November 30, 1992

SEACOR
Science & Engineering
Analysis Corporation

Mr. Ravi Arulanantham
Alameda County Department of Environmental Health
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, California 94621

Subject: **Status Report - Bioremediation of 10 cubic yards of soil containing diesel fuel hydrocarbons at General Electric Company Vallecitos Nuclear Center (GE-VNC), Pleasanton, California.**

Pleasanton 94566

Dear Mr. Arulanantham:

Science & Engineering Analysis Corporation (SEACOR) on behalf of GE-VNC implemented a soil bioremediation program as detailed in a work plan dated May 5, 1992 (See attachment 1). The program involved treatment of approximately 10 cubic yards of diesel contaminated soil with concentrations measured initially ranging from 61 to 13,000 mg/kg. The soil was generated during removal of diesel fuel tank piping at the "300 Area", GE-VNC. The following sections document the treatment and subsequent sampling of the soils, a presentation and discussion of the results, and a proposed plan for on-site disposal of the soil.

SOIL TREATMENT

Soil bioremediation was implemented on June 18, 1992 at which time the 10 cubic yards of soil was placed in the treatment area using a backhoe and spread to an approximate thickness of 1 to 1.5 feet. During placement, a special microbial nutrient mixture consisting of ammonium nitrate and super phosphate fertilizer was applied to the soil. Additionally, clean tap water was added to the soil as necessary to bring the soil moisture level to approximately 60 percent of capacity.

From June 18 through August 17, 1992 the soil was mixed and turned weekly and soil moisture was maintained at approximately 60 percent capacity through the addition of water as was necessary.

1390 Willow Pass Road, Suite 360, Concord, CA 94520 (510) 686-9780 Ph (510) 686-3099 Fax

SOIL SAMPLING AND ANALYSIS

On August 17, 1992 four soil samples were collected from the soil treatment cell. The samples were collected from approximately 0.75 feet in depth using clean brass sampling tubes. The samples were sealed, capped, taped, labeled and immediately placed on ice in an insulated cooler. The soil samples were delivered under chain-of-custody documentation to NET Pacific Inc. laboratories for analysis. All four samples were composited together in the laboratory and analyzed for total petroleum hydrocarbons (TPH)-as-Diesel by U.S. Environmental Protection Agency (EPA) Method 3550 (GC,FID).

RESULTS

The results of soil sample analysis are included as attachment 2. The laboratory reported a TPH-as-Diesel concentration in the composite soil sample at 180 mg/kg with a notation that the positive result for petroleum hydrocarbons as diesel appears to be due to the presence of heavier hydrocarbons. A quantification for the heavier hydrocarbons as TPH-as-Motor Oil was reported as 670 mg/kg. Thus, a total petroleum hydrocarbon concentration for the composite sample is 850 mg/kg. Laboratory chromatograms are attached.

Based on these results, laboratory chromatograms of soil sample analyses conducted prior to soil treatment were obtained and reviewed. Review of these initial chromatograms indicated that the original batch of soil was contaminated with diesel and some heavier hydrocarbon from the motor oil carbon range. Subsequent soil mixing accomplished as part of the soil treatment process has served to homogenize the distribution of diesel and heavier hydrocarbon contamination within the soils.

DISCUSSION

In summary, soil treatment was initiated based on results indicating a TPH-as-Diesel contamination problem. Soil treatment has served to remove all of the lighter fractions of diesel hydrocarbons as well as significantly reducing the total concentration of the remaining diesel hydrocarbon compounds. As a result, the overall total petroleum concentration in the soil has been reduced to below acceptable levels.

Due to the nature of the heavier hydrocarbon compounds in the soil, further treatment to achieve levels below 100 mg/kg would require a much more aggressive and costly bio-remediation program. Based on the quantity of soil (10 cubic yards), the total petroleum hydrocarbon concentration detected of 850 mg/kg, and precedents set by the Regional Water Quality Control Board, GE-VNC believes that further treatment of these soils is not necessary.

The specific precedent set by the Regional Water Quality Control Board (RWQCB) is referenced by correspondence dated June 21, 1991 by Stephen I. Morse director of the South Bay Toxics Division regarding File #2188.00 (BHW) (Attachment 3). In comment 1B of this document, the RWQCB has set up to 1000 mg/kg as an acceptable level for TPH-as-diesel (applies also to heavier hydrocarbons than diesel) in soil that is located greater than five feet above groundwater.

PROPOSED SOIL FATE

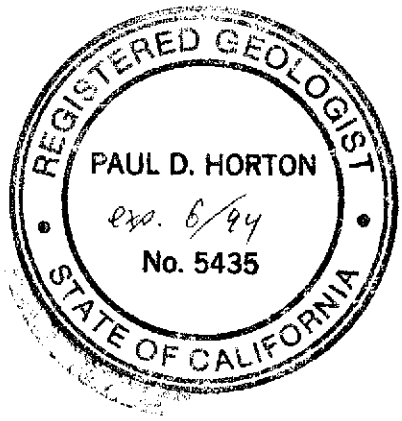
GE-VNC proposes to utilize these soils as fill material in the diesel tank pad excavation that exists in the "300" area (See Attachment 4). The depth to groundwater in this area is greater than 40 feet as monitored in nearby groundwater monitoring well G-2. The placement of the soil in this location provides adequate protection of the site groundwater as well as providing a nearby groundwater monitoring point.

If you have any questions, or require more information regarding the proposed soil disposal, please call myself at (510) 686-9780 or Sue Dahlin at (510) 862-4345.

Sincerely,

Science & Engineering Analysis Corporation

Paul D. Horton R.G.
Principal Hydrogeologist



Attachments

1.) Workplan
2.) Laboratory Reports
3.) RWQCB Memo
4.) Site Map

cc: John Lambie
Sue Dahlin

GENELECT.L03
11/03/92
Job No. #50027-001-05

SEACOR

FILE

1001 Galaxy Wy., Suite 411
Concord, CA 94520
Phone: (510) 686-9780 FAX: (510) 686-3099

LETTER OF TRANSMITTAL

Subject: GE Vallecitos Nuclear Center

Date: May 22, 1992

Send Via: _____

FOR:

_____ As Requested
X Review
_____ Your Information
_____ Approval
_____ Signature
_____ Return
_____ Other_____

Attn: Ravi Arulanantham

Company: Alameda County

Address: 80 Swan Way, Room 200

Oakland, CA 94621

Project No. _____ Project Name_____

Items Enclosed:	Quantity
Workplan for soil treatment	1
Check for Inspection Fees $400.00	1

COMMENTS:

Signature: Paul. Hunt

Title: _____

CC: _____

Rev: 9/91
File Name

May 5, 1992

General Electric Company
Vallecitos Nuclear Center
P.O. Box 460, Vallecitos Road
Pleasanton, CA 94566

Attention: Ravi Arulanantham
Alameda County Department of Environmental Health
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, California 94621

Subject: Workplan for bioremediation of approximately 10 cubic yards of soil containing diesel fuel at the General Electric Company Vallecitos Nuclear Center, Pleasanton, California.

Dear Mr. Arulanantham:

This letter presents a workplan to bioremediate a small volume of soil containing detectable diesel fuel. Approximately 10 cubic yards of soil was excavated during removal of diesel fuel tank piping at the "300 Area", General Electric Company Vallecitos Nuclear Center (GE-VNC). The soil is currently stored on site in 43 drums. Analytical test results of samples collected from the drums and excavated trench floor are given on Table 1 (attached). Analytical test results indicated total petroleum hydrocarbons (TPH)-as-diesel concentrations ranging from 61-to-13,000 ppm (parts per million) for the soil stored in these 55-gallon drums. Test results from samples taken from the excavation trench floor indicated non-detect for TPH-as-diesel at reporting limits of 1 ppm.

GE-VNC proposes to conduct on-site bioremediation of these soils to reduce the concentration of diesel hydrocarbons to below 100 ppm. Soil treatment will be conducted by our environmental consultant Science & Engineering Analysis Corporation (*SEACOR*). GE-VNC then proposes to reuse the soil on site as fill material. The following details specific work steps to be conducted:

TREATMENT AREA PREPARATION

A concrete pad approximately 15 feet by 40 feet will be used as the treatment area. The pad is walled on two sides with concrete blocks. The remaining two sides will be enclosed by the construction of berms using clean soil. The pad and the berms will then be lined with double layers of 6 mil plastic sheeting.

SOIL PLACEMENT AND PREPARATION

The diesel contaminated soil will be placed onto the treatment pad and spread out to a uniform thickness using a "bobcat" type mini tractor. The soil moisture will be brought up to approximately 60 percent capacity using clean water. Additionally, a special mixture of nutrients will be added and mixed into the soil. The soil will then be covered with two layers of 6 mil plastic sheeting so as to minimize hydrocarbon volatilization and prevent the infiltration of rain water into the soils.

SOIL TREATMENT AND SAMPLING

The soil will be uncovered and turned weekly using a "bobcat" type mini tractor. Additionally, moisture conditions will be checked and water added as necessary. A four part composite soil sample will be collected every three months for analysis of TPH-as-diesel by the DOHS-LUFT methodology until the soil reaches the cleanup objective of less than 100 ppm TPH. Soil treatment is anticipated to extend six months from project initialization.

REPORTING

Following successful completion of soil bioremediation, a final report will be prepared which details work conducted and contains the results of laboratory analysis of soil samples.

If you have any questions or require more information, please call myself at (510) 862-4345 or Paul Horton of *SEACOR* at (510) 686-9780.

Sincerely,

Susan A. Dahlin

Susan A. Dahlin
Environmental Programs Engineer

TABLE 1
TPH (DIESEL) Concentration
"300 Area" GE-VNC

SAMPLE NUMBER	SAMPLE DATE	EPA METHOD	REPORTING LIMIT (ppm)	TPH (diesel) (ppm)	DESCRIPTION
DS-1	1/30/92	3550	1	61	DRUM NO. DS-1
DS-2	1/30/92	3550	1	160	DRUM NO. DS-2
DS-3	1/30/92	3550	1	450	DRUM NO. DS-3
DS-4	1/30/92	3550	1	710	DRUM NO. DS-4
DS-5	1/30/92	3550	1	210	DRUM NO. DS-5
DS-6	1/30/92	3550	1	170	DRUM NO. DS-6
DS-7	1/30/92	3550	1	430	DRUM NO. DS-7
DS-8	1/30/92	3550	1	250	DRUM NO. DS-8
DS-9	1/30/92	3550	1	560	DRUM NO. DS-9
DS-10	1/30/92	3550	1	210	DRUM NO. DS-10
DS-11	1/30/92	3550	1	130	DRUM NO. DS-11
DS-12	1/30/92	3550	1	760	DRUM NO. DS-12
DS-13	1/30/92	3550	1	360	DRUM NO. DS-13
DS-14	1/30/92	3550	1	720	DRUM NO. DS-14
DS-15	1/30/92	3550	1	480	DRUM NO. DS-15
DS-16	1/30/92	3550	1	490	DRUM NO. DS-16
DS-17	1/30/92	3550	1	430	DRUM NO. DS-17
DS-18	1/30/92	3550	1	250	DRUM NO. DS-18
DS-19	1/30/92	3550	1	250	DRUM NO. DS-19
C-1	1/30/92	3550	1	750	composite 8 drums
C-2	1/30/92	3550	1	900	composite 8 drums
C-3	1/30/92	3550	1	13000	composite 8 drums
RTS-1	1/30/92	3550	1	ND	trench floor
RTS-3	1/30/92	3550	1	ND	trench floor

SCIENCE & ENGINEERING ANALYSIS CORP dba SEACOR
TAX ID # 33-0385098
11061 NE 2ND SUITE 202
BELLEVUE, WA 98004
(206) 646-0280

16980

U.S. BANK (206) 344-7832
BELLEVUE WAY OFFICE
DISBURSEMENT ACCOUNT
WILMINGTON TRUST CO.
MILFORD, DE 19963
62-47/311

DATE 05/21/92

AMOUNT $400.00***

****FOUR HUNDRED AND NO/100 DOLLARS EXACTLY

PAY TO THE ORDER OF ALAMEDA COUNTY DISTRICT OF ENVIRONMENTAL HEALTH

SECOND SIGNATURE REQUIRED IF OVER $500

James A. Jamp

⑈016980⑈ ⑆031100474⑆ 1900 4139⑈

NET NATIONAL ENVIRONMENTAL TESTING, INC.®

NET Pacific, Inc.
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

Sue Dahlin
General Electric Co.
PO Box 460
Pleasanton, CA 94566

Date: 09/01/1992
NET Client Acct. No: 80000
NET Pacific Job No: 92.45820
Received: 08/19/1992

Client Reference Information

Project No. 50027-001-05

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Approved by:

Jules Skamarack
Laboratory Manager

cc: Paul Horton
Seacor
1390 Willow Pass Road, Ste 360
Concord, CA 94520

Enclosure(s)

Ref: Project No. 50027-001-05

SAMPLE DESCRIPTION: BT-1&2, BT-3&4 Comp.
Date Taken: 08/17/1992
Time Taken: 13:53
LAB Job No: (-133651)

Parameter	Method	Reporting Limit	Results	Units
METHOD 3550 (GC,FID)				
DILUTION FACTOR*			10	
DATE EXTRACTED			08-24-92	
DATE ANALYZED			08-29-92	
as Diesel	3550	1	180**	mg/Kg
as Motor Oil	3550	10	670	mg/Kg

** The positive result for Petroleum Hydrocarbons as Diesel appears to be due to the presence of heavier hydrocarbon rather than Diesel.

Client Acct: 80000
Client Name: General Electric Co.
NET Job No: 92.45820

Date: 09/01/1992

Ref: Project No. 50027-001-05

QUALITY CONTROL DATA

Parameter	Reporting Limits	Units	Cal Verf Stand % Recovery	Blank Data	Spike % Recovery	Duplicate Spike % Recovery	RPD
Diesel	1	mg/Kg	88	ND	N/A	N/A	17

COMMENT: Blank Results were ND on other analytes tested.

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in results column indicates analyte not detected at the value following. This datum supercedes the listed Reporting Limit.
*	:	Reporting Limits are a function of the dilution factor for any given sample. To obtain the actual reporting limits for this sample, multiply the stated Reporting Limits by the dilution factor (but do not multiply reported values).
ICVS	:	Initial Calibration Verification Standard (External Standard).
mean	:	Average; sum of measurements divided by number of measurements.
mg/Kg (ppm)	:	Concentration in units of milligrams of analyte per kilogram of sample, wet-weight basis (parts per million).
mg/L	:	Concentration in units of milligrams of analyte per liter of sample.
mL/L/hr	:	Milliliters per liter per hour.
MPN/100 mL	:	Most probable number of bacteria per one hundred milliliters of sample.
N/A	:	Not applicable.
NA	:	Not analyzed.
ND	:	Not detected; the analyte concentration is less than applicable listed reporting limit.
NTU	:	Nephelometric turbidity units.
RPD	:	Relative percent difference, 100 [Value 1 - Value 2]/mean value.
SNA	:	Standard not available.
ug/Kg (ppb)	:	Concentration in units of micrograms of analyte per kilogram of sample, wet-weight basis (parts per billion).
ug/L	:	Concentration in units of micrograms of analyte per liter of sample.
umhos/cm	:	Micromhos per centimeter.

Method References

Methods 100 through 493: see "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, rev. 1983.

Methods 601 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants" U.S. EPA, 40 CFR, Part 136, rev. 1988.

Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd edition, 1986.

SM: see "Standard Methods for the Examination of Water & Wastewater, 17th Edition, APHA, 1989.

Chain-of-Custody Number: A 8571

SEACOR Chain-of-Custody Record

Address: SEACOR
1390 Willow Pass Rd. Ste 380
Concord, CA 94520

510-686-9780

Bill to GE / Vallecitos
Attn: Sue Dahlin

Project # S0027-001-05 Task # _____
Project Manager P. Horton
Laboratory NET
Turn-around time: Std.

Sampler's Name: Paul Horton
Sampler's Signature: Paul D. Horton

Analysis Request

Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals				Comments/ Instructions	Number of Containers
BT-1 & 2	8/17	1:53	Soil		X			Composite				as	one		Sample			Screen out tars	1
BT-3 & 4	8/17	1:56	Soil		X													and Asphaltics	1
																		Possible asphalt	
																		chips in samples.	

Special Instructions/Comments:

Relinquished by:
Sign Paul D. Horton
Print Paul Horton
Company SEACOR
Time _____ Date 8/18/92

Received by:
Sign J. Bean
Print J. Bean
Company NET INC.
Time 4:35 Date 8-18

Relinquished by:
Sign Jason Bean
Print JASON BEAN
Company N.E.T INC
Time 7:00pm Date 8-18

Received by:
Sign K. Temple
Print K. Temple
Company NET Pacific
Time 0800 Date 8/19/92

Sample Receipt

Total no. of containers
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone Number:

Date 8/17/92 Page 2 of 2

***** EXTERNAL STANDARD TABLE *****

******************* 08-30-1992 05:01:58 Version 5.1.5 *******************
* Sample Name: exhcs 4582-133651 @ 1:10 Data File: G:B167730 *
* Date: 08-30-1992 05:01:14 Method: M:B5880 05-19-1992 08:55:53 # 199 *
* Interface: 2 Cycle#: 30 Operator LFH Channel#: 1 Vial#: N.A. *
* Starting Peak Width: 5 Threshold: 1 Area Threshold: 10000 *
****

Starting Delay: 0.00
Area reject: 10000
Amount injected: 1.00
Sample Weight: 1.00000

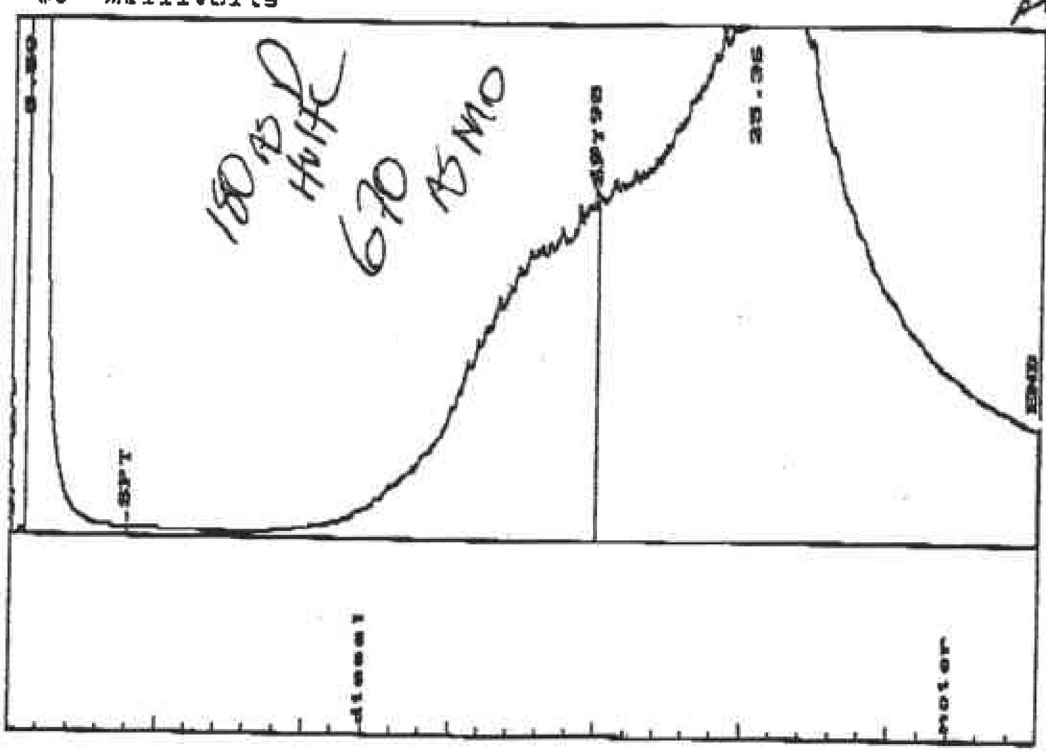
Ending retention time: 35.00
One sample per 0.602 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ug/mL	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	0.592		2165.7634	29.7388%	21657634	994811	21.8	OV			1.0000E-04
2	19.896	diesel	1097.1476	15.0653%	8112461	29426	275.7	2	0	65.80	1.3524E-04
3	25.364	motor oil	4019.7185	55.1960%	26351794	65649	401.4	2	0	-20.73	1.5254E-04

TOTAL AMOUNT = 7282.6299

(34.5 / RF 60) (10) = 880 w) D

Data File = G:B167730.PTS Printed on 08-30-1992 at 05:02:03 D=HHC
Start time: 0.00 min. Stop time: 35.00 min. Offset: 5 mV.
Full Range: 50 millivolts



Diesel Std.

****** EXTERNAL STANDARD TABLE ******

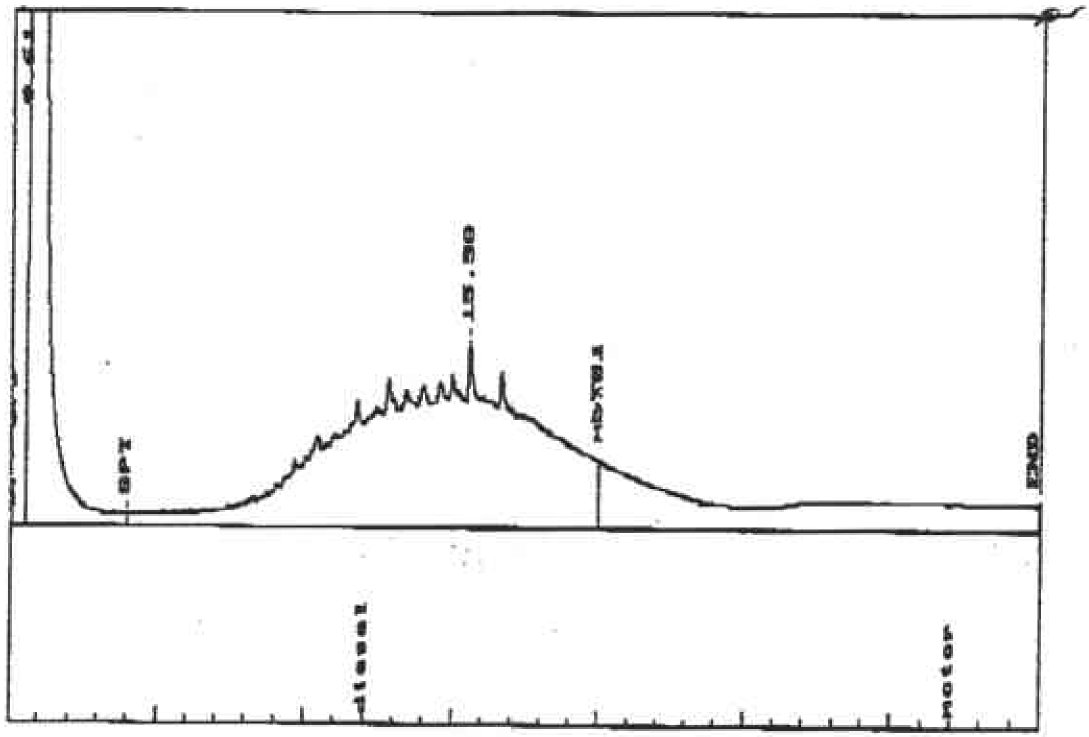
******************** 08-29-1992 10:05:45 Version 3.1.3 ********************
* Sample Name: exhcs Data File: G:B16773 *
* Date: 08-29-1992 10:05:02 Method: M:B5880 05-19-1992 08:55:53 # 199 *
* Interface: 2 Cycle#: 3 Operator LFH Channel#: 1 Vial#: N.A. *
* Starting Peak Width: 5 Threshold: 1 Area Threshold: 10000 *
****

Starting Delay: 0.00
Area reject: 10000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 35.00
One sample per 0.602 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ug/mL	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	0.612		2080.1382	62.6983%	20801382	994815	20.9	OV			1.0000E-04
2	15.582	diesel	881.7795	26.5781%	6517489	16281	400.3	2	0	29.84	1.3529E-04
3	20.006	motor oil	355.7760	10.7236%	2360364	5941	397.3	2	0	-37.47	1.5073E-04

TOTAL AMOUNT = 3317.6938 88%

Data File = G:B16773.PTS Printed on 08-29-1992 at 10:05:49
Start time: 0.00 min. Stop time: 35.00 min. Offset: 5 mv.
Full Range: 50 millivolts



Motor Oil Std.

****** EXTERNAL STANDARD TABLE ******

******************** 08-29-1992 10:47:39 Version 5.1.5 ********************
* Sample Name: exhcs Motor Oil Std. WSTPL 2000 ppm   Data File: G:B16774 *
* Date: 08-29-1992 10:46:56 Method: M:B5880 05-19-1992 08:55:53 # 199 *
* Interface: 2 Cycle#: 4 Operator LFH Channel#: 1 Vial#: N.A. *
* Starting Peak Width: 5 Threshold: 1 Area Threshold: 10000 *
****

Starting Delay: 0.00
Area reject: 10000
Amount injected: 1.00
Sample Weight: 1.00000

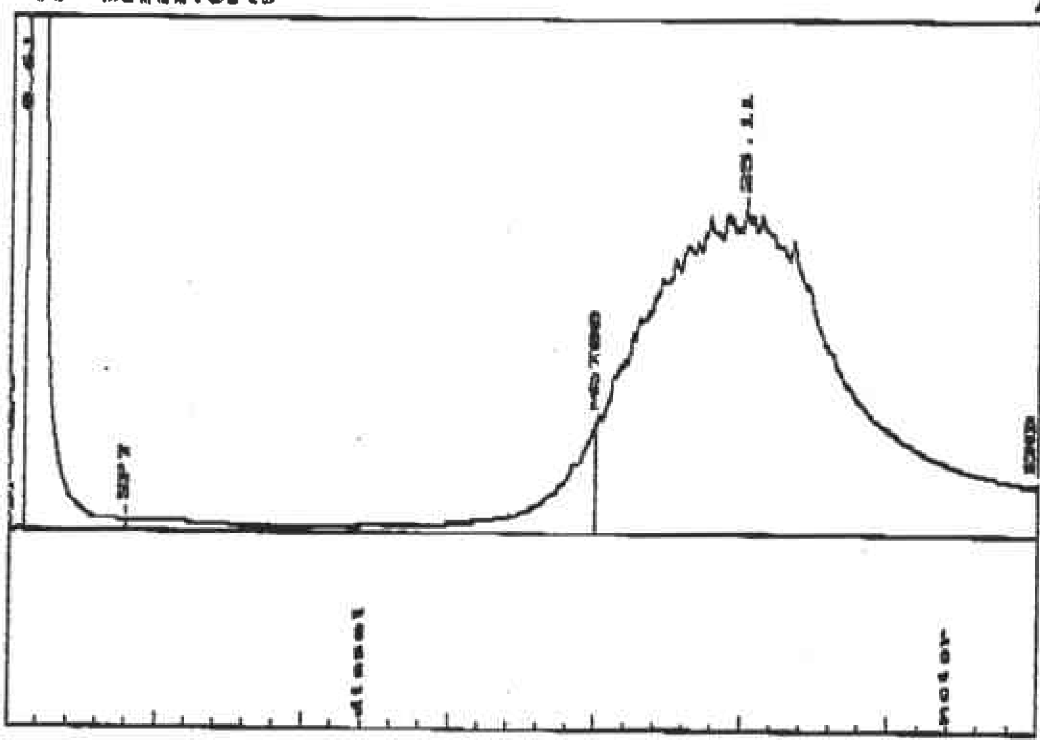
Ending retention time: 35.00
One sample per 0.602 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ug/mL	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	0.612		2094.8796	48.1399%	20948796	994799	21.1 OV			1.0000E-04
2	19.996	diesel	163.2803	3.7521%	1196427	9229	129.6 2	0	66.63	1.3647E-04
3	25.113	motor oil	2093.4883	48.1079%	13738873	28325	485.0 2	0	-21.52	1.5238E-04

TOTAL AMOUNT = 4351.6484

2093 - 224 ~ 94%
2000

Data File = G:B16774.PTS Printed on 08-29-1992 at 10:47:44
Start time: 0.00 min. Stop time: 35.00 min. Offset: 5 mv.
Full Range: 50 millivolts



****** EXTERNAL STANDARD TABLE ******

****************** 08-29-1992 11:29:40 Version 5.1.5 ******************
* Sample Name: exhcs blank 7407 Data File: G:816775 *
* Date: 08-29-1992 11:28:58 Method: M:B5980 05-19-1992 08:55:53 # 199 *
* Interface: 2 Cycle#: 5 Operator LFH Channel#: 1 Vial#: N.A. *
* Starting Peak Width: 5 Threshold: 1 Area Threshold: 10000 *
****

Starting Delay: 0.00
Area reject: 10000
Amount injected: 1.00
Sample Weight: 1.00000

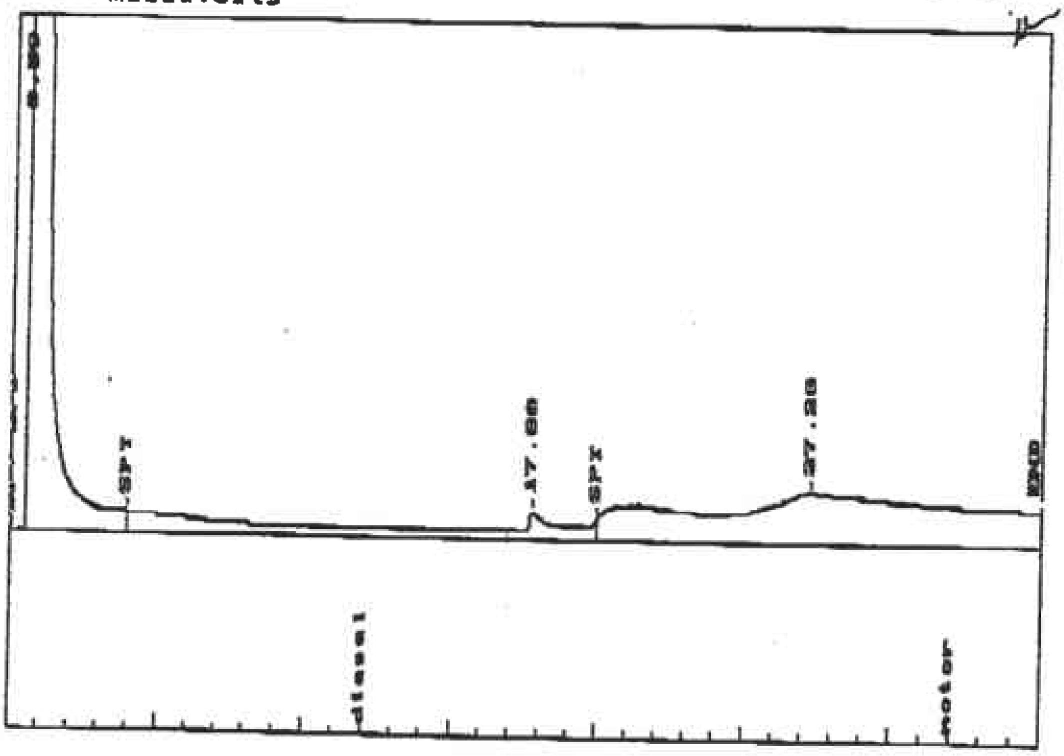
Ending retention time: 35.00
One sample per 0.602 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ug/mL	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	0.392		2523.1001	81.42041	25231002	994810	25.4	OV			
2	17.799	diesel	135.6032	4.37591	991456	2402	412.8	2	0	48.32	1.0000E-04
3	27.281	motor oil	440.1523	14.20371	2912858	4415	659.8	2	0	-14.74	1.3677E-04

Note: the last column is printed one row higher: 1.0000E-04 stands on the row of peak 2 and 1.3677E-04 on the row of peak 3, while 1.5111E-04 is printed on its own line below them.

TOTAL AMOUNT = 3098.8557

Data File = G:816775.PTS Printed on 08-29-1992 at 11:29:45
Start time: 0.00 min. Stop time: 35.00 min. Offset: 5 mv.
Full Range: 50 millivolts



STATE OF CALIFORNIA PETE WILSON, Governor
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
2101 WEBSTER STREET, SUITE 500
OAKLAND, CA 94612
(415) 464-1255

June 21, 1991
File No. 2168.00 (SHW)

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 2

To PAUL HORTON	From SUE DAHLIN
Co. SEACOR	Co. GE
Dept. Remediation	Phone # 862-4345
Fax # 1686-3099	Fax # 8624516

Sujeot:

The Santa Clara Valley Water District (SCVWD) sent us, on January 11, 1991, notice that they were transferring oversight of the investigation for the above site to us. As such, we have received numerous technical reports about the above site submitted on the Town's behalf by Applied Geosystems (AGS). We have reviewed the following AGS reports: December 18, 1990 Soil Remediation Alternative Analysis, February 6, 1991 Letter Report on Fourth Quarter 1990 Groundwater Monitoring, February 28, 1991 Remedial Action Work Plan for Remediation of Onsite Soil, March 25, 1991 Report of Waste Classification Determination for Parking Lot 4 Soil. We approve the Remedial Action Work Plan with the following comments:

1. The site is located both within a quarter mile of Los Gatos Creek and within the forebay zone of the Santa Clara Valley groundwater basin. Its location places it upgradient of numerous groundwater recharge ponds managed by SCVWD adjacent to Los Gatos Creek. As such, we are concerned about the site's impact on groundwater and surface water quality. Based on the site's location, the plan's proposal to leave soils onsite with between 10 and 100 parts-per-million (ppm) total petroleum hydrocarbons as gas (TPHg) is unsatisfactory. Since those soils in this 10 to 100 ppm TPHg range that are close to groundwater are more likely to impact the groundwater, the plan should be revised to reflect the following:

a) all soil within five feet of groundwater must be remediated to the following levels: less than 10 ppm TPHg, less than 100 ppm TPH as diesel (TPHd), less than 10 ppm total polynuclear aromatics (PNAs), and less than 1 ppm total volatile organic compounds (VOCs);

b) all soil more than five feet above groundwater must be remediated to the following levels: less than 100 ppm TPHg, less than 1000 ppm TPHd, less than 10 ppm PNAs, and less than 1 ppm VOCs; and,

c) the location of all soil more than five feet above groundwater with TPHg levels between 10 and 100 ppm and TPHd levels between 100 and 1000 ppm should be identified. Where these locations will not be remediated to the levels described in a), above, they should be specifically monitored as part of a groundwater monitoring program to determine whether they are impacting groundwater.

EXHIBIT A

2. We concur with the proposed approach of off-site soil remediation, including management of the excavated soil yet to be treated as a "designated waste", as long as soils will be remediated to the levels described above. Please provide a completed remediation process design for our review prior to implementation. Please note that it is the Town's responsibility to secure appropriate approvals for siting an off-site remediation facility.

3. As a guideline for those soils that ultimately need to be disposed of off-site, the Board has approved the following levels for Class III landfills: less than 100 ppm TPHg, less than 1000 ppm TPHd, less than 10 ppm PNAs, and less than 1 ppm VOCs. Acceptance of soil for disposal is at the discretion of individual site owners. Soil that has been remediated off-site may be used on-site if it meets the levels described in 1a) above.

4. The reports note that a proposal for a groundwater investigation to determine the extent of any groundwater pollution due to the site and to determine the need for groundwater remediation is still to be developed. Please submit such a proposal to our office by September 1, 1991. Such proposal should be developed in consideration of the following:

a) the Board has typically established final groundwater cleanup standards at or below federal or state maximum contaminant levels for drinking water. I would anticipate the need to establish similar levels for this site;

b) any groundwater investigation should fully determine the groundwater gradients on- and off-site; and,

c) the proposal should include a plan to evaluate the site's effect on the local conduits and wells described on page 8 of the Remedial Action Work Plan. This evaluation should consider the current and proposed use of the wells in question, whether destroyed wells were closed according to SCVWD standards, and whether any wells should be taken out of service while remediation at the site is ongoing.

If you have any questions on this matter, please contact Bruce Wolfe at 415-464-0787.

Sincerely,

Mark D. Kent/fw

Stephen I. Morse
Chief, South Bay Division

cc: Jean Tiernan, Applied GeoSystems
Tom Iwamura, Santa Clara Valley Water District
Lee Esquibel, Santa Clara County Health Department

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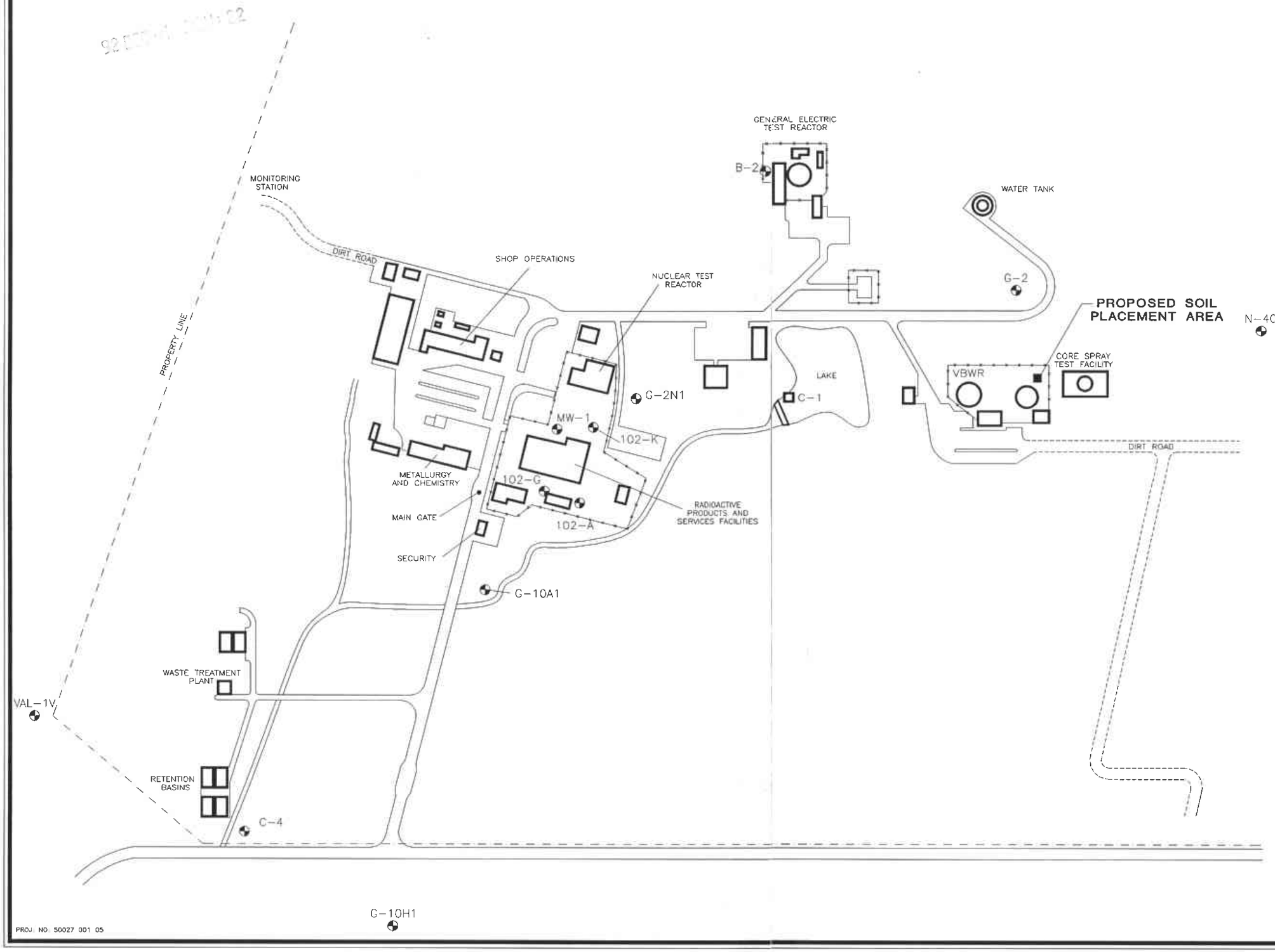
SPRING BOX



LEGEND:

MW-16 WELL LOCATION

SPRING BOX LOCATION

SCALE
0 200 400 FEET

SITE PLAN
GE VALLECITOS
NUCLEAR CENTER

SEACOR

PROJ. NO. 50027 001 05