PLAN

RISK MANAGEMENT PLAN FOR SOIL IMPACTED BY TPH ENCINAL REAL ESTATE, INC. ALAMEDA SITE

Prepared for
Encinal Real Estate, Inc.
2020 Sherman Avenue
Alameda, CA 94501

July 1, 1997

Woodward-Clyde

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Engineering & sciences applied to the earth & its environment

July 1, 1997
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Ms. Madhulla Logan
Hazardous Materials Specialist
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94503

Subject: Risk Management Plan for Soil Impacted by TPH-motor oil
Encinal Real Estate Site, Alameda, California

Dear Ms. Logan:

Woodward-Clyde Consultants (WCC), on behalf of Encinal Real Estate, Inc., is pleased to submit this Risk Management Plan (RMP) for on-site management of TPH-motor oil impacted soil at the Encinal Real Estate site in Alameda, California (the site). The RMP provides a decision framework to manage on-site residual chemicals in soil in a manner that is consistent with the planned commercial/industrial land use and is protective of human health and the environment, including water quality.

The target levels for TPH-motor oil impacted soil on the site is 1,000 mg/kg. Soil exceeding this concentration needs to be managed according to this RMP.

The planned development of the site includes construction of office buildings, surface parking, and landscaping activities. The proposed buildings, asphalt parking lots, and landscaping, along with access drives and paths, will cover all of the site. The planned buildings, asphalt paths, lots, and drives, and landscaping cover will serve to cap residual chemicals on-site so that human health and the environment, including water quality, are protected. Figure 1 shows the approximate locations of the planned buildings and parking areas.

RESULTS OF FIELD INVESTIGATIONS

Previous investigations performed by WCC for the site include an Environmental Summary Report, dated August 14, 1996 (WCC, 1996), and a Site Characterization Report and Remediation Plan, dated April 1997 (WCC, 1997). Table 4 from WCC (1997) presents the results for organics detected in soil including TPH-motor oil. Figure 4 of WCC (1997) presents the sampling locations in the area of concern for TPH-motor oil. Both the table and figure have been attached for your convenience. The laboratory results indicated that lead and TPH-motor oil were detected at concentrations above 1,000 mg/kg (target level). Remediation of lead-impacted soil was addressed in WCC's June 13, 1997 work plan. Detections of chemicals other

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than lead and TPH-motor oil in soil and shallow groundwater were evaluated to be insignificant (see Attachment B).

SOIL TARGET LEVEL FOR THE RMP

In general, TPH-motor oil is composed by high molecular weight hydrocarbons, and its potential toxicity and mobility in the environment are relatively low (provided that the associated concentration of metals, PNAs, and VOCs are not significant, as described in Attachment B). However, the County has established a TPH-motor oil target level of 1,000 mg/kg. Soil above the TPH-motor oil target concentration, if not disposed off-site, needs to be properly managed to mitigate potential impact to human health and the environment. Therefore, the soil addressed in this RMP is that impacted by TPH-motor oil at concentration above 1,000 mg/kg, as discussed in the meeting with you on June 10, 1997.

SCENARIOS ADDRESSED BY THE RMP

This RMP addresses both the construction and the post-construction scenarios at the site. Risk management during construction addresses precautions that will be taken to mitigate risks to human health and the environment from exposure to residual chemicals, where they are found on the site, during earthwork construction for the planned development of the site. These precautions include the following:

- establishment of health and safety training and worker protection objectives for earthwork construction workers (e.g., workers who may directly contact soil in areas of concern during site preparation, grading, utilities installation, or foundation construction);

- implementation of construction impact mitigation measures, including control of dust generation, decontamination of equipment, prevention of stormwater runoff pollution, and management of water extracted from excavations; and

- establishment of procedures to be followed by earthwork construction personnel and the developer to manage soil on the site during construction.

The post-construction portion of the RMP addresses precautions that will be undertaken to mitigate any long-term risks to human health and the environment after construction is complete. Components of the post-construction risk management plan are as follows:

- preventing exposure of site occupants or visitors to soil chemicals by capping those portions of the site where TPH concentrations in excess of 1,000 mg/kg will remain with buildings, concrete, asphalt, or, in landscaped areas, with 18 inches of clean top soil;

- establishing protocols for on-site workers engaged in subsurface excavation activities in such areas (e.g., utility repairs, work on building foundations, changes to paved areas); and

- establishing a notification mechanism to provide for long-term compliance with this Risk Management Plan.

RISK MANAGEMENT DURING CONSTRUCTION

Risk management during construction addresses precautions that will be taken to mitigate risks to human health and the environment from exposure to residual chemicals, where they are found on the site, during earthwork construction for the planned development of the site.

HEALTH AND SAFETY REQUIREMENTS FOR EARTHWORK CONTRACTORS

During earthwork construction activities, those contractors with workers who may directly contact soil with concentrations over the target level (e.g., during site preparation, grading, and foundation construction) will prepare site-specific health and safety plans. Once such portions of the site are capped by any of the following: at least 3 inches of gravel, base rock or subbase; 18 inches of clean fill; concrete; or asphalt or other equivalent paving, contractors will not be required to have health and safety plans, unless they are performing subsurface work in soil beneath the cap. The earthwork construction contractors' site-specific health and safety plans will be following State and Federal Occupational Safety and Health Administration standards for hazardous waste operations (CCR, Title 8, Section 5192 and 29 Code of Federal Regulations 1910.120, respectively) and any other applicable health and safety standards. The contractors will provide copies of their health and safety plans to the ACDEH and the Developer prior to commencement of earthwork construction activities. Among other things, contractor health and safety plans will include a description of health and safety training requirements for on-site construction personnel, a description of the level of personal protective equipment to be used, and any other applicable precautions to be undertaken to minimize direct contact with affected soil.

CONSTRUCTION IMPACT MITIGATION MEASURES

This section outlines measures that will mitigate potential impacts to human health and the environment during construction at the site. Construction contractors will be required to implement measures that mitigate the following impacts: dust generation associated with demolition and excavation activities in areas with TPH over the target level, construction equipment and transportation equipment, ambient wind traversing stockpiles or debris, and loading transportation vehicles; tracking soil off the site with construction equipment; transporting sediments from the site in rainfall runoff; and managing groundwater extracted while performing below-grade construction activities.

The mitigation measures for these potential impacts may include, but are not limited to, the following: implementing dust control measures; decontaminating construction equipment and transportation equipment; implementing storm water pollution controls; and discharging extracted groundwater on the site in a manner such that the water does not pond on the surface or runoff the site, or transporting the extracted groundwater to an appropriate off-site location. These mitigation measures are discussed in more detail below.

Dust Control

Contractors will implement dust control mitigation measures during construction activities at the site to minimize the generation of dust in areas with TPH over the target level. Dust control is particularly important to minimize exposure of on-site construction workers and to prevent nuisance dust from migrating off-site. The type of dust generation that will be mitigated is that associated with demolition and excavation activities, truck traffic at the site, ambient wind traversing soil stockpiles or debris, and loading transportation vehicles. Contractors will use the following measures to minimize the generation of dust at the site during construction: vehicle speeds on the property will be limited to 5 miles per hour; water will be misted or sprayed while performing demolition and excavation activities and loading transportation vehicles; drop heights will be minimized while loading transportation vehicles. Additional dust control measures may be implemented by the contractor, as necessary, especially if windy conditions persist before the site is capped.

Decontamination

In order to prevent or minimize construction equipment from tracking soil with elevated chemical concentrations off the site onto roadways, construction equipment that contacts

impacted soil will be decontaminated prior to leaving the site. Decontamination methods will include brushing and/or vacuuming to remove loose dirt on vehicle exteriors and wheels. In the event that these dry decontamination methods are not adequate, methods such as steam cleaning, high-pressure washing, and cleaning solutions may be used, as necessary, to thoroughly remove accumulated dirt and other materials.

Storm Water Pollution Controls

Should rainfall occur after the start of construction and prior to capping the site, the contractor will immediately implement storm water pollution controls to minimize storm water runoff from exposed soil on the site and to prevent sediment from leaving the site. On-site sediment and erosion controls will be implemented as the primary methods to limit discharges of sediments to the storm drains. Sediment and erosion protection controls may include the following: covering the entrances to the site with a granular material to minimize sediment and dirt from leaving the site (During site grading, significant runoff is not expected to occur because the site is relatively flat); placing straw bale barriers around the storm drain pipes once the on-site storm drains are installed; placing straw bale barriers around the catch basins once the catch basins are constructed; covering soil stockpiles, if present, with visqueen or tarps during significant rainfall events; and decontaminating dirt and soil from construction vehicles prior to leaving the site.

Extracted Groundwater Management

Groundwater generated by construction dewatering activities (e.g., while installing utility trenches below the water table) will be discharged on the site or will be contained and transported to an appropriate off-site location. Any dewatering water will be tested for TPH-motor oil prior to discharge to the ground surface, and it will be misted or sprayed in a manner so that it does not pond on the surface and does not create runoff.

SOIL MANAGEMENT PROCEDURES

Construction activities for the planned development are being designed to result in a net soil balance on the site after site preparation, grading, foundation construction, and trenching activities. The soil management procedures described in this section provide the protocols for on-site management of soil with TPH-motor oil above 1,000 mg/kg.

The site will be prepared by demolishing the warehouse and clearing and grubbing the site prior to site grading. Demolition and grubbing wastes may be disposed of off-site at a class III landfill. The site is to be mass graded to develop building pads and areas for paved parking and paved roadways and landscaped areas. It is anticipated that the site will be developed in two phases. Buildings 1 and 2 will be constructed in the north portion of the site during Phase 1 (Figure 1). All paved parking, roadways and the building pads for Buildings 3, 4, and 5 are also planned to be constructed as part of Phase 1. Building 3, 4 and 5 will be constructed during Phase 2.

The areas of soil with TPH-motor oil exceeding 1,000 mg/kg will be staked in the field prior to grading. TPH soil will be excavated to a minimum depth of 18 inches below the existing grade, or to a depth that is at or below the planned subgrade whichever is less (where the existing grade is below the anticipated final grade, including any capping requirements, no excavation will occur). The excavated TPH soil will be stockpiled.

Confirmation soil samples will be collected on 50 foot linear intervals along the perimeter of the TPH excavation areas. Confirmation soil samples will be collected from the bottom of the excavation area at one sample each within a 50 foot by 50 foot grid. Soil samples will be analyzed in an on-site laboratory for Total Petroleum Hydrocarbons as motor oil using EPA Method 8015. Where remaining soil exceeds 1,000 mg/kg TPH motor oil the soil will be excavated about one foot deeper in the bottom, or about 10 feet laterally at the perimeter, and will be re-sampled and re-analyzed for TPH motor oil.

Stockpiled TPH soil will be sampled and analyzed for TPH motor oil at one 4 point composite sample per 500 cubic yards. Stockpiled soil that is found to exceed 1,000 mg/kg TPH motor oil will be placed in designated areas that will be beneath paved parking, paved roadways, building pads or landscaping areas in accordance with the capping requirements. Stockpiled soil that is found to contain less than 1,000 mg/kg TPH-motor oil may be used as fill on site without restrictions.

In the alternative, to avoid the need for stockpiling and further testing, all soil exceeding the target level may be relocated as necessary to achieve the capping requirements through completion of all or a portion of the planned parking or by the use of landscaped areas as required to meet the requirements.

After earthwork activities are complete, a report will be prepared to document the relocation and the capping of the soil at the site. This "as-built" report will be an "Addendum" to this

Risk Management Plan to document that the Risk Management Plan was implemented during construction on the site. The Addendum will be submitted to the ACDEH, and the City, and will be maintained by the City and the Developer.

POST-CONSTRUCTION RISK MANAGEMENT

The post-construction portion of the risk management plan addresses precautions that will be undertaken to mitigate any long-term risks to human health and the environment from soil exceeding the target TPH-motor oil concentration after construction on the site is complete. Any future construction that will disturb the clean soil cap, building foundations, or pavement, to the extent that any of the aforementioned are known to overlie soil with TPH-motor oil above 1,000 mg/kg, will be completed in a manner that is consistent with the Risk Management Plan.

Components of the post-construction risk management plan are as follows:

- preventing exposure of site occupants or site visitors to soil containing chemicals of concern by capping it with buildings, concrete, asphalt, or, in landscaped areas, 18 inches of clean soil;
- establishing protocols for on-site workers engaged in subsurface excavation activities (e.g., utility repairs, work on building foundations, changes to paved areas); and
- establishing a notification procedure to provide long term compliance with this Risk Management Plan.

CAPPING OF THE TPH-IMPACTED SOIL

TPH-impacted soil at concentrations that exceed the 1,000 mg/kg target level will be capped with buildings, concrete, asphalt, or, in landscaped areas, 18 inches of clean soil. The clean soil cover for landscaped areas was established at a thickness of 18 inches to minimize or eliminate potential exposure of gardeners and routine maintenance personnel (e.g., those who repair landscaping irrigation systems). Damage of the cap caused by normal wear and tear shall be repaired based upon prudent property management practices.

PROTOCOLS FOR FUTURE SUBSURFACE ACTIVITIES

Any persons performing maintenance or construction on the site will follow the procedures described in the previous paragraphs for risk management during construction, as appropriate, if they are engaged in subsurface excavation activities in which TPH-impacted soil may be uncapped (e.g., utility repairs, work on building foundations, changes to paved areas). At a minimum, contractors performing this work will prepare site-specific health and safety plans that are consistent with State and Federal Occupational Safety and Health Administration standards for hazardous waste operations (CCR, Title 8, Section 5192 and 29 Code of Federal Regulations 1910.120, respectively), any other applicable health and safety standards (e.g., the lead in construction standard (CCR Title 8, Section 1532.1), Proposition 65 (CCR Title 22, Sections 12000 to 14000)), and any other applicable regulations at the time the work is being performed. Among other things, contractor health and safety plans will include a description of health and safety training requirements for on-site construction personnel, a description of the level of personal protective equipment to be used, and any other applicable precautions to be undertaken to minimize direct contact with soil. To see that the Risk Management Plan and the Addendum continue to accurately describe conditions on the site as they pertain to TPH in soil, additional addenda will be written to document future activities that result in a significant change in either: (1) the location and thickness of TPH-impacted soil on the site, or (2) the configuration of the cap (including the location of buildings, parking lots, sidewalks, or landscaped areas). This addendum will be submitted to the City and maintained by the City and the Developer (or the current property owner).

Because natural attenuation may eventually reduce the TPH-motor oil concentration, future subsurface activities may be managed alternatively in the following manner. Soil samples will be collected at the frequency of one per 20 linear feet of excavation in the capped area. The soil samples will be analyzed for TPH-motor oil. Construction activities will proceed without the consideration of this RMP if the soil samples in the construction area show TPH-motor oil concentration below 1,000 mg/kg. However, this RMP would be implemented in areas where soil TPH-motor oil concentrations exceed 1,000 mg/kg.

LONG TERM COMPLIANCE

The Risk Management Plan and Addendum will be submitted to the City of Alameda as part of the permitting process for development of this site. The documents will be maintained in the City Files and will be considered as conditions of approval in connection with the permitting process for development of the site.

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LIMITATIONS

This document has been prepared by the staff of Woodward-Clyde Consultants solely for the use of Encinal Real Estate, Inc.. The scope was limited to the requested scope of work as defined by Encinal Real Estate, Inc.. The findings, recommendations, specifications, or professional opinions are presented, within the limits prescribed by Encinal Real Estate, Inc., after being prepared in accordance with generally accepted engineering practice in Northern California at the time this workplan was prepared. No other warranty is either expressed or implied. Any reliance on this report by third parties shall be at such party's sole risk.

We appreciate the opportunity to offer this Risk Management Plan to you. If you have any questions, or if we can offer any further assistance, please call Al Ridley at (510) 874-3125 or Marco Lobascio at (510) 874-3254.

Sincerely,

Marco C. Lobascio, P.E., R.E.A.
Assistant Project Engineer

Albert P. Ridley, C.E.G.
Senior Consultant

cc: Dick Kraber, Peter Wang, Charles Olson, Esq., Xinggang Tong

ATTACHMENT A

RELEVANT TABLES AND FIGURES FROM SITE INVESTIGATION REPORTS

TABLE 1

TEMPORARY MONITORING WELL AND GROUNDWATER ELEVATIONS

Temporary Monitoring Well Number	Top of Casing Elevation [feet, MSL]	Depth to Water [feet below TOC]	Water Elevation [feet, MSL]
G-1	6.49	1.70	4.79
G-2	na	na	na
G-3	na	na	na
G-4	7.32	5.50	1.82
G-5	11.04	8.60	2.44
G-6	9.54	6.40	3.14
G-7	8.55	6.20	2.35
G-8	10.38	7.60	2.78
G-9	11.12	3.20	7.92
G-10	11.96	4.50	7.46
G-11	10.13	3.80	6.33
G-12	8.90	3.20	5.70
G-13	11.45	6.10	5.35
G-14	11.89	5.60	6.29
G-15	10.98	1.60	9.38
G-16	8.37	1.30	7.07

Legend:
TOC = Top of casing.
MSL = Mean sea level.

TABLE 2

STOCKPILE ANALYTICAL RESULTS FOR LEAD

Sample ID	Lead [mg/kg]
Piles from 1,1-DCA Excavation Activities Performed by WCC	
DCA96-1	9.4
DCA96-2	15.1
DCA96-3	19.6
DCA96-4	12.8
Piles from Lead Excavation Activities Performed by WCC	
LEAD96-1	3,070
LEAD96-2	426
Piles from Unknown Previous Activities	
OLDDCA-1	18.5
OLDDCA-2	31.9
OLDDCA-3	62.7
OLDDCA-4	21.8
OLDDCA-5	28.1
OLDDCA-6	45
ADD1	14.6
ADD2	14.1
ADD3	21.1
Maximum Concentrations	3,070
PRGs - Commercial[1]	1,000

Legend:
Results are from composite soil samples (4 to 1 composite for every 100 ft^3).
Bold values exceed PRGs.
(1) EPA Region IX Preliminary Remediation Goals (PRGs), August 1, 1996.

TABLE 3

SOIL ANALYTICAL RESULTS FOR DETECTED METALS

Location	Depth [feet]	Metals [mg/kg] Arsenic	Barium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Vanadium	Zinc
Geoprobe Grab Sample													
SG-1	0.5 - 1	2.4	67	<0.5	28.6	7.6	14.8	3.1	0.083	3.1	36.1	25.5	31.9
SG-2	0.5 - 1	5.9	200	<0.5	9.1	13.2	39.1	4.4	0.096	<1	15.3	47.3	79.4
SG-3*	na	na	na	na	na	na	na	na	na	na	na	na	na
SG-4	0.5 - 1	14.4	103	<0.5	26	6.4	20.3	14.1	0.27	2.7	20.6	25.7	62.9
SG-5	0.5 - 1	5.3	63.9	<0.5	15.3	9.3	12.5	5.5	0.23	1.7	17.2	32.4	68.4
SG-6	0.5 - 1	2.3	39.1	<0.5	5.8	7.2	8.6	3.7	0.11	1.1	7	34.6	80.4
SG-7	0.5 - 1	8	48	<0.5	34.8	13.7	12.1	5.3	0.098	<1	47	38.9	54.7
SG-8	0.5 - 1	3.2	64.3	<0.5	11.7	8.5	12.4	5	0.16	1.6	12.6	36.5	84.9
SG-9	0 - 0.5	8.3	100	<0.5	34	9.9	40.6	79.2	0.22	<1	43.2	30.1	121
SG-10	0.5 - 1	3	81.6	<0.5	46.6	6.4	12	5.2	0.037	13	22.9	18.4	25.2
SG-11	0.5 - 1	5.3	254	1.6	33.6	12.4	15.4	10	<0.033	<1	33.7	33.2	44.6
SG-12	0.5 - 1	2.6	116	<0.5	23.6	6.8	10.6	7.9	0.044	<1	26.1	21.3	28.9
SG-13	0.5 - 1	4.7	44.5	<0.5	2	11.6	32.2	4	0.22	<1	<4	29.5	61
SG-14	0.5 - 1	6.1	227	<0.5	20.2	11.8	27.8	35.9	0.93	<1	26.5	29	120
SG-15	0.5 - 1	2.9	95.4	<0.5	23.1	7.4	16.2	4.2	<0.033	<1	48	37.5	33.7
SG-16	0.5 - 1	2	26.6	<0.5	28.3	4.8	6.4	7.9	<0.033	<1	27.3	19.1	26.2
Hand-Auger Sample													
SS-1*	na	na	na	na	na	na	na	na	na	na	na	na	na
SS-2	0.5 - 1	2.8	33.1	<0.5	15.7	6.2	9.2	6.4	0.12	1.5	23.1	25.9	48.6
SS-3	0.5 - 1	4.2	54	<0.5	6.2	10.3	22	2.5	0.048	<1	9.4	37.8	51.1
SS-4	0 - 0.5	3.5	58.6	<0.5	33.4	7.3	27.5	26.1	0.047	<1	36.9	26.7	65.2
SS-5	0 - 0.5	2.8	48.3	<0.5	30.5	5.1	21.9	31.5	0.07	<1	25.1	20.4	49.7
SS-6	0 - 0.5	8	99.9	<0.5	28.7	9.7	29.8	55.8	0.17	<1	30.8	37.9	121
SS-7	0 - 0.5	16	90.2	0.8	25.3	8.7	24.3	39.2	0.16	1.2	28.7	38.5	106
SS-8	0 - 0.5	4.7	68.6	<0.5	25.4	7.1	20.8	36.3	0.11	<1	24.3	33.1	91.7
SS-9	0.5 - 1	5.1	88.1	0.57	46.6	9.6	54.3	310	0.17	<1	41.6	37	122
SS-10	0.5 - 1	16.3	60.4	<0.5	34	6.1	48.7	45.3	0.47	1.1	27.9	18.6	179
SS-11	0.5 - 1	na	na	na	na	na	na	43,000	na	na	na	na	na
Maximum Concentrations		16.3	254	1.6	46.6	13.7	54.3	43,000	0.93	13	48	47.3	179
R. 9 PRGs - Commercial		24	100,000	850	640	97,000	63,000	1,000	68	8,500	34,000	2,400	100,000

na = Not analyzed/not available

Exceeds the commercial Preliminary Remediation Goal (PRG) based on $1x10^{-5}$ carcinogenic risk or a unit hazard quotient.

TABLE 4

SOIL ANALYTICAL RESULTS FOR DETECTED ORGANICS IN mg/kg

Location	Depth [feet]	Volatile Organic Compounds (EPA method 8260)			Semi Volatile Organic Compounds (EPA Method 8270)	Pesticides & PCBs (EPA Method 8081)	Herbicides (EPA Method 8151)	Total Petroleum Hydrocarbons (EPA Method		
		Acetone	Toluene	Methylene chloride		Endosulfan I		Gasoline	Diesel	Motor oil
Geoprobe Grab Sample										
SG-1	0.5 - 1	<0.02	<0.005	<0.005	ND [17 - 3.3]	<0.017	ND [20 - .005]	<0.5	<1000	6,300
SG-2	0.5 - 1	<0.02	<0.005	0.012	ND [8.5 - 1.6]	<0.170	ND [20 - .005]	<0.5	<10	26
SG-3*	na	na	na	na	na	na	na	na	na	na
SG-4	0.5 - 1	<0.02	<0.005	<0.005	ND [17 - 3.3]	<0.085	ND [40 - .010]	<0.5	<10	31
SG-5	0.5 - 1	<0.02	<0.005	<0.005	ND [8.5 - 1.6]	<0.034	ND [20 - .005]	<0.5	<10	10
SG-6	0.5 - 1	<0.02	<0.005	<0.005	ND [17 - 3.3]	<0.085	ND [20 - .005]	<0.5	<10	14
SG-7	0.5 - 1	<0.02	<0.005	<0.005	ND [17 - 3.3]	<0.034	ND [20 - .005]	<0.5	<10	<10
SG-8	0.5 - 1	<0.02	<0.005	<0.005	ND [17 - 3.3]	<0.034	ND [20 - .005]	<0.5	<10	<10
SG-9	0 - 0.5	<0.02	<0.005	<0.005	ND [17 - 3.3]	<0.034	ND [40 - .010]	<0.5	<100	660
SG-10	0.5 - 1	<0.02	0.006	0.006	ND [17 - 3.3]	<0.1	ND [40 - .010]	<0.5	<1000	5,400
SG-11	0.5 - 1	<0.02	<0.005	<0.005	ND [8.5 - 1.6]	<0.017	ND [20 - .005]	<0.5	<10	27
SG-12	0.5 - 1	<0.02	<0.005	<0.005	ND [17 - 3.3]	<0.034	ND [20 - .005]	<0.5	<10	<10
SG-13	0.5 - 1	<0.02	<0.005	<0.005	ND [85 - 16]	<0.085	ND [20 - .005]	<0.5	<10	<10
SG-14	0.5 - 1	<0.02	<0.005	<0.005	ND [17 - 3.3]	<0.047	ND [20 - .005]	<0.5	<1000	6,000
SG-15	0.5 - 1	<0.02	<0.005	<0.005	ND [170 - 33]	<0.072	ND [40 - .010]	<0.5	<1000	8,800
SG-16	0.5 - 1	<0.02	<0.005	<0.005	ND [8.5 - 1.6]	<0.034	ND [20 - .005]	<0.5	<100	580
Hand-Auger Sample										
SS-1*	na	na	na	na	na	na	na	na	na	na
SS-2	0.5 - 1	0.022	<0.005	<0.005	ND [170 - 33]	<0.42	ND [20 - .005]	<0.5	<500	2,900
SS-3	0.5 - 1	0.02	0.008	<0.005	ND [17 - 3.3]	<0.034	ND [20 - .005]	<0.5	<10	67
SS-4	0 - 0.5	<0.02	<0.005	<0.005	ND [8.5 - 1.6]	<0.034	ND [20 - .005]	<0.5	<10	33
SS-5	0 - 0.5	<0.02	<0.005	<0.005	ND [17 - 3.3]	0.54	ND [20 - .005]	2	3,100	5,700
SS-6	0 - 0.5	<0.02	<0.005	0.016	ND [17 - 3.3]	<0.017	ND [20 - .005]	<0.5	<100	350
SS-7	0 - 0.5	<0.02	<0.005	<0.005	ND [17 - 3.3]	<0.052	ND [40 - .010]	<0.5	<100	470
SS-8	0 - 0.5	na	na	na	ND [20 - 3.9]	na	ND [20 - .005]	<0.5	<200	1,150
SS-9	0.5 - 1	<0.02	0.016	<0.005	ND [17 - 3.3]	21	ND [20 - .005]	<0.5	<500	1,900
SS-10	0.5 - 1	<0.02	<0.005	<0.005	ND [8.5 - 1.6]	<3.4	ND [20 - .005]	<0.5	<10	71
SS-11	0.5 - 1	na	na	na	na	na	2,4,5-TP(silvex).009	na	na	na
Maximum Concentrations		0.022	0.016	0.016	na	21	0.009	2	3100	8800
PRGs - Commercial[1]		8,750	880	18	na	4,090	na	na	na	na

Legend:
na = Not analyzed/not available/not applicable.
ND = Not detected.
* Due to refusal during drilling, no shallow soil samples were collected.
(1) EPA Region IX Preliminary Remediation Goals (PRGs), August 1, 1996.
Bold values exceed PRGs.

TABLE 5

GROUNDWATER ANALYTICAL RESULTS FOR DETECTED ORGANICS IN mg/L

Location	Date	Volatile Organic Compounds (EPA method 8260)			Semi Volatile Organic Compounds (EPA method 8270)	Pesticides & PCBs (EPA Method 8081)	Herbicides (EPA Method 8151)	Total Petroleum Hydrocarbons (EPA Method 8015 Modified)	
		Acetone	1,1-DCA	1,1,1-TCA	Phenol			Gasoline	Diesel
G-1	1/22/97	<20	<5	<5	<100	ND [6.2 - 0.31]	na	<50	280
G-2*	na	na	na	na	na	na	na	na	na
G-3*	na	na	na	na	na	na	na	na	na
G-4	1/21/97	<20	<5	<5	<100	ND [1 - 0.05]	ND [100 - 0.2]	<50	320
G-5	1/22/97	25	<5	<5	<100		ND [100 - 0.2]	50	660
G-6	1/23/97	24	<5	<5	**100**	ND [1.4 - 0.071]	na	<50	430
G-7	1/21/97	<20	<5	<5	<10	ND [1 - 0.05]	ND [200 - 0.2]	<50	270
G-8	1/23/97	42	<5	<5	**58**	ND [1 - 0.5]	na	<50	540
G-9	1/23/97	<20	**17**	<5	<100	ND [1 - 0.05]	ND [100 - 0.2]	<50	200
G-10	1/23/97	<40	**190**	23	<10	ND [1 - 0.05]	ND [100 - 0.2]	140	300
G-11	1/23/97	<20	<5	<5	<110	ND [1 - 0.05]	na	<50	310
G-12	1/22/97	<20	**12**	5	<100	ND [1 - 0.05]	ND [100 - 0.2]	<50	280
G-13	1/22/97	<20	<5	<5	<10	ND [1 - 0.05]	ND [100 - 0.2]	<50	460
G-14	1/22/97	<20	<5	<5	<100	ND [6.2 - 0.31]	ND [100 - 0.2]	50	230
G-15	1/22/97	<20	<5	<5	<100	ND [1 - 0.05]	ND [100 - 0.2]	<50	260
G-16	1/23/97	<20	<5	<5	<10	ND [1 - 0.05]	ND [100 - 0.2]	<50	130
DG-13	1/28/97	<20	<5	<5	<10	ND [1.4 - 0.073]	na	50	260
Maximum Concentrations		42	190	23	100	na	na	140	660
PRGs - Tap Water[(1)]		608	811	792	21,900	na	na	na	na
MCL[(2)]		na	5	200	na	na	na	na	na
Cal. Water Qual. Objective		na	na	na	30	PCBs = 0.0001	na	na	na

Legend:
na = Not analyzed/not available/not applicable.
ND = Not detected.
* Due to refusal during drilling, no shallow groundwater sample was collected.
(1) EPA Region IX Preliminary Remediation Goals (PRGs), August 1, 1996.
(2) Maximum Contaminant Level (MCL), State of California, Division of Drinking Water & Environmental Management, November 1994.
Bold values exceed PRGs or MCLs, or California Water Quality Objectives, Shallow Water Effluent Limitations (marine).

TABLE 6

GROUNDWATER ANALYTICAL RESULTS FOR DETECTED METALS

Location	Date	Metals [ug/L]															
		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
G-1	1/28/97	<60	<10	163	<5	<5	<10	<50	<25	**244**	<0.2	<10	<40	<5	<10	<10	<50	**53.3**
G-2*	na																	
G-3*	na																	
G-4	1/28/97	<60	<10	<100	<5	<5	<10	<50	<25	<3	<0.2	<10	<40	<5	<10	<10	<50	<50
G-5	1/28/97	<60	<10	<100	<5	<5	<10	<50	<25	6	<0.2	<10	<40	<5	<10	<10	<50	<50
G-6	1/28/97	<60	15	<100	<5	<5	<10	<50	<25	12.8	0.48	<10	<40	<5	<10	<10	<50	<50
G-7	1/28/97	<60	22.7	<100	<5	<5	<10	<50	<25	<3	0.48	<10	<40	<5	<10	<10	<50	<50
G-8	1/28/97	<60	<10	<100	<5	<5	<10	<50	<25	<3	<0.2	<10	<40	<5	<10	<10	<50	<50
G-9	1/28/97	<60	20	<100	<5	<5	<10	<50	<25	4.9	<0.2	<10	**61.3**	<10	<10	<20	<50	**57.8**
G-10	1/28/97	<60	10.7	<100	<5	<5	<10	<50	<25	7.2	<0.2	<10	**140**	<10	<10	<10	<50	**106**
G-11	1/28/97	<60	<10	<100	<5	**9.6**	<10	212	<25	**8.3**	<0.2	<10	**1920**	<5	<10	<20	<50	**429**
G-12	1/28/97	<60	<10	<100	<5	<5	<10	66.3	<25	<3	<0.2	<10	**138**	<5	<10	<10	<50	**74.2**
G-13	1/28/97	<60	17.6	322	<5	<5	<10	<50	<25	<3	<0.2	<10	<40	<5	<10	<10	<50	<50
G-14	1/28/97	<60	<10	<100	<5	<5	<10	<50	<25	<3	<0.2	<10	**62.7**	<5	<10	<10	<50	<50
G-15	1/28/97	<60	<10	<100	<5	<5	<10	<50	<25	<3	<0.2	<10	<40	<5	<10	<10	<50	<50
G-16	1/28/97	<60	11.2	111	<5	<5	<10	<50	<25	<3	<0.2	<10	<40	<5	<10	<10	<50	<50
DG-13	1/28/97	<60	17.4	226	<5	<5	<10	<50	<25	<3	<0.2	<10	<40	<5	<10	<10	<50	<50
Maximum Concentrations		0	22.7	322	0	9.6	0	212	0	244	0.48	0	1920	0	0	0	0	429
PRG - Tap Water[(1)]		14.6	0.045**	2,560	0.0156	18.3	0.16***	2,190	1,360	4	3.65****	183	730	183	183	2.92	256	11,000
MCL[(2)]		6	50	1,000	4	5	50	na	1,000	15	2****	na	100	50	100	2	na	5,000
Cal. Water Qual. Objectives		na	36	na	na	9.3	50	na	17.0	5.6	2.1	na	5.3	5	2.3	na	na	86

na = Not analyzed/not available

* Due to refusal during drilling, no shallow soil sample was collected.

** Arsenic cancer endpoint.

*** CAL-Modified PRG

**** Methyl mercury.

(1) EPA Region IX Preliminary Remediation Goals for Tap Water (PRGs), August 1, 1996.

Bolded values show exceedances relative to MCLs or California Water Quality Objectives.

(2) Maximum Contaminant Level (MCL), State of California, Division of Drinking Water & Environmental Management, November 1994.

Bold values exceed MCL.

TABLE II

RESULTS OF LABORATORY ANALYSES OF SOIL SAMPLES FOR CHLORINATED HERBICIDES

results in mg/kg

	EPA 8150 Chlorinated Herbicides
B-1	ND
B-2	ND
B-3	ND
B-4	ND
B-5	ND
B-6	ND
B-7	ND
S-1	ND
S-2	ND
S-3	ND
S-4	ND
S-5	ND
S-6	ND
S-7	ND
S-8	ND
S-9	ND
S-10	ND
M-1	ND
M-2	ND

TABLE III

RESULTS OF LABORATORY ANALYSES OF SOIL SAMPLES FOR TITLE 22 METALS

results in mg/kg

	B-1	B-2	B-3	B-4	B-5	B-6	B-7	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10	M-1	M-2	R 9 Comm. PRG mg/kg	Title 22 TTLC
Antimony	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	680	500
Arsenic	5.1	7	3.5	6.9	8.6	12.8	6.2	5.2	9.3	7.2	2.5	2.7	4.7	7	8.7	6.7	6.3	3.5	3.2	24	500
Barium	73.9	78.1	50.5	37.1	163	112	243	72	82.5	112	57.1	42.7	81.8	91.1	100	3.8	99.1	10.9	24.2	10,000	10,000
Beryllium	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.69	< 0.5	0.58	0.52	< 0.5	< 0.5	11	75
Cadmium	0.87	< 0.5	< 0.5	< 0.5	0.88	0.91	< 0.5	< 0.5	0.62	< 0.5	< 0.5	< 0.5	< 0.5	0.7	0.82	0.61	0.8	< 0.5	< 0.5	850	100
Chromium	36.8	30.9	47.2	51.4	192	48.6	108	157	34.9	38.1	28.8	27.5	37.7	42	49	64.2	31.7	16.1	44.4	640	2,500
Cobalt	7.9	8	7.3	9.4	17	13.9	23.2	14.8	9.2	9.3	5.5	6	9.8	14.7	13.2	10	14.2	5.7	7.8	97,000	8,000
Copper	138	62.9	22.2	35.5	61.4	119	21.7	35	39.3	103	20.1	41.8	20.9	58.8	65.4	39.5	68.9	22.2	28.8	63,000	2,500
Lead	419	159	35.5	11.1	6,440	192	22.9	6,140	74.4	179	22.2	28.8	32.7	80.8	188	26.5	214	25.5	10	1,000	1,000
Mercury	0.14	0.089	0.1	0.088	0.21	0.18	0.084	0.051	0.19	0.16	0.04	0.071	0.064	0.15	0.25	0.3	0.19	0.038	< 0.033	68	20
Molybdenum	< 1	1.4	< 1	1.1	2.7	< 1	< 1	< 1	< 1	1	< 1	< 1	< 1	< 1	< 1	< 1	1	< 1	< 1	8,500	3,500
Nickel	34.5	42.7	40.4	48.8	72.5	75.7	143	87.2	29.6	48.9	29.1	33.6	36.7	64.3	59.6	58	52.2	23.2	44.2	34,000	2,000
Selenium	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	8,500	100
Silver	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	8,500	500
Thallium	< 1	1.3	< 1	< 1	2.4	1.9	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1.4	< 1	1.3	< 1	< 1	120	700
Vanadium	34.2	27.5	28.9	45.8	41.7	39.9	31	30.2	39.3	31.4	24	29.8	38.4	40.3	45.3	53.1	53.9	26.4	38.2	12,000	2,400
Zinc	122	105	55.1	57.7	2,950	134	73.9	93.4	121	127	43.6	55.5	56.3	120	142	95.5	242	76.9	62.4	100,000	5,000

Exceeds the commercial Preliminary Remediation Goal (PRG) based on $1x10^{-5}$ carcinogenic risk or a unit hazard quotient.

TABLE III a

LEAD ANALYTICAL RESULTS FOR SOIL
ABL RAILROAD RIGHT-OF -WAY
RAIL LINE AREA

Location	Date Sampled and Analyzed	Result [mg/kg]
CHECK-1	11-Sep-96	93
CHECK-2	11-Sep-96	200
B5-P1	11-Sep-96	5,300
B5-P2	11-Sep-96	2,500
B5-P3	11-Sep-96	7,200
B5-B1	11-Sep-96	88
B5-B2	11-Sep-96	270
B5-P4	11-Sep-96	950
B5-P5	11-Sep-96	1,600
B5-P6	11-Sep-96	20,000
B5-P7	11-Sep-96	110
SS-4	11-Sep-96	560
SS-5	11-Sep-96	260
SS-6	11-Sep-96	390
B5-P8	12-Sep-96	1,200
B5-P10	12-Sep-96	5,100
B5-P9	12-Sep-96	1,300
B5-P11	12-Sep-96	260
SS-7	12-Sep-96	6,100
SS-8	12-Sep-96	5,500
SS-9	12-Sep-96	1,700
SS-10	12-Sep-96	840
SS-11	12-Sep-96	1,000
SS-14	12-Sep-96	390
SS-12	12-Sep-96	2,900
SS-13	12-Sep-96	830
SS-16	12-Sep-96	1,200
SS-17	12-Sep-96	630
SS-15	12-Sep-96	110
SS-18	12-Sep-96	380
SS-19	12-Sep-96	690
SS-20	12-Sep-96	100
SS-21	12-Sep-96	690
SS-22	12-Sep-96	1,600
SS-23	12-Sep-96	190
SS-5-P1	12-Sep-96	180
SS-5-P2	12-Sep-96	230
SS-5-P3	12-Sep-96	110
SS-6-P1	12-Sep-96	2,200
SS-6-P2	12-Sep-96	260
SS-6-P3	12-Sep-96	570

TABLE III a

LEAD ANALYTICAL RESULTS FOR SOIL
ABL RAILROAD RIGHT-OF -WAY
RAIL LINE AREA

Location	Date Sampled and Analyzed	Result [mg/kg]
SS-24	12-Sep-96	273
SS-25	12-Sep-96	1,100
SS-26	12-Sep-96	430
SS-27	12-Sep-96	340
SS-28	12-Sep-96	600
SS-29	12-Sep-96	1,000
SS-31	12-Sep-96	400
SS-32	12-Sep-96	410
SS-33	12-Sep-96	6,400
SS-30	12-Sep-96	620
SS-34	13-Sep-96	320
SS-35	13-Sep-96	320
SS-49	13-Sep-96	1,600
SS-50	13-Sep-96	1,700
SS-51	13-Sep-96	460
SS-52	13-Sep-96	17,000
SS-53	13-Sep-96	630
SS-57	13-Sep-96	1,700
SS-58	13-Sep-96	300
SS-59	13-Sep-96	860
SS-60	13-Sep-96	110
SS-61	13-Sep-96	190
SS-62	13-Sep-96	410
SS-63	13-Sep-96	370

Note:

Analysis was performed using Energy Dispersive X-ray Fluorescence.

[ ] Lead concentrations that exceed the target level of 1,000 mg/kg.

TABLE III b
LEAD ANALYTICAL RESULTS FOR SOIL
ABL RAILROAD RIGHT-OF -WAY
TRIANGLE AREA

Location	Date Sampled and Analyzed	Result [mg/kg]
S1-P1	11-Sep-96	66
S1-P2	11-Sep-96	68
S1-P3	11-Sep-96	74
S1-B1	11-Sep-96	83
S1-B2	11-Sep-96	94
B1-P1	11-Sep-96	87
B1-P2	11-Sep-96	100
B1-P3	11-Sep-96	160
B1-B1	11-Sep-96	220
SS-1	11-Sep-96	97
SS-2	11-Sep-96	110
SS-3	11-Sep-96	98
SS-36	13-Sep-96	79
SS-37	13-Sep-96	100
SS-38	13-Sep-96	110
SS-39	13-Sep-96	87
SS-40	13-Sep-96	150
SS-41	13-Sep-96	63
SS-42	13-Sep-96	98
SS-43	13-Sep-96	120
SS-44	13-Sep-96	600
SS-45	13-Sep-96	200
SS-46	13-Sep-96	150
SS-47	13-Sep-96	97
SS-48	13-Sep-96	200
SS-55	13-Sep-96	160
SS-44-P1	13-Sep-96	39
SS-44-P2	13-Sep-96	60
SS-44-P3	13-Sep-96	90
SS-56	13-Sep-96	200

Note:

Analysis was performed using Energy Dispersive X-ray Fluorescence.

Lead concentrations that exceed the target level of 1,000 mg/kg.

TABLE IV

RESULTS OF LABORATORY ANALYSES OF SOIL SAMPLES FOR ORGANIC TIN
by C.A. Krone, et al. Method
Results in ug/kg

Analyte	Reporting Limit	Sample Number																		
		B-1	B2-2	B-3	B4-2.5	B-5	B-6	B-7	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10	M-1	M-2
Tributyltin	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	< 5
Dibutyltin	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	< 5	ND	ND	ND	ND	ND	< 5
Butyltin	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND = not detected above the reporting limit

TABLE V

RESULTS OF LABORATORY ANALYSES OF SOIL SAMPLES FOR SEMI-VOLATILE ORGANICS
by EPA Method 8270
Results in ug/kg

	Sample Number																		
Analyte	**B-1**	**B2-2**	**B-3**	**B4-2.5**	**B-5**	**B-6**	**B-7**	**S-1**	**S-2**	**S-3**	**S-4**	**S-5**	**S-6**	**S-7**	**S-8**	**S-9**	**S-10**	**M-1**	**M-2**
All Standard Analytes	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND = not detected above the reporting limit
See laboratory reports for reporting limits

TABLE VI

RESULTS OF LABORATORY ANALYSES OF SOIL SAMPLES FOR HERBICIDES
by EPA Method 8150
Results in ug/kg

Analyte	Reporting Limit	Sample Number																		
		B-1	BZ-2	B-3	B4-2.5	B-5	B-6	B-7	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10	M-1	M-2
2,4-D	< 200	< 1,000	ND	ND	ND	ND	ND	ND	ND	< 1,000	ND	< 1,000	< 1,000	< 1,000	ND	ND	ND	ND	ND	ND
2,4-DB	< 200	< 1,000	ND	ND	ND	ND	ND	ND	ND	< 1,000	ND	< 1,000	< 1,000	< 1,000	ND	ND	ND	ND	ND	ND
2,4,5-T	< 40	< 200	ND	ND	ND	ND	ND	ND	ND	< 200	ND	< 200	< 200	< 200	ND	ND	ND	ND	ND	ND
2,4,5-TP (silver)	< 40	< 200	ND	ND	ND	ND	ND	ND	ND	< 200	ND	< 200	< 200	< 200	ND	ND	ND	ND	ND	ND
Dalapon	< 800	< 4,000	ND	ND	ND	ND	ND	ND	ND	< 4,000	ND	< 4,000	< 4,000	< 4,000	ND	ND	ND	ND	ND	ND
Dicamba	< 60	< 300	ND	ND	ND	ND	ND	ND	ND	< 300	ND	< 300	< 300	< 300	ND	ND	ND	ND	ND	ND
Dichlorprop	< 140	< 700	ND	ND	ND	ND	ND	ND	ND	< 700	ND	< 700	< 700	< 700	ND	ND	ND	ND	ND	ND
Dinoseb	< 20	< 100	ND	ND	ND	ND	ND	ND	ND	< 100	ND	< 100	< 100	< 100	ND	ND	ND	ND	ND	ND
MCPA	< 20,000	< 100,000	ND	ND	ND	ND	ND	ND	ND	< 100,000	ND	< 100,000	< 100,000	< 100,000	ND	ND	ND	ND	ND	ND
MCPP	< 20,000	< 100,000	ND	ND	ND	ND	ND	ND	ND	< 100,000	ND	< 100,000	< 100,000	< 100,000	ND	ND	ND	ND	ND	ND

ND = not detected above the reporting limit

TABLE VII

RESULTS OF LABORATORY ANALYSES OF SOIL SAMPLES FOR PCBs
by EPA Method 8081
Results in ug/kg

Analyte	Reporting Limit	Sample Number																	
		B-1	B2-2	B-3	B4-2.5	B-5	B-6	B-7	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10	M-1	M-2
Aroclor 1016	33	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1221	33	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1232	33	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1242	33	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1248	33	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1254	33	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1260	33	49	ND	ND	ND	ND	ND	ND	ND	ND	ND	49	ND	ND	ND	ND	ND	42	ND	ND

ND = not detected above the reporting limit

Note: Residential Soil PRG for PCBs = 66 ug/kg

TABLE VIII

RESULTS OF LABORATORY ANALYSES OF ELUTRIATE SAMPLES FOR ORGANIC TIN BY C.A. KRONE, et al,. METHOD (1988)

Results in ug/l

Analyte	Sample Number		
	BM-1	BM-2	BM-3
Tributyltin	<0.05	<0.05	<0.05
Dibutyltin	<0.05	<0.05	<0.05
Butyltin	<0.05	<0.05	<0.05

Note: Laboratory reports show BM-1 as MW-1, BM-2 as MW-2, and BM-3 as MW-3

TABLE IX

LABORATORY RESULTS OF ANALYSES OF ELUTRIATE SAMPLES FOR PCBs USING EPA METHOD 8081

Results in ug/l

Analyte	Sample Numbers		
	BM-1	BM-2	BM-3
Aroclor-1016	<1	<1	<1
Aroclor-1221	<1	<1	<1
Aroclor-1232	<1	<1	<1
Aroclor-1242	<1	<1	<1
Aroclor-1248	<1	<1	<1
Aroclor-1254	<1	<1	<1
Aroclor-1260	<1	<1	<1

TABLE X

RESULTS OF LABORATORY ANALYSES OF ELUTRIATE SAMPLES FOR T-22 METALS USING EPA METHOD 6010, and pH and Salinity

Results in ug/l

Analyte	Sample Numbers			California Water Quality Objective
	BM-1	BM-2	BM-3	
Antimony	<60	<60	<60	
Arsenic	<10	11.4	<10	36
Barium	<100	<100	<100	
Beryllium	<5	<5	<5	
Cadmium	<5	<5	<5	
Chromium	<10	<10	<10	
Cobalt	<50	<50	<50	
Copper	<25	<25	<25	
Lead	<30	<30	<30	
Mercury	<0.20	<0.20	<0.20	
Molybdenum	<10	28.4	<10	
Nickel	40.8	<40	<40	8.3
Selenium	6.4	<5	<5	71
Silver	<10	<10	<10	
Thallium	<10	<10	<10	
Vanadium	<50	<50	<50	
Zinc	<20	<20	<20	
pH	7.2	7.4	7.2	
Salinity in ppt	24.4	25.1	24.7	

Note: California Water Quality Objective for Marine Surface Waters with Salinities Greater or Equal to 5 ppt- chronic exposure.

TABLE XI

RESULTS OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES FOR VOLATILE ORGANICS, BY EPA METHOD 8260

Results in ug/l

Analyte	Sample Number							Calif. MCL	Fed MCL	PRG Tap Water
	B-1	B-2	B-3	B-4	B-5	B-6	B-7			
2-Butanone (MEK)	60	<20	<20	<20	370	180	100	none	none	1,900

TABLE XII

RESULTS OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES FOR SEMI-VOLATILE ORGANICS, BY EPA METHOD 8270

Results in ug/l

Analyte	Sample Number						
	B-1	B-2	B-3	B-4	B-5	B-6	B-7
All Compounds	ND	ND	ND	ND	ND	ND	ND

Note: ND= not detected above the reporting limit of 10 to 500 ug/l

TABLE XIII

RESULTS OF LABORATORY ANALYSES OF GROUNDWATER SAMPLES FOR PCBs, BY EPA METHOD 8081

Results in ug/l

Analyte	Sample Number					Calif. MCL
	B-1	B-2	B-3	B-4	B-7	
Aroclor-1016	<1	<1	<1	<1	<1	0.5
Aroclor-1221	<1	<1	<1	<1	<1	0.5
Aroclor-1232	<1	<1	<1	<1	<1	0.5
Aroclor-1242	<1	<1	<1	<1	<1	0.5
Aroclor-1248	<1	<1	<1	<1	<1	0.5
Aroclor-1254	<1	<1	<1	<1	<1	0.5
Aroclor-1260	<1	<1	<1	<1	<1	0.5

TABLE XIV

RESULTS OF LABORATORY ANALYSES OF GROUNDWATER FOR TPH GASOLINE, DIESEL,AND MOTOR OIL, BY EPA METHOD 8015

Results in ug/l

	Sample Number						
Analyte	B-1	B-2	B-3	B-4	B-5	B-6	B-7
TPH Gasoline	<50	<50	<50	<50	80	60	<50
TPH Diesel	150	160	270	130	290	330	550
TPH MOTOR OIL	340	230	1700	<100	190	310	240

TABLE XV

RESULTS OF LABORATORY ANALYSES OF GROUNDWATER FOR T-22 METALS BY EPA METHOD 6010A

Results in in ug/l

Analyte	Sample Numbers							Calif. MCL	California Water Quality Objective
	B-1	B-2	B-3	B-4	B-5	B-6	B-7		
Antimony	<60	<60	<60	<60	<60	<60	<60	NL	500
Arsenic	<10	<10	<10	<10	19.6	30	12.2	50	36
Barium	<100	<100	<100	<100	<100	<100	<100	1,000	NL
Beryllium	<5	<5	<5	<5	<5	<5	<5	1,000*	5.3
Cadmium	<5	<5	<5	<5	<5	<5	<5	5	9.3
Chromium	<10	<10	<10	<10	<10	<10	<10	50	50
Cobalt	<50	<50	<50	<50	53.5	<50	<50	NL	NL
Copper	<25	<25	<25	<25	<25	<25	<25	1,000**	2.9
Lead	<3	<3	<3	<3	42.5	<30	<30	15*	5.6
Merculry	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	2	2.1
Molybdenum	<10	<10	<10	<10	10.6	<10	<10	NL	NL
Nickel	<40	<40	<40	<40	<40	<40	<40	100	8.3
Seleneum	15.4	16.5	<25	<5	60.7	36	34.7	50	71
Silver	<10	<10	<10	<10	<10	<10	<10	100**	23
Thallium	<50	<10	<50	<10	<100	<20	<20	2	NL
Vanadium	<50	<50	<50	<50	<50	<50	<50	NL	NL
Zinc	21.1	<20	<20	<20	2440	<20	<20	5,000	86
Tot. Dis. Solids,mg/l	1300	10	836	20	15400	nt	nt	500**	NL
Salinity, ppt	1	0.0053	0.65	1.7	12.1	nt	nt	NL	NL

Note: nt=not tested
NL= none listed
* = Federal Action Level
** = Recommended Secondary Drinking Water Standard

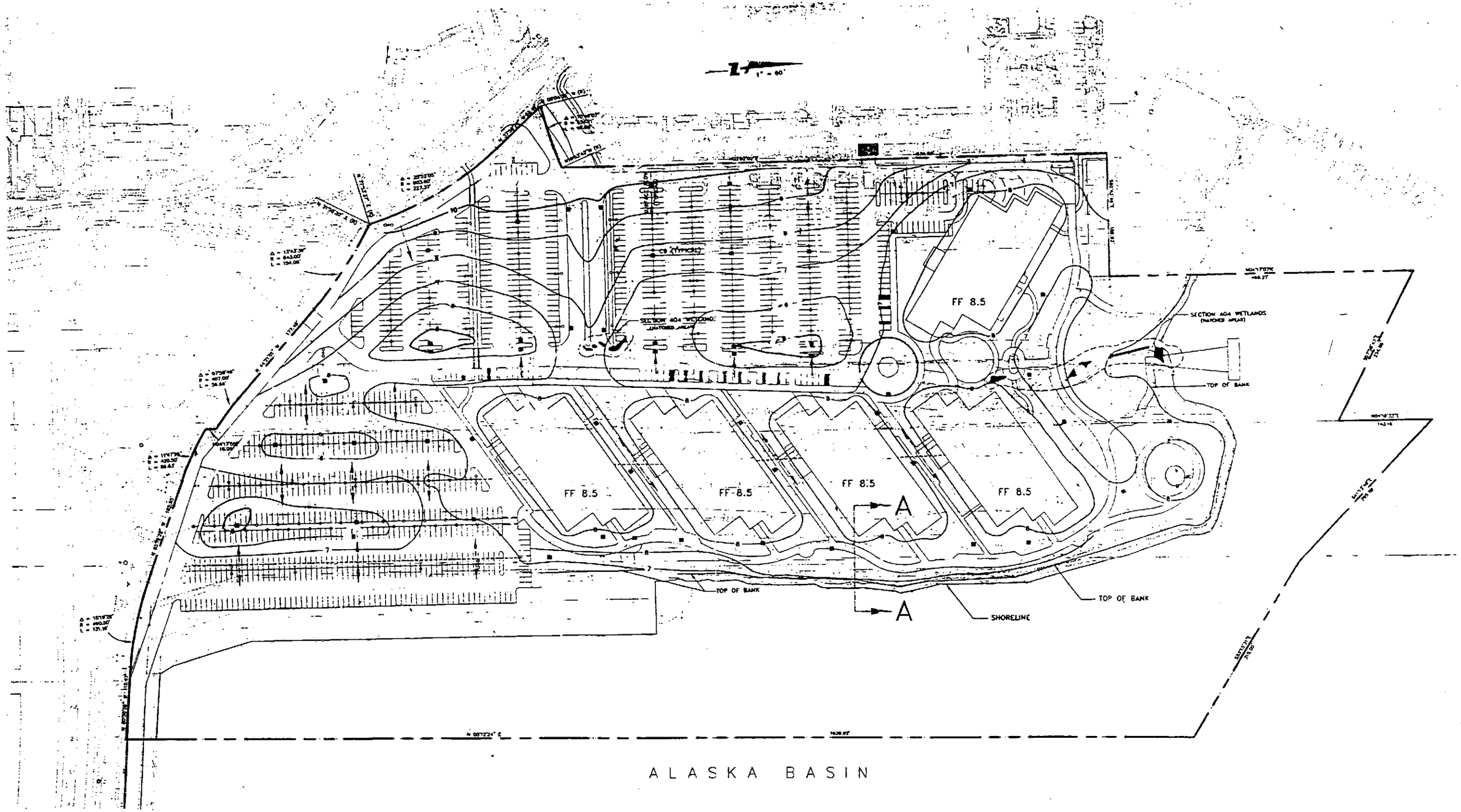
TABLE XVI

RESULTS OF LABORATORY ANALYSES OF GROUNDWATER FOR HERBICIDES BY EPA METHOD 8150

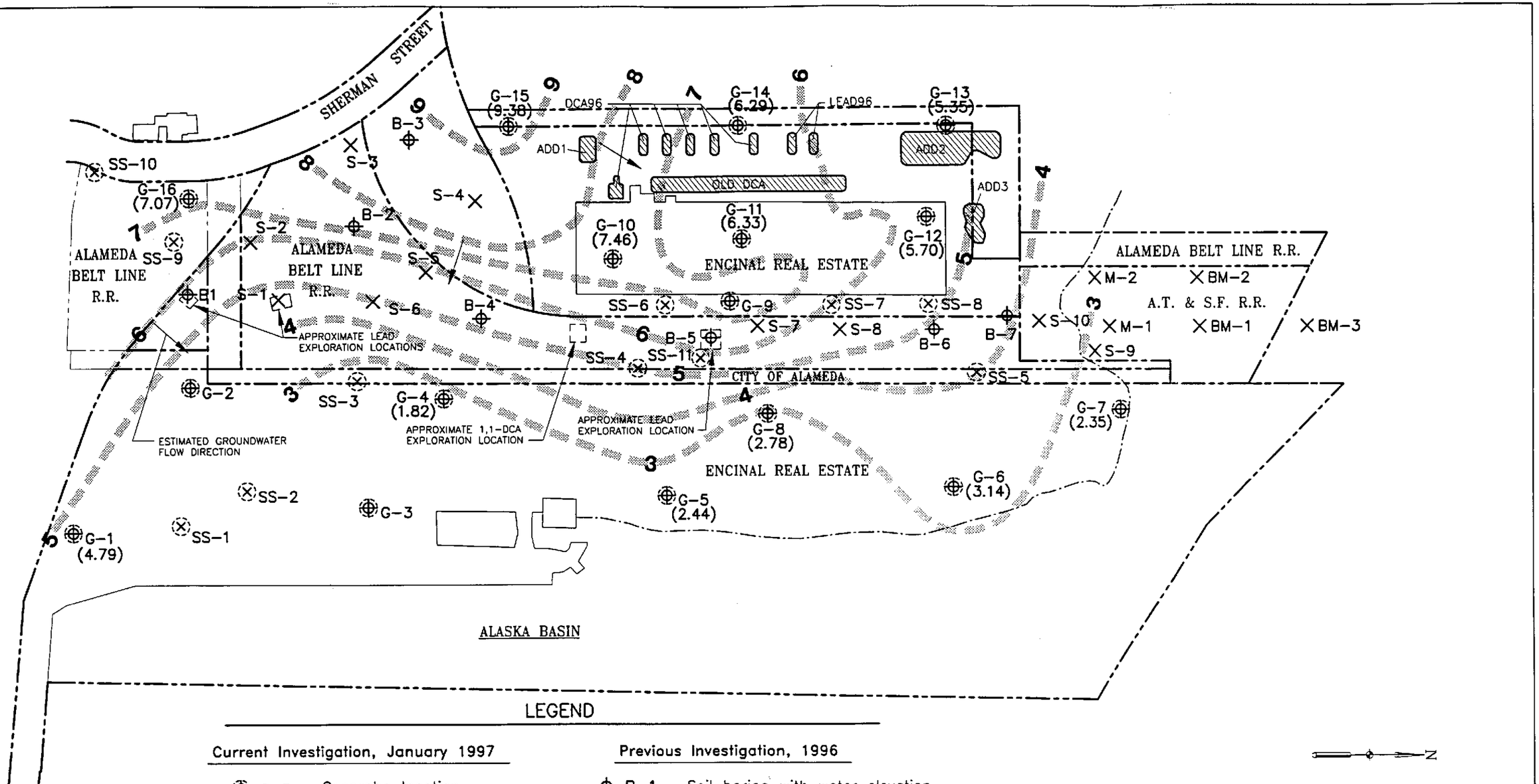
Results in ug/l

Analyte	Sample Number					Calif MCL	Fed MCL	PRG Tap Water
	B-1	B-2	B-3	B-4	B-7			
2,4-D	<1	<1	<1	<1	<1.33	70	NL	370
2,4DB	<1	<1	<1	<1	<1.33	NL	NL	290
2,4,5-T	<0.200	<0.200	<0.200	<0.200	<0.266	NL	NL	370
2,4,5-TP(Silvex)	<0.200	<0.200	<0.200	<0.200	<0.266	NL	50	290
Dalapon	<4	<4	<4	<4	<5.32	200	NL	1,100
Dicamba	<0.300	<0.300	<0.300	<0.300	<0.399	NL	NL	1,100
Dichlorprop	1.27	<0.700	<0.700	<0.700	<0.931	NL	NL	NL
Dinoseb	<0.100	<0.100	<0.100	<0.100	<0.133	7	NL	37
MCPA	<100	<100	<100	<100	<133	NL	NL	NL
MCPP	<100	<100	<100	<100	<133	NL	NL	NL

Note: NL = None listed



Project No. 961163NB	Wind River Systems	PRELMINARY PLAN ALASKA BASIN PROJECT,ALAMEDA,CA	Figure 1
Woodward-Clyde Consultants			



LEGEND

Current Investigation, January 1997

- G-5 (2.44) — Geoprobe location; Groundwater elevation (feet)
- SS-2 — Shallow soil location
- Stockpiles

Previous Investigation, 1996

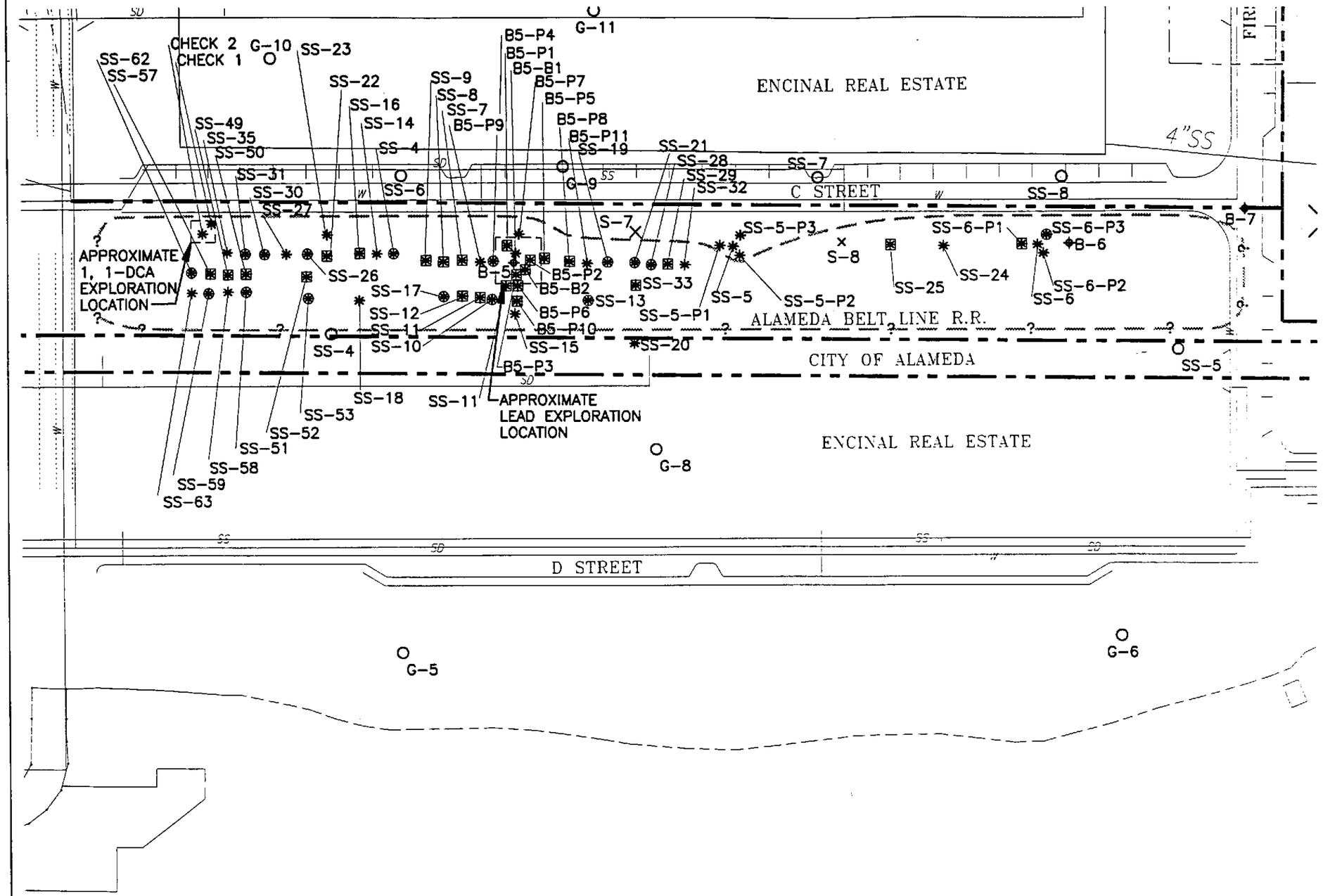
- B-1 — Soil boring with water elevation
- S-1 — Shallow soil sample
- M-1 — Shoreline sediment
- BM-1 — Bottom sediment

N

0 150 feet

ENC-07 040897

Project No. 961163NB	Wind River Systems	MEASURED GROUNDWATER SAMPLING LOCATIONS ELEVATION, JANUARY 1997	Figure 2
	Woodward-Clyde Consultants		

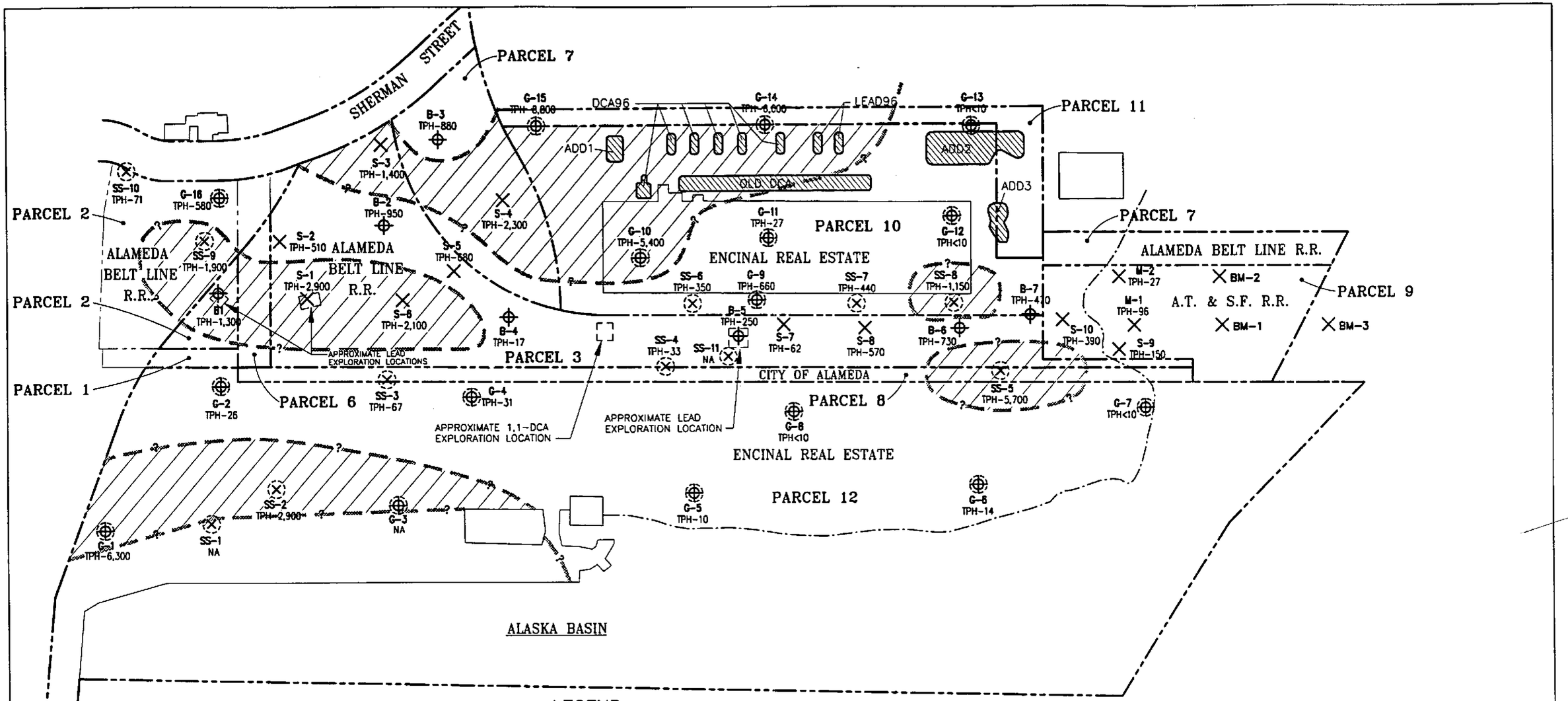


LEGEND

○ G-6	Lead Sampling Location
⊕ B-5	Soil Boring With Water Elevation
× S-7	Shallow Soil Sample Location
✳ SS-24	Surface Soil Sample
✳ SS-24	Lead Concentration >400mg/kg
✳ SS-24	Lead Concentration >1000mg/kg
? — — —	Approximate Area of Soil With Lead Contamination.

ENC-06 D22597

Project No. 961163NB	Wind River Systems	LEAD SAMPLING RESULTS	Figure 3
Woodward-Clyde Consultants			



LEGEND

Current Investigation, January 1997

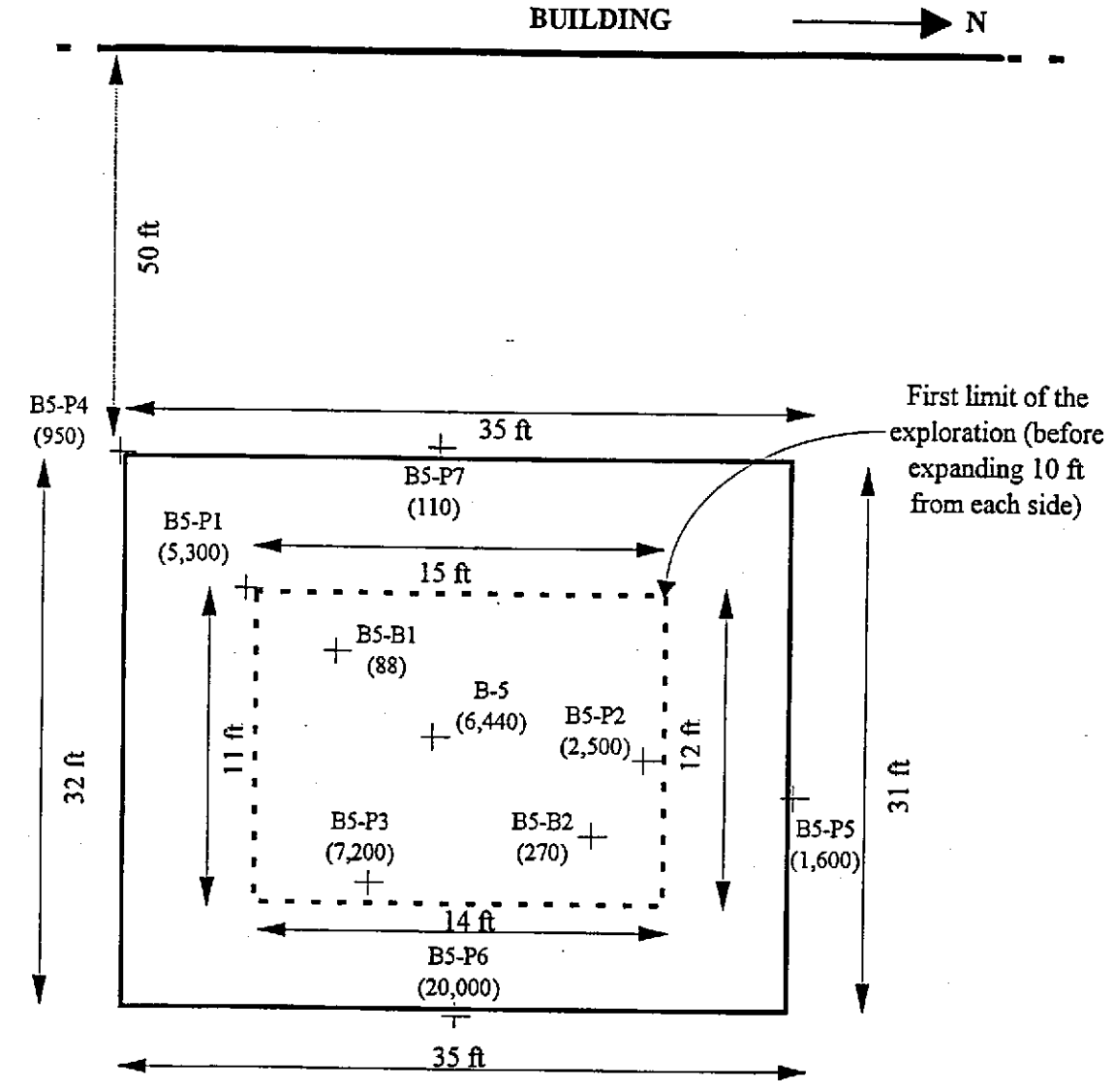
- G-5 — Geoprobe location
- SS-2 — Shallow soil location
- Stockpiles
- TPH Motor oil >1,000mg/kg

Previous Investigation, 1996

- B-1 — Soil boring with water elevation
- S-1 — Shallow soil sample
- M-1 — Shoreline sediment
- BM-1 — Bottom sediment

Project No. 961163NB	Wind River Systems	TPH MOTOR OIL SOIL SAMPLING RESULTS	Figure 4
	Woodward-Clyde Consultants		

ENC-08 040897



B5-P6
(20,000)

Legend:
Soil sample location
(lead concentration [mg/kg])
Soil samples collected at 1 foot deep
(exploration not to scale)

Project No. 961163NA	ENCINAL REAL ESTATE. INC.	B-5 LEAD EXPLORATION	Figure 4
Woodward-Clyde Consultants			

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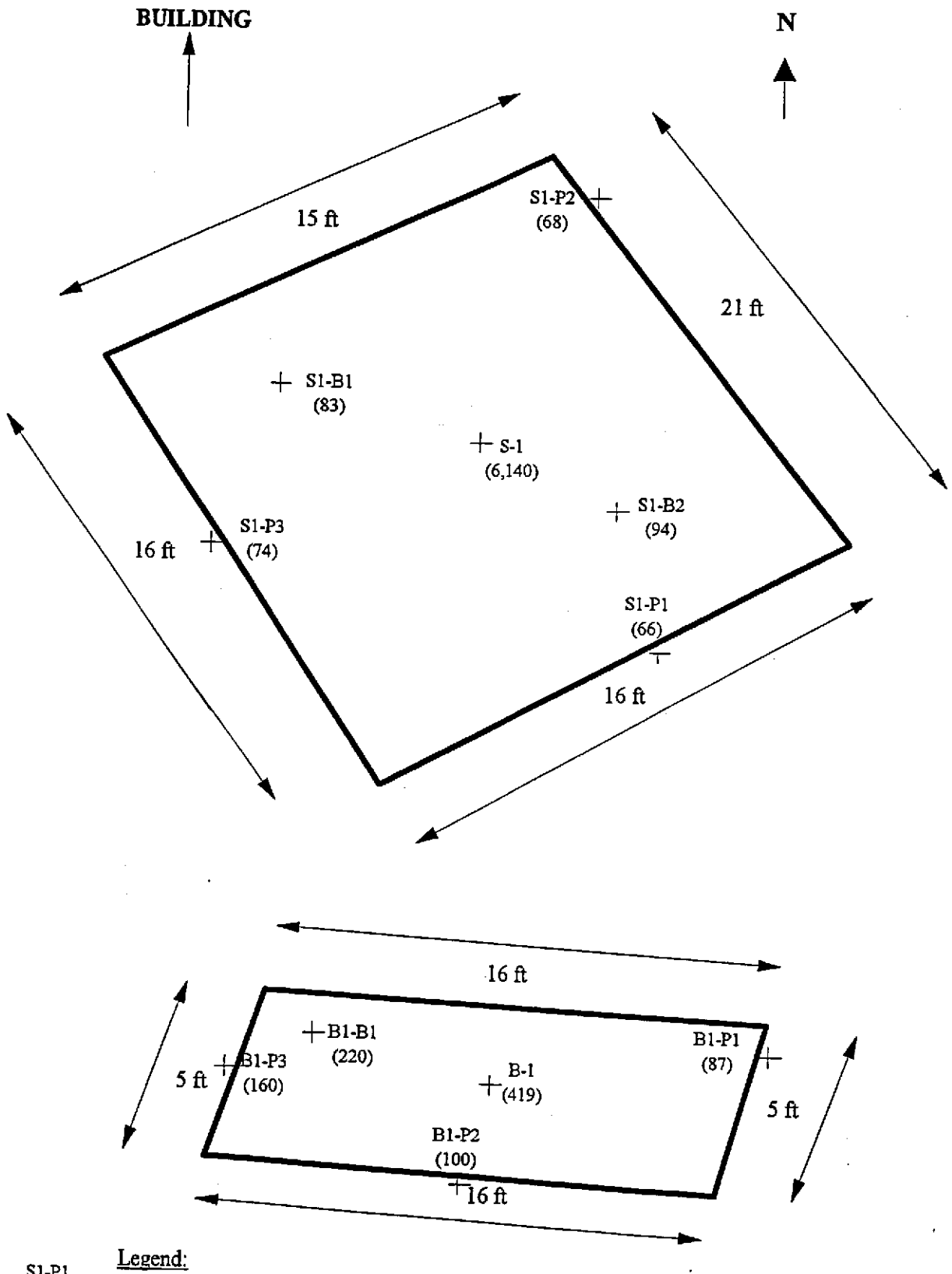

S1-P1
(66) – Legend:
Soil sample location
(lead concentration [mg/kg])
Soil samples collected at 1 foot deep
(exploration not to scale)

Project No. 961163NA	ENCINAL REAL ESTATE. INC.	S-1 AND B-1 LEAD EXPLORATION	Figure 5
Woodward-Clyde Consultants			

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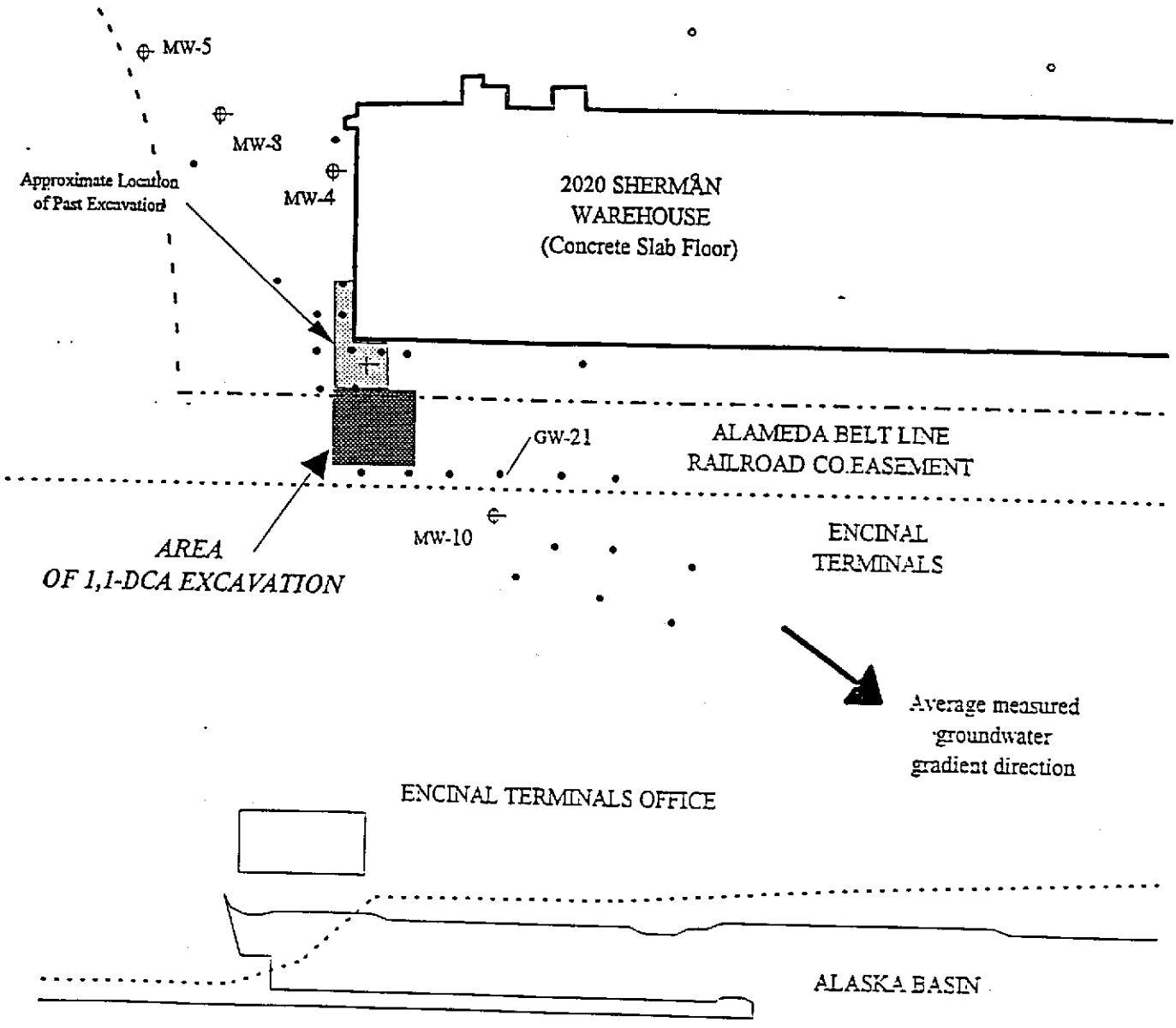

Legend

- ⊖ Approximate Monitoring Well Location
- ○ Approximate Soil Sampling Location
- • Approximate Groundwater Grab Sample Location
- Property Boundary - Encinal Real Estate
- Property Boundary - Encinal Terminals

NOT TO SCALE

Project No. 961152NA	ENCINAL REAL ESTATE	SCHEMATIC SITE PLAN VIEW WITH EXCAVATION BOUNDARY	Figure 1
Woodward-Clyde Consultants			

x:\jerome\projets\encinal\FIGURES1.XLS

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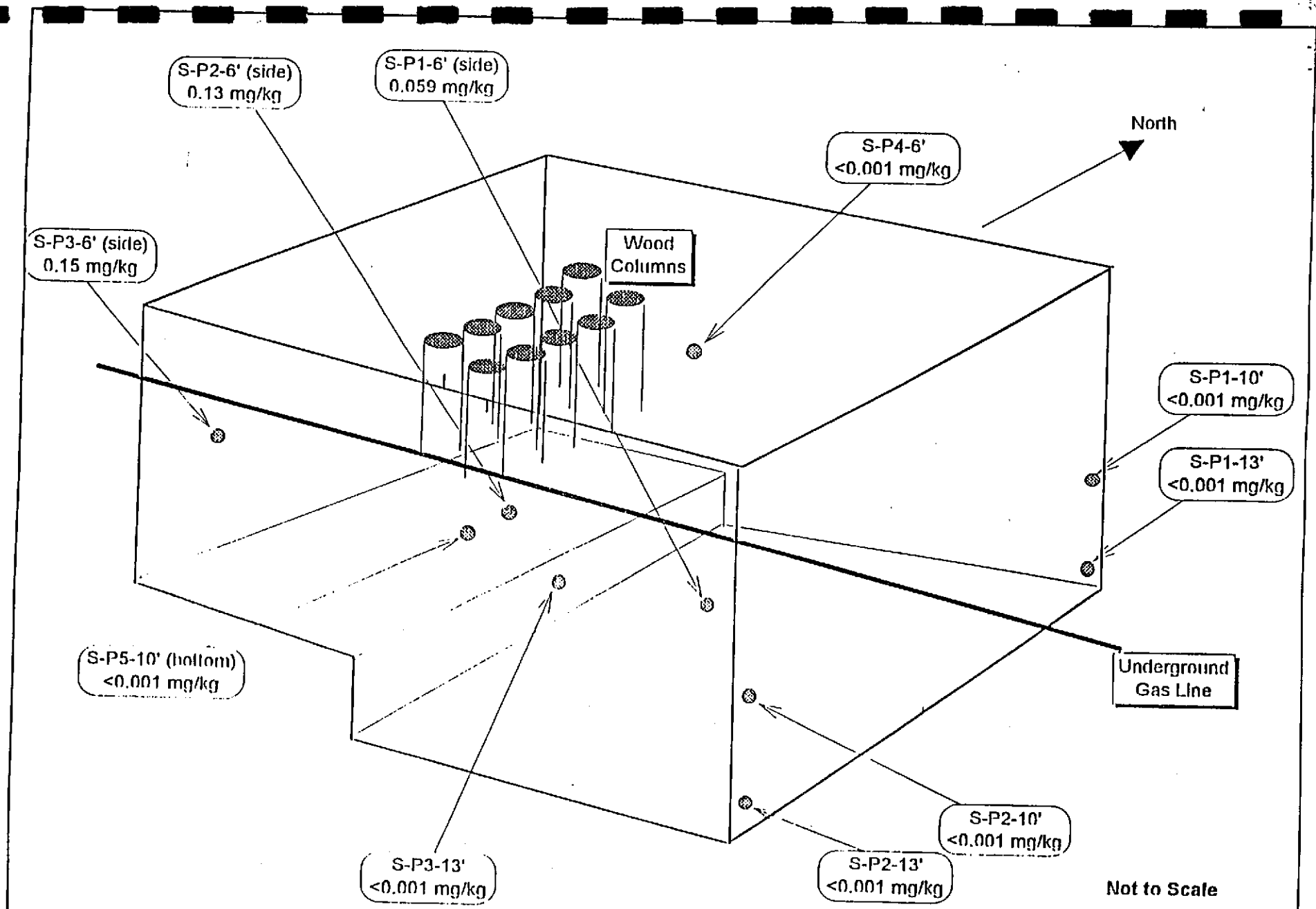

Project No. 961152NA	ENCINAL REAL ESTATE	ILLUSTRATION OF CONFIRMATION SAMPLES LOCATIONS AND RESULTS	Figure 2
	Woodward-Clyde Consultants		

FIGURE1.XLS

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ATTACHMENT B

EVALUATION OF RESIDUAL CHEMICALS IN SOIL AND SHALLOW GROUNDWATER

This Attachment presents a qualitative evaluation of residual chemicals in soil and shallow groundwater at the planned Encinal Real Estate site in Alameda, California (the site), as requested by the County at the June 10, 1997 meeting. This evaluation provides the rationale for the planned remediation of soils containing lead greater than 1,000 mg/kg and managing on-site soil with TPH-motor oil above 1,000 mg/kg, and explains why residual chemicals other than lead and TPH-motor oil detected chemicals in soil and shallow groundwater are evaluated to represent an insignificant potential impact on human health or the environment. A description of the completed soil DCA excavation activity is also included.

This evaluation is based on the chemical data compiled in the Site Characterization Report and Remediation Plan, which was prepared in April 1997 to summarize the findings of previous investigations at the site along with soil and groundwater investigations performed by Woodward-Clyde Consultants in 1996 and 1997.

Soil and groundwater samples were analyzed for metals, volatile organic compounds, semi-volatile organic compounds, pesticides and PCBs, herbicides, and total petroleum hydrocarbons as gasoline, diesel, and motor oil. The results were compiled along with the results of previous studies (see Attachment A). Detected compounds were compared with relevant criteria for commercial developments such as the proposed campus from the USEPA, State of California, and the Alameda County Environmental Health Department.

SHALLOW GROUNDWATER CONDITIONS - METALS

As shown on Table 6 (Attachment A), of the 17 metals analyzed in groundwater nine metals were not detected above their reporting limits. Arsenic, barium, cobalt, and mercury were detected at concentrations below the California Maximum Contaminant Level (MCL) for drinking water, and below the California Water Quality Objectives for marine waters. Cadmium was detected at 9.6 ug/L, slightly above the California MCL of 5 ug/L and the California Water Quality Objective of 9.3 ug/L, in only one boring (G-11).

Lead was reported for groundwater from G-5, G-6, G-9, G-10 and G-11 at concentrations below the MCL of 15 ug/L, but slightly above the California Water Quality Objectives of 5.6 ug/L. The highest reported concentration for lead was 244 ug/L in boring G-1, which exceeds the MCL of 15 ug/L and the California Water Quality Objectives of 5.6 ug/L. As will be shown below, the highest reported lead in groundwater (G-1) is not clearly associated with the location where the highest concentration of lead in soil is reported (SS-11 near B-5). See Table XV (Attachment A) to review the results of previous analyses of groundwater from the Alameda Belt Line (ABL) parcel for metals.

Zinc is reported in groundwater below the MCL (5,000 ug/L) and below the California Water Quality Objective of 86 ug/L in borings G-1, G-9, and G-12. Reported zinc at 106 ug/L in

G-10 and 429 ug/L in G-11 both exceed the California Water Quality Objective, but not the MCL. The highest concentration of zinc reported on the ABL parcel is 2,440 ug/L in B-5 (Table XV) which is in the general vicinity of G-11. It is consistent with the previous detection of 2,950 mg/kg zinc in soil at B-5 as shown in Table III (Attachment A). Zinc is not reported in groundwater above the reporting limits of 20 and 50 ug/L in borings nearer to the Estuary.

Nickel is reported in groundwater in G-9 and G-14 to exceed the California Water Quality Objective of 5.3 ug/L, but not the MCL of 100 ug/L. Nickel is reported in groundwater at 140 ug/L in G-10, 1,920 ug/L in G-11, and 138 ug/L in G-12. Nickel is not reported above the reporting limit of 40 ug/L in borings nearer to the Estuary.

SHALLOW GROUNDWATER CONDITIONS - ORGANICS

Only one Semi-Volatile Organic compound, Phenol, was detected in groundwater from two borings (G-6 at 100 ug/L, and G-8 at 58 ug/L) above the reporting limit. There is no established MCL for Phenol, but the USEPA PRG for tap water is 21,900 ug/L for Phenol. The California Water Quality Objective is 30 ug/L.

Analysis of groundwater for Volatile Organic Compounds using EPA Method 8260 resulted in detection of low concentrations of acetone in groundwater from three borings (G-5, G-6, and G-8), 1,1-DCA from three borings (G-9, G-10, and G-12), and 1,1,1-TCA from two borings (G-10 and G-12). The maximum concentrations of reported acetone (42 ug/L in G-8) did not exceed the PRG for tap water of 608 ug/L. The reported concentrations of 1,1,1-TCA of 23 ug/L in G-10 and 5 ug/L in G-12 did not exceed the MCL (200 ug/L) or the PRG (792 ug/L). The reported concentrations of 1,1-DCA of 12 ug/L in G-9, 190 ug/L in G10 and 12 ug/L in G-12 did exceed the MCL of 5 ug/L .

Total Petroleum Hydrocarbons as Gasoline (TPHg) was detected just above the reporting limit in four groundwater samples, G-5, G-10, G-14 and DG-13 (duplicate of G-13). Each of these detections (Table 5 in Attachment A) were reported at 50 mg/L except G-10 which was reported at 140 mg/L. No TPHg was reported above the 50 mg/L reporting limit for the other groundwater samples. No benzene, toluene, ethylbenzene or xylenes were reported in these groundwater samples.

Total Petroleum Hydrocarbons as Diesel (TPHd) was detected above the reporting limit in all of the groundwater samples collected (Table 5). The reported concentrations of TPHd in groundwater ranged from 130 mg/L in G-16 to 660 mg/L in G-4. The laboratory report notes that "The concentration reported as diesel for samples G-1, G-14, G-13, G-16, G-11, G-6, G-8, G-10 and G-9 are due to the presence of a combination of diesel, motor oil and discrete peaks not indicative of diesel fuel.". There is no established MCL or PRG for TPHg in drinking water. In addition, it is unlikely that this groundwater would be used as drinking water, and there are no plans to to so in connection with the Encinal Real Estate project.

Previous exploration of groundwater at the ABL parcel has detected TPHg at 80 mg/L groundwater samples from B-5 and 60 mg/L from B-6 (Table XIV in Attachment A). Previous exploration of groundwater at the ABL parcel has detected TPHd in groundwater

from borings B-1 to B-7 at concentrations ranging from 130 mg/L in B-4 to 550 mg/L in B-7. TPH as motor oil was also reported in groundwater samples from B-1 to B-7 at concentrations ranging from <100 mg/L in B-4 to 1,700 mg/L in B-3.

The laboratory reported no detections of pesticides, PCBs or herbicides above the reporting limits (Table 5 in Attachment A) for groundwater samples analyzed. It should be noted that no groundwater was obtained for analysis from G-2 and G-3, and insufficient sample was available from G-1, G-6, G-8 and DG-13 for herbicides analysis.

Previous analyses of groundwater from the ABL parcel also resulted in no detection above the reporting limit for pesticides and PCBs (Table XI, Attachment A). Previous analyses of groundwater from the ABL parcel found only one detection above the reporting limit for herbicides (1.27 ug/L dichlorprop in B-1). There is no listed MCL, or PRG tap water for dichlorprop.

EVALUATION OF DETECTIONS IN SHALLOW GROUNDWATER

In one groundwater sample, the reported concentration of cadmium (9.6 ug/L) exceeds the California MCL of 5 ug/L. This detection does not exceed the California Water Quality Objective of 92 ug/L. Because it is unlikely that groundwater at the site ever will be used as drinking water we believe that exceeding the MCL is not a significant issue because the water is not intended to be ingested. Also, the laboratory reports no detection of cadmium in groundwater at locations closer to the Estuary (G-12, G-5, G-6, G-8) indicating that there is a low potential for impact to the Estuary.

Lead was reported in groundwater from six borings (G-1, G-5, G-6, G-9, G-10 and G-11). Five of these detections were less than the MCL of 15 ug/L. Four of these detections were slightly above the California Water Quality Objective of 5.6 ug/L (G-5, G-6, G-10 and G-11) see Table 6. One reported detection of 244 ug/L in boring G-1 exceeds the MCL and the California Water Quality Objective. Because it is unlikely that groundwater at the site ever will be used as drinking water we believe that exceeding the MCL is not a significant issue because the water is not intended to be ingested. This boring is about 100 feet from a dock structure that separates the land from the Estuary. Because of the distance to the Estuary we believe that there is a low potential for the detected lead to impact the Estuary.

Nickel is reported above the reporting limit for groundwater samples from five borings (G-9 to G-12, and G-14). Two of the detections (61.3 ug/L in G-9 and 62.7 ug/L in G-14) do not exceed the MCL (100 ug/L) but do exceed the California Water Quality Objective of 5.3 ug/L (Table 6). Three of these detections (140 ug/L in G-10, 1,920 ug/L in G-11, and 138 ug/L in G-12) exceed the MCL (100 ug/L), PRG Tap Water (730 ug/L), and the California Water Quality Objective (8.3 ug/L). These three locations are beneath the existing warehouse building, and represent a localized condition. There were no reported detections above the reporting limit (40 ug/L) for groundwater from locations closer to the Estuary (G-4, G-5, G-7, G-8). Previous analyses of groundwater from borings B-5, B-6 and B-7 show no detections of nickel above the 40 ug/L reporting limit (Table XV, Attachment A). Because it is unlikely that groundwater at the site ever will be used as drinking water we believe that exceeding the

MCL is not a significant issue because the water is not intended to be ingested. Because of the distance to the Estuary (more than 200 feet from G-12, and more than 450 feet from G-11) and no detections in borings nearer to the Estuary we believe that there is a low potential for detected nickel to impact the Estuary.

Zinc is reported above the reporting limit (50 ug/L) from groundwater samples from five borings (G-1, G-9 to G-12) as shown in Table 6. None of the reported concentrations exceed the MCL (5,000 ug/L) or the PRG for Tap Water (11,000 ug/L). Two of the detections (106 ug/L in G-10, and 429 ug/L in G-11) exceed the California Water Quality Objectives of 86 ug/L. One previous groundwater sample from B-5 has a reported concentration of 2,440 ug/L zinc (Table XV, Appendix B). Because of the distance to the Estuary (450 feet from G-11, 300 feet from B-5) and no detections exceeding the Water Quality Objective in borings closer to the Estuary (<50 ug/L in G-5, G-6, G-7 and G-8) we believe that there is a low potential for detected zinc to impact the Estuary.

The reported concentrations of acetone (maximum 42 ug/L in G-8) do not exceed the PRG for tap water of 608 ug/L. There is no established MCL for acetone. In addition acetone is a common laboratory contaminant and at these low concentrations these detections might be laboratory artifacts.

The reported concentrations of 1,1,1-TCA (maximum 23 ug/L in G-10) are well below the MCL of 200 ug/L. The three reported detections of 1,1-DCA (17 ug/L in G-9, 190 ug/L in G-10 and 12 ug/L in G-12) exceed the MCL but do not exceed the 1,800 ug/L used in the Geomatrix Screening Health Evaluation. That evaluation resulted in an estimated lifetime cancer risk of 3 in 10 million which is lower than the range of risks generally considered acceptable by regulatory agencies.

Phenol was detected in only two groundwater samples (100 ug/L in G-6 and 58 ug/L in G-8). These two detections are below the PRG for tap water of 21,900. There is no established MCL for phenol. These detections exceed the California Water Quality Objective of 30 ug/L. Due to the low frequency of detection and their distance to the Estuary we believe that there is a low potential for detected phenol to impact the Estuary.

There are no established MCLs or PRGs for tap water for TPH gasoline or diesel. TPH gasoline is reported at a maximum of 140 ug/ L for groundwater samples from only four borings (G-5, G-10, G-14, and G-15). TPH gasoline is reported at 80 ug/L in B-5 and 60 ug/L in B-6 from the previous studies of the ABL parcel (Table XIV, Attachment A).

TPH diesel is reported in groundwater from all of the borings (G-1 to G-16) except for G-2 and G-3 where water was not sufficient for collecting a sample. The reported concentration of diesel ranges from 130 mg/L in G-16 to 660 mg/L in G-5. Previous analyses of groundwater from borings B-1 to B-7 resulted in reported detections of 130 to 550 mg/L TPH diesel (Table XIV) on the ABL parcel. Previous analysis of those groundwater samples also detected from 190 to 1,700 mg/L motor oil. Because there is no established MCL or PRG for tap water for gasoline, diesel, or motor oil and it is unlikely that the groundwater at this site ever will be used as drinking water it is our opinion that there is a low potential for TPH diesel or gasoline in groundwater impacting future workers and occupants of the planned

commercial development. In addition, because no benzene, toluene, ethylbenzene, or xylenes were detected above their reporting limits for groundwater sampled there is a low potential for the TPH compounds to impact the Estuary.

No pesticides, PCBs and herbicides were detected above their reporting limits in groundwater samples from borings G-1 to G-16. Previous analyses of groundwater from boring B-1 resulted in a reported concentration of 1.27 ug/L Dichlorprop. However there no listed MCL or PRG tap water for Dichlorprop.

DETECTED COMPOUNDS IN SOIL - METALS

Soil samples were analyzed for 17 metals in the Title 22 series. Antimony, beryllium, selenium, silver, and thallium were not detected above their reporting limits and, therefore are not shown on Table 3 (Attachment A). None of the remaining metals were detected above their commercial/industrial PRGs, with the exception of lead. A soil sample was collected from the ABL parcel at a known hot spot to provide a means of evaluating soluble lead for a relatively higher lead concentration. A concentration of 43,000 mg/kg lead is reported for sample SS-11 (Table 3). The location of SS-11 is shown on Figures 1, 2, 3 and 4. Previous analyses of soil samples from the ABL and A.T. & S. F. parcels are summarized on Tables III and IIIa (Attachment A). The concentration of lead in samples B-5 was 6,440 mg/kg and S-1 was 6,140 mg/kg (Figure 1, and Table III, Attachment A). Over 60 soil samples (Table IIIa) were analyzed for total lead on the ABL parcel. Figure 3 (Attachment A) shows the locations of those samples. Symbols on the figure show that almost half of those samples were reported to contain lead at a concentration greater than 1,000 mg/kg. Excavations at S-1 have removed the soil with lead exceeding 400 mg/kg. The excavated soil is stockpiled near S-1.

Soil was excavated from B-5 and confirmation tests showed the soil in the bottom of the excavation (several feet deep) to contain less than 400 mg/kg lead. However, samples of soil from the side and from the surface north and south of B-5 contain lead ranging from less than 400 mg/kg to 20,000 mg/kg (Table IIIa, Attachment A). As shown on Figure 3, the estimated area of soil with a lead concentration greater than 1,000 mg/kg is about 700 feet long and 80 feet wide. The depth of soil with lead exceeding 1,000 mg/kg is not known. However, the exploration at B-5 suggests that the soil with lead greater than 1,000 mg/kg is probably in a layer 2 to 3 feet in depth.

DETECTED COMPOUNDS IN SOIL - ORGANICS

No Semi-Volatile Organic Compounds were detected above their reporting limits for shallow soil samples analyzed using EPA method 8270 (Table 4, Attachment A). Previous analyses of about 20 soil samples on the ABL and A.T. & S.F. parcels using EPA 8270 also resulted in no detection of semi-volatile organic compounds (Table V, Attachment A).

Analysis of shallow soil samples using EPA Method 8260 for volatile organic compounds resulted in reported detections of only three compounds; acetone, toluene, and methylene

chloride (Table 4) at relatively low concentrations. Acetone is reported at 0.022 mg/kg in sample SS-2 and 0.02 mg/kg in sample SS-3. SS-2 is located on the located on the south portion of the larger Encinal site, and SS-3 is located on the City of Alameda parcel (Figure 1). Since acetone is a common laboratory contaminant these two detections are possibly laboratory artifacts. Methylene chloride is reported in three soil samples; SG-2, SG-10 and SS-6, with a maximum concentration of 0.016 mg/kg in SS-6. Methylene chloride is also a common laboratory contaminant and there is also a possibility that this is a laboratory artifact. Toluene is reported in three soil samples; SG-10, SS-3 and SS-9 at low concentrations just above the reporting limit of 0.005 mg/kg. The highest concentration of toluene is 0.016 mg/kg in SS-9. Previous analyses of soil on the ABL and A.T. & S.F. parcels resulted in detections of Carbon Disulfide at low concentrations in soil (0.012 mg/kg in M-1, 0.077 mg/kg in M-2, and 0.020 mg/kg in B-4 at 2.5 feet, Table I , Appendix B). Methyl ethyl ketone (2-Butanone) was reported at 0.047 mg/kg in sample B-4 at 2.5 feet. Methyl ethyl ketone is also a common laboratory contaminant.

There is only one reported detection of TPH gasoline in shallow soil samples analyzed using EPA Method 8015 Modified (2 mg/kg in sample SS-5, Table 4). There was also only one reported detection of TPH diesel, at 3,100 mg/kg in sample SS-5. TPH motor oil is reported from 20 shallow soil samples ranging from 10 mg/kg in sample SG-5 to 8,800 mg/kg in sample SG-15. No detection of TPH motor oil was reported for four soil samples (SG-7, SG-8, SG-12, SG-13). The approximate area of soil estimated to contain TPH motor oil greater than 1,000 mg/kg is shown on Figure 4. The estimated area of soil with motor oil is located on both Encinal Real Estate parcels, the ABL parcels, and a portion of the City of Alameda parcel (Figure 4). The depth of the soil with TPH motor oil is not known since soil most sampling extended no deeper than about 1 1/2 feet below the surface. As an example of the depth of TPH motor oil sample B-2-2 from 2 to 3 feet in depth has a reported concentration of 950 mg/kg TPH motor oil (Table I). The previous analyses of soil for TPH motor oil from Table I were also used in the preparation of Figure 4. No TPH gasoline or TPH diesel was reported in shallow soil samples from the ABL or A.T & S.F. parcels as summarized on Table I.

One pesticide (Endosulfan I) was reported above the reporting limits in two soil samples (0.54 mg/kg in SS-5 and 21 mg/kg in SS-9) as shown in Table 4. There was only one detection of the herbicide 2,4,5-TP (Silvex), in sample SS-11 at 0.009 mg/kg. These are relatively low concentrations of these compounds.

As requested by Alameda County four point composite samples were collected from soil stockpiles located on the west side of the warehouse on the Encinal parcel, see Figure 1. Soil excavated from the ABL parcel in 1996 to explore the extent of 1,1-DCA was sampled (DCA96-1 to -4) and analyzed for total lead, as shown in Table 2. The results show that the concentration of total lead in the stockpiled soil is less than 20 mg/kg lead, which is within the general background for lead in soil. Composite sample of soil from 1996 excavations near B-5 were also analyzed for total lead (LEAD96-1, LEAD96-2). The concentration of lead in LEAD96-1 is reported to be 3,070 mg/kg which is consistent with the shallow soil excavated. LEAD96-2 contains 426 mg/kg lead which is consistent with the deeper soil excavated near B-5. Samples OLDDCA are believed to be from previous excavations at the

1,1-DCA location near the warehouse by Geomatrix. Samples ADD1, 2, 3 are from an unknown location. Analysis of composite samples of these soils resulted in a maximum concentration of 62.7 mg/kg lead which is also considered within normal background range.

EVALUATION OF SOIL DETECTIONS

Concentrations of metals in soil analyzed in the Title 22 series (Table 3) did not exceed the PRGs for commercial/industrial use of the site, with the exception of lead. Lead exceeded the PRG of 1,000 mg/kg in soil samples from the ABL parcel in an area about 700 feet long and 80 feet wide. In addition one stockpile of excavated soil (LEAD96-1) also is reported to have a lead concentration exceeding 1,000 mg/kg (Table 2). Table III in Appendix B shows that beryllium exceeds the PRG for a residential use (0.14 mg/kg) for samples S-7, S-9 and S-10 on the ABL and A.T. & S. F. parcels. However, these concentrations do not exceed the allowable PRG of 1.1 mg/kg for a commercial/industrial use of the site.

The maximum reported concentrations of acetone (0.022 mg/kg) is well below the PRG of 8,750 mg/kg for a commercial/industrial site (Table 4). The maximum reported concentration of toluene (0.016 mg/kg) is also well below the PRG of 880 mg/kg for a commercial /industrial site. The maximum reported concentration of methylene chloride (0.016 mg/kg) is also well below the PRG of 18 mg/kg for a commercial/industrial site.

The maximum concentration of Endosulfan I (21 mg/kg) is also well below the PRG of 4,090 mg/kg for a commercial/industrial site. The reported detection of the herbicide 2,4,5-TP (Silvex) at 0.009 mg/kg is just above the reporting limit of 0.005 mg/kg. There is no established PRG for Silvex in soil for a commercial site. Previous analyses of soil from the ABL parcel detected PCBs at 49 ug/kg in sample S-4, and 42 ug/kg in S-10. These concentrations are well below the PRG for PCBs in soil for a commercial/industrial site, which is 340 ug/kg.

There are no established regulatory guidelines for TPH gasoline, diesel and motor oil in soil. Usually these products are regulated by their constituent compounds such as benzene, toluene, ethylbenzene, xylenes and polynuclear aromatic hydrocarbons (PNAs). Since only toluene was detected at well below the PRG, and no other compounds including PNAs were detected associated with the TPH products, there is no established regulatory guidance for comparison. The absence of PNAs, BTEX and other volatile organic and semi-volatile organic compounds indicates that the risk to future commercial workers and occupants of the planned development is low.

1,1-DCA EXCAVATION

In 1994 Geomatrix Consultants performed a series of grab groundwater investigations which resulted in the location of the downgradient limit of groundwater containing 1,1-DCA. Groundwater monitoring well MW-10 was installed at the downgradient limit of the zone of groundwater with 1,1-DCA to monitor potential migration of 1,1-DCA in groundwater. Geomatrix prepared a Screening Health Evaluation for 1,1-DCA in groundwater to evaluate the potential risk to future residents due to detected concentrations of 1,1-DCA in soil and

groundwater. They concluded that the estimated lifetime excess cancer risk for a hypothetical future on-site resident is 3 in 10 million, which is lower than the range of risks generally considered acceptable by regulatory agencies. Geomatrix Consultants directed soil excavation at 2020 Sherman Avenue to remediate detected 1,1-DCA in soil at the southeast corner of the warehouse building. About 300 to 400 cubic yards of soil was excavated and placed on an asphaltic concrete paved area west of the warehouse for aeration and natural degradation of the volatile organics. Confirmation soil samples for three sides of the excavation and most of the bottom confirmed that soil had been removed to near the detection limit of 2.5 parts per billion (ug/kg). However, at the east side of the excavation, at the boundary of the ABL property, soil remained with 170 to 1,700 parts per billion 1,1-DCA.

In response to a letter from Ms. Madhulla Logan, with the Alameda County Environmental Health Department, WCC collected six composite samples from the stockpiled soil in July of 1996 and submitted the soil to an analytical laboratory for analysis for volatile organic compounds. A report was submitted to Ms. Logan documenting that no 1,1-DCA or other volatile organic compounds were detected in the stockpiled soil. It was concluded that the stockpiled soil could be re-used on site as fill material.

Following approval by Alameda County, of our August 29, 1996 excavation plan, WCC explored soil on the ABL property where 1,1-DCA was reported to remain. That excavated soil was stockpiled on plastic on the paved Encinal site west of the warehouse. Analysis of confirmation soil samples showed that the concentration of 1,1-DCA remaining in soil at the sides and bottom of the excavation was near the detection limit of 2.5 parts per billion.

In response to a letter from Ms. Logan, WCC prepared a Fate and Transport Study to evaluate potential impacts to the Oakland Estuary from possible migration of 1,1-DCA in groundwater. That study was reviewed by Ms. Logan, who prepared a letter, dated December 17, 1996, stating that no further action is required for solvents at the site. The DCA excavation pit backfill is planned as part of the lead remediation activity, which is covered in the June 13, 1997 work letter by WCC.

CONCLUSIONS

Based on the information and rationale provided in this Attachment, the conclusions of this evaluation are:

1. remedial actions needed at the site consist of the planned remediation of soils containing lead greater than 1,000 mg/kg and managing on-site soil with TPH-motor oil above 1,000 mg/kg, and
2. residual chemicals other than lead and TPH-motor oil detected in soil and shallow groundwater are evaluated to represent an insignificant potential impact on human health or the environment.