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ALAMEDA County Environmental Health
1131 Harbor Bay Parkway
Suite 250
Alameda, CA 94502-6577
Attn: Paresh C. Khatri
Hazardous Materials Specialist
SLIC and LOP Programs

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Attn: Paresh C. Khatri
Hazardous Materials Spec. SLIC & LOP Programs

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Environmental Health

This paper was submitted in accordance with the 2011 California "Professional Engineers Act" (Business and Professions Code §§ 6700 – 6799) that reads at Chapter 7, PROFESSIONAL ENGINEERS, at paragraph 6739, **Exemption of federal officers and employees:** "Officers and employees of the United States of America practicing solely as such officers or employees are exempt from registration under the provisions of this chapter."

U. S. Department of Justice
Federal Bureau of Prisons
Western Regional Office

Stockton, California 95219

October 15, 2010

Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

ATTN: Mr. Paresh C. Khatri
Hazardous Materials Specialist, SLIC and LOP Programs

RE: SLIC Case No. RO0002977, GeoTracker Global ID SLT19749067,
FCI Dublin, 5701 8th Street, Dublin, CA 94568

Dear Mr. Khatry:

Attached is our Closure Report for the SLIC Case No. RO0002977, and GeoTracker Global ID SLT19749067, for our facility, the FCI Dublin, located at 5701 8th Street, Dublin, CA 94568.

We determined based on the hydrology, geology, site history and other factors further discussed in the attached closure report, that the residual diesel soil and groundwater contamination at FCI Dublin, as investigated in September 2009, poses a "very low risk to none" to public health, safety and the environment. The remaining mass of diesel residual contamination is limited to the immediate vicinity of the 80 gallons diesel spill of April 25, 2008, and the dissolved petroleum constituent plume in groundwater is small, stable, and concentrations are decreasing by natural attenuation. Any potential adverse effects on the shallow groundwater is minimal and localized, and there are no adverse effects on groundwater in the deeper aquifer, given the physical and chemical diesel characteristics, the hydrogeological characteristics of the site and surrounding land, and direction of the groundwater flow.

In addition, any potential for adverse effects on current and potential future beneficial uses of groundwater is "very low to non-existent" in light of the proximity of groundwater supply wells, the current and potential future uses of groundwater in

the area, (*there are no groundwater supply wells within the observed 5000 ft. proximity to the site, and there would not be any new drinking water production wells placed in Dublin and/or in the vicinity of FCI Dublin for the foreseeable future*), the potential for health risks caused by human exposure, the potential damage to wildlife, crops, vegetation, and physical structures.

Therefore, please close this diesel spill case and modify the entries in your SLIC and Geo Tracker database to reflect that this spill did not, and is not affecting any aquifer used for drinking water supply.

If you have any questions, please call me at (209) 956-9756, or send me an e-mail message at dciobanu@bop.gov.

Sincerely,

Dan Ciobanu 10/15/2010

Dan Ciobanu
Regional Environmental Engineer
Federal Bureau of Prisons
Western Regional Office

Attachment: FCI Dublin Case Closure Report

U.S. Department of Justice

Federal Bureau of Prisons

October 10, 2010

Office of the Facilities Department
Western Regional Office
7338 Shoreline Drive
Stockton CA 95219

Subject: Closure and modification of SLIC Case No. RO0002977 and GeoTracker Global ID SLT19749067, FCI Dublin, 5701 8th Street, Dublin, CA 94568

Case Closure Report

Submitted to Alameda County, Health Care Services, Environmental Health Services, Environmental Protection, 1131 Harbor Bay Parkway, Suite 250, Alameda, CA, 94502-6577 on behalf of the Federal Correctional Institution (FCI) Dublin, 5701 8th Street, Dublin, CA 94568

Closure Statement

We contend that the FCI Dublin 2008 accidental spill of 80 gallons of diesel fuel case should be closed because the residual petroleum hydrocarbon constituents at the site, in soil and groundwater, is determined to pose a "very low risk to none" to public health and safety, the environment, and to current or anticipated future beneficial uses of water. In addition, we contend that this spill did not and is not affecting any aquifer used for drinking water supply.

Statutory Background

Several statutory and regulatory provisions provide the State Water Board, the State Water Regional Control Boards (SWRCB), and local oversight program (LOP) agencies with broad authority to require responsible parties to clean up unauthorized petroleum releases. (E.g., Health & Saf. Code, § 25296.10; Wat. Code, §13304, subd. (a).)

Health and Safety Code Section 25404 authorizes the Alameda County Environmental Health Agency (ACEH) as the Certified Unified Program Agency (CUPA) to provide regulatory oversight for investigation and cleanup for the SLIC (Spills, Leaks Investigation and Cleanup) sites that have had unauthorized petroleum releases that have contaminated soil and/or groundwater. ACEH Program follows SWRCB and Local Oversight Program (LOP) procedures listed in the LOP contract.

State Water Board Resolution No. 92-49, *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304* applies to unauthorized petroleum releases cases. State Water Board Resolution No. 92-49 directs that water affected by an unauthorized release attain either background water quality or the best water quality that is reasonable if background water quality cannot be restored. Any alternative level of water quality less stringent than background must be consistent with the maximum benefit to the people of the state, not unreasonably affect current and anticipated beneficial use of affected water, and not result in water quality less than that prescribed in the water quality control plan for the basin within which the site is located.

Resolution No. 92-49 does not require, however, that the requisite level of water quality be met at the time of site closure. Resolution No. 92-49 specifies compliance with cleanup goals and objectives within a reasonable time frame. (State Water Board Resolution No. 92-49, Section III. A.) Therefore, even if the requisite level of water quality has not yet been attained, a site may be closed if the level will be attained within a reasonable period.

State Water Board has concluded that the determination of what constitutes a reasonable period must be based on evaluation of all relevant factors, including, but not limited to, existing and anticipated beneficial uses of water, and that although the time required meeting the requisite level of water quality may be lengthy, it may be reasonable considering all the relevant facts of the particular case.

FCI Dublin location

The Federal Correctional Institution (FCI) is located approximately on 8th Street in the Camp Parks military reserve area of Dublin, California. The site is a correctional facility and has several onsite buildings associated with these operations. Land use surrounding the site is a mix of commercial, residential, and reserve land utilized by the military. The site is located in a valley and local topography slopes gently to the south/southwest.

Summary of the Diesel Unauthorized Release

During the monthly routine generator testing, on April 25, 2008, the day tank supplying the emergency backup generator overflowed into the generator room, and then through the door sill and ventilation opening on the west side of the generator room. The diesel fuel then flowed along the asphalt walkway between the building on the north and west sides, some of which entered the cold joints between the building foundation and walkway and the retaining wall and walkway and into the underlying soil. Some of the fuel flowed along the west walkway south to the driveway and to the loading dock to the west. Some fuel migrated through the asphalt paving. No fuel was observed in the catch basin serving the dockwell. FCI Dublin personnel responded to the release immediately upon discovery, shutting down the generator and fuel pump, and began spill response operations by deploying absorbent material. The overflow condition lasted for about 30 minutes. Based on an estimated refill pump flow rate of 220 gallons per hour the maximum amount released to the room and surroundings was about 100 gallons. From this initial released amount at least 15% of free product was recovered and removed by absorbent spill clean-up materials deployed by the first spill responders. Diesel impacted asphalt and soil were also removed. Four feet of soil was removed from around the generator building in May 2008, and approximately 100 bank (in place) cubic yards of soil and asphalt cover have been removed in the interim remedial action. It is determined that an additional 5-10% of the initial diesel spill amount was recovered during the total asphalt and soil removal.

The conservative determination of the total amount of residual contamination as diesel fuel in soil and groundwater, as of May 2008, is of maximum 80 gallons.

Site Geology and Hydrogeology

Based on the USGS Quaternary Geology of Alameda County, and Parts of Contra Costa, Santa Clara, San Mateo, San Francisco, Stanislaus, and San Joaquin Counties, California: A Digital Database, surface deposits in the vicinity of the site consist of Holocene Age Basin Deposits.These are identified as by very fine silty clay to clay deposits occupying flat-floored basins at the distal edge of alluvial fans. Soil encountered during site investigation consisted of a few feet of baserock and fill underlain by silty clay with a small percentage of fine-grain sand to a depth of approximately 16 to 20 ft bgs. Groundwater was generally encountered in a two to four ft. thick sand unit found in most borings near approximately 20 ft bgs. This sand unit was underlain by more silty clay to the total explored depth of 28 ft bgs. Based on depth-to-water measurements taken during well sampling, the depth to the

potentiometric groundwater surface is approximately 12 to 15 ft bgs at the site. Based on soil lithology and analytical results, the primary water-bearing materials appear to be the sand unit present at approximately 20 to 25 ft bgs. Given the overlying clayey soil and rising water during drilling, groundwater may be under semi-confined or confined conditions.

Groundwater Flow Direction

Based on depth-to-water data collected on September 17, 2009, the overall groundwater flow direction is generally towards the *south-southeast* at a gradient of approximately 0.005 ft/ft. The inferred groundwater flow direction is generally consistent with local topography.

Site Specific Residential Drinking Water Resource Characterization

The ground water below surface on FCI Dublin site and adjacent properties should be characterized as an urban ground water non-attainment area. These are aquifers or portions of an aquifer that because of current and historical land use and pollution they have little or no potential for use as a public or private drinking supply source.

There is documentation demonstrating that this aquifer is not considered suitable or available as a future public or private drinking water resource. FCI Dublin resides within the Dublin San Ramon Services District's supplier Zone 7 (Zone 7). Zone 7 is grappling with a water shortage in the delta, the source of 80 percent of the agency's water supply, according to Zone 7's Web site. From the same source, we found that Zone 7 proposes to increase its well production capacity by about 42 mgd through the installation of 8 to 15 new production wells. Based upon projected demands, it is anticipated that wells would be installed over a period of approximately twenty years, with an average of one or two wells being constructed every one to two years, on an as-needed basis. The well facilities would be located within eleven well field areas in Alameda County, in the cities of Pleasanton and Livermore, and unincorporated Alameda County. Each production well would be 300- to 800-feet deep and consist of vertical turbine or submersible pumps with pumping rates in the range of 1,000 to 5,000 gallons per minute (gpm).

Therefore, there would not be any new drinking water production wells placed in Dublin and/or in the vicinity of FCI Dublin for the foreseeable future, or at least twenty years.

Residual Diesel Contamination Analytical Investigations in Soil and Groundwater

Soil and groundwater sampling and testing investigations were performed in September 2008, and again in August/September 2009. Select soil and groundwater samples were analyzed for Total Petroleum Hydrocarbons as Diesel (TPHd) by modified EPA Method 8015C; benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8020 and EPA Method 8260B; and MTBE and naphthalene by EPA Method 8260B.

To initially characterize the hydrocarbon impact to the site subsurface, a soil and groundwater investigation was performed by our contractors, MARCOR and Pangea, on

September 25, 2008, utilizing shallow sampling with hand tools and deeper sampling with direct-push drilling techniques. A total of twenty one (21) soil samples and three (3) grab groundwater samples were analyzed during this investigation. On August 31 and September 1 & 2, 2009, Marcor and Pangea conducted shallow sampling using hand tools, sampled deeper soil and groundwater using direct-push drilling techniques, and installed three groundwater monitoring wells at the site. The sampling was conducted in general accordance with ACEH approved *Soil and Groundwater Investigation Workplan with Preferential Pathway Evaluation*. A total of thirty-one (31) soil samples and two (2) grab groundwater samples were analyzed during this investigation. Additionally, three (3) groundwater samples were collected from the newly installed monitoring wells on September 17, 2009 after well development and purging. Soil and groundwater samples were submitted for analysis to McCampbell Analytical, Inc., a California-certified laboratory.

At the direction of ACEH, Pangea compared all soil and groundwater residual contamination concentrations to the Environmental Screening Levels (ESLs) for residential site use where groundwater is considered a current or potential source of drinking water. These ESLs are conservative screening levels protective of human health and the environment, established by the Regional Water Quality Control Board – San Francisco Bay Region (RWQCB) in a their November 2007 (revised May 2008) guidance document *Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater.*

Note that since the FCI Dublin site groundwater is not and will not be apparently used as a drinking water source, or may be within a groundwater recharge area, these ESLs are not accurately used.

Soil analytical results are summarized on Table 1, and groundwater analytical results are summarized on Table 2. Current and historical sample locations are shown on Figure 2. The groundwater elevation map and estimated flow direction is shown on Figure 3. The estimated primary extent of TPHd in soil and groundwater is illustrated on Figures 4 and 5, respectively.

The soil analytical data from these investigations confirms that the primary impact area for shallow soil (<11 ft bgs) is near western corner of the generator building, where diesel product exited the building and was initially contained by the retaining wall and absorbent material. The most recent highest TPHd concentration detected was 2,400 mg/kg, on September 1, 2009, from the boring for well MW-2 at a depth of 24.5-25 ft bgs. No naphthalene, benzene, or other compounds were detected in analyzed soil samples.

The significantly lower soil contaminant concentrations further from the release source area confirms that the soil contaminant is stable and limited in extent.

TPHd concentrations in groundwater shows relatively higher concentrations beneath the western edge of the generator building, where the diesel fuel release exited the building.

The most recent highest TPHd concentration detected in groundwater was 1,100 ug/L, on September 17, 2009, from well MW-1 at a depth of 20 ft bgs.

Note that the significantly lower contaminant concentrations further from the release source area confirm that the groundwater contaminant is limited in extent.

Data collected also confirms that TPHd has not impacted the former intermittent stream east of the generator building, where relatively higher soil permeability may be present within the former stream bed that could act as a preferential pathway for contaminant migration.

In addition, it should be noted that during any quarterly groundwater monitoring, the residual contamination concentrations would yield cyclical fluctuations which appear to correspond to seasonal groundwater elevation changes. As the groundwater elevation increases, concentrations of constituents also increase.

Residual Diesel Contamination Data Characterization

To further characterize the potential residual diesel toxicity in soil and groundwater we compared the FCI Dublin analytical diesel residual contamination data with the data provided by the guidelines of the "Final Development of Risk-Based Cleanup levels for Petroleum Hydrocarbons Measured as Diesel Range Organics (DRO) and Gasoline Range Organics (GRO)", assessment prepared by Mactec Engineering and Consulting, Inc. in April 2010, for the Maine Department of Environmental Protection (MEDEP). We are submitting relevant excerpts from this paper to our diesel spill remedial and the integral text is available.

These guidelines are based on protecting public health from direct contact with soil and leaching of soil contaminants to groundwater that serves as a source of drinking water.

Petroleum products (e.g., No. 2 heating oil/diesel, gasoline, crankcase oil) are composed of hundreds of petroleum hydrocarbon compounds that vary in size (ranging from 5 to more than 50 carbon atoms), structure (alkanes, cycloalkanes, alkenes, and aromatics), and toxicity. The hydrocarbon compounds with the highest toxicity have been identified by the U.S. Environmental Protection Agency (USEPA) as Target Analyte List (TAL) compounds. TAL compounds include benzene, ethylbenzene, toluene, xylene (BTEX), methyl-tert-butyl ether (MTBE), and sixteen polynuclear aromatic hydrocarbons (PAHs). TAL compounds generally represent only a small percentage of the total composition of petroleum mixtures. Historically, Maine required evaluation of petroleum contamination using DRO and GRO analytical procedures, which measured the total concentration of petroleum hydrocarbon compounds, because cleanup guidelines were expressed in DRO and GRO.

In light of recently developed toxicity information, we now know that the historic guidelines were poorly correlated with health risk. We have come to learn that the specific hydrocarbon structures within a mixture of petroleum hydrocarbons exhibit various orders of toxicity, the mixture varies by product and age, and only by identifying the specific hydrocarbon compounds in the mixture can the toxicity of the product be evaluated and a risk-based level applied.

The leaching-based guidelines assumed that petroleum-contaminated soil contacts a groundwater table located 15 feet below ground surface, and that a well (the exposure point for petroleum-contaminated water) is located 50 feet downgradient of the soil contamination. The leaching-based guidelines for soil were derived such that, under these simulated leaching conditions, concentrations of petroleum fractions and TAL parameters in groundwater would not exceed the Maine drinking water guidelines (Maximum Exposure Guidelines [MEGs]) at the downgradient well.

Consequently, these leaching-based guidelines are protective for groundwater that could be used as a source of potable water.

Table 13 presents a summary of risk-based cleanup levels and leaching-based cleanup levels for soils that were derived for gasoline, No. 2 heating oil/diesel, No. 6 heating oil, used crankcase oil, Stoddard solvent, and unknown petroleum product. The risk-based cleanup levels were derived to be protective for direct contact exposures to soil associated with a hazard index of 1 and a cancer risk of 1 in 100,000, for four different receptor populations that may occur under residential and commercial/industrial land uses: residents, full-time outdoor commercial/industrial workers, construction workers, and park visitors.

The leaching-based cleanup levels were derived to be protective for migration of petroleum mixtures to groundwater that could be used as drinking water.

The cleanup levels presented in Table 13 may be used to evaluate petroleum hydrocarbon data that has been reported as DRO and/or GRO; when the petroleum source material that is being measured by the DRO or GRO analysis is known, then the cleanup level for that petroleum product may be used.

Using the above guidelines data, the soil leaching-based clean-up level for diesel fuel is 2,941 mg/Kg. All the soil sampling analytical results for residual diesel contamination at FCI Dublin diesel spill location from August/September 2009, summarized on Table 1, shows that this clean-up level was attained. The highest soil contamination observed is 2,400 mg/Kg. In addition, note the severe constraints of the leaching-based guidelines that assumed a scenario where the petroleum-contaminated soil contacts a groundwater table located 15 feet below ground surface and that a drinking water well is located 50 feet downgradient of the soil contamination.

Conclusions for FCI Dublin Site Case Closure

Petroleum sites that are located on federal facilities are very good candidates for remediation using natural attenuation.

Natural attenuation is recognized by the USEPA as a viable method of remediation for soil and groundwater at petroleum-contaminated sites. At active federal facilities, like FCI Dublin, the government is in a position to control or specify future land and groundwater use to ensure that human health is not impacted and the contaminated soil and groundwater are located at an adequate distance from potential receptors.

Based on the hydrology, geology, site history and other factors already discussed elsewhere in this document the residual diesel soil and groundwater contamination at FCI Dublin as identified in September 2009 poses a low risk to public health, safety and the environment. The remaining mass of diesel residual contamination is limited to the immediate vicinity of the 2008 diesel spill, the dissolved petroleum constituent plume in groundwater is small, stable, and concentrations are decreasing by natural attenuation.

Please note that the affected groundwater is not currently being used as a source of drinking water and it is highly unlikely that the affected groundwater will be used as a source of drinking water in the future.

Though the ACEH mentioned level of drinking water quality has not been met during the September 2009 ground water testing, these water quality objectives will be achieved via natural attenuation in approximately 2-5 years. Such a limited scenario will not unreasonably affect existing or anticipated beneficial uses. As previously noted, the site is located in a largely commercial, residential and military reserve area, and the closest active well is located approximately 5000 feet from the site (Figure 1). In addition, from information provided by Zone 7, there is an indication that there will be no water supply wells constructed in this area, or in Dublin, in the foreseeable future. Further, in the extremely unlikely event that groundwater is used; well construction standards (well construction standards require a sanitary seal be placed across the total thickness of the basin's aquifer) will prevent any cross-contamination to the deeper water-bearing zone.

As discussed earlier, the adverse effects on the shallow groundwater is minimal and localized, and there are no adverse effects on groundwater in the deeper aquifer given the physical and chemical diesel characteristics, the hydrogeological characteristics of the site and surrounding land, and the quantity of the groundwater and direction of the groundwater flow. In addition, the potential for adverse effects on current and potential future beneficial uses of groundwater is very low to non-existent in light of the proximity of groundwater supply wells (there are no groundwater supply wells within observed proximity to the site and all supply wells are screened to exclude the zone of lower quality groundwater), the current and potential future uses of groundwater in the area, the potential for health risks caused by human exposure, the potential damage to wildlife, crops, vegetation, and physical structures.

Therefore, in light of all relevant information presented in this report, the closure of this diesel spill case, and the modification of entries in the ACEH SLIC and the Geo Tracker databases, to further reflect that this spill did not, and is not affecting any aquifer used for drinking water supply, are warranted.

Enclosures: Tables, Figures, References

Tables

Pangea

Table 1. Soil Analytical Data - Camp Parks Federal Correctional Institution, 5701 8th Street, Dublin, California

Boring/ Sample ID	Date Sampled	Sample Depth Interval (feet bgs)	TPHd	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene
			← mg/kg →						
Gross Contamination on Ceiling Value			100	500	500	400	420	100	500
Urban Area Ecotoxicity Criteria			--	25	--	--	--	--	40
Direct Exposure			110	0.12	63	2.3	31	30	1.3
Protection (Soil Leaching)			83	0.044	2.9	3.3	2.3	0.023	3.4
Final ESL - Residential, Non-Drinking Water Resource			100	0.12	9.3	2.3	11	8.4	1.3
Final ESL - Residential, Drinking Water Resource			**83**	**0.044**	**2.9**	**2.3**	**2.3**	**0.023**	**1.3**
SOIL INVESTIGATION - AUGUST/SEPTEMBER 2009									
H-2	8/31/2009	1.5-2.0	15	--	--	--	--	--	--
H-3	8/31/2009	3.0-3.5	4.2	--	--	--	--	--	--
G-3	8/31/2009	3.0-3.5	3.4	--	--	--	--	--	--
G-5	8/31/2009	5.0-5.5	2.1	--	--	--	--	--	--
E-1*	8/31/2009	5.5-6.0	**1,600**	--	--	--	--	--	--
E-2*	8/31/2009	5.5-6.0	4.2	--	--	--	--	--	--
E-3*	8/31/2009	5.5-6.0	<1.0	--	--	--	--	--	--
SB-1-8	9/2/2009	7.5-8.0	<1.0	--	--	--	--	--	--
SB-1-12	9/2/2009	11.5-12.0	<1.0	--	--	--	--	--	--
SB-1-16	9/2/2009	15.5-16.0	<1.0	--	--	--	--	--	--
SB-2-6	8/31/2009	5.5-6.0	**120**	--	--	--	--	--	--
SB-2-8	8/31/2009	7.5-8.0	23	--	--	--	--	--	--
SB-3-8	9/2/2009	7.5-8.0	<1.0	--	--	--	--	--	--
SB-3-12	9/2/2009	11.5-12.0	15	--	--	--	--	--	--
SB-3-20	9/2/2009	19.5-20.0	<1.0	--	--	--	--	--	--
MW-1-4	9/1/2009	4.0-4.5	49	--	--	--	--	--	--
MW-1-8	9/1/2009	7.5-8.0	<1.0	--	--	--	--	--	--
MW-1-12	9/1/2009	11.5-12.0	<1.0	--	--	--	--	--	--
MW-1-16	9/1/2009	15.5-16.0	1.3	--	--	--	--	--	--
MW-1-20	9/1/2009	19.5-20.0	4.6	--	--	--	--	--	--
MW-1-23	9/1/2009	22.5-23.0	**1,800**	--	--	--	--	--	--
MW-1-25	9/1/2009	24.5-25.0	**1,600**	--	--	--	--	--	--
MW-2-4	9/1/2009	4.0-4.5	62	--	--	--	--	--	--
MW-2-11	9/1/2009	10.5-11.0	<1.0	--	--	--	--	--	--
MW-2-17	9/1/2009	16.5-17.0	<1.0	--	--	--	--	--	--
MW-2-20	9/1/2009	19.5-20.0	2.0	--	--	--	--	--	--
MW-2-25	9/1/2009	24.5-25.0	**2,400**	--	--	--	--	--	--
MW-3-12	9/1/2009	11.5-12.0	<1.0	--	--	--	--	--	--
MW-3-16	9/1/2009	15.5-16.0	<1.0	--	--	--	--	--	--
MW-3-20	9/1/2009	19.5-20.0	<1.0	--	--	--	--	--	--
MW-3-24	9/1/2009	23.5-24.0	47	--	--	--	--	--	--
SOIL INVESTIGATION - SEPTEMBER 2008									
A-1	9/25/2008	5.0-5.5	**220**	<0.005	<0.005	<0.005	<0.005	--	--
A-2	9/25/2008	5.5-6.0	**240**	--	--	--	--	--	--
A-3*	9/25/2008	5.0-5.5	<1.0	--	--	--	--	--	--
B-1	9/25/2008	5.0-5.5	**690**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
B-2	9/25/2008	10.5-11.0	**4,000**	--	--	--	--	--	--
B-3*	9/25/2008	5.0-5.5	**1,300**	--	--	--	--	--	--
C-1	9/25/2008	6.0-6.5	**200**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
C-3*	9/25/2008	5.6-6.1	**1,500**	--	--	--	--	--	--
D-1	9/25/2008	5.2-5.7	**810**	<0.10	<0.10	<0.10	<0.10	--	--

Pangea

Table 1. Soil Analytical Data - Camp Parks Federal Correctional Institution, 5701 8th Street, Dublin, California

Boring/ Sample ID	Date Sampled	Sample Depth Interval (feet bgs)	TPHd	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene
			← mg/kg →						
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Urban Area Ecotoxicity Criteria			--	25	--	--	--	--	40
Direct Exposure			110	0.12	63	2.3	31	30	1.3
Protection (Soil Leaching)			83	0.044	2.9	3.3	2.3	0.023	3.4
Final ESL - Residential, Non-Drinking Water Resource			100	0.12	9.3	2.3	11	8.4	1.3
Final ESL - Residential, Drinking Water Resource			**83**	**0.044**	**2.9**	**2.3**	**2.3**	**0.023**	**1.3**
D-3*	9/25/2008	5.5-6.0	**3,000**	--	--	--	--	--	--
D-4*	9/25/2008	5.3-5.9	**690**	--	--	--	--	--	--
D-5	9/25/2008	8.0-8.5	<1.0	--	--	--	--	--	--
D-5	9/25/2008	12.0-12.5	<1.0	--	--	--	--	--	--
D-5	9/25/2008	17.0-17.5	**220**	--	--	--	--	--	--
D-5	9/25/2008	20.0-20.5	14	--	--	--	--	--	--
D-5	9/25/2008	22.5-23.0	**1,200**	--	--	--	--	--	--
F-1	9/25/2008	5.2-5.7	<1.0	<0.005	<0.005	<0.005	<0.005	--	--
F-2	9/25/2008	6.0-6.5	<1.0	--	--	--	--	--	--
F-3*	9/25/2008	5.2-5.7	<1.0	--	--	--	--	--	--
F-4*	9/25/2008	5.6-6.1	<1.0	--	--	--	--	--	--
I-1	9/25/2008	0.5-0.75	3.9	--	--	--	--	--	--

Notes and abbreviations:

mg/Kg = milligrams per Kilogram

ft bgs = Depth below ground surface (bgs) in feet.

< n = Chemical not present at a concentration in excess of detection limit shown.

ESL = Environmental Screening Level for Shallow Soil with Residential Land Use, Groundwater is/is not a current or potential source of drinking water. (Table A-1, Table B-1, Table H-2, Table K-1, Table E-1b and Table G).

ESL established by the SFBRWQCB, Interim Final - February 2005, and amended in November 2006 and May 2008.

Bold = Concentration above ESLs for Residential Land Use, potential drinking water resource

TPHd = Total Petroleum Hydrocarbons as diesel by EPA Method 8015C

Benzene, Toluene, Ethylbenzene and Xylenes by EPA Method 8021B

Naphthalene and MTBE by EPA Method 8260B

ND = Chemical not present in a concentration in excess of the reporting limit.

* = Sample collected from the sidewall of the excavation

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Table 2. Groundwater Analytical Data - Camp Parks Federal Correctional Institution, 5701 8th Street, Dublin, California

Sample/Well ID/*TOC Elevation*	Date Sampled	Depth to Water (ft)	Groundwater Elevation (ft, amsl)	Sample Depth/ Screening Interval (ft, bgs)	TPHd	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene
					← ug/L →						
Ceiling Value (Taste, Odors, etc.)					100	170	40	30	20	5.0	21
Drinking Water (Toxicity)					210	1.0	150	300	1,800	13	17
Vapor Intrusion Into Buildings					84	540	380,000	170,000	160,000	24,000	3,200
Aquatic Habitat Goal (Chronic)					210	46	130	43	100	8,000	24
Final Groundwater ESL - Residential, Non- Drinking Water Resource					210	46	130	43	100	1,800	24
Final Groundwater ESL - Residential, Drinking Water Resource					**100**	**1.0**	**40**	**30**	**20**	**5.0**	**17**
MONITORING WELL SAMPLES - SEPTEMBER 2009											
MW-1	9/17/2009	14.90	349.22	20-25	**1,100**	<0.5	<0.5	<0.5	<0.5	--	**36**
364.12											
MW-2	9/17/2009	14.64	349.02	19.5-24.5	**230**	<0.5	<0.5	<0.5	<0.5	--	<0.5
363.66											
MW-3	9/17/2009	12.52	348.66	17-22	<50	<0.5	<0.5	<0.5	<0.5	--	<0.5
361.18											
GRAB GROUNDWATER SAMPLING - AUGUST/SEPTEMBER 2009											
SB-1	9/2/2009	--	--	21-26	<50	<0.5	<0.5	<0.5	<0.5	--	<0.5
SB-3	9/2/2009	--	--	15-20	**2,000**	<0.5	<0.5	<0.5	<0.5	--	**36**
GRAB GROUNDWATER SAMPLING - SEPTEMBER 2008											
B-gw*	9/25/2008	--	--	14.5	**190,000**	**7.7**	<5.0	<5.0	<5.0	<5.0	**350**
D-gw	9/25/2008	--	--	19.5-22.5	**680,000**	<5.0	<5.0	<5.0	<5.0	<5.0	**260**
I-gw	9/25/2008	--	--	20-25	**410**	<0.5	<0.5	<0.5	<0.5	1.0	2.1

ug/L = micrograms per liter

ft bgs = Depth below ground surface (bgs) in feet.

< n = Chemical not present at a concentration in excess of detection limit shown.

ESL = Environmental Screening Levels for groundwater where groundwater *is* a current or potential drinking water resource from Table F-1a, established by the SFBRWQCB, Interim Final - November 2007 (Revised May 2008).

Bold = Concentration above final ESL.

TPHd = Total Petroleum Hydrocarbons as diesel by EPA Method 8015C

Benzene, Toluene, Ethylbenzene and Xylenes by EPA Method 8021B

Naphthalene and MTBE by EPA Method 8260B

* = Groundwater sample was collected by lowering a disposable bailer into the open borehole.

Table 13
Summary of Cleanup Levels

Derivation of Cleanup Levels for GRO and DRO

				Using Ceiling of 10,000	
Product	**Receptor**	**DRO/GRO Cleanup Level With Available TAL Data (mg/kg)**	**DRO/GRO Cleanup Level With Unavailable TAL Data (mg/kg)**	**DRO/GRO Cleanup Level With Available TAL Data (mg/kg)**	**DRO/GRO Cleanup Level With Unavailable TAL Data (mg/kg)**
Gasoline	Resident	5,232	2,216	5,155	2,170
	Park Visitor	8,720	3,694	7,902	3,436
	Construction Worker	37,838	1,870	10,000	1,654
	Outdoor Commercial Worker	40,088	11,423	10,000	6,379
	Leaching-Based Cleanup Level	469	10	469	10
No. 2 Fuel Oil	Resident	8,358	72	7,231	72
	Park Visitor	13,930	120	8,758	120
	Construction Worker	32,510	2,031	10,000	1,792
	Outdoor Commercial Worker	54,613	935	10,000	872
	Leaching-Based Cleanup Level	2,941	28	2,941	28
No. 6 Oil	Resident	4,658	78	4,507	78
	Park Visitor	7,763	130	6,891	130
	Construction Worker	26,326	3,588	10,000	2,950
	Outdoor Commercial Worker	28,928	1,015	10,000	954
	Leaching-Based Cleanup Level	686	65	686	65
Used Crankcase Oil	Resident	7,603	574	6,723	569
	Park Visitor	12,672	957	8,471	923
	Construction Worker	31,583	4,117	10,000	3,233
	Outdoor Commercial Worker	49,157	6,479	10,000	4,307
	Leaching-Based Cleanup Level	1,858	53	1,858	53
Stoddard Solvent	Resident	7,702	--	6,935	--
	Park Visitor	12,836	--	8,858	--
	Construction Worker	35,337	--	10,000	--
	Outdoor Commercial Worker	54,280	--	10,000	--
	Leaching-Based Cleanup Level	2,300	--	2,300	--
Unknown GRO	Resident	3,710	--	3,710	--
	Park Visitor	6,183	--	6,183	--
	Construction Worker	27,489	--	10,000	--
	Outdoor Commercial Worker	25,326	--	10,000	--
	Leaching-Based Cleanup Level	75	--	75	--
Unknown DRO	Resident	3,649	--	3,649	--
	Park Visitor	6,081	--	6,081	--
	Construction Worker	23,529	--	10,000	--
	Outdoor Commercial Worker	22,356	--	10,000	--
	Leaching-Based Cleanup Level	460	--	460	--

-- = Unable to calculate value due to lack of data.
TAL = Target Analyte List
mg/kg = milligrams per kilogram

Prepared by / Date: KJC 03/17/10
Checked by / Date: JHP 03/18/10

Calculation of cleanup values are presented in Tables 2 through 6 and 8 through 12.

Figures

	ZONE 7 WATER AGENCY **100 NORTH CANYONS PARKWAY** **LIVERMORE, CA 94551**	**WELL LOCATION MAP**	**SCALE: 1"= 1000 ft** **DATE: 6/9/08** **CAMP PARKS, DUBLIN**

	ZONE 7 WATER AGENCY **100 NORTH CANYONS PARKWAY** **LIVERMORE, CA 94551**	**WELL LOCATION MAP**	**SCALE: 1"= 1000 ft** **DATE: 2/26/09** **5701 - 8TH ST. DUBLIN**

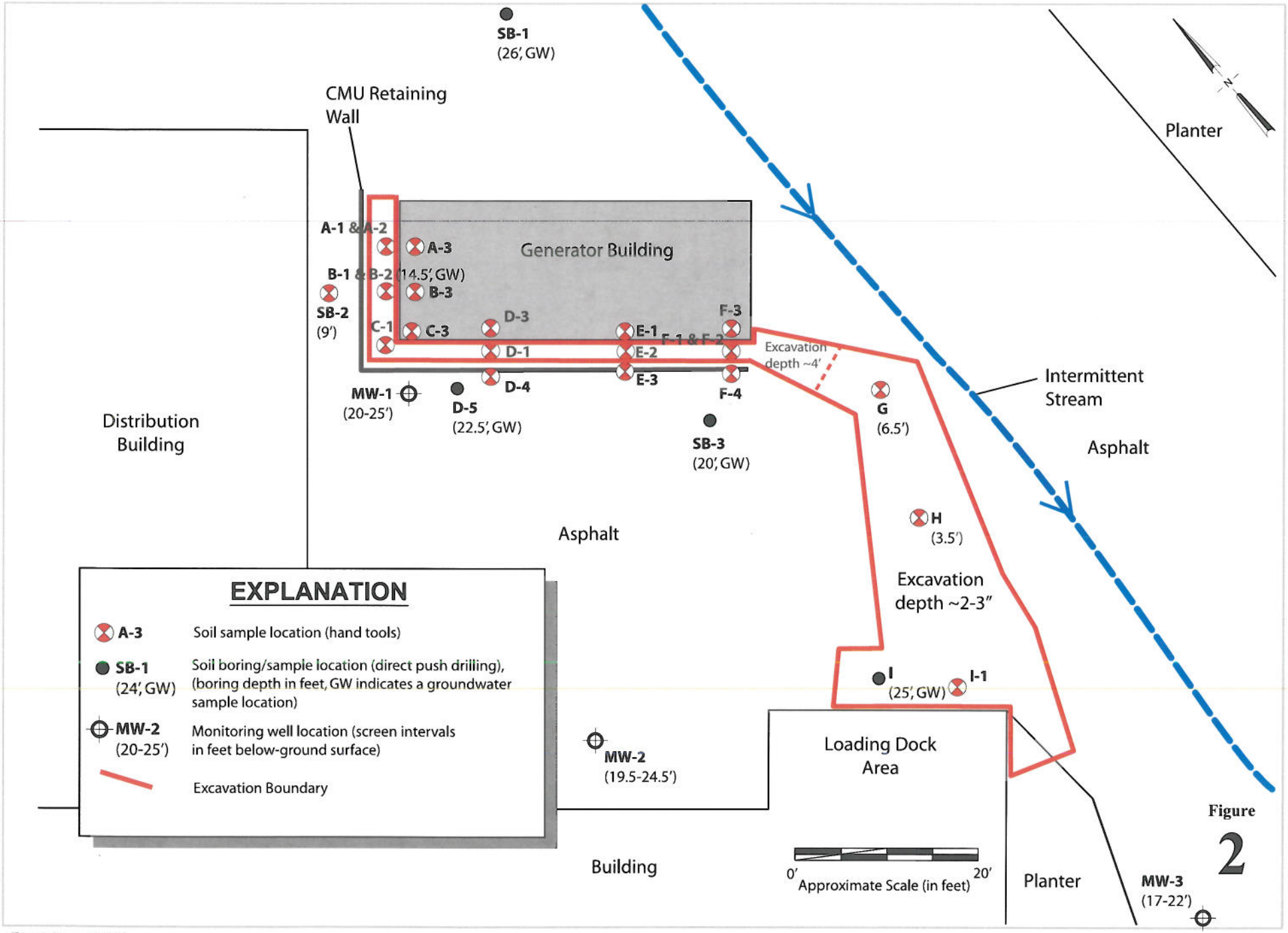

Figure 2

Dublin FCI
5701 8th Street
Dublin, California

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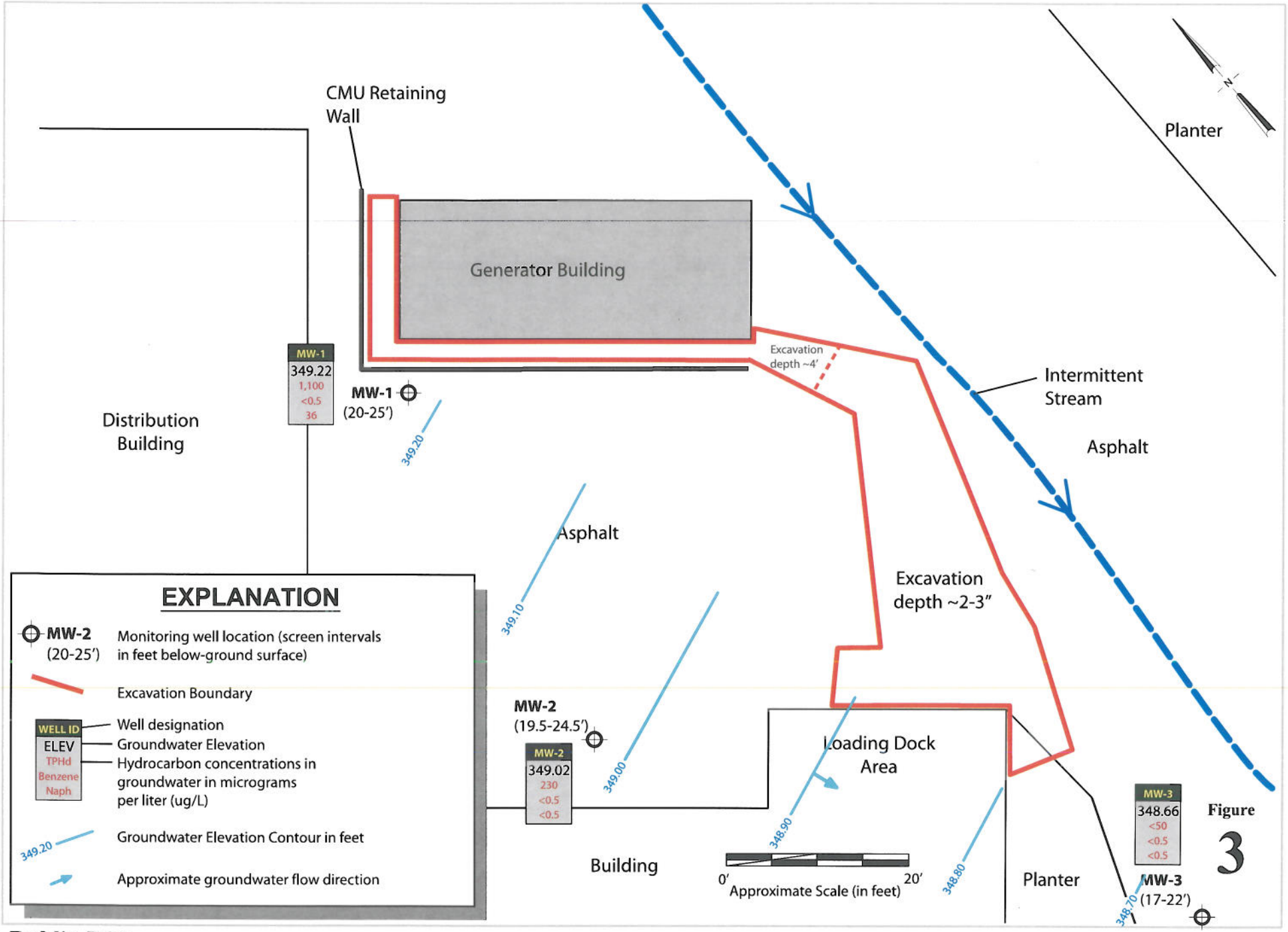
Soil and Groundwater Sample Location Map



Dublin FCI
5701 8th Street
Dublin, California

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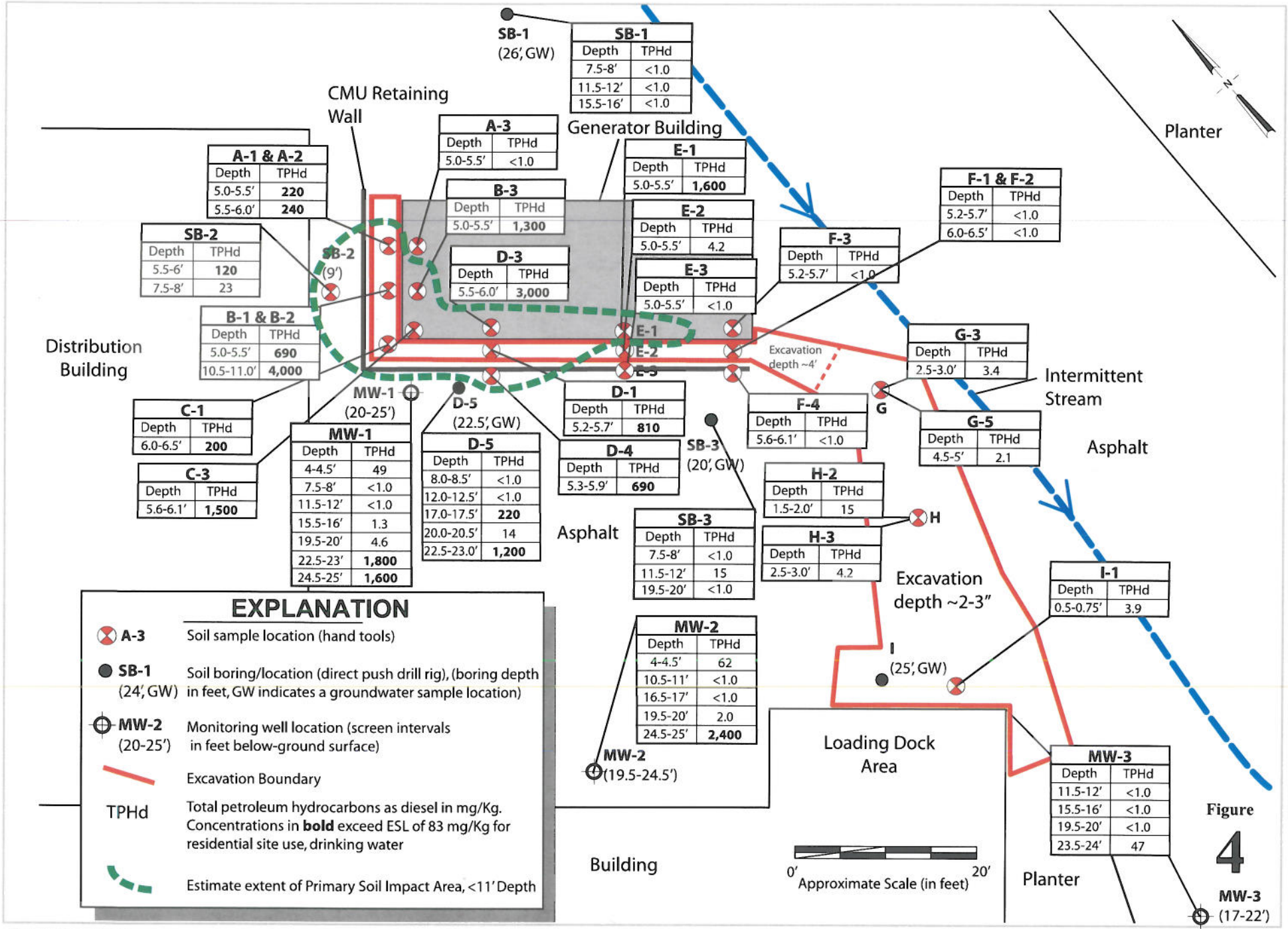
Groundwater Elevation and Hydrocarbon Concentration Map



Dublin FCI
5701 8th Street
Dublin, California

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Soil Sample Location Map Showing Estimated Extent of TPHd in Shallow Soil

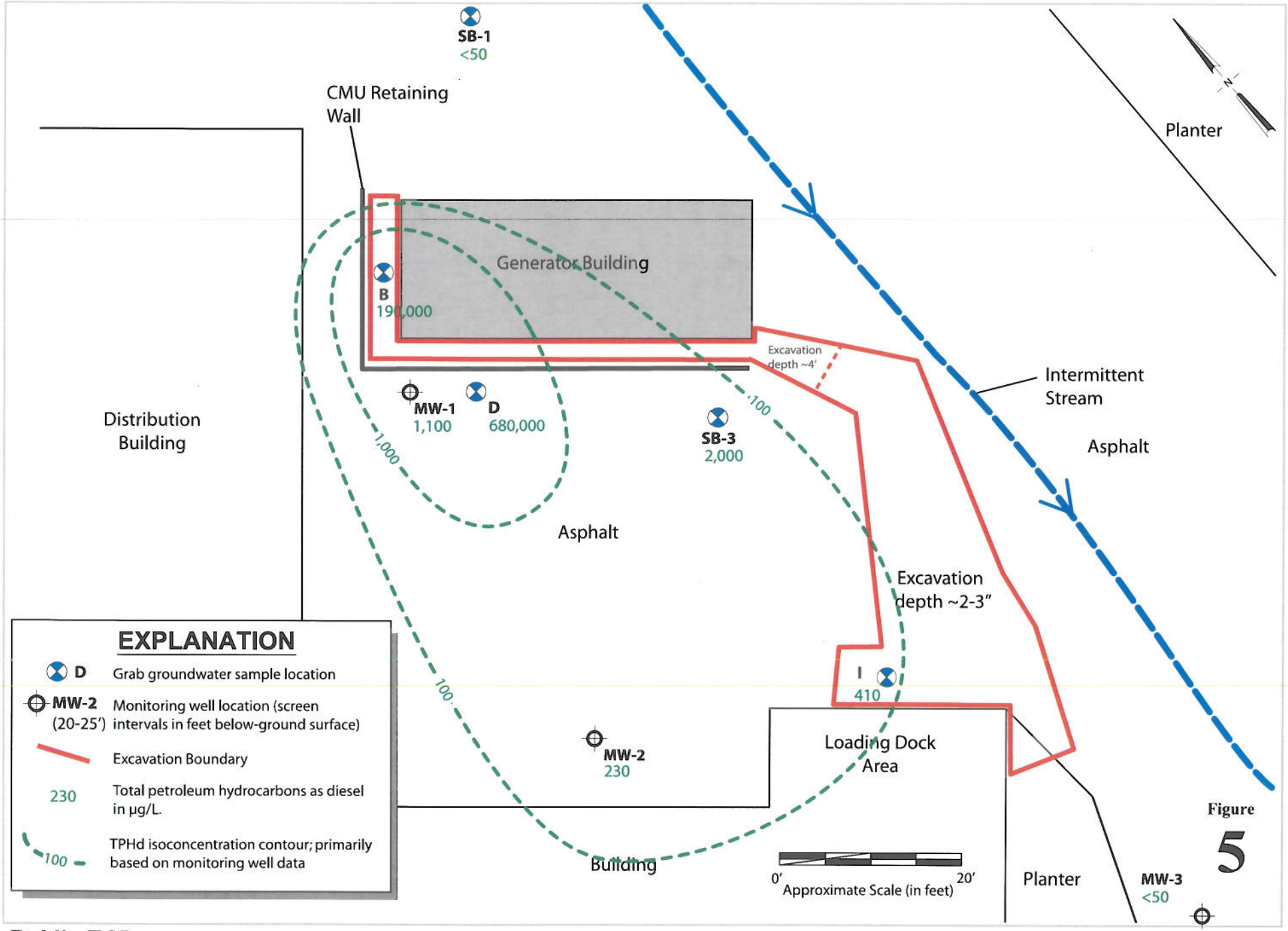

Figure 5

Dublin FCI
5701 8th Street
Dublin, California

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Isoconcentration Map of TPHd in Groundwater

References

Regulatory:

"California State Water Code Section 13260-13274"

"California State Water Resources Control Board Resolution No. 92-49"

"California State Health and Safety Code 25398-25398.15"

"California State Health and Safety Code 25270-25270.13"

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"Final Development of Risk-Based Cleanup levels for Petroleum Hydrocarbons Measured as Diesel Range Organics (DRO) and Gasoline Range Organics (GRO)", prepared by Mactec Engineering and Consulting, Inc. in April 2010

"Zone 7 Water Agency Well Master Plan Final EIR Responses to Comments SCH: 2002032163, July 2005"

Case Investigation Reports submitted to ACEH on behalf of FCI Dublin:

"Site Investigation Report, January 30, 2010"

"Soil and Groundwater Investigation Work Plan with Preferential Pathway Evaluation, March 31, 2009"

"Soil and Water Investigation Report, November 10, 2008"

"Preliminary Site Assessment Phase Workplan, August 18, 2008"