel	A	**110**	100	µg/L	1	T9J1311	10/13/09	10/14/09	EPA 8015B
Surrogate: o-Terphenyl			*85.1 %*	*34-150*		*T9J1311*	*10/13/09*	*10/14/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.50	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Toluene		ND	0.50	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Ethylbenzene		ND	0.50	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Xylenes, total		ND	1.5	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	2.5	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Gasoline		ND	50	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*101 %*	*75-125*		*T9J1407*	*10/14/09*	*10/14/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*116 %*	*75-125*		*T9J1407*	*10/14/09*	*10/14/09*	*EPA 8015B/8021B*

MOORE TWINING ASSOCIATES, INC.
EST. 1969
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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Menlo Park (Ravenswood) Project Manager: Tim Ripp	Reported: 10/30/09

Trip Blanks

9J12007-18 (Water) Sampled:10/09/09 15:00

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Volatile Organics									
Benzene		ND	0.50	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Toluene		**3.8**	0.50	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Ethylbenzene		**0.63**	0.50	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Xylenes, total		**4.1**	1.5	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	2.5	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Gasoline		ND	50	µg/L	1	T9J1407	10/14/09	10/14/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)			*117 %*	*75-125*		*T9J1407*	*10/14/09*	*10/14/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)			*101 %*	*75-125*		*T9J1407*	*10/14/09*	*10/14/09*	*EPA 8015B/8021B*

Notes and Definitions

SI	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
SC	The surrogate recovery for this sample cannot be accurately quantified due to interference from coelution of compounds.
QM	The spike recovery for this QC sample is outside of established control limits due to matrix interference.
D2	Sample diluted due to high concentration(s) of non-target analyte(s).
AJ	Heavier hydrocarbon than diesel
A	Hydrocarbon pattern present in the requested fuel quantitation range but does not resemble the pattern of the requested fuel.
ug/L	micrograms per liter (parts per billion concentration units)
mg/kg	milligrams per kilogram (parts per million concentration units)
mg/L	milligrams per Liter (parts per million concentration units)
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Menlo Park (Ravenswood) Project Manager: Tim Ripp	Reported: 10/30/09

Metals - Totals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9J1317										
Blank (T9J1317-BLK1)				Prepared: 10/13/09 Analyzed: 10/16/09						
Lead	ND	2.0	mg/kg							
Arsenic	ND	2.0	mg/kg							
LCS (T9J1317-BS1)				Prepared: 10/13/09 Analyzed: 10/16/09						
Lead	19.4	2.0	mg/kg	20.0		97.2	75-125		20	
Arsenic	37.6	2.0	mg/kg	40.0		94.1	75-125		20	
LCS Dup (T9J1317-BSD1)				Prepared: 10/13/09 Analyzed: 10/16/09						
Arsenic	38.0	2.0	mg/kg	40.0		94.9	75-125	0.820	20	
Lead	19.6	2.0	mg/kg	20.0		98.0	75-125	0.871	20	
Matrix Spike (T9J1317-MS1)		Source: 9J12007-04		Prepared: 10/13/09 Analyzed: 10/16/09						
Lead	26.8	2.0	mg/kg	20.0	7.73	95.5	75-125		20	
Arsenic	44.9	2.0	mg/kg	40.0	7.63	93.3	75-125		20	
Matrix Spike (T9J1317-MS2)		Source: 9J12009-01		Prepared: 10/13/09 Analyzed: 10/16/09						
Arsenic	40.2	2.0	mg/kg	39.9	2.68	94.3	75-125		20	
Lead	22.9	2.0	mg/kg	19.9	3.59	96.9	75-125		20	
Matrix Spike Dup (T9J1317-MSD1)		Source: 9J12007-04		Prepared: 10/13/09 Analyzed: 10/16/09						
Arsenic	44.2	2.0	mg/kg	39.8	7.63	91.9	75-125	1.49	20	
Lead	26.8	2.0	mg/kg	19.9	7.73	95.7	75-125	0.0386	20	
Matrix Spike Dup (T9J1317-MSD2)		Source: 9J12009-01		Prepared: 10/13/09 Analyzed: 10/16/09						
Lead	22.8	2.0	mg/kg	19.9	3.59	96.3	75-125	0.523	20	
Arsenic	39.8	2.0	mg/kg	39.9	2.68	93.2	75-125	1.05	20	

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Est. 1968
California ELAP Certificate #1371

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Menlo Park (Ravenswood) Project Manager: Tim Ripp	Reported: 10/30/09

Metals - Dissolved - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9J2402										
Blank (T9J2402-BLK1)				Prepared: 10/24/09 Analyzed: 10/25/09						
Arsenic	ND	0.010	mg/L							
Lead	ND	0.0050	mg/L							
LCS (T9J2402-BS1)				Prepared: 10/24/09 Analyzed: 10/25/09						
Arsenic	0.214	0.010	mg/L	0.200		107	85-115		20	
Lead	0.107	0.0050	mg/L	0.100		107	85-115		20	
LCS Dup (T9J2402-BSD1)				Prepared: 10/24/09 Analyzed: 10/25/09						
Lead	0.107	0.0050	mg/L	0.100		107	85-115	0.0932	20	
Arsenic	0.213	0.010	mg/L	0.200		106	85-115	0.656	20	
Matrix Spike (T9J2402-MS1)		Source: 9J14038-01		Prepared: 10/24/09 Analyzed: 10/25/09						
Arsenic	0.203	0.010	mg/L	0.200	ND	102	70-130		20	
Lead	0.0999	0.0050	mg/L	0.100	ND	99.9	70-130		20	
Matrix Spike (T9J2402-MS2)		Source: 9J15028-02		Prepared: 10/24/09 Analyzed: 10/25/09						
Arsenic	0.209	0.010	mg/L	0.200	0.00314	103	70-130		20	
Lead	0.102	0.0050	mg/L	0.100	ND	102	70-130		20	
Matrix Spike Dup (T9J2402-MSD1)		Source: 9J14038-01		Prepared: 10/24/09 Analyzed: 10/25/09						
Arsenic	0.206	0.010	mg/L	0.200	ND	103	70-130	1.37	20	
Lead	0.101	0.0050	mg/L	0.100	ND	101	70-130	1.27	20	
Matrix Spike Dup (T9J2402-MSD2)		Source: 9J15028-02		Prepared: 10/24/09 Analyzed: 10/25/09						
Arsenic	0.209	0.010	mg/L	0.200	0.00314	103	70-130	0.0478	20	
Lead	0.104	0.0050	mg/L	0.100	ND	104	70-130	1.75	20	

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Shaw Environmental - Concord
4005 Port Chicago Highway
Concord CA, 94520

Project: Caltrans - 136529
Project Number: Caltrans - Menlo Park (Ravenswood)
Project Manager: Tim Ripp

Reported:
10/30/09

Semi-Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9J1311										
Blank (T9J1311-BLK1)				Prepared & Analyzed: 10/13/09						
Surrogate: o-Terphenyl	*4.41*		*µg/L*	*8.00*		*55.2*	*34-150*			
Diesel	ND	100	µg/L							
LCS (T9J1311-BS1)				Prepared & Analyzed: 10/13/09						
Surrogate: o-Terphenyl	*8.38*		*µg/L*	*8.00*		*105*	*34-150*			
Diesel	455	100	µg/L	500		91.1	70-130		20	
LCS Dup (T9J1311-BSD1)				Prepared: 10/13/09 Analyzed: 10/14/09						
Surrogate: o-Terphenyl	*6.64*		*µg/L*	*8.00*		*83.0*	*34-150*			
Diesel	385	100	µg/L	500		77.1	70-130	16.6	20	
Batch T9J1507										
Blank (T9J1507-BLK1)				Prepared & Analyzed: 10/15/09						
Surrogate: o-Terphenyl	*ND*		*mg/kg*	*0.400*		*53.0*	*11.8-130*			
Diesel	ND	10	mg/kg							
Blank (T9J1507-BLK2)				Prepared: 10/15/09 Analyzed: 10/16/09						
Surrogate: o-Terphenyl	*ND*		*mg/kg*	*0.400*		*48.1*	*11.8-130*			
Diesel	ND	10	mg/kg							
LCS (T9J1507-BS1)				Prepared & Analyzed: 10/15/09						
Surrogate: o-Terphenyl	*0.399*		*mg/kg*	*0.400*		*99.8*	*11.8-130*			
Diesel	22.2	10	mg/kg	25.0		88.8	70-130		20	
LCS (T9J1507-BS2)				Prepared: 10/15/09 Analyzed: 10/16/09						
Surrogate: o-Terphenyl	*0.377*		*mg/kg*	*0.400*		*94.2*	*11.8-130*			
Diesel	21.6	10	mg/kg	25.0		86.2	70-130		20	
LCS Dup (T9J1507-BSD1)				Prepared & Analyzed: 10/15/09						
Surrogate: o-Terphenyl	*0.372*		*mg/kg*	*0.400*		*92.9*	*11.8-130*			
Diesel	21.2	10	mg/kg	25.0		84.7	70-130	4.72	20	
LCS Dup (T9J1507-BSD2)				Prepared: 10/15/09 Analyzed: 10/16/09						
Surrogate: o-Terphenyl	*0.282*		*mg/kg*	*0.400*		*70.6*	*11.8-130*			
Diesel	20.2	10	mg/kg	25.0		80.8	70-130	6.47	20	
Matrix Spike (T9J1507-MS1)		Source: 9J12008-03		Prepared: 10/15/09 Analyzed: 10/16/09						
Surrogate: o-Terphenyl	*0.442*		*mg/kg*	*0.400*		*111*	*11.8-130*			
Diesel	21.9	10	mg/kg	25.0	ND	87.6	70-130		20	
Matrix Spike (T9J1507-MS2)		Source: 9J12009-01		Prepared: 10/15/09 Analyzed: 10/16/09						

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Semi-Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9J1507										
Matrix Spike (T9J1507-MS2)			**Source: 9J12009-01**	Prepared: 10/15/09 Analyzed: 10/16/09						
Surrogate: o-Terphenyl	*0.326*		*mg/kg*	*0.400*		*81.4*	*11.8-130*			
Diesel	14.4	10	mg/kg	25.0	ND	57.7	70-130		20	QM
Matrix Spike Dup (T9J1507-MSD1)			**Source: 9J12008-03**	Prepared: 10/15/09 Analyzed: 10/16/09						
Surrogate: o-Terphenyl	*0.358*		*mg/kg*	*0.400*		*89.5*	*11.8-130*			
Diesel	18.6	10	mg/kg	25.0	ND	74.6	70-130	16.1	20	
Matrix Spike Dup (T9J1507-MSD2)			**Source: 9J12009-01**	Prepared: 10/15/09 Analyzed: 10/16/09						
Surrogate: o-Terphenyl	*0.360*		*mg/kg*	*0.400*		*89.9*	*11.8-130*			
Diesel	15.6	10	mg/kg	25.0	ND	62.6	70-130	8.14	20	QM

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Shaw Environmental - Concord	Project: Caltrans - 136529	
4005 Port Chicago Highway	Project Number: Caltrans - Menlo Park (Ravenswood)	Reported:
Concord CA, 94520	Project Manager: Tim Ripp	10/30/09

Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9J1407										
Blank (T9J1407-BLK1)				Prepared & Analyzed: 10/14/09						
Surrogate: 4-Bromofluorobenzene (FID)	*29.2*		*µg/L*	*25.0*		*117*	*75-125*			
Surrogate: 4-Bromofluorobenzene (PID)	*24.9*		*µg/L*	*25.0*		*99.7*	*75-125*			
Benzene	ND	0.50	µg/L							
Toluene	ND	0.50	µg/L							
Ethylbenzene	ND	0.50	µg/L							
Xylenes, total	ND	1.5	µg/L							
Methyl tert-Butyl Ether (MTBE)	ND	2.5	µg/L							
Gasoline	ND	50	µg/L							
LCS (T9J1407-BS1)				Prepared & Analyzed: 10/14/09						
Surrogate: 4-Bromofluorobenzene (FID)	*27.5*		*µg/L*	*25.0*		*110*	*70-130*			
Surrogate: 4-Bromofluorobenzene (PID)	*25.4*		*µg/L*	*25.0*		*101*	*70-130*			
Benzene	19.2	0.50	µg/L	20.0		95.8	70-130		20	
Toluene	19.3	0.50	µg/L	20.0		96.3	70-130		20	
Ethylbenzene	20.8	0.50	µg/L	20.0		104	70-130		20	
Xylenes, total	63.2	1.5	µg/L	60.0		105	70-130		20	
Methyl tert-Butyl Ether (MTBE)	86.2	2.5	µg/L	100		86.2	70-130		20	
Gasoline	1090	50	µg/L	1000		109	70-130		20	
LCS Dup (T9J1407-BSD1)				Prepared & Analyzed: 10/14/09						
Surrogate: 4-Bromofluorobenzene (PID)	*25.6*		*µg/L*	*25.0*		*102*	*70-130*			
Surrogate: 4-Bromofluorobenzene (FID)	*26.6*		*µg/L*	*25.0*		*106*	*70-130*			
Benzene	18.5	0.50	µg/L	20.0		92.5	70-130	3.55	20	
Toluene	18.7	0.50	µg/L	20.0		93.4	70-130	3.06	20	
Ethylbenzene	20.1	0.50	µg/L	20.0		101	70-130	3.28	20	
Xylenes, total	61.4	1.5	µg/L	60.0		102	70-130	2.88	20	
Methyl tert-Butyl Ether (MTBE)	85.1	2.5	µg/L	100		85.1	70-130	1.33	20	
Gasoline	1060	50	µg/L	1000		106	70-130	2.84	20	
Batch T9J1605										
Blank (T9J1605-BLK1)				Prepared & Analyzed: 10/16/09						
Surrogate: 4-Bromofluorobenzene (PID)	*0.0611*		*mg/kg*	*0.0625*		*97.7*	*75-125*			
Surrogate: 4-Bromofluorobenzene (FID)	*0.0618*		*mg/kg*	*0.0625*		*98.9*	*75-125*			
Benzene	ND	0.0050	mg/kg							
Toluene	ND	0.0050	mg/kg							
Ethylbenzene	ND	0.0050	mg/kg							
Xylenes, total	ND	0.010	mg/kg							

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

2527 Fresno Street
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Shaw Environmental - Concord	Project: Caltrans - 136529	
4005 Port Chicago Highway	Project Number: Caltrans - Menlo Park (Ravenswood)	Reported:
Concord CA, 94520	Project Manager: Tim Ripp	10/30/09

Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9J1605										
Blank (T9J1605-BLK1)				Prepared & Analyzed: 10/16/09						
Gasoline	ND	1.0	mg/kg							
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg							
LCS (T9J1605-BS1)				Prepared & Analyzed: 10/16/09						
Surrogate: 4-Bromofluorobenzene (FID)	*0.0591*		*mg/kg*	*0.0625*		*94.6*	*70-130*			
Surrogate: 4-Bromofluorobenzene (PID)	*0.0625*		*mg/kg*	*0.0625*		*100*	*70-130*			
Benzene	0.0456	0.0050	mg/kg	0.0500		91.3	70-130		20	
Toluene	0.0446	0.0050	mg/kg	0.0500		89.3	70-130		20	
Ethylbenzene	0.0442	0.0050	mg/kg	0.0500		88.4	70-130		20	
Xylenes, total	0.133	0.010	mg/kg	0.150		88.9	70-130		20	
Gasoline	2.47	1.0	mg/kg	2.50		99.0	70-130		20	
Methyl tert-Butyl Ether (MTBE)	0.239	0.050	mg/kg	0.250		95.8	70-130		20	
LCS Dup (T9J1605-BSD1)				Prepared & Analyzed: 10/16/09						
Surrogate: 4-Bromofluorobenzene (PID)	*0.0610*		*mg/kg*	*0.0625*		*97.7*	*70-130*			
Surrogate: 4-Bromofluorobenzene (FID)	*0.0587*		*mg/kg*	*0.0625*		*93.8*	*70-130*			
Benzene	0.0452	0.0050	mg/kg	0.0500		90.3	70-130	1.07	20	
Toluene	0.0444	0.0050	mg/kg	0.0500		88.8	70-130	0.475	20	
Ethylbenzene	0.0439	0.0050	mg/kg	0.0500		87.8	70-130	0.627	20	
Xylenes, total	0.132	0.010	mg/kg	0.150		88.0	70-130	1.01	20	
Gasoline	2.46	1.0	mg/kg	2.50		98.6	70-130	0.430	20	
Methyl tert-Butyl Ether (MTBE)	0.232	0.050	mg/kg	0.250		92.9	70-130	3.08	20	

Chain of Custody
Moore Twining Associates, Inc.

9J12 007 10.9°C

SHAW Environmental and Infrastructure, Inc.

Send Report To : Tim Ripp
eMail : tim.ripp@shawgrp.com
Phone : (510) 427-8350
Address: 5500 Port Chicago Highway
City/State : Concor, CA

Sampler Name: Bryan Stempson

Sampler Signature:

2527 Fresno Street,
Fresno, CA, 93721

Ship Date: 10/10/09
Date/Time Results Required: Standard
Lab's Work Order #:

Project Name: Caltrans - 136529
CALTRANS - MENLO PARK (CRANSWOOD)
C98806.0100

Client Sample ID	Matrix	Target Depth	Date/Time Sampled	Container	# of Cont.	Preservative	Lab's Sample #	TPH-g 8015B	TPH-d 8015B	BTEX 8021B MTBE	Total Lead 6010 & 200.7	Total Arsenic 6010 & 200.7		ASTM Method - d854	ASTM Method C-29	Moisture Content - CT 226	Sieve Analysis - CT-202	Atterburg Limits - CT-204	Hold
B-1-6.5	Soil	6.5	10/9/09 1350	Sleeves	1	Ice		X	X	X	X	X				metal Sleeve			
B-1-11.5		11.5	10/9/09 1405					X	X	X	X								
B-1-16.5		16.5	10/9/09 1425					X	X	X	X								
B-1-21.5		21.5	10/9/09 1439					X	X	X	X								
B-2-6.5		6.5	10/8/09 1730					X	X	X	X	X							
B-2-11.5		11.5	10/8/09 1744					X	X	X	X								
B-2-16.5		16.5	10/8/09 1752					X	X	X	X								
B-2-21.5		21.5	10/8/09 1802					X	X	X	X								
B-2-26.5		26.5	10/8/09 1812																X
B-2-31.5		31.5	10/8/09 1825																X

Relinquished by/Co.:	Received by/Co: MTA	Date/Time/Temp: 10/10/09 / 1655	
Relinquished by/Co.: MTA	Received by/Co:	Date/Time/Temp: 10-10-09 2000	
Relinquished by/Co.:	Received by/Co: 10/10/09 @ 1044	Date/Time/Temp:	

Were samples Received In Good Condition? X Yes __No Samples on Ice? X Yes __No Method of Shipment: _____

NOTE: EH - Extract and Hold

C:\Documents and Settings\Bryan.Stempson\My Documents\CaltransCOC.xls

Chain of Custody
Moore Twining Associates, Inc.

9J12007 10.9°C

SHAW Environmental and Infrastructure, Inc.

2527 Fresno Street,
Fresno, CA, 93721

Page 2 of 3
Ship Date: 10/10/09
Date/Time Results Required: Standard
Lab's Work Order #:_____

Send Report To : Tim Ripp
eMail : tim.ripp@shawgrp.com
Phone : (510) 427-8350
Address: 5500 Port Chicago Highway
City/State : Concor, CA

Sampler Name: Bryan Stempson
Sampler Signature:

Project Name: Caltrans - 136529
CALTRANS - MENLO PARK (CRANDWOOD)
C98806.0100

Client Sample ID	Matrix	Target Depth	Date/Time Sampled	Container	# of Cont.	Preservative	Lab's Sample #	TPH-g 8015B	TPH-d 8015B	BTEX 8021B MTBE	Total Lead 6010 & 200.7	Total Arsenic 6010 & 200.7		ASTM Method - d854	ASTM Method C-29	Moisture Content - CT 226	Sieve Analysis - CT-202	Atterburg Limits - CT-204	HOLD
B-3-6.5	Soil	6.5	10/9/09 1006	Sleeve	1	Ice		X	X	X	X	X		Metal Sleeve					
B-3-11.5		11.5	10/9/09 ~~1006~~ 1016					X	X	X	X								
B-3-16.5		16.5	10/9/09 1026					X	X	X	X								
B-3-21.5		21.5	10/9/09 1040					X	X	X	X								
B-1-GW-21.5	GW	NA	10/9/09 1455	VOA	4	HCl		X		X					4x VOA HCL				
B-1-GW-21.5	GW	NA	10/9/09 1455	1-L Amb	1	Ice			X						1 L AG Θ				
B-1-GW-21.5*	GW	NA	10/9/09 1455	500 mL Poly	1	Ice					X				500P Θ, 125P HNO3				
B-2-GW-31.5	GW	NA	10/9/09 0725	VOA	4	HCl		X		X					4-x VOA HCL				
B-2-GW-31.5	GW	NA	10/9/09 0725	1-L Amb	1	Ice			X						1 L AG Θ				
B-2-GW-31.5*	GW	NA	10/9/09 0725	500 mL Poly	1	Ice					X				500P Θ; 125P HNO3				

Relinquished by/Co.:	Received by/Co:	Date/Time/Temp:	10/10/09 1655
Relinquished by/Co.:	Received by/Co:	Date/Time/Temp:	10-10-09 2000
Relinquished by/Co.:	Received by/Co: 10/12/09 10:44	Date/Time/Temp:	

Were samples Received In Good Condition? X Yes __No Samples on Ice? X Yes __No Method of Shipment: _____

NOTE: EH - Extract and Hold

* LAB FILTER

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Chain of Custody
Moore Twining Associates, Inc.

9J12007 10.9°C

SHAW Environmental and Infrastructure, Inc.

Send Report To : Tim Ripp
eMail : tim.ripp@shawgrp.com
Phone : (510) 427-8350
Address: 5500 Port Chicago Highway
City/State : Concor, CA

Sampler Name: Bryan Stempson
Sampler Signature:

2527 Fresno Street,
Fresno, CA, 93721

Page 3 **of** 3
Ship Date: 10/10/09
Date/Time Results Required: Standard
Lab's Work Order #:_____

Project Name: Caltrans - 136529
CALTRANS - MENLO PARK (GRAVENSWOOD)
C98806.0100

Client Sample ID	Matrix	Target Depth	Date/Time Sampled	Container	# of Cont.	Preservative	Lab's Sample #	TPH-g 8015B	TPH-d 8015B	BTEX 8021B MTBE	Total Lead 6010 & 200.7	Total Arsenic 6010 & 200.7		ASTM Method - d854	ASTM Method C-29	Moisture Content - CT 226	Sieve Analysis - CT-202	Atterburg Limits - CT-204	Hold
B-3-GW-21.5	GW	NA	10/9/09 1100	VOA	4	HCl		X		X				4x VOA HCL					
B-3-GW-21.5			10/9/09 1100	1-L Amber	1	ICE			X					1L AG0					
B-3-GW-21.5 *			10/9/09 1100	500 ML POLY	1	ICE					X	X		500PG: 125PHNO3					
Trip Blanks	GW	NA	↓ 1500	2xVOA	2	HCL		X		X				2x VOA HCL					

Relinquished by/Co.: [signature] Received by/Co: [signature] MTA Date/Time/Temp: 10/10/09 1655
Relinquished by/Co.: [signature] MTA Received by/Co: [signature] MTA Date/Time/Temp: 10-10-09 2000
Relinquished by/Co.: Received by/Co: 10/12/09 @ 10:44 Date/Time/Temp:

Were samples Received In Good Condition? X Yes __No Samples on Ice? X Yes __No Method of Shipment: _____

NOTE: EH - Extract and Hold

* LAB FILTER

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MOORE TWINING ASSOCIATES, INC.
EST. 1898
California ELAP Certificate #1371

2527 Fresno Street
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(559) 268-7021 Phone
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October 30, 2009

Work Order #: 9J12009

Tim Ripp
Shaw Environmental - Concord
4005 Port Chicago Highway
Concord, CA 94520

RE: Caltrans - 136529

Enclosed are the analytical results for samples received by our laboratory on 10/12/09 . For your reference, these analyses have been assigned laboratory work order number 9J12009.

All analyses have been performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, Moore Twining Associates, Inc. (MTA) is not responsible for use of less than complete reports. Results apply only to samples analyzed.

If you have any questions, please feel free to contact us at the number listed above.

Sincerely,

Moore Twining Associates, Inc.

Ronald J. Boquist
Director of Analytical Chemistry

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

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Shaw Environmental - Concord	Project: Caltrans - 136529	
4005 Port Chicago Highway	Project Number: Caltrans - Walnut Creek	Reported:
Concord CA, 94520	Project Manager: Tim Ripp	10/30/09

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B-1-6.5	9J12009-01	Soil	10/10/09 14:23	10/12/09 10:44
B-1-11.5	9J12009-02	Soil	10/10/09 14:34	10/12/09 10:44
B-1-16.5	9J12009-03	Soil	10/10/09 14:40	10/12/09 10:44
B-1-31.5	9J12009-06	Soil	10/10/09 15:11	10/12/09 10:44
B-2-6.5	9J12009-07	Soil	10/10/09 15:50	10/12/09 10:44
B-2-11.5	9J12009-08	Soil	10/10/09 15:57	10/12/09 10:44
B-2-16.5	9J12009-09	Soil	10/10/09 16:08	10/12/09 10:44
B-2-31.5	9J12009-12	Soil	10/10/09 16:30	10/12/09 10:44

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Shaw Environmental - Concord	Project: Caltrans - 136529	
4005 Port Chicago Highway	Project Number: Caltrans - Walnut Creek	Reported:
Concord CA, 94520	Project Manager: Tim Ripp	10/30/09

B-1-6.5

9J12009-01 (Soil) Sampled:10/10/09 14:23

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Arsenic		**2.7**	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Lead		**3.6**	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/16/09	EPA 8015B
Surrogate: o-Terphenyl			*20.3 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/16/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*98.7 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*100 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Walnut Creek Project Manager: Tim Ripp	**Reported:** 10/30/09

B-1-11.5

9J12009-02 (Soil) Sampled:10/10/09 14:34

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**6.0**	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/16/09	EPA 8015B
Surrogate: o-Terphenyl			*15.3 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/16/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*99.7 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*101 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*

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Shaw Environmental - Concord	Project: Caltrans - 136529	
4005 Port Chicago Highway	Project Number: Caltrans - Walnut Creek	Reported:
Concord CA, 94520	Project Manager: Tim Ripp	10/30/09

B-1-16.5

9J12009-03 (Soil) Sampled:10/10/09 14:40

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**4.8**	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/16/09	EPA 8015B
Surrogate: o-Terphenyl			*18.4 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/16/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*99.6 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*100 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*

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California ELAP Certificate #1371

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Shaw Environmental - Concord	Project: Caltrans - 136529	
4005 Port Chicago Highway	Project Number: Caltrans - Walnut Creek	Reported:
Concord CA, 94520	Project Manager: Tim Ripp	10/30/09

B-1-31.5

9J12009-06 (Soil) Sampled:10/10/09 15:11

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**4.5**	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/16/09	EPA 8015B
Surrogate: o-Terphenyl			*15.1 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/16/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*100 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*102 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*

MOORE TWINING ASSOCIATES, INC.
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Shaw Environmental - Concord	Project: Caltrans - 136529	
4005 Port Chicago Highway	Project Number: Caltrans - Walnut Creek	Reported:
Concord CA, 94520	Project Manager: Tim Ripp	10/30/09

B-2-6.5

9J12009-07 (Soil) Sampled:10/10/09 15:50

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Arsenic		**4.2**	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Lead		**3.8**	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/16/09	EPA 8015B
Surrogate: o-Terphenyl			*18.9 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/16/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*93.7 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*95.6 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Walnut Creek Project Manager: Tim Ripp	Reported: 10/30/09

B-2-11.5

9J12009-08 (Soil) Sampled:10/10/09 15:57

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**6.8**	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/16/09	EPA 8015B
Surrogate: o-Terphenyl			*18.1 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/16/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*102 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*103 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Walnut Creek Project Manager: Tim Ripp	Reported: 10/30/09

B-2-16.5

9J12009-09 (Soil) Sampled:10/10/09 16:08

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**5.6**	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/16/09	EPA 8015B
Surrogate: o-Terphenyl			*14.1 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/16/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*98.7 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*100 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Walnut Creek Project Manager: Tim Ripp	Reported: 10/30/09

B-2-31.5

9J12009-12 (Soil) Sampled:10/10/09 16:30

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		3.7	2.0	mg/kg	1	T9J1317	10/13/09	10/16/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J1507	10/15/09	10/16/09	EPA 8015B
Surrogate: o-Terphenyl			*16.1 %*	*11.8-130*		*T9J1507*	*10/15/09*	*10/16/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*98.2 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*101 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*

Notes and Definitions

SI	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QM	The spike recovery for this QC sample is outside of established control limits due to matrix interference.
ug/L	micrograms per liter (parts per billion concentration units)
mg/kg	milligrams per kilogram (parts per million concentration units)
mg/L	milligrams per Liter (parts per million concentration units)
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference

MOORE TWINING ASSOCIATES, INC.
EST. 1994
California ELAP Certificate #1371

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Walnut Creek Project Manager: Tim Ripp	Reported: 10/30/09

Metals - Totals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9J1317										
Blank (T9J1317-BLK1)				Prepared: 10/13/09 Analyzed: 10/16/09						
Lead	ND	2.0	mg/kg							
Arsenic	ND	2.0	mg/kg							
LCS (T9J1317-BS1)				Prepared: 10/13/09 Analyzed: 10/16/09						
Lead	19.4	2.0	mg/kg	20.0		97.2	75-125		20	
Arsenic	37.6	2.0	mg/kg	40.0		94.1	75-125		20	
LCS Dup (T9J1317-BSD1)				Prepared: 10/13/09 Analyzed: 10/16/09						
Lead	19.6	2.0	mg/kg	20.0		98.0	75-125	0.871	20	
Arsenic	38.0	2.0	mg/kg	40.0		94.9	75-125	0.820	20	
Matrix Spike (T9J1317-MS1)		Source: 9J12007-04		Prepared: 10/13/09 Analyzed: 10/16/09						
Lead	26.8	2.0	mg/kg	20.0	7.73	95.5	75-125		20	
Arsenic	44.9	2.0	mg/kg	40.0	7.63	93.3	75-125		20	
Matrix Spike (T9J1317-MS2)		Source: 9J12009-01		Prepared: 10/13/09 Analyzed: 10/16/09						
Lead	22.9	2.0	mg/kg	19.9	3.59	96.9	75-125		20	
Arsenic	40.2	2.0	mg/kg	39.9	2.68	94.3	75-125		20	
Matrix Spike Dup (T9J1317-MSD1)		Source: 9J12007-04		Prepared: 10/13/09 Analyzed: 10/16/09						
Arsenic	44.2	2.0	mg/kg	39.8	7.63	91.9	75-125	1.49	20	
Lead	26.8	2.0	mg/kg	19.9	7.73	95.7	75-125	0.0386	20	
Matrix Spike Dup (T9J1317-MSD2)		Source: 9J12009-01		Prepared: 10/13/09 Analyzed: 10/16/09						
Lead	22.8	2.0	mg/kg	19.9	3.59	96.3	75-125	0.523	20	
Arsenic	39.8	2.0	mg/kg	39.9	2.68	93.2	75-125	1.05	20	

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Walnut Creek Project Manager: Tim Ripp	Reported: 10/30/09

Semi-Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9J1507										
Blank (T9J1507-BLK1)				Prepared & Analyzed: 10/15/09						
Surrogate: o-Terphenyl	*ND*		*mg/kg*	*0.400*		*53.0*	*11.8-130*			
Diesel	ND	10	mg/kg							
Blank (T9J1507-BLK2)				Prepared: 10/15/09 Analyzed: 10/16/09						
Surrogate: o-Terphenyl	*ND*		*mg/kg*	*0.400*		*48.1*	*11.8-130*			
Diesel	ND	10	mg/kg							
LCS (T9J1507-BS1)				Prepared & Analyzed: 10/15/09						
Surrogate: o-Terphenyl	*0.399*		*mg/kg*	*0.400*		*99.8*	*11.8-130*			
Diesel	22.2	10	mg/kg	25.0		88.8	70-130		20	
LCS (T9J1507-BS2)				Prepared: 10/15/09 Analyzed: 10/16/09						
Surrogate: o-Terphenyl	*0.377*		*mg/kg*	*0.400*		*94.2*	*11.8-130*			
Diesel	21.6	10	mg/kg	25.0		86.2	70-130		20	
LCS Dup (T9J1507-BSD1)				Prepared & Analyzed: 10/15/09						
Surrogate: o-Terphenyl	*0.372*		*mg/kg*	*0.400*		*92.9*	*11.8-130*			
Diesel	21.2	10	mg/kg	25.0		84.7	70-130	4.72	20	
LCS Dup (T9J1507-BSD2)				Prepared: 10/15/09 Analyzed: 10/16/09						
Surrogate: o-Terphenyl	*0.282*		*mg/kg*	*0.400*		*70.6*	*11.8-130*			
Diesel	20.2	10	mg/kg	25.0		80.8	70-130	6.47	20	
Matrix Spike (T9J1507-MS1)		Source: 9J12008-03		Prepared: 10/15/09 Analyzed: 10/16/09						
Surrogate: o-Terphenyl	*0.442*		*mg/kg*	*0.400*		*111*	*11.8-130*			
Diesel	21.9	10	mg/kg	25.0	ND	87.6	70-130		20	
Matrix Spike (T9J1507-MS2)		Source: 9J12009-01		Prepared: 10/15/09 Analyzed: 10/16/09						
Surrogate: o-Terphenyl	*0.326*		*mg/kg*	*0.400*		*81.4*	*11.8-130*			
Diesel	14.4	10	mg/kg	25.0	ND	57.7	70-130		20	QM
Matrix Spike Dup (T9J1507-MSD1)		Source: 9J12008-03		Prepared: 10/15/09 Analyzed: 10/16/09						
Surrogate: o-Terphenyl	*0.358*		*mg/kg*	*0.400*		*89.5*	*11.8-130*			
Diesel	18.6	10	mg/kg	25.0	ND	74.6	70-130	16.1	20	
Matrix Spike Dup (T9J1507-MSD2)		Source: 9J12009-01		Prepared: 10/15/09 Analyzed: 10/16/09						
Surrogate: o-Terphenyl	*0.360*		*mg/kg*	*0.400*		*89.9*	*11.8-130*			
Diesel	15.6	10	mg/kg	25.0	ND	62.6	70-130	8.14	20	QM

MOORE TWINING ASSOCIATES, INC.
EST. 1996
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Walnut Creek Project Manager: Tim Ripp	Reported: 10/30/09

Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9J1906										
Blank (T9J1906-BLK1)				Prepared & Analyzed: 10/19/09						
Surrogate: 4-Bromofluorobenzene (FID)	*0.0621*		*mg/kg*	*0.0625*		*99.3*	*75-125*			
Surrogate: 4-Bromofluorobenzene (PID)	*0.0613*		*mg/kg*	*0.0625*		*98.1*	*75-125*			
Benzene	ND	0.0050	mg/kg							
Toluene	ND	0.0050	mg/kg							
Ethylbenzene	ND	0.0050	mg/kg							
Xylenes, total	ND	0.010	mg/kg							
Gasoline	ND	1.0	mg/kg							
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg							
LCS (T9J1906-BS1)				Prepared & Analyzed: 10/19/09						
Surrogate: 4-Bromofluorobenzene (PID)	*0.0662*		*mg/kg*	*0.0625*		*106*	*70-130*			
Surrogate: 4-Bromofluorobenzene (FID)	*0.0591*		*mg/kg*	*0.0625*		*94.5*	*70-130*			
Benzene	0.0453	0.0050	mg/kg	0.0500		90.6	70-130		20	
Toluene	0.0459	0.0050	mg/kg	0.0500		91.7	70-130		20	
Ethylbenzene	0.0455	0.0050	mg/kg	0.0500		91.1	70-130		20	
Xylenes, total	0.138	0.010	mg/kg	0.150		92.1	70-130		20	
Gasoline	2.41	1.0	mg/kg	2.50		96.2	70-130		20	
Methyl tert-Butyl Ether (MTBE)	0.266	0.050	mg/kg	0.250		106	70-130		20	
LCS Dup (T9J1906-BSD1)				Prepared & Analyzed: 10/19/09						
Surrogate: 4-Bromofluorobenzene (FID)	*0.0608*		*mg/kg*	*0.0625*		*97.3*	*70-130*			
Surrogate: 4-Bromofluorobenzene (PID)	*0.0646*		*mg/kg*	*0.0625*		*103*	*70-130*			
Benzene	0.0447	0.0050	mg/kg	0.0500		89.3	70-130	1.40	20	
Toluene	0.0438	0.0050	mg/kg	0.0500		87.7	70-130	4.51	20	
Ethylbenzene	0.0437	0.0050	mg/kg	0.0500		87.4	70-130	4.10	20	
Xylenes, total	0.133	0.010	mg/kg	0.150		88.5	70-130	3.99	20	
Gasoline	2.47	1.0	mg/kg	2.50		98.8	70-130	2.60	20	
Methyl tert-Butyl Ether (MTBE)	0.252	0.050	mg/kg	0.250		101	70-130	5.34	20	

Chain of Custody
Moore Twining Associates, Inc.

9/12009 10.9°C

2527 Fresno Street,
Fresno, CA, 93721

Page 1 of 2
Ship Date: 10/10/09
Date/Time Results Required: Standard
Lab's Work Order #:_____

Shaw SHAW Environmental and Infrastructure, Inc.

Send Report To : Tim Ripp
eMail : tim.ripp@shawgrp.com
Phone : (510) 427-8350
Address: 5500 Port Chicago Highway
City/State : Concor, CA

Sampler Name: Bryan Stempson
Sampler Signature:

Project Name: Caltrans - 136529
CALTRANS - WALNUT CREEK
C98305.0100

Client Sample ID	Matrix	Target Depth	Date/Time Sampled	Container	# of Cont.	Preservative	Lab's Sample #	TPH-g 8015B	TPH-d 8015B	BTEX 8021B	Total Lead 6010 & 200.7	Total Arsenic 6010 & 200.7		ASTM Method - d854	ASTM Method C-29	Moisture Content - CT 226	Sieve Analysis - CT-202	Atterburg Limits - CT-204	HOLD
B-1-6.5	Soil	6.5	10/10/09 1423	1 SLEEVE	1	ICE		X	X	X	X	X			metal / Silt				
B-1-11.5		11.5	10/10/09 1434					X	X	X	X								
B-1-16.5		16.5	10/10/09 1440					X	X	X	X								
B-1-21.5		21.5	10/10/09 1450																X
B-1-26.5		26.5	10/10/09 1500																X
B-1-31.5		31.5	10/10/09 1511					X	X	X	X								X
B-2-6.5		6.5	10/10/09 1550					X	X	X	X	X							
B-2-11.5		11.5	10/10/09 1557					X	X	X	X								
B-2-16.5		16.5	10/10/09 1603					X	X	X	X								
B-2-21.5		21.5	10/10/09 1616																X

Relinquished by/Co.:	Received by/Co:	Date/Time/Temp:	10/10/09 1655
Relinquished by/Co.:	Received by/Co:	Date/Time/Temp:	10-10-09 2000
Relinquished by/Co.:	Received by/Co: 10/12/09 @ 10:42	Date/Time/Temp:	

Were samples Received In Good Condition? X Yes __No Samples on Ice? X Yes __No Method of Shipment: _____

NOTE: EH - Extract and Hold

C:\Documents and Settings\Bryan.Stempson\My Documents\CaltransCOC.xls

Chain of Custody
Moore Twining Associates, Inc.

9/12/2009 10:90c

SHAW Environmental and Infrastructure, Inc.

Send Report To : Tim Ripp
eMail : tim.ripp@shawgrp.com
Phone : (510) 427-8350
Address: 5500 Port Chicago Highway
City/State : Concor, CA

Sampler Name: Bryan Stempson
Sampler Signature:

2527 Fresno Street,
Fresno, CA, 93721

Project Name: Caltrans - 136529
CALTRANS - WALNUT CREEK
C98805.0100

Page 2 of 2
Ship Date: 10/10/09
Date/Time Results Required: Standard
Lab's Work Order #:

Client Sample ID	Matrix	Target Depth	Date/Time Sampled	Container	# of Cont.	Preservative	Lab's Sample #	TPH-g 8015B	TPH-d 8015B	BTEX 8021B	Total Lead 6010 & 200.7	Total Arsenic 6010 & 200.7		ASTM Method - d854	ASTM Method C-29	Moisture Content - CT 226	Sieve Analysis - CT-202	Atterburg Limits - CT-204	HOLD
B-2-26.5	Soil	26.5	10/10/09 1622	Sleeve	1	Ice									metal Sleeve				X
B-2-31.5	1	31.5	10/10/09 1630	1	1	1		X	X	X	X					1			

Relinquished by/Co.:	Received by/Co: MTA	Date/Time/Temp: 10/10/09 1655
Relinquished by/Co.: MTA	Received by/Co:	Date/Time/Temp: 0-4 2100
Relinquished by/Co.:	Received by/Co: 10/12/09 10:44	Date/Time/Temp:

Were samples Received In Good Condition? X Yes __No Samples on Ice? X Yes __No Method of Shipment: _____

NOTE: EH - Extract and Hold

C:\Documents and Settings\Bryan.Stempson\My Documents\CaltransCOC.xls

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
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October 30, 2009

Work Order #: 9J16003

Tim Ripp
Shaw Environmental - Concord
4005 Port Chicago Highway
Concord, CA 94520

RE: Caltrans - 136529

Enclosed are the analytical results for samples received by our laboratory on 10/16/09 . For your reference, these analyses have been assigned laboratory work order number 9J16003.

All analyses have been performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, Moore Twining Associates, Inc. (MTA) is not responsible for use of less than complete reports. Results apply only to samples analyzed.

If you have any questions, please feel free to contact us at the number listed above.

Sincerely,

Moore Twining Associates, Inc.

Ronald J. Boquist
Director of Analytical Chemistry

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Walnut Creek East Project Manager: Tim Ripp	Reported: 10/30/09

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B-3-6.5	9J16003-01	Soil	10/12/09 00:00	10/16/09 09:00
B-3-11.5	9J16003-02	Soil	10/12/09 00:00	10/16/09 09:00
B-3-16.5	9J16003-03	Soil	10/12/09 00:00	10/16/09 09:00
B-3-31.5	9J16003-05	Soil	10/12/09 00:00	10/16/09 09:00

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

2527 Fresno Street
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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Walnut Creek East Project Manager: Tim Ripp	Reported: 10/30/09

B-3-6.5

9J16003-01 (Soil) Sampled:10/12/09 00:00

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Arsenic		**4.0**	2.0	mg/kg	1	T9J2401	10/24/09	10/24/09	EPA 6010B
Lead		**5.2**	2.0	mg/kg	1	T9J2401	10/24/09	10/24/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J2720	10/26/09	10/28/09	EPA 8015B
Surrogate: o-Terphenyl			*63.3 %*	*11.8-130*		*T9J2720*	*10/26/09*	*10/28/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*101 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*103 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*

MOORE TWINING ASSOCIATES, INC.
EST. 1899
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

Shaw Environmental - Concord	Project: Caltrans - 136529	
4005 Port Chicago Highway	Project Number: Caltrans - Walnut Creek East	Reported:
Concord CA, 94520	Project Manager: Tim Ripp	10/30/09

B-3-11.5

9J16003-02 (Soil) Sampled:10/12/09 00:00

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**5.7**	2.0	mg/kg	1	T9J2401	10/24/09	10/24/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J2720	10/26/09	10/28/09	EPA 8015B
Surrogate: o-Terphenyl			*49.4 %*	*11.8-130*		*T9J2720*	*10/26/09*	*10/28/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*98.6 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*100 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Walnut Creek East Project Manager: Tim Ripp	Reported: 10/30/09

B-3-16.5

9J16003-03 (Soil) Sampled:10/12/09 00:00

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**5.5**	2.0	mg/kg	1	T9J2401	10/24/09	10/24/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J2720	10/26/09	10/29/09	EPA 8015B
Surrogate: o-Terphenyl			*46.3 %*	*11.8-130*		*T9J2720*	*10/26/09*	*10/29/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*99.8 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*102 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Walnut Creek East Project Manager: Tim Ripp	Reported: 10/30/09

B-3-31.5

9J16003-05 (Soil) Sampled:10/12/09 00:00

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		**4.3**	2.0	mg/kg	1	T9J2401	10/24/09	10/24/09	EPA 6010B
Semi-Volatile Organics									
Diesel		ND	10	mg/kg	1	T9J2720	10/26/09	10/29/09	EPA 8015B
Surrogate: o-Terphenyl			*59.7 %*	*11.8-130*		*T9J2720*	*10/26/09*	*10/29/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Toluene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Ethylbenzene		ND	0.0050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Xylenes, total		ND	0.010	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Gasoline		ND	1.0	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	0.050	mg/kg	1	T9J1906	10/19/09	10/19/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (FID)			*102 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (PID)			*100 %*	*75-125*		*T9J1906*	*10/19/09*	*10/19/09*	*EPA 8015B/8021B*

Notes and Definitions

ug/L	micrograms per liter (parts per billion concentration units)
mg/kg	milligrams per kilogram (parts per million concentration units)
mg/L	milligrams per Liter (parts per million concentration units)
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Walnut Creek East Project Manager: Tim Ripp	Reported: 10/30/09

Metals - Totals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9J2401										
Blank (T9J2401-BLK1)				Prepared & Analyzed: 10/24/09						
Lead	ND	2.0	mg/kg							
Arsenic	ND	2.0	mg/kg							
LCS (T9J2401-BS1)				Prepared & Analyzed: 10/24/09						
Arsenic	37.5	2.0	mg/kg	40.0		93.7	75-125		20	
Lead	19.6	2.0	mg/kg	20.0		98.2	75-125		20	
LCS Dup (T9J2401-BSD1)				Prepared & Analyzed: 10/24/09						
Arsenic	37.3	2.0	mg/kg	40.0		93.2	75-125	0.535	20	
Lead	19.5	2.0	mg/kg	20.0		97.6	75-125	0.613	20	
Matrix Spike (T9J2401-MS1)		Source: 9J16005-01		Prepared & Analyzed: 10/24/09						
Arsenic	44.3	2.0	mg/kg	39.9	6.28	95.3	75-125		20	
Lead	25.6	2.0	mg/kg	20.0	7.31	91.4	75-125		20	
Matrix Spike (T9J2401-MS2)		Source: 9J20031-01		Prepared & Analyzed: 10/24/09						
Lead	29.7	2.0	mg/kg	20.0	7.78	110	75-125		20	
Arsenic	49.9	2.0	mg/kg	39.9	10.1	99.9	75-125		20	
Matrix Spike Dup (T9J2401-MSD1)		Source: 9J16005-01		Prepared & Analyzed: 10/24/09						
Arsenic	43.2	2.0	mg/kg	39.7	6.28	92.9	75-125	2.56	20	
Lead	25.3	2.0	mg/kg	19.9	7.31	90.7	75-125	0.849	20	
Matrix Spike Dup (T9J2401-MSD2)		Source: 9J20031-01		Prepared & Analyzed: 10/24/09						
Arsenic	47.5	2.0	mg/kg	39.9	10.1	94.0	75-125	4.97	20	
Lead	25.7	2.0	mg/kg	19.9	7.78	90.0	75-125	14.5	20	

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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Walnut Creek East Project Manager: Tim Ripp	Reported: 10/30/09

Semi-Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9J2720										
Blank (T9J2720-BLK1)				Prepared: 10/26/09 Analyzed: 10/28/09						
Surrogate: o-Terphenyl	*ND*		*mg/kg*	*0.400*		*72.2*	*11.8-130*			
Diesel	ND	10	mg/kg							
LCS (T9J2720-BS1)				Prepared: 10/26/09 Analyzed: 10/28/09						
Surrogate: o-Terphenyl	*0.368*		*mg/kg*	*0.400*		*92.0*	*11.8-130*			
Diesel	24.7	10	mg/kg	25.0		98.8	70-130		20	
LCS Dup (T9J2720-BSD1)				Prepared: 10/26/09 Analyzed: 10/28/09						
Surrogate: o-Terphenyl	*0.373*		*mg/kg*	*0.400*		*93.2*	*11.8-130*			
Diesel	25.4	10	mg/kg	25.0		101	70-130	2.66	20	
Matrix Spike (T9J2720-MS1)		Source: 9J16003-01		Prepared: 10/26/09 Analyzed: 10/29/09						
Surrogate: o-Terphenyl	*0.397*		*mg/kg*	*0.400*		*99.3*	*11.8-130*			
Diesel	22.7	10	mg/kg	25.0	ND	90.9	70-130		20	
Matrix Spike Dup (T9J2720-MSD1)		Source: 9J16003-01		Prepared: 10/26/09 Analyzed: 10/29/09						
Surrogate: o-Terphenyl	*0.460*		*mg/kg*	*0.400*		*115*	*11.8-130*			
Diesel	25.3	10	mg/kg	25.0	ND	101	70-130	10.7	20	

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EST. 1962
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Shaw Environmental - Concord 4005 Port Chicago Highway Concord CA, 94520	Project: Caltrans - 136529 Project Number: Caltrans - Walnut Creek East Project Manager: Tim Ripp	Reported: 10/30/09

Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9J1906										
Blank (T9J1906-BLK1)				Prepared & Analyzed: 10/19/09						
Surrogate: 4-Bromofluorobenzene (PID)	*0.0613*		*mg/kg*	*0.0625*		*98.1*	*75-125*			
Surrogate: 4-Bromofluorobenzene (FID)	*0.0621*		*mg/kg*	*0.0625*		*99.3*	*75-125*			
Benzene	ND	0.0050	mg/kg							
Toluene	ND	0.0050	mg/kg							
Ethylbenzene	ND	0.0050	mg/kg							
Xylenes, total	ND	0.010	mg/kg							
Gasoline	ND	1.0	mg/kg							
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg							
LCS (T9J1906-BS1)				Prepared & Analyzed: 10/19/09						
Surrogate: 4-Bromofluorobenzene (PID)	*0.0662*		*mg/kg*	*0.0625*		*106*	*70-130*			
Surrogate: 4-Bromofluorobenzene (FID)	*0.0591*		*mg/kg*	*0.0625*		*94.5*	*70-130*			
Benzene	0.0453	0.0050	mg/kg	0.0500		90.6	70-130		20	
Toluene	0.0459	0.0050	mg/kg	0.0500		91.7	70-130		20	
Ethylbenzene	0.0455	0.0050	mg/kg	0.0500		91.1	70-130		20	
Xylenes, total	0.138	0.010	mg/kg	0.150		92.1	70-130		20	
Gasoline	2.41	1.0	mg/kg	2.50		96.2	70-130		20	
Methyl tert-Butyl Ether (MTBE)	0.266	0.050	mg/kg	0.250		106	70-130		20	
LCS Dup (T9J1906-BSD1)				Prepared & Analyzed: 10/19/09						
Surrogate: 4-Bromofluorobenzene (FID)	*0.0608*		*mg/kg*	*0.0625*		*97.3*	*70-130*			
Surrogate: 4-Bromofluorobenzene (PID)	*0.0646*		*mg/kg*	*0.0625*		*103*	*70-130*			
Benzene	0.0447	0.0050	mg/kg	0.0500		89.3	70-130	1.40	20	
Toluene	0.0438	0.0050	mg/kg	0.0500		87.7	70-130	4.51	20	
Ethylbenzene	0.0437	0.0050	mg/kg	0.0500		87.4	70-130	4.10	20	
Xylenes, total	0.133	0.010	mg/kg	0.150		88.5	70-130	3.99	20	
Gasoline	2.47	1.0	mg/kg	2.50		98.8	70-130	2.60	20	
Methyl tert-Butyl Ether (MTBE)	0.252	0.050	mg/kg	0.250		101	70-130	5.34	20	

9J16003

Chain of Custody
Moore Twining Associates, Inc.

2527 Fresno Street,
Fresno, CA, 93721

Page 1 of 1
Ship Date: 10/13/09
Date/Time Results Required: Standard
Lab's Work Order #:_____

SHAW Environmental and Infrastructure, Inc.

Send Report To : Tim Ripp
eMail : tim.ripp@shawgrp.com
Phone : (510) 427-8350
Address: 5500 Port Chicago Highway
City/State : Concor, CA

Sampler Name: B. Stempson
Samples Signature: [signature]

Project Name: Caltrans - 136529
C99805.0100
CALTRANS - WALNUT CREEK - EAST

Client Sample ID	Matrix	Target Depth	Date/Time Sampled	Container	# of Cont.	Preservative	Lab's Sample #	TPH-g 8015B	TPH-d 8015B	BTEX 8021B MTBE	Total Lead 6010 & 200.7	Total Arsenic 6010 & 200.7		ASTM Method - d854	ASTM Method C-29	Moisture Content - CT 226	Sieve Analysis - CT-202	Atterburg Limits - CT-204	HOLD
B-3-6.5	Soil	6.5	10/12/09	Sleeves	1	Ice		X	X	X	X	X				Metal Sleeve			
B-3-11.5		11.5	10/12/09					X	X	X	X								
B-3-16.5		16.5	10/12/09					X	X	X	X								
B-3-21.5		21.5	10/12/09																X
B-3-31.5		31.5	10/12/09					X	X	X	X								
B-3-26.5	Soil	26.5	10/12/09																X

[signature] 10/13/09

Relinquished by/Co.: [signature] / SHAW Received by/Co: J. MTA Date/Time/Temp: 10/13/09 1430
Relinquished by/Co.: [signature] Received by/Co: Date/Time/Temp: 10/14/09 900
Relinquished by/Co.: Received by/Co: Date/Time/Temp:

Were samples Received In Good Condition? __Yes __No Samples on Ice? __Yes __No Method of Shipment: _____

NOTE: EH - Extract and Hold

C:\Documents and Settings\Bryan.Stempson\My Documents\CaltransCOC.xls

MOORE TWINING ASSOCIATES, INC.
EST. 1939
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

December 18, 2009

Work Order #: 9L09010

Andrew Lehane
Shaw Environmental - San Jose
2033 Gateway Place, 5th Floor
San Jose, CA 95110

RE: Caltrans

Enclosed are the analytical results for samples received by our laboratory on 12/09/09 . For your reference, these analyses have been assigned laboratory work order number 9L09010.

All analyses have been performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, Moore Twining Associates, Inc. (MTA) is not responsible for use of less than complete reports. Results apply only to samples analyzed.

If you have any questions, please feel free to contact us at the number listed above.

Sincerely,

Moore Twining Associates, Inc.

for RJB

Ronald J. Boquist
Director of Analytical Chemistry

MOORE TWINING ASSOCIATES, INC.
Est. 1899
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

Shaw Environmental - San Jose 2033 Gateway Place, 5th Floor San Jose CA, 95110	Project: Caltrans Project Number: 2003 South Cabrillo Highway 1 Half Moon Bay C Project Manager: Andrew Lehane	Reported: 12/18/09

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Decon 102	9L09010-01	Water	12/04/09 07:50	12/09/09 11:17

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
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Shaw Environmental - San Jose	Project: Caltrans	
2033 Gateway Place, 5th Floor	Project Number: 2003 South Cabrillo Highway 1 Half Moon Bay C	Reported:
San Jose CA, 95110	Project Manager: Andrew Lehane	12/18/09

Decon 102

9L09010-01 (Water) Sampled: 12/04/09 07:50

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		ND	0.0050	mg/L	1	T9L1016	12/10/09	12/17/09	EPA 200.7
Semi-Volatile Organics									
Diesel	AK	**500**	100	µg/L	1	T9L1415	12/14/09	12/15/09	EPA 8015B
Surrogate: o-Terphenyl			*96.4 %*	*34-150*		*T9L1415*	*12/14/09*	*12/15/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.50	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Toluene		**1.3**	0.50	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Ethylbenzene		ND	0.50	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Xylenes, total		**1.6**	1.5	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	2.5	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Gasoline	A2	**54**	50	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*110 %*	*75-125*		*T9L1609*	*12/16/09*	*12/16/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*112 %*	*75-125*		*T9L1609*	*12/16/09*	*12/16/09*	*EPA 8015B/8021B*

Notes and Definitions

AK	Lighter hydrocarbon than diesel
A2	Sample does not display a fuel pattern. Sample contains single analyte peak(s) in the quantitation range.
ug/L	micrograms per liter (parts per billion concentration units)
mg/kg	milligrams per kilogram (parts per million concentration units)
mg/L	milligrams per Liter (parts per million concentration units)
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference

MOORE TWINING ASSOCIATES, INC
EST. 1896
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
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Shaw Environmental - San Jose	Project: Caltrans	
2033 Gateway Place, 5th Floor	Project Number: 2003 South Cabrillo Highway 1 Half Moon Bay C	Reported:
San Jose CA, 95110	Project Manager: Andrew Lehane	12/18/09

Metals - Totals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9L1016										
Blank (T9L1016-BLK1)				Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	ND	0.0050	mg/L							
LCS (T9L1016-BS1)				Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.108	0.0050	mg/L	0.100		108	85-115		20	
LCS Dup (T9L1016-BSD1)				Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.108	0.0050	mg/L	0.100		108	85-115	0.371	20	
Matrix Spike (T9L1016-MS1)		Source: 9L07034-01		Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.0930	0.0050	mg/L	0.100	ND	93.0	70-130		20	
Matrix Spike (T9L1016-MS2)		Source: 9L09006-01		Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.105	0.0050	mg/L	0.100	ND	105	70-130		20	
Matrix Spike Dup (T9L1016-MSD1)		Source: 9L07034-01		Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.0912	0.0050	mg/L	0.100	ND	91.2	70-130	1.86	20	
Matrix Spike Dup (T9L1016-MSD2)		Source: 9L09006-01		Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.104	0.0050	mg/L	0.100	ND	104	70-130	0.858	20	

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California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

Shaw Environmental - San Jose	Project: Caltrans	
2033 Gateway Place, 5th Floor	Project Number: 2003 South Cabrillo Highway 1 Half Moon Bay C	Reported:
San Jose CA, 95110	Project Manager: Andrew Lehane	12/18/09

Semi-Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9L1415										
Blank (T9L1415-BLK1)				Prepared & Analyzed: 12/14/09						
Surrogate: o-Terphenyl	*4.88*		*µg/L*	*8.00*		*61.0*	*34-150*			
Diesel	ND	100	µg/L							
LCS (T9L1415-BS1)				Prepared & Analyzed: 12/14/09						
Surrogate: o-Terphenyl	*7.69*		*µg/L*	*8.00*		*96.1*	*34-150*			
Diesel	467	100	µg/L	500		93.4	70-130		20	
LCS Dup (T9L1415-BSD1)				Prepared & Analyzed: 12/14/09						
Surrogate: o-Terphenyl	*7.63*		*µg/L*	*8.00*		*95.4*	*34-150*			
Diesel	434	100	µg/L	500		86.9	70-130	7.32	20	

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Fresno, CA 93721
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(559) 268-0740 Fax

Shaw Environmental - San Jose	Project: Caltrans	
2033 Gateway Place, 5th Floor	Project Number: 2003 South Cabrillo Highway I Half Moon Bay C	Reported:
San Jose CA, 95110	Project Manager: Andrew Lehane	12/18/09

Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9L1609										
Blank (T9L1609-BLK1)				Prepared & Analyzed: 12/16/09						
Surrogate: 4-Bromofluorobenzene (FID)	*27.3*		*µg/L*	*25.0*		*109*	*75-125*			
Surrogate: 4-Bromofluorobenzene (PID)	*26.5*		*µg/L*	*25.0*		*106*	*75-125*			
Benzene	ND	0.50	µg/L							
Toluene	ND	0.50	µg/L							
Ethylbenzene	ND	0.50	µg/L							
Xylenes, total	ND	1.5	µg/L							
Methyl tert-Butyl Ether (MTBE)	ND	2.5	µg/L							
Gasoline	ND	50	µg/L							
LCS (T9L1609-BS1)				Prepared & Analyzed: 12/16/09						
Surrogate: 4-Bromofluorobenzene (FID)	*26.0*		*µg/L*	*25.0*		*104*	*70-130*			
Surrogate: 4-Bromofluorobenzene (PID)	*26.9*		*µg/L*	*25.0*		*108*	*70-130*			
Benzene	20.2	0.50	µg/L	20.0		101	70-130		20	
Toluene	20.2	0.50	µg/L	20.0		101	70-130		20	
Ethylbenzene	20.2	0.50	µg/L	20.0		101	70-130		20	
Xylenes, total	60.9	1.5	µg/L	60.0		101	70-130		20	
Methyl tert-Butyl Ether (MTBE)	102	2.5	µg/L	100		102	70-130		20	
Gasoline	1000	50	µg/L	1000		100	70-130		20	
LCS Dup (T9L1609-BSD1)				Prepared & Analyzed: 12/16/09						
Surrogate: 4-Bromofluorobenzene (PID)	*26.6*		*µg/L*	*25.0*		*107*	*70-130*			
Surrogate: 4-Bromofluorobenzene (FID)	*24.2*		*µg/L*	*25.0*		*96.9*	*70-130*			
Benzene	20.9	0.50	µg/L	20.0		105	70-130	3.59	20	
Toluene	21.0	0.50	µg/L	20.0		105	70-130	4.11	20	
Ethylbenzene	21.0	0.50	µg/L	20.0		105	70-130	3.85	20	
Xylenes, total	62.7	1.5	µg/L	60.0		105	70-130	3.03	20	
Methyl tert-Butyl Ether (MTBE)	103	2.5	µg/L	100		103	70-130	0.447	20	
Gasoline	1020	50	µg/L	1000		102	70-130	2.06	20	

Laboratory

Chain Of Custody Record

Moore Twining Associates
2527 Fresno Street
Fresno, Ca. 559) 268-7021

Client: 9L09010
Caltrans

Date: 12/4/09
PAGE: 1 of 1

CONSULTANT COMPANY: Shaw Environmental, Inc.
ADDRESS: 2033 Gateway Place, 5th Floor
CITY: San Jose Ca. 95110
TELEPHONE: 408-573-5975 | FAX: 408) 437-1201 | E-MAIL: ndrew.lehane@shawgrp.c

SITE ADDRESS (Street and City): 2003 South Cabrillo Highway 1 Half Moon Bay CA
Project Manager: Andrew Lehane
Project Number: 136529 - 23510 102
SAMPLER NAME(S) (Print): Pedro E. Ruiz
LAB USE ONLY

TURNAROUND TIME (BUSINESS DAYS): ☑ 10 DAYS ☐ 5 DAYS ☐ 72 HOURS ☐ 48 HOURS ☐ 24 HOURS ☐ LESS THAN 24 HOURS

☐ LA - RWQCB REPORT FORMAT ☐ UST AGENCY:

GC/MS MTBE CONFIRMATION: HIGHEST ____ HIGHEST per BORING ____ ALL ____

SPECIAL INSTRUCTIONS OR NOTES: TEMPERATURE ON RECEIPT C°

Normal TAT

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	BTEX, MTBE, TPH-g EPA8015B/ 8021B	5 Fuel Oxygenates (8260)	EPA 8260, 8010 List	TPH-g EPA 8015m	bis(2-ethylhexyl) Phthalate 8270C	1,2-DCA / EDB (826B)	Vol Halocarbons (8260B)	Ethanol / Methanol (8260B)		TPH - Diesel EPA 8015B	Lead EPA 200.7	Total Pb.	Cyanide (335.2)	Hexavalent Chromium (7196A)	VOC's EPA 8260B	RCI	Fecal Coliform Bacteria	Enumeration SM 9223B			FIELD NOTES: Container/Preservative or PID Readings or Laboratory Notes
	DECON 102	12/4/09	7:50	W	6	*									*	*										1L AGG; 250 PHNG; 4x VOA H3PO4
																										Results &
																										Originals to
																										Andrew Lehane
																										San Jose, Ca.

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
12/8/09 14:30	12/09/09 11:17		
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

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December 18, 2009

Work Order #: 9L09011

Andrew Lehane
Shaw Environmental - San Jose
2033 Gateway Place, 5th Floor
San Jose, CA 95110

RE: Caltrans

Enclosed are the analytical results for samples received by our laboratory on 12/09/09 . For your reference, these analyses have been assigned laboratory work order number 9L09011.

All analyses have been performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, Moore Twining Associates, Inc. (MTA) is not responsible for use of less than complete reports. Results apply only to samples analyzed.

If you have any questions, please feel free to contact us at the number listed above.

Sincerely,

Moore Twining Associates, Inc.

for RJB

Ronald J. Boquist
Director of Analytical Chemistry

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

Shaw Environmental - San Jose 2033 Gateway Place, 5th Floor San Jose CA, 95110	Project: Caltrans Project Number: Bayfront Expressway Hwy 84 Menlo Park CA Project Manager: Andrew Lehane	**Reported:** 12/18/09

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Decon 302	9L09011-01	Water	12/04/09 08:55	12/09/09 11:17

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Shaw Environmental - San Jose	Project: Caltrans	
2033 Gateway Place, 5th Floor	Project Number: Bayfront Expressway Hwy 84 Menlo Park CA	Reported:
San Jose CA, 95110	Project Manager: Andrew Lehane	12/18/09

Decon 302

9L09011-01 (Water) Sampled:12/04/09 08:55

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		ND	0.0050	mg/L	1	T9L1016	12/10/09	12/17/09	EPA 200.7
Semi-Volatile Organics									
Diesel	AK	**380**	100	µg/L	1	T9L1415	12/14/09	12/15/09	EPA 8015B
Surrogate: o-Terphenyl			*60.4 %*	*34-150*		*T9L1415*	*12/14/09*	*12/15/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.50	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Toluene		ND	0.50	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Ethylbenzene		**0.56**	0.50	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Xylenes, total		**2.4**	1.5	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	2.5	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Gasoline	A2	**100**	50	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*109 %*	*75-125*		*T9L1609*	*12/16/09*	*12/16/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*105 %*	*75-125*		*T9L1609*	*12/16/09*	*12/16/09*	*EPA 8015B/8021B*

Notes and Definitions

AK	Lighter hydrocarbon than diesel
A2	Sample does not display a fuel pattern. Sample contains single analyte peak(s) in the quantitation range.
ug/L	micrograms per liter (parts per billion concentration units)
mg/kg	milligrams per kilogram (parts per million concentration units)
mg/L	milligrams per Liter (parts per million concentration units)
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference

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California ELAP Certificate #1371

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Shaw Environmental - San Jose	Project: Caltrans	
2033 Gateway Place, 5th Floor	Project Number: Bayfront Expressway Hwy 84 Menlo Park CA	Reported:
San Jose CA, 95110	Project Manager: Andrew Lehane	12/18/09

Metals - Totals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9L1016										
Blank (T9L1016-BLK1)				Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	ND	0.0050	mg/L							
LCS (T9L1016-BS1)				Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.108	0.0050	mg/L	0.100		108	85-115		20	
LCS Dup (T9L1016-BSD1)				Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.108	0.0050	mg/L	0.100		108	85-115	0.371	20	
Matrix Spike (T9L1016-MS1)		Source: 9L07034-01		Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.0930	0.0050	mg/L	0.100	ND	93.0	70-130		20	
Matrix Spike (T9L1016-MS2)		Source: 9L09006-01		Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.105	0.0050	mg/L	0.100	ND	105	70-130		20	
Matrix Spike Dup (T9L1016-MSD1)		Source: 9L07034-01		Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.0912	0.0050	mg/L	0.100	ND	91.2	70-130	1.86	20	
Matrix Spike Dup (T9L1016-MSD2)		Source: 9L09006-01		Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.104	0.0050	mg/L	0.100	ND	104	70-130	0.858	20	

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Shaw Environmental - San Jose	Project: Caltrans	
2033 Gateway Place, 5th Floor	Project Number: Bayfront Expressway Hwy 84 Menlo Park CA	Reported:
San Jose CA, 95110	Project Manager: Andrew Lehane	12/18/09

Semi-Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9L1415										
Blank (T9L1415-BLK1)				Prepared & Analyzed: 12/14/09						
Surrogate: o-Terphenyl	*4.88*		*µg/L*	*8.00*		*61.0*	*34-150*			
Diesel	ND	100	µg/L							
LCS (T9L1415-BS1)				Prepared & Analyzed: 12/14/09						
Surrogate: o-Terphenyl	*7.69*		*µg/L*	*8.00*		*96.1*	*34-150*			
Diesel	467	100	µg/L	500		93.4	70-130		20	
LCS Dup (T9L1415-BSD1)				Prepared & Analyzed: 12/14/09						
Surrogate: o-Terphenyl	*7.63*		*µg/L*	*8.00*		*95.4*	*34-150*			
Diesel	434	100	µg/L	500		86.9	70-130	7.32	20	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Shaw Environmental - San Jose	Project: Caltrans	
2033 Gateway Place, 5th Floor	Project Number: Bayfront Expressway Hwy 84 Menlo Park CA	Reported:
San Jose CA, 95110	Project Manager: Andrew Lehane	12/18/09

Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9L1609										
Blank (T9L1609-BLK1)				Prepared & Analyzed: 12/16/09						
Surrogate: 4-Bromofluorobenzene (FID)	*27.3*		*µg/L*	*25.0*		*109*	*75-125*			
Surrogate: 4-Bromofluorobenzene (PID)	*26.5*		*µg/L*	*25.0*		*106*	*75-125*			
Benzene	ND	0.50	µg/L							
Toluene	ND	0.50	µg/L							
Ethylbenzene	ND	0.50	µg/L							
Xylenes, total	ND	1.5	µg/L							
Methyl tert-Butyl Ether (MTBE)	ND	2.5	µg/L							
Gasoline	ND	50	µg/L							
LCS (T9L1609-BS1)				Prepared & Analyzed: 12/16/09						
Surrogate: 4-Bromofluorobenzene (FID)	*26.0*		*µg/L*	*25.0*		*104*	*70-130*			
Surrogate: 4-Bromofluorobenzene (PID)	*26.9*		*µg/L*	*25.0*		*108*	*70-130*			
Benzene	20.2	0.50	µg/L	20.0		101	70-130		20	
Toluene	20.2	0.50	µg/L	20.0		101	70-130		20	
Ethylbenzene	20.2	0.50	µg/L	20.0		101	70-130		20	
Xylenes, total	60.9	1.5	µg/L	60.0		101	70-130		20	
Methyl tert-Butyl Ether (MTBE)	102	2.5	µg/L	100		102	70-130		20	
Gasoline	1000	50	µg/L	1000		100	70-130		20	
LCS Dup (T9L1609-BSD1)				Prepared & Analyzed: 12/16/09						
Surrogate: 4-Bromofluorobenzene (PID)	*26.6*		*µg/L*	*25.0*		*107*	*70-130*			
Surrogate: 4-Bromofluorobenzene (FID)	*24.2*		*µg/L*	*25.0*		*96.9*	*70-130*			
Benzene	20.9	0.50	µg/L	20.0		105	70-130	3.59	20	
Toluene	21.0	0.50	µg/L	20.0		105	70-130	4.11	20	
Ethylbenzene	21.0	0.50	µg/L	20.0		105	70-130	3.85	20	
Xylenes, total	62.7	1.5	µg/L	60.0		105	70-130	3.03	20	
Methyl tert-Butyl Ether (MTBE)	103	2.5	µg/L	100		103	70-130	0.447	20	
Gasoline	1020	50	µg/L	1000		102	70-130	2.06	20	

Laboratory

Chain Of Custody Record

Moore Twining Associates
2527 Fresno Street
Fresno, Ca. 559) 268-7021

Client: 9L09011
Caltrans

Date: 12/4/09
PAGE: 1 of 1

CONSULTANT COMPANY: Shaw Environmental, Inc.
ADDRESS: 2033 Gateway Place, 5th Floor
CITY: San Jose Ca. 95110
TELEPHONE: 408-573-5975 | FAX: 408) 437-1201 | E-MAIL: ndrew.lehane@shawgrp.c

SITE ADDRESS (Street and City): Bayfront Expressway Hwy 84 Menlo Park CA
Project Manager: Andrew Lehane
Project Number: 136529 - 23510 302
SAMPLER NAME(S) (Print): Pedro E. Ruiz.
LAB USE ONLY

TURNAROUND TIME (BUSINESS DAYS): ☑ 10 DAYS ☐ 5 DAYS ☐ 72 HOURS ☐ 48 HOURS ☐ 24 HOURS ☐ LESS THAN 24 HOURS

☐ LA - RWQCB REPORT FORMAT ☐ UST AGENCY: _____

GC/MS MTBE CONFIRMATION: HIGHEST _____ HIGHEST per BORING _____ ALL _____

SPECIAL INSTRUCTIONS OR NOTES: TEMPERATURE ON RECEIPT C°

Normal TAT

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	BTEX, MTBE, TPH-g EPA8015B/ 8021B	5 Fuel Oxygenates (8260)	EPA 8260, 8010 List	TPH-g EPA 8015m	bis(2-ethylhexyl) Phthalate 8270C	1,2-DCA / EDB (826B)	Vol Halocarbons (8260B)	Ethanol / Methanol (8260B)		TPH - Diesel EPA 8015B	Lead EPA 200.7	Total Pb.	Cyanide (335.2)	Hexavalent Chromium (7196A)	VOC's EPA 8260B	RCI	Fecal Coliform Bacteria	Enumeration SM 9223B			FIELD NOTES: Container/Preservative or PID Readings or Laboratory Notes
	DECON 302	12/4/09	8:55	W	6	*									*	*										1L AG0; 250 PH NO3
																										4 x VOA H3PO4
																										Results &
																										Originals to
																										Andrew Lehane
																										San Jose, Ca.

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
12/8/09 14:30	12/09/09 11:17		
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

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10/23/00 Revision

MOORE TWINING ASSOCIATES, INC.
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California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

December 18, 2009

Work Order #: 9L09012

Andrew Lehane
Shaw Environmental - San Jose
2033 Gateway Place, 5th Floor
San Jose, CA 95110

RE: Caltrans

Enclosed are the analytical results for samples received by our laboratory on 12/09/09 . For your reference, these analyses have been assigned laboratory work order number 9L09012.

All analyses have been performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, Moore Twining Associates, Inc. (MTA) is not responsible for use of less than complete reports. Results apply only to samples analyzed.

If you have any questions, please feel free to contact us at the number listed above.

Sincerely,

Moore Twining Associates, Inc.

for RJB

Ronald J. Boquist
Director of Analytical Chemistry

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

Shaw Environmental - San Jose	Project: Caltrans	
2033 Gateway Place, 5th Floor	Project Number: 5500 Jackson St. San Mateo Bridge, Hayward CA	Reported:
San Jose CA, 95110	Project Manager: Andrew Lehane	12/18/09

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Decon 202	9L09012-01	Water	12/04/09 09:30	12/09/09 11:18

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

Shaw Environmental - San Jose 2033 Gateway Place, 5th Floor San Jose CA, 95110	Project: Caltrans Project Number: 5500 Jackson St. San Mateo Bridge, Hayward CA Project Manager: Andrew Lehane	Reported: 12/18/09

Decon 202

9L09012-01 (Water) Sampled:12/04/09 09:30

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead	D2	ND	0.020	mg/L	4	T9L1016	12/10/09	12/17/09	EPA 200.7
Semi-Volatile Organics									
Diesel	AK	**280**	100	µg/L	1	T9L1415	12/14/09	12/15/09	EPA 8015B
Surrogate: o-Terphenyl			*62.0 %*	*34-150*		*T9L1415*	*12/14/09*	*12/15/09*	*EPA 8015B*
Volatile Organics									
Benzene		ND	0.50	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Toluene		ND	0.50	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Ethylbenzene		**1.4**	0.50	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Xylenes, total		**1.6**	1.5	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	2.5	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Gasoline	A2	**81**	50	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*107 %*	*75-125*		*T9L1609*	*12/16/09*	*12/16/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*105 %*	*75-125*		*T9L1609*	*12/16/09*	*12/16/09*	*EPA 8015B/8021B*

Notes and Definitions

D2	Sample diluted due to high concentration(s) of non-target analyte(s).
AK	Lighter hydrocarbon than diesel
A2	Sample does not display a fuel pattern. Sample contains single analyte peak(s) in the quantitation range.
ug/L	micrograms per liter (parts per billion concentration units)
mg/kg	milligrams per kilogram (parts per million concentration units)
mg/L	milligrams per Liter (parts per million concentration units)
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

Shaw Environmental - San Jose	Project: Caltrans	
2033 Gateway Place, 5th Floor	Project Number: 5500 Jackson St. San Mateo Bridge, Hayward CA	Reported:
San Jose CA, 95110	Project Manager: Andrew Lehane	12/18/09

Metals - Totals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9L1016										
Blank (T9L1016-BLK1)				Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	ND	0.0050	mg/L							
LCS (T9L1016-BS1)				Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.108	0.0050	mg/L	0.100		108	85-115		20	
LCS Dup (T9L1016-BSD1)				Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.108	0.0050	mg/L	0.100		108	85-115	0.371	20	
Matrix Spike (T9L1016-MS1)		Source: 9L07034-01		Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.0930	0.0050	mg/L	0.100	ND	93.0	70-130		20	
Matrix Spike (T9L1016-MS2)		Source: 9L09006-01		Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.105	0.0050	mg/L	0.100	ND	105	70-130		20	
Matrix Spike Dup (T9L1016-MSD1)		Source: 9L07034-01		Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.0912	0.0050	mg/L	0.100	ND	91.2	70-130	1.86	20	
Matrix Spike Dup (T9L1016-MSD2)		Source: 9L09006-01		Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.104	0.0050	mg/L	0.100	ND	104	70-130	0.858	20	

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

Shaw Environmental - San Jose	Project: Caltrans	
2033 Gateway Place, 5th Floor	Project Number: 5500 Jackson St. San Mateo Bridge, Hayward CA	Reported:
San Jose CA, 95110	Project Manager: Andrew Lehane	12/18/09

Semi-Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9L1415										
Blank (T9L1415-BLK1)				Prepared & Analyzed: 12/14/09						
Surrogate: o-Terphenyl	*4.88*		*µg/L*	*8.00*		*61.0*	*34-150*			
Diesel	ND	100	µg/L							
LCS (T9L1415-BS1)				Prepared & Analyzed: 12/14/09						
Surrogate: o-Terphenyl	*7.69*		*µg/L*	*8.00*		*96.1*	*34-150*			
Diesel	467	100	µg/L	500		93.4	70-130		20	
LCS Dup (T9L1415-BSD1)				Prepared & Analyzed: 12/14/09						
Surrogate: o-Terphenyl	*7.63*		*µg/L*	*8.00*		*95.4*	*34-150*			
Diesel	434	100	µg/L	500		86.9	70-130	7.32	20	

MOORE TWINING ASSOCIATES, INC.
EST. 1994
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

Shaw Environmental - San Jose	Project: Caltrans	
2033 Gateway Place, 5th Floor	Project Number: 5500 Jackson St. San Mateo Bridge, Hayward CA	Reported:
San Jose CA, 95110	Project Manager: Andrew Lehane	12/18/09

Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9L1609										
Blank (T9L1609-BLK1)				Prepared & Analyzed: 12/16/09						
Surrogate: 4-Bromofluorobenzene (FID)	*27.3*		*µg/L*	*25.0*		*109*	*75-125*			
Surrogate: 4-Bromofluorobenzene (PID)	*26.5*		*µg/L*	*25.0*		*106*	*75-125*			
Benzene	ND	0.50	µg/L							
Toluene	ND	0.50	µg/L							
Ethylbenzene	ND	0.50	µg/L							
Xylenes, total	ND	1.5	µg/L							
Methyl tert-Butyl Ether (MTBE)	ND	2.5	µg/L							
Gasoline	ND	50	µg/L							
LCS (T9L1609-BS1)				Prepared & Analyzed: 12/16/09						
Surrogate: 4-Bromofluorobenzene (FID)	*26.0*		*µg/L*	*25.0*		*104*	*70-130*			
Surrogate: 4-Bromofluorobenzene (PID)	*26.9*		*µg/L*	*25.0*		*108*	*70-130*			
Benzene	20.2	0.50	µg/L	20.0		101	70-130		20	
Toluene	20.2	0.50	µg/L	20.0		101	70-130		20	
Ethylbenzene	20.2	0.50	µg/L	20.0		101	70-130		20	
Xylenes, total	60.9	1.5	µg/L	60.0		101	70-130		20	
Methyl tert-Butyl Ether (MTBE)	102	2.5	µg/L	100		102	70-130		20	
Gasoline	1000	50	µg/L	1000		100	70-130		20	
LCS Dup (T9L1609-BSD1)				Prepared & Analyzed: 12/16/09						
Surrogate: 4-Bromofluorobenzene (PID)	*26.6*		*µg/L*	*25.0*		*107*	*70-130*			
Surrogate: 4-Bromofluorobenzene (FID)	*24.2*		*µg/L*	*25.0*		*96.9*	*70-130*			
Benzene	20.9	0.50	µg/L	20.0		105	70-130	3.59	20	
Toluene	21.0	0.50	µg/L	20.0		105	70-130	4.11	20	
Ethylbenzene	21.0	0.50	µg/L	20.0		105	70-130	3.85	20	
Xylenes, total	62.7	1.5	µg/L	60.0		105	70-130	3.03	20	
Methyl tert-Butyl Ether (MTBE)	103	2.5	µg/L	100		103	70-130	0.447	20	
Gasoline	1020	50	µg/L	1000		102	70-130	2.06	20	

Laboratory

Chain Of Custody Record

Moore Twining Associates
2527 Fresno Street
Fresno, Ca. 559) 268-7021

Client: 9L09012
Caltrans

Date: 12/4/09
PAGE: 1 of 1

CONSULTANT COMPANY: Shaw Environmental, Inc.
ADDRESS: 2033 Gateway Place, 5th Floor
CITY: San Jose Ca. 95110
TELEPHONE: 408-573-5975 | FAX: 408) 437-1201 | E-MAIL: ndrew.lehane@shawgrp.co

SITE ADDRESS (Street and City): 5500 Jackson St San Mateo Bridge Hayward, CA
Project Manager: Andrew Lehane
Project Number: 136529 - 23510 202
SAMPLER NAME(S) (Print): Pedro E. Ruiz
LAB USE ONLY

TURNAROUND TIME (BUSINESS DAYS): ☑ 10 DAYS ☐ 5 DAYS ☐ 72 HOURS ☐ 48 HOURS ☐ 24 HOURS ☐ LESS THAN 24 HOURS

☐ LA - RWQCB REPORT FORMAT ☐ UST AGENCY:

GC/MS MTBE CONFIRMATION: HIGHEST ____ HIGHEST per BORING ____ ALL ____

SPECIAL INSTRUCTIONS OR NOTES: TEMPERATURE ON RECEIPT C°

Normal TAT

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	BTEX, MTBE, TPH-g EPA8015B/ 8021B	5 Fuel Oxygenates (8260)	EPA 8260, 8010 List	TPH-g EPA 8015m	bis(2-ethylhexyl) Phthalate 8270C	1,2-DCA / EDB (826B)	Vol Halocarbons (8260B)	Ethanol / Methanol (8260B)		TPH - Diesel EPA 8015B	Lead EPA 200.7	Total Pb.	Cyanide (335.2)	Hexavalent Chromium (7196A)	VOC's EPA 8260B	RCI	Fecal Coliform Bacteria	Enumeration SM 9223B			FIELD NOTES: Container/Preservative or PID Readings or Laboratory Notes
	DECON 202	12/4/09	9:30	W	6	*									*	*										1LAGE; 250ml HNO3
																										4xVOA H3PO4
																										Results &
																										Originals to
																										Andrew Lehane
																										San Jose, Ca.

Relinquished by: (Signature)	Received by: (Signature)	Date	Time
12/8/09 14:30	12/09/09 11:15		
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

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10/23/00 Revision

MOORE TWINING ASSOCIATES, INC.
EST. 1898
California ELAP Certificate #1371

2527 Fresno Street
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December 18, 2009

Work Order #: 9L09013

Andrew Lehane
Shaw Environmental - San Jose
2033 Gateway Place, 5th Floor
San Jose, CA 95110

RE: Caltrans

Enclosed are the analytical results for samples received by our laboratory on 12/09/09 . For your reference, these analyses have been assigned laboratory work order number 9L09013.

All analyses have been performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, Moore Twining Associates, Inc. (MTA) is not responsible for use of less than complete reports. Results apply only to samples analyzed.

If you have any questions, please feel free to contact us at the number listed above.

Sincerely,

Moore Twining Associates, Inc.

for RJB

Ronald J. Boquist
Director of Analytical Chemistry

MOORE TWINING ASSOCIATES, INC.
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California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

Shaw Environmental - San Jose 2033 Gateway Place, 5th Floor San Jose CA, 95110	Project: Caltrans Project Number: 2581, 2616, Mainstreet, Walnut Creek, CA Project Manager: Andrew Lehane	Reported: 12/18/09

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Decon 402	9L09013-01	Water	12/04/09 10:25	12/09/09 11:18

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(559) 268-7021 Phone
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Shaw Environmental - San Jose	Project: Caltrans	
2033 Gateway Place, 5th Floor	Project Number: 2581, 2616, Mainstreet, Walnut Creek, CA	Reported:
San Jose CA, 95110	Project Manager: Andrew Lehane	12/18/09

Decon 402

9L09013-01 (Water) Sampled:12/04/09 10:25

Analyte	Notes.	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Metals - Totals									
Lead		ND	0.0050	mg/L	1	T9L1016	12/10/09	12/17/09	EPA 200.7
Semi-Volatile Organics									
Diesel	AK	**420**	100	µg/L	1	T9L1415	12/14/09	12/15/09	EPA 8015B
Surrogate: o-Terphenyl			*72.8 %*	*34-150*		*T9L1415*	*12/14/09*	*12/15/09*	*EPA 8015B*
Volatile Organics									
Benzene		**0.74**	0.50	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Toluene		ND	0.50	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Ethylbenzene		**0.58**	0.50	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Xylenes, total		**2.8**	1.5	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Methyl tert-Butyl Ether (MTBE)		ND	2.5	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Gasoline	A2	**150**	50	µg/L	1	T9L1609	12/16/09	12/16/09	EPA 8015B/8021B
Surrogate: 4-Bromofluorobenzene (PID)			*109 %*	*75-125*		*T9L1609*	*12/16/09*	*12/16/09*	*EPA 8015B/8021B*
Surrogate: 4-Bromofluorobenzene (FID)			*106 %*	*75-125*		*T9L1609*	*12/16/09*	*12/16/09*	*EPA 8015B/8021B*

Notes and Definitions

AK	Lighter hydrocarbon than diesel
A2	Sample does not display a fuel pattern. Sample contains single analyte peak(s) in the quantitation range.
ug/L	micrograms per liter (parts per billion concentration units)
mg/kg	milligrams per kilogram (parts per million concentration units)
mg/L	milligrams per Liter (parts per million concentration units)
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

Shaw Environmental - San Jose	Project: Caltrans	
2033 Gateway Place, 5th Floor	Project Number: 2581, 2616, Mainstreet, Walnut Creek, CA	Reported:
San Jose CA, 95110	Project Manager: Andrew Lehane	12/18/09

Metals - Totals - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9L1016										
Blank (T9L1016-BLK1)				Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	ND	0.0050	mg/L							
LCS (T9L1016-BS1)				Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.108	0.0050	mg/L	0.100		108	85-115		20	
LCS Dup (T9L1016-BSD1)				Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.108	0.0050	mg/L	0.100		108	85-115	0.371	20	
Matrix Spike (T9L1016-MS1)		Source: 9L07034-01		Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.0930	0.0050	mg/L	0.100	ND	93.0	70-130		20	
Matrix Spike (T9L1016-MS2)		Source: 9L09006-01		Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.105	0.0050	mg/L	0.100	ND	105	70-130		20	
Matrix Spike Dup (T9L1016-MSD1)		Source: 9L07034-01		Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.0912	0.0050	mg/L	0.100	ND	91.2	70-130	1.86	20	
Matrix Spike Dup (T9L1016-MSD2)		Source: 9L09006-01		Prepared: 12/10/09	Analyzed: 12/17/09					
Lead	0.104	0.0050	mg/L	0.100	ND	104	70-130	0.858	20	

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

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Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

Shaw Environmental - San Jose	Project: Caltrans	
2033 Gateway Place, 5th Floor	Project Number: 2581, 2616, Mainstreet, Walnut Creek, CA	Reported:
San Jose CA, 95110	Project Manager: Andrew Lehane	12/18/09

Semi-Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9L1415										
Blank (T9L1415-BLK1)				Prepared & Analyzed: 12/14/09						
Surrogate: o-Terphenyl	*4.88*		*µg/L*	*8.00*		*61.0*	*34-150*			
Diesel	ND	100	µg/L							
LCS (T9L1415-BS1)				Prepared & Analyzed: 12/14/09						
Surrogate: o-Terphenyl	*7.69*		*µg/L*	*8.00*		*96.1*	*34-150*			
Diesel	467	100	µg/L	500		93.4	70-130		20	
LCS Dup (T9L1415-BSD1)				Prepared & Analyzed: 12/14/09						
Surrogate: o-Terphenyl	*7.63*		*µg/L*	*8.00*		*95.4*	*34-150*			
Diesel	434	100	µg/L	500		86.9	70-130	7.32	20	

MOORE TWINING ASSOCIATES, INC.
California ELAP Certificate #1371

2527 Fresno Street
Fresno, CA 93721
(559) 268-7021 Phone
(559) 268-0740 Fax

Shaw Environmental - San Jose	Project: Caltrans	
2033 Gateway Place, 5th Floor	Project Number: 2581, 2616, Mainstreet, Walnut Creek, CA	Reported:
San Jose CA, 95110	Project Manager: Andrew Lehane	12/18/09

Volatile Organics - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch T9L1609										
Blank (T9L1609-BLK1)				Prepared & Analyzed: 12/16/09						
Surrogate: 4-Bromofluorobenzene (FID)	*27.3*		*µg/L*	*25.0*		*109*	*75-125*			
Surrogate: 4-Bromofluorobenzene (PID)	*26.5*		*µg/L*	*25.0*		*106*	*75-125*			
Benzene	ND	0.50	µg/L							
Toluene	ND	0.50	µg/L							
Ethylbenzene	ND	0.50	µg/L							
Xylenes, total	ND	1.5	µg/L							
Methyl tert-Butyl Ether (MTBE)	ND	2.5	µg/L							
Gasoline	ND	50	µg/L							
LCS (T9L1609-BS1)				Prepared & Analyzed: 12/16/09						
Surrogate: 4-Bromofluorobenzene (FID)	*26.0*		*µg/L*	*25.0*		*104*	*70-130*			
Surrogate: 4-Bromofluorobenzene (PID)	*26.9*		*µg/L*	*25.0*		*108*	*70-130*			
Benzene	20.2	0.50	µg/L	20.0		101	70-130		20	
Toluene	20.2	0.50	µg/L	20.0		101	70-130		20	
Ethylbenzene	20.2	0.50	µg/L	20.0		101	70-130		20	
Xylenes, total	60.9	1.5	µg/L	60.0		101	70-130		20	
Methyl tert-Butyl Ether (MTBE)	102	2.5	µg/L	100		102	70-130		20	
Gasoline	1000	50	µg/L	1000		100	70-130		20	
LCS Dup (T9L1609-BSD1)				Prepared & Analyzed: 12/16/09						
Surrogate: 4-Bromofluorobenzene (PID)	*26.6*		*µg/L*	*25.0*		*107*	*70-130*			
Surrogate: 4-Bromofluorobenzene (FID)	*24.2*		*µg/L*	*25.0*		*96.9*	*70-130*			
Benzene	20.9	0.50	µg/L	20.0		105	70-130	3.59	20	
Toluene	21.0	0.50	µg/L	20.0		105	70-130	4.11	20	
Ethylbenzene	21.0	0.50	µg/L	20.0		105	70-130	3.85	20	
Xylenes, total	62.7	1.5	µg/L	60.0		105	70-130	3.03	20	
Methyl tert-Butyl Ether (MTBE)	103	2.5	µg/L	100		103	70-130	0.447	20	
Gasoline	1020	50	µg/L	1000		102	70-130	2.06	20	

Laboratory

Chain Of Custody Record

Moore Twining Associates
2527 Fresno Street
Fresno, Ca. 559) 268-7021

Client: 9209013
Caltrans

Date: 12/4/09
PAGE: 1 of 1

CONSULTANT COMPANY: Shaw Environmental, Inc.
ADDRESS: 2033 Gateway Place, 5th Floor
CITY: San Jose Ca. 95110
TELEPHONE: 408-573-5975 FAX: 408) 437-1201 E-MAIL: ndrew.lehane@shawgrp.co

SITE ADDRESS (Street and City): 2581, 2610 Main street, Walnut Creek, CA
Project Manager: Andrew Lehane
Project Number: 136529 - 23510 402
SAMPLER NAME(S) (Print): Pedro E. Ruiz.
LAB USE ONLY

TURNAROUND TIME (BUSINESS DAYS): ☑ 10 DAYS ☐ 5 DAYS ☐ 72 HOURS ☐ 48 HOURS ☐ 24 HOURS ☐ LESS THAN 24 HOURS

☐ LA - RWQCB REPORT FORMAT ☐ UST AGENCY: _____

GC/MS MTBE CONFIRMATION: HIGHEST _____ HIGHEST per BORING _____ ALL _____

SPECIAL INSTRUCTIONS OR NOTES: TEMPERATURE ON RECEIPT C°

Normal TAT

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	BTEX, MTBE, TPH-g EPA8015B/ 8021B	5 Fuel Oxygenates (8260)	EPA 8260, 8010 List	TPH-g EPA 8015m	bis(2-ethylhexyl) Phthalate 8270C	1,2-DCA / EDB (826B)	Vol Halocarbons (8260B)	Ethanol / Methanol (8260B)		TPH - Diesel EPA 8015B	Lead EPA 200.7	Total Pb.	Cyanide (335.2)	Hexavalent Chromium (7196A)	VOC's EPA 8260B	RCI	Fecal Coliform Bacteria	Enumeration SM 9223B			FIELD NOTES: Container/Preservative or PID Readings or Laboratory Notes
	DECON 402	12/4/09	1025	W	6	*									*	*										2LAG6; 250PHNO3
																										4x VOA H3PO4
																										Results &
																										Originals to
																										Andrew Lehane
																										San Jose, Ca.

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
12/8/09 14:30	12/09/09 11:18		
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

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10/23/00 Revision

ATTACHMENT D

GEOTECHNICAL LABORATORY REPORTS

MOORE TWINING ASSOCIATES, INC.

Project: Shaw Environmental and Infrastructure, Inc. Report Date: 11/09/09

Project No.: C98803.0200 Sample Date: 10/06/09 Through 10/08/09

Lab I.D.: 09-1023

Subject: Half Moon Bay, Caltrans – 136529

Gentlemen,

At your request and authorization, Moore Twining Associates, Inc. performed Moisture Density, Sieve Analysis and Atterberg Limits on tube samples that were sampled on the 6th through the 8th of October, 2009 for the above subject project. Testing was performed in accordance with ASTM D2937, Caltrans Test 202 and Caltrans Test 204 test procedures respectively.

See attachments for the summary of test results.

If you have any questions or require additional information, please contact the undersigned @ 559-268-7021

Respectfully Submitted,
Moore Twining Associates, Inc.

Michael Shwiyhat, EIT
Manager
Material Testing Division

www.mooretwining.com
PH: 800.268.7021
FX: 559.268.7126
2527 Fresno Street
Fresno, CA 93721

MOORE TWINING ASSOCIATES, INC.

DENSITY MOISTURE, ASTM D2937

PROJECT Shaw Environmental - Half Moon Bay - CalT-136529 DATE 10/6/2009

PROJECT NUMBER C98803.0200 TECHNICIAN 997

BORING NO.	B-4	B-4	B-4	B-4	B-4	B-4	B-4	B-4	B-4	B-4
DEPTH	6.5'	11.5'	16.5'	21.5'	26.5'	31.5'	36.5'	41.5'	46.5'	51.5'
SAMPLE NO.										
LENGTH (IN.)	3	4	2	4	5	6	4	2	4	6
TOTAL WT. (g)	557.5	764.6	395.8	789.4	1009.9	1199.3	764.6	393.7	781.1	1168.6
WET WT. (g)	558.4	583.1	547.8	615.9	585.8	639.7	547.4	596.8	596.2	587.5
DRY WT. (g)	445.9	475.9	474.4	515.7	507.2	543.1	449.5	489.9	491.6	482.2
WET DENSITY	**118.3**	**122.7**	**128.3**	**127.9**	**131.7**	**129.9**	**122.7**	**127.4**	**126.1**	**125.7**
% MOISTURE	**25.2**	**22.5**	**15.5**	**19.4**	**15.5**	**17.8**	**21.8**	**21.8**	**21.3**	**21.8**
DRY DENSITY	**94.5**	**100.2**	**111.1**	**107.1**	**114.0**	**110.3**	**100.8**	**104.6**	**104.0**	**103.2**

*** Disturbed, Sample Could Not Be Tested

BORING NO.	B-4	B-4	B-4	B-4	B-4					
DEPTH	56.5'	61.5'	66.5'	76.5'	81.5'					
SAMPLE NO.										
LENGTH (IN.)	5	3	2	1	***					
TOTAL WT. (g)	972.8	588.6	380.2	193.9						
WET WT. (g)	593.8	622.9	532.9	407.8						
DRY WT. (g)	495.1	521.1	435.7	355.9						
WET DENSITY	**125.5**	**126.9**	**121.9**	**125.0**						
% MOISTURE	**19.9**	**19.5**	**22.3**	**14.6**						
DRY DENSITY	**104.7**	**106.2**	**99.6**	**109.1**						

*** Disturbed. Sample Could Not Be Tested

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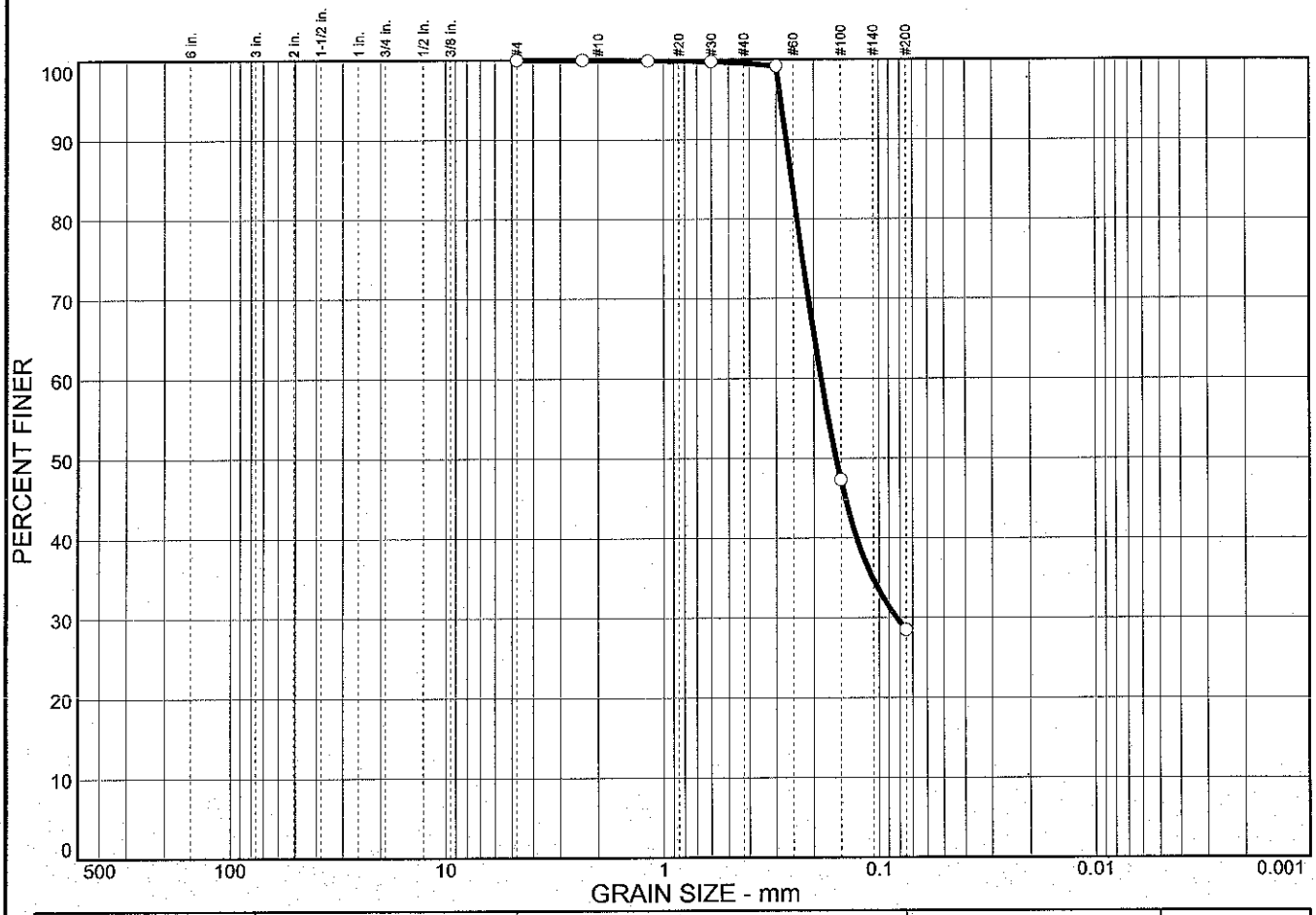
2527 Fresno Street
Fresno, CA 93721

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	71.5	28.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#8	100.0		
#16	99.9		
#30	99.8		
#50	99.2		
#100	47.3		
#200	28.5		

* (no specification provided)

Material Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.254 D_{60}= 0.185 D_{50}= 0.158
D_{30}= 0.0827 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

F.M.=0.54

Sample No.: B-4 **Source of Sample:** **Date:** 10/06/09
Location: **Elev./Depth:** 16.5'

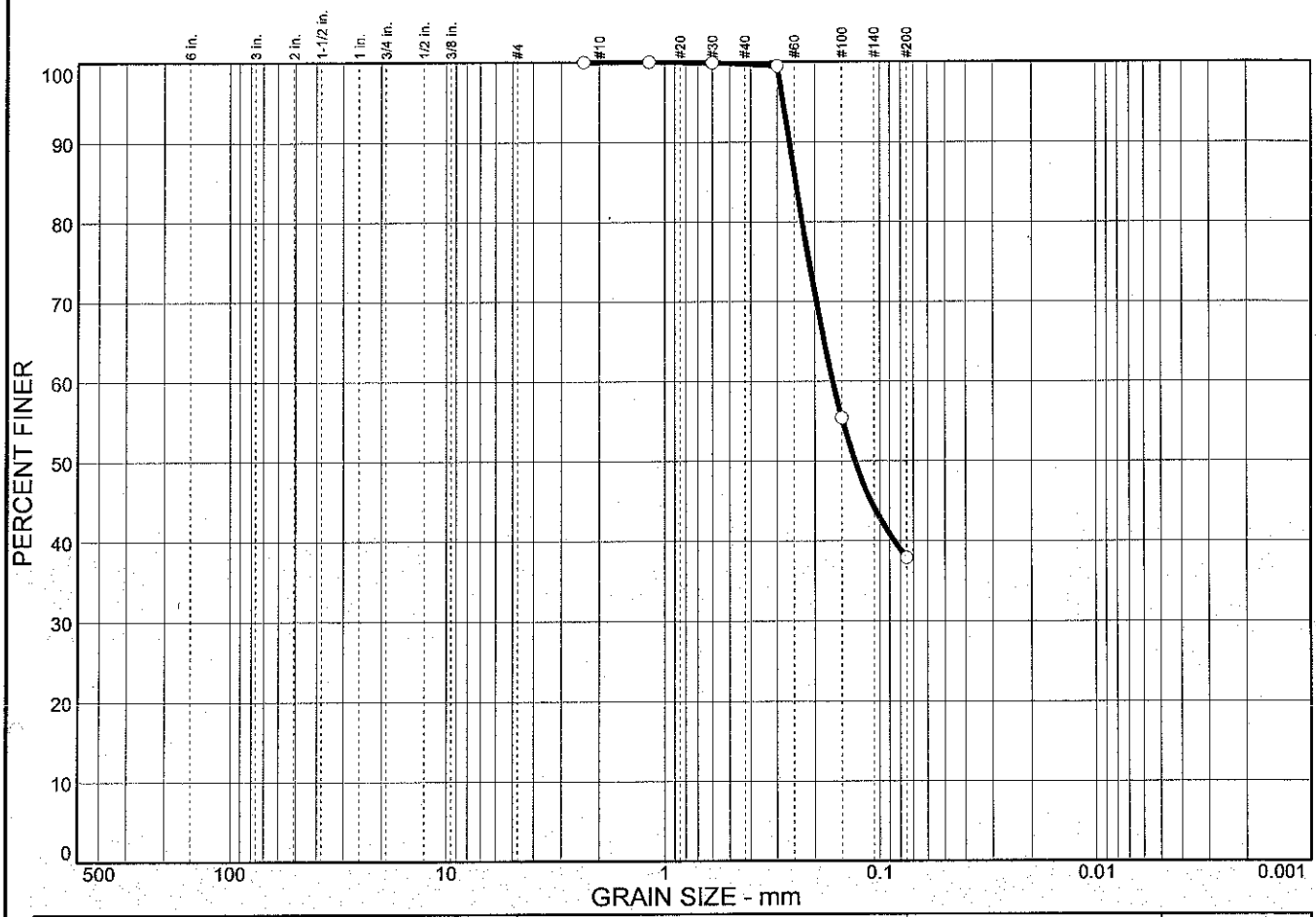
Moore Twining Associates, Inc.

Fresno, CA

Client: Shaw Environmental and Infrastructure, Inc.
Project: Half Moon Bay - Caltrans - 136529

Project No: C98803.0200 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	62.1	37.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#8	100.0		
#16	100.0		
#30	99.9		
#50	99.5		
#100	55.4		
#200	37.9		

* (no specification provided)

Material Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.246 D_{60}= 0.165 D_{50}= 0.131
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

F.M.=0.45

Sample No.: B-4 **Source of Sample:** **Date:** 10/06/09
Location: **Elev./Depth:** 21.5'

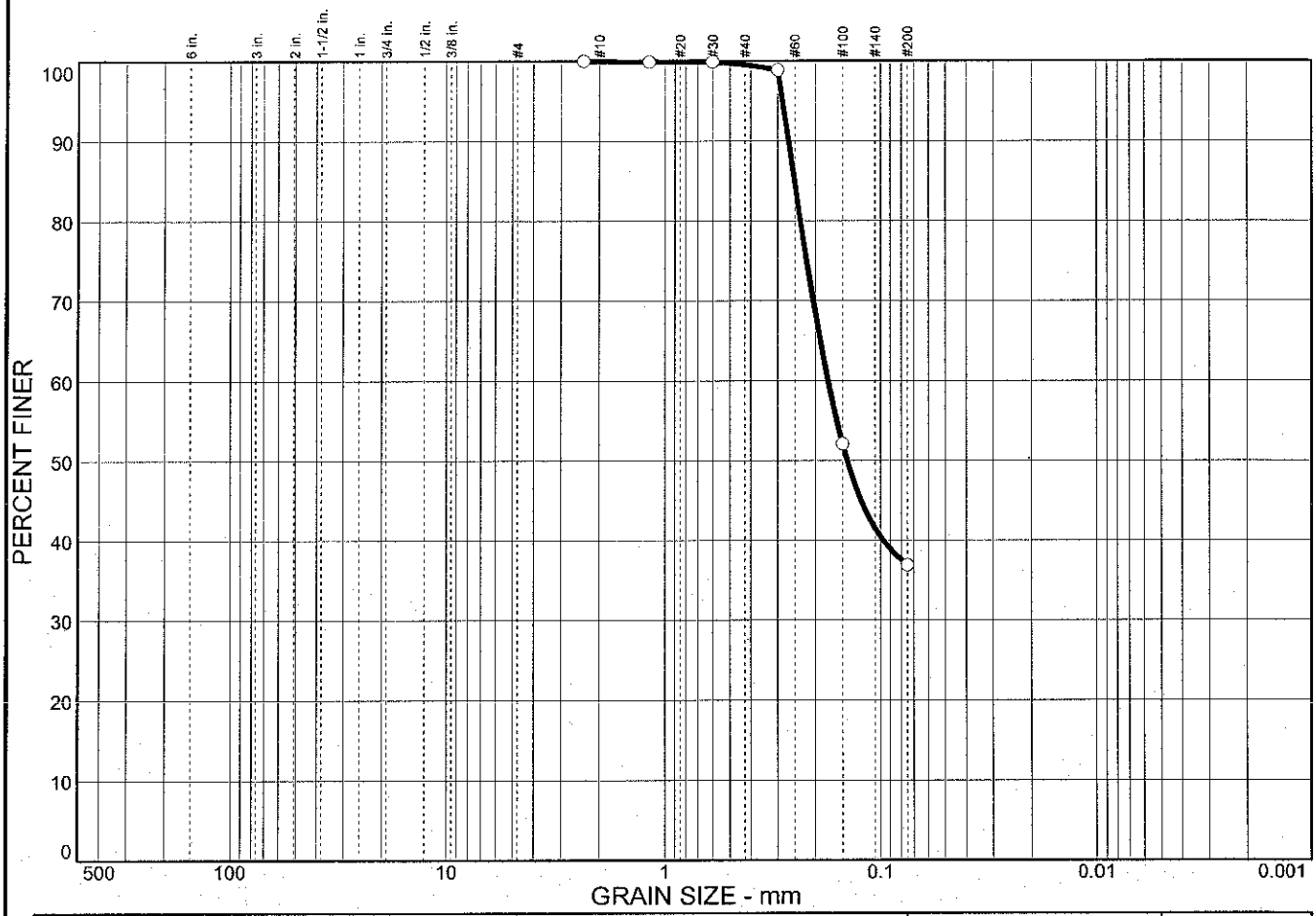
Moore Twining Associates, Inc.

Fresno, CA

Client: Shaw Environmental and Infrastructure, Inc.
Project: Half Moon Bay - Caltrans - 136529

Project No: C98803.0200 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	63.1	36.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#8	100.0		
#16	99.9		
#30	99.9		
#50	98.9		
#100	52.1		
#200	36.9		

* (no specification provided)

Material Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.251 D_{60}= 0.175 D_{50}= 0.143
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

F.M.=0.49

Sample No.: B-4 **Source of Sample:** **Date:** 10/06/09
Location: **Elev./Depth:** 31.5'

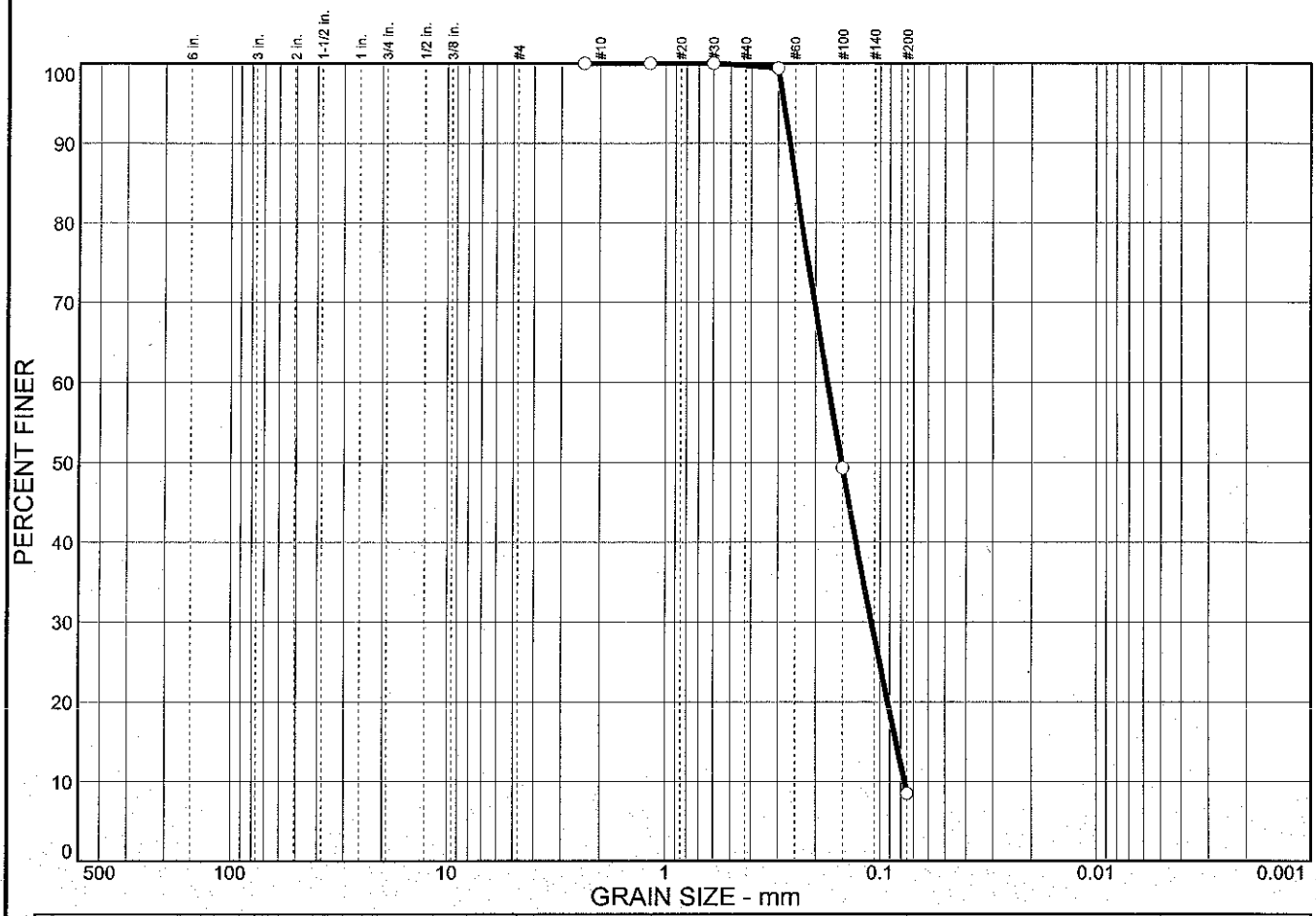
Moore Twining Associates, Inc.

Fresno, CA

Client: Shaw Environmental and Infrastructure, Inc.
Project: Half Moon Bay - Caltrans - 136529

Project No: C98803.0200 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	91.5	8.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#8	100.0		
#16	100.0		
#30	100.0		
#50	99.4		
#100	49.3		
#200	8.5		

* (no specification provided)

Material Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.248 D_{60}= 0.176 D_{50}= 0.152
D_{30}= 0.110 D_{15}= 0.0843 D_{10}= 0.0771
C_u= 2.28 C_c= 0.89

Classification

USCS= AASHTO=

Remarks

F.M.=0.51

Sample No.: B-4 **Source of Sample:** **Date:** 10/06/09
Location: **Elev./Depth:** 51.5'

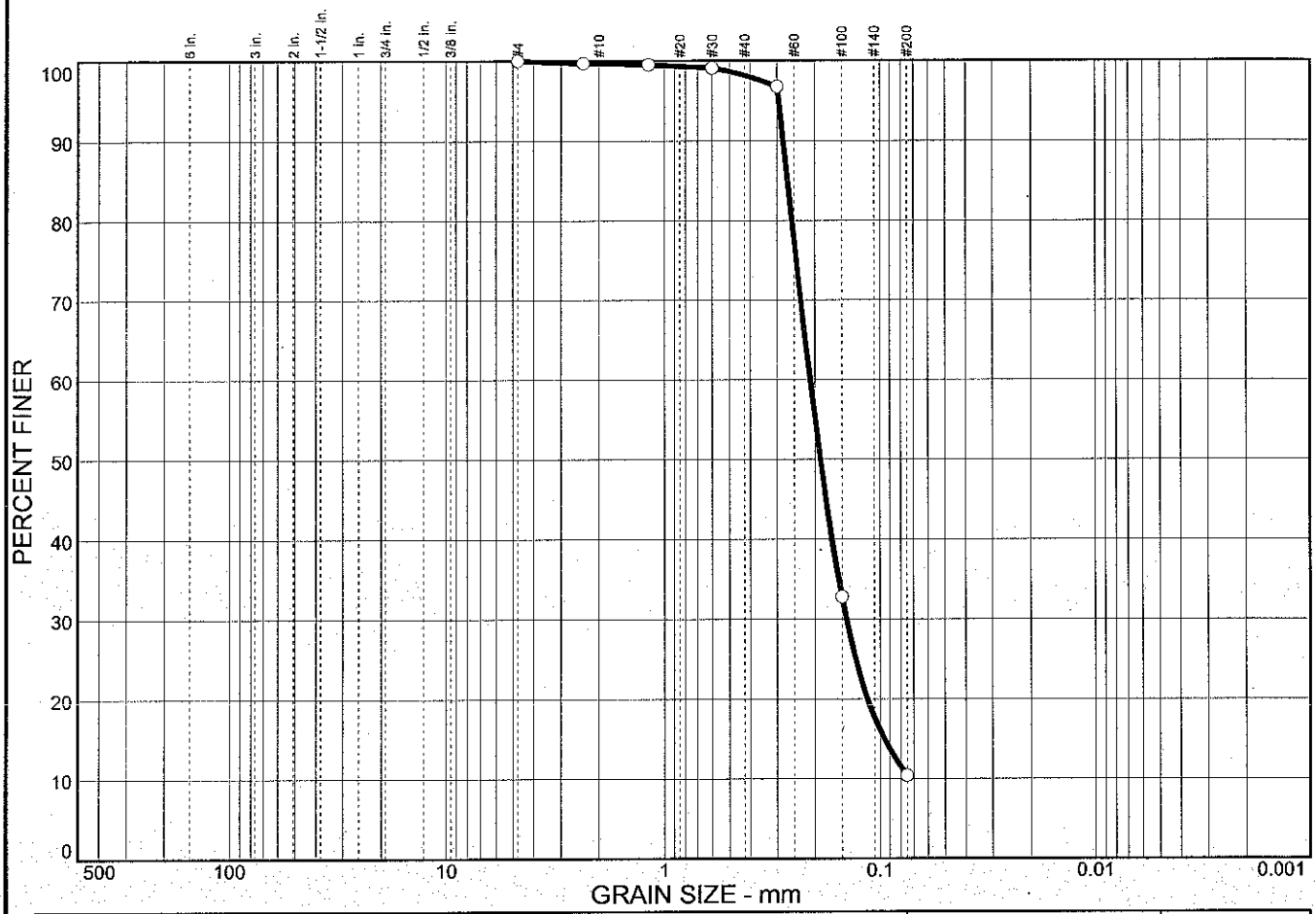
Moore Twining Associates, Inc.

Fresno, CA

Client: Shaw Environmental and Infrastructure, Inc.
Project: Half Moon Bay - Caltrans - 136529

Project No: C98803.0200 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	89.6	10.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#8	99.7		
#16	99.5		
#30	99.1		
#50	96.8		
#100	32.8		
#200	10.4		

* (no specification provided)

Material Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.268 D_{60}= 0.210 D_{50}= 0.188
D_{30}= 0.143 D_{15}= 0.0955 D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

F.M.=0.72

Sample No.: B-4 **Source of Sample:** **Date:** 10/06/09
Location: **Elev./Depth:** 61.5'

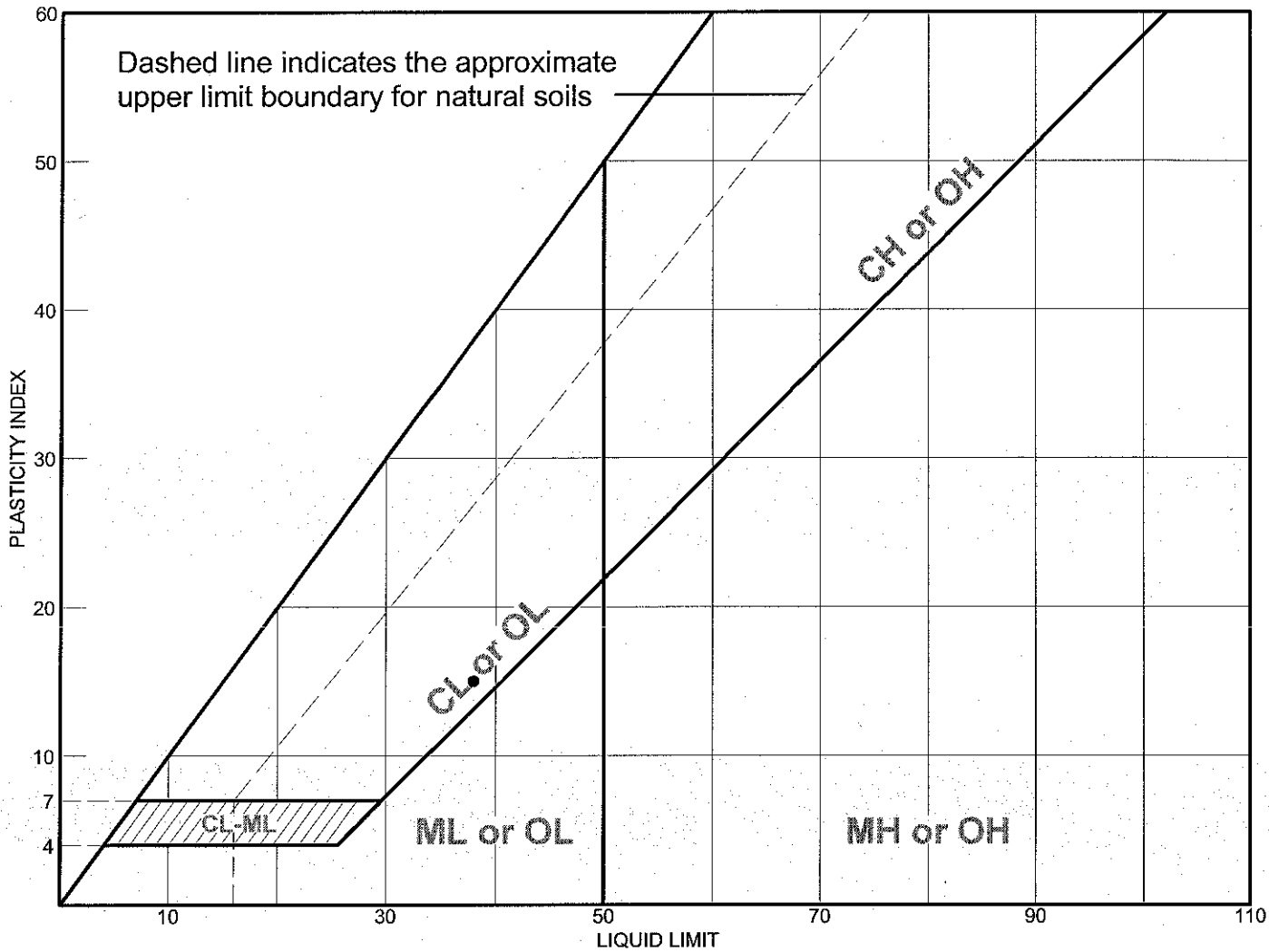
Moore Twining Associates, Inc.

Fresno, CA

Client: Shaw Environmental and Infrastructure, Inc.
Project: Half Moon Bay - Caltrans - 136529

Project No: C98803.0200 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		38	23	15			

Project No. C98803.0200 **Client:** Shaw Environmental and Infrastructure, Inc.

Project: Half Moon Bay - Caltrans - 136529

● **Source:** **Sample No.:** B-4 **Elev./Depth:** 6.5'

Remarks:

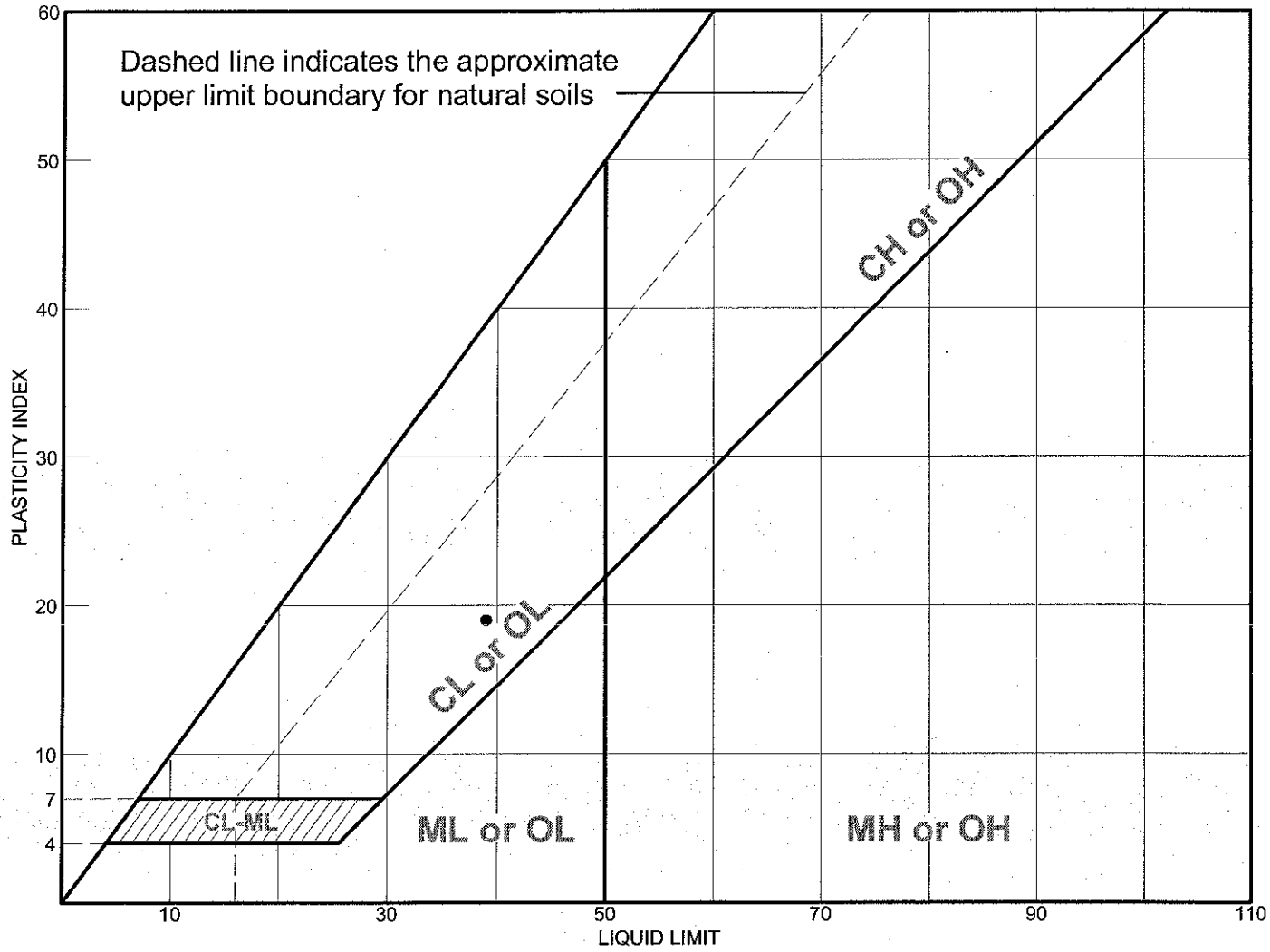
●

Moore Twining Associates, Inc.

Fresno, CA

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		39	20	19			

Project No. C98803.0200 **Client:** Shaw Environmental and Infrastructure, Inc.

Project: Half Moon Bay - Caltrans - 136529

● **Source:** **Sample No.:** B-4 **Elev./Depth:** 11.5'

Remarks:

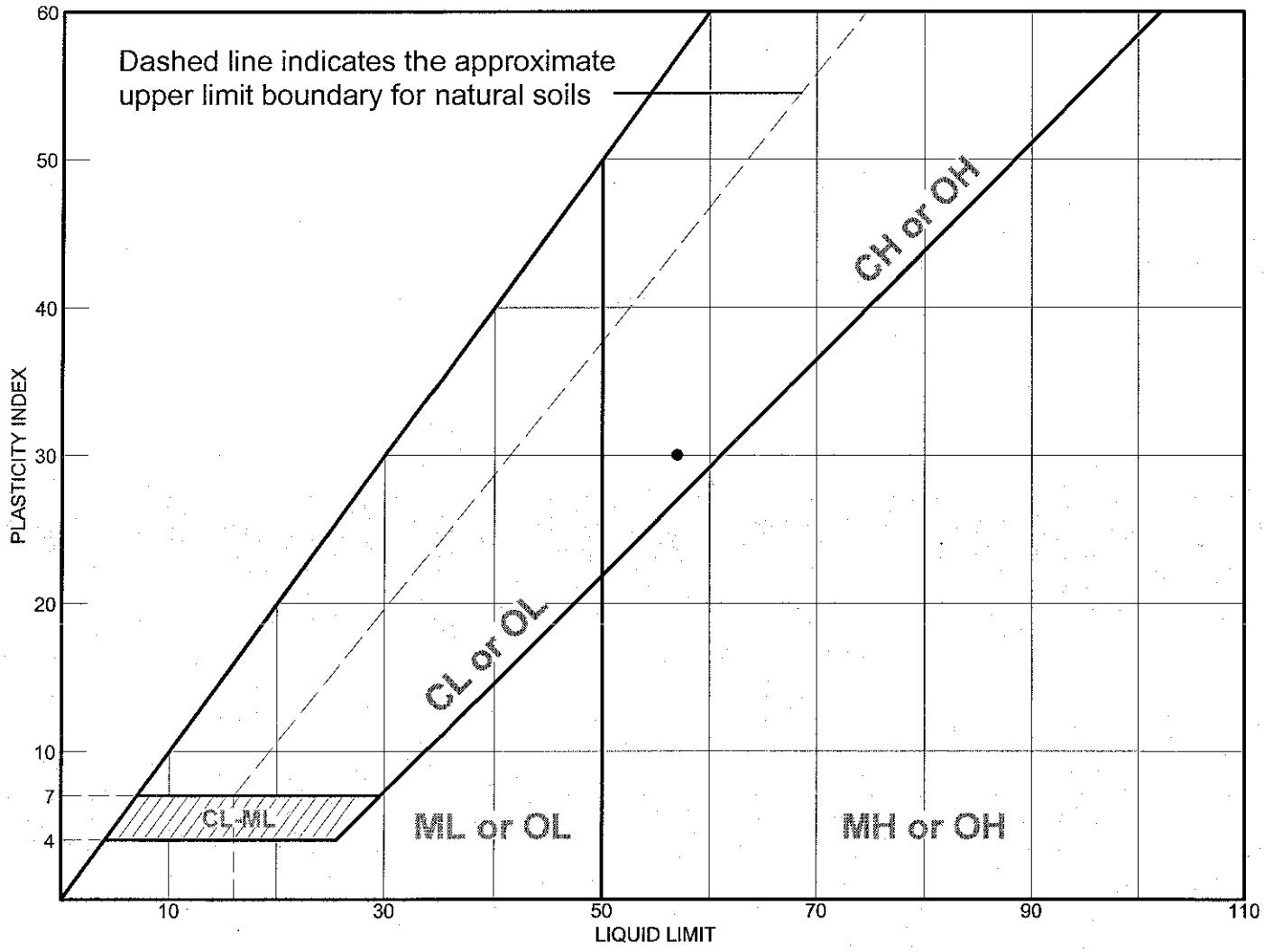
●

Moore Twining Associates, Inc.

Fresno, CA

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		57	27	30			

Project No. C98803.0200 **Client:** Shaw Environmental and Infrastructure, Inc.

Project: Half Moon Bay - Caltrans - 136529

● **Source:** **Sample No.:** B-4 **Elev./Depth:** 66.5'

Remarks:

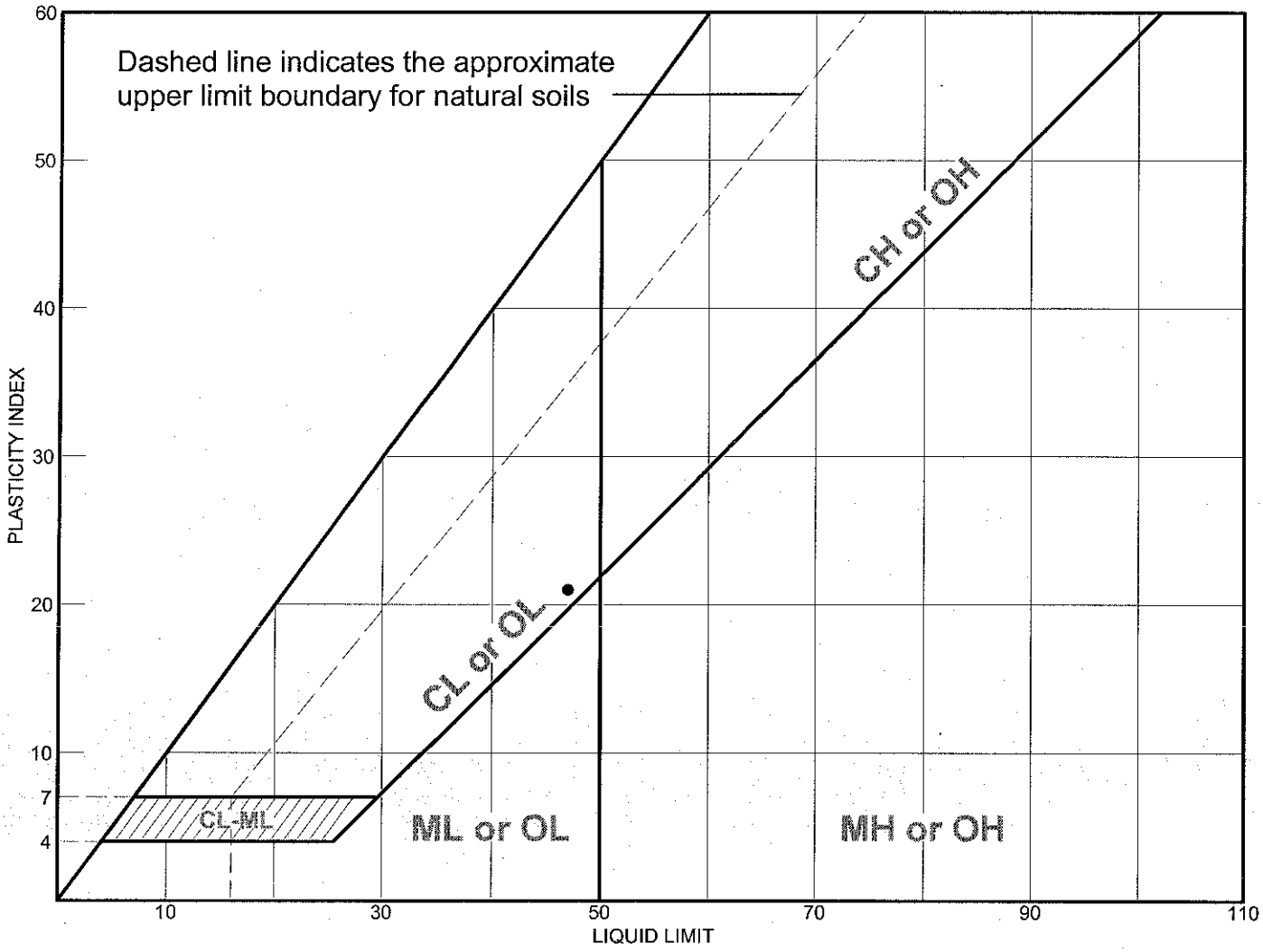
●

Moore Twining Associates, Inc.

Fresno, CA

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		47	26	21			

Project No. C98803.0200 **Client:** Shaw Environmental and Infrastructure, Inc.

Project: Half Moon Bay - Caltrans - 136529

● **Source:** **Sample No.:** B-4 **Elev./Depth:** 76.5'

Remarks:

●

Moore Twining Associates, Inc.

Fresno, CA

Figure

09-1023

Chain of Custody
Moore Twining Associates, Inc.

2527 Fresno Street,
Fresno, CA, 93721

Shaw SHAW Environmental and Infrastructure, Inc.

Send Report To : Tim Ripp
eMail : tim.ripp@shawgrp.com
Phone : (510) 427-8350
Address: 5500 Port Chicago Highway
City/State : Concor, CA

Sampler Name: Bryan Stempson
Sampler Signature:

Page 1 **of**
Ship Date: 10/10/09
Date/Time Results Required: Standard
Lab's Work Order #:

Project Name: Caltrans - 136529
CALTRANS - HALT MOOD Tang
C98807.0100
GEOTECH SAMPLES
Job # C98803.0200

Client Sample ID	Matrix	Target Depth	Date/Time Sampled	Container	# of Cont.	Preservative	Lab's Sample #	TPH-g 8015B	TPH-d 8015B	BTEX 8021B MtBE	Total Lead 6010 & 200.7	Total Arsenic 6010 & 200.7		ASTM Method ~~4854~~ D2937	ASTM Method C-29	Moisture Content - CT 226	Sieve Analysis - CT-202	Atterburg Limits - CT-204	
B-4-6.5	S	6.5	10/6/09 1700	Sleeve	1	NA								X		X		X	
B-4-11.5	S	11.5	10/6/09 1710											X		X		X	
B-4-16.5	S	16.5	10/6/09 1720											X		X	X		
B-4-21.5	S	21.5	10/6/09 1730											X		X	X		
B-4-26.5	S	26.5	10/6/09 1738											X		X			
B-4-31.5	S	31.5	10/6/09 1747											X		X	X		
B-4-36.5	S	36.5	10/6/09 1802											X		X			
B-4-41.5	S	41.5	10/7/09 0732											X		X			
B-4-46.5	S	46.5	10/7/09 0752											X		X			
B-4-51.5	S	51.5	10/7/09 0808											X		X	X		

Relinquished by/Co.:	Received by/Co: MTA	Date/Time/Temp: 10/10/09	1655
Relinquished by/Co.: MTA	Received by/Co:	Date/Time/Temp: 11-10-09	2:00
Relinquished by/Co.:	Received by/Co:	Date/Time/Temp:	

Were samples Received In Good Condition? __Yes __No Samples on Ice? __Yes __No Method of Shipment: _____

NOTE: EH - Extract and Hold

C:\Documents and Settings\Bryan.Stempson\My Documents\CaltransCOC.xls

Chain of Custody
Moore Twining Associates, Inc.

2527 Fresno Street,
Fresno, CA, 93721

SHAW Environmental and Infrastructure, Inc.

Send Report To : Tim Ripp
eMail : tim.ripp@shawgrp.com
Phone : (510) 427-8350
Address: 5500 Port Chicago Highway
City/State : Concor, CA

Sampler Name: Bryan Stempson
Sampler Signature:

Ship Date: 10/10/09
Date/Time Results Required: Standard
Lab's Work Order #:

Project Name: Caltrans - 136529
Caltrans - Half Moon Bay
C98809.0100 → C98803.0200
Geotech Samples

Client Sample ID	Matrix	Target Depth	Date/Time Sampled	Container	# of Cont.	Preservative	Lab's Sample #	TPH-g 8015B	TPH-d 8015B	BTEX 8021B M135	Total Lead 6010 & 200.7	Total Arsenic 6010 & 200.7		ASTM Method - d854	ASTM Method C-29	Moisture Content - CT 226	Sieve Analysis - CT-202	Atterburg Limits - CT-204	
B-4-56.5	S	56.5	10/7/09 0824	SLEEVE	1	NA								X		X			
B-4-61.5	S	61.5	10/7/09 0845	|	|	|								X		X	X		
B-4-66.5	S	66.5	10/7/09 1725	|	|	|								X		X		X	
~~B-76~~ B-4-76.5	S	76.5	10/8/09 0930	|	|	|								X		X		X	
B-4-81.5	S	81.5	10/8/09 1015	|	|	|								X		X			

TPS 10/8/09

Relinquished by/Co.:	Received by/Co: MA	Date/Time/Temp: 10/10/09 1655	
Relinquished by/Co.: MTA	Received by/Co:	Date/Time/Temp: 10-9-09 8:00	
Relinquished by/Co.:	Received by/Co:	Date/Time/Temp:	

Were samples Received In Good Condition? __Yes __No Samples on Ice? __Yes __No Method of Shipment: _____

NOTE: EH - Extract and Hold

Andrew - Lihame 408 838 7219

C:\Documents and Settings\Bryan.Stempson\My Documents\CaltransCOC.xls

MOORE TWINING ASSOCIATES, INC.

Project: Shaw Environmental and Infrastructure, Inc. Report Date: 11/10/09

Project No.: C98804.0200 Sample Date: 10/19/09 Through 10/21/09

Lab I.D.: 09-1027

Subject: San Mateo – Hayward Bridge, Caltrans – 136529

Gentlemen,

At your request and authorization, Moore Twining Associates, Inc. performed Moisture Density, Sieve Analysis and Atterberg Limits on tube samples that were sampled on the 19th through the 21st of October, 2009 for the above subject project. Testing was performed in accordance with ASTM D2937, Caltrans Test 202 and Caltrans Test 204 test procedures respectively.

See attachments for the summary of test results.

If you have any questions or require additional information, please contact the undersigned @ 559-268-7021

Respectfully Submitted,
Moore Twining Associates, Inc.

Michael Shwiyhat, EIT
Manager
Material Testing Division

www.mooretwining.com
Ph: 800.268.7021
Fx: 559.268.7126
2527 Fresno Street
Fresno, CA 93721

MOORE TWINING ASSOCIATES, INC.

DENSITY MOISTURE, ASTM D2937

PROJECT Shaw Environmental - San Mateo Hayward Bridge - CalT-136529 DATE 10/19/2009

PROJECT NUMBER C98804.0200 TECHNICIAN 997

BORING NO.	B-8	B-8	B-8	B-8	B-8	B-8	B-8	B-8	B-8	B-8
DEPTH	6.5	11.5'	16.5'	21.5'	26.5'	31.5'	36.5'	41.5'	46.5'	51.5'
SAMPLE NO.				*					*	
LENGTH (IN.)	3	3	4		4	3	6	4		3
TOTAL WT. (g)	594.5	560.8	642.7		788.7	596.1	1176.2	870.1		583.5
WET WT. (g)	652.9	716	492.5	232	864.4	395.5	465.9	442.7	539.3	348
DRY WT. (g)	605.6	651.8	450.1	191.9	743.2	345.2	380.6	372.1	444.2	277.5
WET DENSITY	**128.5**		**97.5**		**127.7**	**129.0**	**126.8**	**144.5**		**125.5**
% MOISTURE	**7.8**	**9.8**	**9.4**	**20.9**	**16.3**	**14.6**	**22.4**	**19.0**	**21.4**	**25.4**
DRY DENSITY	**119.2**		**89.1**		**109.8**	**112.6**	**103.6**	**121.5**		**100.1**

* Samples were in a bag. Moisture Only

BORING NO.	B-8	B-8	B-8	B-8	B-8					
DEPTH	56.5'	61.5'	66.5'	76.5'	81.5'					
SAMPLE NO.	*									
LENGTH (IN.)		4	4	2	5					
TOTAL WT. (g)		802	732	395.5	1052.1					
WET WT. (g)	468.4	746.6	543.4	476.8	973.3					
DRY WT. (g)	376.1	623	409.7	417.7	852.8					
WET DENSITY		**130.5**	**116.0**	**128.2**	**138.7**					
% MOISTURE	**24.5**	**19.8**	**32.6**	**14.1**	**14.1**					
DRY DENSITY		**108.9**	**87.4**	**112.3**	**121.5**					

* Samples were in a bag. Moisture Only

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FX: 559.268.7126
2527 Fresno Street
Fresno, CA 93721

MOORE TWINING ASSOCIATES, INC.

DENSITY MOISTURE, ASTM D2937

PROJECT	Shaw Environmental - San Mateo Hayward Bridge - CalT-136529	DATE	10/19/2009
PROJECT NUMBER	C98804.0200	TECHNICIAN	997

BORING NO.	B-1	B-1	B-1	B-1	B-1	B-1	B-1	B-1	B-1	B-1
DEPTH	6.5'	11.5'	16.5'	31.5'	36.5'	41.5'	46.5'	51.5'	61.5'	66.5'
SAMPLE NO.	*	*							*	
LENGTH (IN.)			2	4	4	4	5	5		4
TOTAL WT. (g)			373.5	638.3	731.4	792	998.9	981.7		788
WET WT. (g)	291.4	340.1	898.3	484.2	553.6	542.9	650.9	534.9	524.1	493.9
DRY WT. (g)	255.1	295.8	812.8	423.1	423.5	456.2	546.2	444.2	428.8	415.8
WET DENSITY			**119.1**	**96.6**	**115.9**	**128.4**	**129.9**	**127.0**		**127.6**
% MOISTURE	**14.2**	**15.0**	**10.5**	**14.4**	**30.7**	**19.0**	**19.2**	**20.4**	**22.2**	**18.8**
DRY DENSITY			**107.7**	**84.4**	**88.6**	**107.9**	**109.0**	**105.5**		**107.4**

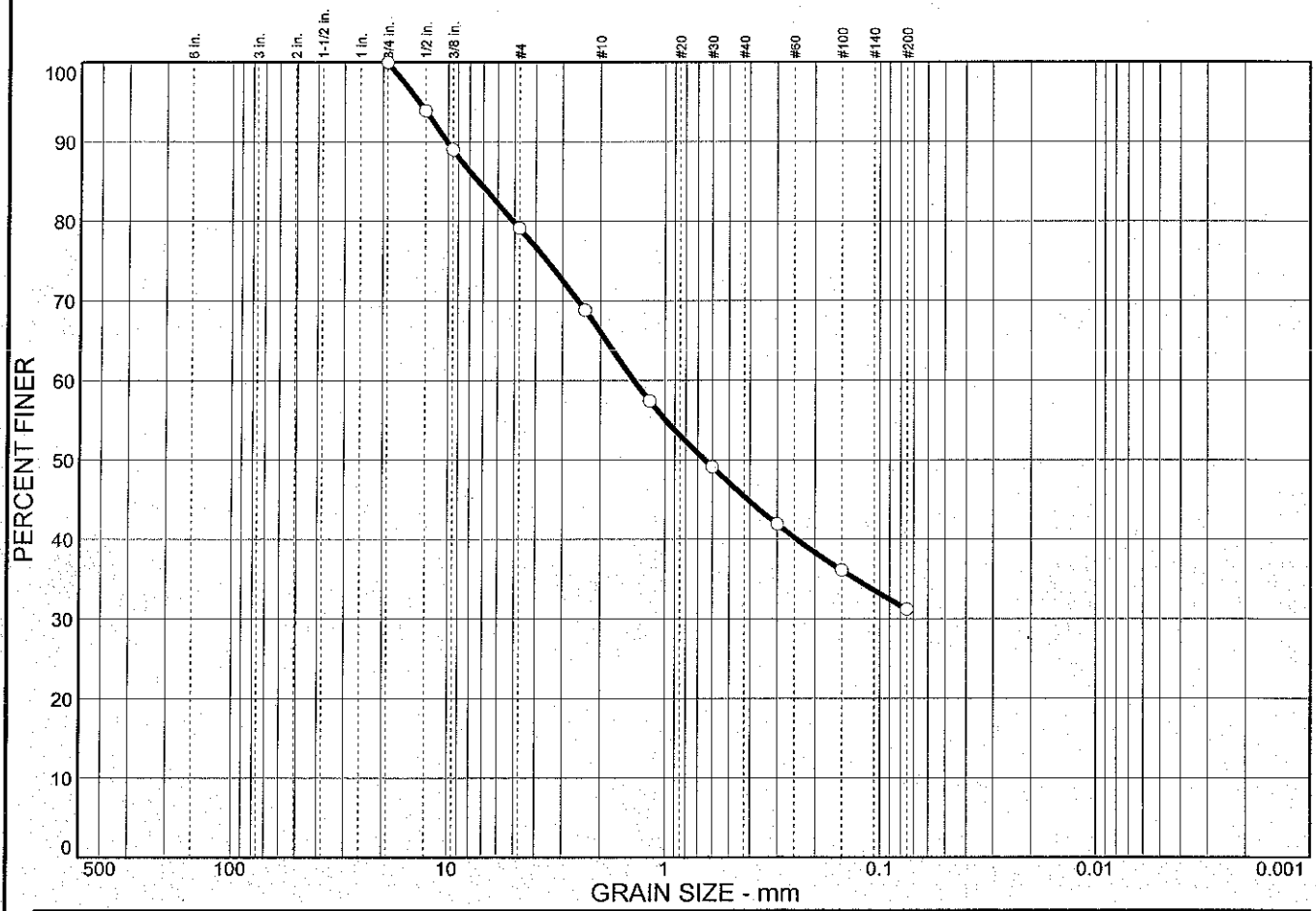
* Samples were in a bag. Moisture Only

BORING NO.	B-1	B-1	B-1							
DEPTH	71.5'	76.5'	81.5							
SAMPLE NO.										
LENGTH (IN.)	3	3	5							
TOTAL WT. (g)	598	631.7	1012.9							
WET WT. (g)	647.8	970.6	512.6							
DRY WT. (g)	551.9	866.9	438.2							
WET DENSITY	**129.5**	**138.8**	**132.2**							
% MOISTURE	**17.4**	**12.0**	**17.0**							
DRY DENSITY	**110.3**	**124.0**	**113.0**							

* Samples were in a bag. Moisture Only

PH: 800.268.7021
FX: 559.268.7126
2527 Fresno Street
Fresno, CA 93721

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	20.9	47.9	31.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
1/2 in.	93.9		
3/8 in.	89.0		
#4	79.1		
#8	68.8		
#16	57.4		
#30	49.1		
#50	41.9		
#100	36.1		
#200	31.2		

* (no specification provided)

Material Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 7.33 D_{60}= 1.40 D_{50}= 0.651
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

F.M.=2.79

Sample No.: B-1 **Source of Sample:** **Date:** 10/19/09
Location: **Elev./Depth:** 16.5'

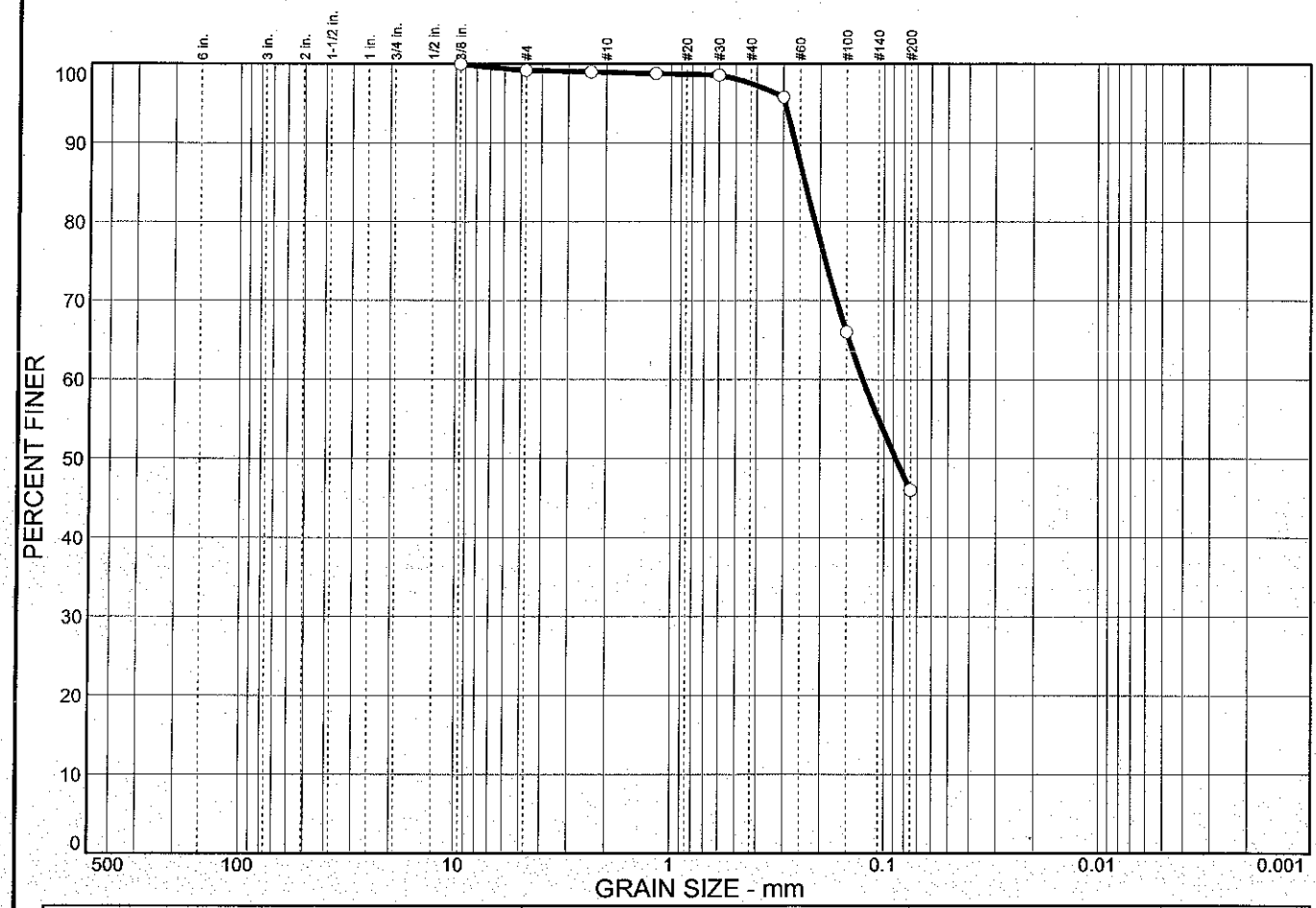
Moore Twining Associates, Inc.

Fresno, CA

Client: Shaw Environmental and Infrastructure, Inc.
Project: San Mateo - Hayward Bridge, Caltrans - 136529

Project No: C98804.0200 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.8	53.2	46.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8 in.	100.0		
#4	99.2		
#8	99.0		
#16	98.8		
#30	98.6		
#50	95.8		
#100	66.0		
#200	46.0		

* (no specification provided)

Material Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.237 D_{60}= 0.125 D_{50}= 0.0878
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

F.M.=0.43

Sample No.: B-1 **Source of Sample:** **Date:** 10/19/09
Location: **Elev./Depth:** 46.5'

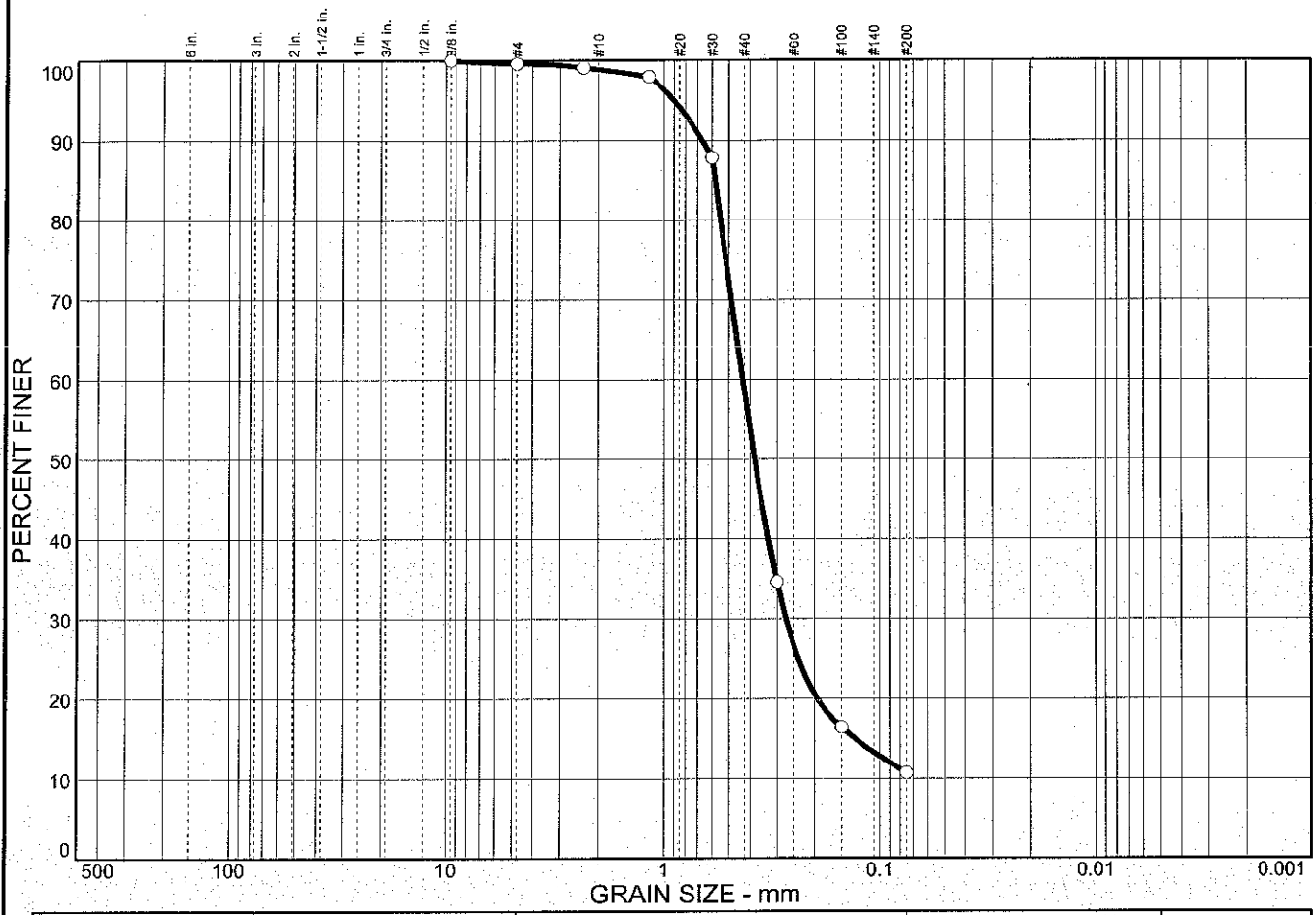
Moore Twining Associates, Inc.

Fresno, CA

Client: Shaw Environmental and Infrastructure, Inc.
Project: San Mateo - Hayward Bridge, Caltrans - 136529

Project No: C98804.0200 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.4	88.9	10.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8 in.	100.0		
#4	99.6		
#8	99.1		
#16	98.0		
#30	87.8		
#50	34.6		
#100	16.4		
#200	10.7		

* (no specification provided)

Material Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.581 D_{60}= 0.432 D_{50}= 0.381
D_{30}= 0.273 D_{15}= 0.131 D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

F.M.=1.64

Sample No.: B-1 **Source of Sample:** **Date:** 10/19/09
Location: **Elev./Depth:** 71.5'

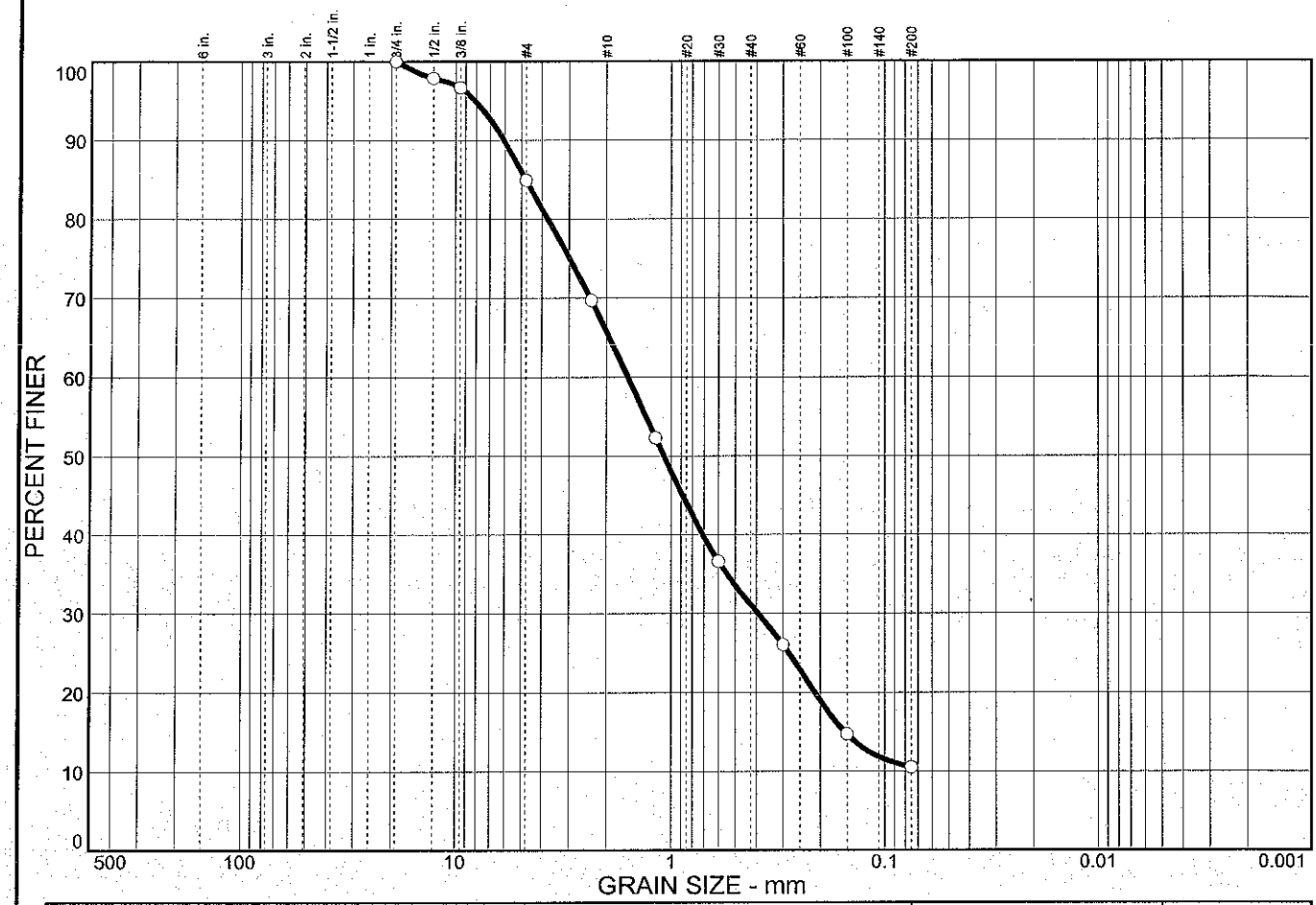
Moore Twining Associates, Inc.

Fresno, CA

Client: Shaw Environmental and Infrastructure, Inc.
Project: San Mateo - Hayward Bridge, Caltrans - 136529

Project No: C98804.0200 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	15.1	74.4	10.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
1/2 in.	97.9		
3/8 in.	96.7		
#4	84.9		
#8	69.7		
#16	52.3		
#30	36.6		
#50	26.0		
#100	14.7		
#200	10.5		

* (no specification provided)

Material Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 4.77 D_{60}= 1.59 D_{50}= 1.08
D_{30}= 0.393 D_{15}= 0.154 D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

F.M.=3.19

Sample No.: B-1 **Source of Sample:** **Date:** 10/19/09
Location: **Elev./Depth:** 76.5'

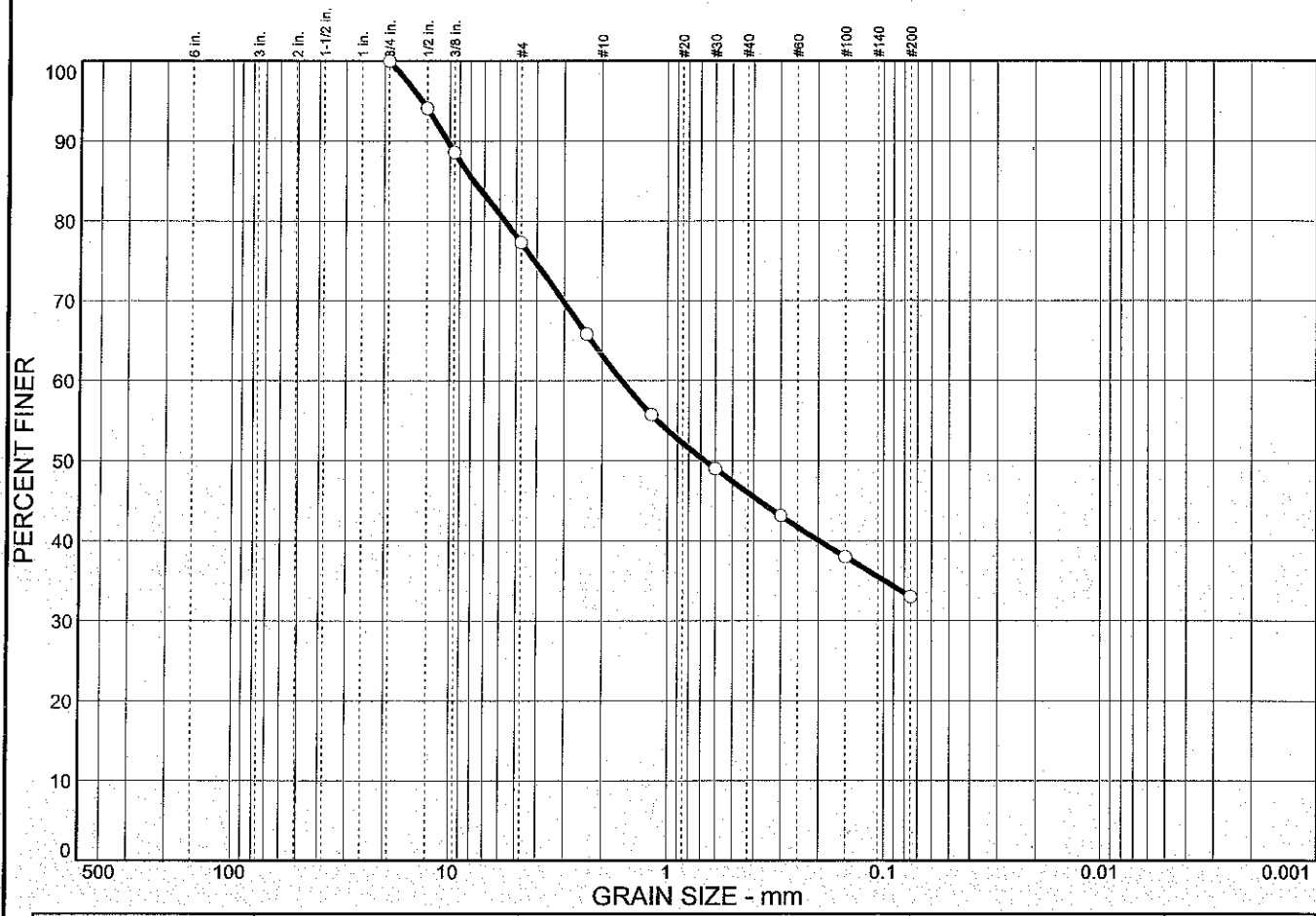
Moore Twining Associates, Inc.

Fresno, CA

Client: Shaw Environmental and Infrastructure, Inc.
Project: San Mateo - Hayward Bridge, Caltrans - 136529

Project No: C98804.0200 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	22.7	44.3	33.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
1/2 in.	94.1		
3/8 in.	88.6		
#4	77.3		
#8	65.8		
#16	55.7		
#30	49.0		
#50	43.1		
#100	38.0		
#200	33.0		

* (no specification provided)

Material Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 7.77 D_{60}= 1.63 D_{50}= 0.672
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

F.M.=2.83

Sample No.: B-8 **Source of Sample:** **Date:** 10/19/09
Location: **Elev./Depth:** 11.5'

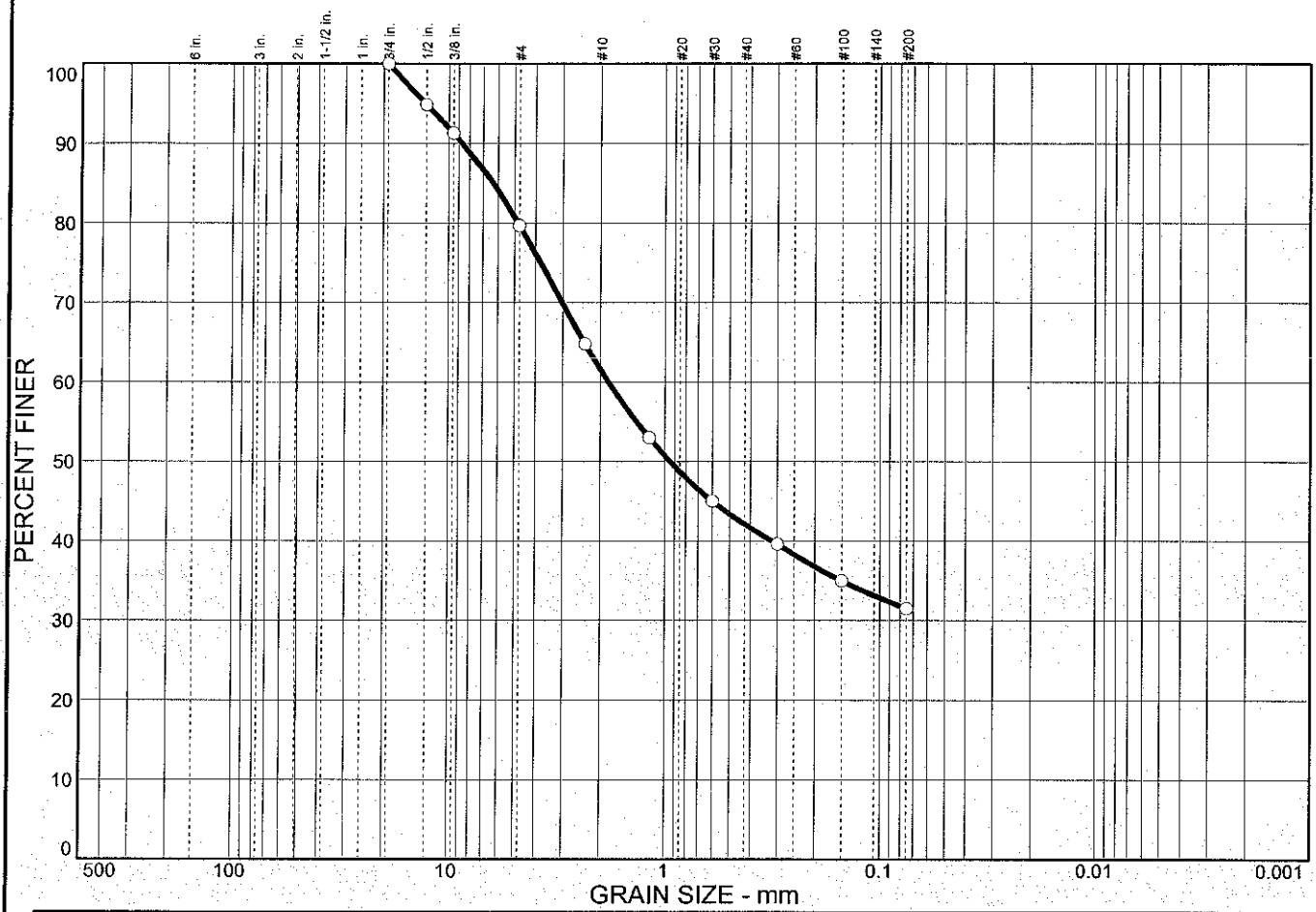
Moore Twining Associates, Inc.

Fresno, CA

Client: Shaw Environmental and Infrastructure, Inc.
Project: San Mateo - Hayward Bridge, Caltrans - 136529

Project No: C98804.0200 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	20.3	48.2	31.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
1/2 in.	94.9		
3/8 in.	91.3		
#4	79.7		
#8	64.8		
#16	53.0		
#30	45.0		
#50	39.6		
#100	35.0		
#200	31.5		

* (no specification provided)

Material Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 6.31 D_{60}= 1.83 D_{50}= 0.944
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

F.M.=2.92

Sample No.: B-8 **Source of Sample:** **Date:** 10/19/09
Location: **Elev./Depth:** 26.5'

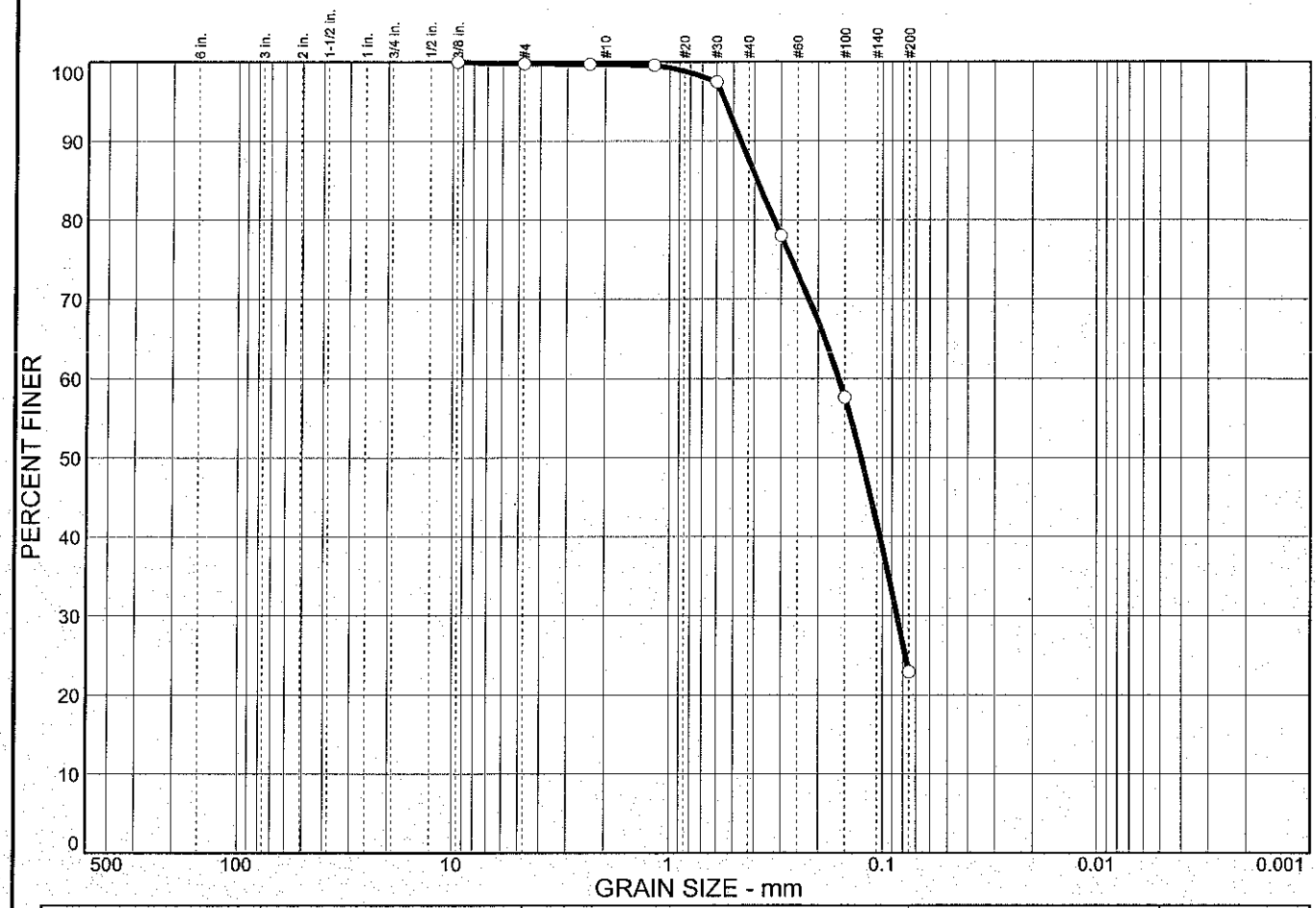
Moore Twining Associates, Inc.

Fresno, CA

Client: Shaw Environmental and Infrastructure, Inc.
Project: San Mateo - Hayward Bridge, Caltrans - 136529

Project No: C98804.0200 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.2	76.9	22.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8 in.	100.0		
#4	99.8		
#8	99.7		
#16	99.6		
#30	97.5		
#50	78.0		
#100	57.6		
#200	22.9		

* (no specification provided)

Material Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.387 D_{60}= 0.160 D_{50}= 0.126
D_{30}= 0.0853 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

F.M.=0.68

Sample No.: B-8 **Source of Sample:** **Date:** 10/19/09
Location: **Elev./Depth:** 61.5'

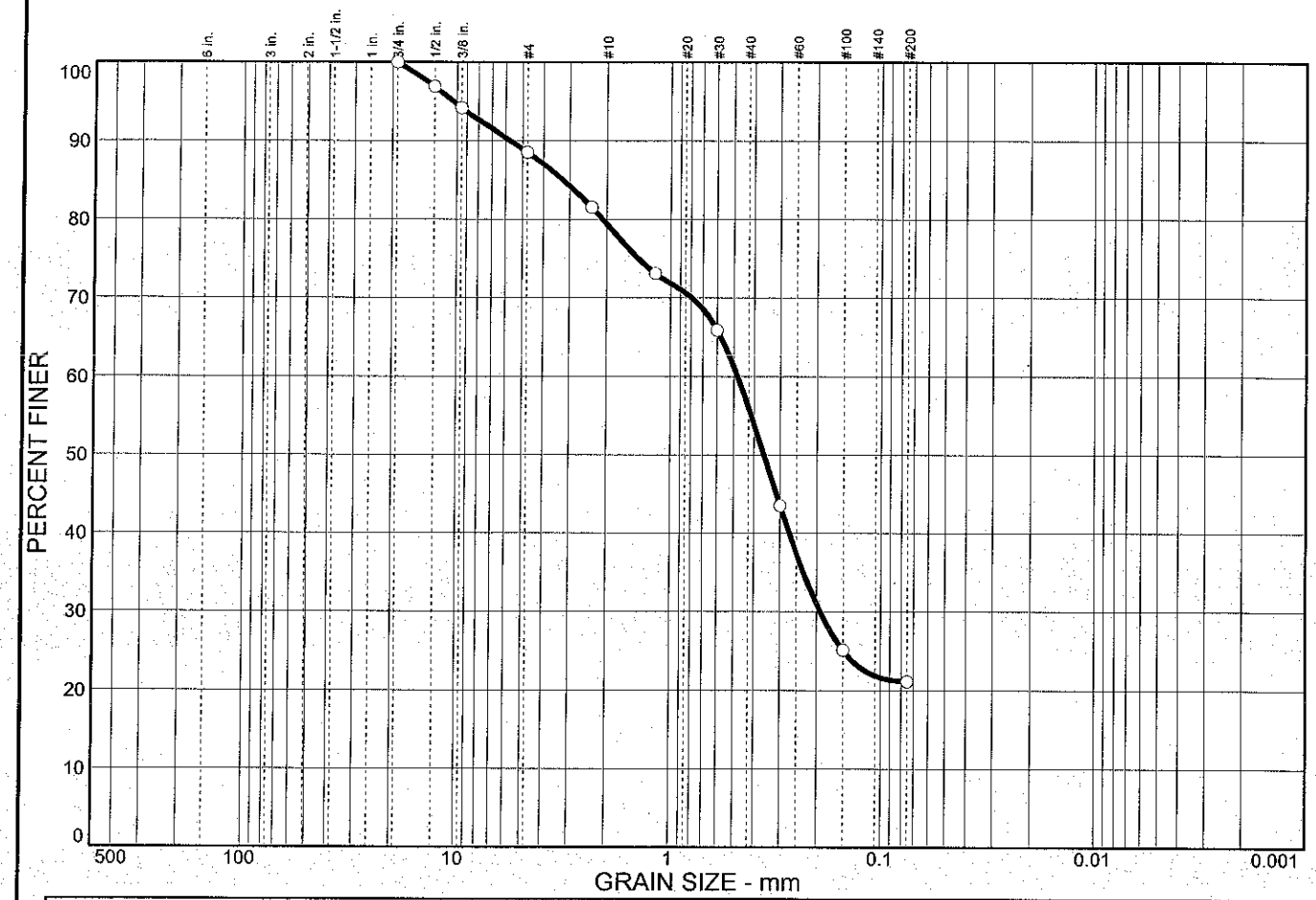
Moore Twining Associates, Inc.

Fresno, CA

Client: Shaw Environmental and Infrastructure, Inc.
Project: San Mateo - Hayward Bridge, Caltrans - 136529

Project No: C98804.0200 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	11.5	67.4	21.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
1/2 in.	96.9		
3/8 in.	94.2		
#4	88.5		
#8	81.5		
#16	73.1		
#30	65.9		
#50	43.5		
#100	25.1		
#200	21.1		

* (no specification provided)

Material Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 3.23 D_{60}= 0.481 D_{50}= 0.359
D_{30}= 0.192 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

F.M.=2.28

Sample No.: B-8 **Source of Sample:** **Date:** 10/19/09
Location: **Elev./Depth:** 81.5'

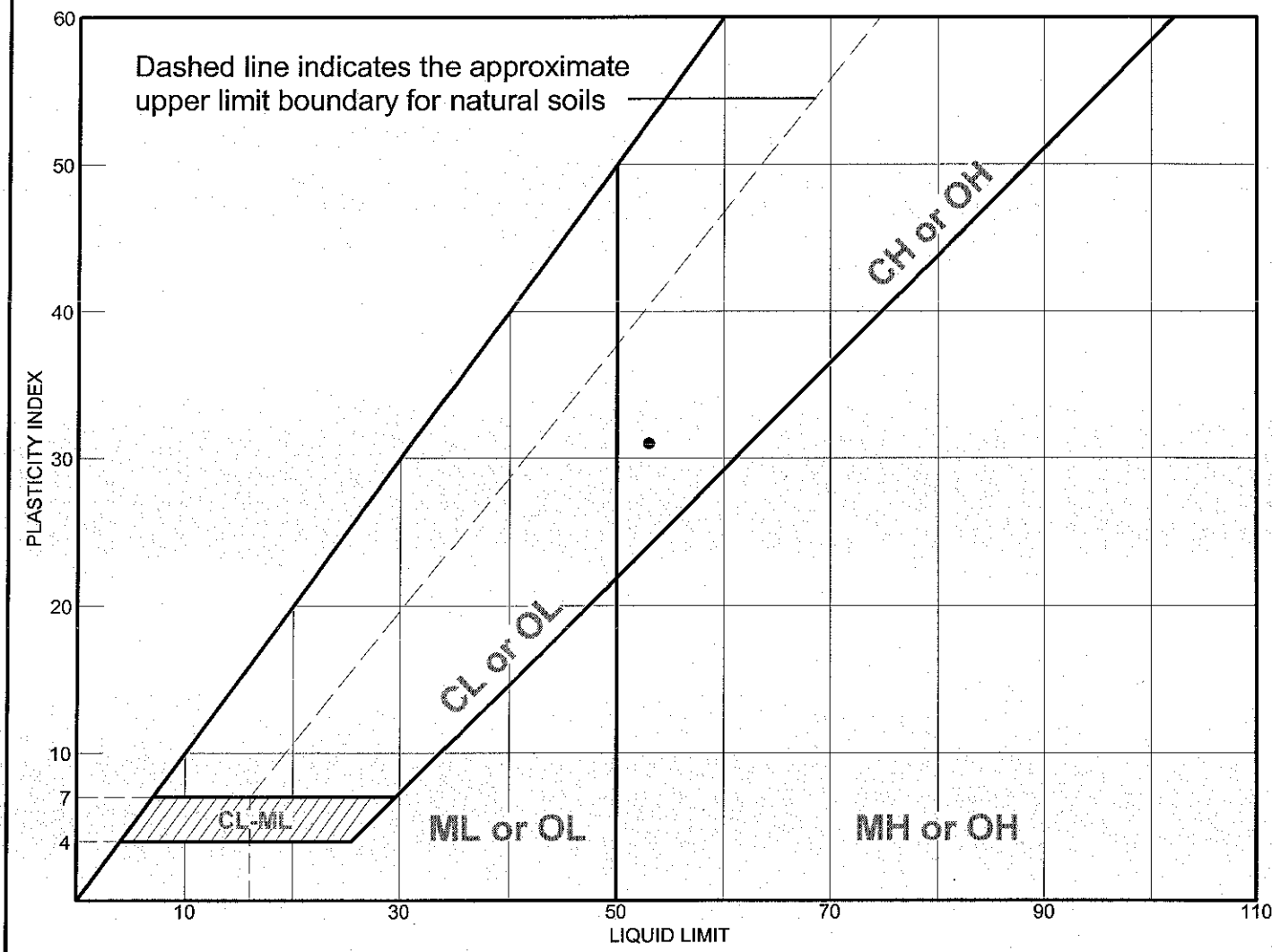
Moore Twining Associates, Inc.

Fresno, CA

Client: Shaw Environmental and Infrastructure, Inc.
Project: San Mateo - Hayward Bridge, Caltrans - 136529

Project No: C98804.0200 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		53	22	31			

Project No. C98804.0200 **Client:** Shaw Environmental and Infrastructure, Inc.

Project: San Mateo - Hayward Bridge, Caltrans - 136529

● **Source:** **Sample No.:** B-1 **Elev./Depth:** 11.5'

Remarks:

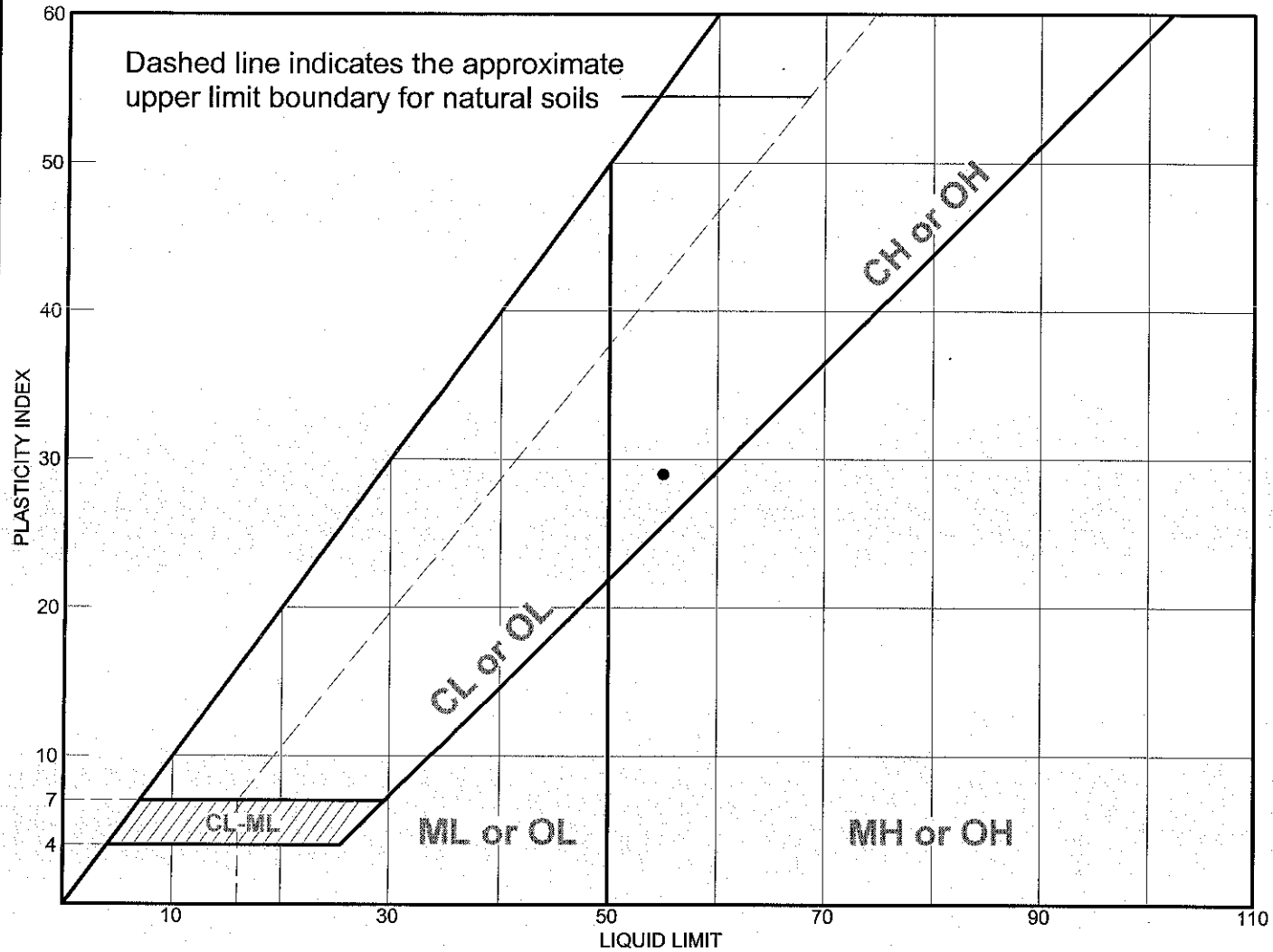
●

Moore Twining Associates, Inc.

Fresno, CA

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		55	26	29			

Project No. C98804.0200 **Client:** Shaw Environmental and Infrastructure, Inc.

Project: San Mateo - Hayward Bridge, Caltrans - 136529

● **Source:** **Sample No.:** B-1 **Elev./Depth:** 31.5'

Remarks:

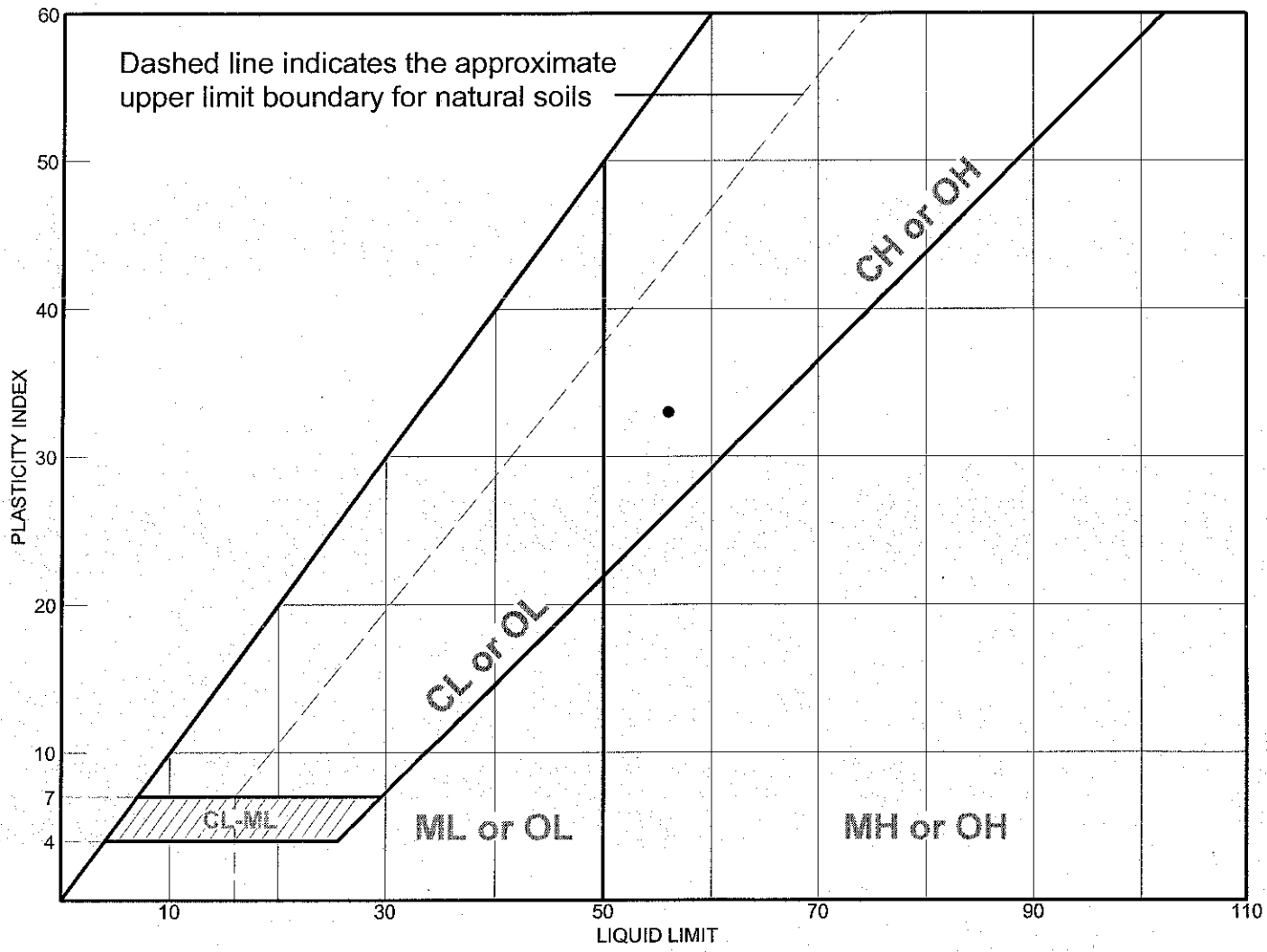
●

Moore Twining Associates, Inc.

Fresno, CA

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		56	23	33			

Project No. C98804.0200 **Client:** Shaw Environmental and Infrastructure, Inc.

Project: San Mateo - Hayward Bridge, Caltrans - 136529

● **Source:** **Sample No.:** B-1 **Elev./Depth:** 36.5'

Remarks:

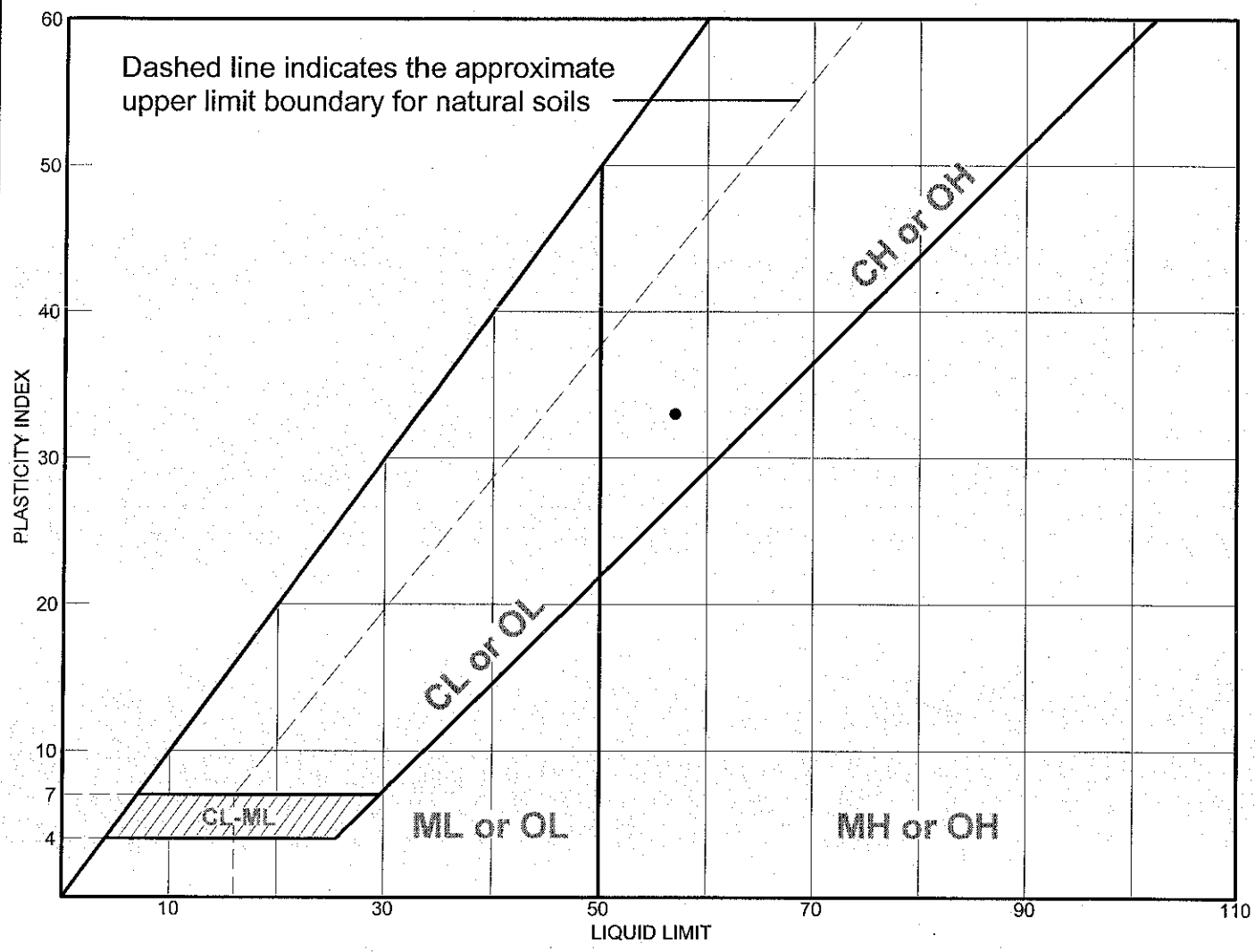
●

Moore Twining Associates, Inc.

Fresno, CA

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		57	24	33			

Project No. C98804.0200 **Client:** Shaw Environmental and Infrastructure, Inc.

Project: San Mateo - Hayward Bridge, Caltrans - 136529

● **Source:** **Sample No.:** B-1 **Elev./Depth:** 81.5'

Remarks:

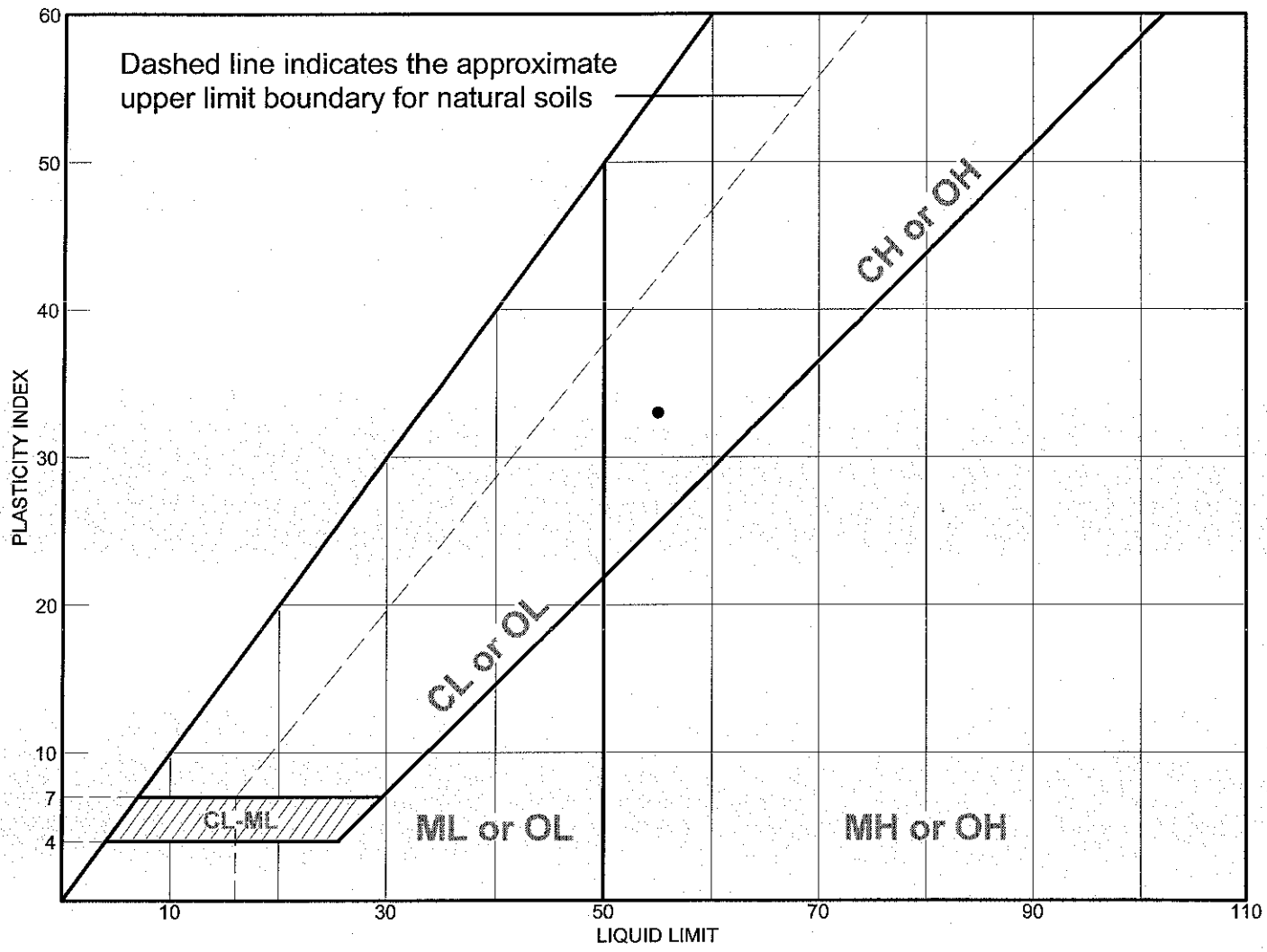
●

Moore Twining Associates, Inc.

Fresno, CA

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		55	22	33			

Project No. C98804.0200 **Client:** Shaw Environmental and Infrastructure, Inc.

Project: San Mateo - Hayward Bridge, Caltrans - 136529

● **Source:** **Sample No.:** B-8 **Elev./Depth:** 36.5'

Remarks:

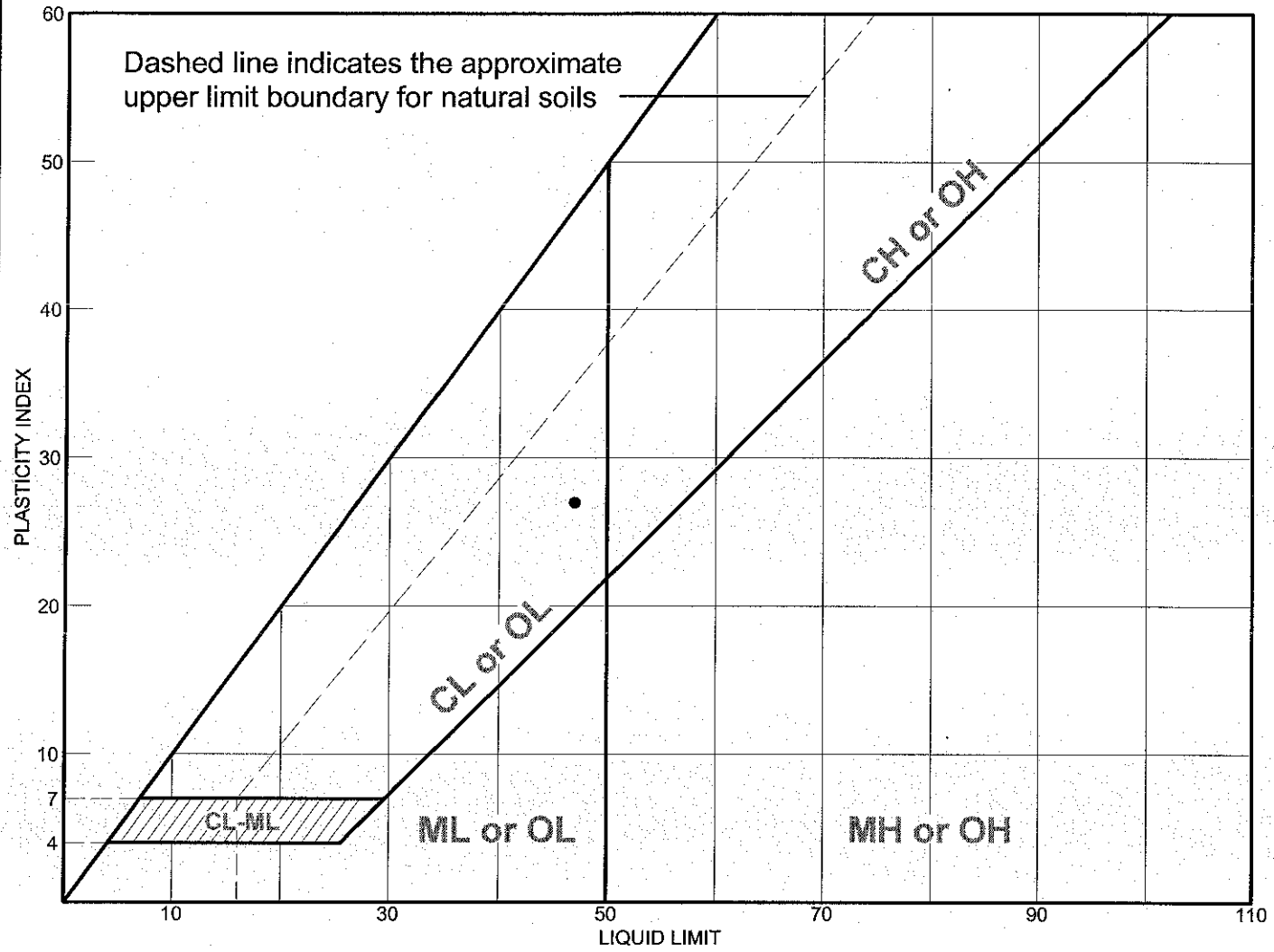
●

Moore Twining Associates, Inc.

Fresno, CA

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		47	20	27			

Project No. C98804.0200 **Client:** Shaw Environmental and Infrastructure, Inc.

Project: San Mateo - Hayward Bridge, Caltrans - 136529

● **Source:** **Sample No.:** B-8 **Elev./Depth:** 41.5'

Remarks:

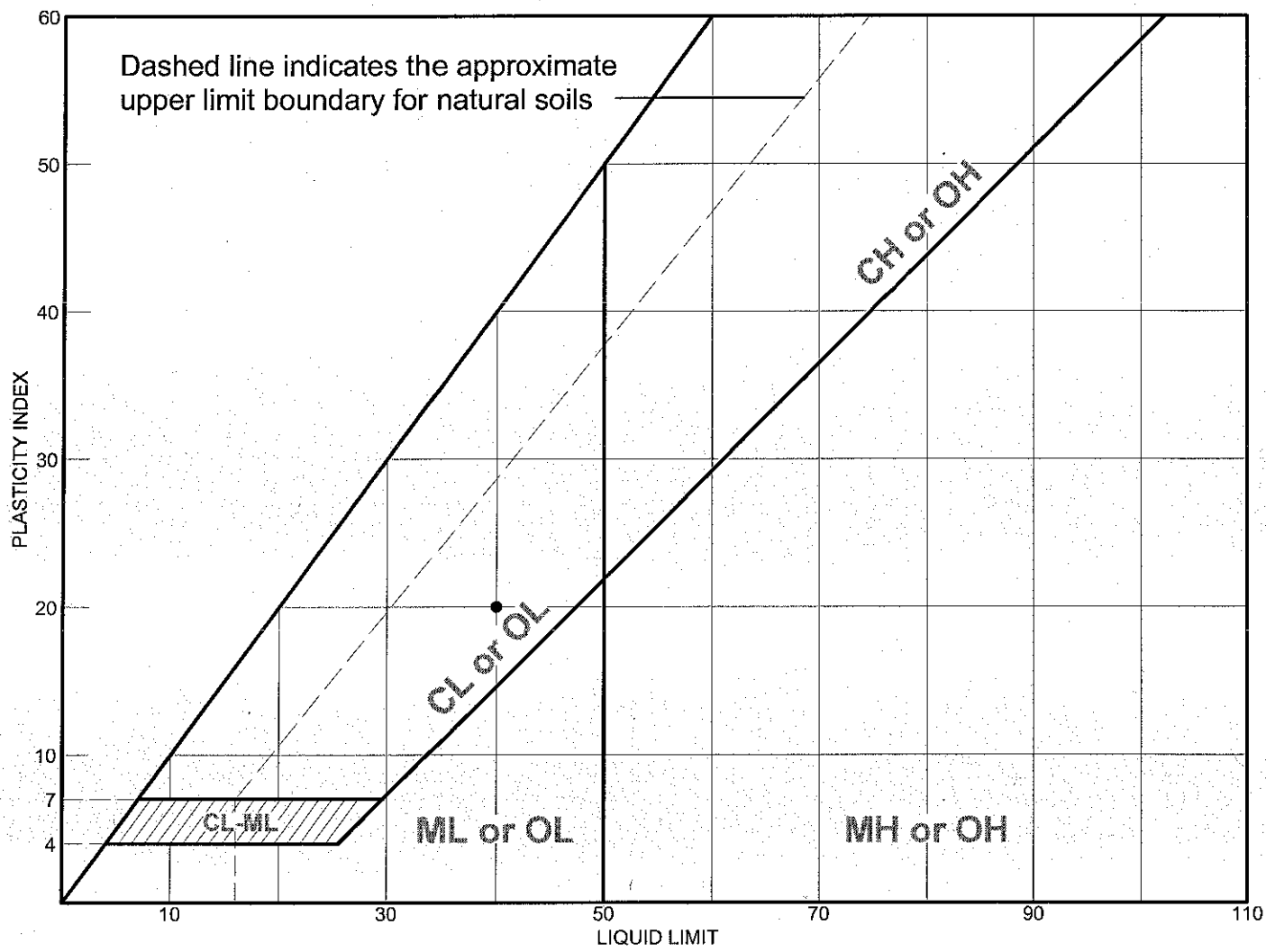
●

Moore Twining Associates, Inc.

Fresno, CA

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		40	20	20			

Project No. C98804.0200 **Client:** Shaw Environmental and Infrastructure, Inc.

Project: San Mateo - Hayward Bridge, Caltrans - 136529

● **Source:** **Sample No.:** B-8 **Elev./Depth:** 46.5'

Remarks:

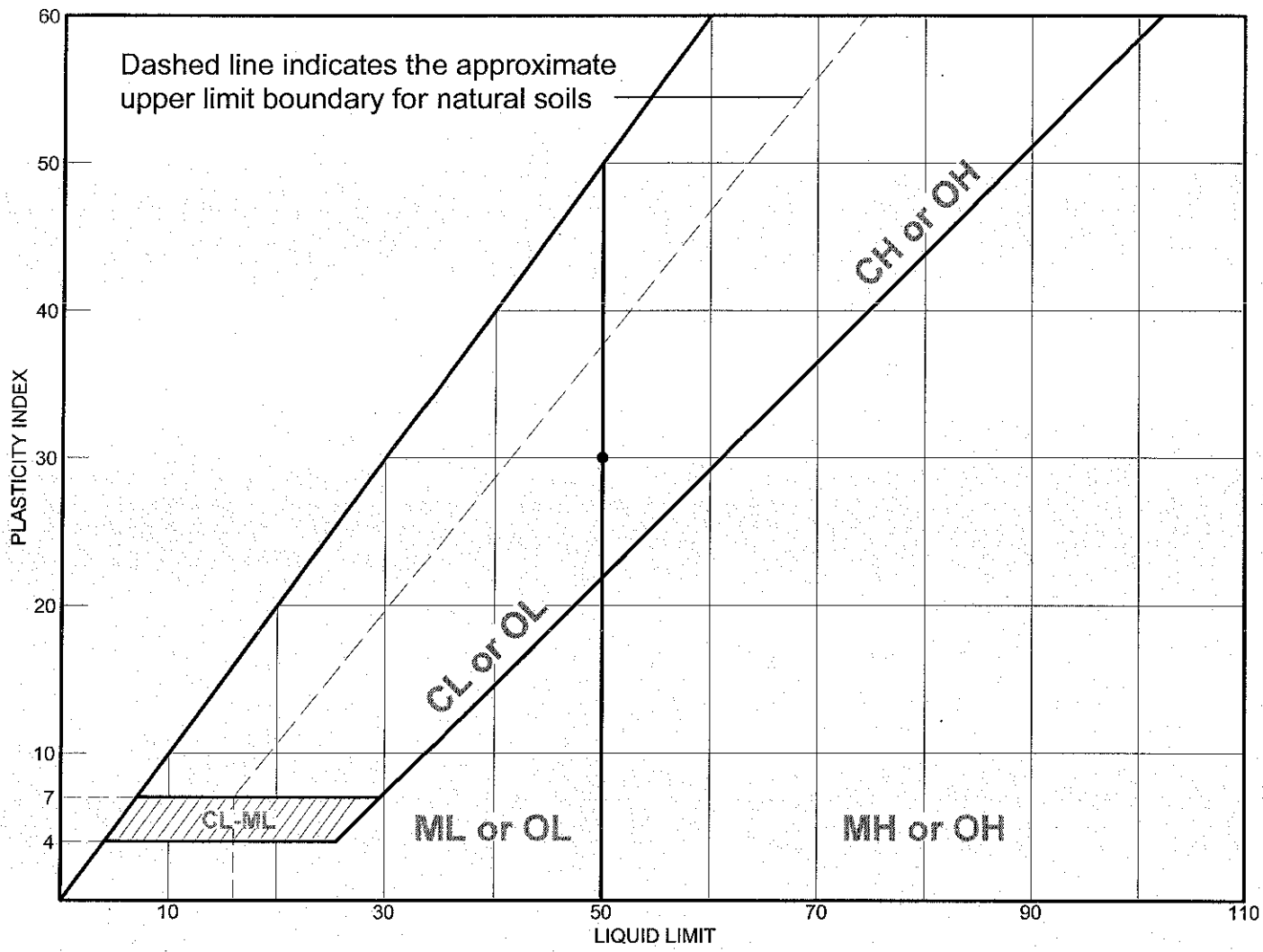
●

Moore Twining Associates, Inc.

Fresno, CA

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		50	20	30			

Project No. C98804.0200 **Client:** Shaw Environmental and Infrastructure, Inc.

Project: San Mateo - Hayward Bridge, Caltrans - 136529

● **Source:** **Sample No.:** B-8 **Elev./Depth:** 66.5'

Remarks:

●

Moore Twining Associates, Inc.

Fresno, CA

Figure

timothy.ripp@shawgrp.com

09-1027

Chain of Custody

Moore Twining Associates, Inc.

2527 Fresno Street,
Fresno, CA, 93721

Shaw SHAW Environmental and Infrastructure, Inc.

Send Report To : Tim Ripp
eMail : tim.ripp@shawgrp.com
Phone : (510) 427-8350
Address: 5500 Port Chicago Highway
City/State : Concor, CA

Sampler Name: B. Stempson
Sampler Signature:

Page 1 of 3
Ship Date: 10/22/09
Date/Time Results Required: Standard
Lab's Work Order #:

Project Name: Caltrans - 136529
CALTRANS - SAN MATEO HAYWARD BRIDGE
C98804.0100
GEOTECH

Client Sample ID	Matrix	Target Depth	Date/Time Sampled	Container	# of Cont.	Preservative	Lab's Sample #	TPH-g 8015B	TPH-d 8015B	BTEX 8021B	Total Lead 6010 & 200.7	Total Arsenic 6010 & 200.7		ASTM Method - d854	ASTM Method C-29	Moisture Content - CT 226	Sieve Analysis - CT-202	Atterburg Limits - CT-204	
B-1-6.5	S	6.5	10/19/09 1415	SLEEVE	1	NA								X		X			
B-1-11.5	|	11.5	10/19/09 1432	|	|	|								X		X		X	
B-1-16.5	|	16.5	10/19/09 1440	|	|	|								X		X	X		
B-1-31.5	|	31.5	10/20/09 1345	|	|	|								X		X		X	
B-1-36.5	|	36.5	10/20/09 1355	|	|	|								X		X		X	
B-1-41.5	|	41.5	10/20/09 1412	|	|	|								X		X			
B-1-46.5	|	46.5	10/20/09 1445	|	|	|								X		X	X		
B-1-51.5	|	51.5	10/20/09 1502	|	|	|								X		X			
B-1-61.5	|	61.5	10/20/09 1545	|	|	|								X		X			
B-1-66.5	|	66.5	10/20/09 1600	|	|	|								X		X			

Relinquished by/Co.:	Received by/Co: MTA	Date/Time/Temp: 10/22/09	1300
Relinquished by/Co.:	Received by/Co:	Date/Time/Temp: 10-22-09	991
Relinquished by/Co.:	Received by/Co:	Date/Time/Temp:	

Were samples Received In Good Condition? __Yes __No Samples on Ice? __Yes __No Method of Shipment: _____

NOTE: EH - Extract and Hold

Chain of Custody
Moore Twining Associates, Inc.

2527 Fresno Street,
Fresno, CA, 93721

Ship Date: 10/22/09

Date/Time Results Required: Standard

Lab's Work Order #:_____

Shaw SHAW Environmental and Infrastructure, Inc.

Send Report To : Tim Ripp

eMail : tim.ripp@shawgrp.com

Phone : (510) 427-8350

Address: 5500 Port Chicago Highway

City/State : Concor, CA

Sampler Name: B. Stempson

Sampler Signature: [signature]

Project Name: Caltrans - 136529
SAN MATEO HAYWARD BRIDGE
C98804.0100 GEOTECH

Client Sample ID	Matrix	Target Depth	Date/Time Sampled	Container	# of Cont.	Preservative	Lab's Sample #	TPH-g 8015B	TPH-d 8015B	BTEX 8021B	Total Lead 6010 & 200.7	Total Arsenic 6010 & 200.7		ASTM Method - d854	ASTM Method C-29	Moisture Content - CT 226	Sieve Analysis - CT-202	Atterburg Limits - CT-204	
B-1-71.5	S	71.5	10/21/09 0850	Sleeve	1	NA								X		X	X		
B-1-76.5		76.5	10/21/09 1015											X		X	X		
B-1-81.5		81.5	10/21/09 1115											X		X		X	
B-8-6.5		6.5	10/21/09 1542											X		X			
B-8-11.5		11.5	10/21/09 1553											X		X	X		
B-8-16.5		16.5	10/21/09 1559											X		X			
B-8-21.5		21.5	10/21/09 1605											X		X			
B-8-26.5		26.5	10/21/09 1615											X		X	X		
B-8-31.5		31.5	10/21/09 1620											X		X			
B-8-36.5		36.5	10/21/09 1625											X		X		X	

Relinquished by/Co.: [signature]	Received by/Co: [signature] MTA	Date/Time/Temp: 10/22/09 1330
Relinquished by/Co.:	Received by/Co:	Date/Time/Temp: 10-28-09 730
Relinquished by/Co.:	Received by/Co:	Date/Time/Temp:

Were samples Received In Good Condition? __Yes __No Samples on Ice? __Yes __No Method of Shipment: _____

NOTE: EH - Extract and Hold

09-1027

Chain of Custody

Moore Twining Associates, Inc.

2527 Fresno Street,
Fresno, CA, 93721

Shaw SHAW Environmental and Infrastructure, Inc.

Send Report To : Tim Ripp
eMail : tim.ripp@shawgrp.com
Phone : (510) 427-8350
Address: 5500 Port Chicago Highway
City/State : Concor, CA

Sampler Name: B. Stempson
Sampler Signature: [signature]

Page 3 **of** 3
Ship Date: 10/22/09
Date/Time Results Required: Standard
Lab's Work Order #:_____

Project Name: Caltrans - 136529
San Mateo Hayward Bridge
C98804.0100
GEOTECH

Client Sample ID	Matrix	Target Depth	Date/Time Sampled	Container	# of Cont.	Preservative	Lab's Sample #	TPH-g 8015B	TPH-d 8015B	BTEX 8021B	Total Lead 6010 & 200.7	Total Arsenic 6010 & 200.7		ASTM Method ~~-4854~~ D2937	ASTM Method C-29	Moisture Content - CT 226	Sieve Analysis - CT-202	Atterburg Limits - CT-204	
B-8-41.5	S	41.5'	10/21/09 1635	Sleeve	1	NA								X		X		X	
B-8-46.5		46.5'	10/21/09 1650											X		X		X	
B-8-51.5		51.5	10/21/09 1700											X		X			
B-8-56.5		56.5	10/21/09 1710											X		X			
B-8-61.5		61.5	10/21/09 1725											X		X	X		
B-8-66.5		66.5	10/21/09 1849											X		X		X	
B-8-76.5		76.5	10/21/09 1922											X		X			
B-8-~~76.5~~ 81.5 SS		81.5	10/21/09 2002											X		X	X		

Relinquished by/Co.: [signature] Received by/Co: [signature] MTA Date/Time/Temp: 10/22/09 1330
Relinquished by/Co.: Received by/Co: Date/Time/Temp: 10-28-09 930
Relinquished by/Co.: Received by/Co: Date/Time/Temp:

Were samples Received In Good Condition? __Yes __No Samples on Ice? __Yes __No Method of Shipment: _____

NOTE: EH - Extract and Hold

C:\Documents and Settings\Bryan.Stempson\My Documents\CaltransCOC.xls

MOORE TWINING ASSOCIATES, INC.

Project: Shaw Environmental and Infrastructure, Inc.

Report Date: 11/09/09

Project No.: C98806.0200

Sample Date: 10/09/09

Lab I.D.: 09-1022

Subject: Menlo Park - Ravenswood, Caltrans – 136529

Gentlemen,

At your request and authorization, Moore Twining Associates, Inc. performed Moisture Density, Sieve Analysis and Atterberg Limits on tube samples that were sampled on the 9th of October, 2009 for the above subject project. Testing was performed in accordance with ASTM D2937, Caltrans Test 202 and Caltrans Test 204 test procedures respectively.

See attachments for the summary of test results.

If you have any questions or require additional information, please contact the undersigned @ 559-268-7021

Respectfully Submitted,
Moore Twining Associates, Inc.

Michael Shwiyhat, EIT
Manager
Material Testing Division

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2527 Fresno Street
Fresno, CA 93721

MOORE TWINING ASSOCIATES, INC.

DENSITY MOISTURE, ASTM D2937

PROJECT	Shaw Environmental - Menlo Park - Ravenswood - CalT-136529	DATE	10/9/2009
PROJECT NUMBER	C98806.0200	TECHNICIAN	997

BORING NO.	B-1	B-1	B-1	B-1	B-1	B-1	B-1	B-1	B-1	B-1
DEPTH	6.5'	11.5'	16.5'	26.5'	36.5'	41.5'	46.5'	51.5'	56.5'	61.5'
SAMPLE NO.			***							
LENGTH (IN.)	6	6		3	3	3	3	3	3	3
TOTAL WT. (g)	1278.5	1276.6		595.7	562.9	580.5	571.6	591	575.7	588.7
WET WT. (g)	527.4	556.8		466.8	431.3	448.5	441.7	455	444.7	454.6
DRY WT. (g)	488.4	512.5		390.9	336	361.3	344.8	374	360.3	371.2
WET DENSITY	**140.9**	**140.6**		**128.9**	**119.8**	**124.7**	**122.2**	**127.6**	**123.3**	**126.9**
% MOISTURE	**8.0**	**8.6**		**19.4**	**28.4**	**24.1**	**28.1**	**21.7**	**23.4**	**22.5**
DRY DENSITY	**130.5**	**129.4**		**107.9**	**93.3**	**100.4**	**95.4**	**104.9**	**99.9**	**103.6**

*** Disturbed, Sample Could Not Be Tested

BORING NO.	B-1	B-1	B-1	B-1						
DEPTH	66.5'	71.5'	76.5'	81.5'						
SAMPLE NO.										
LENGTH (IN.)	3	3	3	3						
TOTAL WT. (g)	593	581.3	563.2	566.7						
WET WT. (g)	465.9	451.1	422.4	398.1						
DRY WT. (g)	318.3	362.1	330.8	319						
WET DENSITY	**128.1**	**124.9**	**119.9**	**120.9**						
% MOISTURE	**46.4**	**24.6**	**27.7**	**24.8**						
DRY DENSITY	**87.5**	**100.2**	**93.9**	**96.8**						

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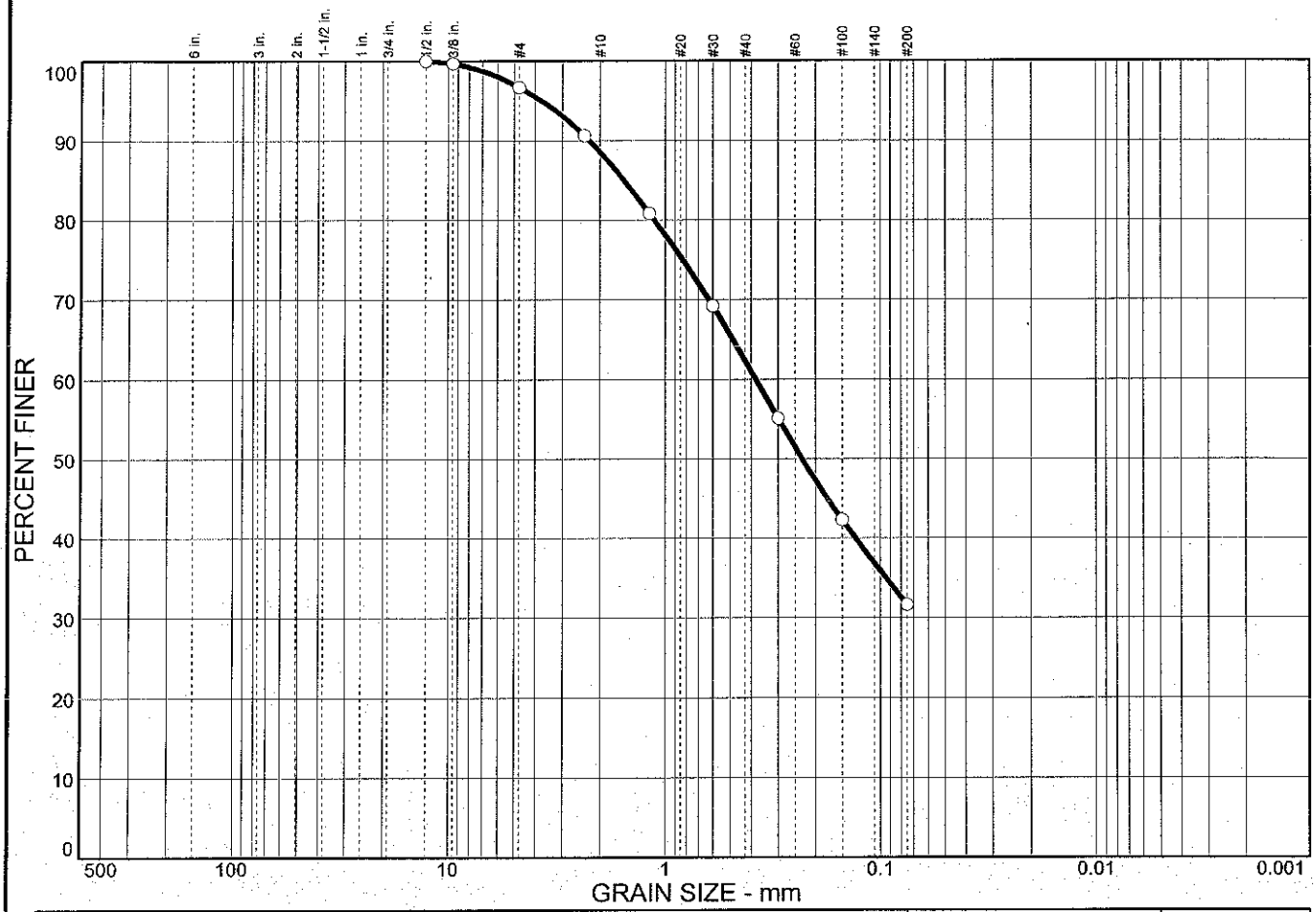
Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	3.3	65.1	31.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2 in.	100.0		
3/8 in.	99.7		
#4	96.7		
#8	90.6		
#16	80.8		
#30	69.2		
#50	55.1		
#100	42.3		
#200	31.6		

* (no specification provided)

Material Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 1.55 D_{60}= 0.381 D_{50}= 0.231
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

F.M.=1.66

Sample No.: B-1 **Source of Sample:** **Date:** 10/09/09
Location: **Elev./Depth:** 6.5'

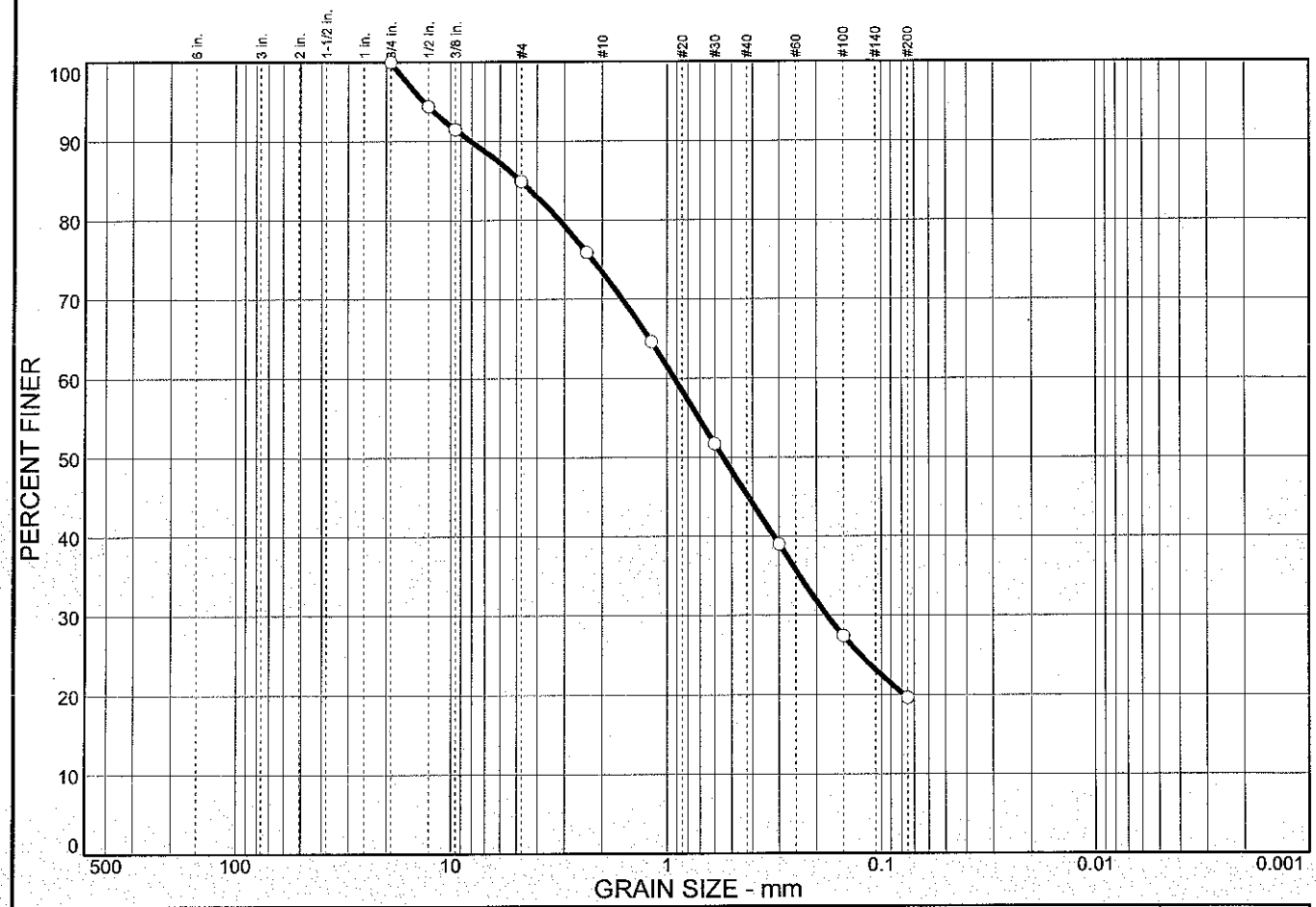
Moore Twining Associates, Inc.

Fresno, CA

Client: Shaw Environmental and Infrastucture, Inc.
Project: Menlo Par - Ravenswood, Caltrans - 136529

Project No: C98806.0200 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	15.1	65.3	19.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
1/2 in.	94.4		
3/8 in.	91.5		
#4	84.9		
#8	75.9		
#16	64.6		
#30	51.7		
#50	39.0		
#100	27.4		
#200	19.6		

* (no specification provided)

Material Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 4.79 D_{60}= 0.923 D_{50}= 0.548
D_{30}= 0.178 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

F.M.=2.65

Sample No.: B-1 **Source of Sample:** **Date:** 10/09/09
Location: **Elev./Depth:** 11.5'

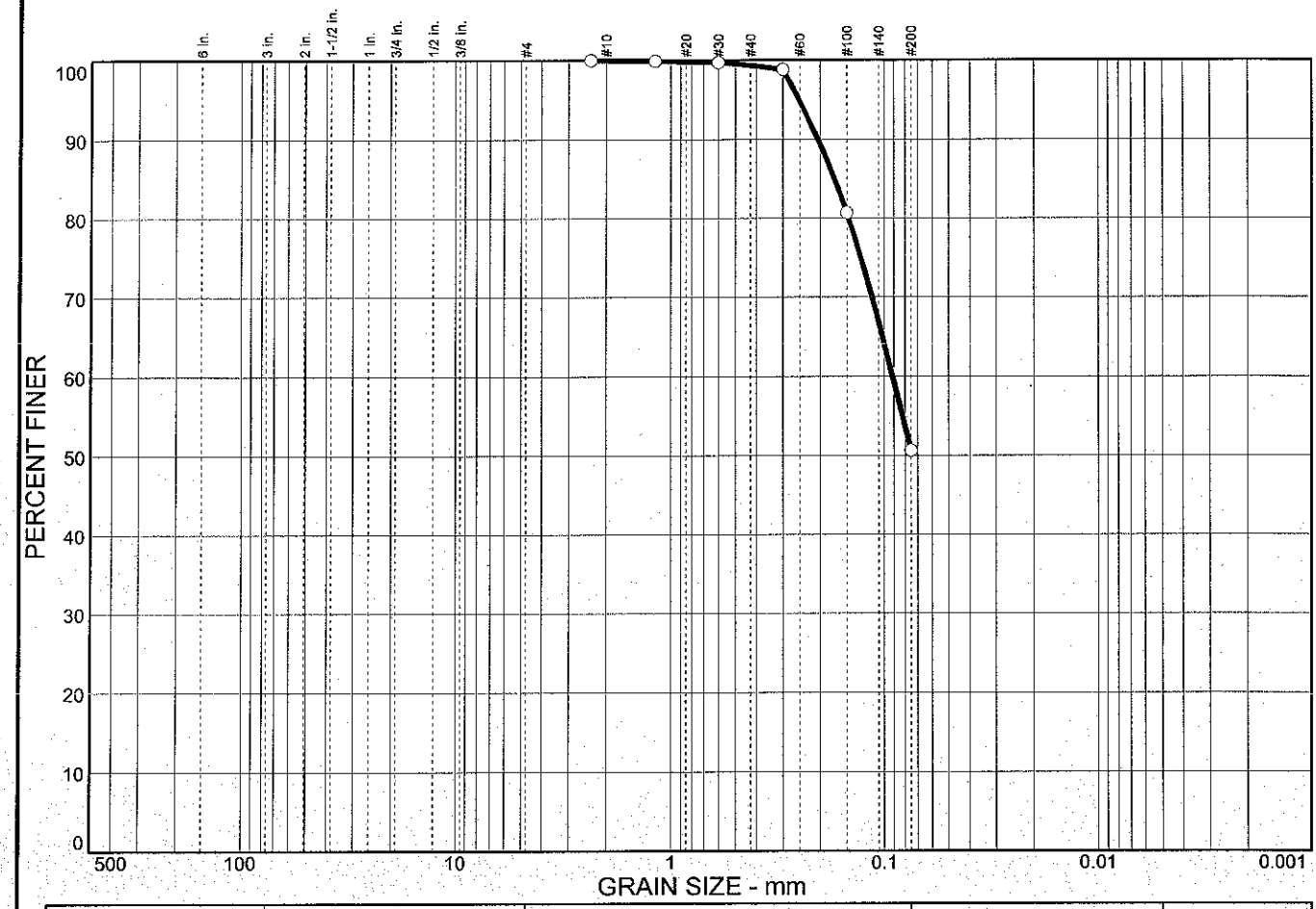
Moore Twining Associates, Inc.

Fresno, CA

Client: Shaw Environmental and Infrastucture, Inc.
Project: Menlo Par - Ravenswood, Caltrans - 136529

Project No: C98806.0200 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	49.4	50.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#8	100.0		
#16	99.9		
#30	99.7		
#50	98.8		
#100	80.7		
#200	50.6		

* (no specification provided)

Material Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.171 D_{60}= 0.0915 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

F.M.=0.21

Sample No.: B-1 **Source of Sample:** **Date:** 10/09/09
Location: **Elev./Depth:** 56.5'

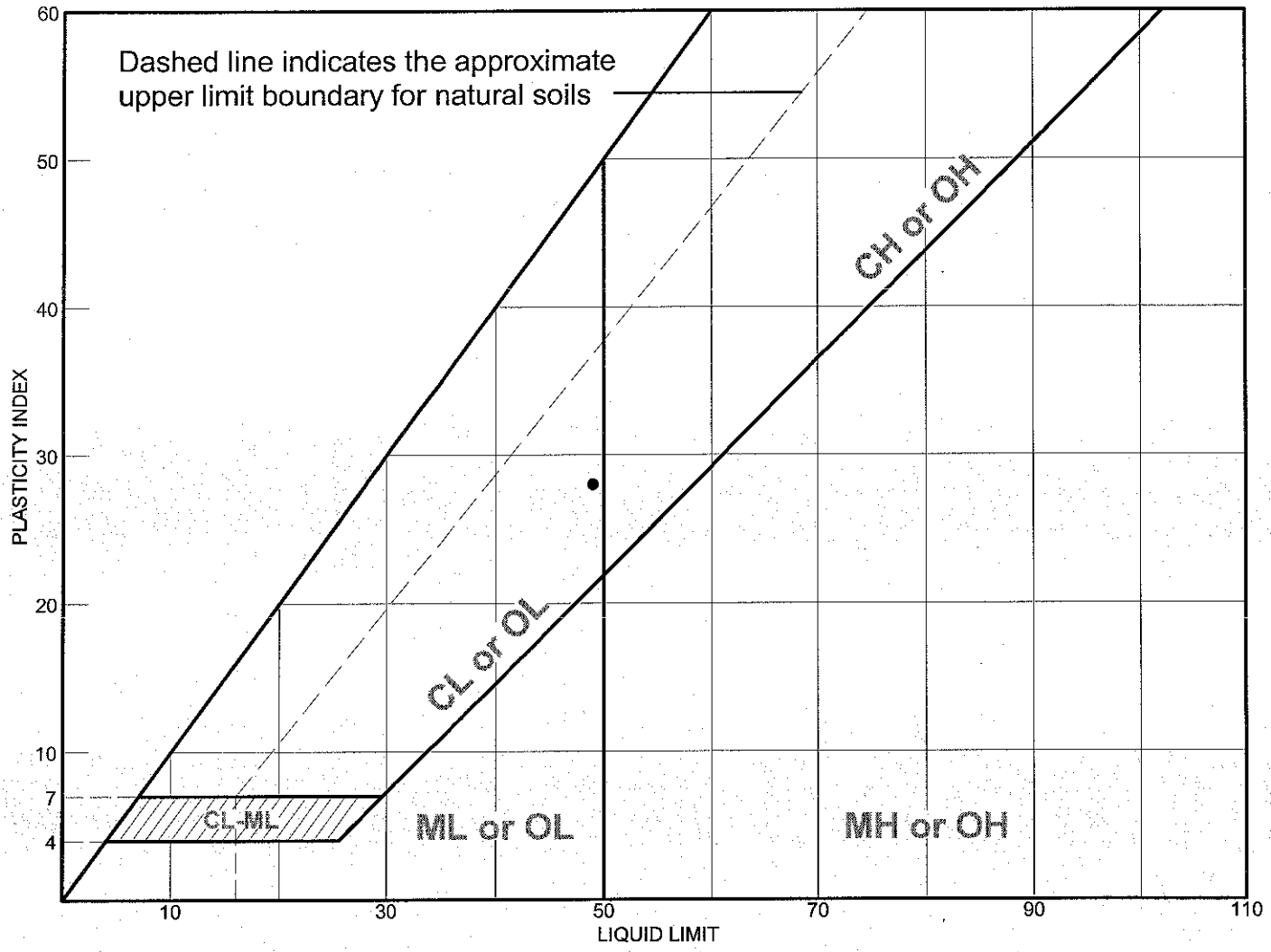
Moore Twining Associates, Inc.

Fresno, CA

Client: Shaw Environmental and Infrastucture, Inc.
Project: Menlo Par - Ravenswood, Caltrans - 136529

Project No: C98806.0200 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		49	21	28			

Project No. C98806.0200 **Client:** Shaw Environmental and Infrastucture, Inc.

Project: Menlo Par - Ravenswood, Caltrans - 136529

● **Source:** **Sample No.:** B-1 **Elev./Depth:** 36.5'

Remarks:

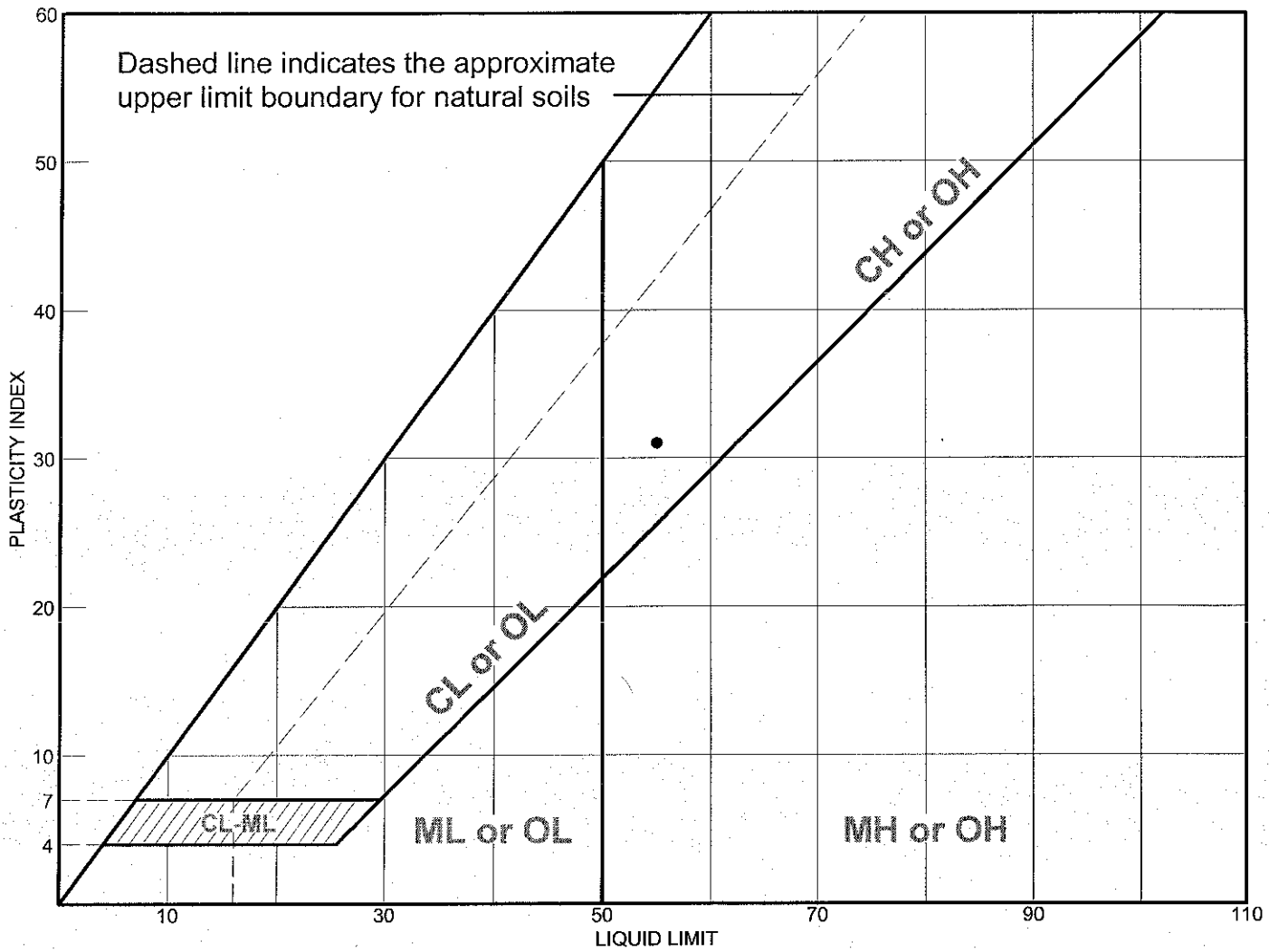
●

Moore Twining Associates, Inc.

Fresno, CA

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		55	24	31			

Project No. C98806.0200 **Client:** Shaw Environmental and Infrastucture, Inc.

Project: Menlo Par - Ravenswood, Caltrans - 136529

● **Source:** **Sample No.:** B-1 **Elev./Depth:** 71.5'

Remarks:

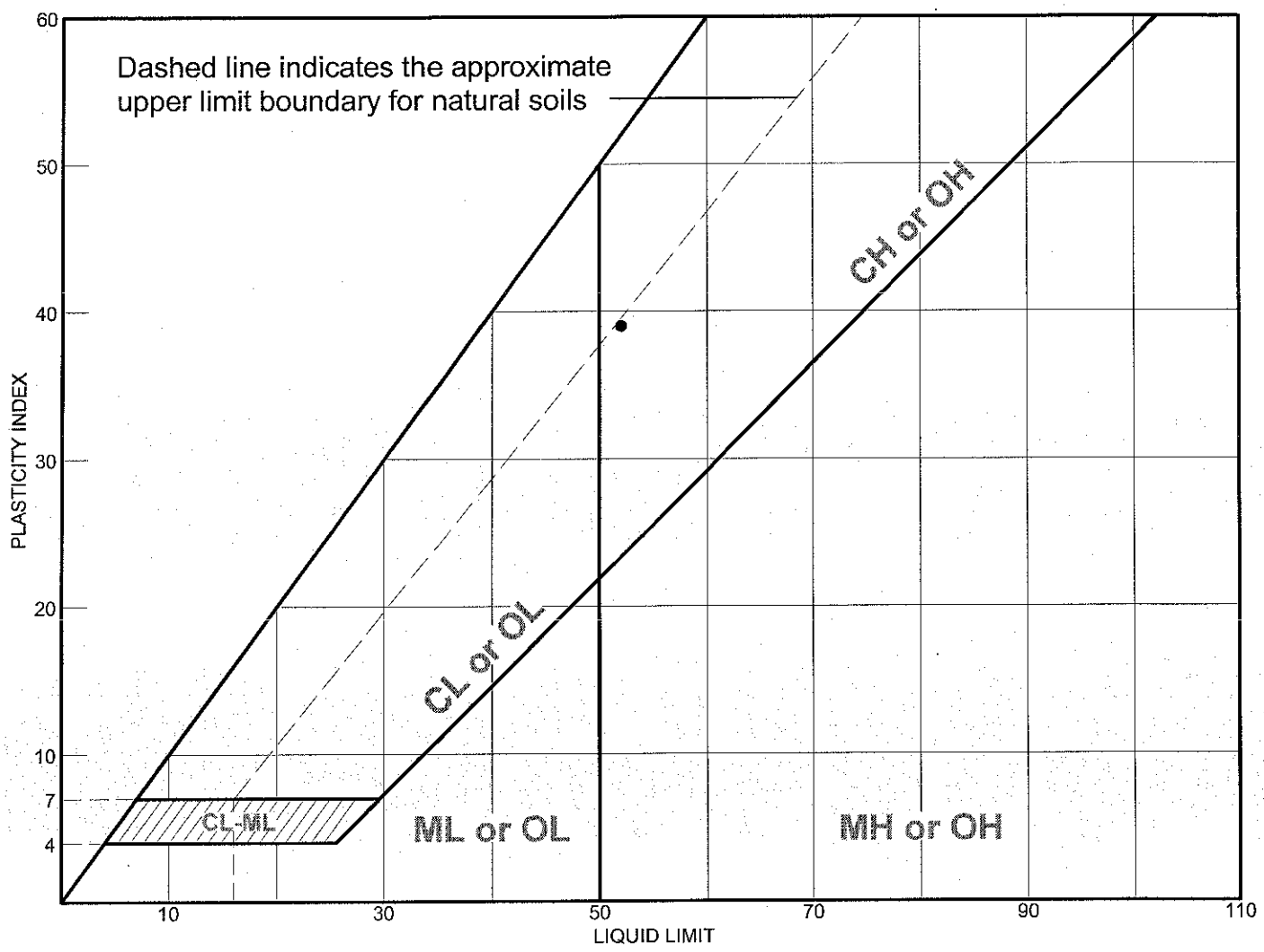
●

Moore Twining Associates, Inc.

Fresno, CA

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		52	13	39			

Project No. C98806.0200 **Client:** Shaw Environmental and Infrastucture, Inc.

Project: Menlo Par - Ravenswood, Caltrans - 136529

● **Source:** **Sample No.:** B-1 **Elev./Depth:** 61.5'

Remarks:

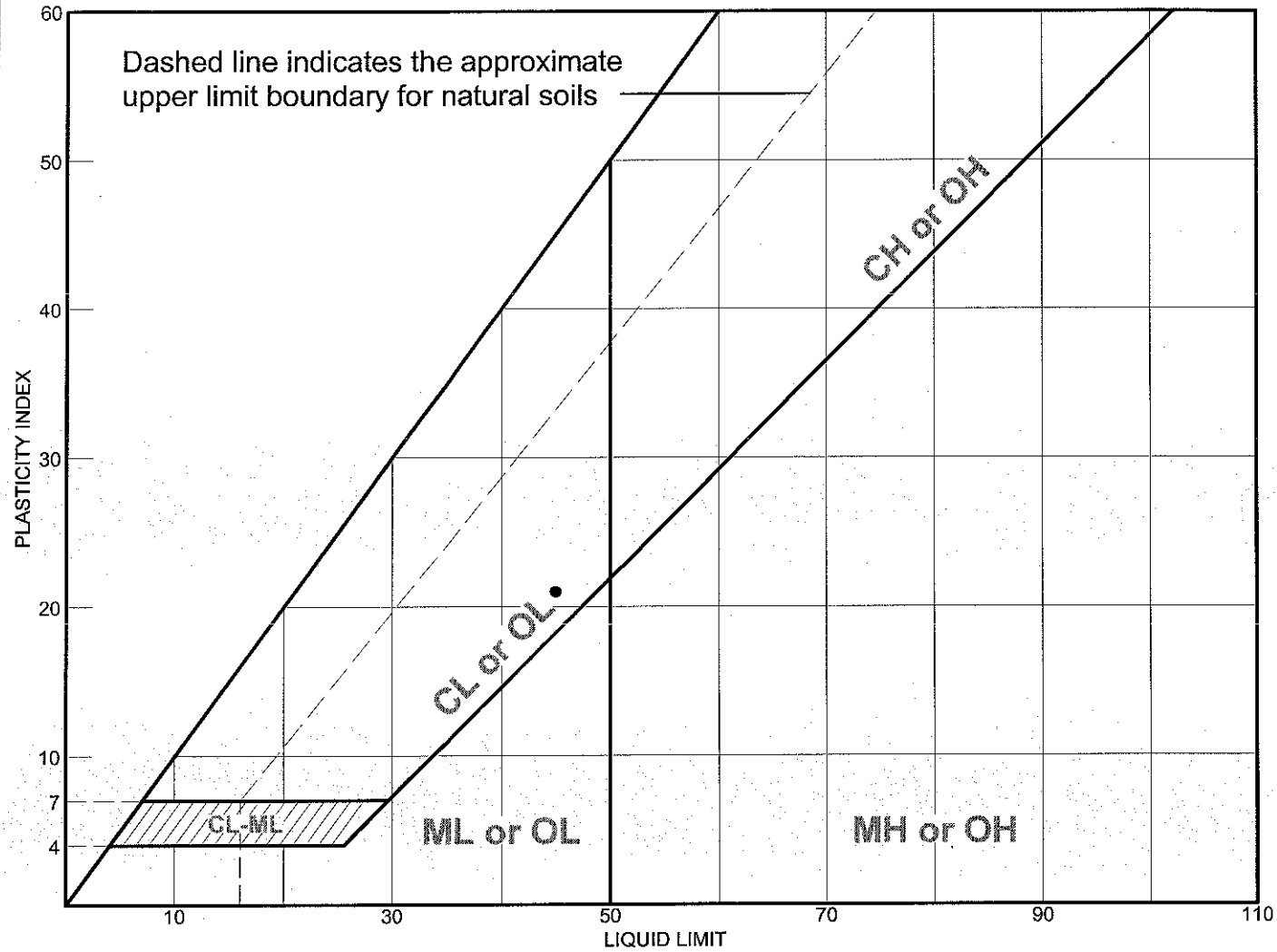
●

Moore Twining Associates, Inc.

Fresno, CA

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		45	24	21			

Project No. C98806.0200 **Client:** Shaw Environmental and Infrastucture, Inc.

Project: Menlo Par - Ravenswood, Caltrans - 136529

● **Source:** **Sample No.:** B-1 **Elev./Depth:** 46.5'

Remarks:

●

Moore Twining Associates, Inc.

Fresno, CA

Figure

09-1022

Chain of Custody
Moore Twining Associates, Inc.

2527 Fresno Street,
Fresno, CA, 93721

Page 1 of 2
Ship Date: 10/10/09
Date/Time Results Required: Standard
Lab's Work Order #:_____

Shaw SHAW Environmental and Infrastructure, Inc.

Send Report To : Tim Ripp
eMail : tim.ripp@shawgrp.com
Phone : (510) 427-8350
Address: 5500 Port Chicago Highway
City/State : Concor, CA

Sampler Name: B. STEMPSON
Sampler Signature: [signature]

Project Name: Caltrans - 136529
CALTRANS - RAVENSWOOD - MENLO PARK
C98806.0100
GEOTECH SAMPLES

Client Sample ID	Matrix	Target Depth	Date/Time Sampled	Container	# of Cont.	Preservative	Lab's Sample #	TPH-g 8015B	TPH-d 8015B	BTEX 8021B MTBE	Total Lead 6010 & 200.7	Total Arsenic 6010 & 200.7		ASTM Method ~~D854~~ D2937	ASTM Method C-29	Moisture Content - CT 226	Sieve Analysis - CT-202	Atterburg Limits - CT-204	
B-1-6.5	Soil	6.5	10/9/09 1350	Sleeves	1	NA								X		X	X		
B-~~2~~1-11.5		11.5	10/9/09 1405											X		X	X		
B-1-16.5		16.5	10/9/09 1425											X		X		X	
~~B-1-21.5~~																			
B-1-26.5		26.5	10/9/09 1505											X		X			
~~B-1-31.5~~		~~31.5~~	10/9/09																
B-1-36.5		36.5	10/9/09 1540											X		X		X	
B-1-41.5		41.5	10/9/09 1602											X		X			
B-1-46.5		46.5	10/9/09 1624											X		X		X	
B-1-51.5		57.5	10/9/09 1645											X		X			

Relinquished by/Co.: [signature]	Received by/Co: [signature] MTA	Date/Time/Temp: 10/10/09 1655
Relinquished by/Co.: [signature] MTA	Received by/Co:	Date/Time/Temp: 10/10/09 2000
Relinquished by/Co.:	Received by/Co:	Date/Time/Temp:

Were samples Received In Good Condition? __Yes __No Samples on Ice? __Yes __No Method of Shipment: _____

NOTE: EH - Extract and Hold

C:\Documents and Settings\Bryan.Stempson\My Documents\CaltransCOC.xls

Chain of Custody
Moore Twining Associates, Inc.

Shaw SHAW Environmental and Infrastructure, Inc.

2527 Fresno Street,
Fresno, CA, 93721

Ship Date: 10/10/09

Date/Time Results Required: Standard

Lab's Work Order #:_____

Send Report To : Tim Ripp
eMail : tim.ripp@shawgrp.com
Phone : (510) 427-8350
Address: 5500 Port Chicago Highway
City/State : Concor, CA

Sampler Name: Bryan Stempson

Sampler Signature:

Project Name: Caltrans - 136529
CALTRANS - MENLO PARK (RAVENSWOOD)
C98806.0100
GEOTECH SAMPLES

Client Sample ID	Matrix	Target Depth	Date/Time Sampled	Container	# of Cont.	Preservative	Lab's Sample #	TPH-g 8015B	TPH-d 8015B	BTEX 8021B METRE	Total Lead 6010 & 200.7	Total Arsenic 6010 & 200.7		ASTM Method - d854	ASTM Method C-29	Moisture Content - CT 226	Sieve Analysis - CT-202	Atterburg Limits - CT-204	
B-1-56.5	Soil	56.5	10/9/09 1723	Sleeve	1	NA								X		X	X		
B-1-61.5		61.5	10/9/09 1738											X		X		X	
B-1-66.5		66.5	10/9/09 1755											X		X			
B-1-71.5		71.5	10/9/09 1830											X		X		X	
B-1-76.5		76.5	10/9/09 1851											X		X			
B-1-81.5		81.5	10/9/09 1910											X		X			

Relinquished by/Co.: Received by/Co: MTA Date/Time/Temp: 10/10/09 1655

Relinquished by/Co.: MTA Received by/Co: Date/Time/Temp: 10-10-09 2000

Relinquished by/Co.: Received by/Co: Date/Time/Temp:

Were samples Received In Good Condition? __Yes __No Samples on Ice? __Yes __No Method of Shipment: _____

NOTE: EH - Extract and Hold

C:\Documents and Settings\Bryan.Stempson\My Documents\CaltransCOC.xls

MOORE TWINING ASSOCIATES, INC.

Project: Shaw Environmental and Infrastructure, Inc.

Report Date: 11/09/09

Project No.: C98805.0200

Sample Date: 10/13/09

Lab I.D.: 09-1019

Subject: Walnut Creek, Caltrans – 136529

Gentlemen,

At your request and authorization, Moore Twining Associates, Inc. performed Moisture Density, Sieve Analysis and Atterberg Limits on tube samples that were sampled on the 13th of October, 2009 for the above subject project. Testing was performed in accordance with ASTM D2937, Caltrans Test 202 and Caltrans Test 204 test procedures respectively.

See attachments for the summary of test results.

If you have any questions or require additional information, please contact the undersigned @ 559-268-7021

Respectfully Submitted,
Moore Twining Associates, Inc.

Michael Shwiyhat, EIT
Manager
Material Testing Division

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MOORE TWINING ASSOCIATES, INC.

DENSITY MOISTURE, ASTM D2937

PROJECT Shaw Environmental - Walnut Creek - CalT-136529 DATE 10/13/2009

PROJECT NUMBER C98805.0200 TECHNICIAN 997

BORING NO.	B-4	B-4	B-4	B-4	B-4	B-4	B-4	B-4	B-4	B-4
DEPTH	6.5'	11.5'	16.5'	21.5'	26.5'	31.5'	36.5'	41.5'	46.5'	51.5'
SAMPLE NO.										
LENGTH (IN.)	6	6	5	2	3	2	3	2	3	2
TOTAL WT. (g)	1188.6	1105.9	920	368.2	591.6	357.6	517.1	382.4	587.8	383.1
WET WT. (g)	467.9	616.1	474.6	540.5	407.8	613.8	442.3	839.8	429.3	442
DRY WT. (g)	399.3	537.9	398.7	452.1	352.8	563.7	414.4	797.7	377.7	391.1
WET DENSITY	**128.5**	**117.1**	**116.8**	**116.9**	**127.7**	**112.5**	**107.2**	**122.8**	**126.7**	**123.1**
% MOISTURE	**17.2**	**14.5**	**19.0**	**19.6**	**15.6**	**8.9**	**6.7**	**5.3**	**13.7**	**13.0**
DRY DENSITY	**109.6**	**102.2**	**98.1**	**97.8**	**110.5**	**103.3**	**100.4**	**116.6**	**111.5**	**108.9**

BORING NO.	B-4	B-4	B-4	B-4	B-4	B-4				
DEPTH	56.5'	61.5'	66.5'	71.5'	76.5'	81.5'				
SAMPLE NO.										
LENGTH (IN.)	4	5	4	4	4	3				
TOTAL WT. (g)	740.8	979.8	806.5	810.5	810.3	604.3				
WET WT. (g)	839.8	426.7	686.3	538.9	915.7	614.5				
DRY WT. (g)	791.9	353.1	585.7	466.4	791.1	516.8				
WET DENSITY	**117.8**	**126.7**	**131.4**	**132.2**	**132.2**	**131.2**				
% MOISTURE	**6.0**	**20.8**	**17.2**	**15.5**	**15.8**	**18.9**				
DRY DENSITY	**111.1**	**104.8**	**112.1**	**114.4**	**114.2**	**110.4**				

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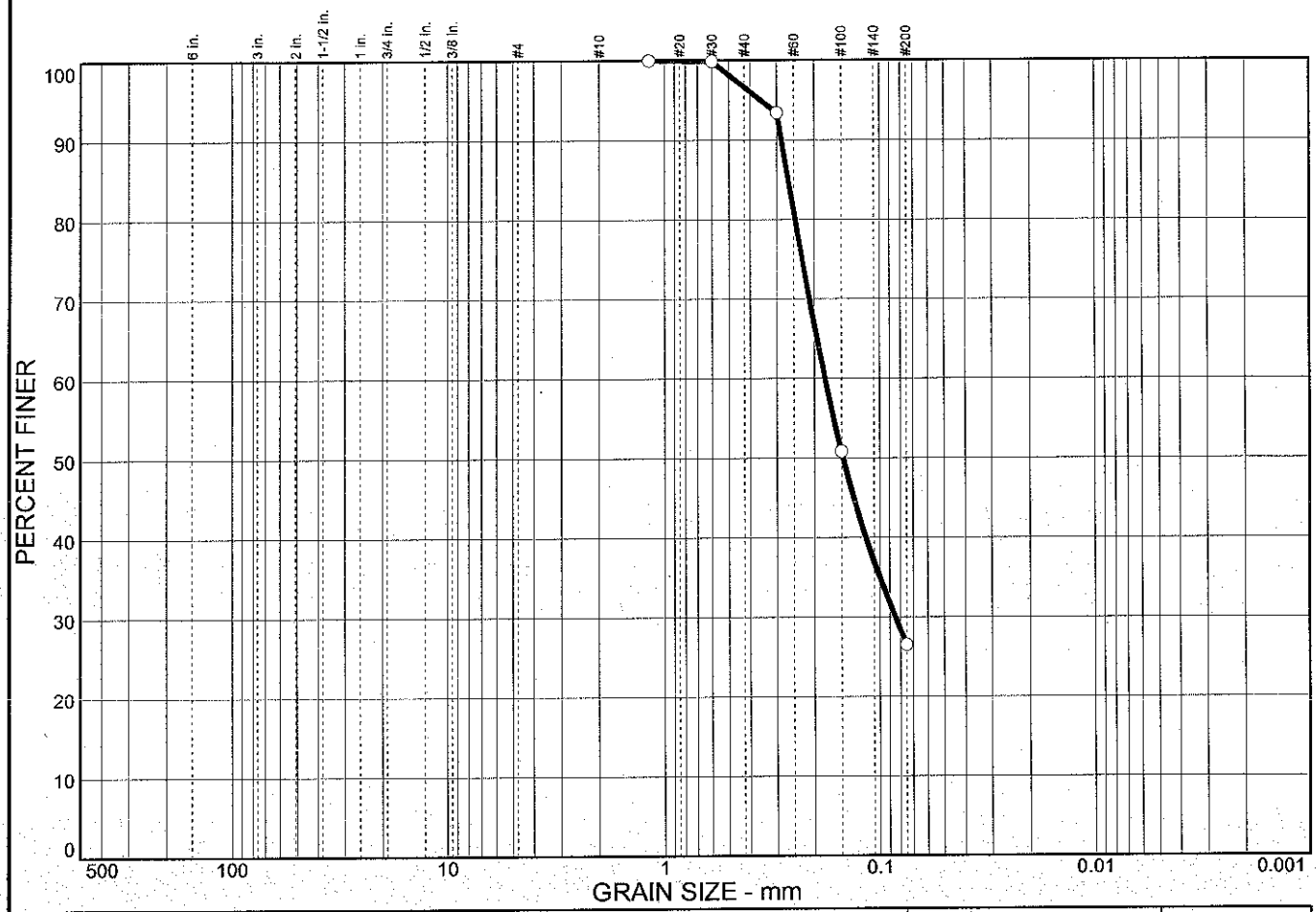
Fresno, CA 93721

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	73.5	26.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	100.0		
#30	99.9		
#50	93.4		
#100	50.8		
#200	26.5		

* (no specification provided)

Material Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.265 D_{60}= 0.179 D_{50}= 0.148
D_{30}= 0.0847 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

F.M.=0.56

Sample No.: B-4 **Source of Sample:** **Date:** 10/13/09
Location: Sample Date: 10/13/09 **Elev./Depth:** 11.5'

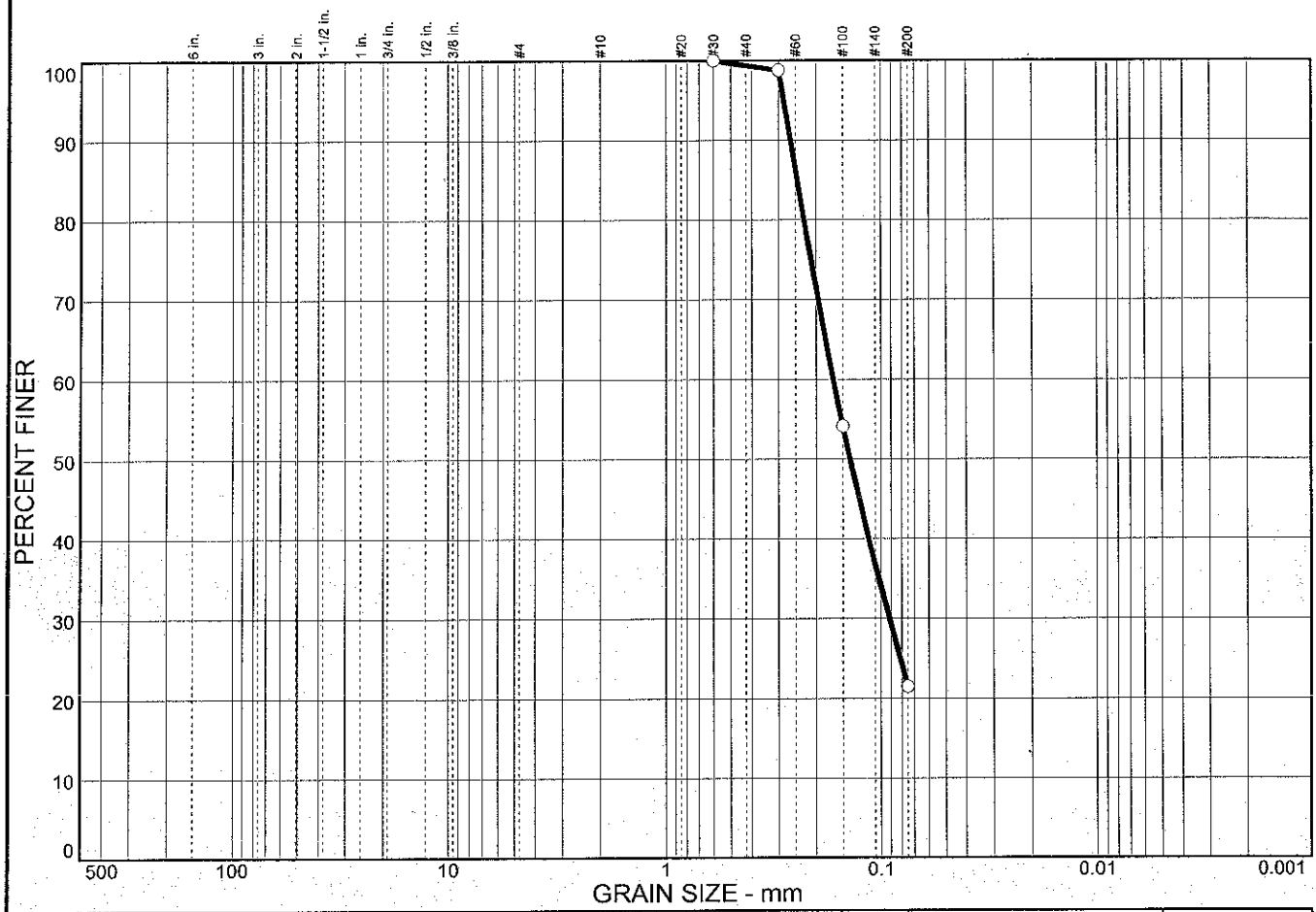
Moore Twining Associates, Inc.

Fresno, CA

Client: Shaw Environmental and Infrastructure, Inc.
Project: Walnut Creek - Catrans - 136529

Project No: C98805.0200 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	78.5	21.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#30	100.0		
#50	98.8		
#100	54.1		
#200	21.5		

* (no specification provided)

Material Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.245 D_{60}= 0.166 D_{50}= 0.139
D_{30}= 0.0914 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

F.M.=0.47

Sample No.: B-4 **Source of Sample:** **Date:** 10/13/09
Location: **Elev./Depth:** 31.5'

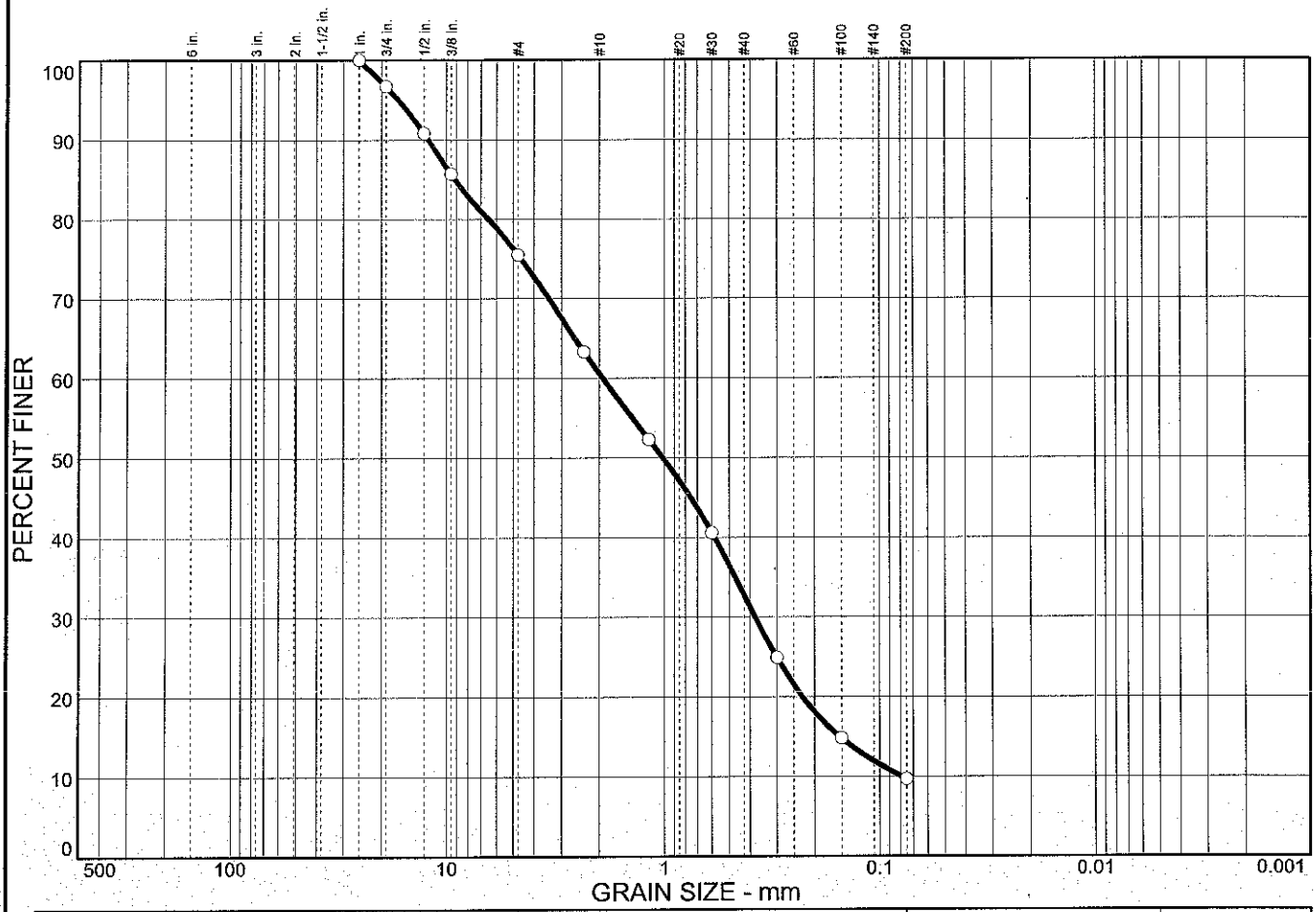
Moore Twining Associates, Inc.

Fresno, CA

Client: Shaw Environmental and Infrastructure, Inc.
Project: Walnut Creek - Catrans - 136529

Project No: C98805.0200 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	24.5	65.8	9.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 in.	100.0		
3/4 in.	96.7		
1/2 in.	90.8		
3/8 in.	85.7		
#4	75.5		
#8	63.3		
#16	52.3		
#30	40.6		
#50	24.9		
#100	14.8		
#200	9.7		

* (no specification provided)

Material Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 9.13 D_{60}= 1.94 D_{50}= 1.02
D_{30}= 0.379 D_{15}= 0.153 D_{10}= 0.0788
C_u= 24.59 C_c= 0.94

Classification

USCS= AASHTO=

Remarks

F.M.=3.46

Sample No.: B-4 **Source of Sample:** **Date:** 10/13/09
Location: **Elev./Depth:** 41.5'

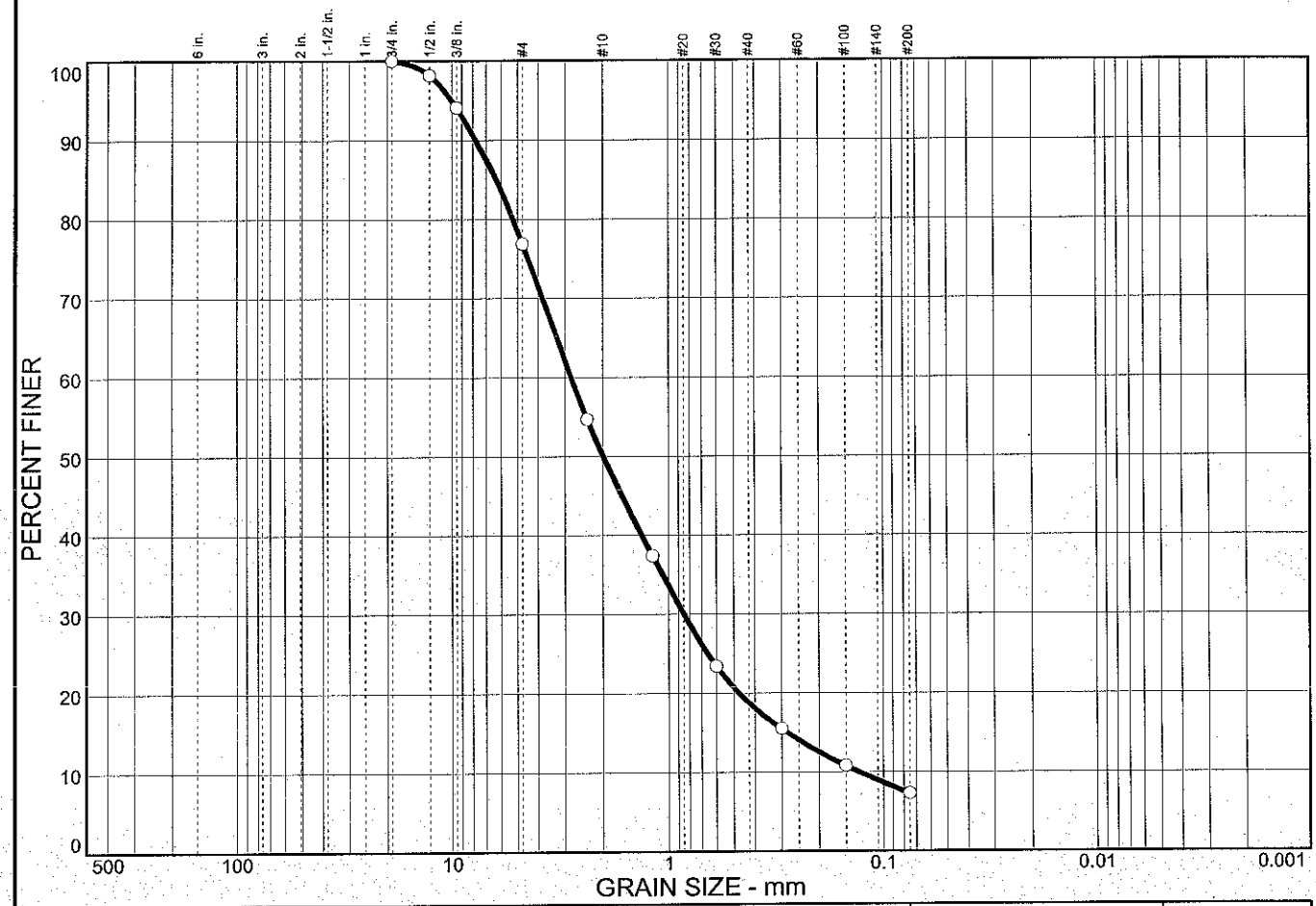
Moore Twining Associates, Inc.

Fresno, CA

Client: Shaw Environmental and Infrastructure, Inc.
Project: Walnut Creek - Catrans - 136529

Project No: C98805.0200 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	23.1	69.6	7.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
1/2 in.	98.2		
3/8 in.	94.1		
#4	76.9		
#8	54.7		
#16	37.4		
#30	23.4		
#50	15.5		
#100	10.8		
#200	7.3		

* (no specification provided)

Material Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 6.32 D_{60}= 2.81 D_{50}= 1.99
D_{30}= 0.847 D_{15}= 0.282 D_{10}= 0.130
C_u= 21.66 C_c= 1.97

Classification

USCS= AASHTO=

Remarks

F.M.=3.87

Sample No.: B-4 **Source of Sample:** **Date:** 10/13/09
Location: **Elev./Depth:** 56.5'

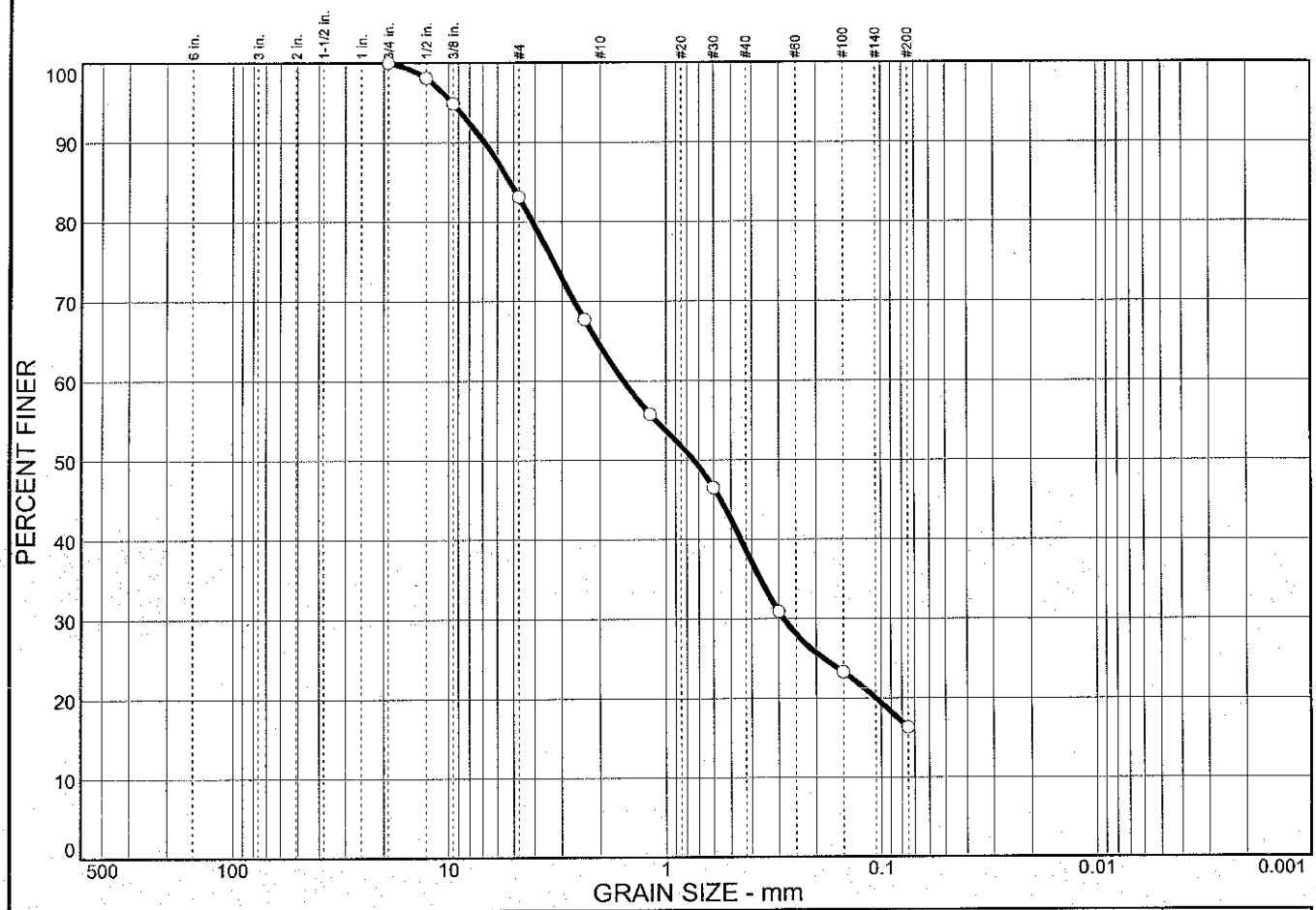
Moore Twining Associates, Inc.

Fresno, CA

Client: Shaw Environmental and Infrastructure, Inc.
Project: Walnut Creek - Catrans - 136529

Project No: C98805.0200 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	16.9	66.8	16.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
1/2 in.	98.1		
3/8 in.	94.9		
#4	83.1		
#8	67.7		
#16	55.8		
#30	46.5		
#50	30.9		
#100	23.3		
#200	16.3		

* (no specification provided)

Material Description

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 5.22 D_{60}= 1.57 D_{50}= 0.742
D_{30}= 0.285 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

F.M.=2.98

Sample No.: B-4 **Source of Sample:** **Date:** 10/13/09
Location: **Elev./Depth:** 76.5'

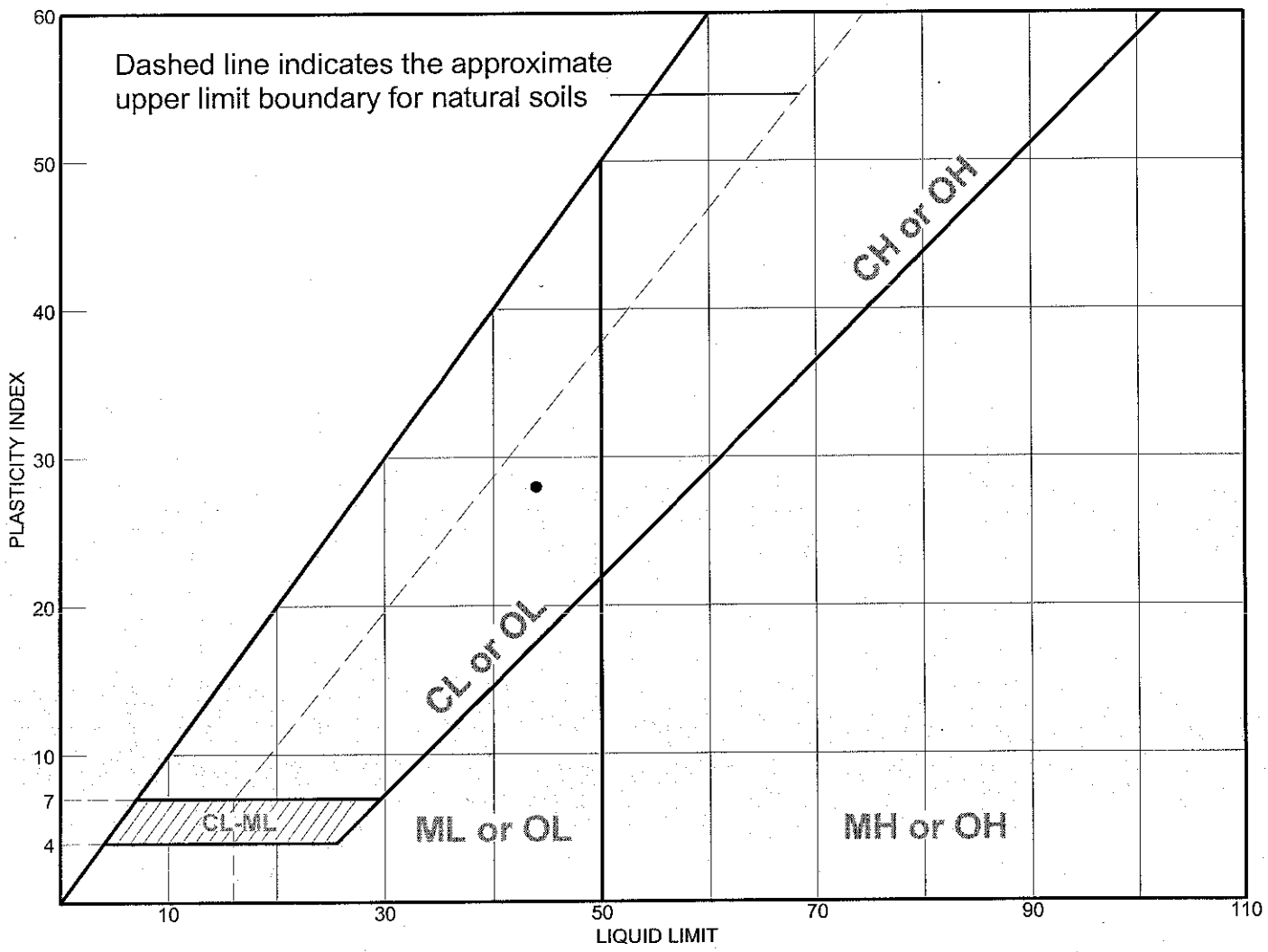
Moore Twining Associates, Inc.

Fresno, CA

Client: Shaw Environmental and Infrastructure, Inc.
Project: Walnut Creek - Catrans - 136529

Project No: C98805.0200 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		44	16	28			

Project No. C98805.0200 **Client:** Shaw Environmental and Infrastructure, Inc.

Project: Walnut Creek - Catrans - 136529

● **Source:** **Sample No.:** B-4 **Elev./Depth:** 71.5'

Remarks:

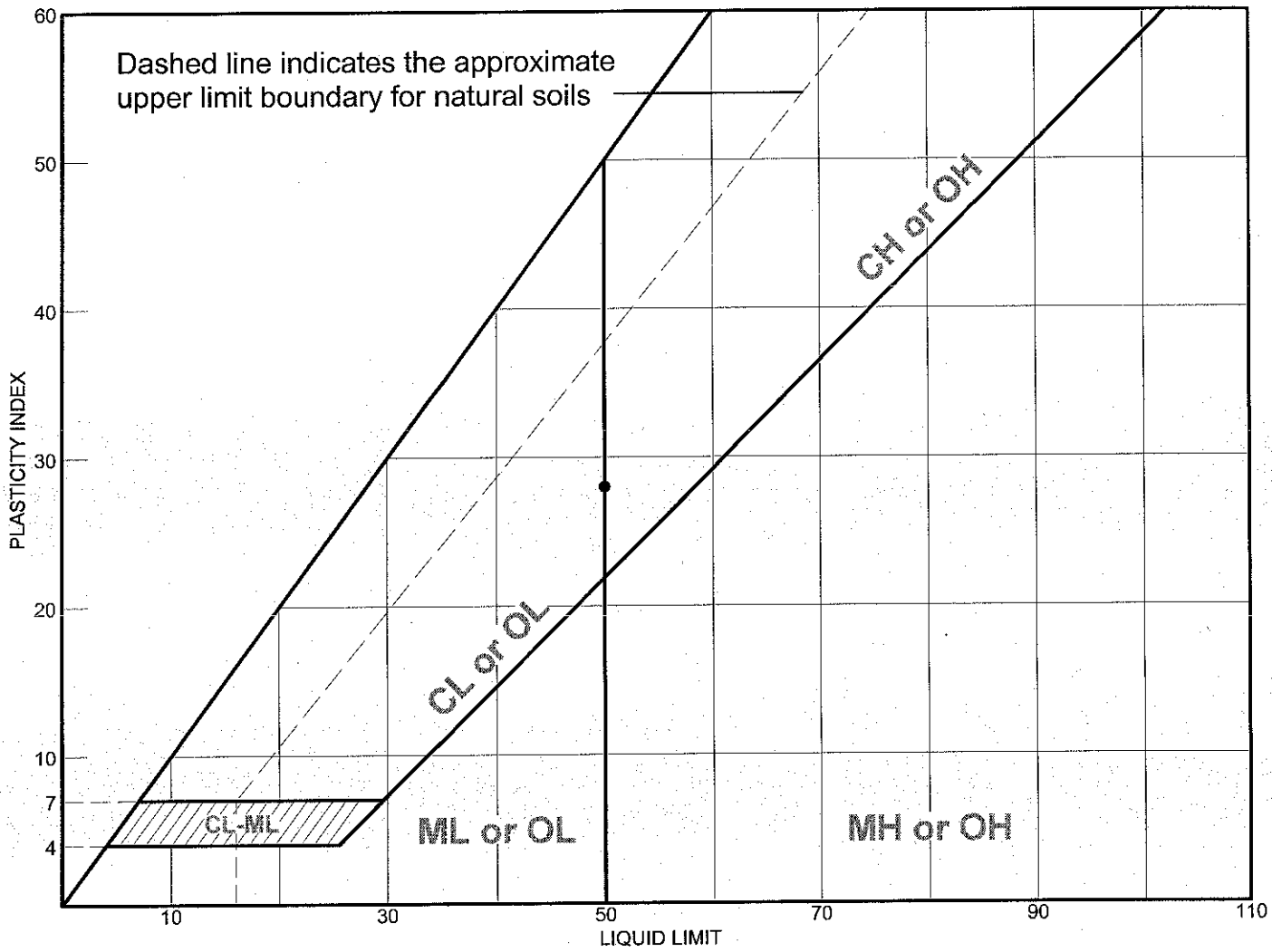
●

Moore Twining Associates, Inc.

Fresno, CA

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		50	22	28			

Project No. C98805.0200 **Client:** Shaw Environmental and Infrastructure, Inc.

Project: Walnut Creek - Catrans - 136529

● **Source:** **Sample No.:** B-4 **Elev./Depth:** 66.5'

Remarks:

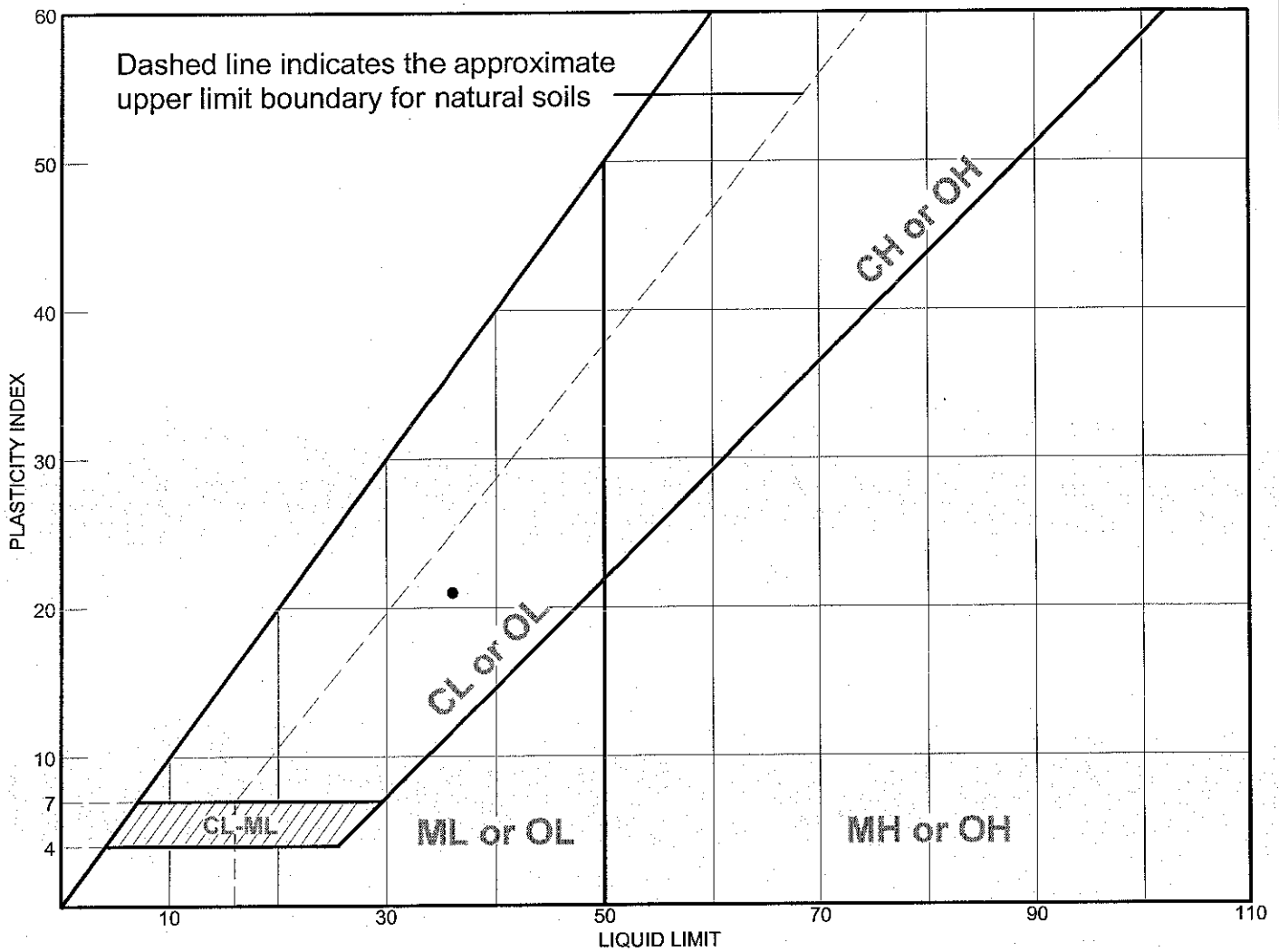
●

Moore Twining Associates, Inc.

Fresno, CA

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		36	15	21			

Project No. C98805.0200 **Client:** Shaw Environmental and Infrastructure, Inc.

Project: Walnut Creek - Catrans - 136529

● **Source:** **Sample No.:** B-4 **Elev./Depth:** 21.5'

Remarks:

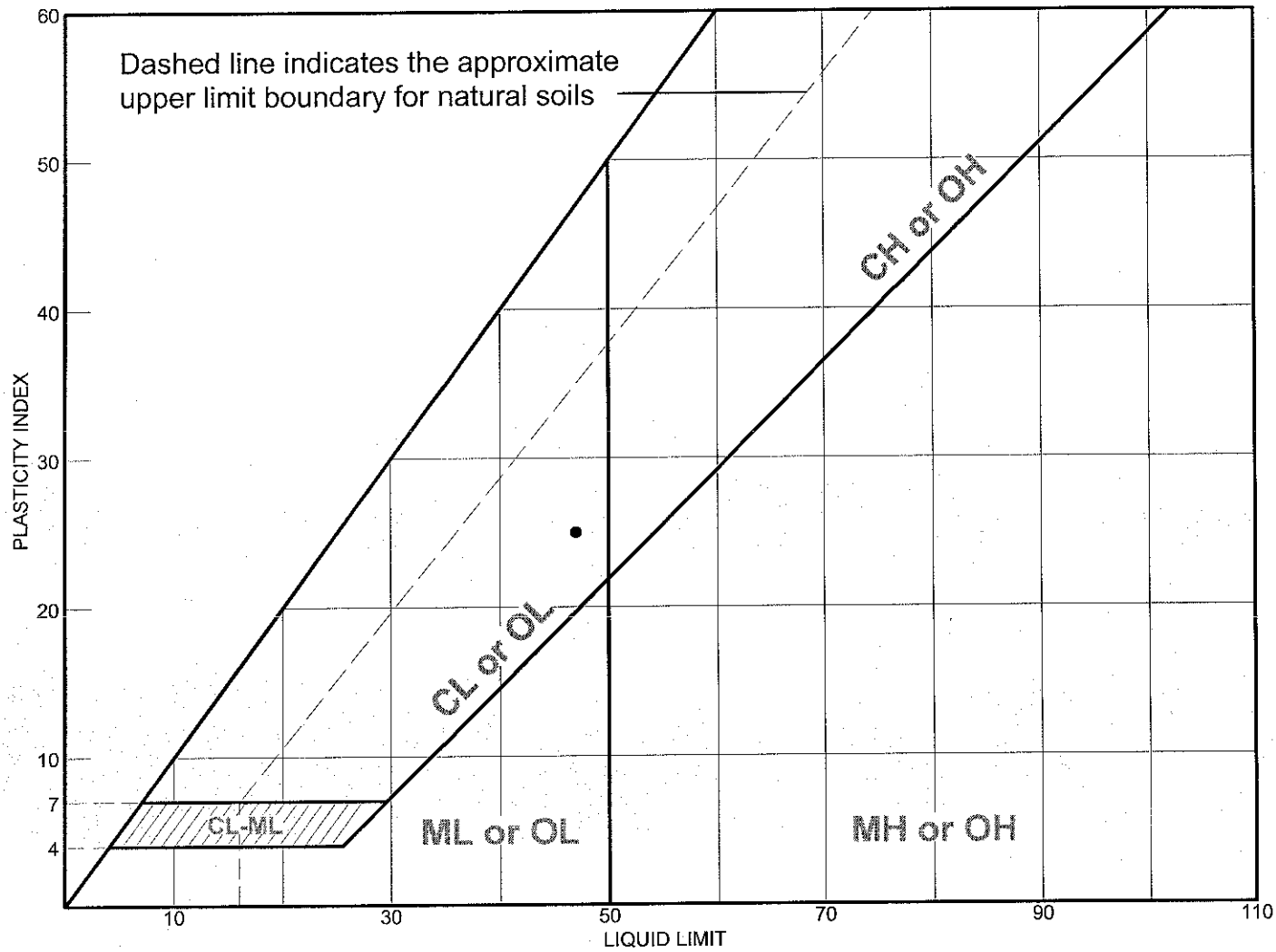
●

Moore Twining Associates, Inc.

Fresno, CA

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		47	22	25			

Project No. C98805.0200 **Client:** Shaw Environmental and Infrastructure, Inc.

Project: Walnut Creek - Catrans - 136529

● **Source:** **Sample No.:** B-4 **Elev./Depth:** 6.5'

Remarks:

●

Moore Twining Associates, Inc.

Fresno, CA

Figure

09-1019

C98805.0200

Chain of Custody
Moore Twining Associates, Inc.

2527 Fresno Street,
Fresno, CA, 93721

Shaw SHAW Environmental and Infrastructure, Inc.

Send Report To : Tim Ripp
eMail : tim.ripp@shawgrp.com
Phone : (510) 427-8350
Address: 5500 Port Chicago Highway
City/State : Concor, CA

Sampler Name: B. Stempson
Sampler Signature:

Ship Date: 10/13/09
Date/Time Results Required: Standard
Lab's Work Order #:

Project Name: Caltrans - 136529
CALTRANS - WC EAST - C98805.0100
GEOTECH

Client Sample ID	Matrix	Target Depth	Date/Time Sampled	Container	# of Cont.	Preservative	Lab's Sample #	TPH-g 8015B	TPH-d 8015B	BTEX 8021B	Total Lead 6010 & 200.7	Total Arsenic 6010 & 200.7		ASTM Method - D2937	ASTM Method C-29	Moisture Content - CT 226	Sieve Analysis - CT-202	Atterburg Limits - CT-204	
B-4-6.5	Soil	6.5		Sleeve	1	NA								X		X		X	
B-4-11.5		11.5												X		X	X		
B-4-16.5		16.5												X		X			
B-4-21.5		21.5												X		X		X	Hold
B-4-26.5		26.5												X		X			
B-4-31.5		31.5												X		X	X		
B-4-36.5		36.5												X		X			
B-4-41.5		41.5												X		X	X		
B-4-46.5		46.5												X		X			
B-4-57.5		57.5												X		X			

Relinquished by/Co.: SHAW	Received by/Co: MTA	Date/Time/Temp: 10/13/09	1430
Relinquished by/Co.: MTA	Received by/Co:	Date/Time/Temp: 10-14-09	900
Relinquished by/Co.:	Received by/Co:	Date/Time/Temp:	

Were samples Received In Good Condition? __Yes __No Samples on Ice? __Yes __No Method of Shipment: _____

NOTE: EH - Extract and Hold

C:\Documents and Settings\Bryan.Stempson\My Documents\CaltransCOC.xls

Chain of Custody
Moore Twining Associates, Inc.

Shaw SHAW Environmental and Infrastructure, Inc.

2527 Fresno Street,
Fresno, CA, 93721

Page 2 of 2
Ship Date: 10/13/09
Date/Time Results Required: Standard
Lab's Work Order #:_____

Send Report To : Tim Ripp
eMail : tim.ripp@shawgrp.com
Phone : (510) 427-8350
Address: 5500 Port Chicago Highway
City/State : Concor, CA

Sampler Name: B. Stempson
Sampler Signature: [signature]

Project Name: Caltrans - 136529
Caltrans - WC Bridge
C98805.0100

Client Sample ID	Matrix	Target Depth	Date/Time Sampled	Container	# of Cont.	Preservative	Lab's Sample #	TPH-g 8015B	TPH-d 8015B	BTEX 8021B	Total Lead 6010 & 200.7	Total Arsenic 6010 & 200.7		ASTM Method ~~-2854~~ D2937	ASTM Method C-29	Moisture Content - CT 226	Sieve Analysis - CT-202	Atterburg Limits - CT-204	
B-4-56.5	Soil	56.5		Sleeves	1	NA								X		X	X		
B-4-61.5		61.5												X		X			
B-4-66.5		66.5												X		X		X	
B-4-71.5		71.5												X		X		X	
B-4-76.5		76.5												X		X	X		
B-4-81.5		81.5												X		X			

10/13/09

Relinquished by/Co.: [signature] Shaw Received by/Co: [signature] Date/Time/Temp: 10/13/09 1430
Relinquished by/Co.: [signature] Received by/Co: [signature] Date/Time/Temp: 10-14-09 800
Relinquished by/Co.: Received by/Co: Date/Time/Temp:

Were samples Received In Good Condition? __Yes __No Samples on Ice? __Yes __No Method of Shipment: _____

NOTE: EH - Extract and Hold

C:\Documents and Settings\Bryan.Stempson\My Documents\CaltransCOC.xls

State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MR. MAHMOOD MOMENZADEH
Chief, Branch C
Office of Geotechnical Design – West

Date: October 21, 2010

Attention: C.Chen

File: 04- ALA- CC-SM-VAR
04 – 3A0901
UST Replacement Program

From: RIFAAT NASHED RN
Engineering Geologist
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

GRANT WILCOX
Chief, Branch B GW
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

Subject: Seepage Rate (Flow Rate) Estimate at Four Locations

This memo is in response to your request to provide the groundwater depth and seepage rate for the remove UST at four locations. It is our understanding that this information will be used in estimating dewatering quantities.

It should be noted that in our estimate for the four locations, we considered the maximum depth of excavation for 15 feet (12 ft is the height of the tank, 1 ft cover above the tank, and 2 ft as a base under the tank).

Location # 1 : San Mateo – Hayward Bridge Toll Plaza

According to the LOTB, two borings (B-1 & B-8) drilled in October 2009 at the project site, the groundwater elevation was 1.5 feet (at depth of 13 feet under the ground surface) measured in October 21-22, 2009.

Based on the LOTB and the lab analysis, the soil layer at and below the groundwater level and extends from 15 feet (B-1) to 20 feet (B-8) is silty sand with gravel (SM).

According to "The Federal Highway Report NO. FHWA-TS-80-224, Page 48-49" the Coefficient of Permeability K (ft./day) for silty sand with gravel (SM) soil is $2.7X10^{-4}$ to 1.4 ft./day. We use the maximum value of K 1.4. Our estimate for seepage rate for this location is 2.75 gallon/day/ft^2.

The as-built show an existing 2 ft thick concrete pad at the base of the existing tanks. These calculations include removal of the concrete pad. If the pad is not to be removed, the estimated seepage rate will be reduced significantly.

Location # 2: Walnut Creek Maintenance – East
Walnut Creek Maintenance – West

Based on the LOTB, one borehole (B-4) was drilled in October 2009 at the project site; the groundwater elevation was 85.40 feet (at depth of 58 feet under the ground surface) measured in October 13, 2009. This indicate that the groundwater elevation is far below the bottom of the excavation.

Accordingly, we can consider the water seepage rate (or dewatering) as minimal and would only be due to surface water infiltration during the rainy season.

Location # 3: Half Moon Maintenance Station

Based on the LOTB, one borehole (B-4) was drilled in October 2009 at the project site; the groundwater elevation was 49.0 feet (at depth of 33 feet under the ground surface) measured in October 8, 2009. This indicate that the groundwater elevation is far below the bottom of the excavation.

Accordingly, we can consider the water seepage rate (or dewatering) as minimal and would only be due to surface water infiltration during the rainy season.

Location # 4: Ravenswood Slough Pumping Plant

Based on the LOTB, one bore hole (B-1) was drilled in October 2009 at the project site; the groundwater elevation was –11.7 feet (at depth of 18 feet under the ground surface) measured in October 10, 2009. This indicate that the groundwater elevation is below the bottom of the excavation.

Accordingly, we can consider the water seepage rate (or dewatering) as minimal and would only be due to surface water infiltration during the rainy season.

If you have any questions or need additional information, please call Rifaat Nashed at (510) 622-1773 or Grant Wilcox at (510) 286-4835.

c: TPokrywka, GWilcox, Route File, Daily File

RNashed/mm

NON-STORM WATER INFORMATION PACKAGE

CONTRACT NO. 040000092704-(04-3A0904)

04- ALA-SM-CC –92,84,1-PM Var
Replace Underground Storage Tanks

TABLE OF CONTENTS

CONTRACT NO. 040000092704 (04-3A0904)

1. PROJECT DESCRIPTION
2. CONSTRUCTION ACTIVITIES REQUIRING DEWATERING
3. BMP FOR TREATMENT GROUNDWATER
4. MONITORING, DISPOSAL, AND REUSE OF TREATED GROUNDWATER

ATTACHMENT

A. ESTIMATED GROUNDWATER SEEPAGE RATES IN THE PROJECT AREA

B. DEWATERING LOCATION PLAN

C. LIST OF PUBLICLY OWNED TREATMENT WORKS (POTW) FACILITY

D. ALAMEDA, SAN MATEO COUNTY-POTW SERVICE AREA

E. SITE INVESTIGATION REPORT

F. COPY OF NPDES PERMIT R2-2006-0075

1. PROJECT DESCRIPTION

The project is to replace underground fuel storage tanks with aboveground fuel storage tanks at four Caltrans facilities located in the San Francisco Bay Area. A brief description of each of the four sites follows:

Caltrans Half Moon Bay Maintenance Station

The Caltrans Half Moon Bay Maintenance Station (Half Moon Bay site) is located at 2203 Cabrillo Highway, or Highway 1, in Half Moon Bay, California. The property is currently used as a Caltrans maintenance facility. The existing fueling system at the subject site includes one 10,000-gallon underground gasoline storage tank and one 4,000-gallon underground diesel storage tank located in a common excavation in the west central portion of the site.

Caltrans San Mateo-Hayward Bridge Maintenance Station

The Caltrans San Mateo-Hayward Bridge Maintenance Station (Hayward site) is located at 5500 West Jackson Street, or Highway 92, in Hayward, California. The property is currently used as a Caltrans maintenance facility. There are two discrete existing fueling systems in service at the Hayward site. The western fueling system includes one 2,000-gallon underground gasoline storage tank and one 2,000-gallon underground diesel storage tank located in a common excavation in the western portion of the site.

Caltrans Ravenswood Pumping Plant

The Caltrans Ravenswood Pumping Plant (Ravenswood site) is located on Highway 84, in Menlo Park, California. The property is currently used as a Caltrans pumping plant. One 3,000-gallon underground diesel storage tank is located in an excavation to the west of the pumping station building.

Caltrans Walnut Creek East and West Maintenance Stations

The Caltrans Walnut Creek East and West Maintenance Stations (Walnut Creek sites) are two discrete properties located at 2616 and 2581 North Main Street, respectively, in Walnut Creek, California. The properties are currently used as Caltrans maintenance facilities. The existing fueling system at the Caltrans East site includes one 8,000-gallon underground gasoline storage tank and one 4,000-gallon underground diesel storage tank located in a common excavation in the central portion of the Caltrans East site.

2. CONSTRUCTION ACTIVITIES REQUIRING DEWATERING

Groundwater may be encountered during the removal of the existing underground fuel storage tanks from the Hayward site and the Ravenswood site. It appears unlikely that groundwater will be encountered during the removal of the existing underground fuel storage tanks from the Walnut Creek East site and Half Moon Bay site.

The groundwater at Hayward site is at depth of 13 feet under the ground surface. The groundwater at Ravenswood site is at depth of 18 feet under the ground surface. The maximum excavation depth is expected to be 15 feet.

The dewatering locations are depicted on the Dewatering Location Plan in Attachment B.

3. BMP FOR GROUNDWATER TREATEMNT

Discharge groundwater, impounded construction site water, or both, using any of the following methods:

1. Discharge into a Publicly Owned Treatment Works (POTW) facility (sanitary sewer) under a batch discharge permit. Apply for and comply with the provisions contained in the permit and pay all fees assessed by the POTW facility in connection with the discharge.

2. Discharge into a storm drain system under Order No. R2-2006-0075 adopted by the San Francisco Bay Regional Water Quality Control Board (RWQCB). Comply with "Relations with California Regional Water Quality Control Board," of these special provisions for discharges to the storm drain system. If the discharge is to the storm drain system, comply with the provisions of Order No. R2-2006-0075 and pay all fees in connection with obtaining coverage under the Order No. R2-2006-0075.

3. Use water treated under Order No. R2-2006-0075 for dust control.

4. Percolate water treated under Order No. R2-2006-0075 into soil in inactive work areas.

Within 15 days after contract approval, submit 3 copies of the DDP to the Engineer. Allow 15 days for the Engineer's review. If revisions are required, the Engineer will provide comments and specify the date that the review stopped. Revise and resubmit the DDP within 7 days of receipt of the Engineer's comments. The Engineer's review will resume when the complete DDP is resubmitted. When the Engineer approves the DDP, submit 4 copies of the approved DDP to the Engineer. After approval, the Engineer will submit one copy of the approved DDP to the RWQCB for their review and comment. If the RWQCB provides comments to the DDP, the Contractor must amend the DDP. Construction activities may begin no sooner than 30 days after the Engineer approves the DDP. If the Engineer fails to complete the review within the time allowed and if, in the opinion of the Engineer, completion of the work is delayed or interfered with because of the Engineer's or the RWQCB's review, you will be compensated for resulting losses, and an extension of time will be granted, as provided for in Section 8-1.09, "Delays," of the Standard Specifications.

A Non-Stormwater Information Package (Information Package) has been prepared for this contract and is available as described in "Supplemental Project Information" of these special provisions. This Information Package includes:

1. Estimated groundwater seepage rates in the project area

2. Web site address where a copy of the RWQCB General Waste Discharge Requirements for Order No. R2-2006-0075, NPDES General Permit No. CAG912002 can be obtained
3. Local POTW facility information

Treatment systems must be designed to remove turbidity-producing suspended solids and other constituents found in the groundwater that are listed in the Site Investigation Report for "Assessment of Environmental and Geotechnical Conditions Prior to Fuel Storage Tank Replacement at Caltrans Half Moon Bay Maintenance Station, Caltrans San Mateo-Hayward Bridge Toll Plaza Maintenance Station, Caltrans Ravenswood Slough Pumping Plant, Caltrans Walnut Creek East and West Maintenance Station, California."

Chemical coagulants and/or flocculants proposed for use in the treatment of groundwater must be approved by the RWQCB. You are fully and solely responsible for securing approval from the RWQCB. Written approval from the RWQCB must be submitted to the Engineer for review prior to any use of flocculants on this project. The Information Package includes an outline of the information required by the RWQCB for approval of the chemical coagulants and/or flocculants for use in the Treatment System.

Disposal of sediments removed during maintenance of the Treatment System must comply with Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

If necessary, treat water discharged to surface water or storm water drainage systems to adjust the pH and dissolved oxygen. Treatment for water with high pH may include the addition of carbon dioxide, sulfuric acid, phosphoric acid, citric acid, or nitric acid in conformance with the supplier's specifications. Treatment for water with low pH may include filtration through a limestone bed or the addition of sodium hydroxide. Treatment for water with low dissolved oxygen may include aeration.

The various components must be maintained to prevent leaks and provide proper function. If a component of the dewatering equipment is not functioning properly, the dewatering operation must be discontinued and the component must be repaired or replaced.

Provide all pumps and piping to convey the water to temporary holding tanks and the point of discharge.

Use a flow meter, as described in "Flow Rate Monitoring" of this section, to measure all discharges from dewatering operations.

Materials must conform to the provisions in Section 6, "Control of Materials," Section 7-1.16, "Contractor's Responsibility for the Work and Materials," and Section 74-2, "Drainage Pumping Equipment," of the Standard Specifications and these special provisions.

4. MONITORING, DISPOSAL, AND REUSE OF TREATED GROUNDWATER

Design and implement an appropriate water treatment system for the site conditions and anticipated flow rate to achieve and maintain compliance with receiving water limitations and discharge effluent limitations. System components may include:

1. Treatment system.
2. Collection and conveyance system.
3. Temporary holding tanks.
4. Discharge attenuator.

Water pumped during dewatering operations must be stored in temporary holding tanks placed at the work area for treatment to remove sediment.

Use temporary holding tanks including transportable closed top holding tanks or tanker trucks. A sufficient number of holding tanks shall be provided based on the following:

1. Anticipated flow rate
2. Pumping rates
3. Capacity inefficiencies due to sediment retention within the holding tanks
4. Sediment settling rates
5. Sediment removal frequency
6. Anticipated water loss or reuse rates

Provide temporary holding tanks with a holding capacity sufficient to handle the water removed from dewatering operations, and prevent delay of work.

Each temporary holding tank must have an inlet and outlet capable of receiving and discharging flows at a sufficient rate to dewater the excavation.

Maintain a minimum freeboard of 1 ft in each of the temporary holding tanks at all times. Clean the holding tanks when 25 percent of the tank's volume is filled with sediments.

Use discharged treated water or uncontaminated ground or surface water for dust control in active work areas when possible, or discharge the water to an inactive area where the grade prevents sheet flow and the soil will allow percolation. The discharge point in the inactive area must include a velocity dissipater. The discharge volume must not exceed the area's capacity for percolation.

Do not discharge into a body of water where erosion, scour, or sedimentary deposits could occur that impact natural bedding or aquatic life. Monitor the water at the discharge point using water quality measurements and visual observation in conformance with the regulatory permit and these special provisions.

Storm water must be diverted away from excavations that would require dewatering.

If treated groundwater is discharged to the storm drain system, perform compliance monitoring in conformance with the Monitoring and Reporting Program (MRP) included in Attachment E of the Order No. R2-2006-0075. If a batch discharge permit is obtained from a POTW, comply with the provisions contained in the batch discharge permit including all monitoring and reporting requirements.

During periods when the dewatering and non-storm water discharge operations occur, document the results in a Daily Inspection Report (DIR). The DIR form must include the discharge volume records and water quality monitoring records. In developing the DIR, refer to the Department's Dewatering Guide. The DIR form must be approved by the Engineer before use. The DIR must be provided weekly or as directed to the Engineer.

All information and recorded data collected or submitted as part of the DIR must be certified as true and accurate and signed by those who gather the information.

ATTACHMENT A

ESTIMATED GROUNDWATER SEEPAGE RATES IN THE PROJECT AREA

State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MR. MAHMOOD MOMENZADEH
Chief, Branch C
Office of Geotechnical Design – West

Date: October 21, 2010

Attention: C.Chen

File: 04- ALA- CC-SM-VAR
04 – 3A0901
UST Replacement Program

From: RIFAAT NASHED RN
Engineering Geologist
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

GRANT WILCOX
Chief, Branch B GW
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

Subject: Seepage Rate (Flow Rate) Estimate at Four Locations

This memo is in response to your request to provide the groundwater depth and seepage rate for the remove UST at four locations. It is our understanding that this information will be used in estimating dewatering quantities.

It should be noted that in our estimate for the four locations, we considered the maximum depth of excavation for 15 feet (12 ft is the height of the tank, 1 ft cover above the tank, and 2 ft as a base under the tank).

Location # 1 : San Mateo – Hayward Bridge Toll Plaza

According to the LOTB, two borings (B-1 & B-8) drilled in October 2009 at the project site, the groundwater elevation was 1.5 feet (at depth of 13 feet under the ground surface) measured in October 21-22, 2009.

Based on the LOTB and the lab analysis, the soil layer at and below the groundwater level and extends from 15 feet (B-1) to 20 feet (B-8) is silty sand with gravel (SM).

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The as-built show an existing 2 ft thick concrete pad at the base of the existing tanks. These calculations include removal of the concrete pad. If the pad is not to be removed, the estimated seepage rate will be reduced significantly.

Location # 2: Walnut Creek Maintenance – East
Walnut Creek Maintenance – West

Based on the LOTB, one borehole (B-4) was drilled in October 2009 at the project site; the groundwater elevation was 85.40 feet (at depth of 58 feet under the ground surface) measured in October 13, 2009. This indicate that the groundwater elevation is far below the bottom of the excavation.

Accordingly, we can consider the water seepage rate (or dewatering) as minimal and would only be due to surface water infiltration during the rainy season.

Location # 3: Half Moon Maintenance Station

Based on the LOTB, one borehole (B-4) was drilled in October 2009 at the project site; the groundwater elevation was 49.0 feet (at depth of 33 feet under the ground surface) measured in October 8, 2009. This indicate that the groundwater elevation is far below the bottom of the excavation.

Accordingly, we can consider the water seepage rate (or dewatering) as minimal and would only be due to surface water infiltration during the rainy season.

Location # 4: Ravenswood Slough Pumping Plant

Based on the LOTB, one bore hole (B-1) was drilled in October 2009 at the project site; the groundwater elevation was –11.7 feet (at depth of 18 feet under the ground surface) measured in October 10, 2009. This indicate that the groundwater elevation is below the bottom of the excavation.

Accordingly, we can consider the water seepage rate (or dewatering) as minimal and would only be due to surface water infiltration during the rainy season.

If you have any questions or need additional information, please call Rifaat Nashed at (510) 622-1773 or Grant Wilcox at (510) 286-4835.

c: TPokrywka, GWilcox, Route File, Daily File

RNashed/mm

ATTACHMENT B

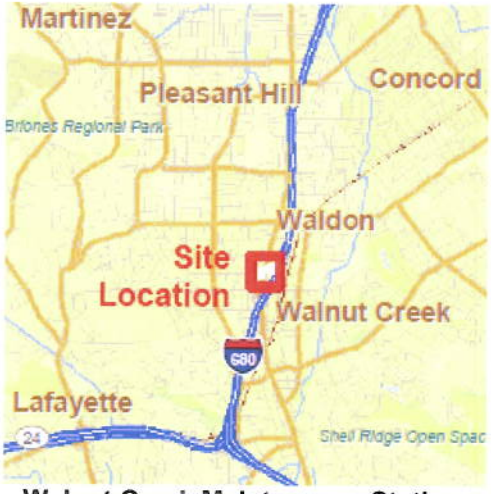
DEWATERING LOCATION PLAN

Project Vicinity

Half Moon Bay Maintenance Station

San Mateo-Hayward Bridge Maintenance Station

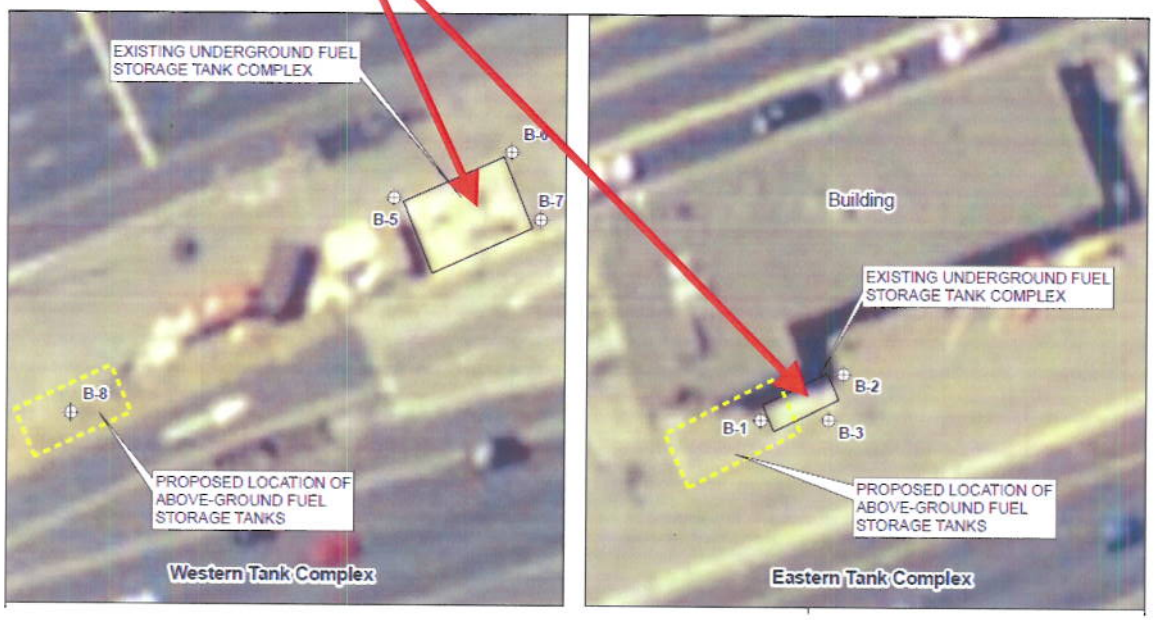
Ravenswood Pumping Plant



Walnut Creek Maintenance Stations

DEWATERING LOCATION PLAN

Groundwater may be encountered while removing existing underground tanks



Hayward Site

Groundwater may be encountered while removing existing underground tanks

Ravenswood Site

ATTACHMENT C

LIST OF PUBLICLY OWNED TREATMENT WORKS (POTW) FACILITY

Alameda POTW

	City Discharger	Treatment Plant Name	WDR Discharger Name	Discharger Contact Name	Contact Phone No.	Contact Email	Mail Address	Ct Contact for Groundwater & De-Watering Discharges	Service Area of the POTW
6	Dublin	Dublin San Ramon Service District	Dublin San Ramon SD	Bob Anderson Levi Fuller	925-875-2860, cell 925-570-8757; 925-846-0568, ext. 119	anderson@dsrsd.com; fuller@dsrsd.com	DSRSD, 7051 Dublin Blvd., Dublin, CA 94568	Call Env. Compliance Officer Eric Kuefner @ 925-875-2335 "case-by-case situation -prefer not during storms" Testing required,$385 for annual permit, per million gal fee, etc	Dublin, San Ramon, & Pleasanton
7	Pleasanton		City of Pleasanton	Richard Lagomarsino; Daniel Smith	925-931-5538; 925-931-5509	rlagomarsino@ci.pleasanton.ca.us; dsmith@ci.pleasanton.ca.us	Richard Lagomarsino, Lead Utility Operator and Daniel Smith, Utility Superintendent, 3333 Busch Road, Pleasanton, CA 94588	Same as Dublin-San Ramon SD - see line #A- 7	Same as Dublin-San Ramon SD - see line #A- 7
8	Union City	Union SD	Union SD	Roger Ham	510-477-7540	roger_ham@unionsanitary.com	Roger Ham, Collection Service Manager, Union Sanitary District, 5072 Benson Road, Union City, CA 94587	Best contact is Von Henry @ 510-477-7637. UCSD would consider if there are no other options available, ie. if non-contaminated using the storm drain is "ok"	Services: Fremont (including Niles), Union City, & Newark
9	Livermore	City of Livermore WPCP	City of Livermore	Darren Greenwood	925-960-8100	dgreenwood@ci.livermore.ca.us	Darren Greenwood, Water Resources Manager, 101 West Jacklondon Blv., Livermore, CA 94551	Call Env. Source Control's - Alex Paredes 925-960-8144 : "requires testing, then annual G.W discharge Permit of $250, and $6,750 PMG's of discharge" - Will mail packet	City of Livermore, the Ruby Hills Development of Pleasanton, and the Veteran's Hospital of unincorporated Alameda County
10	Hayward	City of Hayward WPCP	City of Hayward	Alex Ameri	510-583-4720	alexa@ci.hayward.ca.us	Alex Ameri, Deputy Director/Utilities, Dept. of Public Works, 777 B Street, Hayward, CA 94541-5007	Call Ms. Dije Ndreu @ 510-881-7960 They will accept discharge with test results. Permit fee is $470 plus per gallon fee See email of 6/22/04 has all info	Per Alex Ameri: 90% of the city of Hayward is served by this sewer system - the other 10% (the North end, north of "A" St.) is serviced by Ora Loma Sanitation
11	San Leandro	San Leandro WPCP	City of San Leandro	Dean Wilson	510-577-6030	dwilson@ci.san-leandro.ca.us	Dean Wilson, Water Pollution Control Plant Manager, 3000 David St., San Leandro, CA 94577	Contact: John Camp in Env.Services @ 510-577-6029. "Haven't accepted in the past...prefers Baker tanks for sediment, then discharge to storm drain" There is a special Discharge Permit, includes $2.40 per 100 cu.ft. Would consider proposals.	Plant phone # is 510-577-3434 - they only do "the city boundaries of San Leandro - not the unincorporated areas - its sort of a Zig-Zag kind of thing..." They do have their boundaries on GIS - call Mike Hamer at 577-3339
12	San Lorenzo	Oro Loma SD	Oro Loma S.D.	Michael C. Cameron	510-481-6969	mcameron@oroloma.org	Michael Cameron, General Manager, Oro Loma Sanitary District, 2600 Grant Avenue, San Lorenzo, CA 94580	Best contact: Jeff Carson 510-481-6971 Fee, permit, plan, testing, possible treatment required. Potential problems are large sediments and amounts. May only allow discharge between 2 and 4 A.M. Service area is 40% of both Hayward and San Leandro, San Lorenzo, and some unincorporated Alameda County	Call Bill Halstead @ 510-481-6963 - he has base maps and shape files which he will make available on CD or pdf. Service area is all of San Lorenzo, parts of San Leandro, Hayward, and Castro Valley, and parts of unincorporated Alameda County "Ora Loma is a 'district' and not subject to city boundaries..."
13	Castro Valley		Castro Valley S.D.	Roland Williams	510-537-0757	roland@cvsan.org	Roland William, General Manager, Castro Valley Sanitary District, 21040 Marshall Street, Castro Valley, CA 94546-6098	Same as Oro Loma SD - see line # A-12	Same as Oro Loma SD - see line # A-12
14	Oakland	EBMUD WPCP	EBMUD	Maura A. Bonnarens; Jennifer Smith	510-287-1141, 510-287-0509	mbonnare@ebmud.com; jsmith@ebmud.com	David R. Williams, P.O. Box 2055 (MS#702), Oakland, CA 94623-1055	Web site: www.ebmud.com or call 510-287-1651 "for determination of your permitting needs" Best contact Gail Tupper at 510-287-1608 Permit is 13 pages long (costs $650) - "every situation is different/special..."	Cities of: Alameda, Albany, Berkeley, El Cerrito, Emeryville, Kensington, Oakland, and the Stege Sanitary section of Richmond
15	Alameda		City of Alameda	Wali Waziri	510-749-5853	wwaziri@ci.alameda.ca.us	Mat Naclerio, Director of Public Works, City of Alameda, Alameda Point, Building 1, 950 West Mall Square, Room 110, Alameda, CA 94501	Same as EBMUD WPCP - see line # A-14	Part of EBMUD see # A -14
16	Albany		City of Albany	Ann Chaney	510-528-5768	achaney@albanyca.org	Ann Chaney, Director of Community Development and Environmental Resources, City of Albany-City Hall, 1000 San Pablo Ave, Albany, CA 94706	Same as EBMUD WPCP - see line # A-14	Part of EBMUD see # A -14
17	Berkeley		City of Berkeley	Henry Yee	510-981-6303	hyee@ci.berkeley.ca.us	Rene Cardinaux, Public Works Director, City of Berkeley, 2180 Milvia St., Berkeley, CA 94704	Same as EBMUD WPCP - see line # A-14	Part of EBMUD see # A -14
18	Emeryville		City of Emeryville	Maurice Kaufman	510-596-4334	mkaufman@ci.emeryville.ca.us	Hank Van Dyke, City Engineer, City of Emeryville 1333 Park Ave., Emeryville, CA 94608	Same as EBMUD WPCP - see line # A -14	Part of EBMUD see # A -14
19	Oakland		City of Oakland	Fuad Sweiss; Allen Law	510-238-6607 (LR); 238-6939(AL)	fsweiss@oaklandnet.com; allaw@oaklandnet.com	Michael Neary, Engineering Division Manager, Cit of Oakland, 250 Frank Ogawa Plaza, Suite 4314, Oakland, CA 94612	Same as EBMUD WPCP - see line #A -14	Part of EBMUD see # A -14
20	Piedmont		City of Piedmont	Larry Rosenberg	510-420-3050	lrosenberg@ci.piedmont.ca.us	Larry Rosenberg, Director of Public Works, City of Piedmont, 120 Vista Ave., Piedmont, CA 94611	Same as EBMUD WPCP - see line # A -14	Part of EBMUD see # A -14

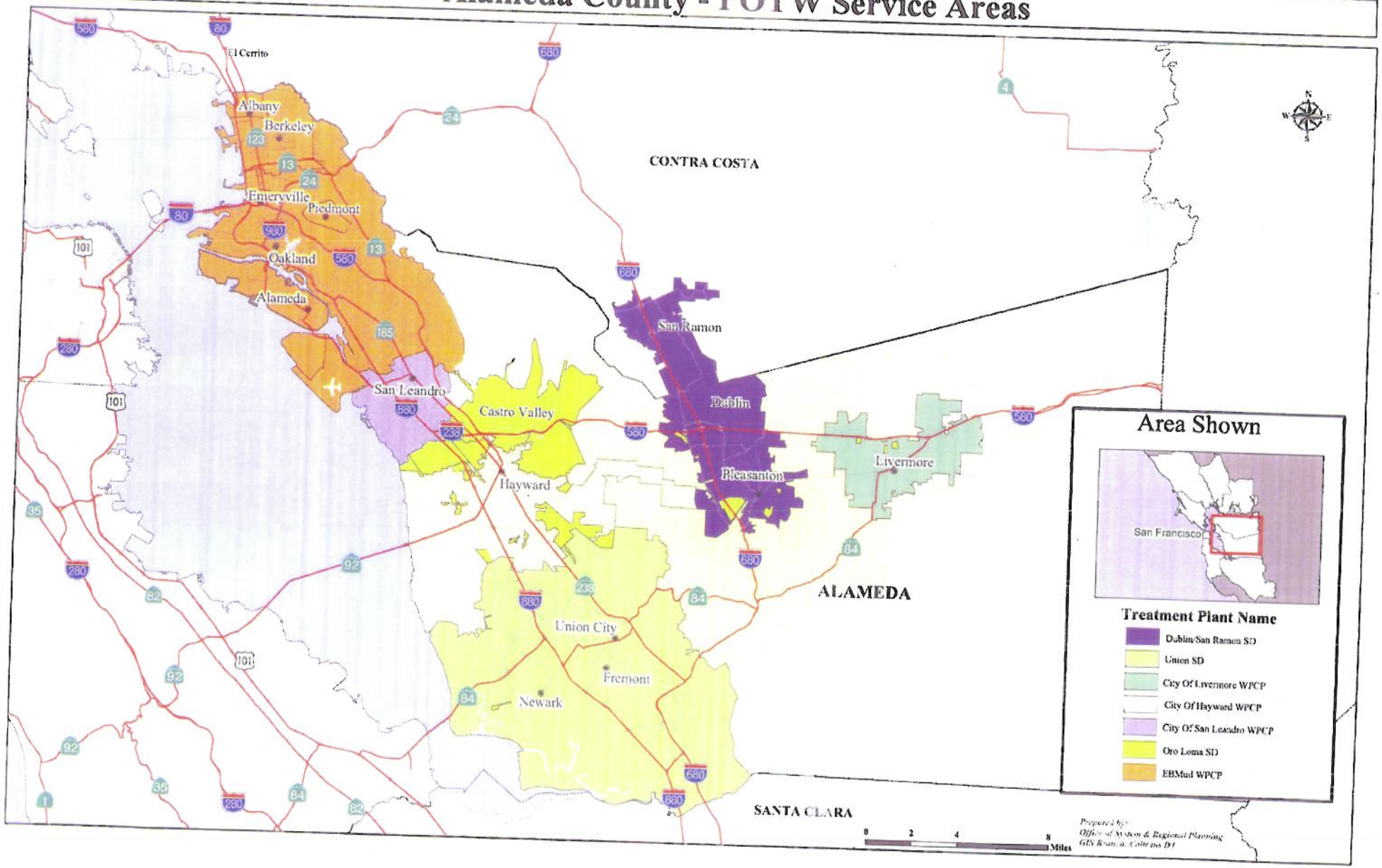
List of Publicly Owned Treatment Works (POTW) San Mateo

	City Discharger	Treatment Plant Name	WDR Discharger Name	Discharger Contact Name	Contact Phone No.	Contact Email	Mail Address	Ct Contact for Groundwater & De-Watering Discharges	Service Area of the POTW
26	San Francisco International Airport WQCP	San Francisco International Airport WQCP	San Francisco International Airport WQCP	Sam Mehta	650-821-7841	sam.mehta@flysfo.com		They would not allow, except if the Reg. Board insisted. Would have to be checked for TPH - contact Stormwater "guru" / Utilities head Mark Costanza @ 650-821-7809	Just the S.F.I. Airport - they said no parts of Hwys 101 or 380 enter their system
27	San Mateo	San Mateo Waste Water Treatment Plant (formerly San Mateo WQCP)	San Mateo WQCP	Kacey Karmendy	650-522-7388	karmendy@ci.sanmateo.ca.us		Per "Best Contact" Vern Bessey @ 650-522-7342 new org. name is SMWTP and serves Cities of San Mateo and Foster City. They disallow clean groundwater and SW if it just has sediment, prefers Baker tanks and discharge to storm drain. Will accept IF contaminated - permit and testing needed, including "site history"	They cover: "San Mateo, half of Hillsborough, Foster City, unincorporated S.M. County, and a very small part of Belmont." Contact Otis Chan 650-522-7306 for GIS information.
28	South S.F.	South S.F./San Bruno WQCP	City of South San Francisco	Dave Castagnola: Terry White	650-829-3844; 650-877-8351	dcastagnola@ci.ssf.ca.us ; terry.white@ssf.net	Dave Castagnola, City of South San Francisco, 195 Belleair Road, South San Francisco, CA 94080; Terry White, Deputy Director, Maintenance Services, City of South San Francisco, 550 North Canal St., South San Francisco, CA 94080	Contact: Kevin Maffei for permit information at 650-829-3881. Permit can be expedited, a WQ profile is needed, one-time permit fee of $ 60.00, then $1.83 per 100 Cu ft.	They cover: "South San Francisco, San Bruno, Colma, and a very small part of Daly City." No GIS available. Plant phone # 650-877-8555.
29	San Bruno		City of San Bruno	Scott Munns	650-616-7056	smunns@ci.sanbruno.ca.us	Scott Munns, Director, Public Works, City of San Bruno, 567 El Camino Real, San Bruno, CA 94066	Same as South S.F. / San Bruno WQCP - see line # 28	Part of South S.F. / San Bruno WQCP - see line # 28
30	Colma		Colma City	Ellen Ellsworth	650-757-8888	ellen.ellsworth@colma.ca.gov	Richard Mao, City Engineer, Town of Colma, 1198 El Camino Real, Colma, CA 94014	Same as South S.F. / San Bruno WQCP - see line # 28	Part of South S.F. / San Bruno WQCP - see line # 28
31	Millbrae	Millbrae WPC	Millbrae WPC	Thomas Colletti	650-259-2881	tcolletti@ci.millbrae.ca.us	Thomas Colletti, City of Millbrae, 621 Magnolia Ave., Millbrae, CA 94030	Best contacts: Dick York, 650-259-2393, Supt. Of WWTP, and/or David Ocampo 650-259-2392 Lab Supt. (issues g-water permit). Permit needed, sampling for contaminates needed, etc., -they have done this in the past.	Just the City of Millbrae. Plant phone # is 650-259-2368
32	Pacifica	Calera CRK Water Recycling Plant	Calera CRK Water Recycling Plant	Dave Gromm	650-738-4663	gromm@ci.pacifica.ca.us		Handles the City of Pacifica. Best contact is Brian Martinez @ 650-738-4669. Per Dave Gromm: "new plant has lots of capacity" will accept discharge after permit, testing, etc.	The city of Pacifica and a small part of Daly City
33	Burlingame	Veolia Water (formerly Burlingame WWTP)	Burlingame WWTP	Phil Scott.	650-558-7673; 650-558-7679	pscott@burlingame.org; bsalzon@burlingame.org	Phil Scott, Public Work Superintendent, 501 Primrose, Burlingame, CA 94010	Contact Doug Bell @ 558-7245 or dbell@burlingame.org: "not straightforward" he would need to "run it by 3-4 people" - it could be"handled in different ways" - would probably have to check out the ways this was handled the previous times...etc	Burlingame and half of Hillsborough. Plant phone # is 650-342-3727
34	Hillsborough		Town of Hillsborough	David Bishop	650-375-7411	dbishop@hillsboro.org	Kevin Ostendf, Public Work Director, Town of Hillsborough, 1600 Hillside Ave., Hillsborough, CA 94010-6418	Hillsborough sends their WW to Burlingame and SMWWT plants for treatment- see Lines # A -27 and 33	Hillsborough sends their WW to Burlingame and SMWWT plants for treatment- see Lines # A -27 and 33
55	Maj-Sam WWTP	Maj-Sam WWTP	Sewer Authority Mid Coastside	Tony Pullin	650-726-0124	tony@samclearwater.org		Contact Brenda Dorski 650-726-0124x105 - she will mail packet of info $80 fee, 10 cents per Cal. Brenda@samclearwater.org	Rural San Mateo Coast - Hwy 001 from Montara to Half Moon Bay "8 or 9 miles of Coast - and a little bit of Hwy 92" - per Tony Pullin
56			City of Half Moon Bay	Ed Marlow	(650) 726-8253	emarlow@ci.hmb.ca.us	Ed Marlow - Interim Assistant City Manager, Department of Public Works, 501 Main Street, City of Half Moon Bay, CA 94019	Same as Maj-Sam - see Line #55	Same as Maj-Sam - see Line #55
57			Granada Sanitary District	Gina Holmes	(650) 726-7093	gsd@netwiz.net	Gina Holmes, Administrator, Granada Sanitary District, 455 Avenue, P.O. Box 335, El Granada, CA 94018	Same as Maj-Sam - see Line #55	Same as Maj-Sam - see Line #55
			Dudek Associate (Granada SD consultant)	Chuck Duffy	(760)942-5147	cduffy@dudek.com	605 3rd St., Encinitas, CA 92024	Same as Maj-Sam - see Line #55	Same as Maj-Sam - see Line #55
58			Montara Sanitary District	George Irving	(650) 728-3545	msd@montara.com	George Irving, District Manager, Montara Sanitary District, 8888 Cabrillo Highway, P.O. Box, Montara, CA 94037	Same as Maj-Sam - see Line #55	Same as Maj-Sam - see Line #55
	Treasure Island WPCP	Treasure Island WPCP	SF PUC	Nathan Brennan	(415)242-2256 X1358	mcarlin@sfwater.org; nbrennan@sfwater.org	Michael Carlin, SFPUC, Planning Bureau Manager, 1141 Market St., Suite 401, San Francisco, CA 94103, 415-934-5757	Best contact is Vic Vista @ 415-274-0318 at the "very small" plant on TI. Would want Chloride levels checked - and other sampling, and permit required.	Yerba Buena Island and Treasure Island
59	South Bayside System Authority WWTP	South Bayside System Authority WWTP	South Bayside System Authority	Bob Donaldson	650-594-8411x127	rdonaldson@sbsa.org	Robert Donaldson, South Bayside System Authority, 1400 Radio Road, Redwood City, CA 94065	Contact Ken Knudson @ 650-594-8411 x 128 or kknudson@sbsa.org "Individual Evaluation" No website. Need permit and water analysis "usually 1 to 3 day turn-around for Permit.	SBSA takes WW from Belmont, San Carlos, all of Redwood City, and Redwood Shores. Has joint operating agreement with "WestBay" and also treats waste from Woodside, Atherton, Portola Valley, and Menlo Park. Good Contacts: Bob Donaldson and Jim Rentey @ 650-591-7121
60			City of Belmont	Kathleen F. Phalen	650-595-7469	kphalen@ci.belmont.ca.us	Kathleen E. Phalen, Associate Civil Engineer, City of Belmont, 1070 Sixth Ave. Suite 106, Belmont, CA 94002	Same as SBSA Authority WWTP - see line 59	Same as SBSA - see Line # A-59
61			City of Redwood City	Peter Ingram: Marilyn Hanna	650-780-7466; 650-780-7477	pingram@redwoodcity.org; mhanna@redwoodcity.org	Peter Ingram, Director, Public Works Services, City of Redwood City, 1400 Broadway, Redwood City, CA 94063-2505	Same as SBSA Authority WWTP - see line 59	Same as SBSA - see Line # A-59
62			City of San Carlos	Parviz Mokhtari	650 802 4205	parviz.mokhtari@ci.sancarlos.ca.us	Parviz Mokhtari, Director of Public Works, City of San Carlos, 600 Elm St., San Carlos, CA 94070	Same as SBSA Authority WWTP - see line 59	Same as SBSA - see Line # A-59
63			Town of Woodside	Kent Dewell	650-851-6790		Kent Dewell, Town Engineer, Town of Woodside, P.O. Box 84063, Woodside, CA 94062	Same as SBSA Authority WWTP - see line 59	Same as SBSA - see Line # A-59
64			West Bay SD	Tim Clayton	650-323-0384	tclayton@westbaysd.com	Tim Clayton, District Manager, West Bay Sanitary District, 500 Laurel St. Menlo Park, CA 94025	Same as SBSA Authority WWTP - see line 59	Same as SBSA - see Line # A-59
65	For collection system in unincorporated areas	For collection system in unincorporated areas	San Mateo County	Brian Lee	650-599-1497	blee@smmateo.ca.us	Brian Lee, Department of Public Works, 555 County Center, 5th Floor, Redwood City, CA 94063-1665	Same as SBSA Authority WWTP - see line 59	Same as SBSA - see Line # A-59
66	North San Mateo WWTP	North San Mateo WWTP	North San Mateo County	Patrick Sweetland	650 991 8201	psweetland@dsdpublic.org	Patrick Sweetland, Director of Water and Wastewater Resources, North San Mateo Sanitary District, 153 Lake Merced Blv., Daly City, CA 94015	Same as SBSA Authority WWTP - see line 59	Same as SBSA - see Line # A-59
100	Satellite system of City and County of SF treatment plant	Satellite system of City and County of SF treatment plant	City of Brisbane	Matthew Fabry	415-508-2134	mfabry@ci.brisbane.ca.us	Matthew Fabry, City of Brisbane, Public Works Department, 50 Park Place, Brisbane, CA 94005-1310	Per Matt Fabry @ 415-508-2134 "they would accept in accordance with the regulations of the permit for SMCO. They would accept some non - Storm Water discharge" - he would like to hear more specifics before assuring acceptance	Services Brisbane and the Guadalupe Canal area. They send their WW to the SF Combined System. [Only Ct ROW is US 101] They have their service electronically - call Matt Lee at 415-508-2132

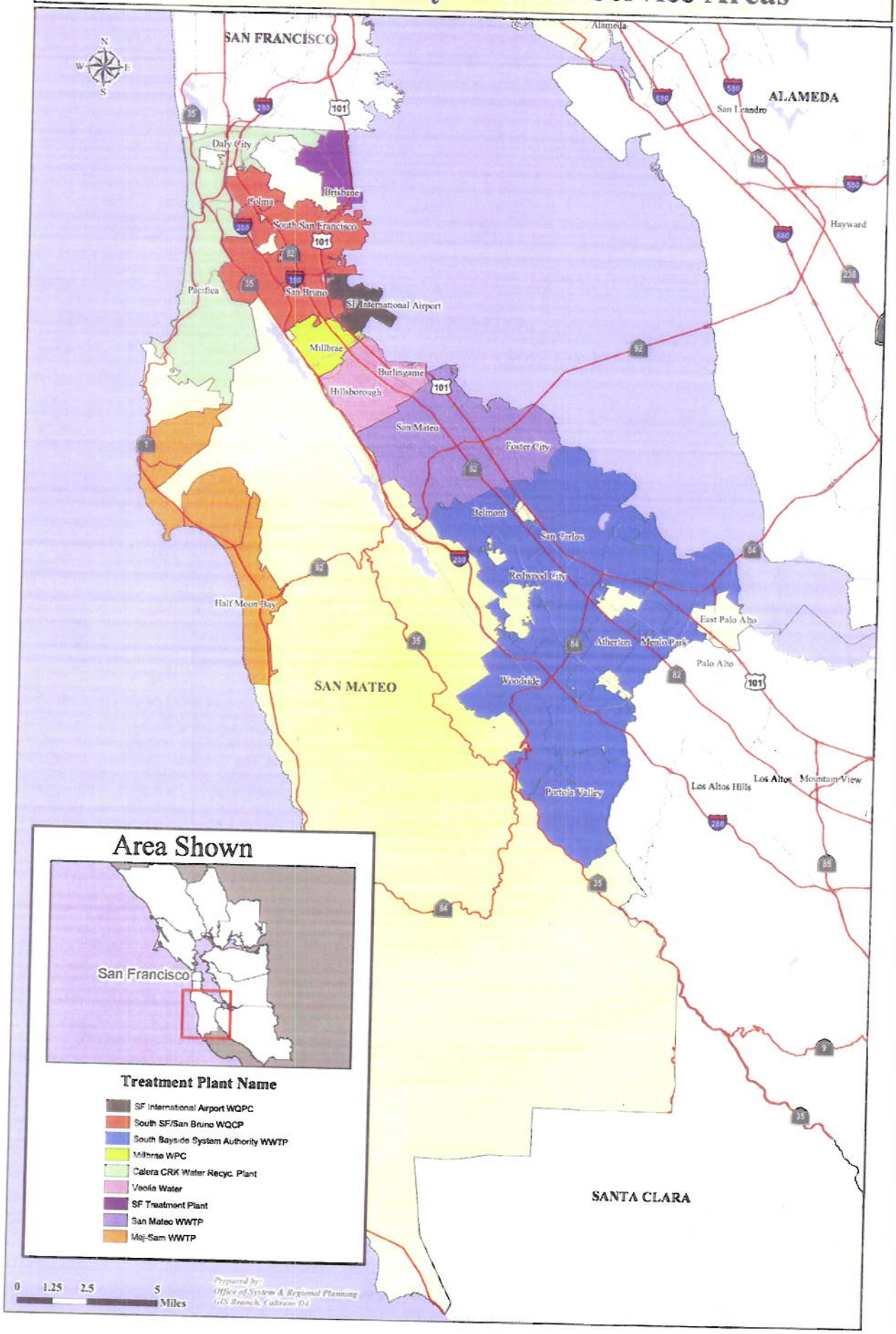
ATTACHMENT D

ALAMEDA, SAN MATEO COUNTY-POTW SERVICE AREA

Alameda County - POTW Service Areas



San Mateo County - POTW Service Areas



ATTACHMENT E

SITE INVESTIGATION REPORT

ATTACHMENT F

COPY OF NPDES PERMIT R2-2006-0075

ATTACHMENT C

LIST OF PUBLICLY OWNED TREATMENT WORKS (POTW) FACILITY

Alameda POTW

	City Discharger	Treatment Plant Name	WDR Discharger Name	Discharger Contact Name	Contact Phone No.	Contact Email	Mail Address	Ct Contact for Groundwater & De-Watering Discharges	Service Area of the POTW
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8	Union City	Union SD	Union SD	Roger Ham	510-477-7540	roger_ham@unionsanitary.com	Roger Ham, Collection Service Manager, Union Sanitary District, 5072 Benson Road, Union City, CA 94587	Best contact is Von Henry @ 510-477-7637. UCSD would consider if there are no other options available, ie. if non-contaminated using the storm drain is "ok"	Services: Fremont (including Niles), Union City, & Newark
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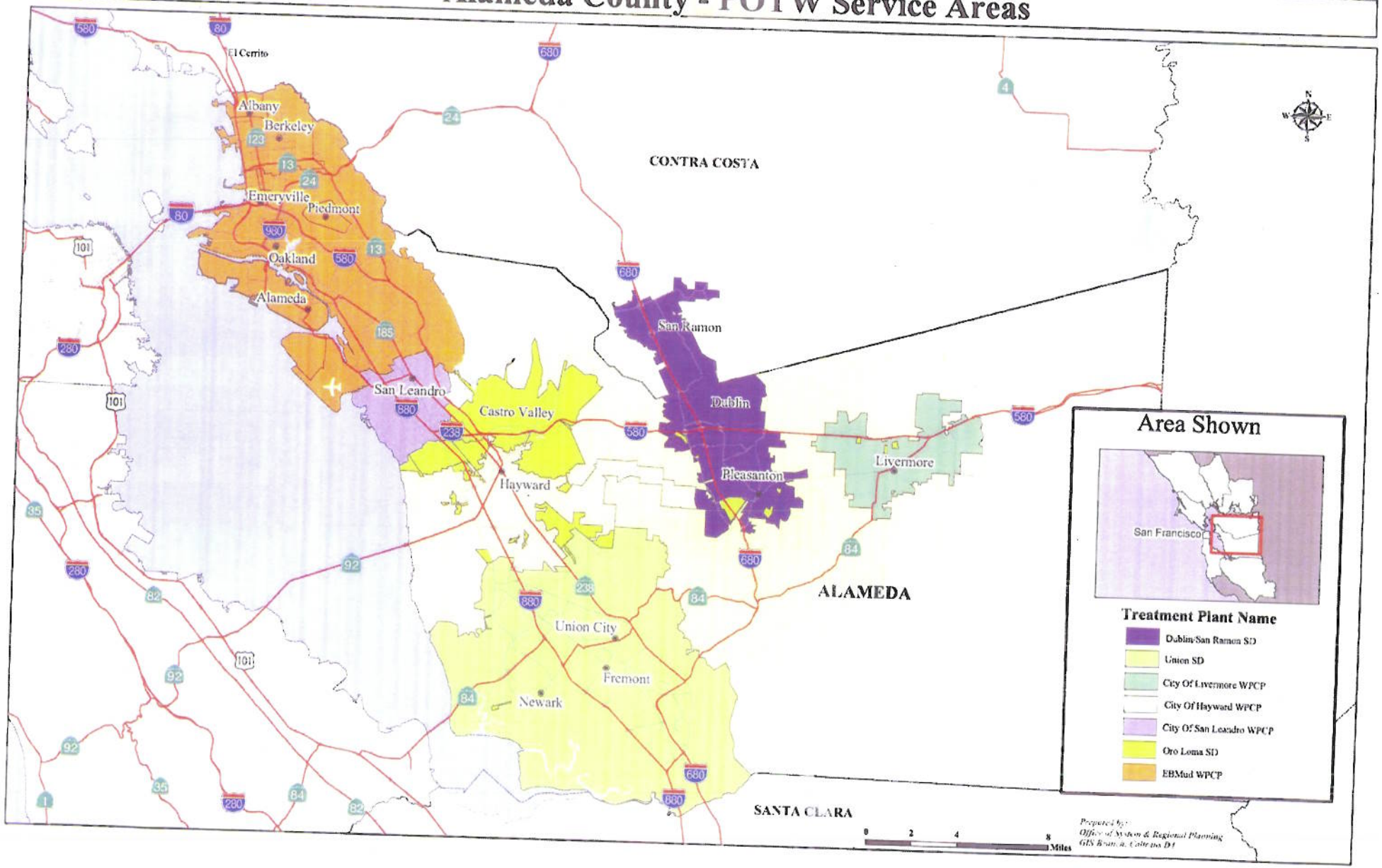
28	South S.F.	South S.F./San Bruno WQCP	City of South San Francisco	Dave Castagnola: Terry White	650-829-3844; 650-877-8351	dcastagnola@ci.ssf.ca.us ; terry.white@ssf.net	Dave Castagnola, City of South San Francisco, 195 Belleair Road, South San Francisco, CA 94080; Terry White, Deputy Director, Maintenance Services, City of South San Francisco, 550 North Canal St., South San Francisco, CA 94080	Contact: Kevin Maffei for permit information at 650-829-3881. Permit can be expedited, a WQ profile is needed, one-time permit fee of $ 60.00, then $1.83 per 100 Cu ft.	They cover: "South San Francisco, San Bruno, Colma, and a very small part of Daly City." No GIS available. Plant phone # 650-877-8555.
29	San Bruno		City of San Bruno	Scott Munns	650-616-7056	smunns@ci.sanbruno.ca.us	Scott Munns, Director, Public Works, City of San Bruno, 567 El Camino Real, San Bruno, CA 94066	Same as South S.F. / San Bruno WQCP - see line # 28	Part of South S.F. / San Bruno WQCP - see line # 28
30	Colma		Colma City	Ellen Ellsworth	650-757-8888	ellen.ellsworth@colma.ca.gov	Richard Mao, City Engineer, Town of Colma, 1198 El Camino Real, Colma, CA 94014	Same as South S.F. / San Bruno WQCP - see line # 28	Part of South S.F. / San Bruno WQCP - see line # 28
31	Millbrae	Millbrae WPC	Millbrae WPC	Thomas Colletti	650-259-2881	tcolletti@ci.millbrae.ca.us	Thomas Colletti, City of Millbrae, 621 Magnolia Ave., Millbrae, CA 94030	Best contacts: Dick York, 650-259-2393, Supt. Of WWTP, and/or David Ocampo 650-259-2392 Lab Supt. (issues g-water permit). Permit needed, sampling for contaminates needed, etc., -they have done this in the past.	Just the City of Millbrae. Plant phone # is 650-259-2368
32	Pacifica	Calera CRK Water Recycling Plant	Calera CRK Water Recycling Plant	Dave Gromm	650-738-4663	gromm@ci.pacifica.ca.us		Handles the City of Pacifica. Best contact is Brian Martinez @ 650-738-4669. Per Dave Gromm: "new plant has lots of capacity" will accept discharge after permit, testing, etc.	The city of Pacifica and a small part of Daly City
33	Burlingame	Veolia Water (formerly Burlingame WWTP)	Burlingame WWTP	Phil Scott.	650-558-7673; 650-558-7679	pscott@burlingame.org; bsalzon@burlingame.org	Phil Scott, Public Work Superintendent, 501 Primrose, Burlingame, CA 94010	Contact Doug Bell @ 558-7245 or dbell@burlingame.org: "not straightforward" he would need to "run it by 3-4 people" - it could be"handled in different ways" - would probably have to check out the ways this was handled the previous times...etc	Burlingame and half of Hillsborough. Plant phone # is 650-342-3727
34	Hillsborough		Town of Hillsborough	David Bishop	650-375-7411	dbishop@hillsboro.org	Kevin Ostendf, Public Work Director, Town of Hillsborough, 1600 Hillside Ave., Hillsborough, CA 94010-6418	Hillsborough sends their WW to Burlingame and SMWWT plants for treatment- see Lines # A -27 and 33	Hillsborough sends their WW to Burlingame and SMWWT plants for treatment- see Lines # A -27 and 33
55	Maj-Sam WWTP	Maj-Sam WWTP	Sewer Authority Mid Coastside	Tony Pullin	650-726-0124	tony@samclearwater.org		Contact Brenda Dorski 650-726-0124x105 - she will mail packet of info $80 fee, 10 cents per Cal. Brenda@samclearwater.org	Rural San Mateo Coast - Hwy 001 from Montara to Half Moon Bay "8 or 9 miles of Coast - and a little bit of Hwy 92" - per Tony Pullin
56			City of Half Moon Bay	Ed Marlow	(650) 726-8253	emarlow@ci.hmb.ca.us	Ed Marlow - Interim Assistant City Manager, Department of Public Works, 501 Main Street, City of Half Moon Bay, CA 94019	Same as Maj-Sam - see Line #55	Same as Maj-Sam - see Line #55
57			Granada Sanitary District	Gina Holmes	(650) 726-7093	gsd@netwiz.net	Gina Holmes, Administrator, Granada Sanitary District, 455 Avenue, P.O. Box 335, El Granada, CA 94018	Same as Maj-Sam - see Line #55	Same as Maj-Sam - see Line #55
			Dudek Associate (Granada SD consultant)	Chuck Duffy	(760)942-5147	cduffy@dudek.com	605 3rd St., Encinitas, CA 92024	Same as Maj-Sam - see Line #55	Same as Maj-Sam - see Line #55
58			Montara Sanitary District	George Irving	(650) 728-3545	msd@montara.com	George Irving, District Manager, Montara Sanitary District, 8888 Cabrillo Highway, P.O. Box, Montara, CA 94037	Same as Maj-Sam - see Line #55	Same as Maj-Sam - see Line #55
	Treasure Island WPCP	Treasure Island WPCP	SF PUC	Nathan Brennan	(415)242-2256 X1358	mcarlin@sfwater.org; nbrennan@sfwater.org	Michael Carlin, SFPUC, Planning Bureau Manager, 1141 Market St., Suite 401, San Francisco, CA 94103, 415-934-5757	Best contact is Vic Vista @ 415-274-0318 at the "very small" plant on TI. Would want Chloride levels checked - and other sampling, and permit required.	Yerba Buena Island and Treasure Island
59	South Bayside System Authority WWTP	South Bayside System Authority WWTP	South Bayside System Authority	Bob Donaldson	650-594-8411x127	rdonaldson@sbsa.org	Robert Donaldson, South Bayside System Authority, 1400 Radio Road, Redwood City, CA 94065	Contact Ken Knudson @ 650-594-8411 x 128 or kknudson@sbsa.org "Individual Evaluation" No website. Need permit and water analysis "usually 1 to 3 day turn-around for Permit.	SBSA takes WW from Belmont, San Carlos, all of Redwood City, and Redwood Shores. Has joint operating agreement with "WestBay" and also treats waste from Woodside, Atherton, Portola Valley, and Menlo Park. Good Contacts: Bob Donaldson and Jim Rentey @ 650-591-7121
60			City of Belmont	Kathleen F. Phalen	650-595-7469	kphalen@ci.belmont.ca.us	Kathleen E. Phalen, Associate Civil Engineer, City of Belmont, 1070 Sixth Ave. Suite 106, Belmont, CA 94002	Same as SBSA Authority WWTP - see line 59	Same as SBSA - see Line # A-59
61			City of Redwood City	Peter Ingram: Marilyn Hanna	650-780-7466; 650-780-7477	pingram@redwoodcity.org; mhanna@redwoodcity.org	Peter Ingram, Director, Public Works Services, City of Redwood City, 1400 Broadway, Redwood City, CA 94063-2505	Same as SBSA Authority WWTP - see line 59	Same as SBSA - see Line # A-59
62			City of San Carlos	Parviz Mokhtari	650 802 4205	parviz.mokhtari@ci.sancarlos.ca.us	Parviz Mokhtari, Director of Public Works, City of San Carlos, 600 Elm St., San Carlos, CA 94070	Same as SBSA Authority WWTP - see line 59	Same as SBSA - see Line # A-59
63			Town of Woodside	Kent Dewell	650-851-6790		Kent Dewell, Town Engineer, Town of Woodside, P.O. Box 84063, Woodside, CA 94062	Same as SBSA Authority WWTP - see line 59	Same as SBSA - see Line # A-59
64			West Bay SD	Tim Clayton	650-323-0384	tclayton@westbaysd.com	Tim Clayton, District Manager, West Bay Sanitary District, 500 Laurel St. Menlo Park, CA 94025	Same as SBSA Authority WWTP - see line 59	Same as SBSA - see Line # A-59
65	For collection system in unincorporated areas	For collection system in unincorporated areas	San Mateo County	Brian Lee	650-599-1497	blee@smmateo.ca.us	Brian Lee, Department of Public Works, 555 County Center, 5th Floor, Redwood City, CA 94063-1665	Same as SBSA Authority WWTP - see line 59	Same as SBSA - see Line # A-59
66	North San Mateo WWTP	North San Mateo WWTP	North San Mateo County	Patrick Sweetland	650 991 8201	psweetland@dsdpublic.org	Patrick Sweetland, Director of Water and Wastewater Resources, North San Mateo Sanitary District, 153 Lake Merced Blv., Daly City, CA 94015	Same as SBSA Authority WWTP - see line 59	Same as SBSA - see Line # A-59
100	Satellite system of City and County of SF treatment plant	Satellite system of City and County of SF treatment plant	City of Brisbane	Matthew Fabry	415-508-2134	mfabry@ci.brisbane.ca.us	Matthew Fabry, City of Brisbane, Public Works Department, 50 Park Place, Brisbane, CA 94005-1310	Per Matt Fabry @ 415-508-2134 "they would accept in accordance with the regulations of the permit for SMCO. They would accept some non - Storm Water discharge" - he would like to hear more specifics before assuring acceptance	Services Brisbane and the Guadalupe Canal area. They send their WW to the SF Combined System. [Only Ct ROW is US 101] They have their service electronically - call Matt Lee at 415-508-2132

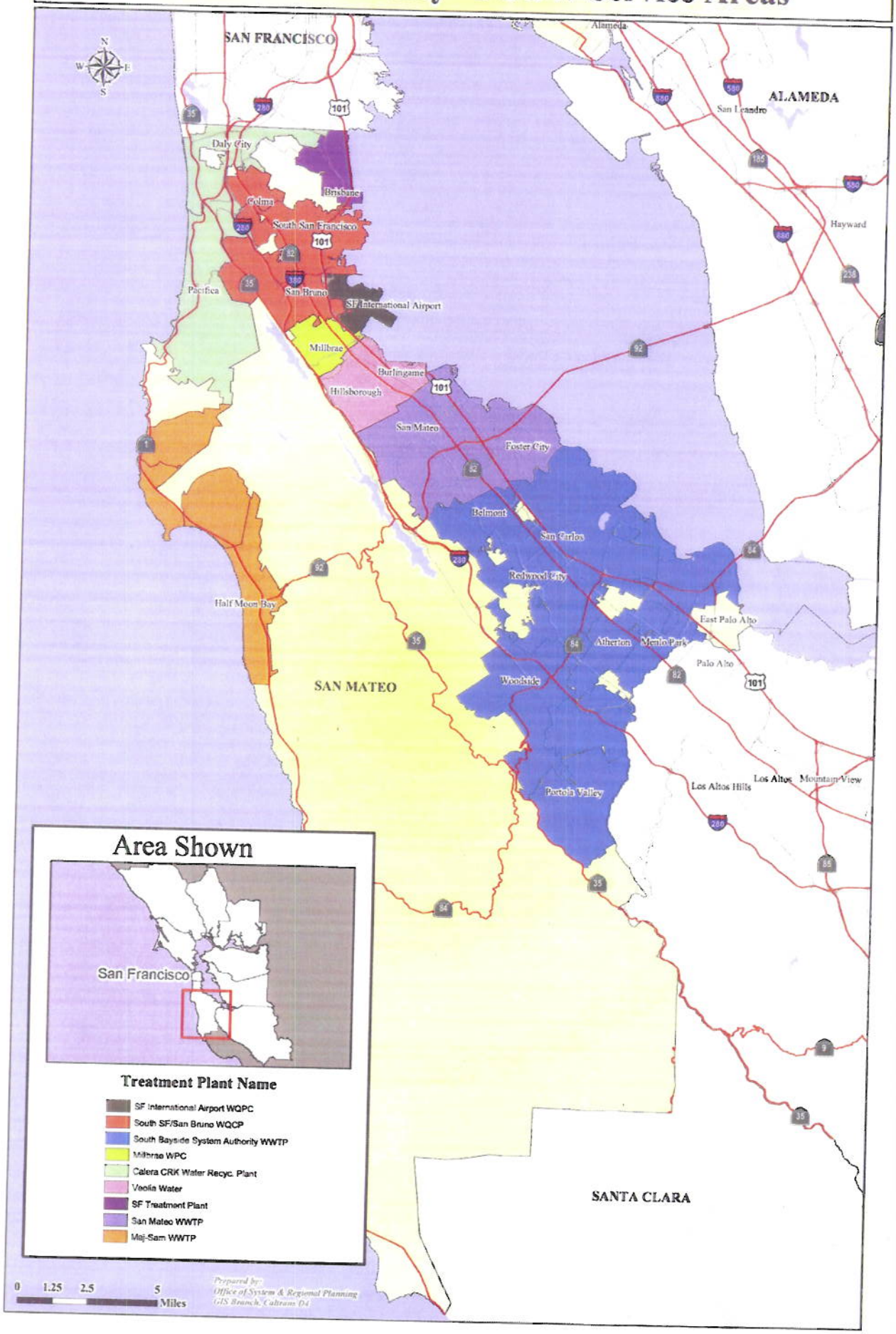
ATTACHMENT D

ALAMEDA, SAN MATEO COUNTY-POTW SERVICE AREA

Alameda County - POTW Service Areas



San Mateo County - POTW Service Areas



NON-STORM WATER INFORMATION PACKAGE

CONTRACT NO. 040000092704-(04-3A0904)

04- ALA-SM-CC –92,84,1-PM Var
Replace Underground Storage Tanks

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CONTRACT NO. 040000092704 (04-3A0904)

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2. CONSTRUCTION ACTIVITIES REQUIRING DEWATERING
3. BMP FOR TREATMENT GROUNDWATER
4. MONITORING, DISPOSAL, AND REUSE OF TREATED GROUNDWATER

ATTACHMENT

A. ESTIMATED GROUNDWATER SEEPAGE RATES IN THE PROJECT AREA

B. DEWATERING LOCATION PLAN

C. LIST OF PUBLICLY OWNED TREATMENT WORKS (POTW) FACILITY

D. ALAMEDA, SAN MATEO COUNTY-POTW SERVICE AREA

E. SITE INVESTIGATION REPORT

F. COPY OF NPDES PERMIT R2-2006-0075

1. PROJECT DESCRIPTION

The project is to replace underground fuel storage tanks with aboveground fuel storage tanks at four Caltrans facilities located in the San Francisco Bay Area. A brief description of each of the four sites follows:

Caltrans Half Moon Bay Maintenance Station

The Caltrans Half Moon Bay Maintenance Station (Half Moon Bay site) is located at 2203 Cabrillo Highway, or Highway 1, in Half Moon Bay, California. The property is currently used as a Caltrans maintenance facility. The existing fueling system at the subject site includes one 10,000-gallon underground gasoline storage tank and one 4,000-gallon underground diesel storage tank located in a common excavation in the west central portion of the site.

Caltrans San Mateo-Hayward Bridge Maintenance Station

The Caltrans San Mateo-Hayward Bridge Maintenance Station (Hayward site) is located at 5500 West Jackson Street, or Highway 92, in Hayward, California. The property is currently used as a Caltrans maintenance facility. There are two discrete existing fueling systems in service at the Hayward site. The western fueling system includes one 2,000-gallon underground gasoline storage tank and one 2,000-gallon underground diesel storage tank located in a common excavation in the western portion of the site.

Caltrans Ravenswood Pumping Plant

The Caltrans Ravenswood Pumping Plant (Ravenswood site) is located on Highway 84, in Menlo Park, California. The property is currently used as a Caltrans pumping plant. One 3,000-gallon underground diesel storage tank is located in an excavation to the west of the pumping station building.

Caltrans Walnut Creek East and West Maintenance Stations

The Caltrans Walnut Creek East and West Maintenance Stations (Walnut Creek sites) are two discrete properties located at 2616 and 2581 North Main Street, respectively, in Walnut Creek, California. The properties are currently used as Caltrans maintenance facilities. The existing fueling system at the Caltrans East site includes one 8,000-gallon underground gasoline storage tank and one 4,000-gallon underground diesel storage tank located in a common excavation in the central portion of the Caltrans East site.

2. CONSTRUCTION ACTIVITIES REQUIRING DEWATERING

Groundwater may be encountered during the removal of the existing underground fuel storage tanks from the Hayward site and the Ravenswood site. It appears unlikely that groundwater will be encountered during the removal of the existing underground fuel storage tanks from the Walnut Creek East site and Half Moon Bay site.

The groundwater at Hayward site is at depth of 13 feet under the ground surface. The groundwater at Ravenswood site is at depth of 18 feet under the ground surface. The maximum excavation depth is expected to be 15 feet.

The dewatering locations are depicted on the Dewatering Location Plan in Attachment B.

3. BMP FOR GROUNDWATER TREATEMNT

Discharge groundwater, impounded construction site water, or both, using any of the following methods:

1. Discharge into a Publicly Owned Treatment Works (POTW) facility (sanitary sewer) under a batch discharge permit. Apply for and comply with the provisions contained in the permit and pay all fees assessed by the POTW facility in connection with the discharge.

2. Discharge into a storm drain system under Order No. R2-2006-0075 adopted by the San Francisco Bay Regional Water Quality Control Board (RWQCB). Comply with "Relations with California Regional Water Quality Control Board," of these special provisions for discharges to the storm drain system. If the discharge is to the storm drain system, comply with the provisions of Order No. R2-2006-0075 and pay all fees in connection with obtaining coverage under the Order No. R2-2006-0075.

3. Use water treated under Order No. R2-2006-0075 for dust control.

4. Percolate water treated under Order No. R2-2006-0075 into soil in inactive work areas.

Within 15 days after contract approval, submit 3 copies of the DDP to the Engineer. Allow 15 days for the Engineer's review. If revisions are required, the Engineer will provide comments and specify the date that the review stopped. Revise and resubmit the DDP within 7 days of receipt of the Engineer's comments. The Engineer's review will resume when the complete DDP is resubmitted. When the Engineer approves the DDP, submit 4 copies of the approved DDP to the Engineer. After approval, the Engineer will submit one copy of the approved DDP to the RWQCB for their review and comment. If the RWQCB provides comments to the DDP, the Contractor must amend the DDP. Construction activities may begin no sooner than 30 days after the Engineer approves the DDP. If the Engineer fails to complete the review within the time allowed and if, in the opinion of the Engineer, completion of the work is delayed or interfered with because of the Engineer's or the RWQCB's review, you will be compensated for resulting losses, and an extension of time will be granted, as provided for in Section 8-1.09, "Delays," of the Standard Specifications.

A Non-Stormwater Information Package (Information Package) has been prepared for this contract and is available as described in "Supplemental Project Information" of these special provisions. This Information Package includes:

1. Estimated groundwater seepage rates in the project area

2. Web site address where a copy of the RWQCB General Waste Discharge Requirements for Order No. R2-2006-0075, NPDES General Permit No. CAG912002 can be obtained
3. Local POTW facility information

Treatment systems must be designed to remove turbidity-producing suspended solids and other constituents found in the groundwater that are listed in the Site Investigation Report for "Assessment of Environmental and Geotechnical Conditions Prior to Fuel Storage Tank Replacement at Caltrans Half Moon Bay Maintenance Station, Caltrans San Mateo-Hayward Bridge Toll Plaza Maintenance Station, Caltrans Ravenswood Slough Pumping Plant, Caltrans Walnut Creek East and West Maintenance Station, California."

Chemical coagulants and/or flocculants proposed for use in the treatment of groundwater must be approved by the RWQCB. You are fully and solely responsible for securing approval from the RWQCB. Written approval from the RWQCB must be submitted to the Engineer for review prior to any use of flocculants on this project. The Information Package includes an outline of the information required by the RWQCB for approval of the chemical coagulants and/or flocculants for use in the Treatment System.

Disposal of sediments removed during maintenance of the Treatment System must comply with Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

If necessary, treat water discharged to surface water or storm water drainage systems to adjust the pH and dissolved oxygen. Treatment for water with high pH may include the addition of carbon dioxide, sulfuric acid, phosphoric acid, citric acid, or nitric acid in conformance with the supplier's specifications. Treatment for water with low pH may include filtration through a limestone bed or the addition of sodium hydroxide. Treatment for water with low dissolved oxygen may include aeration.

The various components must be maintained to prevent leaks and provide proper function. If a component of the dewatering equipment is not functioning properly, the dewatering operation must be discontinued and the component must be repaired or replaced.

Provide all pumps and piping to convey the water to temporary holding tanks and the point of discharge.

Use a flow meter, as described in "Flow Rate Monitoring" of this section, to measure all discharges from dewatering operations.

Materials must conform to the provisions in Section 6, "Control of Materials," Section 7-1.16, "Contractor's Responsibility for the Work and Materials," and Section 74-2, "Drainage Pumping Equipment," of the Standard Specifications and these special provisions.

4. MONITORING, DISPOSAL, AND REUSE OF TREATED GROUNDWATER

Design and implement an appropriate water treatment system for the site conditions and anticipated flow rate to achieve and maintain compliance with receiving water limitations and discharge effluent limitations. System components may include:

1. Treatment system.
2. Collection and conveyance system.
3. Temporary holding tanks.
4. Discharge attenuator.

Water pumped during dewatering operations must be stored in temporary holding tanks placed at the work area for treatment to remove sediment.

Use temporary holding tanks including transportable closed top holding tanks or tanker trucks. A sufficient number of holding tanks shall be provided based on the following:

1. Anticipated flow rate
2. Pumping rates
3. Capacity inefficiencies due to sediment retention within the holding tanks
4. Sediment settling rates
5. Sediment removal frequency
6. Anticipated water loss or reuse rates

Provide temporary holding tanks with a holding capacity sufficient to handle the water removed from dewatering operations, and prevent delay of work.

Each temporary holding tank must have an inlet and outlet capable of receiving and discharging flows at a sufficient rate to dewater the excavation.

Maintain a minimum freeboard of 1 ft in each of the temporary holding tanks at all times. Clean the holding tanks when 25 percent of the tank's volume is filled with sediments.

Use discharged treated water or uncontaminated ground or surface water for dust control in active work areas when possible, or discharge the water to an inactive area where the grade prevents sheet flow and the soil will allow percolation. The discharge point in the inactive area must include a velocity dissipater. The discharge volume must not exceed the area's capacity for percolation.

Do not discharge into a body of water where erosion, scour, or sedimentary deposits could occur that impact natural bedding or aquatic life. Monitor the water at the discharge point using water quality measurements and visual observation in conformance with the regulatory permit and these special provisions.

Storm water must be diverted away from excavations that would require dewatering.

If treated groundwater is discharged to the storm drain system, perform compliance monitoring in conformance with the Monitoring and Reporting Program (MRP) included in Attachment E of the Order No. R2-2006-0075. If a batch discharge permit is obtained from a POTW, comply with the provisions contained in the batch discharge permit including all monitoring and reporting requirements.

During periods when the dewatering and non-storm water discharge operations occur, document the results in a Daily Inspection Report (DIR). The DIR form must include the discharge volume records and water quality monitoring records. In developing the DIR, refer to the Department's Dewatering Guide. The DIR form must be approved by the Engineer before use. The DIR must be provided weekly or as directed to the Engineer.

All information and recorded data collected or submitted as part of the DIR must be certified as true and accurate and signed by those who gather the information.

ATTACHMENT A

ESTIMATED GROUNDWATER SEEPAGE RATES IN THE PROJECT AREA

State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MR. MAHMOOD MOMENZADEH
Chief, Branch C
Office of Geotechnical Design – West

Date: October 21, 2010

Attention: C.Chen

File: 04- ALA- CC-SM-VAR
04 – 3A0901
UST Replacement Program

From: RIFAAT NASHED RN
Engineering Geologist
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

GRANT WILCOX
Chief, Branch B GW
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

Subject: Seepage Rate (Flow Rate) Estimate at Four Locations

This memo is in response to your request to provide the groundwater depth and seepage rate for the remove UST at four locations. It is our understanding that this information will be used in estimating dewatering quantities.

It should be noted that in our estimate for the four locations, we considered the maximum depth of excavation for 15 feet (12 ft is the height of the tank, 1 ft cover above the tank, and 2 ft as a base under the tank).

Location # 1 : San Mateo – Hayward Bridge Toll Plaza

According to the LOTB, two borings (B-1 & B-8) drilled in October 2009 at the project site, the groundwater elevation was 1.5 feet (at depth of 13 feet under the ground surface) measured in October 21-22, 2009.

Based on the LOTB and the lab analysis, the soil layer at and below the groundwater level and extends from 15 feet (B-1) to 20 feet (B-8) is silty sand with gravel (SM).

According to "The Federal Highway Report NO. FHWA-TS-80-224, Page 48-49" the Coefficient of Permeability K (ft./day) for silty sand with gravel (SM) soil is $2.7X10^{-4}$ to 1.4 ft./day. We use the maximum value of K 1.4. Our estimate for seepage rate for this location is 2.75 gallon/day/ft^2.

The as-built show an existing 2 ft thick concrete pad at the base of the existing tanks. These calculations include removal of the concrete pad. If the pad is not to be removed, the estimated seepage rate will be reduced significantly.

Location # 2: Walnut Creek Maintenance – East
Walnut Creek Maintenance – West

Based on the LOTB, one borehole (B-4) was drilled in October 2009 at the project site; the groundwater elevation was 85.40 feet (at depth of 58 feet under the ground surface) measured in October 13, 2009. This indicate that the groundwater elevation is far below the bottom of the excavation.

Accordingly, we can consider the water seepage rate (or dewatering) as minimal and would only be due to surface water infiltration during the rainy season.

Location # 3: Half Moon Maintenance Station

Based on the LOTB, one borehole (B-4) was drilled in October 2009 at the project site; the groundwater elevation was 49.0 feet (at depth of 33 feet under the ground surface) measured in October 8, 2009. This indicate that the groundwater elevation is far below the bottom of the excavation.

Accordingly, we can consider the water seepage rate (or dewatering) as minimal and would only be due to surface water infiltration during the rainy season.

Location # 4: Ravenswood Slough Pumping Plant

Based on the LOTB, one bore hole (B-1) was drilled in October 2009 at the project site; the groundwater elevation was –11.7 feet (at depth of 18 feet under the ground surface) measured in October 10, 2009. This indicate that the groundwater elevation is below the bottom of the excavation.

Accordingly, we can consider the water seepage rate (or dewatering) as minimal and would only be due to surface water infiltration during the rainy season.

If you have any questions or need additional information, please call Rifaat Nashed at (510) 622-1773 or Grant Wilcox at (510) 286-4835.

c: TPokrywka, GWilcox, Route File, Daily File

RNashed/mm

ATTACHMENT B

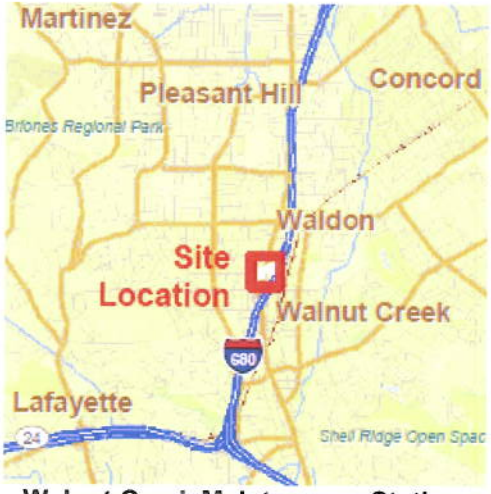
DEWATERING LOCATION PLAN

Project Vicinity

Half Moon Bay Maintenance Station

San Mateo-Hayward Bridge Maintenance Station

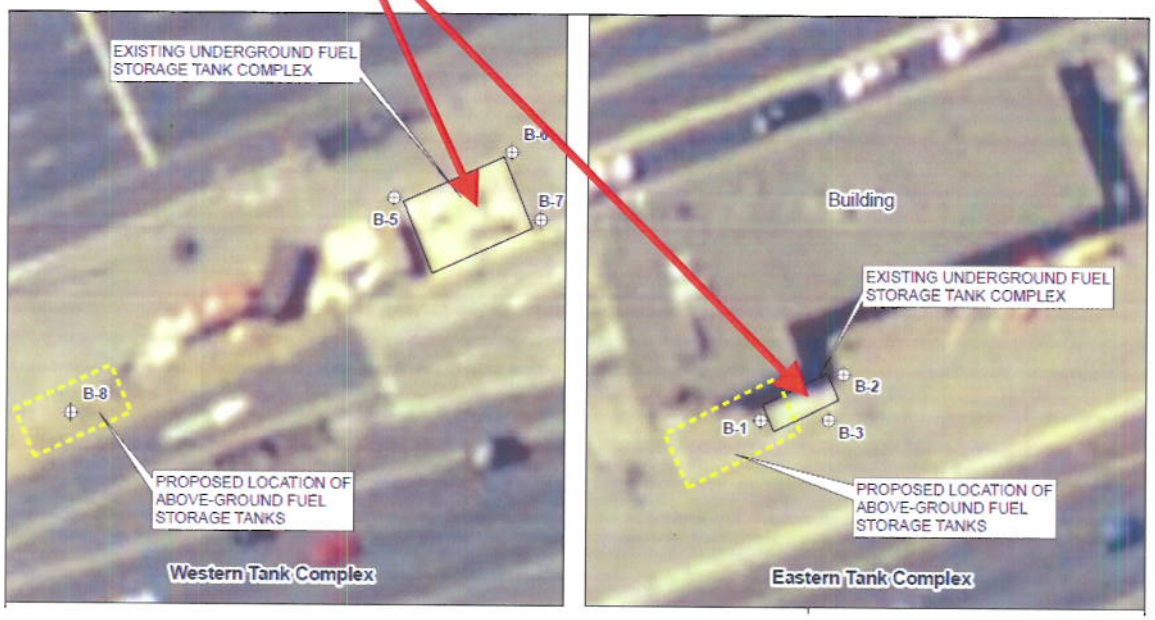
Ravenswood Pumping Plant



Walnut Creek Maintenance Stations

DEWATERING LOCATION PLAN

Groundwater may be encountered while removing existing underground tanks



Hayward Site

Groundwater may be encountered while removing existing underground tanks

Ravenswood Site

ATTACHMENT C

LIST OF PUBLICLY OWNED TREATMENT WORKS (POTW) FACILITY

Alameda POTW

	City Discharger	Treatment Plant Name	WDR Discharger Name	Discharger Contact Name	Contact Phone No.	Contact Email	Mail Address	Ct Contact for Groundwater & De-Watering Discharges	Service Area of the POTW
6	Dublin	Dublin San Ramon Service District	Dublin San Ramon SD	Bob Anderson Levi Fuller	925-875-2860, cell 925-570-8757; 925-846-0568, ext. 119	anderson@dsrsd.com; fuller@dsrsd.com	DSRSD, 7051 Dublin Blvd., Dublin, CA 94568	Call Env. Compliance Officer Eric Kuefner @ 925-875-2335 "case-by-case situation -prefer not during storms" Testing required,$385 for annual permit, per million gal fee, etc	Dublin, San Ramon, & Pleasanton
7	Pleasanton		City of Pleasanton	Richard Lagomarsino; Daniel Smith	925-931-5538; 925-931-5509	rlagomarsino@ci.pleasanton.ca.us; dsmith@ci.pleasanton.ca.us	Richard Lagomarsino, Lead Utility Operator and Daniel Smith, Utility Superintendent, 3333 Busch Road, Pleasanton, CA 94588	Same as Dublin-San Ramon SD - see line #A- 7	Same as Dublin-San Ramon SD - see line #A- 7
8	Union City	Union SD	Union SD	Roger Ham	510-477-7540	roger_ham@unionsanitary.com	Roger Ham, Collection Service Manager, Union Sanitary District, 5072 Benson Road, Union City, CA 94587	Best contact is Von Henry @ 510-477-7637. UCSD would consider if there are no other options available, ie. if non-contaminated using the storm drain is "ok"	Services: Fremont (including Niles), Union City, & Newark
9	Livermore	City of Livermore WPCP	City of Livermore	Darren Greenwood	925-960-8100	dgreenwood@ci.livermore.ca.us	Darren Greenwood, Water Resources Manager, 101 West Jacklondon Blv., Livermore, CA 94551	Call Env. Source Control's - Alex Paredes 925-960-8144 : "requires testing, then annual G.W discharge Permit of $250, and $6,750 PMG's of discharge" - Will mail packet	City of Livermore, the Ruby Hills Development of Pleasanton, and the Veteran's Hospital of unincorporated Alameda County
10	Hayward	City of Hayward WPCP	City of Hayward	Alex Ameri	510-583-4720	alexa@ci.hayward.ca.us	Alex Ameri, Deputy Director/Utilities, Dept. of Public Works, 777 B Street, Hayward, CA 94541-5007	Call Ms. Dije Ndreu @ 510-881-7960 They will accept discharge with test results. Permit fee is $470 plus per gallon fee See email of 6/22/04 has all info	Per Alex Ameri: 90% of the city of Hayward is served by this sewer system - the other 10% (the North end, north of "A" St.) is serviced by Ora Loma Sanitation
11	San Leandro	San Leandro WPCP	City of San Leandro	Dean Wilson	510-577-6030	dwilson@ci.san-leandro.ca.us	Dean Wilson, Water Pollution Control Plant Manager, 3000 David St., San Leandro, CA 94577	Contact: John Camp in Env.Services @ 510-577-6029. "Haven't accepted in the past...prefers Baker tanks for sediment, then discharge to storm drain" There is a special Discharge Permit, includes $2.40 per 100 cu.ft. Would consider proposals.	Plant phone # is 510-577-3434 - they only do "the city boundaries of San Leandro - not the unincorporated areas - its sort of a Zig-Zag kind of thing..." They do have their boundaries on GIS - call Mike Hamer at 577-3339
12	San Lorenzo	Oro Loma SD	Oro Loma S.D.	Michael C. Cameron	510-481-6969	mcameron@oroloma.org	Michael Cameron, General Manager, Oro Loma Sanitary District, 2600 Grant Avenue, San Lorenzo, CA 94580	Best contact: Jeff Carson 510-481-6971 Fee, permit, plan, testing, possible treatment required. Potential problems are large sediments and amounts. May only allow discharge between 2 and 4 A.M. Service area is 40% of both Hayward and San Leandro, San Lorenzo, and some unincorporated Alameda County	Call Bill Halstead @ 510-481-6963 - he has base maps and shape files which he will make available on CD or pdf. Service area is all of San Lorenzo, parts of San Leandro, Hayward, and Castro Valley, and parts of unincorporated Alameda County "Ora Loma is a 'district' and not subject to city boundaries..."
13	Castro Valley		Castro Valley S.D.	Roland Williams	510-537-0757	roland@cvsan.org	Roland William, General Manager, Castro Valley Sanitary District, 21040 Marshall Street, Castro Valley, CA 94546-6098	Same as Oro Loma SD - see line # A-12	Same as Oro Loma SD - see line # A-12
14	Oakland	EBMUD WPCP	EBMUD	Maura A. Bonnarens; Jennifer Smith	510-287-1141, 510-287-0509	mbonnare@ebmud.com; jsmith@ebmud.com	David R. Williams, P.O. Box 2055 (MS#702), Oakland, CA 94623-1055	Web site: www.ebmud.com or call 510-287-1651 "for determination of your permitting needs" Best contact Gail Tupper at 510-287-1608 Permit is 13 pages long (costs $650) - "every situation is different/special..."	Cities of: Alameda, Albany, Berkeley, El Cerrito, Emeryville, Kensington, Oakland, and the Stege Sanitary section of Richmond
15	Alameda		City of Alameda	Wali Waziri	510-749-5853	wwaziri@ci.alameda.ca.us	Mat Naclerio, Director of Public Works, City of Alameda, Alameda Point, Building 1, 950 West Mall Square, Room 110, Alameda, CA 94501	Same as EBMUD WPCP - see line # A-14	Part of EBMUD see # A -14
16	Albany		City of Albany	Ann Chaney	510-528-5768	achaney@albanyca.org	Ann Chaney, Director of Community Development and Environmental Resources, City of Albany-City Hall, 1000 San Pablo Ave, Albany, CA 94706	Same as EBMUD WPCP - see line # A-14	Part of EBMUD see # A -14
17	Berkeley		City of Berkeley	Henry Yee	510-981-6303	hyee@ci.berkeley.ca.us	Rene Cardinaux, Public Works Director, City of Berkeley, 2180 Milvia St., Berkeley, CA 94704	Same as EBMUD WPCP - see line # A-14	Part of EBMUD see # A -14
18	Emeryville		City of Emeryville	Maurice Kaufman	510-596-4334	mkaufman@ci.emeryville.ca.us	Hank Van Dyke, City Engineer, City of Emeryville 1333 Park Ave., Emeryville, CA 94608	Same as EBMUD WPCP - see line # A -14	Part of EBMUD see # A -14
19	Oakland		City of Oakland	Fuad Sweiss; Allen Law	510-238-6607 (LR); 238-6939(AL)	fsweiss@oaklandnet.com; allaw@oaklandnet.com	Michael Neary, Engineering Division Manager, Cit of Oakland, 250 Frank Ogawa Plaza, Suite 4314, Oakland, CA 94612	Same as EBMUD WPCP - see line #A -14	Part of EBMUD see # A -14
20	Piedmont		City of Piedmont	Larry Rosenberg	510-420-3050	lrosenberg@ci.piedmont.ca.us	Larry Rosenberg, Director of Public Works, City of Piedmont, 120 Vista Ave., Piedmont, CA 94611	Same as EBMUD WPCP - see line # A -14	Part of EBMUD see # A -14

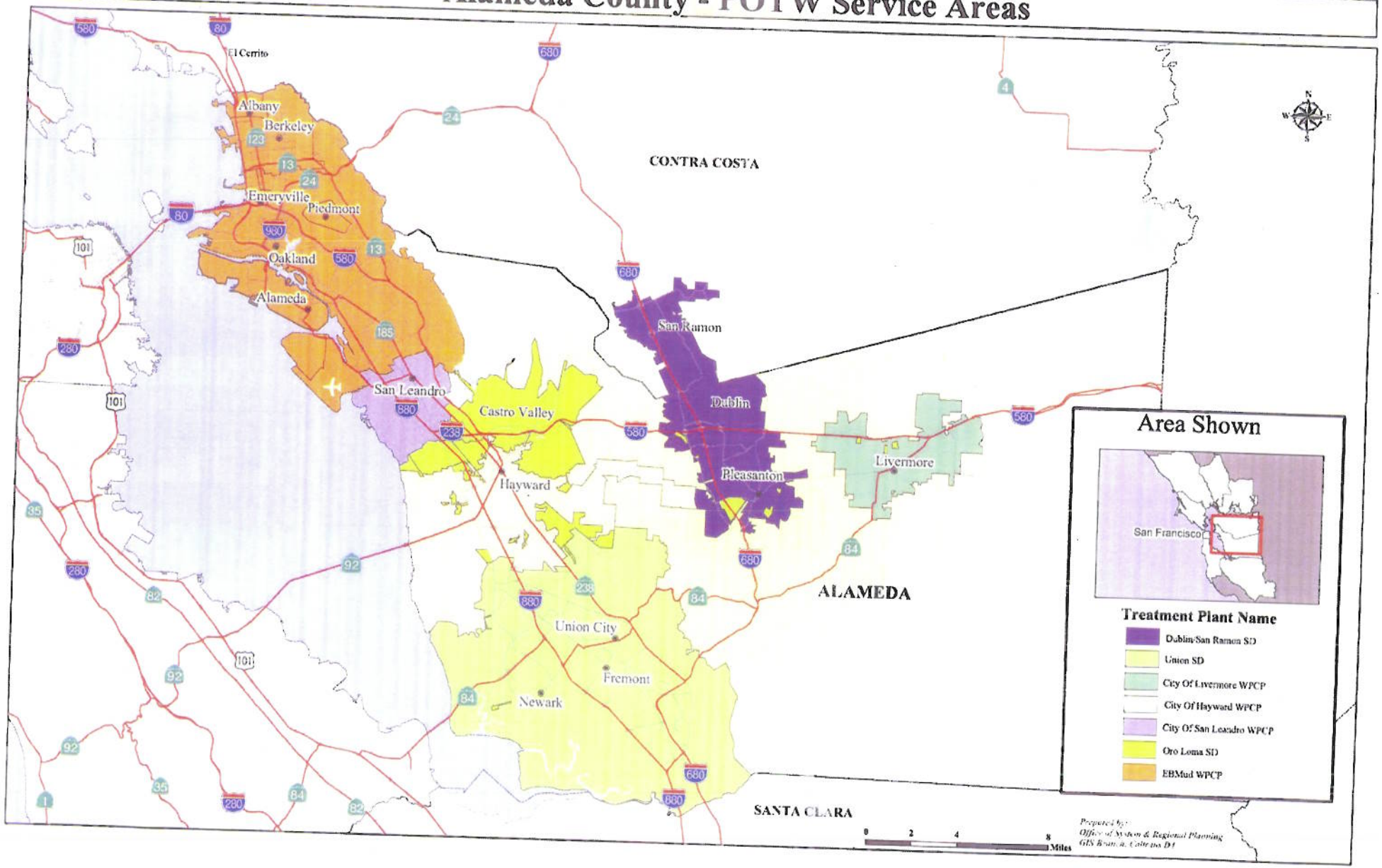
List of Publicly Owned Treatment Works (POTW) San Mateo

	City Discharger	Treatment Plant Name	WDR Discharger Name	Discharger Contact Name	Contact Phone No.	Contact Email	Mail Address	Ct Contact for Groundwater & De-Watering Discharges	Service Area of the POTW
26	San Francisco International Airport WQCP	San Francisco International Airport WQCP	San Francisco International Airport WQCP	Sam Mehta	650-821-7841	sam.mehta@flysfo.com		They would not allow, except if the Reg. Board insisted. Would have to be checked for TPH - contact Stormwater "guru" / Utilities head Mark Costanza @ 650-821-7809	Just the S.F.I. Airport - they said no parts of Hwys 101 or 380 enter their system
27	San Mateo	San Mateo Waste Water Treatment Plant (formerly San Mateo WQCP)	San Mateo WQCP	Kacey Karmendy	650-522-7388	karmendy@ci.sanmateo.ca.us		Per "Best Contact" Vern Bessey @ 650-522-7342 new org. name is SMWTP and serves Cities of San Mateo and Foster City. They disallow clean groundwater and SW if it just has sediment, prefers Baker tanks and discharge to storm drain. Will accept IF contaminated - permit and testing needed, including "site history"	They cover: "San Mateo, half of Hillsborough, Foster City, unincorporated S.M. County, and a very small part of Belmont." Contact Otis Chan 650-522-7306 for GIS information.
28	South S.F.	South S.F./San Bruno WQCP	City of South San Francisco	Dave Castagnola: Terry White	650-829-3844; 650-877-8351	dcastagnola@ci.ssf.ca.us ; terry.white@ssf.net	Dave Castagnola, City of South San Francisco, 195 Belleair Road, South San Francisco, CA 94080; Terry White, Deputy Director, Maintenance Services, City of South San Francisco, 550 North Canal St., South San Francisco, CA 94080	Contact: Kevin Maffei for permit information at 650-829-3881. Permit can be expedited, a WQ profile is needed, one-time permit fee of $ 60.00, then $1.83 per 100 Cu ft.	They cover: "South San Francisco, San Bruno, Colma, and a very small part of Daly City." No GIS available. Plant phone # 650-877-8555.
29	San Bruno		City of San Bruno	Scott Munns	650-616-7056	smunns@ci.sanbruno.ca.us	Scott Munns, Director, Public Works, City of San Bruno, 567 El Camino Real, San Bruno, CA 94066	Same as South S.F. / San Bruno WQCP - see line # 28	Part of South S.F. / San Bruno WQCP - see line # 28
30	Colma		Colma City	Ellen Ellsworth	650-757-8888	ellen.ellsworth@colma.ca.gov	Richard Mao, City Engineer, Town of Colma, 1198 El Camino Real, Colma, CA 94014	Same as South S.F. / San Bruno WQCP - see line # 28	Part of South S.F. / San Bruno WQCP - see line # 28
31	Millbrae	Millbrae WPC	Millbrae WPC	Thomas Colletti	650-259-2881	tcolletti@ci.millbrae.ca.us	Thomas Colletti, City of Millbrae, 621 Magnolia Ave., Millbrae, CA 94030	Best contacts: Dick York, 650-259-2393, Supt. Of WWTP, and/or David Ocampo 650-259-2392 Lab Supt. (issues g-water permit). Permit needed, sampling for contaminates needed, etc., -they have done this in the past.	Just the City of Millbrae. Plant phone # is 650-259-2368
32	Pacifica	Calera CRK Water Recycling Plant	Calera CRK Water Recycling Plant	Dave Gromm	650-738-4663	gromm@ci.pacifica.ca.us		Handles the City of Pacifica. Best contact is Brian Martinez @ 650-738-4669. Per Dave Gromm: "new plant has lots of capacity" will accept discharge after permit, testing, etc.	The city of Pacifica and a small part of Daly City
33	Burlingame	Veolia Water (formerly Burlingame WWTP)	Burlingame WWTP	Phil Scott.	650-558-7673; 650-558-7679	pscott@burlingame.org; bsalzon@burlingame.org	Phil Scott, Public Work Superintendent, 501 Primrose, Burlingame, CA 94010	Contact Doug Bell @ 558-7245 or dbell@burlingame.org: "not straightforward" he would need to "run it by 3-4 people" - it could be"handled in different ways" - would probably have to check out the ways this was handled the previous times...etc	Burlingame and half of Hillsborough. Plant phone # is 650-342-3727
34	Hillsborough		Town of Hillsborough	David Bishop	650-375-7411	dbishop@hillsboro.org	Kevin Ostendf, Public Work Director, Town of Hillsborough, 1600 Hillside Ave., Hillsborough, CA 94010-6418	Hillsborough sends their WW to Burlingame and SMWWT plants for treatment- see Lines # A -27 and 33	Hillsborough sends their WW to Burlingame and SMWWT plants for treatment- see Lines # A -27 and 33
55	Maj-Sam WWTP	Maj-Sam WWTP	Sewer Authority Mid Coastside	Tony Pullin	650-726-0124	tony@samclearwater.org		Contact Brenda Dorski 650-726-0124x105 - she will mail packet of info $80 fee, 10 cents per Cal. Brenda@samclearwater.org	Rural San Mateo Coast - Hwy 001 from Montara to Half Moon Bay "8 or 9 miles of Coast - and a little bit of Hwy 92" - per Tony Pullin
56			City of Half Moon Bay	Ed Marlow	(650) 726-8253	emarlow@ci.hmb.ca.us	Ed Marlow - Interim Assistant City Manager, Department of Public Works, 501 Main Street, City of Half Moon Bay, CA 94019	Same as Maj-Sam - see Line #55	Same as Maj-Sam - see Line #55
57			Granada Sanitary District	Gina Holmes	(650) 726-7093	gsd@netwiz.net	Gina Holmes, Administrator, Granada Sanitary District, 455 Avenue, P.O. Box 335, El Granada, CA 94018	Same as Maj-Sam - see Line #55	Same as Maj-Sam - see Line #55
			Dudek Associate (Granada SD consultant)	Chuck Duffy	(760)942-5147	cduffy@dudek.com	605 3rd St., Encinitas, CA 92024	Same as Maj-Sam - see Line #55	Same as Maj-Sam - see Line #55
58			Montara Sanitary District	George Irving	(650) 728-3545	msd@montara.com	George Irving, District Manager, Montara Sanitary District, 8888 Cabrillo Highway, P.O. Box, Montara, CA 94037	Same as Maj-Sam - see Line #55	Same as Maj-Sam - see Line #55
	Treasure Island WPCP	Treasure Island WPCP	SF PUC	Nathan Brennan	(415)242-2256 X1358	mcarlin@sfwater.org; nbrennan@sfwater.org	Michael Carlin, SFPUC, Planning Bureau Manager, 1141 Market St., Suite 401, San Francisco, CA 94103, 415-934-5757	Best contact is Vic Vista @ 415-274-0318 at the "very small" plant on TI. Would want Chloride levels checked - and other sampling, and permit required.	Yerba Buena Island and Treasure Island
59	South Bayside System Authority WWTP	South Bayside System Authority WWTP	South Bayside System Authority	Bob Donaldson	650-594-8411x127	rdonaldson@sbsa.org	Robert Donaldson, South Bayside System Authority, 1400 Radio Road, Redwood City, CA 94065	Contact Ken Knudson @ 650-594-8411 x 128 or kknudson@sbsa.org "Individual Evaluation" No website. Need permit and water analysis "usually 1 to 3 day turn-around for Permit.	SBSA takes WW from Belmont, San Carlos, all of Redwood City, and Redwood Shores. Has joint operating agreement with "WestBay" and also treats waste from Woodside, Atherton, Portola Valley, and Menlo Park. Good Contacts: Bob Donaldson and Jim Rentey @ 650-591-7121
60			City of Belmont	Kathleen F. Phalen	650-595-7469	kphalen@ci.belmont.ca.us	Kathleen E. Phalen, Associate Civil Engineer, City of Belmont, 1070 Sixth Ave. Suite 106, Belmont, CA 94002	Same as SBSA Authority WWTP - see line 59	Same as SBSA - see Line # A-59
61			City of Redwood City	Peter Ingram: Marilyn Hanna	650-780-7466; 650-780-7477	pingram@redwoodcity.org; mhanna@redwoodcity.org	Peter Ingram, Director, Public Works Services, City of Redwood City, 1400 Broadway, Redwood City, CA 94063-2505	Same as SBSA Authority WWTP - see line 59	Same as SBSA - see Line # A-59
62			City of San Carlos	Parviz Mokhtari	650 802 4205	parviz.mokhtari@ci.sancarlos.ca.us	Parviz Mokhtari, Director of Public Works, City of San Carlos, 600 Elm St., San Carlos, CA 94070	Same as SBSA Authority WWTP - see line 59	Same as SBSA - see Line # A-59
63			Town of Woodside	Kent Dewell	650-851-6790		Kent Dewell, Town Engineer, Town of Woodside, P.O. Box 84063, Woodside, CA 94062	Same as SBSA Authority WWTP - see line 59	Same as SBSA - see Line # A-59
64			West Bay SD	Tim Clayton	650-323-0384	tclayton@westbaysd.com	Tim Clayton, District Manager, West Bay Sanitary District, 500 Laurel St. Menlo Park, CA 94025	Same as SBSA Authority WWTP - see line 59	Same as SBSA - see Line # A-59
65	For collection system in unincorporated areas	For collection system in unincorporated areas	San Mateo County	Brian Lee	650-599-1497	blee@smmateo.ca.us	Brian Lee, Department of Public Works, 555 County Center, 5th Floor, Redwood City, CA 94063-1665	Same as SBSA Authority WWTP - see line 59	Same as SBSA - see Line # A-59
66	North San Mateo WWTP	North San Mateo WWTP	North San Mateo County	Patrick Sweetland	650 991 8201	psweetland@dsdpublic.org	Patrick Sweetland, Director of Water and Wastewater Resources, North San Mateo Sanitary District, 153 Lake Merced Blv., Daly City, CA 94015	Same as SBSA Authority WWTP - see line 59	Same as SBSA - see Line # A-59
100	Satellite system of City and County of SF treatment plant	Satellite system of City and County of SF treatment plant	City of Brisbane	Matthew Fabry	415-508-2134	mfabry@ci.brisbane.ca.us	Matthew Fabry, City of Brisbane, Public Works Department, 50 Park Place, Brisbane, CA 94005-1310	Per Matt Fabry @ 415-508-2134 "they would accept in accordance with the regulations of the permit for SMCO. They would accept some non - Storm Water discharge" - he would like to hear more specifics before assuring acceptance	Services Brisbane and the Guadalupe Canal area. They send their WW to the SF Combined System. [Only Ct ROW is US 101] They have their service electronically - call Matt Lee at 415-508-2132

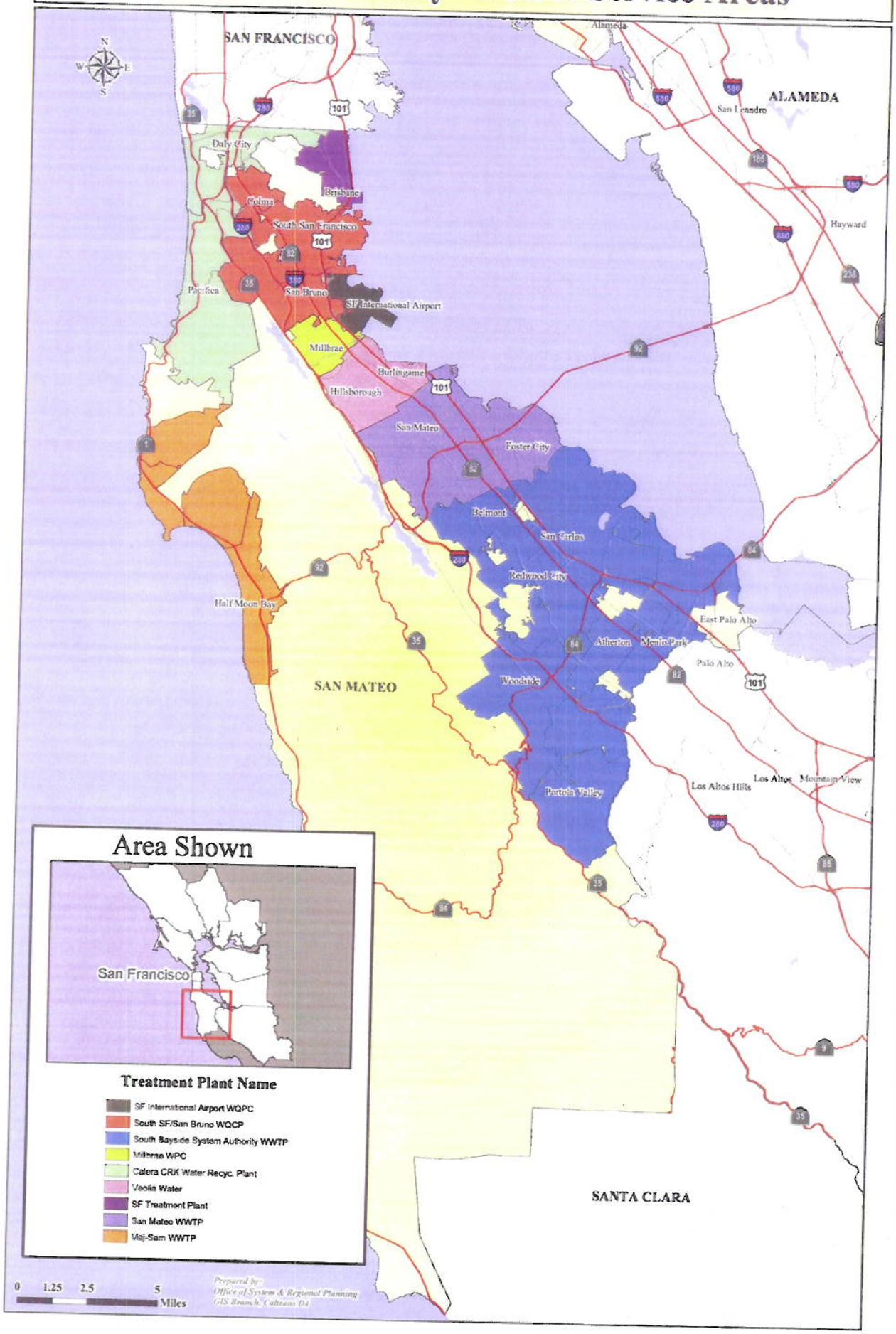
ATTACHMENT D

ALAMEDA, SAN MATEO COUNTY-POTW SERVICE AREA

Alameda County - POTW Service Areas



San Mateo County - POTW Service Areas



ATTACHMENT E

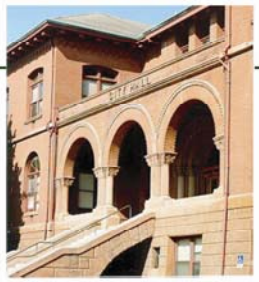
SITE INVESTIGATION REPORT

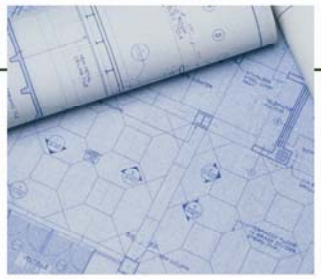
ATTACHMENT F

COPY OF NPDES PERMIT R2-2006-0075

RGA ENVIRONMENTAL

Improving Lives, Reducing Risks





Asbestos & Lead Survey Report

Three Sites:
West Maintenance Building – Walnut Creek
Oil/Log Building – San Mateo Bridge
Generator Room – Toll Building San Mateo Bridge

RGA Project #: SHAW23089

Prepared for:
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Shaw Environmental & Infrastructure Group
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Prepared by:
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April 7, 2010

Report prepared by: _____ Stephen Gildersleeve
Senior Industrial Hygienist, CAC 04-3709

Report reviewed by: _____ Tedd Kattchee
Project Manager CAC #99-2557

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4. **Asbestos Results** **3**
5. **Regulatory Requirements** **5**
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Appendices

1. **Laboratory Result and Chain of Custody Forms – Asbestos**
2. **Laboratory Result and Chain of Custody Forms – Lead & Oil Residue**
3. **Site Inspector Certificates**

Asbestos Survey Report

Three Sites:
West Maintenance Building - Walnut Creek
Oil/Log Building - San Mateo Bridge
Generator Room - Toll Building San Mateo Bridge

1. Executive Summary

The following is a limited pre-demolition asbestos and lead survey conducted at three sites: Walnut Creek West Maintenance Building located at 2581 West Main Street in Walnut Creek California. The Oil/Log building located at the Hayward San Mateo Bridge Toll Plaza on Highway 92 in Hayward California and the Generator room located in the basement of the Toll Plaza building of the Hayward San Mateo Bridge Toll Plaza on Highway 92 in Hayward California. The survey was performed by Mr. Tedd Kattchee, California Certified Asbestos Consultant (CAC) on March 18, 2010 at the request of Shaw Environmental Inc.

The scope of the survey was to identify suspect asbestos containing materials (ACMs) that would be affected by planned demolition activities at the three sites. During the survey nine (9) suspect ACMs were identified. Three (3) suspect ACMs tested positive for asbestos content. Table I summarizes the materials identified as ACMs in the suite during the survey. Table II summarizes the materials that were reported as negative for asbestos content.

Five (5) samples were analyzed for lead content. Lead was detected in four (4) of the five (5) surfaces sampled for lead content.

In addition, two (2) wipe samples of oily residue were collected from beneath the generator located in the basement of the toll building. The wipe samples were analyzed using EPA Method 8015M to characterize the constituents of the residues.

2. Scope of Work

The scope of the survey was as follows:

- Conduct a hazardous materials survey at the West Maintenance Building in Walnut Creek, Oil/Log Building at the San Mateo Bridge Toll Plaza and in the Generator room located in the basement of the Toll building located at the San Mateo Bridge Toll Plaza in Hayward, California. The survey included materials that would be affected by the upcoming demolition work.

- Collect samples of surfaces suspected to be lead containing for purposes of compliance with California Department of Occupational Safety and Health (DOSH) Lead in Construction Standard. The sample was analyzed at an accredited laboratory by Flame Atomic Absorption (AA) for Total Lead reported in parts per million (ppm).

- Collect samples of accessible suspect ACMs. Sampling design was intended to meet the National Emissions Standard for Hazardous Air Pollutants (NESHAPs) protocol for a renovation survey. Analyze asbestos bulk samples using polarized light microscopy (PLM) in accordance with EPA's July 1993 method for the determination of asbestos in bulk building materials - EPA 600/R-93/116.

- Submit written report including analytical results, regulatory requirements, conclusions and recommendations.

3. Methods and Sampling Strategy

Visual Inspection

Accessible building materials were visually inspected using the methods presented in the federal Asbestos Hazard Emergency Response Act (AHERA) regulations (40 CFR, Part 763) as a guideline. AHERA was originally only applicable to schools, however state and federal Occupational Safety and Health Administration (OSHA) and Asbestos School Hazard Abatement and Reauthorization Act (ASHARA) have adopted the AHERA sampling methodology for all buildings subject to renovation or demolition.

Bulk Sampling of Asbestos

Bulk samples of suspect ACM homogeneous materials were collected. A homogeneous material is defined as a surfacing material, thermal system insulation, or miscellaneous material that is uniform in color, texture and age of construction. Examples of homogeneous materials include:

- Pipe-insulation produced by the same manufacturer and installed during the same time period;
- Resilient flooring of identical color and pattern;
- Troweled on surfacing materials located in contiguous areas.

The suite was visually inspected for the presence of suspect materials. As materials were identified, bulk samples were obtained with the aid of a coring device or other hand tool and placed into individual sampling bags. Each sample was given a discrete identification number and recorded on field notes as well as chain-of-custody forms. Refer to accompanying tables and appendices for details on material sample locations and results. Bulk samples were transported to RGA Laboratory Services (RGA) in Seattle, Washington.

Bulk Sample Analysis - Asbestos

RGA is accredited under the National Institute of Standards and Technology's National Voluntary Laboratory Accreditation Program (NVLAP) for determination of asbestos fibers in bulk materials.

All samples were analyzed using polarized light microscopy (PLM) techniques in accordance with methodology approved by the U.S. Environmental Protection Agency (EPA). As set forth in the Code of Federal Regulations, 40 CFR Part 763, Appendix A to Subpart F, Section 1.2 and 1.7.2.4, the lower limit of reliability detection for asbestos using the PLM method is approximately one percent (1%) by volume. Cal-OSHA defines asbestos containing construction materials (ACCM) as those materials having asbestos content of greater than one tenth of one percent (>0.1%).

When None Detected (ND) appears in this report, it should be interpreted as meaning no asbestos was observed in the sample material above the reliable limit of detection for the PLM method.

Note: under EPA assessment criteria, if a single sample of a homogeneous material tests positive for asbestos, all areas of that homogeneous material within that building are considered to be asbestos containing.

4. Asbestos Results

During the survey of the three sites, three (3) suspect materials tested positive for asbestos content. The materials are listed in Table I below:

TABLE I
ASBESTOS-CONTAINING MATERIALS

Material Description	Material Location	Waste Category	Estimated Quantity	Asbestos Type
Black Mastic - Electrical	Electrical service penetration West Maintenance bldg	CAT II	5 SF	15% CH
Black Sealant	At window perimeter West Maintenance bldg	CAT II	60 LF	10% CH
Gasket	Generator Flue Toll Bldg	CAT I	5 SF	60% CH

CH = Chrysotile, ND = None Detected, RACM = Regulated asbestos containing material (friable), Cat. I = Non-friable (note ACM must be reclassified as a RACM if rendered friable during removal), Cat. II = Category II Non-friable (note ACM must be reclassified as a RACM if rendered friable during removal)

During the survey of the three sites, seven (7) suspect materials were found to not contain asbestos. Table II below lists the suspect materials which tested negative for asbestos content.

TABLE II
NON-ASBESTOS-CONTAINING MATERIALS

Material Description	Material Location(s)

Material Description	Material Location(s)
Drywall	West Maintenance bldg. interior walls
Window Putty	West Maintenance bldg. interior walls
Compolith (concrete) flooring	West Maintenance bldg. interior walls
Sealant and Paint	Oil/Log Bldg. west exterior San Mateo Bridge Toll Plaza
Insulation - Flue	Generator Room Ceiling Penetration - San Mateo Bridge Toll Bldg.
Insulation – 2”	Generator Room throughout - San Mateo Bridge Toll Bldg.

4. Lead Sample Results

Five (5) suspect materials were submitted for lead analysis using Flame Atomic Absorption spectroscopy in accordance to EPA Method SW846-3050B-7420. When “<” appears in the lead sample report, it should be interpreted as meaning below analytical detection limit. The sample results are listed in Table III below.

Table III
Lead Sample Results

Sample Number	Description/Location of Sample	Results mg/kg (ppm)
Pb-01	**Exterior Silver Paint on Metal Siding- W. Maintenance Bldg. Walnut Creek**	**400,000ppm**
Pb-02	**Beige paint on metal –Interior Oil/Log Bldg. San Mateo Bridge Toll Plaza**	**120ppm**
Pb-3	Beige paint on metal –Exterior Oil/Log Bldg. San Mateo Bridge Toll Plaza	<71ppm
Pb-4	**Green Paint on Generator – Generator Room in San Mateo Bridge Toll Building**	**7,000ppm**
Pb-5	**Mauve/White Paint on walls – Generator Room in San Mateo Bridge Toll Building**	**5,300ppm**

5. Hydrocarbon Residue Results

One (1) wipe sample was submitted for hydrocarbon analysis for gas, diesel and motor oil in accordance with EPA Method 8015M. The purpose of the wipe sampling was to confirm the identity of the oily substance observed at the base of the generator locate in the basement of the toll building. The result is primarily motor oil. A summary of sample results are listed in Table VI below.

Table IV
Wipe Sample Results

Sample Number	Description/Location of Sample	Result: TPH(g) µg/cm^2	Result: TPH(d) µg/cm^2	Result: TPH(MO) µg/cm^2
1+2	Generator – Generator Room in San Mateo Bridge Toll Building	0.076	180	880

TPH=Total Petroleum Hydrocarbons, g=gas, d=Diesel, MO=motor oil

6. Regulatory Requirements

Asbestos

Asbestos-containing building materials are present in the West Maintenance Building located in Walnut Creek and in the Generator Room located in the basement of the San Mateo Bridge Toll Building in concentrations greater than one tenth of one percent (0.1%). Impacting materials containing greater than 0.1% asbestos either through repair, maintenance, or demolition activities triggers numerous regulations enforced by such agencies as OSHA (worker protection) and EPA (environmental exposure, transportation and disposal).

Listed below are the regulations that apply if the materials are removed:

- Any individual who contracts to provide health and safety services relating to ACMs must be certified by Cal-OSHA as either a Certified Asbestos Consultant or a Site Surveillance Technician. The activities they are certified to provide include: conducting asbestos surveys; writing work plans or specifications for abatement; monitoring the work of abatement contractors; collecting air samples; and determining if the work area is safe for re-occupancy by non-asbestos workers. Regulation: Cal-OSHA 8 CCR 1529 (q)(1).

- If more than 100 square feet of materials that contain greater than 0.1% asbestos will be abated, they must be abated by a Cal-OSHA registered asbestos abatement contractor. Regulation: Cal-OSHA 8 CCR 1529 (R).

- ACMs that are classified by OSHA as other/miscellaneous materials are present. Removal of these materials is considered a Class II activity according to Cal-OSHA regulations. Work practices and engineering controls for Class II work are specified in Cal-OSHA 8 CCR 1529 (g) (7-8).

Lead

Painted surfaces observed during the survey included intact and damaged paint condition. Impacting lead or lead-containing paint either through repair, maintenance, renovation or demolition activities triggers numerous regulations enforced by such agencies as OSHA

(worker protection), EPA (environmental exposure, transportation and disposal), and Department of Health Services (DHS).

Listed below are the lead paint regulations that apply if the paint is removed:

- There are presently no federal, state or local regulations limiting the concentration of lead in public sector buildings, however several regulations established for the private sector as well as for government subsidized housing are used industry wide as guidelines for assessing exposure to lead. The Consumer Product Safety Commission (CPSC) has set a maximum limit of 600 ppm in paint used for residential purposes. The Department of Housing and Urban Development (HUD) requires abatement of lead hazards involving paint in concentrations exceeding 5,000 ppm.

- Disposal of all lead-containing paint is regulated at concentrations at or exceeding 350 ppm as stated in 40 Code of Federal Regulations (CFR) Part 263 - Land Disposal Regulations and Title 22, Division 4 Environmental Health of the California Administrative Code. However, lead related work at any lead concentration is regulated under the OSHA statutes.

- Federal OSHA as well as California OSHA regulate all worker exposure during construction activities that impact lead-containing paint. California OSHA enforces the Lead in Construction Standard in Title 8 CCR 1532.1. The scope covers construction work where employees may be exposed to lead during such activities as demolition, removal, surface preparation for re-painting, renovation, clean-up and routine maintenance. The OSHA specified method of compliance includes respiratory protection, protective clothing and equipment, housekeeping, hygiene facilities, medical surveillance, and training, among other requirements.

- California DHS has developed regulations for accreditation, certification, and work practices for lead-based paint and lead hazards (Title 8 CCR, Division 1, Chapter 8).

7. Limitations

RGA Environmental Inc. (RGA) warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The field and laboratory results reported herein are considered sufficient in detail and scope to determine the presence of ACMs identified in this report. Also, note that this is a survey report and not an abatement specification. This document is not appropriate for competitive bidding or for use as an asbestos abatement specification.

Appendix 1

Laboratory Results and Chain of Custody Forms - Asbestos

MICRO ANALYTICAL LABORATORIES, INC.

BULK ASBESTOS ANALYSIS - PLM (EPA/600/R-93/116, 1993)

1023
Tedd Kattchee
RGA Environmental, Inc.
1466 66th Street
Emeryville, CA 94608

PROJECT:
CALTRANS SAN MATEO BRIDGE
OIL / PUMP BUILDING
PROJECT NO. SHAW 23089

Micro Log In	**136263**
Total Samples	3
Date Sampled	03/18/2010
Date Received	03/18/2010
Date Analyzed	03/18/2010

ASBESTOS INFORMATION

SAMPLE IDENTIFICATION	QUANTITY (AREA %) / TYPES / LAYERS / DISTINCT SAMPLES	DOMINANT OTHER MATERIALS
Client #: 1A Micro #: 136263-01 Multi-color Analyst: GR **HM # 1** **SEALANT & PAINT** **WEST SIDE EXTERIOR AT WOOD PANEL**	**SEALANT: NONE DETECTED** **PAINT: NONE DETECTED**	Matrix Type: SYNTHETIC MATERIAL
Client #: 1B Micro #: 136263-02 Multi-color Analyst: GR **HM # 1** **SEALANT & PAINT** **WEST SIDE EXTERIOR AT WOOD PANEL**	**SEALANT: NONE DETECTED** **PAINT: NONE DETECTED**	Matrix Type: SYNTHETIC MATERIAL
Client #: 1C Micro #: 136263-03 Multi-color Analyst: GR **HM # 1** **SEALANT & PAINT** **WEST SIDE EXTERIOR AT WOOD PANEL**	**SEALANT: NONE DETECTED** **PAINT: NONE DETECTED**	Matrix Type: SYNTHETIC MATERIAL

Technical Supervisor: 3/18/2010
Gamini Ranatunga, Ph.D. Date Reported

Asbestos is quantified by calibrated visual estimation. Detection limit is material dependent. Detection of asbestos traces (much less than 1%) may not be reliable or reproducible by PLM. Weight % cannot be determined by PLM. Asbestos with diameter below ~1 μm may not be detected by PLM. Absence of asbestos in dust, debris, and some compact materials, including floor tiles, cannot be conclusively established by PLM, and should be confirmed by Transmission Electron Microscopy (TEM). The lower quantitation limit (reporting limit) of PLM estimation is 1%. The Cal-OSHA definition of asbestos-containing construction material is 0.1% asbestos; however, reliable determination of asbestos percent at this level cannot be done by PLM estimation; PLM Point Counting or TEM is recommended. Only dominant non-asbestos materials are indicated. Interferences may prevent detection of small asbestos fibers, and hinder determination of some optical properties. Sample heterogeneity is indicated by listing more than one distinct layer or material on the report. Layers are analyzed separately when feasible; if asbestos is detected, percentages are reported for individual layers. Interlayer contamination is possible among any layers in a sample. Composite asbestos percentages are applicable only to wallboard / joint compound systems; compositing is based on customers' descriptions of material as "joint compound". Customers are solely responsible for identification and description of bulk materials listed on field forms. Laboratory descriptions may differ from those given by customers. Quality Control (QC): all results have been determined to be within acceptance limits prior to reporting. Samples that were reanalyzed are denoted by two sets of analyst initials. Accreditation: NIST / NVLAP (Lab Code 101872-0). CA ELAP Certification #1037. EPA 1993 method is based on EPA Interim Method (1982), with improved analytical techniques. Unless otherwise stated herein, all samples were received in acceptable condition for analysis. This report must not be used to claim product endorsement by NIST or any U.S. Government agency. This report shall not be reproduced without the approval of Micro Analytical Laboratories, Inc., shall not be reproduced except in full, and pertains only to the samples analyzed. ND = NO ASBESTOS DETECTED.

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ACM BULK SAMPLE DATA SHEET

* PLM Analysis

X Stop Analysis at First Positive

__ Analyze All Samples

__ Point Count Analysis (400-point)

PAGE __ OF __

136267

Project Name/Address: CALTRANS SAW WATER BRIDGE OIL/PUMP BLDG PO #

RGA Project #: SHAW 23089 Sampled By: TK Sampling Date: 3/18/10

Sample(s) Sent To: ___ RGA ___ EMSL ___ Other: TAT: ___ Rush X 24Hrs ___ 3-5 Days

*****FAX OR E-MAIL REPORT TO:** ***SEE ABOVE PROJECT MANAGER (PM)******

*****ADDITIONAL REPORT RECIPIENT(S):** ***

HM# 1	Material Description: SEALANT + PAINT	
Sample ID	Sample Location & Material Location	Quantity:
1A	WEST SIDE EXTERIOR AT WOOD PANEL	
1B	" " " " "	
1C	" " " " "	

HM#	Material Description:	
Sample ID	Sample Location & Material Location	Quantity:

HM#	Material Description:	
Sample ID	Sample Location & Material Location	Quantity:

HM#	Material Description:	
Sample ID	Sample Location & Material Location	Quantity:

HM#	Material Description:	
Sample ID	Sample Location & Material Location	Quantity:

Relinquished By: Todd KATTCHEE Signature: [signature] Date/Time: 3/18/10

Received By: TV Signature: [signature] Date/Time: 3.19.10 12:10

Relinquished By: Signature: Date/Time:

Received By: Signature: Date/Time:

MICRO ANALYTICAL LABORATORIES, INC.

BULK ASBESTOS ANALYSIS - PLM (EPA/600/R-93/116, 1993)

1023
Tedd Kattchee
RGA Environmental, Inc.
1466 66th Street
Emeryville, CA 94608

PROJECT:
CALTRANS WEST MAINTENANCE STATION
WALNUT CREEK, CA
PROJECT NO. SHAW 23089

Micro Log In	**136264**
Total Samples	13
Date Sampled	03/18/2010
Date Received	03/18/2010
Date Analyzed	03/18/2010

ASBESTOS INFORMATION

SAMPLE IDENTIFICATION	QUANTITY (AREA %) / TYPES / LAYERS / DISTINCT SAMPLES	DOMINANT OTHER MATERIALS
Client #: 1A Micro #: 136264-01 White Analyst: LZ **HM # 1 - DRYWALL ONLY SOUTH WALL**	**DRYWALL: NONE DETECTED**	20 % CELLULOSE 2 % FIBROUS GLASS Matrix Type: GYPSUM
Client #: 1B Micro #: 136264-02 White Analyst: LZ **HM # 1 - DRYWALL ONLY EAST WALL**	**DRYWALL: NONE DETECTED**	20 % CELLULOSE 2 % FIBROUS GLASS Matrix Type: GYPSUM
Client #: 1C Micro #: 136264-03 White Analyst: LZ **HM # 1 - DRYWALL ONLY SOUTHWEST WALL**	**DRYWALL: NONE DETECTED**	20 % CELLULOSE 2 % FIBROUS GLASS Matrix Type: GYPSUM
Client #: 2A Micro #: 136264-04 Black Analyst: LZ **HM # 2 - BLACK MASTIC WEST WALL AT ELECTRICAL**	**15% CHRYSOTILE ASBESTOS**	Matrix Type: TAR
Client #: 2B Micro #: 136264-05 Analyst: **HM # 2 - BLACK MASTIC WEST WALL AT ELECTRICAL**	**NOT ANALYZED (PRIOR POSITIVE)**	Matrix Type:

Technical Supervisor: 3/18/2010
Gamini Ranatunga, Ph.D. Date Reported

Asbestos is quantified by calibrated visual estimation. Detection limit is material dependent. Detection of asbestos traces (much less than 1%) may not be reliable or reproducible by PLM. Weight % cannot be determined by PLM. Asbestos with diameter below ~1 µm may not be detected by PLM. Absence of asbestos in dust, debris, and some compact materials, including floor tiles, cannot be conclusively established by PLM, and should be confirmed by Transmission Electron Microscopy (TEM). The lower quantitation limit (reporting limit) of PLM estimation is 1%. The Cal-OSHA definition of asbestos-containing construction material is 0.1% asbestos; however, reliable determination of asbestos percent at this level cannot be done by PLM estimation; PLM Point Counting or TEM is recommended. Only dominant non-asbestos materials are indicated. Interferences may prevent detection of small asbestos fibers, and hinder determination of some optical properties. Sample heterogeneity is indicated by listing more than one distinct layer or material on the report. Layers are analyzed separately when feasible; if asbestos is detected, percentages are reported for individual layers. Interlayer contamination is possible among any layers in a sample. Composite asbestos percentages are applicable only to wallboard / joint compound systems; compositing is based on customers' descriptions of material as "joint compound". Customers are solely responsible for identification and description of bulk materials listed on field forms. Laboratory descriptions may differ from those given by customers. Quality Control (QC): all results have been determined to be within acceptance limits prior to reporting. Samples that were reanalyzed are denoted by two sets of analyst initials. Accreditation: NIST / NVLAP (Lab Code 101872-0). CA ELAP Certification #1037. EPA 1993 method is based on EPA Interim Method (1982), with improved analytical techniques. Unless otherwise stated herein, all samples were received in acceptable condition for analysis. This report must not be used to claim product endorsement by NIST or any U.S. Government agency. This report shall not be reproduced without the approval of Micro Analytical Laboratories, Inc., shall not be reproduced except in full, and pertains only to the samples analyzed. ND = NO ASBESTOS DETECTED.

MICRO ANALYTICAL LABORATORIES, INC.

BULK ASBESTOS ANALYSIS - PLM (EPA/600/R-93/116, 1993)

1023
Tedd Kattchee
RGA Environmental, Inc.
1466 66th Street
Emeryville, CA 94608

PROJECT:
CALTRANS WEST MAINTENANCE STATION
WALNUT CREEK, CA
PROJECT NO. SHAW 23089

Micro Log In	**136264**
Total Samples	13
Date Sampled	03/18/2010
Date Received	03/18/2010
Date Analyzed	

ASBESTOS INFORMATION

SAMPLE IDENTIFICATION	QUANTITY (AREA %) / TYPES / LAYERS / DISTINCT SAMPLES	DOMINANT OTHER MATERIALS
Client #: 2C Micro #: 136264-06 Analyst: **HM # 2 - BLACK MASTIC WEST WALL AT ELECTRICAL**	**NOT ANALYZED (PRIOR POSITIVE)**	Matrix Type:
Client #: 3A Micro #: 136264-07 Analyst: LZ **HM #3 - WINDOW PUTTY SOUTH WINDOW**	**NONE DETECTED**	Matrix Type: CARBONATE
Client #: 3B Micro #: 136264-08 Analyst: LZ GR **HM #3 - WINDOW PUTTY SOUTH WINDOW**	**NONE DETECTED**	Matrix Type: CARBONATE
Client #: 3C Micro #: 136264-09 Analyst: LZ **HM #3 - WINDOW PUTTY EAST WINDOW**	**NONE DETECTED**	Matrix Type: CARBONATE
Client #: 4A Micro #: 136264-10 Analyst: LZ **HM #4 - COMPOLITH ENTRY FLOOR**	**NONE DETECTED**	Matrix Type: CARBONATE ROCK FRAGMENTS

Technical Supervisor: 3/18/2010
Gamini Ranatunga, Ph.D. Date Reported

Asbestos is quantified by calibrated visual estimation. Detection limit is material dependent. Detection of asbestos traces (much less than 1%) may not be reliable or reproducible by PLM. Weight % cannot be determined by PLM. Asbestos with diameter below ~1 µm may not be detected by PLM. Absence of asbestos in dust, debris, and some compact materials, including floor tiles, cannot be conclusively established by PLM, and should be confirmed by Transmission Electron Microscopy (TEM). The lower quantitation limit (reporting limit) of PLM estimation is 1%. The Cal-OSHA definition of asbestos-containing construction material is 0.1% asbestos; however, reliable determination of asbestos percent at this level cannot be done by PLM estimation; PLM Point Counting or TEM is recommended. Only dominant non-asbestos materials are indicated. Interferences may prevent detection of small asbestos fibers, and hinder determination of some optical properties. Sample heterogeneity is indicated by listing more than one distinct layer or material on the report. Layers are analyzed separately when feasible; if asbestos is detected, percentages are reported for individual layers. Interlayer contamination is possible among any layers in a sample. Composite asbestos percentages are applicable only to wallboard / joint compound systems; compositing is based on customers' descriptions of material as "joint compound". Customers are solely responsible for identification and description of bulk materials listed on field forms. Laboratory descriptions may differ from those given by customers. Quality Control (QC): all results have been determined to be within acceptance limits prior to reporting. Samples that were reanalyzed are denoted by two sets of analyst initials. Accreditation: NIST / NVLAP (Lab Code 101872-0). CA ELAP Certification #1037. EPA 1993 method is based on EPA Interim Method (1982), with improved analytical techniques. Unless otherwise stated herein, all samples were received in acceptable condition for analysis. This report must not be used to claim product endorsement by NIST or any U.S. Government agency. This report shall not be reproduced without the approval of Micro Analytical Laboratories, Inc., shall not be reproduced except in full, and pertains only to the samples analyzed. ND = NO ASBESTOS DETECTED.

MICRO ANALYTICAL LABORATORIES, INC.

BULK ASBESTOS ANALYSIS - PLM (EPA/600/R-93/116, 1993)

1023
Tedd Kattchee
RGA Environmental, Inc.
1466 66th Street
Emeryville, CA 94608

PROJECT:
CALTRANS WEST MAINTENANCE STATION
WALNUT CREEK, CA
PROJECT NO. SHAW 23089

Micro Log In	**136264**
Total Samples	13
Date Sampled	03/18/2010
Date Received	03/18/2010
Date Analyzed	03/18/2010

ASBESTOS INFORMATION

SAMPLE IDENTIFICATION	QUANTITY (AREA %) / TYPES / LAYERS / DISTINCT SAMPLES	DOMINANT OTHER MATERIALS
Client #: **4B** Micro #: 136264-11 Analyst: LZ **HM #4 - COMPOLITH CENTER FLOOR**	**NONE DETECTED**	Matrix Type: CARBONATE ROCK FRAGMENTS
Client #: **4C** Micro #: 136264-12 Analyst: LZ **HM #4 - COMPOLITH CENTER FLOOR**	**NONE DETECTED**	Matrix Type: CARBONATE ROCK FRAGMENTS
Client #: **5A** Micro #: 136264-13 Black Analyst: LZ GR **HM # 5 - SILVER PAINT NORTH ENTRANCE**	**SILVER PAINT / BLACK MASTIC: 10% CHRYSOTILE ASBESTOS**	Matrix Type: SYNTHETIC MATERIAL TAR

Technical Supervisor: 3/18/2010
Gamini Ranatunga, Ph.D. Date Reported

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__PM – B. Gils, bob@rgaenv.com, fax: 510.899.7050

ACM BULK SAMPLE DATA SHEET

* PLM Analysis

X Stop Analysis at First Positive

__ Analyze All Samples

__ Point Count Analysis (400-point)

PAGE __ OF __

13264

Project Name/Address: CALTRANS WEST MAINTENANCE STATION ~~W. MAIN ST~~ WALNUT CREEK

PO #

RGA Project #: SHAW 23089 Sampled By: TM Sampling Date: 3/18/10

Sample(s) Sent To: __ RGA __ EMSL __ Other: TAT: __ Rush X 24Hrs __ 3-5 Days

FAX OR E-MAIL REPORT TO: *SEE ABOVE PROJECT MANAGER (PM)*

***ADDITIONAL REPORT RECIPIENT(S): ***

	HM# 1	Material Description: Drywall only	
	Sample ID	Sample Location & Material Location	Quantity: 400 SF
1	1A	S wall	
2	1B	E wall	
3	1C	SW wall	
	HM# 2	Material Description: Black mastic	
	Sample ID	Sample Location & Material Location	Quantity: 2 SF
4	2A	West wall at electrical	
5	2B	" " "	
6	2C	" " "	
	HM#	Material Description: Window putty	
	Sample ID	Sample Location & Material Location	Quantity: 100 LF
7	3A	S window	
8	3B	S "	
9	3C	E "	
	HM# 4	Material Description: Compolith	
	Sample ID	Sample Location & Material Location	Quantity: 250 SF
10	4A	Entry floor	
11	4B	Counter "	
12	4C	" "	
	HM# 5	Material Description: Silver paint	
	Sample ID	Sample Location & Material Location	Quantity:
13	5A	North entrance	

Relinquished By: Tedd Kattchee Signature: [signature] Date/Time: 3/18/10

Received By: TV Signature: [signature] Date/Time: 3.19.10 12:10

Relinquished By: Signature: Date/Time:

Received By: Signature: Date/Time:

MICRO ANALYTICAL LABORATORIES, INC.

BULK ASBESTOS ANALYSIS - PLM (EPA/600/R-93/116, 1993)

1023
Tedd Kattchee
RGA Environmental, Inc.
1466 66th Street
Emeryville, CA 94608

PROJECT:
GENERATOR ROOM
TOLL BUILDING CALTRANS
PROJECT NO. SHAW 23089

Micro Log In	**136265**
Total Samples	7
Date Sampled	03/18/2010
Date Received	03/18/2010
Date Analyzed	03/18/2010

ASBESTOS INFORMATION

SAMPLE IDENTIFICATION	QUANTITY (AREA %) / TYPES / LAYERS / DISTINCT SAMPLES	DOMINANT OTHER MATERIALS
Client #: 1A Micro #: 136265-01 Multi-color Analyst: DA **HM #1 - FLUE GASKET** **GENERATOR FLUE**	**60% CHRYSOTILE ASBESTOS**	Matrix Type: BINDER
Client #: 2A Micro #: 136265-02 Yellow Analyst: DA **HM # 2 - INSULATION** **FLUE INSULATION IN SLAB UPPER LEVEL**	**NONE DETECTED**	95 % FIBROUS GLASS Matrix Type: MISC. PARTICLES
Client #: 2B Micro #: 136265-03 Yellow Analyst: DA **HM # 2 - INSULATION** **FLUE INSULATION IN SLAB UPPER LEVEL**	**NONE DETECTED**	95 % FIBROUS GLASS Matrix Type: MISC. PARTICLES
Client #: 2C Micro #: 136265-04 Yellow Analyst: DA **HM # 2 - INSULATION** **FLUE INSULATION IN SLAB UPPER LEVEL**	**NONE DETECTED**	95 % FIBROUS GLASS Matrix Type: MISC. PARTICLES
Client #: 3A Micro #: 136265-05 Multi-color Analyst: DA **HM # 3 - 2" INSULATION** **CEILING PIPE EAST SIDE GENERATOR**	**JACKET (FOIL / PAPER): NONE DETECTED** **INSULATION: NONE DETECTED**	15 % CELLULOSE 75 % FIBROUS GLASS Matrix Type: SYNTHETIC MATERIAL

Technical Supervisor: _____ 3/18/2010
Gamini Ranatunga, Ph.D. Date Reported

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5900 HOLLIS STREET, SUITE M - EMERYVILLE, CA 94608 - (510) 653-0824

MICRO ANALYTICAL LABORATORIES, INC.

BULK ASBESTOS ANALYSIS - PLM (EPA/600/R-93/116, 1993)

1023
Tedd Kattchee
RGA Environmental, Inc.
1466 66th Street
Emeryville, CA 94608

PROJECT:
GENERATOR ROOM
TOLL BUILDING CALTRANS
PROJECT NO. SHAW 23089

Micro Log In	**136265**
Total Samples	7
Date Sampled	03/18/2010
Date Received	03/18/2010
Date Analyzed	03/18/2010

ASBESTOS INFORMATION

SAMPLE IDENTIFICATION	QUANTITY (AREA %) / TYPES / LAYERS / DISTINCT SAMPLES	DOMINANT OTHER MATERIALS
Client #: **3B** Micro #: 136265-06 Multi-color Analyst: DA **HM # 3 - 2" INSULATION** **CEILING PIPE EAST SIDE GENERATOR**	**JACKET (FOIL / PAPER): NONE DETECTED** **INSULATION: NONE DETECTED**	15 % CELLULOSE 75 % FIBROUS GLASS Matrix Type: SYNTHETIC MATERIAL
Client #: **3C** Micro #: 136265-07 Multi-color Analyst: DA **HM # 3 - 2" INSULATION** **CEILING PIPE WEST SIDE GENERATOR**	**JACKET (FOIL / PAPER): NONE DETECTED** **INSULATION: NONE DETECTED**	15 % CELLULOSE 75 % FIBROUS GLASS Matrix Type: SYNTHETIC MATERIAL

Technical Supervisor: _____ 3/18/2010
Gamini Ranatunga, Ph.D. Date Reported

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ACM BULK SAMPLE DATA SHEET

* PLM Analysis

✓ Stop Analysis at First Positive

___ Analyze All Samples

___ Point Count Analysis (400-point)

PAGE __ OF __

136265

Project Name/Address: GENERATOR ROOM TOILET FLUE CAVITIES PO #

RGA Project #: SHAW 23089 Sampled By: TK Sampling Date: 3/18/10

Sample(s) Sent To: ___ RGA ___ EMSL ___ Other: UNM TAT: ___ Rush ✓ 24Hrs ___ 3-5 Days

FAX OR E-MAIL REPORT TO: *SEE ABOVE PROJECT MANAGER (PM)*

***ADDITIONAL REPORT RECIPIENT(S): ***

HM#	Material Description: FLUE GASKET	
Sample ID	Sample Location & Material Location	Quantity:
1A	GENERATOR FLUE	

HM# 2	Material Description: INSULATION	
Sample ID	Sample Location & Material Location	Quantity:
2A	FLUE INSULATION IN SLAB UPPER LEVEL	
2B	" " " " "	
2C		

HM#	Material Description: 2" INSULATION	
Sample ID	Sample Location & Material Location	Quantity:
3A	CEILING PIPE BASE SIZE GENERATOR	
3B	" " " " "	
3C	" " WEST " "	

HM#	Material Description:	
Sample ID	Sample Location & Material Location	Quantity:

HM#	Material Description:	
Sample ID	Sample Location & Material Location	Quantity:

Relinquished By: Tedd Kattchee Signature: [signature] Date/Time: 3/18/10

Received By: TV Signature: [signature] Date/Time: 3.19.10 12:10

Relinquished By: Signature: Date/Time:

Received By: Signature: Date/Time:

Appendix 2

Laboratory Results and Chain of Custody Forms – Lead & Oil Residue

MICRO ANALYTICAL LABORATORIES, INC.

LEAD IN PAINT - FLAME AAS (EPA 7420)

1023
Tedd Kattchee
RGA Environmental, Inc.
1466 66th Street
Emeryville, CA 94608

PROJECT:
CALTRANS THREE SITES
PROJECT NO. SHAW 23089

Micro Log In 136262
Total Samples 5
Date Sampled 03/18/2010
Date Received 03/18/2010
Date Analyzed 03/18/2010

Sample ID	Lead Concentration Weight Percent	Lead Concentration mg/kg (ppm)	Detection Limit (mg/kg) Reporting Limits
Client: PB-1 Lab: 136262-01 SILVER - METAL EXTERIOR NORTH WALL	40%	400000	4.10 % 40,984 mg/kg
Client: PB-2 Lab: 136262-02 BEIGE - METAL OIL LOG BUILDING INTERIOR	0.01%	120	0.01 % 79 mg/kg
Client: PB-3 Lab: 136262-03 BEIGE - METAL OIL LOG BUILDING EXTERIOR WEST	< 0.01%	< 71	0.01 % 71 mg/kg
Client: PB-4 Lab: 136262-04 GREEN - METAL GENERATOR	0.70%	7000	0.10 % 971 mg/kg
Client: PB-5 Lab: 136262-05 MAUVE / WHITE - CONCRETE SOUTH WALL GENERATOR ROOM	0.53%	5300	0.08 % 813 mg/kg

Technical Supervisor: Tess Tagorda 3/18/2010 Analyst: TLN
Tess Tagorda, Chemistry Supervisor Date Reported

AIHA ELLAP Accredited Laboratory, ID #101768. Samples are analyzed by Flame Atomic Absorption Spectrometry (AAS). U.S. EPA SW-846 Method 7420 is used for the instrumental analysis. Nitric acid and hydrogen peroxide digestion procedures are based on ASTM E-1645. Unless otherwise indicated on this report, all required Quality Control samples have been determined to be in control prior to releasing these analytical results. Unless otherwise stated in this report, all samples were received in acceptable condition for analysis. This report must not be reproduced without the approval of Micro Analytical Laboratories, Inc., and pertains only to the samples analyzed. Unit explanations: mg = milligrams; kg = kilograms; ppm = parts per million. N/A = Not Applicable.

RGA ENVIRONMENTAL

__PM – S. Steiner
steff@rgaenv.com
fax: 510.899.7051

__PM – K. Schroeter
karin@rgaenv.com
fax: 510.899.7063

__PM – K. Pilgrim
ken@rgaenv.com
fax: 510.899.7053

__PM – B. Weisbrod
brent.weisbrod@rgaenv.com
fax: 510.899.7062

X PM – T. Kattchee
tedd@rgaenv.com
fax: 510.899.7070

__PM – B. Gils
bob@rgaenv.com
fax: 510.899.7050

LEAD PAINT ~~SAMPLE DATA~~ SHEET

* Lead Analysis
- Flame AA (EPA 7420)

13262

PAGE ___ OF ___

Project Name/Address: CATERALS THREE SITES PO # ___

RGA Project #: SMAW 23089 Sampled By: YZ Sampling Date: 3/18/10

Sample(s) Sent To: ___ EMSL ___ Other: MAL TAT: ___ Rush X 24Hrs ___ 3-5 Days

*****FAX OR E-MAIL REPORT TO:** ***SEE ABOVE PROJECT MANAGER (PM)******

*****ADDITIONAL REPORT RECIPIENT(S):** ___ ***

	Sample ID	Paint Description and Sample Location	Peeling Quantity
1	Pb-1	Paint Color: Silver Substrate: Metal Composite Sample: Y / N Sample Location: EXTERIOR WALL	
2	Pb-2	Paint Color: Beige Substrate: Metal Composite Sample: Y / N Sample Location: Oil Log BLDG INTERIOR	20%
3	Pb-3	Paint Color: Beige Substrate: Metal Composite Sample: Y / N Sample Location: Oil Log BLDG EXTERIOR WEST	
4	Pb-4	Paint Color: GREEN Substrate: METAL Composite Sample: Y / N Sample Location: GENERATOR	
5	Pb-5	Paint Color: MAUVE / WHITE Substrate: CONCRETE Composite Sample: Y / N Sample Location: S WALL GENERATOR ROOM	
		Paint Color: ___ Substrate: ___ Composite Sample: Y / N Sample Location:	
		Paint Color: ___ Substrate: ___ Composite Sample: Y / N Sample Location:	

Relinquished By: Tedd KATTCHEEF Signature: [signature] Date/Time: 3/18/10

Received By: TV Signature: [signature] Date/Time: 3-19-10 12:10

Relinquished By: ___ Signature: ___ Date/Time: ___

Received By: ___ Signature: ___ Date/Time: ___

McCampbell Analytical, Inc.
"When Quality Counts"

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Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

RGA Environmental	Client Project ID: #Shaw 23089; Caltrans-San Mateo Bridge Generator R	Date Sampled: 03/18/10
1466 66th Street		Date Received: 03/19/10
	Client Contact: Tedd Kattchee	Date Reported: 03/26/10
Emeryville, CA 94608	Client P.O.:	Date Completed: 03/26/10

WorkOrder: 1003589

March 26, 2010

Dear Tedd:

Enclosed within are:

1) The results of the **1** analyzed sample from your project: **#Shaw 23089; Caltrans-San Mateo B**
2) A QC report for the above sample,
3) A copy of the chain of custody, and
4) An invoice for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

RGA ENVIRONMENTAL

1003589

__PM – S. Steiner
steff@rgaenv.com
fax: 510.899.7051

__PM – K. Schroeter
karin@rgaenv.com
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__PM – K. Pilgrim
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X PM – T. Kattchee
tedd@rgaenv.com
fax: 510.899.7070

__PM – B. Gils
bob@rgaenv.com
fax: 510.899.7050

Environmental SAMPLE DATA SHEET

PAGE ___ OF ___

Project Name/Address: CALIPRANS - SAN MATEO BRIDGE GENERATOR ROOM PO #: ___

RGA Project #: SHAW 23089 Sampled By: TK Sampling Date: 3/18/10

Sample(s) Sent To ☐ EM Lab ☐ Other: ☐ Turnaround Time: ___Rush ___24-Hr ✓ Standard

FAX OR E-MAIL REPORT TO: ***SEE ABOVE PROJECT MANAGER (PM)*** **Shipping Requirements:** ___ **Priority** __**Standard Overnight** __**2-Day**

ADDITIONAL REPORT RECIPIENT(S): ___

Sample I.D.	Type	Sample Description: Air	Bulk	Swab	Tape Lift		Sample Location	Time (min)	Flow Rate (LPM)	Volume (L) or Area (cm^2)	Culture	Direct Exam	8015	Analysis: MULTI RANGE PER TED
1	WIPE						UNDER GENERATOR LEFT			10cm²			X	
2	WIPE						" " RIGHT			10cm²			X	

ICE / t° YES 6.1°C
GOOD CONDITION ✓ APPROPRIATE CONTAINERS ✓
HEAD SPACE ABSENT NA
DECHLORINATED IN LAB NA PRESERVED IN LAB NA
PRESERVATION VOAS | O&G | METALS | OTHER

Relinquished By: Tedd Kattchee **Signature:** [signature] **Date/Time:** 3/19/10
Received By: [signature] **Signature:** [signature] **Date/Time:** 3/19/10 1105
Relinquished By: [signature] **Signature:** [signature] **Date/Time:** 3/19/10 245
Received By: [signature] 3/19/10 2:45pm **Signature:** ___ **Date/Time:** ___

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1003589 **ClientCode: RGAE**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Tedd Kattchee
RGA Environmental
1466 66th Street
Emeryville, CA 94608
(510) 547-7771 FAX (510) 547-1983

Email: tedd@rgaenv.com
cc:
PO:
ProjectNo: #Shaw 23089; Caltrans-San Mateo Bridge Generator Room

Bill to:
Nick Hecht
RGA Environmental
1466 66th Street
Emeryville, CA 94608
nick.hecht@rgaenv.com

Requested TAT: 5 days

Date Received: 03/19/2010
Date Printed: 03/26/2010

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below) 1	2	3	4	5	6	7	8	9	10	11	12
1003589-001	1+2	Wipe	3/18/2010	☐	A											

Test Legend:

1	TPH(DMO)_Wipe(UG/CM2)	2		3		4		5	
6		7		8		9		10	
11		12							

The following SampID: 001A contains testgroup.

Prepared by: Samantha Arbuckle

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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Sample Receipt Checklist

Client Name: **RGA Environmental** Date and Time Received: **3/19/2010 7:38:45 PM**

Project Name: **#Shaw 23089; Caltrans-San Mateo Bridge Generat** Checklist completed and reviewed by: Samantha Arbuckle

WorkOrder N°: **1003589** Matrix Wipe Carrier: Rob Pringle (MAI Courier)

Chain of Custody (COC) Information

Chain of custody present?	Yes ☑	No ☐
Chain of custody signed when relinquished and received?	Yes ☑	No ☐
Chain of custody agrees with sample labels?	Yes ☑	No ☐
Sample IDs noted by Client on COC?	Yes ☑	No ☐
Date and Time of collection noted by Client on COC?	Yes ☑	No ☐
Sampler's name noted on COC?	Yes ☑	No ☐

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☑
Shipping container/cooler in good condition?	Yes ☑	No ☐	
Samples in proper containers/bottles?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature	Cooler Temp: 6.1°C		NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes ☐	No ☐	No VOA vials submitted ☑
Sample labels checked for correct preservation?	Yes ☑	No ☐	
Metal - pH acceptable upon receipt (pH<2)?	Yes ☐	No ☐	NA ☑
Samples Received on Ice?	Yes ☑	No ☐	

(Ice Type: WET ICE)

** NOTE: If the "No" box is checked, see comments below.*

Client contacted: Date contacted: Contacted by:

Comments:

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RGA Environmental	Client Project ID: #Shaw 23089; Caltrans-San Mateo Bridge Generator R	Date Sampled: 03/18/10
1466 66th Street		Date Received: 03/19/10
	Client Contact: Tedd Kattchee	Date Extracted: 03/27/10
Emeryville, CA 94608	Client P.O.:	Date Analyzed: 03/27/10

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*

Extraction method: SW5030B Analytical methods: SW8021B/8015Bm Work Order: 1003589

Lab ID	Client ID	Matrix	TPH(g)	DF	% SS	Comments
001A	1+2	Wipe	0.076	1	100	d7

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	NA	NA
	Wipe	0.025	µg/cm²

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/cm², product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts in mg/L.

cluttered chromatogram; sample peak coelutes w/surrogate peak; low surrogate recovery due to matrix interference.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation:

d7) strongly aged gasoline or diesel range compounds are significant in the TPH(g) chromatogram

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

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RGA Environmental	Client Project ID: #Shaw 23089; Caltrans-San Mateo Bridge Generator R	Date Sampled:	03/18/10
1466 66th Street		Date Received:	03/19/10
	Client Contact: Tedd Kattchee	Date Extracted:	03/19/10
Emeryville, CA 94608	Client P.O.:	Date Analyzed:	03/26/10

Total Extractable Petroleum Hydrocarbons*

Extraction method: SW3550C Analytical methods: SW8015B Work Order: 1003589

Lab ID	Client ID	Matrix	TPH-Diesel (C10-C23)	TPH-Motor Oil (C18-C36)	DF	% SS	Comments
1003589-001A	1+2	Wipe	180	880	100	80	e7,e2

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	NA	NA	ug/L
	Wipe	0.1	0.5	µg/cm²

* water samples are reported in µg/L, wipe samples in µg/cm², soil/solid/sludge samples in mg/kg, product/oil/non-aqueous liquid samples in mg/L, and all DISTLC / STLC / SPLP / TCLP extracts are reported in µg/L.

cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation:

e2) diesel range compounds are significant; no recognizable pattern
e7) oil range compounds are significant

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

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QC SUMMARY REPORT FOR SW8021B/8015Bm

W.O. Sample Matrix: Wipe QC Matrix: Soil BatchID: 49405 WorkOrder 1003589

EPA Method SW8015Bm **Extraction SW5030B** **Spiked Sample ID: 1003594-003A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex)£	ND	0.60	111	113	1.70	114	113	0.776	70 - 130	20	70 - 130	20
MTBE	ND	0.10	108	107	1.21	105	107	1.35	70 - 130	20	70 - 130	20
Benzene	ND	0.10	99.1	99.3	0.170	96.6	97.6	0.998	70 - 130	20	70 - 130	20
Toluene	ND	0.10	97.1	97.1	0	96	95.9	0.109	70 - 130	20	70 - 130	20
Ethylbenzene	ND	0.10	98	98.2	0.191	96.3	96.7	0.439	70 - 130	20	70 - 130	20
Xylenes	ND	0.30	98.6	101	2.67	99.3	99.7	0.401	70 - 130	20	70 - 130	20
%SS:	92	0.10	101	101	0	101	98	2.87	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 49405 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1003589-001A	03/18/10	03/19/10	03/27/10 1:28 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SW8015B

W.O. Sample Matrix: Wipe QC Matrix: Soil BatchID: 49415 WorkOrder 1003589

EPA Method SW8015B **Extraction SW3550C** **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH-Diesel (C10-C23)	N/A	40	N/A	N/A	N/A	100	101	1.09	N/A	N/A	70 - 130	30
%SS:	N/A	25	N/A	N/A	N/A	96	96	0	N/A	N/A	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 49415 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1003589-001A	03/18/10	03/19/10	03/26/10 11:42 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS ELAP Certification 1644

_____ QA/QC Officer

Appendix 3

Site Inspector Certificates

State of California
Division of Occupational Safety and Health

Certified Asbestos Consultant

Theodore A Kattchee
Name

Certification No. **99-2557**

Expires on **03/10/11**

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
(510) 622-2300 • Fax: (510) 622-2460
http://www.waterboards.ca.gov

ORDER NO. R2-2006-0075
NPDES NO. CAG912002

GENERAL WASTE DISCHARGE REQUIREMENTS FOR: Discharge or Reuse of Extracted and Treated Groundwater Resulting from the Cleanup of Groundwater Polluted by Fuel Leaks and Other Related Wastes at Service Stations and Similar Sites

Table 1. Administrative Information

This Order was adopted by the Regional Water Board on:	**November 13, 2006**
This Order shall become effective on:	**January 12, 2007**
This Order shall expire on:	**January 12, 2012**

The U.S. Environmental Protection Agency (USEPA) and the Regional Water Board have classified the discharges under this General National Pollutant Discharge Elimination System (NPDES) Permit as minor discharges.

To obtain coverage under this general permit, Dischargers must submit a Notice of Intent (NOI) Form as described in Attachments B and C and a filing fee equivalent to the first year's annual fee. If the NOI is complete, authorization to initiate discharge will be issued by the Regional Water Board Executive Officer.

The Dischargers who need to discharge treated groundwater after the expiration date of this Order shall file a complete Notice of Intent (NOI), as a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, and as an application for proposed discharge no later than July 15, 2011, which is 180 days in advance of the Order expiration date, as application for issuance of new waste discharge requirements (see Attachments B and C). The terms and conditions of this Order will be automatically continued after the expiration date of this Order for the Dischargers who submitted a complete NOI and will remain in effect until a new Order is adopted by the Regional Water Board. In order to assure no lapse in NPDES permit coverage for authorized discharges, the Dischargers who submitted a complete NOI will then be subject to the new Order pending receipt of a new discharge authorization.

IT IS HEREBY ORDERED, that this Order supercedes Order No. 01-100 except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the California Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act and regulations and guidelines adopted thereunder, the Dischargers shall comply with the requirements in this Order.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that this Order, Order No. R2-2006-0075, with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on November 13, 2006.

Bruce H. Wolfe, Executive Officer

California Regional Water Quality Control Board
San Francisco Bay Region

ORDER NO. R2-2006-0075
NPDES NO. CAG912002

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Attachment F - Fact Sheet F-1
Attachment G - Notice of Startup or Re-Startup G-1
Attachment H - Notice of Temporary Shut Down H-1
Attachment I - Notice of Termination I-1

I. FACILITY INFORMATION

The regulated facilities under this Order are normally groundwater treatment facilities located at active or closed service stations or construction sites with the need for short or long term dewatering. These groundwater treatment facilities are in operation to extract and treat groundwater polluted mainly by fuel leaks. Facility information for each discharge shall be included in the Notice of Intent (NOI) Form submitted for that discharge (see Attachments B and C).

II. FINDINGS

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter Regional Water Board), finds:

A. Background. There are 55 underground fuel storage tanks operators, current property owners, or previous property owners (hereinafter current Dischargers) currently authorized to discharge pursuant to Order No. 01-100, NPDES Permit No. CAG912002. Of the current Dischargers, 37 submitted a Report of Waste Discharge and applied for a NPDES permit renewal to discharge up to 150 gallons per minute (gpm) of treated wastewater from their groundwater extraction and treatment facilities, hereinafter Facility or Facilities. The Regional Water Board will complete the review of these applications during the period starting after the adoption date of this Order and ending before effective date of this Order.

For the purposes of this Order, references to the "Discharger" or "permittee" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger(s) herein.

B. Facility Description. Most Dischargers authorized under this general permit use aeration and/or granular activated carbon (GAC) systems to treat their pollutants of concern. Treated wastewaters are normally discharged through storm drain systems, rivers, and/or creeks to the Bay. A complete description of the treatment system installed at each facility is required to be completely documented in the Notice of Intent submitted by each Discharger (Attachments B and C).

C. Legal Authorities. This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the California Water Code (commencing with section 13370). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to

article 4, chapter 4, division 7 of the Water Code (commencing with section 13260).

States may request authority to issue general NPDES permits pursuant to 40 CFR Section 122.28. On June 8, 1989, the State Water Resources Control Board (State Water Board) submitted an application to the USEPA requesting revisions to its NPDES Program in accordance with 40 CFR 122.28, 123.62, and 403.10. The application included a request to add general permit authority to its approved NPDES Program. On September 22, 1989, the USEPA, Region 9, approved the State Water Board's request and granted authorization for the State to issue general NPDES permits.

D. **Background and Rationale for Requirements**. The Regional Water Board developed the requirements in this Order based on information submitted as part of the applications, through monitoring and reporting programs, and other available environmental information. The Fact Sheet (Attachment F), which contains background information and rationale for Order requirements, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A through E and G through I are also incorporated into this Order.

E. **California Environmental Quality Act (CEQA).** Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100-21177.

F. **Technology-based Effluent Limitations.** Title 40 of the Code of Federal Regulations (Hereinafter 40 CFR) at section 122.44(a) requires that permits include applicable technology-based limitations and standards. This Order includes technology-based effluent limitations based on Best Professional Judgment (BPJ) in accordance with 40 CFR Section 125.3. A detailed discussion of the technology-based effluent limitations development and BPJ is included in the Fact Sheet (Attachment F).

G. **Water Quality-based Effluent Limitations.** 40 CFR Section 122.44(d) requires that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) may be established: (1) using USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) on an indicator parameter for the pollutant of concern; or (3) using a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in section 122.44(d)(1)(vi).

H. **Water Quality Control Plans.** The Regional Water Board adopted a Water Quality Control Plan for the San Francisco Bay Basin (hereinafter Basin Plan) on June 21, 1995, and amended this plan on January 2, 2004, and November 16, 2005. This later amendment will be final after approval from the State Water Board and Office of Administrative Law. The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. The Basin Plan at Page 2-5 states that the beneficial uses of any specifically identified water body generally apply to its tributary streams. The Basin Plan may not specifically identify beneficial uses for every receiving water regulated under this permit, but may identify present and potential uses for the downstream water body, to which the receiving water, via an intermediate water body, is tributary. These potential and existing beneficial uses are municipal and domestic supply, fish migration and fish spawning, industrial service supply, navigation, industrial process supply, marine habitat, agricultural supply, estuarine habitat, groundwater recharge, shellfish harvesting, water contact and non-contact recreation, ocean, commercial, and sport fishing, wildlife habitat, areas of special biological significance, cold freshwater and warm freshwater habitat, and preservation of rare and endangered species for surface waters and municipal and domestic supply, industrial service supply, industrial process supply, agricultural supply, and freshwater replenishment for groundwaters. In addition, the Basin Plan implements State Water Board Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Requirements of this Order implement the Basin Plan.

The State Water Board adopted a *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains temperature objectives for surface waters. Requirements of this Order implement the Thermal Plan.

I. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995, and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.

J. **State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the

Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

K. **Compliance Schedules and Interim Requirements. (Not applicable)**

L. **Alaska Rule.** On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes. (40 CFR § 131.21; 65 Fed. Reg. 24641 (April 27, 2000).) Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.

M. **Antidegradation Policy.** 40 CFR Section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in the Fact Sheet, the permitted discharge is consistent with the antidegradation provision of section 131.12 and State Water Board Resolution No. 68-16.

N. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order.

O. **Monitoring and Reporting.** 40 CFR Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements to implement federal and State requirements. This Monitoring and Reporting Program is provided in Attachment E.

P. **Standard and Special Provisions.** Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR section 122.42 and as modified for this general permit, are provided in Attachment D. The Discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42. The Regional Water Board has also included in this Order special provisions applicable to the Dischargers. A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet.

Q. **Provisions and Requirements Implementing State Law.** The provisions/requirements in subsections IV.B, IV.C, V.B, and VI.C of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

R. **Notification of Interested Parties.** The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet of this Order.

S. **Consideration of Public Comment.** The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet of this Order.

III. DISCHARGE PROHIBITIONS

A. The discharge of extracted and treated groundwater polluted by fuel leaks and other related wastes at service stations and similar sites and related wastes to surface waters is prohibited unless an NOI application for proposed discharge has been submitted and the Executive Officer has provided the Discharger with an authorization to initiate the discharge.

B. The discharge shall be limited to extracted and treated groundwater and those added treatment chemicals approved by the Executive Officer which do not adversely affect the environment and comply with the requirements of this Order.

C. The discharge of extracted and treated groundwater from a specific site in excess of the flow rate specified in the authorization to discharge by the Executive Officer is prohibited.

D. The discharge shall cause no scouring or erosion at the point where the storm drain discharges into the receiving waters.

E. Neither the treatment nor the discharge of pollutants shall create a pollution, contamination, or nuisance, as defined by Section 13050 of the California Water Code.

F. Bypass or overflow of untreated or partially treated groundwater polluted by fuel leaks or other wastes to waters of the State either at the treatment system or from any of the collection or transport systems or pump stations tributary to the treatment system is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations (Surface water discharges only)

1. **Organic Pollutants:** The discharge of the effluent shall maintain compliance with the following effluent limitations at a discharge point after full treatment but before it joins or is diluted by any other waste stream, body of water, or substance:

Table 2. Effluent Limitations for Toxics Pollutants

No.	Compound	CAS Number	Column A: Discharge to Drinking Water Areas (see Note 2)		Column B: Discharge to Other Surface Water Areas	
			Average Monthly Effluent Limitation (ug/L)	Maximum Daily Effluent Limitation (ug/L)	Average Monthly Effluent Limitation (ug/L)	Maximum Daily Effluent Limitation (ug/L)
1	Benzene	71432		1		5
2	Carbon Tetrachloride	56235	0.25 (see Note 1)	0.50	4.4	5
3	Chloroform	67663		5		5
4	1,1-Dichloroethane	75343		5		5
5	1,2-Dichloroethane	107062	0.38 (see Note 1)	0.5		5
6	1,1-Dichloroethylene	75354	0.057 (see Note 1)	0.11 (see Note 1)	3.2	5
7	Ethylbenzene	100414		5		5
8	Methylene Chloride (Dichloromethane)	75092	4.7	5		5
9	Tetrachloroethylene	127184	0.8	1.6		5
10	Toluene	108883		5		5
11	Cis 1,2-Dichloroethylene	156592		5		5
12	Trans 1,2-Dichloroethylene	156605		5		5
13	1,1,1-Trichloroethane	71556		5		5
14	1,1,2-Trichloroethane	79005	0.6	1.2		5

No.	Compound	CAS Number	Column A: Discharge to Drinking Water Areas (see Note 2)		Column B: Discharge to Other Surface Water Areas	
			Average Monthly Effluent Limitation (ug/L)	Maximum Daily Effluent Limitation (ug/L)	Average Monthly Effluent Limitation (ug/L)	Maximum Daily Effluent Limitation (ug/L)
15	Trichloroethylene	79016	2.7	5		5
16	Vinyl Chloride	75014		0.5		1
17	Total Xylenes	1330207		5		5
18	Methyl Tertiary Butyl Ether (MTBE)	1634044		5		5
19	Total Petroleum Hydrocarbons (as Gasoline or as Diesel)			50		50
20	Ethylene Dibromide (1,2-Dibromoethane)	106934		0.05 (see Note 1)		5
21	Trichloro-trifluoroethane	76131		5		5

Notes:
1) If reported detection level is greater than effluent limit, then a non-detect result using a 0.5 ug/L detection level will not be deemed to be out of compliance.
2) Drinking water areas are defined as surface waters with the existing or potential beneficial uses of "municipal and domestic supply" and "groundwater recharge" (the latter includes recharge areas to maintain salt balance or to halt salt water intrusion into fresh water aquifers).

2. **pH:** The pH of the discharge shall not exceed 8.5 nor be less than 6.5.

3. **Toxicity:** The survival of rainbow trout test fish in 96-hour static renewal bioassays (EPA-821-R-02-012 Test method 2019.0) of the discharge shall be not less than a three sample moving median of 90% survival and a single test value of not less than 70% survival.

B. Land Discharge Specifications. (Not applicable)

C. Reclamation Specifications – Water Reuse

1. Reuse Policy: The Regional Water Board adopted Resolution No. 88-160 on October 19, 1988. The Resolution urges Dischargers of extracted groundwater from site cleanup projects to reclaim their effluent and that when reclamation is not technically and/or economically feasible, to discharge to a publicly owned treatment works (POTW). If neither reclamation nor discharge to a POTW is technically or economically feasible and if beneficial uses of the receiving water are not adversely affected, it is the intent of the Regional Water Board to authorize the discharge of treated extracted groundwater in accordance with the requirements of this Order.

2. Reuse Allowed: This Order permits reuse or reclamation of extracted treated groundwater in conjunction with the discharge to surface water, except for purposes of recharge or reinjection. Reuse of extracted treated groundwater

can take many forms, such as irrigation of landscaping or agriculture, dust control or soil compaction on construction sites, and industrial water supply.

3. Water Reclamation Specifications (water reuse only)

   a. Water reclaimed for beneficial reuse as applied shall meet the requirements in Section B- Effluent Limitations.
   b. The water reclamation activities shall be described in the Discharger's NOI, including method of any additional treatment and location and type of water reuse.
   c. No reclaimed water shall be allowed to escape from the authorized use area by airborne spray, nor by surface flow except in minor amounts associated with good irrigation practice, nor from conveyance facilities.
   d. Reclamation involving irrigation shall not occur when the ground is saturated.
   e. The use of reclaimed water shall not impair the quality of waters of the State, nor shall it create a nuisance as defined by Section 13050(m) of the California Water Code.
   f. Adequate measures shall be taken to minimize public contact with reclaimed water and to prevent the breeding of flies, mosquitoes, and other vectors of public health significance during the process of reuse.
   g. Appropriate public warnings must be posted to advise the public that the water is not suitable for drinking. Signs must be posted in the area, and all reclaimed water valves and outlets appropriately labeled.
   h. There shall be no cross-connection between the potable water supply and piping containing treated groundwater intended for reuse.
   i. Water reclamation consisting of recharge or reinjection is not authorized under this Order.

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in surface receiving waters:

1. Narrative Limits: The discharge shall not cause the following conditions to exist in waters of the State at any place:

   a. Floating, suspended, or deposited macroscopic particulate matter or foam;
   b. Bottom deposits or aquatic growths;
   c. Alteration of temperature, turbidity, taste, odor, or apparent color beyond present natural background levels;

d. Visible, floating, suspended, or deposited oil or other products of petroleum origin;
e. Toxic or other deleterious substances to be present in concentrations or quantities that will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.

2. Numerical Limits: The discharge shall not cause the following limits to be exceeded in waters of the State in any place within one foot of the water surface:
   a. Dissolved oxygen:
      For all tidal waters:
      In the Bay downstream of Carquinez Bridge - 5.0 mg/l minimum
      Upstream of Carquinez Bridge - 7.0 mg/l minimum
      For nontidal waters:
      Waters designated as cold water habitat - 7.0 mg/l minimum
      Waters designated as warm water habitat - 5.0 mg/l minimum
      For all inland surface waters:
      The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause concentrations less than that specified above, then the discharge shall not cause further reduction in ambient dissolved oxygen concentrations.

   b. pH: The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH by more than 0.5 pH units.

3. More Stringent Standards May Apply: The discharge shall not cause or contribute to a violation of any applicable water quality standard for receiving waters adopted by the Regional Water Board or the State Water Board as required by the Clean Water Act and regulations adopted there under. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Regional Water Board will revise and modify this Order in accordance with such more stringent standards.

B. Groundwater Limitations

The discharge shall cause no violation of the Basin Plan water quality standards for receiving groundwaters.

VI. PROVISIONS

A. Standard Provisions.

The Dischargers shall comply with all Federal and all Standard Provisions for General Permits Standard Provisions included in Attachment D of this Order.

B. Monitoring and Reporting Program Requirements.

1. The Dischargers shall comply with the Monitoring and Reporting Program (MRP), and future revisions thereto, in Attachment E of this Order.

2. Dischargers authorized under this permit, especially the Dischargers with flow rate exceeding 10 gpm, may be required to comply with additional monitoring requirements. The Executive Officer will specify such additional monitoring requirements in the authorization letter. Examples of additional monitoring that could be required are listed below:

    a. Monitoring Required to Respond to a Complaint received about a Facility authorized to discharge under this permit,
    b. Storm Water Monitoring,
    c. Dioxins and Furans Monitoring,
    d. Regional Monitoring Program Monitoring,
    e. Additional Discharge Observations, and
    f. Additional Effluent and Ambient Priority Pollutant Scans.

C. Special Provisions.

1. Reopener Provisions. The Regional Water Board may modify or reopen this Order prior to its expiration date in any of the following circumstances:

    a. If present or future investigations demonstrate that the discharge(s) governed by this Order will, or cease to, have adverse impacts on water quality and/or beneficial uses of the receiving waters;

    b. As new or revised WQOs come into effect for the San Francisco Bay estuary and contiguous water bodies (whether statewide, regional, or site-specific). In such cases, effluent limitations in this Order will be modified as necessary to reflect updated WQOs;

    c. If translator or other water quality studies provide a basis for determining that a permit condition(s) should be modified;

    d. An administrative or judicial decision on a separate NPDES permit or WDR that addresses requirements similar to this discharge; and

e. as authorized by law.

The Dischargers may request permit modification based on the above. The Dischargers shall include in any such request an antidegradation and antibacksliding analysis.

2. Notice of Intent (NOI) or Modified NOI Application: The NOI or Modified NOI application for each point of proposed discharge to a storm drain system shall contain the information required in the Notice of Intent Form as explained in Attachments B and C of this Order and as may be amended by the Executive Officer.

3. NOI Review: Upon receipt of a complete NOI application package for proposed discharge, the Executive Officer will review the application to determine whether the proposed Discharger is eligible to discharge waste under this general permit. The application package shall document that:

   a. The proposed discharge results from the cleanup of groundwater polluted by fuel leaks and other related wastes at service stations and similar sites with similar wastes;
   b. The proposed Discharger has met the provisions of Resolution No. 88-160; and
   c. The proposed treatment system and associated operation, maintenance, and monitoring plans are capable of ensuring that the discharge will meet the provisions, prohibitions, effluent limitations, and receiving water limitations of this Order.

4. Discharge Authorization: If the Executive Officer determines that the proposed Discharger is eligible to discharge waste under this general permit, the Executive Officer will authorize the proposed discharge. This discharge authorization may be terminated by the Executive Officer at any time.

5. Non-Compliance As A Violation: Upon receipt of the Executive Officer's discharge authorization, the Discharger(s) shall comply with all applicable conditions and limitations of this Order and its Attachments. Any permit noncompliance (violations of requirements in this Order or Monitoring Program) constitutes a violation of the Clean Water Act and the California Water Code and is grounds for enforcement action, permit or authorization termination, revocation and reissuance, modification, the issuance of an individual permit, or denial of a renewal application.

6. Triggers: The following triggers are not effluent limitations, and should not be construed as such. Instead, they are levels at which additional investigation is warranted to determine whether a numeric limit for a particular constituent is necessary. If any constituent in the effluent of a discharge exceeds the

corresponding trigger as listed in the Table 3 below, then the Discharger shall take three additional samples (three influent and three effluent) for each exceeded constituent during the following calendar quarter and conduct activities as explained in the Provisions VI.C.7, VI.C.8, or VI.C.9. If this monitoring activity has already been completed in the past, then summarize the results including the design of any installed treatment unit.

Table 3. Trigger Compounds or Constituents

Compound	CAS Number	Trigger (ug/L)
Antimony	7440360	6
Arsenic	7440382	10
Beryllium	7440417	1
Cadmium	7440439	0.07
Chromium (total)	18540299	11 (See Note 1)
Chromium (VI)	18540299	11
Copper	7440508	3.1
Lead	7439921	2.0
Mercury	7439976	0.025
Nickel	7440020	8.2
Selenium	7782492	5.0
Silver	7440224	1.9
Thallium	7440280	0.1
Zinc	7440666	35
Cyanide	57125	1.0
Asbestos	1332214	7 MFibers/L
2,3,7,8-TCDD (Dioxin)	1746016	0.000000013
Acrylonitrile	107131	2.0
Bromoform	75252	4.3
Chlorodibromomethane	124481	0.401
Dichlorobromomethane	75274	0.56
1,2-Dichloropropane	78875	0.50
1,3-Dichloropropylene	542756	0.2
1,1,2,2-Tetrachloroethane	79345	0.1
Pentachlorophenol	87865	0.28
2,4,6-Trichlorophenol	88062	2.1
Benzidine	92875	0.00012
Benzo(a)Anthracene	56553	0.0044
Benzo(a)Pyrene	50328	0.004
Benzo(b)Fluoranthene	205992	0.0044
Benzo(k)Fluoranthene	207089	0.0044
Bis(2-Chloroethyl)Ether	111444	0.031
Bis(2-Ethylhexyl)Phthalate	117817	1.8
Chrysene	218019	0.0044
Dibenzo(a,h)Anthracene	53703	0.0044
3,3'-Dichlorobenzidine	91941	0.04
2,4-Dinitrotoluene	121142	0.11
1,2-Diphenylhydrazine	122667	0.04

Compound	CAS Number	Trigger (ug/L)
Hexachlorobenzene	118741	0.00075
Hexachlorobutadiene	87683	0.44
Hexachloroethane	67721	1.9
Indeno(1,2,3-cd)Pyrene	193395	0.0044
N-Nitrosodimethylamine	62759	0.00069
N-Nitrosodi-n-Propylamine	621647	0.005
Aldrin	309002	0.00013
alpha-BHC	319846	0.0039
beta-BHC	319857	0.014
gamma-BHC	58899	0.019
Chlordane	57749	0.00057
4,4'-DDT	50293	0.00059
4,4'-DDE	72559	0.00059
4,4'-DDD	72548	0.00083
Dieldrin	60571	0.00014
alpha-Endosulfan	959988	0.0087
beta-Endosulfan	33213659	0.0087
Endrin	72208	0.0023
Endrin Aldehyde	7421934	0.76
Heptachlor	76448	0.00021
Heptachlor Epoxide	1024573	0.0001
Polychlorinated biphenyls (PCBs) total	1336363	0.00017
Toxaphene	8001352	0.0002
1,4-Dioxane	123911	3
Perchlorate	14797730	5
Freon 12 (Dichlorodifluoromethane)	75718	0.19
Other Oxygenates (Other than MTBE)	-	5
Other VOCs	-	5
Other SVOCs	-	5
Turbidity (Units)	-	5
Odor-Threshold (Units)	-	3
Total Petroleum Hydrocarbons other than Gasoline and Diesel	-	50 (See Note 2)
Sulfate	-	250,000
Foaming Agents	-	500
Color (Units)	-	15

Legend:
CAS = Chemical Abstract System or Service
Notes:
1) If total chromium concentration exceeds 11 then Chromium (VI) analysis shall also be done.
2) If a Discharger is reporting monitoring data with a detection level higher than 50 ug/l, the reason for a higher detection level shall be fully explained in the monitoring report.

7. Triggers Case 1: If the results of the three additional samples for the effluent **do not** exceed the triggers, the Discharger shall report the results to the Executive Officer in the next Monitoring Report, and shall return to the schedule of sampling and analysis in the attached MRP (Attachment E).

8. Triggers Case 2: If the results of **any one of the three** additional samples

exceed the triggers, the Discharger has two options. Option one is submitting a rationale for not doing the special studies as described in the last paragraph of VI.C.9. Option two is performing the following three tasks listed below:

a. Calculate the median and maximum concentration values for the exceeded trigger constituent, using the three recent samples **and** all samples collected and analyzed for that constituent in the previous 12-month period.

b. Estimate the mass load discharged in the previous 12-month period for the exceeded trigger constituent. Report the results in grams per day and in kilograms per year, using the average discharge rate for the previous 12-month period.

c. Report the results to the Executive Officer in the next Self-Monitoring Report, and return to the schedule of sampling and analysis in the Self-Monitoring Program.

9. Triggers Case 3: If the results of **two or three** of the additional samples exceed the triggers, the Discharger shall perform the following:

a. Calculate median and maximum concentration values and mass load for the constituent, as described in Case 2 above.

b. Explain or identify source(s) of the trigger constituent. If the trigger constituent is a byproduct of a decomposed compound, list all of the byproduct components and when each of these components will be formed during the decomposition process.

c. Define the properties of the exceeded trigger constituent and, if applicable, the decomposing compound with all of its byproduct components. Attach Material Safety Data Sheets, if available or applicable.

d. Document what standard or customized EPA approved test methods are used to detect this compound.

e. List and evaluate all available technologies for treatment or pre-treatment of this exceeded trigger constituent and, if applicable, the decomposing compound with all of its byproduct components. This evaluation may include the cost of increased treatment to reduce the exceeded trigger constituent and any applicable the decomposing compound with all of its byproduct components and the amount of reduction in terms of concentration.

f. Discuss any proposed plan for pilot bench scale and field tests for treatment of this exceeded trigger constituent and, if applicable, the

decomposing compound with all of its byproduct components and associated timetable.

g. Determine the best available technology economically achievable for treatment of this exceeded trigger constituent and, if applicable, the decomposing compound with all of its byproduct components, or propose the next step after obtaining the results of the pilot tests.

h. If the results of the evaluation indicate that the additional treatment of the discharge does not appear to be a feasible option, then:

   1) Perform an evaluation of the potential adverse impacts to the beneficial uses of the receiving water. The evaluation should include, but need not be limited to, description of the beneficial uses specific to the receiving water, physical and chemical characteristics of the water body and sediment, and the physical, chemical, or biological effects from the constituent(s) on the beneficial uses. For inorganic compounds (also known as metals), include discussions regarding effects related to total or dissolved fraction (i.e., metals translators) and hardness with hardness-dependent objectives. If exceedances are only for metals with hardness-dependent objectives, then the Discharger may conduct a hardness study prior to completing this task.

   2) If the receiving water study finds that the discharge has potential to cause adverse impacts to beneficial uses of the receiving water, then evaluate control measures other than treatment to reduce the constituent(s) of concern in the discharge, such as re-evaluating options for re-use, discharge to POTW, or alternatives to groundwater extraction.

i. Within 180 days of the Discharger receiving results of the confirmation sampling, report the results of tasks (a) through (h) above to the Executive Officer, including a proposed method to eliminate or minimize future exceedances, or provide a rationale for why no change to the existing treatment program should take place. The Discharger may be required to perform additional evaluations or take additional actions, as deemed necessary by the Executive Officer. The Discharger may apply or may be required to apply for an individual NPDES permit. If the Executive Officer determines that additional numeric limits are necessary for a particular compound or constituent (including but not limited to a VOC), these limits will be calculated using the procedures specified in the SIP, Basin Plan, and applicable USEPA regulations.

As an alternative, the Discharger may submit a specific technical rationale for not conducting the above special studies, subject to the Executive Officer's approval. Examples of acceptable rationales to the Executive Officer could be submitting a copy of a technical report prepared previously or if the

Discharger is contributing funds for a joint special studies addressing the same questions discussed above for this exceeded trigger constituent and, if applicable, the decomposing compound with all of its byproduct components.

10. Exceedance of the same Triggers: If an exceedance of the same trigger in Table 3 occurs less than 60 months after completion of the required tasks in Provisions VI.7, VI.8 or VI.9, then the Executive Officer may waive the evaluation required above. This waiver will not apply if a different constituent or compound exceeds the triggers set in Tables 3. In that case, the Discharger shall perform an evaluation for that constituent or compound. During and after any additional monitoring, the Discharger shall continue the required schedule of sampling and analysis as required in the MRP (Attachment E).

11. Individual NPDES Permit May Be Required: The USEPA Administrator may request the Regional Water Board Executive Officer to require any Discharger authorized to discharge waste by the general permit to subsequently apply for and obtain an individual NPDES permit. The Executive Officer may require any Discharger authorized to discharge waste by a general permit to subsequently apply for and obtain an individual NPDES permit. An interested person may petition the Executive Officer or the Regional Administrator to take action under this provision. Cases where an individual NPDES permit may be required include the following:

    a. The Discharger is not in compliance with the conditions of this Order or as authorized by the Executive Officer;
    b. A change has occurred in the availability of demonstrated technology or practices for the control or abatement of pollutants applicable to the point source;
    c. Effluent limitation guidelines are promulgated for point sources covered by the general NPDES permit;
    d. A water quality control plan containing requirements applicable to such point sources is approved; or
    e. The requirements of 40 CFR 122.28(a), as explained in Finding No. II.C, are not met.

12. Treatment Reliability: The Dischargers shall, at all times, retain a professional engineer certified in State of California to oversee the design, and operation and maintenance of the treatment system to properly operate and maintain all facilities that are used by the Dischargers to achieve compliance with this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. All of these procedures shall be described in an Operation and Maintenance manual. The Discharger shall keep in a state of readiness all systems necessary to achieve compliance with the conditions of this Order. All systems, both those in service and reserve, shall be inspected and maintained on a regular basis.

Records shall be kept of the tests and made available to the Regional Water Board for at least five years. Additional requirements for compliance with this provision are explained in Attachments B and C of the Order.

13. **No Preemption**. This Order permits the discharge of treated groundwater to waters of the State subject to the prohibitions, effluent limitations, and provisions of this Order. It does not pre-empt or supersede the authority of municipalities, flood control agencies, or other local agencies to prohibit, restrict, or control discharges of waste to storm drain systems or other watercourses subject to their jurisdiction.

VII. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in Section IV of this Order will be determined as specified below:

A. General.

Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined in the MRP and Attachment A of this Order. For purposes of reporting and administrative enforcement by the Regional and State Water Boards, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

B. Multiple Sample Data.

When determining compliance with an AMEL **or** MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

1. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

2. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ), also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL): the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Bioaccumulative pollutants are those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Carcinogenic pollutants are substances that are known to cause cancer in living organisms.

Coefficient of Variation (CV) is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Detected, but Not Quantified (DNQ) are those sample results less than the RL, but greater than or equal to the laboratory's MDL.

Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Duly Authorized Representative is one whose:

a. Authorization is made in writing by a principal executive officer or ranking elected official;

b. Authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as general partner in a partnership, sole proprietor in a sole proprietorship, the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company (A duly authorized representative may thus be either a named individual or any individual occupying a named position).

Effluent Concentration Allowance (ECA) is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-

term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in USEPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Estimated Chemical Concentration is the estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Field Blank is defined as an individual sample demonstrated to be free from the contaminants of interest and other potentially interfering substances, and treated as a sample in all respects, including exposure to grab-sampling site conditions, storage, preservation, and all analytical procedures. The purpose of the field blank is to determine if the field or sample transporting procedures and environments have contaminated the sample.

Flow Sample is defined as the accurate measurement of the average daily flow volume using a properly calibrated and maintained flow-measuring device.

Grab Sample is defined as an individual sample collected in a short period of time not exceeding 15 minutes. Grab samples shall be collected during normal peak loading conditions for the parameter of interest, which may or may not be during hydraulic peaks. It is used primarily in determining compliance with maximum daily limits and average monthly limits. Grab samples represent only the condition that exists at the time the wastewater is collected.

Instantaneous Maximum Effluent Limitation: the highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation: the lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Daily Effluent Limitation (MDEL) means the highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median is the middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the n/2 and n/2+1).

Method Detection Limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML) is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample

that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Not Detected (ND) are those sample results less than the laboratory's MDL.

Ocean Waters are the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Reporting Level (RL) is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Source of Drinking Water is any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan.

Standard Deviation (σ) is a measure of variability that is calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:

x is the observed value;

μ is the arithmetic mean of the observed values; and

n is the number of samples.

Toxicity Reduction Evaluation (TRE) is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

ATTACHMENT B - NOTICE OF INTENT APPLICATION FORM
To Receive
Authorization to Discharge Treated Groundwater under the Requirements of
ORDER NO. R2-2006-XXXX
NPDES PERMIT NO. CAG912002 (FUEL)

For Groundwater Treatment Facility located at:

_____

Type or Print Facility Address above the line
File No: 1210.44

This is an application for discharge or reuse of extracted and treated groundwater resulting from the cleanup of groundwater polluted by fuel leaks and other related wastes at service stations and similar sites. Please mark one of the applicable lines:

Table 1. Mark only one as applicable

1	Notice of Intent for an Existing Discharge (for Permit Reissuance)	
2	Notice of Intent for a previously regulated Discharge (provide the Order and NPDES permit numbers here in this row)	
3	Notice of Intent for a New Discharge	
4	Modified Notice of Intent (if modified, complete all sections in this Form and indicate information on which item(s) below are modified):	
	Discharger's Certification	
	Administrative Information	
	Condition 1	
	Condition 2	
	Condition 3	
	Condition 4	
	Condition 5	
	Condition 6	
	Condition 7	
	Condition 8	
	Condition 9	
	Condition 10	
	Condition 11	
	Condition 12	
	Attachment 1	
	Attachment 2	
	Attachment 3	
	Attachment 4	
	Attachment 5	

Discharger's Certification

I certify under penalty of law that this document and all attachments are prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the design engineer whose signature and engineering license number is documented in this notice, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Name (print)	Signature and Date
Title/Organization	Address

Complete Table 2. Facility Information

1	Discharger's Name	
2	Name of Facility	
3	Facility Address	
4	Facility Contact, Title, and Phone	
5	Authorized Person to Sign & Submit Reports	
6	Mailing Address	
7	Billing Address	
8	Type of site or project. For example: Active Service Station, Closed Service Station, Short Term Dewatering Project, Long Term	

	Dewatering Project, or other (please explain if "Other")	
9	Watershed	
10	Receiving Water	
11	Receiving Water Type. For example, eenclosed bay, estuary, inland surface water, or Sacramento-San Joaquin Delta	

I understand that if this discharge is eligible under the requirements of Order No. R2-2006-xxxx (Order), authorization to discharge treated groundwater from the above facility will be granted providing the following conditions are met:

1. I must comply with all applicable requirements of the Order and the associated Self-Monitoring Program (SMP). The effluent shall not contain constituents in excess of the limits listed under:

Complete Table 3. Mark only one as applicable

1	Discharge to Drinking Water Areas (Column A, Table 2, Page 7 of the Order)	
2	Discharge to Other Surface Water Areas (Column B, Table 2, Page 7 of the Order)	

2. A treatment system including the elements described in Table 4 below and the schematic shown in Attachment 1 will treat the extracted groundwater.

Complete Table 4. Treatment System Description

	Unit	Number	Size, or capacity (e.g. pounds of GAC), Further Description (If Applicable)
1	Extraction Well(s)		
2	Extraction Wells with Dedicated Treatment Unit(s)		
3	Dedicated Treatment Unit(s)		
4	Settling Tank(s) in series		
5	Settling Tank(s) in parallel		
6	Oil/Water Separator(s)		
7	Filter(s)		
8	Air Strippers with Air Filters		
9	Air Strippers without Air Filters		
10	Advanced Treatment Unit(s) for Oxygenates such Tertiary Butyl Alcohol, Ethanol, and Methanol		
11	Advanced Treatment Unit(s)		
12	Liquid-phase Granular Activated Carbon (GAC) vessel(s) in series		
13	GAC vessel(s) in parallel		
14	Effluent reuse Infrastructure (If so, provide additional detail)		

3. I understand that I shall, at all times, retain a professional engineer certified in the State of California to oversee the design, and proper operation and maintenance of the treatment system, including all facilities necessary to achieve compliance with the Order. I also understand that proper operation and maintenance includes adequate laboratory controls and appropriate quality assurance procedures and all of these procedures shall be described in an Operation and Maintenance (O&M) Manual. Table 5 includes the names of all professionals who will keep the treatment system - including all facilities necessary to achieve compliance with the conditions of the Order - in a state of readiness. All treatment system components, both those in service and those in reserve, shall be inspected and maintained on a regular basis.

4. Attachment 2 is a report certifying the adequacy of each component of the proposed treatment system, and including the table of contents of the associated O&M manual. This certification report contains an item-by-item analysis, based on accepted engineering practice, of how the process and physical design of the treatment system will ensure compliance with the Order. This report also certifies that:

   i. All treatment facility startup and operation instruction manuals are adequate and available to operating personnel.

   ii. Adequate treatment facility maintenance and testing schedules are included in the treatment facility O&M Manual.

   iii. Influent and effluent sampling locations or ports are located in areas where samples representative of the waste stream to be monitored can be obtained.

   iv. The residual concentration of any chemical additive or additives used in the treatment process is designed to be zero and will never exceed the No Adverse Effect Concentration (NOEC) as documented in the ecological section of the applicable Material Safety Data Sheet (MSDS). A copy of the MSDS for every chemical used is provided as an attachment in the O&M Manual.

   v. If any chemical used in the treatment process may cause pH variances in the effluent, the frequency of pH monitoring in the effluent will be increased as explained in the Legends for Table E.2 of Attachment E – Monitoring and Reporting Program.

   vi. The design engineer has affixed his/her signature and engineering license number to this certification report in Attachment 2.

Complete Table 5. Professional Engineer(s) and Other Information

1	Design Engineer's Name, California License Number, address, and phone number	
2	Operation and Maintenance Responsible Engineer's Name, California License Number, address, and phone number	
3	Name, phone number, and email of the Discharger's assigned staff to investigate the cause(s) of errors and the corrective actions taken, or date when actions will be completed to eliminate or reduce future data error (applicable if any monitoring data for the sample(s) taken on or after January 1, 2006, were claimed to be invalid)	

5. The maximum discharge rate from the groundwater treatment system shall not exceed _____ gallons per minute (gpm). The groundwater treatment system is designed for _____ gpm. I understand this discharge shall not cause pollution, contamination, or nuisance. For example, the discharge shall cause no scouring or erosion at the point where the storm drain or outfall-pipe discharges into the receiving water(s).

6. Treated water will be discharged through a storm drain to the receiving water(s) described in Table 6 below and shown on the aerial map in Attachment 3.

Complete Table 6. Discharge Location

Discharge Point Location	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
Storm-Drain Location:			Storm-Drain
Outfall Location:			

7. A copy of the Order, a complete copy of this Notice of Intent, documentation of the authorization to discharge received from the Regional Water Board, a full copy of the O&M Manual, and any other documents recommended by the engineer or the QA officer shall be stored at or near the treatment facility. These documents shall be made available to Regional Water Board staff during inspections. No O&M Manual shall be submitted to the Regional Water Board office, unless requested.

8. Self-Monitoring Reports shall be submitted by uploading it on Geo-Tracker on a quarterly calendar basis, no later than 45 days following the last day of the quarter. The laboratory results shall be summarized in tabular form, but the laboratory data sheets need not be included in the reports (unless requested). The reports shall summarize the monitoring data and include information such as the sample location (extraction well(s), influent, effluent, or receiving water); the constituents analyzed; the analytical methods used; the laboratory reporting limits in micrograms per liter (ug/l); the sample results (ug/l); the date sampled; and the date samples were analyzed. A summary of quality assurance/quality control data such as field, trip, and laboratory blank results shall be reported for each analyzed constituent or group of constituents. These reports shall also include a description of the operation and maintenance of the groundwater extraction and treatment system. An annual report summarizing system operation and maintenance for the last four quarters shall be prepared and submitted no later than February 15 of the following year. The last calendar quarter monitoring report may be combined with the annual report. The annual report shall document that the annual fee has been paid.

9. I understand that it is the responsibility of any person proposing to discharge to a storm drain system or other watercourses to obtain authorization to discharge from the agency having jurisdiction over the use of the storm drain system or watercourse. I also understand any discharge authorization granted by the Regional Water Board is conditional and may be terminated at any time.

10. A Check for $5,688 is attached.

11. Tables ___ through _____ in Attachment 5 of this NOI list all pollutants of concern in each extraction well, influent or projected influent, and effluent or projected effluent including the data suggested in Table 7. Unless requested, no laboratory reports have been included in this NOI.

Table 7. Suggested format for listing pollutants

	Pollutant 1	Pollutant 2	Pollutant 3	Add Columns and/or tables as needed
Number of Samples				
Maximum Concentration				

	Pollutant 1	Pollutant 2	Pollutant 3	Add Columns and/or tables as needed
Average Concentration				
Median Concentration				
Minimum Concentration				
Number of Non-Detects				
Lowest Reporting Limit				
Highest Reporting Limit				
Number of Samples with Lowest Reporting Limit				
Sample Date 1, Method Number				
Sample Date 2, Method Number				
Sample Date 3, Method Number				
Add rows as needed				

12. Any other relevant information about this project that may be necessary to evaluate the eligibility of this discharge under the Order is included in Attachment 6.

13. Add the following five attachments to this form:

    Attachment 1: Flow Schematics
    Attachment 2: Engineering Certification Report
    Attachment 3: Aerial Map (highlight the discharge path)
    Attachment 4: Check for $5,688
    Attachment 5: Tables listing Pollutants of Concern at this Site
    Attachment 6: Other Information (If applicable)

Note: The Regional Water Board may modify this form at any time to reflect any new fees and other needed improvements as applicable.

ATTACHMENT C - INSTRUCTIONS FOR COMPLETING NOTICE OF INTENT (NOI) FORM

to Receive Authorization to Discharge Treated Groundwater under the Requirements of
ORDER NO. R2-2006-XXXX
NPDES PERMIT NO. CAG912002 (FUEL)

Facility Address: Please include Zip code and County for the Groundwater Treatment Facility Address.

Table 1. Please mark only one as is applicable:

	Table 1.	Explanation
1	Notice of Intent for An Existing Discharge authorized under this Order (For Permit Reissuance)	If you need to discharge after November 13, 2011, you need to submit this NOI no later than May 13, 2011.
2	Notice of Intent for a previously regulated Discharge	Provide the Order and NPDES permit numbers if this Discharge is currently or was previously regulated under this general permit, another general permit, or regulated under an individual NPDES permit.
3	Notice of Intent for a New Discharge	If this Discharge was never authorized under any of the Regional Water Board permits.
4	Modified Notice of Intent (if modified, submit NOI Form all sections completed and indicate which item(s) modified)	If this Discharge is currently regulated under this Order and you need to modify one or more items in the NOI.

Discharger's Certification

This form must be signed by an appropriate corporate officer, general partner, principal executive officer, or ranking elected official. In no case should the consultant sign the forms.

Administrative Information

Complete Table 2. Facility Information

1	Discharger's Name	
2	Name of Facility	Please use the Facility address as the name of the Facility and then add the name that Discharger prefers. For example: 123 Main Street, San Jose Oilco No. 987
3	Facility Address	
4	Facility Contact, Title, and Phone	
5	Authorized Person to Sign & Submit Reports	
6	Mailing Address	
7	Billing Address	
8	Type of site or project.	For example: Active Service Station, Closed Service Station, Short Term Dewatering Project, Long Term Dewatering Project, or other (please explain if "Other")
9	Watershed	If you do not know, you may check web sites such as "San Francisco Bay Area Creek & Watershed Finder", at

		http://www.museumca.org/creeks/resc.html.
10	Receiving Water	
11	Receiving Water Type	<enclosed bay, estuary, inland surface water, or Sacramento-San Joaquin Delta>

Condition 1. Unless you have specific information to select otherwise, select discharge to source of drinking water because most discharges of treated groundwater regulated under this Order are to storm drain systems that discharge to creeks and streams. Many of these creeks and streams are dry during the summer months. Therefore, for many months of the year, these discharges may represent all or nearly all of the flow in some portions of the receiving creeks or streams. These discharges therefore have the potential to recharge groundwaters that are normally protected as drinking waters. There are surface waters in the Region that serve beneficial uses such as groundwater recharge and municipal and domestic, industrial process and service, or agricultural water supplies. A few examples are most creeks in Santa Clara County, Napa River, Alameda Creek, San Mateo Creek, and San Lorenzo Creek.

Condition 2. The treatment system shall be fully described. The reuse of the effluent shall be in compliance with Specification IV.C of the Order.

Complete Table 2. Treatment System Description

	Unit	No.	Size, or capacity (e.g. pounds of GAC), Further Description (If Applicable)
1	Extraction Well(s)		
2	Extraction Wells with Dedicated Treatment Unit(s)		
3	Dedicated Treatment Unit(s)		
4	Settling Tank(s) in series		
5	Settling Tank(s) in parallel		
6	Oil/Water Separator(s)		
7	Filter(s)		
8	Air Strippers with Air Filters		
9	Air Strippers without Air Filters		
10	Advanced Treatment Unit(s) for Oxygenates such Tertiary Butyl Alcohol, Ethanol, and Methanol		
11	Other Advanced Treatment Unit(s)		
12	Liquid-phase Granular Activated Carbon (GAC) vessel(s) in series		
13	GAC vessel(s) in parallel		
14	Effluent reuse Infrastructure (If so, provide additional detail such as producer and user name and address, rate, volume, and frequency of reuse)		

Condition 3. This permit requires a professional engineer (PE) certified in the State of California to oversee the design, and proper operation and maintenance of the treatment system. If you reported any invalid monitoring data for the sample(s) taken on or after

January 1, 2006, the name, phone number, and email of the assigned staff to investigate the cause(s) of errors and the corrective actions taken, or date when actions will be completed to eliminate or reduce future data error shall be documented in this Form.

Condition 4. A PE shall certify the adequacy of each component of the proposed treatment system. Other relevant information such as the reason(s) if any chemical additive or additives are needed to be used in the treatment system, method of application and disposal shall also be fully explained in the PE certification. Please note that the design engineer has the authority to reject usage of any chemical which has an inadequate MSDS or may cause an adverse effect on most sensitive residents of the receiving water.

Condition 5. If you have a batch discharge, provide the frequency, volume, and maximum flow rate.

Condition 6. Some of this information may be obtained from the municipalities. The discharge path shall be highlighted from the facility to the final receiving water.

Condition 7. All documents needed by your technicians to properly operate or maintain the treatment facility shall be at or near the facility.

Condition 8. Late Self-Monitoring Reports are considered in violation of the permit's requirements and are subject to mandatory minimum penalty if more than 30 days late.

Condition 9. Prepare a contact List.

Condition 10. No application will be considered complete without the applicable fee.

Condition 11. No application will be considered complete without complete delineation of pollutants of concern. The NOI shall include analytical results, including the date the samples were taken, for influent (except for mercury, this may be a weighted average of individual extraction wells for non-operating facilities) and effluent (not required for proposed discharges with no prior operating experience). In case of detecting mercury in any well in excess of 0.025 microgram per liter, the Discharger shall install a dedicated treatment unit for that well and check with Regional Water Board staff if an application for an individual NPDES permit shall be submitted. Table below lists the suggested analytical methods.

Follow the instruction in Table 3.

Analyses	Method of Analysis (See Note 1)
MTBE, Benzene, Toluene, Ethylbenzene, and Total Xylenes	USEPA Method 8020

Analyses	Method of Analysis (See Note 1)
Petroleum Hydrocarbons	Modified USEPA Method 8015
Volatile Organic Compounds	USEPA Method 8260
Polynuclear Aromatic Hydrocarbon	USEPA Method 610
Semi-Volatile Organic Compounds(See Note 2)	USEPA Method 8270
Ethylene Dibromide (See Note 2)	USEPA Method 504
Perchlorate (See Note 3)	USEPA Method 314
Mercury	USEPA Method 1631
Cadmium, Silver, Antimony, Beryllium, Chromium, Copper, Lead, Nickel, Selenium, Thallium, Zinc, Arsenic, and Cyanide.	USEPA Methods (various)
Others (if there is evidence of a release or being present)	USEPA Methods (various)
Notes: 1: All chemical analyses shall be performed according to the appropriate USEPA Methods by a certified laboratory and copies of laboratory analytical reports must be submitted (equivalent methods are accepted). 2: Not required if no evidence of this release. 3: Not required if no evidence of solid rocket fuel release or other Perchlorate use.	

Condition 12. Other information such as vicinity to a highly polluted site shall be provided. For example, if this is a dewatering project of a site adjacent to a site with documented groundwater pollution, then the information about how the engineer in charge of this dewatering project will manage the risk of moving the contaminated groundwater plume from that site into the treatment facility.

Condition 13. All attachments are mandatory.

Please upload the completed NOI Form and all attachments on Geo-Tracker and send a confirmation email with a PDF copy of the package attached to the email to the responsible staff member at the Regional Water Board office. At this time, the responsible staff member is Lourdes Gonzales and her email address is lgonzales@waterboards.ca.gov

New Dischargers may obtain access rights to Geo-Tracker from:
http://www.waterboards.ca.gov/ust/cleanup/electronic_reporting/index.html

Note: The Regional Water Board may modify this instruction at any time as needed.

ATTACHMENT D –STANDARD PROVISIONS

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ATTACHMENT D –STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 CFR § 122.41(a).)

2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 CFR § 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 CFR § 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 CFR § 122.41(d).)

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 CFR § 122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 CFR § 122.41(g).)

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 CFR § 122.5(c).)

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 CFR § 122.41(i); Wat. Code, § 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 CFR § 122.41(i)(1));

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 CFR § 122.41(i)(2));

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 CFR § 122.41(i)(3)); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 CFR § 122.41(i)(4).)

G. Bypass

1. Definitions

   a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR § 122.41(m)(1)(i).)

   b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR § 122.41(m)(1)(ii).)

2. Bypass of uncontaminated extracted groundwater. During a dewatering project, the Discharger may allow any bypass of uncontaminated extracted groundwater to occur which originates from uncontaminated extraction well(s). The Discharger shall monitor the water quality of these extractions wells to confirm that the extracted water remains uncontaminated.

3. Prohibition of bypass. Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless (40 CFR § 122.41(m)(4)(i)):

a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 CFR § 122.41(m)(4)(i)(A));

b. There were no feasible alternatives to the bypass, such as turning off the extraction wells pump(s), discharge to a POTW, retention of untreated wastes, maintenance during normal periods of equipment downtime, or the use of auxiliary treatment facilities. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 CFR § 122.41(m)(4)(i)(B)); and

c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 CFR § 122.41(m)(4)(i)(C).)

4. The Regional Water Board may not take enforcement action against a Discharger for bypass, if the Regional Water Board determines that the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above have been met. (40 CFR § 122.41(m)(4)(ii).)

5. Notice

a. Anticipated bypass of uncontaminated extracted groundwater. If the Discharger knows in advance of the need for a bypass of uncontaminated extracted groundwater, it shall submit the necessary information in the initial or modified Notice of Intent, if possible at least 45 days before the date of the bypass. The necessary information includes but not limited to the name and number of extraction wells, flow rates for each well, the distance to other contaminated wells, and monitoring data such as turbidity, color, conductivity, pH, temperature, metals, TPH, VOC, SVOC, PAHs, Oxygenates.

b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 CFR § 122.41(m)(3)(ii).)

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 CFR § 122.41(n)(1).)

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was

caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 CFR § 122.41(n)(2).).

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 CFR § 122.41(n)(3)):

   a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 CFR § 122.41(n)(3)(i));

   b. The permitted facility was, at the time, being properly operated (40 CFR § 122.41(n)(3)(ii));

   c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 CFR § 122.41(n)(3)(iii)); and

   d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 CFR § 122.41(n)(3)(iv).)

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 CFR § 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 CFR § 122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must submit a completed Notice of Intent form (see Attachment B), 180 days in advance of the Order expiration date, **to** obtain a new permit. (40 CFR § 122.41(b).)

C. Transfers

Any authorization to discharge issued under this Order is not transferable to any person except after filing a modified Notice of Intent with the Regional Water Board. If the new Discharger has a different professional engineer, the modified Notice of Intent shall be revised accordingly.

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 CFR § 122.41(j)(1).)

B. Monitoring results must be conducted according to test procedures under Part 136 or other test procedures specified in this Order. (40 CFR § 122.41(j)(4); § 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

A. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least five (5) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time (40 CFR § 122.41(j)(2).)

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 CFR § 122.41(j)(3)(i));
2. The individual(s) who performed the sampling or measurements (40 CFR § 122.41(j)(3)(ii));
3. The date(s) analyses were performed (40 CFR § 122.41(j)(3)(iii));
4. The individual(s) who performed the analyses (40 CFR § 122.41(j)(3)(iv));
5. The analytical techniques or methods used (40 CFR § 122.41(j)(3)(v)); and
6. The results of such analyses. (40 CFR § 122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 CFR § 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 CFR § 122.7(b)(1)); and
2. Permit applications and attachments, permits and effluent data. (40 CFR § 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or USEPA within a reasonable time, any information which the Regional Water Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 CFR § 122.41(h); Wat. Code, § 13267.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 CFR § 122.41(k).)

2. All permit applications shall be signed by a responsible person as explained below:

    a. **For a corporation.** All permit applications shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. (40 CFR § 122.22(a)(1).)

    b. **For a partnership or sole proprietorship.** All permit applications shall be signed by a general partner or the proprietor, respectively. (40 CFR § 122.22(a)(2).)

    c. **For a municipality, State, federal, or other public agency.** All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a

principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 CFR § 122.22(a)(3).).

3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 CFR § 122.22(b)(1));

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 CFR § 122.22(b)(2)); and

   c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 CFR § 122.22(b)(3).)

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR § 122.22(c).)

5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 CFR § 122.22(d).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 CFR § 122.22(l)(4).)

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form (40 CFR § 122.41(l)(4)(i).) or paper or electronic forms provided or specified by the Regional Water Board or State Water Board.

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under Part 136 or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or other reporting form specified by the Regional Water Board. (40 CFR § 122.41(l)(4)(ii).)

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 CFR § 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 CFR § 122.41(l)(5).)

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be uploaded on GeoTracker within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 CFR § 122.41(l)(6)(i).)

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 CFR § 122.41(l)(6)(ii)):

   a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 CFR § 122.41(l)(6)(ii)(A).)

   b. Any upset that exceeds any effluent limitation in this Order. (40 CFR § 122.41(l)(6)(ii)(B).)

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 CFR § 122.41(l)(6)(iii).)

F. Planned Changes

The discharger shall file with the Executive Officer an amended Notice of Intent at least 60 days before making any material change in the character, location, or volume of the discharge. In case of proposing any change of treatment system or operation and maintenance procedures, a professional engineer certified in State of California shall certify the adequacy of the design and/or the procedures. A modified Notice of Intent is required under this provision only when (40 CFR § 122.41(l)(1)) the alteration or addition could significantly change the nature or increase the quantity of pollutants discharged (pollutants regulated or not regulated by this Order).

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with the requirements in this Order. (40 CFR § 122.41(l)(2).)

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. (40 CFR § 122.41(l)(7).)

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, State Water Board, or USEPA, the Discharger shall promptly submit such facts or information. (40 CFR § 122.41(l)(8).)

VI. STANDARD PROVISIONS – ENFORCEMENT

The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations section 122.48 requires that all NPDES permits specify monitoring and reporting requirements. Water Code Sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements, which implement the federal and California regulations.

I. GENERAL MONITORING PROVISIONS

A. Reporting responsibilities of waste Dischargers are specified in Sections 13225(a), 13267(b), 13268, 13383 and 13387(b) of the California Water Code and this Regional Water Board's Resolution No. 73-16 and the Environmental Protection Agency's Discharge Monitoring Report (Form 3320-1).

B. The principal purposes of a monitoring program by a waste Discharger, also referred to as self-monitoring program, are: (1) to document compliance with waste discharge requirements and prohibitions established by the Regional Water Board, (2) to facilitate self-policing by the waste Discharger in the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of effluent or other limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards, and (4) to prepare water and wastewater quality inventories.

C. Laboratories analyzing monitoring samples shall be certified by the Department of Health Services, in accordance with the provision of Water Code section 13176, and must include quality assurance/quality control data with their reports.

D. Written reports, strip charts, calibration and maintenance records, and other records shall be maintained by the Discharger and accessible and retained for a minimum of five years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Water Board or Regional Administrator of the U.S. Environmental Protection Agency, Region IX. Such records shall show the following for **each** sample:

1. Identity of sampling and observation stations by number.
2. Date and time of sampling and/or observations.
3. Method of sampling.
4. Full report for rainbow trout bioassay test (96-hour static bioassay).
5. Date and time that analyses are started and completed, and name of personnel performing the analyses.
6. Complete procedure used, including method of preserving sample and identity and volumes of reagents used. A reference to a specific section of

Standard Methods (SM) or the standard USEPA method number is satisfactory.

7. Calculations of results.
8. Results of analyses and/or observations.

E. Monthly discharge flow volume shall be recorded, as well as totalized quarterly and annual flow.

F. A tabulation reflecting bypassing and accidental waste spills shall be maintained.

G. A copy of this Order, a complete copy of the Notice of Intent filed, documentation of the authorization to discharge received from the Regional Water Board, a full copy of the O&M Manual, and any other documents relevant to the operation and maintenance of the treatment facility shall be stored at or near the treatment facility. These documents help the Dischargers' staff responsible for compliance assurance activities and shall be made available to Regional Water Board staff during inspections. The Dischargers' staff responsible for compliance assurance activities shall inspect the Facility as frequent as required by the O&M Manual. No O&M Manual shall be submitted to the Regional Water Board office, unless requested.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table E.1 - Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description (include Latitude and Longitude when available)
--	INF-001	At a point in the extraction system immediately prior to inflow to the treatment unit.
	EFF-001	At a point in the discharge line immediately following treatment and before it joins or is diluted by any other waste stream, body of water, or substance.
	RSW-001U	At a point 50 feet upstream from the point of discharge into the receiving water, or if access is limited, at the first point upstream which is accessible.
	RSW-001D	At a point 50 feet downstream from the point of discharge into the receiving water, or if access is limited, at the first point downstream which is accessible.
	REU-001	At a point immediately prior to reuse location. Not Applicable if reused reclaimed water is the same as effluent or reclamation is in place.

III. INFLUENT MONITORING REQUIREMENTS

The Discharger shall perform sampling and analyses according to the schedule in Table E-2 and no Influent samples shall include any treatment system recirculation.

IV. EFFLUENT MONITORING REQUIREMENTS

The Discharger shall perform sampling and analyses according to the schedule in Table E-2 in accordance with the following conditions:

A. Samples of effluent shall be collected on days coincident with influent sampling.

B. When any type of bypass occurs, grab samples shall be collected on a daily basis for all constituents at all affected discharge points that have effluent limits for the duration of the bypass.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

The Discharger shall perform sampling and analyses according to the schedule in Table E-2 in accordance with the following conditions:

A. Fish bioassay samples shall be collected on days coincident with effluent sampling.
B. Bioassay tests should be performed on effluent samples after chlorination-dechlorination.
C. Total ammonia nitrogen of the effluent shall be analyzed and un-ionized ammonia calculated whenever fish bioassay test results fail to meet the specified percent survival.
D. If the final or intermediate results of any single bioassay test indicate a threatened violation (i.e. the percentage of surviving test organisms is less than the required survival percentage), a new test will begin and the Discharger shall investigate the cause of the mortalities and report the finding in the next self-monitoring report.

TABLE E.2 - Schedule for Sampling, Measurements, and Analysis

Sampling Station	Minimum Sampling Frequency for Influent INF-001	Minimum Sampling Frequency for Effluent EFF-001 or Effluent for Reuse REU-001	Minimum Sampling Frequency for Receiving Surface Water RSW-001U and RSW-001D	Required Analytical Test Method Number, Technique, SM, USEPA Report Number, 40 CFR Part (or equivalent)
Unit is "µg/L" and Type of Sample is "Grab" unless noted otherwise	**Grab**	**Grab**	**Grab**	
Fish Toxicity, 96-hr (% survival)		Q/Y		EPA-821-R-02-012 Test, Method

Sampling Station	Minimum Sampling Frequency for Influent INF-001	Minimum Sampling Frequency for Effluent EFF-001 or Effluent for Reuse REU-001	Minimum Sampling Frequency for Receiving Surface Water RSW-001U and RSW-001D	Required Analytical Test Method Number, Technique, SM, USEPA Report Number, 40 CFR Part (or equivalent)
Unit is "µg/L" and Type of Sample is "Grab" unless noted otherwise	**Grab**	**Grab**	**Grab**	
				2019.0
All Applicable Standard Observations (No Unit)		M	V	
Benzene	D/Q	D/M	V	8020
Toluene	D/Q	D/M	V	8020
Ethyl benzene	D/Q	D/M	V	8020
Total Xylenes	D/Q	D/M	V	8020
Methyl Tertiary Butyl Ether (MTBE)	D/Q	D/M	V	8020
Total Petroleum Hydrocarbons as Gasoline	D/Q	D/M	V	8015 Modified
Total Petroleum Hydrocarbons as Diesel	D/Q	D/M	V	8015 Modified
Total Petroleum Hydrocarbons other than Gasoline and Diesel (required if Petroleum Hydrocarbons other than Gasoline and Diesel present in the soil and groundwater)	D/Q	D/M	V	8015 Modified
Polynuclear Aromatic Hydrocarbons (PAHs)	Q	Q	V	8310
Ethylene Dibromide (EDB)	Y	Y	V	504
Volatile Organic Compounds	Y	Y	V	8260b
Tertiary Amyl Methyl Ether (TAME)	Y	Q See Note1		8260b
Diisopropyl Ether (DIPE)	Y	Q See Note1		8260b
Ethyl Tertiary Butyl Ether (ETBE)	Y	Q See Note1		8260b
Tertiary Butyl Alcohol (TBA)	Y	Q See Note1		8260b
Ethanol	Y	Q See Note1		8260b
Methanol	Y	Q See Note1		8260b
Semi Volatile Organic Compounds except PAHs	Y	Y		8270c
Antimony Total (See Note 2)	D/Y	D/Y		204.2
Arsenic Total (See Note 2)	D/Y	D/Y		206.3
Beryllium Total (See Note 2)	D/Y	D/Y		GFAA or ICPMS
Cadmium Total (See Note 2)	D/Y	D/Y		GFAA or ICPMS
Chromium Hexavalent and Total Chromium (See Note 2)	D/Y	D/Y		Standard Method (SM) 3500
Copper Total (See Note 2)	D/Y	D/Y		200.9
Cyanide Total (See Note 2)	D/Y	D/Y		SM 4500-CN⁻ C or

Sampling Station	Minimum Sampling Frequency for Influent INF-001	Minimum Sampling Frequency for Effluent EFF-001 or Effluent for Reuse REU-001	Minimum Sampling Frequency for Receiving Surface Water RSW-001U and RSW-001D	Required Analytical Test Method Number, Technique, SM, USEPA Report Number, 40 CFR Part (or equivalent)
Unit is "µg/L" and Type of Sample is "Grab" unless noted otherwise	**Grab**	**Grab**	**Grab**	
				I
Lead Total (See Note 2)	D/Y	D/Y		200.9
Mercury Total (See Note 2)	D/Y	D/Y		1631
Nickel Total (See Note 2)	D/Y	D/Y		249.2
Selenium Total (See Note 2)	D/Y	D/Y		SM 3114B or C
Silver Total (See Note 2)	D/Y	D/Y		272.2
Thallium Total (See Note 2)	D/Y	D/Y		279.2
Zinc Total (See Note 2)	D/Y	D/Y		200 or 289
Flow Rate (gpm & gpd)		Continuous		
Turbidity		D/Q/Y		
pH	D/M/Q/Y	D/M/Q/Y	V	
Dissolved Oxygen (mg/L)			V	
Total Dissolved Solids (mg/L) (construction and dewatering projects)		D/M		
Temperature (°C)	D	D/M/Q/Y		
Electrical Conductivity	D	D/M/Q/Y		
Hardness (mg/L as $CaCO_3$)			T	SM
Salinity (parts per thousand)			T	SM

Notes for Table E2-

Note 1: If not detected at 5 ug/l, annual sampling is sufficient

Note 2: Inorganic compounds samples shall be analyzed for total (unfiltered) constituents with the reporting levels not exceeding the following: 0.002 ug/l for Mercury; 0.25 ug/l for Cadmium and Silver; 1 ug/l for Nickel, Thallium, and Zinc; 2.0 ug/l for Arsenic and Selenium; 1 ug/l for Cyanide; and 0.5 ug/l for Antimony, Beryllium, Total Chromium, Copper, and Lead (SIP Appendix 4 Minimum Levels http://www.waterboards.ca.gov/iswp/docs/final.pdf). If the Discharger exceeds the trigger for mercury of 0.025, the Discharger may consider re-sampling and re-analyzing another sample using ultra-clean techniques as described in USEPA methods 1669 and 1631 to eliminate the possibility of artifactual contamination of the sample.

Definitions: ug/L = microgram per liter or parts per billion (ppb), g/day = grams per day, gpm = gallons per minute, mg/L = milligram per liter or parts per million (ppm), gpd = gallons per day, MFL = million fibers per liter

GC = Gas Chromatography; GCMS = Gas Chromatography/Mass Spectrometry; FAA = Flame Atomic Absorption; GFAA = Graphite Furnace Atomic Absorption; Hydride = Gaseous Hydride Atomic Absorption; ICP = Inductively Coupled Plasma; and ICPMS = Inductively Coupled Plasma/Mass Spectrometry.

Legends

D Once during the first and fifth day of start up.
M Once each month.
Y Once during the first week of start up; annually thereafter.
D/M Once during the first and fifth day of start up; monthly thereafter.
D/Q Once during the first and fifth day of start up; quarterly thereafter.
D/Y Once during the first and fifth day of start up; annually thereafter.
Q/Y Quarterly for first year of operation, annually thereafter.
D/Q/Y Once during the first and fifth day of start up; quarterly for first year of operation, annually thereafter.
D/M/Q/Y Once during the first and fifth day of start up; monthly for first year of operation, quarterly for the second year, and annually thereafter. In case of pH analysis, this monitoring requirement is only for facilities with a treatment process that would cause no pH variances in the effluent. If any chemical used in the treatment process may cause pH variances in the effluent, the

frequency of pH monitoring in the effluent shall be increased to twice per week for the first month of operation and weekly thereafter if pH monitoring data for the first month of operation demonstrate compliance with pH effluent limits.
V Sampling should be performed within 24 hours after an effluent limit violation is confirmed in E-001.
T Sampling should be performed when Cadmium, Chromium (total), Copper, Lead, Nickel, Silver, or Zinc triggers are exceeded.

VI. LAND DISCHARGE MONITORING REQUIREMENTS. (NOT APPLICABLE)

VII. RECLAMATION MONITORING REQUIREMENTS

The same as effluent and see section IX-E.

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

The Discharger is required to perform sampling and analyses according to the schedule in Table E-2 in accordance with the following conditions:

A. Receiving Waters sampling should be performed within 24 hours after an effluent limit violation is confirmed in the effluent.

B. Receiving water samples shall be collected at each station on each sampling day during the period within 1 hour following low slack water. Where sampling at lower slack water period is not practical, sampling shall be performed during higher slack water period. Samples shall be collected within the discharge plume and 50 feet down current of the discharge point so as to be representative, unless otherwise stipulated.

C. Samples should be collected within one foot below the surface of the receiving water body. Explanation shall be provided in the monitoring report if this specification could not be met.

IX. OTHER MONITORING REQUIREMENTS

A. Start Up Phase Monitoring. During the original start up for the treatment system, sampling of the effluent must occur on the first day and fifth day of operation.

1. On the first day of the original start up, the system shall be allowed to run until at least three to five well volumes are removed and until three consecutive readings for pH, conductivity, and temperature are within five percent of each other; then, the influent and effluent shall be sampled and submitted for analyses. Prior to receipt of the results of the initial samples, all effluent shall be discharged into a holding tank (that is contained, not discharged to the receiving water) or discharged to the sanitary sewer until the results of the analyses show the discharge to be within the effluent limits established in this Order and/or as authorized by the Executive Officer. The treatment system may be shut down after the first day's

sampling to await the analyses results and, thereby, reduce the amount of storage needed. For the stored effluent, if the results of the analyses show the discharge to be in violation, the effluent shall: (1) be retreated until the retreated effluent is in compliance, or (2) be disposed in accord with the provisions of Chapter 15, Title 23, California Code of Regulations.

2. If the first day's sampling shows compliance, the treatment system shall be operated for a total of five days with the discharge to the storm sewer or other conveyance system leading to the receiving water, and be sampled again during the fifth day. While the fifth day's samples are being analyzed, the effluent may be discharged to the receiving water as long as the analyses are received within 72 hours of sampling, and then, continue to be discharged to the receiving water if the analyses show compliance. If the treatment system is shut down more than 72 hours during the original start up (awaiting analyses results, etc.), the original start up procedures and sampling must be repeated.

B. **Chemical Additives Monitoring**: If applicable, monitoring related to chemical usage shall be conducted by the Discharger as required in its treatment system design specification and Operation and Maintenance Manual.

C. **Standard Observations for Receiving Water**
   1. Floating and suspended materials of waste origin (to include oil, grease, algae, and other macroscopic particulate matter): presence or absence, source, and size of affected area.
   2. Discoloration and turbidity: description of color, source, and size of affected area.
   3. Odor: presence or absence, characterization, source, distance of travel, and wind direction.
   4. Evidence of beneficial water use: presence of waterfowl or wildlife, people fishing, and other recreational activities in the vicinity of the site.
   5. Hydrographic condition, if relevant:
      a. Time and height of corrected high and low tides (corrected to nearest National Oceanic and Atmospheric Administration (also known as NOAA) location for the sampling date and time of sample and collection).
      b. Depth of water columns and sampling depths.
   6. Weather condition:
      a. Air temperature.
      b. Wind direction and estimated velocity.
      c. Total precipitation during the previous five days and on the day of observation.

E. **Standard Observations for Onsite Usage of Reclaimed Water**
   1. Floating and suspended materials of waste origin (to include oil, grease, algae, and other macroscopic particulate matter): presence or absence,

source, and size of affected area.

2. Discoloration and turbidity: description of color, source, and size of affected area.
3. Odor: presence or absence, characterization, source, distance of travel, and wind direction.
4. Weather condition:
    a. Air temperature.
    b. Wind direction and estimated velocity.
    c. Total precipitation during the previous five days and on the day of observation.
5. Deposits, discolorations, and/or plugging in the conveyance system that could adversely affect the system reliability and performance.
6. Operation of the valves, outlets, sprinkler heads, and/or pressure shutoff valves in conveyance system.

F. Standard Observations for Groundwater Treatment System

1. Odor: presence or absence, characterization, source, distance of travel, and wind direction.
2. Weather condition: wind direction and estimated velocity.
3. Deposits, discolorations, and/or plugging in the treatment system (stripping tower, carbon filters, etc.) that could adversely affect the system reliability and performance.
4. Operation of the float and/or pressure shutoff valves installed to prevent system overflow or bypass.

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

The Discharger shall comply with all Standard Provisions in Attachment D and in this document related to monitoring, reporting, and recordkeeping.

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or Regional Water Board may notify the Dischargers to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site, and will also provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal (http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the Dischargers shall upload an electronic copy of the SMR on GeoTracker (http://www.geotracker.swrcb.ca.gov).

2. The Dischargers shall report in the SMR the results for all monitoring specified in this MRP under sections III through IX. The Dischargers shall submit quarterly SMRs, uploaded on GeoTracker, no later than 45 days after end of each calendar quarter, including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.

3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E.3 - Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	Effective start up date	All	See Note 1
Daily	Effective start up date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	See Note 1
Weekly	Effective start up date	Effective start up day through one week after Effective start up date	See Note 1
Monthly	First day of calendar month following the last day of the start up date	1st day of calendar month through last day of calendar month	See Note 1

Quarterly	**Closest of January 1, April 1, July 1, or October 1 following (or on) the last day of the start up date**	**January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31**	**See Note 1**
Semiannually	**Closest of January 1 or July 1 following (or on) the last day of the start up date**	**January 1 through June 30 July 1 through December 31**	**See Note 1**
Annually	**January 1 following (or on) the last day of the start up date**	**January 1 through December 31**	**See Note 1**
Note 1: A report on the start up phase shall be submitted to the Regional Water Board by uploading it on GeoTracker no more than fifteen (15) days after the end of the start up phase. Quarterly Self-Monitoring Reports shall also be submitted the Regional Water Board by uploading it on GeoTracker on a quarterly calendar basis, no later than forty five (45) days following the last day of the quarter. Annual Reports shall be uploaded on GeoTracker by February 15 of each year, covering the previous calendar year. The annual report shall contain all data required for the fourth quarter in addition to summary data required for annual reporting. This report may be submitted in lieu of the report for the fourth quarter of a calendar year.			

4. Reporting Protocols. The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in Part 136. The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

   a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

   b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported. For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (± a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

   c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

   d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical

data derived from *extrapolation* beyond the lowest point of the calibration curve.

5. The Discharger shall upload SMRs on GeoTracker in accordance with the following requirements:

   a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with the effluent limitations.

   b. The Discharger shall attach a cover letter to the monitoring reports. The information contained in the cover letter shall clearly identify violations of the permit; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

   c. Monitoring reports must be submitted to the Regional Water Board signed, and certified as required by the Standard Provisions (Attachment D) to the address listed below:

      California Regional Water Quality Control Board
      San Francisco Bay Region
      1515 Clay Street, Suite 1400
      Attn: NPDES Wastewater Division
      Fuel General NPDES NO. CAG912002

   d. The monitoring reports shall also include a description of operation and maintenance (O&M) of the groundwater extraction and treatment system consistent with the O&M manual, which shall be available to all personnel who are responsible for operation and maintenance activities.

   e. The monitoring reports shall include the results of analyses and observations as follows:
      1. Calculations for all limitations that require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.
      2. A table identifying by method number the analytical procedures used for analyses. Any special methods shall be identified and should have prior approval of the Regional Water Board's Executive Officer.
      3. Laboratory results shall be summarized in tabular form but do not need to be included in the report. A summary of quality assurance/quality control activities data such as field,

travel, and laboratory blanks shall be reported for each analyzed constituent or group of constituents.

4. A summary of the monitoring data to include information such as source of the sample (influent, effluent, or receiving water); the constituents; the methods of analysis used; the laboratory reporting limits in ug/l; the sample results (ug/l); the date sampled; and the date sample was analyzed.
5. Flow (in gpm) and mass removal data (in kilograms).
6. Summary of treatment system status during the reporting period (e.g. in operation/on standby) and reason(s) for non-routine treatment system shut down.
7. The annual reports shall contain tabular summary of the monitoring data obtained during the previous year. In addition, the annual reports shall contain a comprehensive discussion of the compliance record and the corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements. The annual report shall document that the annual fee has been paid.
8. If, during any calendar quarter, a Discharger becomes aware that any monitoring data obtained for compliance with this Order are invalid, the Discharger shall submit a claim of invalid monitoring data, as uploaded on GeoTracker with a confirmation email to the Regional Water Board staff in charge of this permit, within 45 days after end of that calendar quarter. The Discharger shall include with this claim, the name, phone number, and email of its assigned staff to investigate the cause(s) of errors and the corrective actions taken, or date when actions will be completed to eliminate or reduce future data errors. The Discharger shall also provide, in this claim, a date that the Operation and Maintenance Manual will be updated to include errors prevention measures. These preventive measures shall include but not be limited to accelerated monitoring (e.g. twice a month monitoring for at least one month) to provide valid monitoring data indicating the effectiveness of the proposed preventive measures.

C. Discharge Monitoring Reports (DMRs) Not Applicable

D. Other Reports

1. Trigger Study Report: The Discharger shall report the results of any trigger study required by Special Provisions – VI.C.6 and the progress in satisfaction of compliance schedule dates specified in Special Provisions VI.C.7, VI.C.8, and VI.C.9 of this Order. The Discharger shall upload

these reports on GeoTracker.

2. Start Up Notification Report: The Discharger shall notify the Executive Officer by uploading on GeoTracker the completed Form provided in Attachment G - Notice of Startup or Re-Startup Form. no later than 14 days before planned start up date.

3. Start-up Report: A report on the start up phase shall be uploaded on GeoTracker no more than fifteen days after the end of the start up phase. This report shall include a certification that a professional engineer certified in the State of California oversees the treatment system operation and maintenance activities including the start up work.

4. Spill Reports: If any hazardous substance is discharged in or on any waters of the state, or discharged and deposited where it is, or probably will be discharged in or on any waters of the state, the Discharger shall report such a discharge to this Regional Water Board, at (510) 622-2300 on weekdays during office hours from 8 a.m. to 12 p.m. and 1 p.m. to 5 p.m, and to the Office of Emergency Services at (800) 852-7550 during non-office hours. A written report shall be uploaded on GeoTracker, with an confirmation email to staff, within five (5) working days and shall contain information relative to:

   a. Nature of waste or pollutant,
   b. Quantity involved,
   c. Duration of incident,
   d. Cause of spilling,
   e. Spill Prevention, Control, and Countermeasure Plan (SPCC) in effect, if any,
   f. Estimated size of affected area,
   g. Nature of effects (i.e., fish kill, discoloration of receiving water, etc.),
   h. Corrective measures that have been taken or planned, and a schedule of these activities, and
   i. Persons/agencies notified.

5. Reports of Treatment Unit Bypass and Permit Violation: In the event the Discharger violates or threatens to violate the conditions of the waste discharge requirements and prohibitions or intends to permit a treatment unit bypass due to:
   a. Maintenance work, power failures, or breakdown of waste treatment equipment,
   b. Accidents caused by human error or negligence,
   c. The self-monitoring program results exceeding effluent limitations,
   d. Any activity that would result in a frequent or routine discharge of any toxic pollutant not limited by this Order, or
   e. Other causes, such as acts of nature.

The Discharger shall notify the Regional Water Board within 24 hours of when the Discharger or Discharger's agent has knowledge of the incident and confirm this notification in writing and uploaded on GeoTracker with a confirmation email to staff, within 5 working days of the initial notification. The written report shall include time, date, duration and estimated volume of waste bypassed, method used in estimating volume and person notified of the incident. The report shall include pertinent information explaining reasons for the noncompliance and shall indicate what steps were taken to prevent the problem from recurring.

If a violation of the effluent limitations should occur, the Discharger shall direct the effluent to a holding tank and contained, or the extraction and treatment system shall be shut down. The confirmation sampling shall be conducted when the discharge is directed to a holding tank and contained or right before the extraction and treatment system is shut down. The content of the holding tank shall be retreated until the retreated effluent is in compliance, or be disposed in accord with the provisions of Chapter 15, Title 23, California Code of Regulations.

If the treatment system is shut down for more than 120 consecutive hours after the start up period (maintenance, repair, violations, etc.) the reason(s) for shut down, proposed corrective action(s) and estimated start up date shall be orally reported to the Regional Water Board within five days of shut down and a written submission through GeoTracker shall also be provided within 15 days of shut down.

If feasible, the corrective action(s) taken and the proposed start up procedures shall be reported to the Regional Water Board at least 15 days before start up.

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

This Order is intended to cover discharges of extracted and treated groundwater resulting from the cleanup of groundwater polluted by fuel leaks and other related wastes at service stations and similar sites.

This Fact Sheet includes the legal basis and technical rationale for the requirements of the Order. This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as "not applicable" have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as "not applicable" are fully applicable to the Dischargers.

In 1991, the Regional Water Board issued a National Pollutant Discharge Elimination System (NPDES) General Permit for allowing the discharge of extracted and treated groundwater resulting from the cleanup of groundwater polluted by fuel leaks and other related wastes at service stations and similar sites. The permit was reissued twice in 1996 and 2001.

The 2001 permit expired on September 19, 2006, and needs to be reissued because approximately 9,700 sites with underground fuel storage tanks within the San Francisco Bay Region are known to be leaking or have leaked in the past. Fuel is also discharged to groundwater from other sources (surface spills, pipeline breaks or leakages, etc.). Within the next five years, approximately 300 of these sites will be conducting groundwater cleanups by extracting contaminated groundwater, treating, and discharging treated groundwater, particularly in Santa Clara County. Because some Publicly Owned Treatment Works (POTWs) do not accept new discharges from groundwater cleanups, approximately 75 of these sites will require Waste Discharge Requirements from the Regional Water Board for discharge to surface water. These cleanups will exceed the capacity of available staff to develop and bring individual waste discharge requirements to the Regional Water Board for adoption. These circumstances create the need for an expedited system to process the anticipated numerous requests. The renewal of the fuel general NPDES permit will expedite the processing of requirements, enable the Regional Water Board to better utilize limited staff resources, and permit cleanups to begin promptly.

The following fuel-cleanup discharges are normally not eligible for coverage: discharges from cleanups involving significant contamination by metals, pesticides, or other conservative pollutants; discharges from cleanups involving reinjection of treated groundwater; and discharges from sites with other NPDES discharges (e.g. process waste). A fuel-cleanup discharger that combines extracted groundwater with stormwater before treatment is normally not eligible for coverage under this Order because amount of rainwater varies and may exceed the treatment system capacity.

I. PERMIT INFORMATION

The following Table (Table F-1) and paragraphs summarize administrative information related to the facilities. As applicable, Table F-1 provides cross-references to the specific sections of the Notice of Intent (NOI) Form, in the Attachment B, that each Discharger enrolled under this Order must initially complete and submit as part of the NOI.

Table F-1. Facility Information

WDID	A waste discharge identification number will be assigned to a facility when the Executive Officer issues the authorization to discharge
Discharger	Row 1 of Table 2 of NOI Form in Attachment B
Name of Facility	Row 2 of Table 2 of NOI Form in Attachment B
Facility Address	Row 3 of Table 2 of NOI Form in Attachment B
Facility Contact, Title and Phone	Row 4 of Table 2 of NOI Form in Attachment B
Authorized Person to Sign and Submit Reports	Row 5 of Table 2 of NOI Form in Attachment B
Mailing Address	Row 6 of Table 2 of NOI Form in Attachment B
Billing Address	Row 7 of Table 2 of NOI Form in Attachment B
Type of Facility	Row 8 of Table 2 of NOI Form in Attachment B
Major or Minor Facility	Minor
Threat to Water Quality	Category 2 (based on three categories 1, 2, and 3)
Complexity	Category B (based on three categories A, B, and C)
Pretreatment Program	Not Applicable
Reclamation Requirements	Producer (See Row 14 of Table 4 of NOI in Attachment B)
Facility Permitted Flow	Condition 4 of NOI Form in Attachment B (in gallons per minute (gpm))
Facility Design Flow	Condition 4 of NOI Form in the Attachment B (in gpm)
Watershed	Row 9 of Table 2 of NOI Form in the Attachment B
Receiving Water	Row 10 of Table 2 of NOI Form in the Attachment B
Receiving Water Type	Row 11 of Table 2 of NOI Form in the Attachment B

A. Site Owners or Operators who will apply for an authorization to discharge under this Order and who may be granted such authorization are hereinafter called Discharger(s). The groundwater treatment facility is considered the Facility regulated under this Order (hereinafter Facility). For the purposes of this Order, references to the "Discharger(s)" or "permittee(s)" in applicable federal and state

laws, regulations, plans, or policy are held to be equivalent to references to the Discharger(s) herein.

B. The Facilities currently regulated under the previous general NPDES permit, Order No. 01-100, discharge wastewater to different receiving waters of the United States, mainly in Santa Clara County. Order No. 01-100, which was adopted on September 19, 2001, expired on September 19, 2006. The terms and conditions of the previous Order were automatically continued in effect until new Waste Discharge Requirements and NPDES permit are adopted pursuant to this Order. During the life of the previous Order, 114 facilities were authorized to discharge treated groundwater to the receiving water documented in the NOI submitted for each discharge.

C. As of June 2006, 37 Dischargers filed a report of waste discharge by submitting an NOI application for renewal of their discharge authorization under this General Waste Discharge Requirements (GWDRs), NPDES permit. At least 38 more NOIs may be submitted during the next five years. In the process of reviewing and approving NOIs, supplemental information may be requested from a subset of these facilities. It may also be necessary to visit facilities for which an NOI has been submitted, to observe operations and collect additional data to determine the eligibility of authorizing those discharges under this Order. This Order requires the Dischargers to submit monitoring data per Attachment E. A few Dischargers authorized under this Order may be required to apply for an individual NPDES permit if monitoring data indicate significant contamination by metals, pesticides, or other conservative pollutants.

II. FACILITY DESCRIPTION

The regulated facilities under this Order are normally groundwater treatment facilities located at active or closed service stations or construction sites with the need for short or long term dewatering. These groundwater treatment facilities are in operation to extract and treat groundwater polluted mainly by fuel leaks.

A. Description of Wastewater Treatment

Dischargers authorized under this Order typically use aeration and/or granular activated carbon (GAC) systems to treat their pollutants of concern. The most common pollutants contained in the influent of these treatment systems are benzene, ethylbenzene, toluene, total xylenes, Methyl Tertiary Butyl Ether (MTBE), and other petroleum hydrocarbons collectively named as total petroleum hydrocarbons (TPH). Less commonly inorganic compounds may also be present in the influent and effluent. Other volatile or semi volatile organic compounds may also be present in the influent of a subset of facilities regulated under this permit. Approximately 75% of the 37 facilities that applied for permit re-issuance designed their treatment facilities for a flow rate less than 10 gpm.

Except for some inorganic compounds and oxygenates other than MTBE, the concentrations of organic pollutants in the effluents of the discharges are usually below detectable levels. The reported detection limit for benzene, ethylbenzene, toluene, total xylenes, and most volatile organic compounds (VOCs) is 0.5 microgram per liter (ug/l); for MTBE the reported detection limit ranges from 0.5 to 5.0 ug/l; for TPH the reported detection limit is mostly 50.0 ug/l; and the reported detection limits for semi volatile organic compounds are mostly 5.0 or 10.0 ug/l.

B. Discharge Points and Receiving Waters

Condition No. 6 of the NOI Form (Attachment B) requires the Discharger to provide discharge location data and a map with the discharge path highlighted.

C. Summary of Existing Requirements

With two exceptions, the effluent limitations contained in the previous Order have been continued into this Order as summarized in Table F-4. These exceptions are: MTBE reduced from 13 ug/l to 5 ug/l, and Vinyl Chloride reduced from 5 ug/l to 1 ug/l, for Discharge to Other Surface Water Areas.

D. Compliance Summary

In order to collect compliance history information, the Regional Water Board staff reviewed the 37 permit renewal applications submitted, and the annual reports from those same 37 facilities, from the previous permit period, 2001-2006. Except for Total Petroleum Hydrocarbon as diesel (TPHd), the Dischargers have reported almost a 100% compliance rate with the effluent limitations in the permit. In the case of TPHd, the Dischargers reported 15 TPHd exceedances in the cover letter to the annual reports. These same Dischargers reported 52 TPHd exceedances in the NOI applications submitted in March 2006. The Dischargers reported 46 of those 52 TPHd exceedances (about 90%) were due to false positives - in other words, sampling and reporting errors of various nature. A number of oil companies also reported some of the TPHd exceedances were due to false positive results caused by sampling errors and problems with EPA method 8015 for diesel. These false positive concerns were summarized in an August 18, 2003, report titled "Diesel False Positives and Related Regulatory Policy for NPDES Effluent Dischargers," prepared by Tim Utterback and Richard Weiss for Wetern States Petroleum Association (WSPA). This report summarizes the WSPA members' concerns about the potential for enforcement actions based on invalid monitoring data, and finds it beneficial to the Regional Water Board and Dischargers to have a standardized procedure to prevent, identify, and report diesel false positives. This Order provides the Dischargers with requirements to prevent, identify, and report diesel false positives as explained in the following sections of the Order:

1. Section X.B.5.e.3 of Attachment E requires the reporting of quality assurance/quality control activities data such as field, travel, and laboratory blanks for each analyzed constituent or group of constituents,

2. Table E.2 of Attachment E requires the Dischargers to monitor TPH other than gasoline and diesel separate from TPHd which will minimize TPHd false positives,
3. Section X.B.5.e.8 of Attachment E requires the Dischargers to report every discovered invalid monitoring data, including TPHd false positives,
4. Section X.B.5.e.8 of Attachment E provides the Dischargers with additonal time, 45 days instead of 15 days in the 2001 permit, to identify, verify, and report any monitoring errors, and
5. Table 5 of Attachment B and Section X.B.5.e.8 of Attachment E require the Dischargers to assign a specific person to investigate the cause(s) of errors and implement corrective actions.

E. Planned Changes

As required in Attachment D, a Discharger authorized under this Order shall submit a modified NOI before making any material change in the character, location, or volume of the discharge.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in the Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the California Water Code (commencing with section 13370). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260). States may request authority to issue general NPDES permits pursuant to Code of Federal Regulations, Title 40, Chapter 1, Subchapter D, part 122.28 (40 CFR 122.28). 40 CFR 122.28 provides for the issuance of general permits to regulate discharges of waste which result from similar operations, are the same types of waste, require the same effluent limitations, require similar monitoring, and are more appropriately regulated under a general permit rather than individual permits. This general permit meets the requirements of 40 CFR 122.28 because the discharges and proposed discharges:

1. result from similar operations (all involve extraction, treatment, and discharge of groundwater),
2. are the same types of waste (all are groundwater containing petroleum hydrocarbons and other related wastes due to leaks and spills from service stations and similar sites),

3. require similar effluent limitations for the protection of the beneficial uses of surface waters in the San Francisco Bay Region (this general permit does not cover direct discharges to the Pacific Ocean),
4. require similar monitoring, and
5. are more appropriately regulated under a general permit rather than individual permits.

This Order shall become effective about two months after the date of its adoption provided the Regional Administrator, USEPA, has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

B. **California Environmental Quality Act (CEQA).** Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100-21177.

C. State and Federal Regulations, Policies, and Plans

a. **Water Quality Control Plans.**
The Regional Water Board adopted a Water Quality Control Plan for the San Francisco Bay Basin (hereinafter Basin Plan) on June 21, 1995, and amended this plan on January 2, 2004, and November 16, 2005. The 2005 amendment will be final after approval from the State Water Board and Office of Administrative Law. The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. The Basin Plan (Page 2-5) states that the beneficial uses of any specifically identified water body generally apply to its tributary streams. The Basin Plan may not specifically identify beneficial uses for every Receiving Water regulated under this permit, but identifies present and potential uses for the downstream water body, to which the Receiving Water, via an Intermediate water body, is tributary. These potential and existing beneficial uses are: municipal and domestic supply, fish migration and fish spawning, industrial service supply, navigation, industrial process supply, marine habitat, agricultural supply, estuarine habitat, groundwater recharge, shellfish harvesting, water contact and non-contact recreation, ocean, commercial, and sport fishing, wildlife habitat, areas of special biological significance, cold freshwater and warm freshwater habitat, and preservation of rare and endangered species for surface waters and municipal and domestic supply, industrial service supply, industrial process supply, agricultural supply, and freshwater replenishment for groundwaters. In addition, the Basin Plan implements State Water Board Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply.

All beneficial uses listed in the Order are from Basin Plan, Tables 2-1 through 2-7 (pages 2-11, 2-13, 2-15, 2-17, 2-19, 2-21, and 2-23, respectively). The tributary rule is explained on Page 2-5. The beneficial uses for the groundwater basins are listed in Table 2-9 (page 2-28). Requirements of this Order implement the Basin Plan.

b. **Thermal Plan.**
The Regional Water Board has included this Plan in Page 3-4 of the Basin Plan.

c. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.

d. **State Implementation Policy.**
On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

e. **Alaska Rule.**
On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes. (40 C.F.R. § 131.21; 65 Fed. Reg. 24641 (April 27, 2000).) Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.

f. **Antidegradation Policy.** Section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge is consistent with the antidegradation provision of section 131.12 and State Water Board Resolution No. 68-16. Discharges regulated by this Order should not lower water quality if the terms and conditions of this Order are met. Therefore the permitted discharges are consistent with the antidegradation provision of 40 CFR Section 131.12 and State Water Board Resolution No. 68-16.

g. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order.

D. Impaired Water Bodies on CWA 303(d) List

On June 6, 2003, the USEPA approved a revised list of impaired water bodies prepared by the State (hereinafter referred to as the 303(d) list). The SIP requires final effluent limitations for all 303(d)-listed pollutants to be based on total maximum daily loads and associated waste load allocations.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source Dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: section 122.44(a) requires that permits include applicable technology-based limitations and standards; and section 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Where reasonable

potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) may be established: (1) using USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) on an indicator parameter for the pollutant of concern; or (3) using a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in section 122.44(d)(1)(vi).

The proposed effluent limitations are required to protect Beneficial Uses of the surface waters and ground waters of the San Francisco Bay Region. The Clean Water Act (CWA) requires technology-based effluent limits (Section 301) unless more stringent limits are required in order to achieve water quality objectives. Section 301 of the CWA also requires that technology-based effluent limits include the application of best available technology economically achievable (BAT) for the pollutants being discharged. Technology based effluent limits were developed for the suite of volatile organic compounds (VOCs) to be regulated, and then water quality based effluent limits were developed for those VOCs whose lowest value from the CTR and Basin Plan was less than the respective technology based effluent limit.

A. Discharge Prohibitions

The proposed prohibitions are required to protect beneficial uses of the surface waters and ground waters of the San Francisco Bay Region.
Prohibition III.A, no unauthorized discharge of extracted and treated groundwater, is the same as in the previous permit and is based on CWC Section 13260, which requires filing of a report of waste discharge (ROWD) before discharges can occur. The Dischargers submitted a ROWD for the discharges described in this Order; therefore discharges not described in this Order are prohibited.
Prohibition III.B, no discharge other than the one approved by the Executive Officer which do not adversely affect the environment and comply with the requirements of this Order, is based on the same rationale documented for Prohibition A.1.
Prohibition III.C, no discharge of extracted and treated groundwater in excess of the authorized flow rate, is based on the same rationale documented for Prohibition A.1. The Dischargers submitted a ROWD for the discharges which included a treatment facility designed for a specific maximum flow rate by a professional engineer certified in the State of California, therefore flow rates exceeding the designed/authorized flow rates are prohibited.
Prohibition III.D, no scouring or erosion due to discharge of extracted and treated groundwater, is based on Basin Plan (page 4-40) goal of reducing and preventing (human-caused) erosion.
Prohibition III.E, no pollution, contamination, or nuisance, is based on the Basin Plan (page 2-1).

Prohibition III.F, no bypass or overflow of untreated or partially treated polluted groundwater, is based on 40 CFR 122.41(m)(ii)(4).

B. Technology-Based Effluent Limitations

1. Scope and Authority

The CWA requires that technology-based effluent limitations are established based on several levels of controls:

- Best practicable treatment control technology (BPT) represents the average of the best performance by plants within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.

- Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.

- Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering the "cost reasonableness" of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.

- New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires USEPA to develop effluent limitations, guidelines and standards (ELGs) representing application of BPT, BAT, BCT, and NSPS. Section 402(a)(1) of the CWA and section 125.3 of the Code of Federal Regulations authorize the use of BPJ to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the permit writer must consider specific factors outlined in section 125.3.

2. Applicable Technology-Based Effluent Limitations

BPJ was used in developing technology-based effluent limits in this Order. BPJ is defined as the highest quality technical opinion developed by a permit writer after consideration of all reasonably available and pertinent data or information that forms the basis for the terms and conditions of a NPDES permit. The authority for BPJ is contained in Section 402(a)(1) of the CWA.

In the treatment systems regulated by this permit, organic compounds are typically removed from groundwater through either aeration processes or through adsorption processes (e.g. granular activated carbon). When properly designed and operated, most aeration and/or granular activated carbon (GAC) systems can lower the concentration of petroleum pollutants and VOCs to below detection limits. Limits established in the tentative order for the petroleum pollutants and VOCs can be met if GAC/air stripper treatment systems are properly operated.

In 1986, U.S. EPA Region 9 in a document titled "NPDES Permit Limitations for Discharge of Contaminated Groundwater: Guidance Document" (USEPA 1986) concluded that the cost of attaining effluent levels to non-detect (5 ug/l detection levels except 1 ug/l for Vinyl Chloride) for all organic compounds that are commonly detected in contaminated groundwater is considered economically achievable. This permit was originally issued in 1991. The suite of pollutants to be regulated with effluent limits in this permit was selected by reviewing USEPA 1986 and the 1989 State of California document titled "Leaking Underground Fuel Tank Field Manual" and using the compounds called out by those documents as most likely to be detected at a fuel or groundwater cleanup site and for which a Maximum Contaminant Level (MCL) has been promulgated. In addition, the Regional Water Board staff, using BPJ, added Trichlorotrifluoroethane (Freon 113) in a previous permit reissuance, and Methyl Tertiary Butyl Ether (MTBE) in the 2001 permit reissuance.

MTBE has a secondary MCL of 5 ug/l. The discharges regulated under this permit have the potential to recharge groundwaters designated as drinking waters. The Basin Plan requires these groundwaters to be protected to both the primary and secondary MCLs. Therefore, it is appropriate to limit discharges that may recharge these groundwaters to secondary MCL levels. In 2001, the previous permit was re-issued with two MTBE effluent limits: one 5 ug/l limit for discharging to drinking water areas and another 13 ug/l limit (based on MTBE primary MCL) for discharging to other surface water areas. Data collected over 18 months, ending in 2001, showed that out of 443 effluent samples analyzed for MTBE during that period, 432 were "non-detect" and one sample detected MTBE above 5 ug/l, suggesting that a limit of 5 ug/L would be reasonably achievable. Additionally, the MTBE monitoring data provided by the Dischargers during the 2001-2006 period, confirm the limit of 5 ug/l for MTBE is

technologically feasible and economically achievable. Most Dischargers authorized under this permit were already required to comply with the 5 ug/l limit and almost all MTBE monitoring data confirm the Dischargers' ability to comply with the 5 ug/l technology-based limit. Therefore, consistent with the USEPA 1986 guidance, the maximum daily effluent limitation for MTBE for discharge to other surface water areas is changed from 13 ug/l to 5 ug/l.

Similarly, consistent with the USEPA 1986 guidance, the maximum daily effluent limitation for Vinyl Chloride for discharge to other surface water areas is corrected from 5 ug/l to 1 ug/l.

Even though information exists to show that the reporting limit and removal technology for many of the effluent constituents is now lower (0.5 ug/l), USEPA Region 9 has not updated its original guidance to adjust limits downward. The Regional Water Board staff's BPJ, at this time, is to remain consistent with EPA's original limits. The technology-based effluent limits in this permit are consistent with, or more stringent than, the USEPA 1986 guidance.

This Order has also effluent limits for Total Petroleum Hydrocarbons (TPH) as gasoline or as diesel. USEPA 1986 guidance has no mention of TPH as gasoline or as diesel. The expired permit had a limit of 50.0 ug/l for TPH and a monitoring requirement for TPH as Gasoline and Diesel. TPH does not have an MCL and typically has a reporting limit of 50 ug/l.

In 1991, the most significant group of pollutants in the groundwater cleanup facilities regulated under this permit were the pollutants associated with gasoline and diesel fuels. However, since 2001, Dischargers have submitted groundwater treatment facilities influent and effluent monitoring data that indicate petroleum hydrocarbons other than gasoline and diesel fuel have contaminated groundwater. For example, the West Base Realignment and Closure Program Management Office of the Department of Navy (Navy) reported detected levels of TPH Bunker-C in the influent and non-detect TPH Bunker-C monitoring data with a reporting level as high as 300 ug/l in the effluent.

In this case, the Regional Water Board staff do not have sufficient information to require a reporting limit of 50 ug/l for TPH Bunker C. In addition, even if a reporting limit of 50 ug/l is achieved, the Navy may need additional time to improve its groundwater treatment system to remove TPH Bunker-C to a non-detect level of 50 ug/l.

In general, the Regional Water Board staff need to gather information regarding the detection and treatment limitations for those TPH components other than Gasoline and Diesel. For this reason, instead of setting a new limit, a trigger (called TPH other than Gasoline and Diesel) and a monitoring requirement has been added in the permit. This trigger and monitoring requirement would allow Dischargers such as the Navy to continue their groundwater cleanup while improving their reporting levels to 50 ug/l and/or upgrading their treatment facility to remove TPH other than Gasoline and Diesel category to a 50 ug/l non-detect level. By the next permit reissuance in 2011, the Regional Water Board staff should have a better understanding of the range of constituents included in this new TPH other than Gasoline and Diesel category and whether a new effluent limit would be appropriate at that time.

Table F-2 shows that the technology based effluent limits for discharge to drinking water areas were derived by picking the lowest limit from the State promulgated MCL, Federal promulgated MCL, and USEPA 1986 guidance for each of the listed compounds. The last column of Table F-2 shows that the technology based effluent limits for discharge to other surface water areas are the same as USEPA 1986 BAT.

Table F-2. Summary of Technology-based Effluent Limitations

No.	Compound	SMCL ug/L	FMCL ug/L	USEPA 1986 BAT ug/L	Technology-based Effluent Limitations for Discharge to Drinking Water Areas ug/L	Technology-based Effluent Limitations For Discharge to Other Surface Water Areas ug/L
1	Benzene	1	5	5	1	5
2	Carbon Tetrachloride	0.5	5	5	0.5	5
3	Chloroform	80	80	5	5	5
4	1,1-Dichloroethane	5	-	5	5	5
5	1,2-Dichloroethane	0.5	5	5	0.5	5
6	1,1-Dichloroethylene	6	7	5	5	5
7	Ethylbenzene	300	700	5	5	5
8	Methylene Chloride (Dichloromethane)	5	5	5	5	5
9	Tetrachloroethylene	5	5	5	5	5
10	Toluene	150	1000	5	5	5
11	Cis 1,2-Dichloroethylene	6	70	5	5	5
12	Trans 1,2-Dichloroethylene	10	100	5	5	5
13	1,1,1-Trichloroethane	200	200	5	5	5
14	1,1,2-Trichloroethane	5	5	5	5	5
15	Trichloroethylene	5	5	5	5	5
16	Vinyl Chloride	0.5	2	1	0.5	1
17	Total Xylenes	1750	10000	5	5	5
18	Methyl Tertiary Butyl Ether (MTBE)	5	-	5	5	5
19	Total Petroleum Hydrocarbons (TPH) as Gasoline or as Diesel	-	-	-	50 (proposed)	50 (proposed)
20	Ethylene Dibromide (1,2-Dibromoethane)	0.05	0.05	5	0.05	5
21	Trichlorotrifluoroethane	1200	-	5	5	5

LEGEND: FMCL - Federal Maximum Contaminant Level and MCL - California Maximum Contaminant Level

Effluent Limitations A.2 for pH is based on Table 4-2 (Page 4-69) of the Basin Plan.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

As specified in section 122.44(d)(1)(i), permits are required to include WQBELs for pollutants (including toxicity) that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an in-stream excursion above any state water quality standard. The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

If any extracted and treated groundwater receive less than proper treatment, the Benzene, Carbon Tetrachloride, Chloroform, 1,1-Dichloroethane, 1,2-Dichloroethane, 1,1-Dichloroethylene, Ethylbenzene, Methylene Chloride (Dichloromethane), Tetrachloroethylene, Toluene, Cis 1,2-Dichloroethylene, Trans 1,2-Dichloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, Trichloroethylene, Vinyl Chloride, Total Xylenes, Methyl Tertiary Butyl Ether (MtBE), Total Petroleum Hydrocarbons, Ethylene Dibromide (1,2-Dibromoethane), and/or Trichloro-trifluoroethane concentration in the effluent of those discharges do cause, have a reasonable potential to cause, or contribute to an exceedance of any applicable criterion established by the USEPA pursuant to CWA Section 303.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The water quality criteria applicable to the discharge(s) regulated under the Order are based on protecting the beneficial uses described in Section III of the Order. The WQOs/WQC applicable to the receiving water bodies of these discharges are from the Basin Plan, CTR, and NTR.

(1) The Basin Plan specifies numeric WQOs for 10 priority toxic pollutants, as well as narrative WQOs for toxicity and bioaccumulation in order to protect beneficial uses. The pollutants for which the Basin Plan specifies numeric objectives are arsenic, cadmium, chromium (VI), copper in fresh water, and lead, mercury, nickel, silver, zinc, and total polynuclear aromatic hydrocarbons (PAHs) in salt water. The narrative toxicity objective states in part "[a]ll waters shall be maintained free of toxic substances in concentrations that are lethal to

or that produce other detrimental responses in aquatic organisms." The bioaccumulation objective states in part "[c]ontrollable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered." Effluent limitations and provisions contained in this Order are designed to implement these objectives, based on available information.

(2) The CTR specifies numeric aquatic life criteria for 23 priority toxic pollutants and numeric human health criteria for 57 priority toxic pollutants. These criteria apply to inland surface waters and enclosed bays and estuaries such as San Francisco Bay, except where the Basin Plan's Tables 3-3 and 3-4 specify numeric objectives for certain of these priority toxic pollutants. The Basin Plan's numeric objectives apply over the CTR (except in the South Bay south of the Dumbarton Bridge).

(3) The NTR established numeric aquatic life criteria for selenium, numeric aquatic life and human health criteria for cyanide, and numeric human health criteria for 34 toxic organic pollutants for waters of San Francisco Bay upstream to, and including, Suisun Bay and the Sacramento-San Joaquin Delta. This includes the receiving water for this Discharger.

3. Determining the Need for WQBELs

The CWA requires water quality based effluent limits if technology based effluent limits are not sufficiently stringent to meet water quality objectives. In the suite of VOCs regulated by the Order, several VOCs have water quality criteria (WQC) in the CTR that are below the respective technology based effluent limit. The effluent limit for those VOCs is set to be the CTR WQC as shown in Table F-3. A blank cell in Table F-3 denotes that no California Toxics Rule criterion is available for that pollutant.

4. WQBEL Calculations

No dilution credit is given in establishing effluent limits in this permit because all discharges of treated groundwater regulated under this Order are to storm drain systems that discharge to rivers, creeks, and streams. Many of these creeks and streams are dry during the summer months. Therefore, for many months of the year, these discharges may represent all or nearly all of the flow in some portions of the receiving creeks or streams. These discharges therefore also have the potential to recharge groundwaters protected as drinking waters.

In explanation of the procedure for WQBEL calculations: if the detection limit for the VOC is greater than the CTR WQC then the effluent limit is set at the CTR WQC. Pursuant to SIP 2.4.5, the Regional Water Board will deem a discharge out of compliance if a sample result is above the reporting level. There should be no significant adverse impact on water quality from those VOCs whose detection limit is above the CTR WQC because these are low volume discharges and because the treatment used, aeration or GAC, reduces concentrations of VOCs to non-detectable levels.

For the pollutants that have a water quality objective less than the 5 ug/l technology based limit, monthly average effluent limit and maximum daily effluent limits have been included consistent with the SIP. Monthly average effluent limits for discharge to areas of drinking water usage utilize CTR criteria for consumption of water and organisms. Monthly average effluent limits for discharge to other surface water areas utilize CTR criteria for consumption of organisms. For those pollutants that have water quality objectives less than 5 ug/l, the maximum daily effluent limit was computed according to SIP Procedure 1.4B, Step 6, without dilution, utilizing a multiplier of 2.01 times the monthly average effluent limit. In cases where the value of the maximum daily effluent limit is equivalent to the monthly average effluent limit, no monthly average effluent limit is necessary.

For the effluent limits for "Discharge to Other Surface Water Areas," the rationale for these limits is the same as for the effluent limits for "Discharge to Drinking Water Areas".

Table F-3. Summary of Water Quality-based Effluent Limitations

No.	Compound	CTR Criteria Water and Organisms	CTR Criteria Organisms Only	Discharge to Drinking Water Areas (See Note 1)		Discharge to Other Surface Water Areas	
		(ug/L)	(ug/L)	Average Monthly Effluent Limitation (ug/L)	Maximum Daily Effluent Limitation (ug/L)	Average Monthly Effluent Limitation (ug/L)	Maximum Daily Effluent Limitation (ug/L)
1	Benzene	1.2	71	1.2	2.4	71	142.7
2	Carbon Tetrachloride	0.25	4.4	0.25	0.5	4.4	8.8
3	Chloroform	-	-	-	-	-	-
4	1,1-Dichloroethane	-	-	-	-	-	-
5	1,2-Dichloroethane	0.38	99	0.38	0.8	99	199
6	1,1-Dichloroethylene	0.057	3.2	0.057	0.1	3.2	6.4
7	Ethylbenzene	3100	29000	3100	6231	29000	58290
8	Methylene Chloride (Dichloromethane)	4.7	1600	4.7	9.4	1600	3216
9	Tetrachloroethylene	0.8	8.85	0.8	1.6	8.85	17.8
10	Toluene	6800	200000	6800	13668	200000	402000
11	Cis 1,2-Dichloroethylene	-	-	-	-	-	-
12	Trans 1,2-Dichloroethylene	700	140000	700	1407	140000	281400
13	1,1,1-Trichloroethane	-	-	-	-	-	-

No.	Compound	CTR Criteria Water and Organisms	CTR Criteria Organisms Only	Discharge to Drinking Water Areas (See Note 1)		Discharge to Other Surface Water Areas	
		(ug/L)	(ug/L)	Average Monthly Effluent Limitation (ug/L)	Maximum Daily Effluent Limitation (ug/L)	Average Monthly Effluent Limitation (ug/L)	Maximum Daily Effluent Limitation (ug/L)
14	1,1,2-Trichloroethane	0.6	42	0.6	1.2	42	84.4
15	Trichloroethylene	2.7	81	2.7	5.4	81	162.8
16	Vinyl Chloride	2	525	2	4	525	1055
17	Total Xylenes	-	-	-	-	-	-
18	Methyl Tertiary Butyl Ether (MTBE)	-	-	-	-	-	-
19	Total Petroleum Hydrocarbons (TPH)	-	-	-	-	-	-
20	Ethylene Dibromide (1,2-Dibromoethane)	-	-	-	-	-	-
21	Trichlorotrifluoroethane	-	-	-	-	-	-

Note 1: Drinking water areas are defined as surface waters with the existing or potential beneficial uses of "municipal and domestic supply" and "groundwater recharge" (the latter includes recharge areas to maintain salt balance or to halt salt water intrusion into fresh water aquifers).

5. Whole Effluent Toxicity (WET)

The basis for Effluent Limitations A.3 (toxicity) is Table 4-4 (Chapter 4, Page 70) of the Basin Plan. The basis for using rainbow trout and 96-hour static renewal bioassays is in Chapter 4, Page 9, of the Basin Plan. The basis for repeating the toxicity testing if the percentage of surviving test organisms is less than the required survival percentage, and the requirements to investigate the cause of mortality is based on 40 CFR 122.41(d), which is needed to minimize adverse impacts from discharges in violation of requirements. Non-compliance is also a cause for termination of the authorization to discharge (40 CFR 122.64).

D. Final Effluent Limitations

For both drinking water and non-drinking water areas of discharge, the final effluent limitations were derived by picking the most protective value, between the technology based effluent limits and WQBELs, in situations where both exist. The technology based effluent limits together with the water quality based effluent limits are sufficiently stringent to protect water quality and beneficial uses. The summary of the final effluent limitations is included in the Table F-4 below:

Table F-4. Summary of Final Effluent Limitations

		Technology-based Effluent Limitations		Water Quality-based Effluent Limitations				Final Effluent Limitations			
No.	Compound	Discharge to Drinking Water Areas (See Note 2)	Discharge to Other Surface Water Areas	Discharge to Drinking Water Areas (See Note 2)		Discharge to Other Surface Water Areas		Discharge to Drinking Water Areas (See Note 2)		Discharge to Other Surface Water Areas	
	See Note 1	ug/L	ug/L	Average Monthly Effluent Limitation (ug/L)	Maximum Daily Effluent Limitation (ug/L)	Average Monthly Effluent Limitation (ug/L)	Maximum Daily Effluent Limitation (ug/L)	Average Monthly Effluent Limitation (ug/L)	Maximum Daily Effluent Limitation (ug/L)	Average Monthly Effluent Limitation (ug/L)	Maximum Daily Effluent Limitation (ug/L)
1	Benzene	1	5	1.2	2.4	71	142.7	-	1	-	5
2	Carbon Tetrachloride	0.5	5	0.25	0.5	4.4	8.8	0.25 (See Note 3)	0.50	4.4	5
3	Chloroform	5	5	-	-	-	-	-	5	-	5
4	1,1-Dichloroethane	5	5	-	-	-	-	-	5	-	5
5	1,2-Dichloroethane	0.5	5	0.38	0.8	99	199	0.38 (See Note 3)	0.5	-	5
6	1,1-Dichloroethylene	5	5	0.057	0.1	3.2	6.4	0.057 (See Note 3)	0.11 (See Note 3)	3.2	5
7	Ethylbenzene	5	5	3100	6231	29000	58290	-	5	-	5
8	Methylene Chloride (Dichloromethane)	5	5	4.7	9.4	1600	3216	4.7	5	-	5
9	Tetrachloroethylene	5	5	0.8	1.6	8.85	17.8	0.8	1.6	-	5
10	Toluene	5	5	6800	13668	200000	402000	-	5	-	5
11	Cis 1,2-Dichloroethylene	5	5	-	-	-	-	-	5	-	5
12	Trans 1,2-Dichloroethylene	5	5	700	1407	140000	281400	-	5	-	5
13	1,1,1-Trichloroethane	5	5	-	-	-	-	-	5	-	5
14	1,1,2-Trichloroethane	5	5	0.6	1.2	42	84.4	0.6	1.2	-	5
15	Trichloroethylene	5	5	2.7	5.4	81	162.8	2.7	5	-	5
16	Vinyl Chloride	0.5	1	2	4	525	1055	0.5	0.5	-	1
17	Total Xylenes	5	5	-	-	-	-	-	5	-	5
18	Methyl Tertiary Butyl Ether (MTBE)	5	5	-	-	-	-	-	5	-	5
19	Total Petroleum Hydrocarbons (TPH)	50 (proposed)	50 (proposed)	-	-	-	-	-	50	-	50
20	Ethylene Dibromide (1,2-Dibromoethane)	0.05	5	-	-	-	-	-	0.05 (See Note 3)	-	5
21	Trichlorotrifluoroethane	5	5	-	-	-	-	-	5	-	5

LEGEND: FMCL - Federal Maximum Contaminant Level & SMCL - California Maximum Contaminant Level

Notes for Table F-4:

Note 1: A blank cell in this Table denotes no criterion for that compound.

Note 2: Drinking water areas are defined as surface waters with the existing or potential beneficial uses of "municipal and domestic supply" and "groundwater recharge" (the latter includes recharge areas to maintain salt balance or to halt salt water intrusion into fresh water aquifers).

Note 3: If reported detection level is greater than effluent limit, then a non-detect result using a 0.5 ug/L detection level is deemed to be in compliance.

Some organic and inorganic compounds, other than pollutants with effluent limitations in Table F-4, may also be detected in the effluent of some of the treatment systems. While this permit does not establish effluent limits for these compounds (summarized as "Trigger Pollutants") Dischargers are required to monitor for them, and follow procedures outlined in Provision VI.6.

The following paragraphs provide additional information regarding these pollutants.

Some organic compounds such as Tertiary Butyl Alcohol (TBA), Ethanol, and Methanol have been detected in the effluent of a few facilities exceeding the 5 ug/L expected treatment level. At this time, these pollutants have no water quality objective or criteria below 5 ug/L. Also, many Dischargers are actively involved in pilot testing innovative treatment technologies for removal of these compounds. For example, one Discharger added two bioreactors to its treatment systems that contain the TBA-degrading bacteria. Although this method has been proven to successfully degrade TBA, the Discharger reported these bioreactors are sensitive to various factors and need fine-tuning. The Trigger provisions of this Order allow for data to be collected on the prevalence of these compounds, while allowing Dischargers to develop a body of available technologies for their removal. Since the main objective of this permit is to allow the Dischargers to cleanup petroleum-related pollutants from groundwater, the trigger system allows treatment to move forward while additional information about relatively minor pollutants is being collected.

Some inorganic compounds such as antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc (hereinafter called inorganic compounds) are sometimes present in fuel-cleanup discharges, primarily due to background concentrations in the shallow groundwater being cleaned up. The discharge volume and effluent concentrations of inorganic compounds discharges from facilities regulated by this permit are low. In the Regional Water Board staff's BPJ, the Bay-wide loading of inorganic compounds from fuel cleanup discharges -- representing a very small portion of total inorganic compounds loadings from sources within the Region (including municipal and industrial point-source discharges and stormwater discharges) -- shall cause no impairment of beneficial uses or potential exceedances of inorganic compounds objectives in receiving waters. Facilities where inorganic compounds have adversely impacted groundwater are not eligible for coverage under this Order.

In conclusion, as discussed in detail in section VII.C.6 of this Fact Sheet, the Dischargers with detected pollutants with concentrations exceeding 5 ug/L or the most stringent water quality criteria, shall comply with the Special Study Provisions VI.C.6 through VI.C.10 of the Order.

E. Interim Effluent Limitations. (Not Applicable)

F. Land Discharge Specifications. (Not Applicable)

G. Reclamation Specifications

Basis for Water Reclamation Specifications is the Regional Water Board Resolution No. 88-160.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

The proposed receiving water limitations are intended to protect beneficial uses of the surface waters and ground waters of the San Francisco Bay Region and are based on the Basin Plan.

A. Surface Water: These limitations are based on the narrative/numerical objectives contained in Chapter 3 of the Basin Plan as explained below:

The basis for V.A.1.a is on page 3-3 of the Basin Plan;
The basis for V.A.1.b is on page 3-2 of the Basin Plan;
The basis for V.A.1.c is on pages 3-3 and 3-4 of the Basin Plan
The basis for V.A.1.d is on page 3-3 of the Basin Plan;
The basis for V.A.1.e is on pages 3-2, 3-3, and 3-4 of the Basin Plan;
The basis for V.A.2.a is on page 3-3 of the Basin Plan;
The basis for V.A.2.b is on page 3-3 of the Basin Plan;
The basis for V.A.2.c is on page 3-3 of the Basin Plan;
The basis for V.A.2.d is on pages 3-4 of the Basin Plan; and
The basis for V.A.3 is on pages 3-5 of the Basin Plan.

B. Groundwater: These limitations are on Page 3-6 of the Basin Plan.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP), Attachment E of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

A. Influent Monitoring

The purpose of influent monitoring is to provide documentation that the pollutants loadings are below the level that the treatment system was designed for and provide warnings should one or more new pollutants being extracted that the as built treatment system was not designed to remove them. Except PAHs, the influent monitoring has been reduced in this permit. PAHs monitoring frequency

has been changed to quarterly because a few PAHs have been detected in the influent of a few facilities.

B. Effluent Monitoring

The purpose of effluent monitoring is to provide documentation that the treatment system adequately removed all pollutants of concern in compliance with the limits in the permit. These effluent monitoring data also provide warnings should one or more pollutants detected, even though below the limits, that may be a sign of poor maintenance or other unexpected problems. Except PAHs, the effluent monitoring has been reduced in this permit. PAHs monitoring frequency has been changed to quarterly because a few PAHs have been detected in the effluent of a few facilities.

C. Whole Effluent Toxicity Testing Requirements

The selected test species and frequency of testing are the same as previous permit and appropriately cost effective for these discharges.

D. Receiving Water Monitoring

The purpose of receiving water monitoring is to provide documentation about the condition of the receiving water should any effluent limit violations occur that may harm the life in the receiving water. The receiving water monitoring frequency is the same as previous permit.

E. Other Monitoring Requirements

The purpose of additional monitoring requirements is to investigate complaints, identify the discharges that should be regulated by individual NPDES permits, coordinate storm water monitoring with municipalities, and quantify potential impacts of extracted and treated groundwater discharge on the receiving water and the ambient conditions of the receiving waters.

F. Additional Quality Assurance/Quality Control Requirements

As explained in section II.D of this Fact Sheet, the purpose of the additional quality assurance/quality control requirements is to prevent generation and reporting of invalid monitoring data, such as TPHd false positives, that the Dischargers reported discovering during the term of the previous permit. Although everyone involved in the compliance assurance activities including the Discharger's staff and PE shall pay close attention to quality assurance/quality control activities, Table 5 of Attachment B and Section IV.C of Attachment E require the Dischargers who claim invalid monitoring data to assign a specific person to investigate the cause(s) of errors, to lead the required corrective

actions development, and to implement the Discharger's proposed measures to prevent future invalid monitoring data.

The Tentative Order before its final revision required a "Quality Assurance Officer" – meaning, a qualified individual who was not otherwise involved in sample collection, transport, or analysis (please refer to the following web site for a more detailed description: http://www.waterboards.ca.gov/swamp/docs/swampqapp_template032404.doc) to investigate the cause of data error. This Order has no Quality Assurance Officer" requirement so that a Discharger's staff person involved in generating monitoring data could also oversee quality assurance/quality control aspects of data generation. If, however, a Discharger were to continue to generate invalid monitoring data, the Regional water Board Executive Officer may require that Discharger to assign an individual independent from those generating the data, to oversee the data generation process.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions.

Standard Provisions provided in Attachment D are in accordance with section 122.41 and additional conditions applicable to the discharges under this permit are in accordance with section 122.42. Section 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with section 123.25, this Order omits federal conditions that address enforcement authority specified in sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Monitoring and Reporting Program Requirements.

The basis for "Monitoring and Reporting Program Requirements" Provision is 40CFR 122.41, 122.48, 122.62, 122.63, and 124.5, CWC Sections 13267 and 13383, and BPJ.

C. Special Provisions.

1. **Basis for Reopener Provisions.** The Basis for "Reopener Provisions" is 40CFR122.41(f).

2. **Basis for Notice of Intent (NOI) Application.** Provision VI.C.2, Notice of Intent (NOI) Application, is based on 40 CFR 122.28(b).

3. **Basis for NOI Review.** Provision VI.C.3, NOI Review, is based on 40 CFR 122.28(b).

4. **Basis for Discharge Authorization.** Provision VI.C.4, Discharge Authorization, is based on 40 CFR 122.28(b).

5. **Basis for Non-Compliance as a Violation.** Provision VI.C.5, Non-Compliance as a Violation, is based on 40 CFR 122.41(a).

6. **Basis for Provisions VI.C.6 through VI.C.10.** The Dischargers authorized under this Order are expected to use BAT and treat their volatile organic pollutants to non-detectable levels. However, some compounds, other than pollutants with effluent limitations, may be detected in the effluent of some of the treatment systems. These pollutants include both organic and inorganic compounds. The purpose of these provisions is to require Dischargers to do additional activities should any pollutants exceed the triggers in Table F-3. These triggers are not effluent limitations, and should not be construed as such. Instead, they are levels at which additional investigation is warranted to determine whether a numeric limit for a particular constituent is necessary. The Table F-3 concentration-based triggers are set at the lowest value of the State Maximum Contaminant Level, Federal Maximum Contaminant Level, State Public Health Goal in Drinking Water, California Toxics Rule lowest criterion, or Basin Plan water quality objective but mostly not exceeding 5 ug/l as referenced in Table F-3 below. The reason for this approach is explained in section IV.D of this Fact Sheet, and further explained below.

   a. **Triggers for Inorganic Compounds.** Antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc (hereinafter called inorganic compounds) are present in fuel-cleanup discharges, primarily due to background concentrations in the shallow groundwater being remediated. The discharge volume and effluent inorganic compounds concentrations are low before the effluent is discharged into the storm drain system. In staff judgment, Bay-wide inorganic compounds loading from fuel cleanup discharges, represent a very small portion of total inorganic compounds loadings from sources within the Region (including municipal and industrial point-source discharges and stormwater discharges), and therefore, shall cause no impairment of beneficial uses or potential exceedances of inorganic compounds objectives in receiving waters. Facilities where inorganic compounds have adversely impacted groundwater are not eligible for coverage under this Order. Each Discharger shall submit, as part of the application for proposed discharge, analytical results including inorganic compounds concentrations in the influent and effluent, if available, or maximum concentrations in any individual extraction wells, if not operating yet. Based on these data, the Discharger may receive a discharge authorization letter. In some cases after starting up an extraction and treatment system, the effluent concentration of some inorganic compounds may exceed the triggers listed in Table F-3. In this case, the Discharger shall take three additional samples and have them analyzed for the inorganic compound of concern and comply with the Provisions VI.C.7, VI.C.8, or VI.C.9. For example, if the results of two or three of the

additional samples exceed the triggers, then the Discharger shall investigate the toxicity and treatment of the constituent of concern. Dischargers who cannot comply with these provisions will lose their authorization to discharge under this Order. The Table F-3 "concentration-based triggers" are set at the lowest value of the State Maximum Contaminant Level, Federal Maximum Contaminant Level, State Public Health Goal in Drinking Water, California Toxics Rule lowest criterion, or Basin Plan water quality objective, except for Arsenic and Chromium. The median of reported maximum Arsenic levels in the effluent of all authorized discharges is non-detect with a 5 ug/L reporting limit. The total Chromium trigger is to trigger additional testing for Chromium (VI) when the total Chromium concentration exceeds 11 as referenced in the Table F-3. The expired Order had inorganic mass-based triggers. The mass-based triggers are replaced with concentration based triggers to make this Order consistent with the Regional Board Order No. R2-2004-0055, NPDES NO. CAG912003, General Waste Discharge Requirements for Discharge or Reuse of Extracted and Treated Groundwater Resulting From the Cleanup of Groundwater Polluted by Volatile Organic Compounds. A few other parameters were also added to the triggers list to accommodate special cases that may occur during a dewatering project authorized under this Order.

b. **Triggers for Organic Compounds.** Dischargers authorized under this Order are expected to use BAT and treat their volatile organic pollutants to non-detectable levels. Sites where pesticides or other conservative pollutants have adversely impacted groundwater are not eligible for coverage under this Order. Each Discharger shall submit, as part of the application for proposed discharge, analytical results including volatile and semi volatile organic compounds concentrations in the influent and effluent if available or maximum concentrations in any individual extraction wells, if not operating yet. In addition, each Discharger shall submit a report, to the satisfaction of Executive Officer, certifying the adequacy of the proposed treatment system in removal of all organic pollutants of concern. Based on these data and information, the Discharger may receive a discharge authorization letter. However, some organic compounds, other than pollutants with effluent limitations, may be detected in the effluent of some of the treatment systems. This could be due to the movement of the contaminated groundwater from a neighboring site into the capture zone of the treatment facility authorized under this permit. Table F-3 contains concentration-based triggers for conducting additional activities for a list of pollutants reported by Dischargers or listed in the CTR. This provision would allow Dischargers to continue groundwater cleanup while investigating the toxicity and ability to treat any detected volatile or semi volatile organic compounds, in excess of Table F-3 triggers.

Table F-5. Basis for Table 3 Trigger Compounds

Compound	CAS Number	State MCL ug/L	Federal MCL ug/L	State PHG in Drinking Water ug/L	CTR Lowest Criterion unless noted ug/L	Trigger (ug/L)
Antimony	7440360	6	6	20	14	6
Arsenic	7440382	50	10	NA	36	10
Beryllium	7440417	4	4	1	NA	1
Cadmium	7440439	5	5	0.07	2.2	0.07
Chromium (total)	18540299	50	100	-	180	11 (See Note 1)
Chromium (VI)	18540299	-	-	-	11	11
Copper	7440508	1000	1000	170	3.1	3.1
Lead	7439921	15	15	2	2.5	2.0
Mercury	7439976	2	2	1.2	0.025 (See Note 2)	0.025
Nickel	7440020	100	-	12	8.2	8.2
Selenium	7782492	50	50	-	5.0	5.0
Silver	7440224	100	100	-	1.9	1.9
Thallium	7440280	2	2	0.1	1.7	0.1
Zinc	7440666	5000	5000	-	81	81
Cyanide	57125	200/150	200	-	1	1.0
Asbestos	1332214	7 MFL	7 MFL	-	7 MFL	7 MFibers/L
2,3,7,8-TCDD (Dioxin)	1746016	0.00003	0.00003	-	1.3E-08	0.000000013
Acrylonitrile	107131	-	-	-	0.059	2.0
Bromoform	75252	100/80	100/80	-	4.3	4.3
Chlorodibromomethane	124481	100/80	100/80	-	0.401	0.401
Dichlorobromomethane	75274	100/80	100/80	-	0.56	0.56
1,2-Dichloropropane	78875	5	5	0.5	0.52	0.50
1,3-Dichloropropylene	542756	0.5	-	0.2	10	0.2
1,1,2,2-Tetrachloroethane	79345	1	-	0.1	0.17	0.1
Pentachlorophenol	87865	1	1	0.4	0.28	0.28
2,4,6-Trichlorophenol	88062	-	-	-	2.1	2.1
Benzidine	92875	-	-	-	0.00012	0.00012
Benzo(a)Anthracene	56553	-	0.1	-	0.0044	0.0044
Benzo(a)Pyrene	50328	0.2	0.2	0.004	0.0044	0.004
Benzo(b)Fluoranthene	205992	-	-	-	0.0044	0.0044
Benzo(k)Fluoranthene	207089	-	-	-	0.0044	0.0044
Bis(2-Chloroethyl)Ether	111444	-	-	-	0.031	0.031
Bis(2-Ethylhexyl)Phthalate	117817	-	-	-	1.8	1.8
Chrysene	218019	-	-	-	0.0044	0.0044
Dibenzo(a,h)Anthracene	53703	-	-	-	0.0044	0.0044
3,3'-Dichlorobenzidine	91941	-	-	-	0.04	0.04
2,4-Dinitrotoluene	121142	-	-	-	0.11	0.11
1,2-Diphenylhydrazine	122667	-	-	-	0.04	0.04
Hexachlorobenzene	118741	1	1	0.03	0.00075	0.00075
Hexachlorobutadiene	87683	-	-	-	0.44	0.44
Hexachloroethane	67721	-	-	-	1.9	1.9
Indeno(1,2,3-cd)Pyrene	193395	-	-	-	0.0044	0.0044
N-Nitrosodimethylamine	62759	-	-	-	0.00069	0.00069

Compound	CAS Number	State MCL ug/L	Federal MCL ug/L	State PHG in Drinking Water ug/L	CTR Lowest Criterion unless noted ug/L	Trigger (ug/L)
N-Nitrosodi-n-Propylamine	621647	-	-	-	0.005	0.005
Aldrin	309002	-	-	-	0.00013	0.00013
alpha-BHC	319846	-	-	-	0.0039	0.0039
beta-BHC	319857	-	-	-	0.014	0.014
gamma-BHC	58899	0.2	0.2	-	0.019	0.019
delta-BHC	319868	-	-	-	-	5.0
Chlordane	57749	0.1	2	0.03	0.00057	0.00057
4,4'-DDT	50293	-	-	-	0.00059	0.00059
4,4'-DDE	72559	-	-	-	0.00059	0.00059
4,4'-DDD	72548	-	-	-	0.00083	0.00083
Dieldrin	60571	-	-	-	0.00014	0.00014
alpha-Endosulfan	959988	-	-	-	0.0087	0.0087
beta-Endosulfan	33213659	-	-	-	0.0087	0.0087
Endrin	72208	2	2	1.8	0.0023	0.0023
Endrin Aldehyde	7421934	-	-	-	0.76	0.76
Heptachlor	76448	0.01	0.4	0.008	0.00021	0.00021
Heptachlor Epoxide	1024573	0.01	0.2	0.006	0.0001	0.0001
Polychlorinated biphenyls (PCBs) total	1336363	0.5	0.5	-	0.00017	0.00017
Toxaphene	8001352	3	3	0.03	0.0002	0.0002
1,4-dioxane	123911	3 (See Note 4)	-	-	-	3
Perchlorate	14797730	-	-	6	-	5
Freon 12 (Dichlorodifluoromethane)	75718	-	-	-	0.19 (See Note 3)	0.19
Other Oxygenates (Other than MTBE)	-	-	-	-	-	5
Other VOCs	-	-	-	-	-	5
Other SVOCs	-	-	-	-	-	5
Turbidity (Units)	-	5	5	-	-	5
Odor-Threshold (Units)	-	3	3	-	-	3
Total Petroleum Hydrocarbons other than Gasoline and Diesel	-	-	-	-	-	50 (see Note 5)
Sulfate	-	250,000	250,000	-	-	250,000
Foaming Agents	-	500	500	-	-	500
Color (Units)	-	15	15	-	-	15

Legend:
CAS = Chemical Abstract System
PHG = Public Health Goal
CTR = California Toxics Rule
NA = Not Applicable
MCL = Maximum Contaminant Level
BPJ = Best Professional Judgment

Notes:
1 If total chromium concentration exceeds 11 then Chromium (VI) analysis shall also be done
2 Basin Plan
3 USEPA National Recommended Ambient Water Quality Criteria
4 California Department of Health Services Action Level for Drinking Water
5 The 50 ug/l trigger is based on BPJ. If a Discharger is reporting monitoring data with a detection level higher than 50 ug/l, the reason for a higher detection level shall be fully explained in the monitoring report.

7. **Basis for Individual NPDES Permit may be Required.** Provision VI.C.11, Individual NPDES Permit may be Required, is based on 40 CFR 122.28(b)(3).

8. **Basis for Treatment Reliability Requirement.** Provision VI.C.11, Treatment Reliability, is mostly based on 40 CFR 122.41. The basis for the requirement for a certified engineer to oversee the treatment and operation of the treatment system is to ensure that qualified professionals perform this work. Service stations operators are generally not qualified for this technical level of oversight.

VIII. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, San Francisco Bay Region (Regional Water Board) is considering the reissuance of general waste discharge requirements (GWDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit. As a step in the GWDR adoption process, the Regional Water Board staff has developed tentative GWDRs. The Regional Water Board encourages public participation in the GWDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Dischargers and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through a legal notice published in the Recorder.

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative GWDRs. Comments should be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 5:00 p.m. on October 2, 2006.

C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date:	November 13, 2006
Time:	10:00 AM
Location:	Elihu Harris State Building (1st Floor auditorium) 1515 Clay Street (Walking distance from City Center 12th Street BART station) Oakland, CA 94612

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, GWDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our web address is http://www.waterboards.ca.gov/sanfranciscobay where you can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the final GWDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

E. Information and Copying

The Report of Waste Discharges (RWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above during regular office hours, which are generally weekdays from 8:00 a.m. to 5:00 p.m., excluding 12:00 p.m. to 1:00 p.m. lunch hours and holidays. Copying of documents may be arranged through the Regional Water Board by calling (510) 622-2300.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to **Farhad Azimzadeh at (510) 622-2310 or by e-mail at fazimzadeh@waterboards.ca.gov.**

ATTACHMENT G - NOTICE OF STARTUP OR RE-STARTUP

A PDF electronic copy of this Form shall be uploaded on GeoTracker

A Groundwater Treatment System authorized to Discharge under the Requirements of
ORDER NO. R2-2006-XXXX
NPDES PERMIT NO. CAG912002 (FUEL)

Submitted by:
Name and Title: _____ Phone &Email: _____

For Groundwater Treatment Facility located at:

_____ _____
Type or Print Facility Address above the line WDID No.
File No: 1210.44 Please refer to Authorization Letter

Please mark one of the applicable lines:

Table 1. Mark only one as applicable

No.	Action	Date
1	Initial Startup. Are you providing at least two weeks notification? If not, change the date to provide at least two weeks notification.	
2	Re-Startup (Shut Down occurred more than 120 Hours before re-start date) and start up phase monitoring requirements in Section IX.A of the Attachment E will be repeated	
3	Re-Startup (Shut Down occurred less than 120 Hours before re-start date)	No need to file this notice

Table 2. Please explain if answer is "No" to any questions listed in the Check List below:

No.	Question	Yes or No	Comments
1	Is a copy of the Order and SMP kept at the facility?		
2	Is a copy of the Authorization kept at the facility?		
3	Is a copy of the Operation and Maintenance (O&M) Manual kept at the facility?		

No.	Question	Yes or No	Comments
4	Is this O & M Manual certified by a California registered engineer?		
5	Does the O&M Manual include names of the operators and those who take sample at this facility?		
6	Are adequate treatment facility maintenance and inspection schedules and procedures included in the O & M Manual?		
7	Are sampling procedures described in the O & M Manual?		
8	Does discharger maintain a log of all sampling events?		
9	Are the operators familiar with the O&M Manual?		
10	Does O&M Manual include procedures for receiving water sampling? Are they followed?		
11	Do O&M Manual sampling procedures include quality assurance activities?		
12	Do the sampling procedures include field and trip blanks?		
13	Can operator explain what will happen in case of a power outage?		
14	Can operator explain what will happen in case of a pump failure?		
15	Is there an automatic shut down system in case of any component's failure?		
16	Are the sampling procedures followed during a sampling event?		
17	Is the influent sample being collected at a point in the extraction system immediately prior to inflow to the treatment unit?		
18	Is the effluent sample being collected at a point immediately following the treatment facility?		
19	Are influent and effluent sampling ports properly marked?		
20	Is the treatment facility adequately fenced and gated?		
21	Is receiving water accessible for inspection? If so, did you conduct standard observations? (see page 5 of the SMP or the other side of this sheet)		

ATTACHMENT H - NOTICE OF TEMPORARY SHUT DOWN

A PDF electronic copy of this Form shall be uploaded on GeoTracker and after GeoTracker upload a confirmation email shall be sent to the responsible staff member at this office, currently Lourdes Gonzales, at lgonzales@waterboards.ca.gov.

This form is for the Groundwater Treatment Facility located at:

_____	_____
Type or Print Facility Address above the line File No: 1210.44	WDID No. Please refer to Authorization Letter

This Groundwater Treatment System is authorized to Discharge under the Requirements of
ORDER NO. R2-2006-XXXX
NPDES PERMIT NO. CAG912002 (FUEL)

Please explain the following:

1) Temporary Shut Down Date?
2) Expected Re-Start Date?
3) Is the difference between 1 and 2 above more than 120 business hours?
   If so, do you understand that start up phase monitoring requirements in Section IX.A of the Attachment E shall be repeated?
4) If the difference between 1 and 2 above is not more than 120 business hours, no need to file this notice.

Note: The Regional Water Board may modify this form at any time to reflect the new requirements and other needed improvements.

ATTACHMENT I - NOTICE OF TERMINATION

A PDF electronic copy of this Form shall be uploaded on GeoTracker and after GeoTracker upload a confirmation email shall be sent to the responsible staff member at this office, currently Lourdes Gonzales, at lgonzales@waterboards.ca.gov.

For Facilities Permitted to Discharge Treated Groundwater under the Requirements of
ORDER NO. R2-2006-XXXX
NPDES PERMIT NO. CAG912002 (FUEL)
For Groundwater Treatment Facility located at:

_____ _____

Type or Print Facility Address above the line
File No: 1210.44

WDID No.
Please refer to Authorization Letter

Table 1. Mark only one as applicable

1	Groundwater cleanup works have been completed	
2	Method of groundwater cleanup has been changed with no need to discharge treated groundwater	
3	Extract and treat method of groundwater cleanup will be stopped for a while and only groundwater will be monitored at this site. In this case, documentation shall be attached to this Notice that the cleanup overseeing agency has no objection to have this authorization rescinded. Otherwise complete Notice Temporary Shut Down (Attachment H)	
4	Dewatering cleanup project has been completed	
5	Other reasons such as discharge to POTW has been granted	

Table 2. If you have marked number one in Table 1, please add the name, address, and phone number of the agency and agency staff finding the clean up work to be complete and you have also provided a copy of this termination notice:

	Name, address, and phone number of the agency and agency staff finding your clean up work to be complete	Have you provided a copy of this termination notice to this staff? (Yes/No. If No, please explain the reason)
1		
2		

I certify under penalty of law that this notice is prepared under my direction or supervision and the effective termination date of this Discharge is _____. I am aware that discharging without a discharge authorization is in violation of California Water Code.

_____ _____

Name (print) Signature and Date

_____ _____

Title/Organization Address

Note: The Regional Water Board may modify this form at any time to reflect the new requirements and other needed improvements.