



## TANK PROTECT ENGINEERING

1963 NORTH MAIN STREET  
ORANGE, CALIFORNIA 92665  
TEL: (714) 549-9009 (213) 592-4771  
FAX: (714) 549-0739

County of Orange/Health Care Agency  
Environmental Health  
1725 West 17th Street, P.O. Box 355  
Santa Ana, California 92702

April 28, 1989  
TPE File # 0140

Subject: Work Progress Report  
Orange County Plan No. 544

Property: Laguna Niguel Regional Park  
Location: 28241 La Paz Road  
Laguna Niguel, CA 92653

Dear Mr. Strozier:

We are submitting the work progress report for the work done to date at above mentioned site. We have also sent a copy to Jim Munch at Regional Water Quality Control Board.

If there are any problems or any questions you wish to discuss, please give me a call.

Sincerely,

Robert Weinberger  
Director of Operations

**WORK PROGRESS REPORT**

**LAGUNA NIGUEL REGIONAL PARK  
LAGUNA NIGUEL, CALIFORNIA**

**APRIL, 1989**

**TPE FILE NO. 0140**

SUNIL GUPTA  
California Registered Civil Engineer # 42195  
10, Thunderrun # 23D  
Irvine, CA 92714  
Telephone No. (714) 733-9786

Tank Protect Engineering  
1963 North Main Street  
Orange California 92665

April 24, 1989  
TPE File # 140

Attention: Mr. Cyrus Naimini

Subject: Work Progress Report  
Laguna Niguel Regional Park

Location: 28241 La Paz Road  
Laguna Niguel, CA 92653

Dear Mr. Cyrus:

This interim report is in regards to a tank removal (1,000-gallon unleaded gasoline) at the Laguna Niguel Regional Park located at the above address, and describes the work performed subsequent to our interim report submitted to you on February 23, 1989. As discussed in our previous report, soil samples collected directly beneath the tank invert revealed contamination of the soil. It was concluded that, although there is no immediate threat to the groundwater (due to the low levels of total petroleum hydrocarbons detected: 49 ppm), any further contamination of the groundwater from the overlying contaminated soil should be avoided. Consequently, our initial plan-of-action for remediation of the site was to excavate and remove the contaminated soil; and based on findings to be revealed during this excavation with respect to the lateral and vertical extent of the contaminated area, a subsequent remedial action for the treatment of the groundwater shall be proposed for approval, if necessary.

### WORK PERFORMED

Following the removal of tank and initial sampling, excavation pit made for removal of 1,000-gallon unleaded gasoline tank was further excavated to about four feet on all the sides and up to a depth of about 11 feet. Five soil samples (S-1 through S-5) were retrieved from the excavation sides (Sample Nos. S-1, S-2, S-3, and S-5) and the bottom of the excavation (Sample No. S-4). All the soil samples obtained were immediately packed overflowing into brass tubes, sealed with tin foil and duct taped, labeled and immediately placed into a refrigerated ice-chest. The samples were then transported by a company vehicle to a state certified laboratory (Associated Laboratories, Orange, California) accompanied by a chain of custody form. The soil samples were analyzed by EPA method 8015 for total petroleum hydrocarbons and by EPA method 8020 for Benzene, Toluene, Xylene and Ethyl benzene (laboratory test results enclosed). A summary of the laboratory test results are shown in Table 1. Laboratory test results indicate contamination of the soil from TPH and ETX&E on the south wall (sample no. S-2) and the bottom of the excavation (sample no. S-4). The remaining three sides were all clean and no contamination was detected.

It should be noted that the sample taken from the bottom of the excavation (~~S-2~~<sup>S-4</sup>) at 11 feet is from the same location on plan view as sample no. S-1 taken during our tank removal phase from a depth of 8 feet. The purpose of this was to clearly define the progression of the contamination. Figure 2 indicates the location of the soil samples taken for laboratory testing.

TABLE 1: SUMMARY OF LABORATORY TEST RESULTS

Sample No.	EPA 418.1	E P A Method 8020			Ethyl-Benzene (mg/Kg)
	Hydrocarbons (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Xylenes (mg/Kg)	
S-1	ND<10	ND<0.05	ND< 0.05	ND<0.1	ND<0.1
S-2	279	ND<0.05	12	ND<0.1	42
S-3	ND<10	ND<0.05	ND< 0.05	ND<0.1	ND<0.1
S-4	629	ND<0.05	32	ND<0.1	104
S-5	ND<10	ND<0.05	ND< 0.05	ND<0.1	ND<0.1

ND = Not Detected above Detection Limit

PROPOSED REMEDIAL PLAN-OF-ACTION

In order to define the vertical and lateral extent of the contamination, we propose that the south wall be further excavated until all contaminated soil has been removed and verification samples be taken in order to confirm that the contaminated soil has actually been removed. Additionally, an attempt shall be made to retrieve another soil sample (from about 1 foot below the bottom of the excavation) between a depth of 12 to 12.5 feet in order to determine if any contamination exists at these depths. It is proposed that all the contaminated soil excavated from the tank pit be treated with a mixture of hydrogen peroxide and silica catalyst. The peroxide oxidizes the organics, while the silica catalyst behaves as an adsorbent. This process has been shown to be effective on hydrocarbon contaminated soils over a wide contamination range. A copy of the process involved is appended to this report.

Finally, we propose that two additional permanent groundwater monitoring wells be installed at appropriate locations on the site in order to determine the gradient and the water quality. Each well shall be initially drilled, logged and soil sampled, as a small diameter boring, then reamed and completed as 4-inch diameter well for water sampling purposes. After the well development activities are concluded, a minimum 48 hours standby period will be allowed to permit restoration of water levels. Measurement of static water levels will be obtained in all the three wells (two proposed wells, and one existing well constructed during our initial phase of work), followed by purging and collection of water quality samples. We propose that monitoring and water quality sampling be performed on all three wells for the next twelve (12) months (once per month) following the installation of the two wells proposed herein.

Tank Protect Engineering shall submit a later report to the Regional Water Quality Control Board outlining any further plan of action or any revision to the current proposal. Please feel free to contact Tank Protect Engineering if there are any questions concerning this report.

Sincerely,

*Sunil Gupta*

Sunil Gupta

California RCE #42195

(expires 03/31/92)





## TANK PROTECT ENGINEERING

2730 S. HARBOR BLVD. UNIT A.  
SANTA ANA, CALIFORNIA 92704  
TEL. (714) 549-9009 (213) 592-4771  
FAX. (714) 549-0739

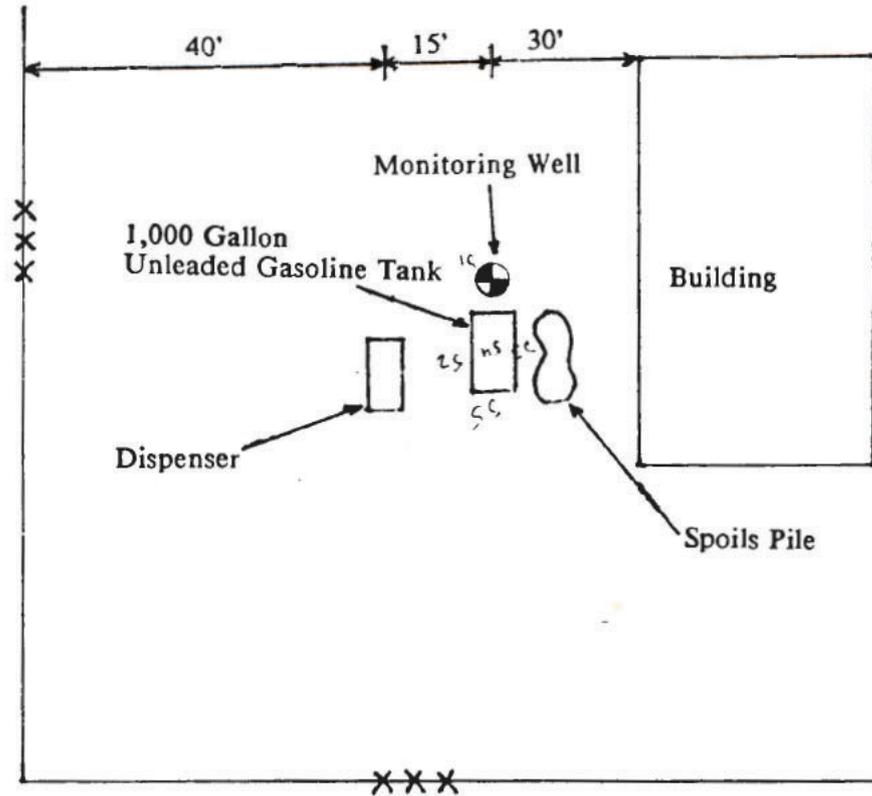
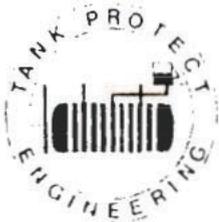


Figure 1:

**PLOT PLAN**

NOT TO SCALE

LAGUNA NIGUEL REGIONAL PARK  
28241 LA PAZ ROAD  
LAGUNA NIGUEL, CA 92653



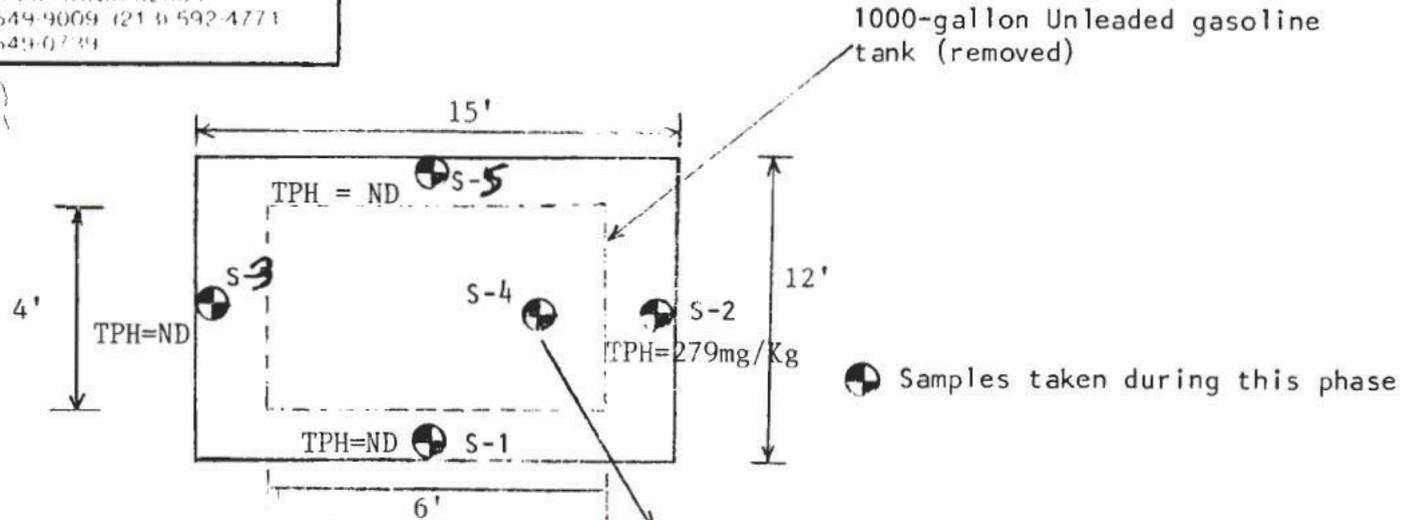
**TANK PROTECT ENGINEERING**

1963 NORTH MAIN STREET  
 ORANGE, CALIFORNIA 92665  
 TEL: (714) 549-9009 (21 D 592-4771)  
 FAX: (714) 549-0739



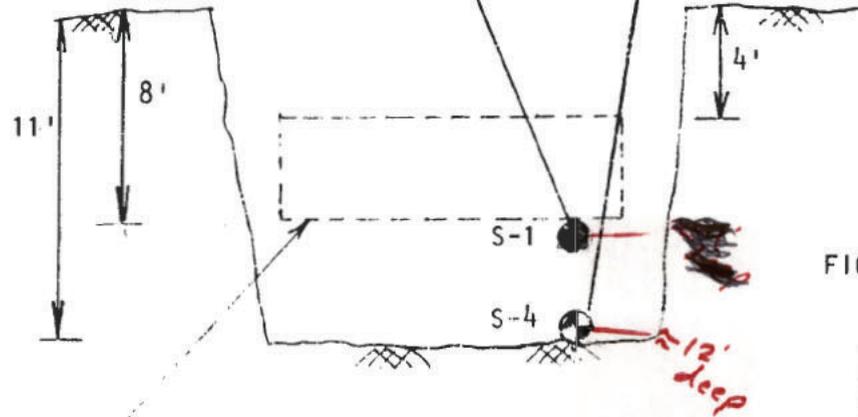
*maintenace*  
*Building*

PLAN



● S-1	● S-4
TPH: 14,600 mg/Kg	629 mg/Kg
Benzene: 62 mg/Kg	ND
Toluene: 924 mg/Kg	32 mg/Kg
Ethyl-Benzene: 429 mg/Kg	ND
Total Xylenes : 3,300 mg/Kg	104 mg/Kg

PROFILE



- Samples taken during this phase
- Sample taken during initial investigation phase (S-1)

FIGURE 2: Plan and Profile of Excavation Pit

1,000-gallon Unleaded gasoline Tank (removed)

Laguna Niguel Regional Park  
 Laguna Niguel  
 California



# ASSOCIATED LABORATORIES

806 North Batavia - Orange, California 92668 - 714/771-6900

### CLIENT

Tank Protect Engineering  
2730 S. Harbor Blvd.  
Suite H  
Santa Ana, CA 92704  
Attn: Cyrus Namini

(1895)

LAB NO

F61387-01

REPORTED

03/21/89

### SAMPLE

Soil

RECEIVED

03/10/89

### IDENTIFICATION

Laguna Niguel Reg. Park

### BASED ON SAMPLE

As Submitted Chilled With County Seals Intact

	<u>S-1</u>	<u>S-2</u>	<u>S-3</u>
Total Hydrocarbons (TPH - DHS) (mg/kg)	ND<10	279	ND<10
Benzene (mg/kg)	ND< 0.05	ND< 0.05	ND< 0.05
Toluene (mg/kg)	ND< 0.05	12	ND< 0.05
Ethyl-Benzene (mg/kg)	ND< 0.1	ND< 0.1	ND< 0.1
Total Xylenes (8020) (mg/kg)	ND< 0.1	42	ND< 0.1

### ASSOCIATED LABORATORIES

Edward S. Behare, Ph.D.

ESB/hl

cc: O.C. Health Care Dept.

NOTE: Unless notified in writing, all samples will be discarded by appropriate disposal protocol 30 days from date reported.

TESTING & CONSULTING

- Chemical
- Microbiological
- Environmental

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**RECEIVED**

APR 28 1989

HEALTH CARE AGENCY  
Environmental Health



**TANK PROTECT ENGINEERING**

1963 NORTH MAIN STREET  
ORANGE, CALIFORNIA 92665  
TEL: (714) 549-9009 (213) 592-4771  
FAX: (714) 549-0739

County of Orange  
Health Care Agency  
Public Health  
Environmental Health  
Hazardous Waste Management Section  
P.O. Box 355  
Santa Ana, CA 92702

December 5, 1989

TPE File LAGUNA.COV

**Subject:** Work Progress Report

**Property** Laguna Niguel Regional Park  
**Location:** 28241 Laz Paz Road  
Laguna Niguel, California 92653

Attention :James C. Strozier, R.S.

Sir:

We are submitting the laboratory results and work progress report for the work done at the above mentioned site.

Please feel free to contact us if there are any questions regarding this test results.

Sincerely,

A handwritten signature in black ink, appearing to read "Eric J. Taubin". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Eric J Taubin  
Hydrogeological Manager

**WORK PROGRESS REPORT**  
**LAGUNA NIGUEL REGIONAL PARK**  
**28241 LA PAZ ROAD**  
**LAGUNA NIGUEL, CALIFORNIA 92653**

**DECEMBER, 1989**

SUNIL GUPTA  
California Registered Civil Engineer # 42195  
11 Fox Hollow  
Irvine, CA 92714  
Telephone No. (714) 733-9786

Tank Protect Engineering  
1963 North Main Street  
Orange, CA 92665

December 4, 1989  
TPE File # 140

Attention: Mr. Cyrus Naimini

Subject: Work Progress Report  
Laguna Niguel Regional Park

Location: 28241 La Paz Road  
Laguna Niguel, CA 92653

Gentlemen:

This work progress report is in regards to a tank removal (1,000-gallon unleaded gasoline) at the Laguna Niguel Regional Park located at the above address. Two report dated February 23, 1989 and April 24, 1989 outlined the removal of 1,000 gallon unleaded tank, and site investigation activities to determine lateral and vertical extent of contamination and contaminated soil excavation.

As discussed in our previous reports, soil samples collected directly beneath the tank invert revealed contamination of the soil. It was concluded that, although there is no immediate threat to the groundwater (due to the low levels of total petroleum hydrocarbons detected in water sample: 49 ppm - see our February 23, 1989 report), any further contamination of the groundwater from the overlying soil should be avoided.

### WORK PERFORMED

On October 12, 1989, an additional excavation was done at the vicinity of the south and north-west walls at the subject site. The tank pit was excavated an additional two feet on plan view on the south side. Mr. James C. Strozier from Orange County Health Care Agency was present at the site. Per his request, an additional 17 cubic yards of soil was excavated from the north-west corner of the tank pit. The contaminated soil was identified by color and discoloration. Further excavation was limited due to the property line on the west side of the subject site.

After removal of the soil, one soil sample (Sample Number W-1) was taken using an excavator from approximately 11 feet below the ground surface from the north-west wall of the subject site (see Figures 1 and 2). The soil sample obtained was immediately packed overflowing into brass tube, sealed with tin foil and duct taped, labeled and immediately placed into a refrigerated ice-chest. The sample was then transported by a private vehicle to a state certified laboratory (Associated Laboratories, Orange, California) accompanied by a chain of custody form. The soil samples were analyzed by EPA method 8015 for total petroleum hydrocarbons and by EPA method 8020 for Benzene, Toluene, Xylene and Ethylbenzene. The enclosed laboratory test results indicate contamination of the soil from BTX&E, however, negligible amounts of total petroleum hydrocarbons were detected (10 mg/Kg).

### PROPOSED REMEDIAL PLAN-OF-ACTION

Based upon the results obtained from laboratory test results and observations made by the representative of Tank Protect Engineering, it appears that only limited zone of vertical con-

tamination in small amount exists at the present time. The lateral extent of this contamination in north-south direction is also shown in figure 1, which appears to be no more than 2 to 3 feet; however, the lateral extent on the west side cannot be exactly defined due to the limits imposed by the property line and the fence along the west side. It is recommended that the spoils pile on the north side and the south side of the subject site be remediated by an approved method from the regulatory agencies.

We further propose that two additional permanent groundwater monitoring wells be installed at locations shown on Figure 1, in order to determine the gradient and water quality. Each well should be initially drilled, logged and soil sampled, as a small diameter boring, then reamed and completed as 4-inch diameter monitoring well for water sampling purposes. After the well development activities are concluded, a minimum 48 hours standby period should be allowed to permit restoration of water levels. Measurements of static water levels should be obtained in all the three wells (two wells proposed herein, and one existing well on the north-west corner of the subject site), followed by purging and collection of water quality samples. We propose that monitoring and water quality sampling be performed on all three wells for the next twelve months (once per month at each well) following the installation of two wells proposed herein. Tank Protect Engineering shall submit a later report to the Regional Water Quality Control Board outlining any further plan of action for remediation of the site or any revision to the current proposal.

Although our evaluation of the laboratory test data did not reveal obvious deficiencies, we do not guarantee the Contractor's work, nor do the services performed by us relieve the

Contractor of responsibility in the event of subsequently discovered defects.

Please feel free to contact Tank Protect Engineering if there are any questions concerning this report.

Sincerely,



Sunil Gupta  
California RCE# 42195



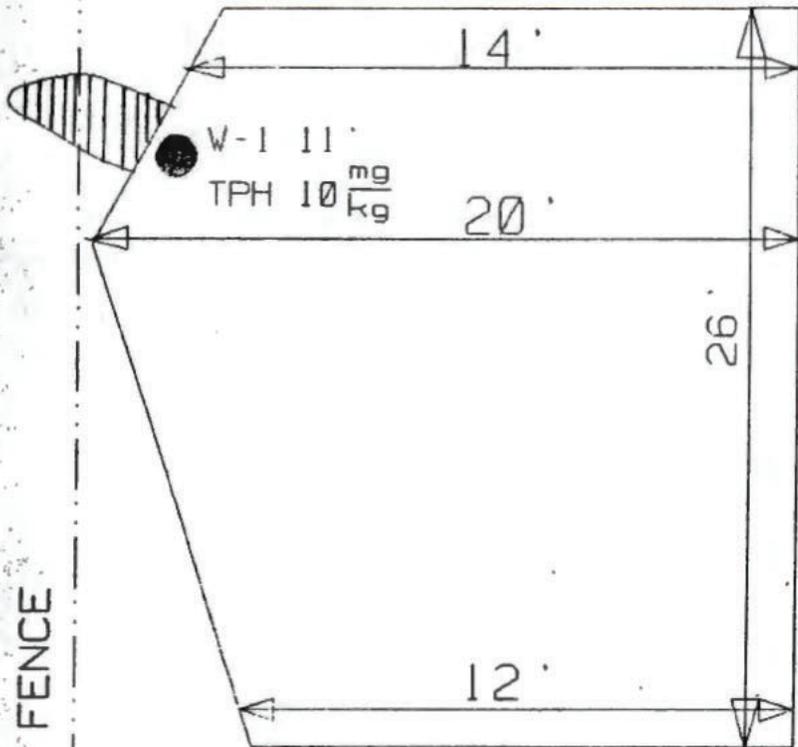
TANK PROTECT ENGINEERING  
1963 NORTH MAIN STREET  
ORANGE, CALIFORNIA 92665  
Tel: (714) 921 - 0888  
Fax: (714) 549 - 0739

Spoils Pile

Water Well



• P<sub>1</sub>



BUILDING

• Sample taken

• P<sub>2</sub>

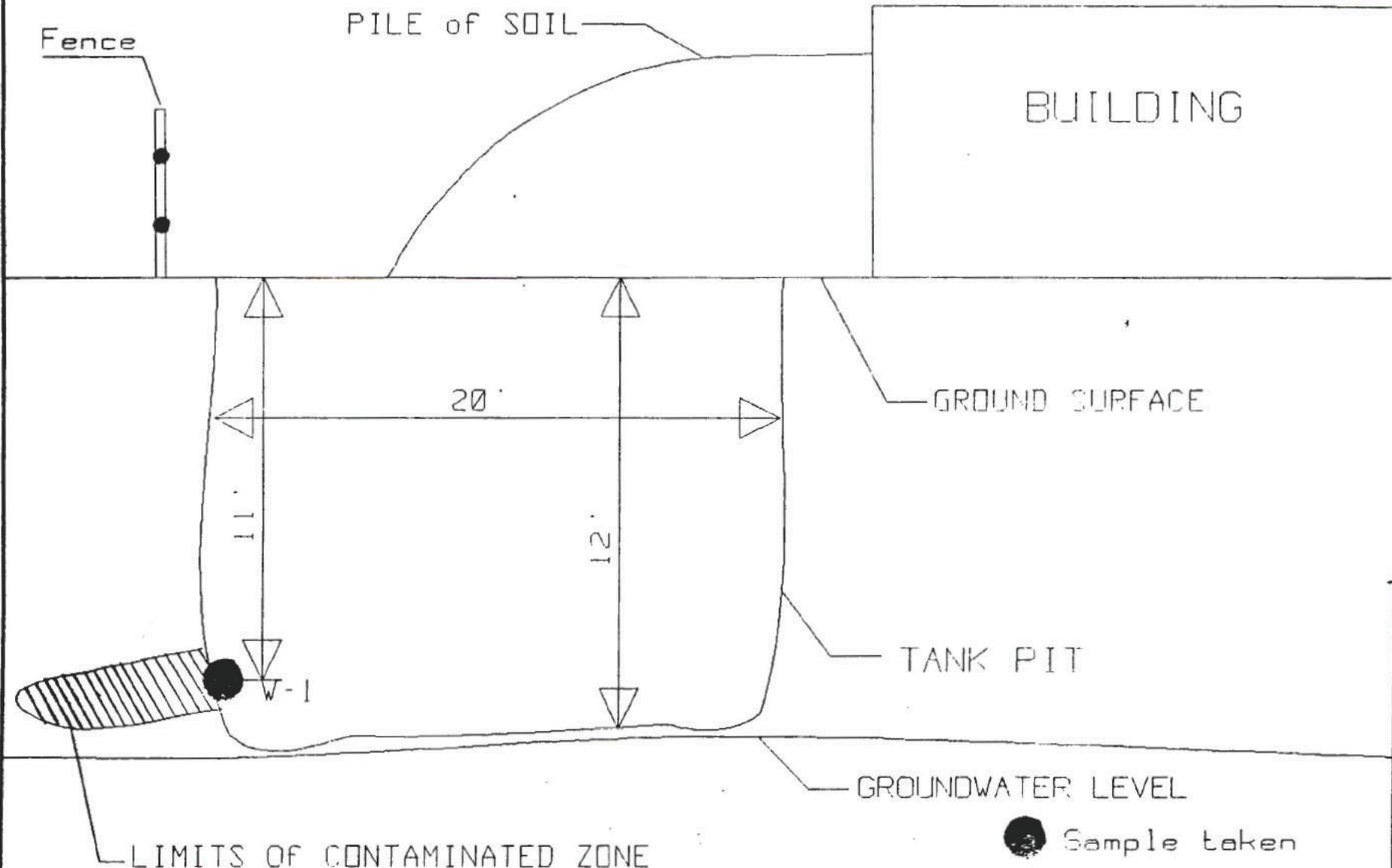
Spoile Pile

• Monitoring Well

LAGUNA NIGUEL  
REGIONAL PARK  
CALIFORNIA



TANK PROTECT ENGINEERING



CROSS-SECTION of TANK PIT  
INDICATING AREA OF CONTAMINATION

REGIONAL PARK  
LAGUNA NIGUEL  
CALIFORNIA





**ASSOCIATED LABORATORIES**

806 North Batavia - Orange, California 92668 - 714/771-6900

FAX 714/538-1209

CLIENT

Tank Protect Engineering  
1963 North Main  
Orange, CA 92665

(1895)

LAB NO

F75182

REPORTED

10/18/89

Attn: Doug Rose

SAMPLE

Soil

RECEIVED

10/13/89

IDENTIFICATION

Laguna Niguel Reg. Park  
28241 La Paz Rd., Laguna Niguel, CA  
As Submitted with County Seals Intact

BASED ON SAMPLE

W-1

Total Hydrocarbons (TPH DHS)	10 mg/kg
Benzene (8020)	0.9 mg/kg
Toluene	1.1 mg/kg
Ethyl Benzene	0.1 mg/kg
Total Xylenes	1.0 mg/kg

ASSOCIATED LABORATORIES

Edward S. Behare, Ph.D.

ESB/ql

cc: O.C. Health Care Dept.

**NOTE:** Unless notified in writing, all samples will be discarded by appropriate disposal protocol 30 days from date reported.

TESTING & CONSULTING

Chemical •

Microbiological •

Environmental •

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**RECEIVED**  
JUL 23 1950  
HEALTH CARE AGENCY  
Environmental Health

*James*

TOM URAM  
DIRECTOR

L. REX EHLING, M.D.  
HEALTH OFFICER

ENVIRONMENTAL HEALTH DIVISION  
ROBERT E. MERRYMAN, REHS MPH  
DEPUTY DIRECTOR

MAILING ADDRESS: P.O. BOX 355  
SANTA ANA, CA 92702



October 23, 1990

**HEALTH CARE AGENCY  
PUBLIC HEALTH SERVICES**

ENVIRONMENTAL HEALTH DIVISION  
2009 E. EDINGER AVENUE  
SANTA ANA, CALIFORNIA 92705  
(714) 667-3700

Don Poer  
County of Orange  
1143 Fruit Street  
Santa Ana, CA

Subject: Remedial Action At Laguna Niguel Regional Park, 28241 La Paz Road,  
Laguna Niguel, CA - O.C.H.C.A. #88UT116

Dear Mr Poer:

This letter confirms the completion of site investigation and remedial action at the above site. With the provision that the information provided to this Agency was accurate and representative of existing conditions, it is the position of this office that no further action is required at this time.

Please be advised that this letter does not relieve you of any liability under the California Health and Safety Code or Water Code for past, present, or future operations at the site. Nor does it relieve you of the responsibility to clean up existing, additional or previously unidentified conditions at the site which cause or threaten to cause pollution or nuisance or otherwise pose a threat to water quality or public health.

Additionally, be advised that changes in the present or proposed use of the site may require further site characterization and mitigation activity. It is the property owner's responsibility to notify this Agency of any changes in report content, future contamination findings, or site usage.

If you have any questions regarding this matter, please contact James Strozier at (714) 667-3711.

Very truly yours,

Seth J. Daugherty, REHS  
Supervising Hazardous Materials Management Section  
Environmental Health Division

SJD:JS:11

cc: Margo Boodakian, San Diego Regional Water Quality Control Board



**TANK PROTECT ENGINEERING**

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ORANGE, CALIFORNIA 92665  
TEL: (714) 549-9009 (213) 592-4771  
FAX: (714) 549-0739

**RECEIVED**  
DEC 08 1989

HEALTH CARE AGENCY  
Environmental Health

County of Orange  
Health Care Agency  
Public Health  
Environmental Health  
Hazardous Waste Management Section  
P.O. Box 355  
Santa Ana, CA 92702

December 5, 1989

TPE File LAGUNA.COV

**Subject:** Work Progress Report

**Property** Laguna Niguel Regional Park  
**Location:** 28241 Laz Paz Road  
Laguna Niguel, California 92653

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Please feel free to contact us if there are any questions regarding this test results.

Sincerely,

Eric J Taubin  
Hydrogeological Manager

**RECEIVED**

DEC 08 1989

HEALTH CARE AGENCY  
Environmental Health

**WORK PROGRESS REPORT**

**LAGUNA NIGUEL REGIONAL PARK  
28241 LA PAZ ROAD  
LAGUNA NIGUEL, CALIFORNIA 92653**

**DECEMBER, 1989**

SUNIL GUPTA  
California Registered Civil Engineer # 42195  
11 Fox Hollow  
Irvine, CA 92714  
Telephone No. (714) 733-9786

Tank Protect Engineering  
1963 North Main Street  
Orange, CA 92665

December 4, 1989  
TPE File # 140

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Laguna Niguel Regional Park

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Contractor of responsibility in the event of subsequently discovered defects.

Please feel free to contact Tank Protect Engineering if there are any questions concerning this report.

Sincerely,



Sunil Gupta  
California RCE# 42195



O.C.H.A. Case #93UT9

**CHET HOLIFIELD FEDERAL BUILDING  
24000 AVILA ROAD  
LAGUNA NIGUEL, CA 92677**

**GROUNDWATER SAMPLING RESULTS  
AND  
CLOSURE REQUEST**

**PREPARED FOR  
GENERAL SERVICES ADMINISTRATION,  
UNITED STATES FEDERAL GOVERNMENT**

**AUGUST 8, 1994**

**PREPARED BY  
TTMS, INC.  
100 CORPORATE POINTE SUITE #220  
CULVER CITY, CA 90230**



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A. LABORATORY REPORTS OF GROUNDWATER ANALYSIS

B. FIELD SAMPLING DATA

**FIGURES:**

1. SITE LOCATION MAP
2. PLOT PLAN SHOWING FORMER TANK LOCATION #8, BORINGS H1, H2, H3 AND MONITORING WELL #1
3. PLOT PLAN SHOWING FORMER TANK LOCATIONS #5, #6, #7, AND MONITORING WELL #2
4. SITE VICINITY MAP

## **1.0 INTRODUCTION**

### **1.1 Background**

TTMS, Inc. was contracted by the General Services Administration, United States Government for removal of seven underground fuel storage tanks (USTs) at the property. Following removal of the tanks, soil samples were taken under the direction of Ms. Brenda Jo Puepke of the Orange County Health Care Agency (O.C.H.C.A.) and Inspector S. Lambeth of the Orange County Fire Department.

Limited soil contamination was encountered under one of the former gasoline tanks (referred to as Tank #7; Fig. 1) and one of the former diesel tanks (Tank #8). A workplan for removal and off-site disposal of contaminated soil was approved by the O.C.H.C.A. Two groundwater wells were installed and sampled to determine the impact, if any, to local groundwater quality.

### **1.2 Scope of This Investigation**

This report presents the results of groundwater monitoring and a request for site closure. Our conclusions are based upon our field observations, knowledge of the site and the attached laboratory data from National Environmental Testing (NET) Laboratories, Inc.

Tank removal and remedial activities and groundwater monitoring as well as this report were conducted solely for the U.S. General Services Administration and were intended to identify possible sources of contamination or environmental concern due to present or past site usage and to remediate contaminated soil which was above regulatory levels. All work was performed by TTMS, Inc. in accordance with the investigative protocols developed by TTMS, Inc. specifically designed for subsurface soils and groundwater investigations.

## **2.0 SITE DESCRIPTION**

### **2.1 Facility Description/Location**

The facility is located on the south side of Avila Road immediately west of La Paz Road in the City of Laguna Niguel. The property consists of several asphalt-paved parking lots and a multi-story office building. The ground surface of the facility is relatively flat. The site is located about one mile to the east of Aliso Creek. The two areas of former USTs requiring groundwater monitoring are located to the west and south of the main building.

### **2.2 Local Geologic Conditions**

The site occupies a relatively narrow alluvial valley. At the western tank farm area (including the former location of Tank #7), approximately 5 inches of gravel subbase fill was encountered, followed by approximately 5 feet of fine to medium grained sand, which was

silty, slightly clayey, pebbly and yellow-brown in color (SM-SW in the Unified Soil Classification System).

Beneath this layer was silty clay and black peat-rich sediment, which was moist to wet, had scattered shale pebbles and did not possess a petrochemical odor.

At the southern tank area (Tank #8), below a grass lawn, approximately 5 feet of silty sandy clay was measured, which was mottled white, brown and yellow and was wet. Below this was about 4 feet of black peat-rich clay, which was wet to moist and possessed a sulfurous or diesel odor. From the subsurface depths of 9 to 12 feet was yellow diatomaceous shale, which was platy and was not odoriferous. Beneath this shale, brown silty diatomaceous shale was encountered.

### 2.3 Local Hydrogeologic Conditions

On June 30, 1993, the depth to groundwater in monitoring well MW #1 (southern tank area, Tank #8) was 11.93 ft. On June 23, 1994 the depth to groundwater of MW #1 was 14.10 ft.

On June 30, 1993, the depth to groundwater in monitoring well MW #2 (western tank area, Tank #7) was 15.28 ft. On June 23, 1994 the depth to groundwater was 16.06 feet.

Depths to groundwater in the two monitoring wells were measured from the top of the well casing with an electronic water level meter to an accuracy of 0.01 feet.

### 3.0 PREVIOUS INVESTIGATIONS

Seven USTs were removed from the site in January of 1993. Analytical results of soil samples collected from beneath an approximately 500 gallon diesel UST on the south side of the building (Tank #8) indicated up to 220 parts per million (ppm) diesel-range petroleum hydrocarbons was present in limited areas under the tank. Samples from under a 10,000 gallon gasoline UST west of the building (Tank #7) measured up to 11/48/14/91 parts per billion (ppb) of benzene, toluene, ethylbenzene and total xylenes (BTEX), respectively.

The following key reports have been submitted by TTMS, Inc. regarding the site:

February 22, 1993--"Workplan for Soil Removal Activities"; submitted to Mr. James Strozier, O.C.H.C.A., recommending excavation and off-site disposal of the contaminated soil, and filling the excavations with clean, compacted soil and gravel.

March 2, 1993--Approval letter from Mr. Strozier for the Workplan.

March 17, 1993--"Proposal for Limited Groundwater Assessment" to Ms. Elsa Wong, U.S. Government; for installation, development and sampling of two groundwater monitoring wells, including soil samples.

March 17, 1993--"Supplemental Workplan for Chet Holifield Federal Building"; submitted to O.C.H.C.A. for monitoring well installations and sampling beneath the two leaking USTs.

March 24, 1993--"Revised Supplemental Workplan for Chet Holifield Federal Building"; submitted to O.C.H.C.A. to add three additional soil borings in the Tank #8 area.

March 29, 1993--"Report Documenting the Removal of Underground Storage Tanks, Chet Holifield Federal Building"; to U.S. Government and O.C.H.C.A., describing the January, 1993 removal by TTMS, Inc. of two 10,000 gallon gasoline, two 10,000 gallon diesel, one 550 gallon diesel, one 550 gallon waste oil USTs and one 5,000 gallon above ground sulfuric acid storage tank. Remedial action was recommended as a result of the above-mentioned areas of fuel hydrocarbons in soil beneath Tanks #7 and #8. The report contains manifests (tank rinseates, soil and tank removal certificates), permits (tank removal, air quality monitoring) and workplans in Appendices C and D, and the Health and Safety Plan in Appendix F.

April 12, 1993 (modified April 28, 1993)--"Report of Post-Underground Tank Removal Soil Sampling"; to delineate the extent of soil contamination from leakage at Tanks #7 and #8, a hand-driven sampler was employed under the direction of the O.C.H.C.A. Contaminated soil spoils generated during previous sampling activities were transported as non-hazardous to Gibson Environmental, Bakersfield, CA. (manifests are found in Appendix G of that report). Stockpiled soil from the previous site work was also sampled, confirming the presence of low levels of hydrocarbon contaminants. Further soil and groundwater assessment was recommended by TTMS, Inc. and all the excavated soil stockpiled on-site was recommended to be treated on-site or transported to a State-approved recycling facility.

June 21, 1993--"Chet Holifield Federal Building, Sampling Plan for Borings and Monitoring Wells", to O.C.H.C.A., clarifying sampling points for assessment work.

June 30, 1993--"Report of Additional Soil and Groundwater Assessment"; three additional soil borings were advanced near former Tank #8 under the direction of the O.C.H.C.A. and guidelines of the TTMS, Inc. Supplemental Workplan. One groundwater monitoring well was installed in each of the two leaking tank areas. The wells were developed by surging and pumping, and two days later, were purged and sampled. All laboratory analytical results were nondetect for both monitoring wells tested for hydrocarbons. The detailed site description, soil boring and monitoring well installation procedures, boring abandonment, lithologic and groundwater conditions, and laboratory methods and detection limits are contained in the report.

It was concluded in the report that groundwater had not been negatively impacted at the site of the two former USTs in question. All contaminated soil in the area of Tank #7 was believed to be removed and only minor quantities of diesel-related soil contamination remained in place near Tank #8 on the basis of odor and visual staining (laboratory tests could not detect the presence of diesel or BTEX). Given the fact that a dense shale aquitard

exists below the suspected contamination lens, the likelihood of a future threat to the groundwater from the diesel release was considered minimal. TTMS, Inc. recommended an additional water sampling event be performed. If no groundwater contamination was detected, the site should be closed with regard to any potential threat from former UST releases.

## **4.0 FIELD METHODS**

### **4.1 Groundwater Monitoring Well Installation**

Two four-inch diameter groundwater monitoring wells were installed in locations specified by the O.C.H.C.A. The pilot soil boring drilling and sampling methods, well installation and development methods are described in the TTMS, Inc. "Report of Additional Soil and Groundwater Assessment" dated June 30, 1993. All sampling and chain of custody protocol followed the State of California LUFT Manual, 1989 edition, guidelines.

### **4.2 Groundwater Sampling**

Prior to sampling, a minimum of three well volumes were removed from each of the monitoring wells. Samples were collected when groundwater had reached at least 80 percent of the original static water level and well parameters had stabilized. Field sampling data is included in Appendix B. The samples were obtained using a clean EPA-approved Teflon sampler and placed in 40-milliliter glass vials allowing no headspace and capped with Teflon septa lids for chemical analysis. One additional liter of groundwater from monitoring well MW#1 was placed in an EPA-approved clean wide mouth Teflon capped jar. The sealed vials and jar with the groundwater samples were immediately labelled and placed in ice for delivery to the laboratory for analysis.

## **5.0 FINDINGS/DISCUSSION**

### **5.1 Field Observations**

No olfactory, organic vapor analyzer or visual indications of chemical or fuel products were present in the monitoring wells and groundwater samples examined.

### **5.2 Laboratory Analysis**

NET Laboratories, a State-certified laboratory, analyzed the groundwater samples using EPA Method 8015 (modified for diesel for MW #1 near Tank #8 location, and modified for gasoline for MW #2 near Tank #7 location), with a 1 mg/L (ppm) and a 10 ug/L (ppb), respectively, reporting limit. The water samples were also analyzed using EPA Method 8020 (BTEX), with reporting limits of 0.5/0.5/0.5/1.5 ug/L (ppb), respectively.

The results of both tests were nondetect for both wells. The laboratory data sheets are found in Appendix A of this report.

### 5.3 Volumetric Calculations

The June 30, 1993 report concluded that 70 cubic yards of the contaminant plume had been removed from the tank 8 (southern) area, leaving approximately 5 to 10 cubic yards of the plume in place. The following calculations which estimate the volume of diesel contaminants removed and remaining in place assume the maximum measured contamination levels of 6,600 mg/kg (ppm), an average soil density of 100 pounds/cubic foot, and an approximate hydrocarbon density (diesel) of 7 pound/gallon:

The amount of contamination removed from, in 70 cubic yards of soil, was 1,247.4 pounds of diesel or 178 gallons. The range of diesel remaining in the ground corresponding to 5 and 10 cubic yards is 89.1 pounds (or 12.7 gallons) to 178.2 pounds (25.5 gallons), respectively.

### 6.0 CONCLUSIONS

All laboratory tests were nondetect for all groundwater sampling episodes since the installation of the two wells in June, 1993. Groundwater is therefore believed to not be impacted at the former tank locations. In addition, all significant quantities of contaminated soil from the areas sampled have been removed from the site and properly disposed of.

### 7.0 RECOMMENDATIONS

It is recommended that the site investigation be closed, on the basis of our field observations, soil removal, groundwater sampling since June, 1993, and laboratory analysis. No significant hydrocarbon contamination is believed to exist or threaten groundwater on the property as a result of the two tanks described.

Upon approval of site closure by the regulatory agency, the two groundwater wells should be properly abandoned according to State regulations.

### 8.0 LIMITATIONS

The limited soil and groundwater sampling performed by TTMS, Inc., under the direction of the Orange County Fire Department and Health Care Agency, was intended to provide an indication of the potential environmental impact due to contaminated soil in limited areas only, and should not be construed to be a statistical evaluation of the site. A statistical evaluation of the site would require a comprehensive sampling effort along with an intensive laboratory analysis program to provide a basis for approximating the potential for the presence of hazardous material on the subject property. All work performed by TTMS, Inc. was in accordance with the general standards of practice exercised by other professionals under similar conditions in Southern California at the time of this project.

## 9.0 SIGNATURES

This report has been developed by formally educated and trained personnel according to the environmental engineering protocols developed by TTMS, Inc. This report has been reviewed by the undersigned.



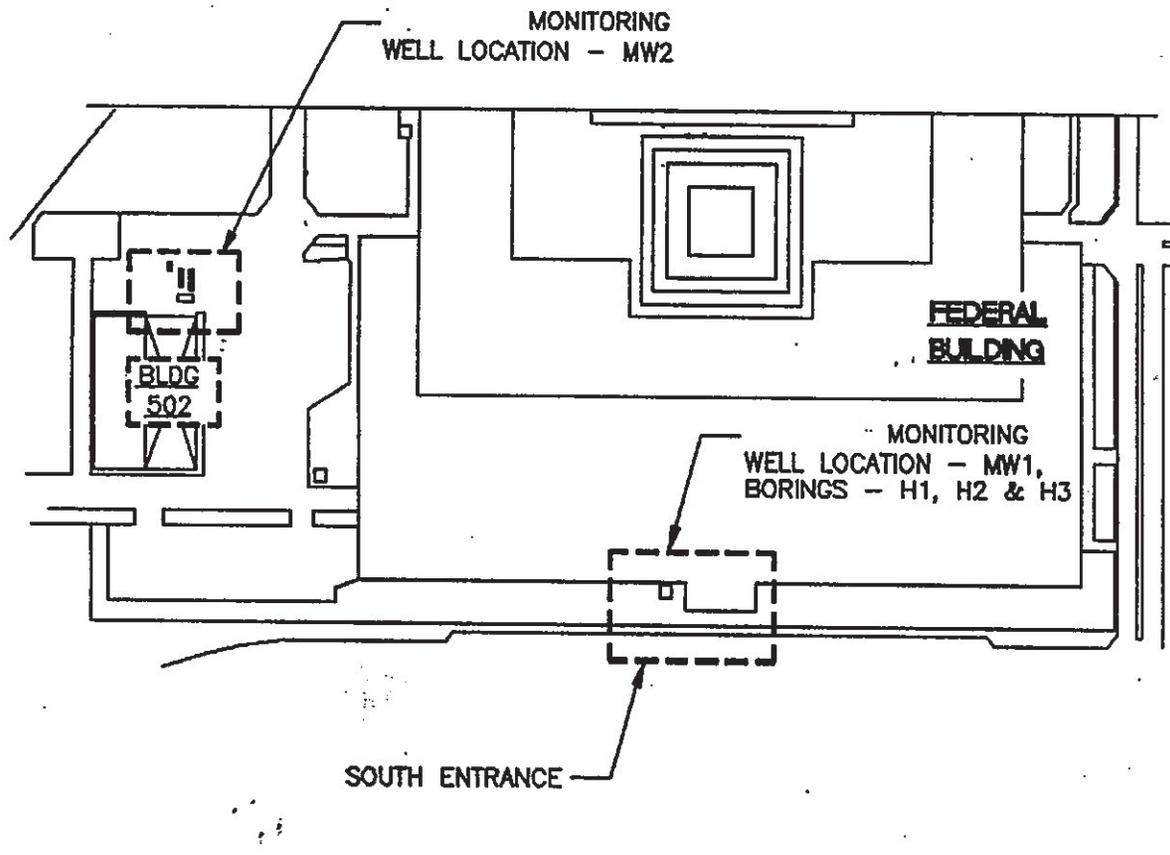
Michael Mulhern EG 1507  
Reg. Expires 10/31/96



---

John Jensen  
Project Manager

# FIGURES



# OVERALL SITE PLAN

SCALE: N.T.S.

## ELL T.T.M.S. ENVIRONMENTAL CONSULTING ENGINEERS

100 CORPORATE PONTE - STE 220  
 CULVER CITY, CALIF. 90230  
 (310) 558-8280  
 FAX (310) 558-8289

Drawn By: J. JENSEN  
 Designed By: J. JENSEN  
 Checked By: R. PILAT

Site:  
**FEDERAL BUILDING**  
 LAGUNA NIGEL

Project:

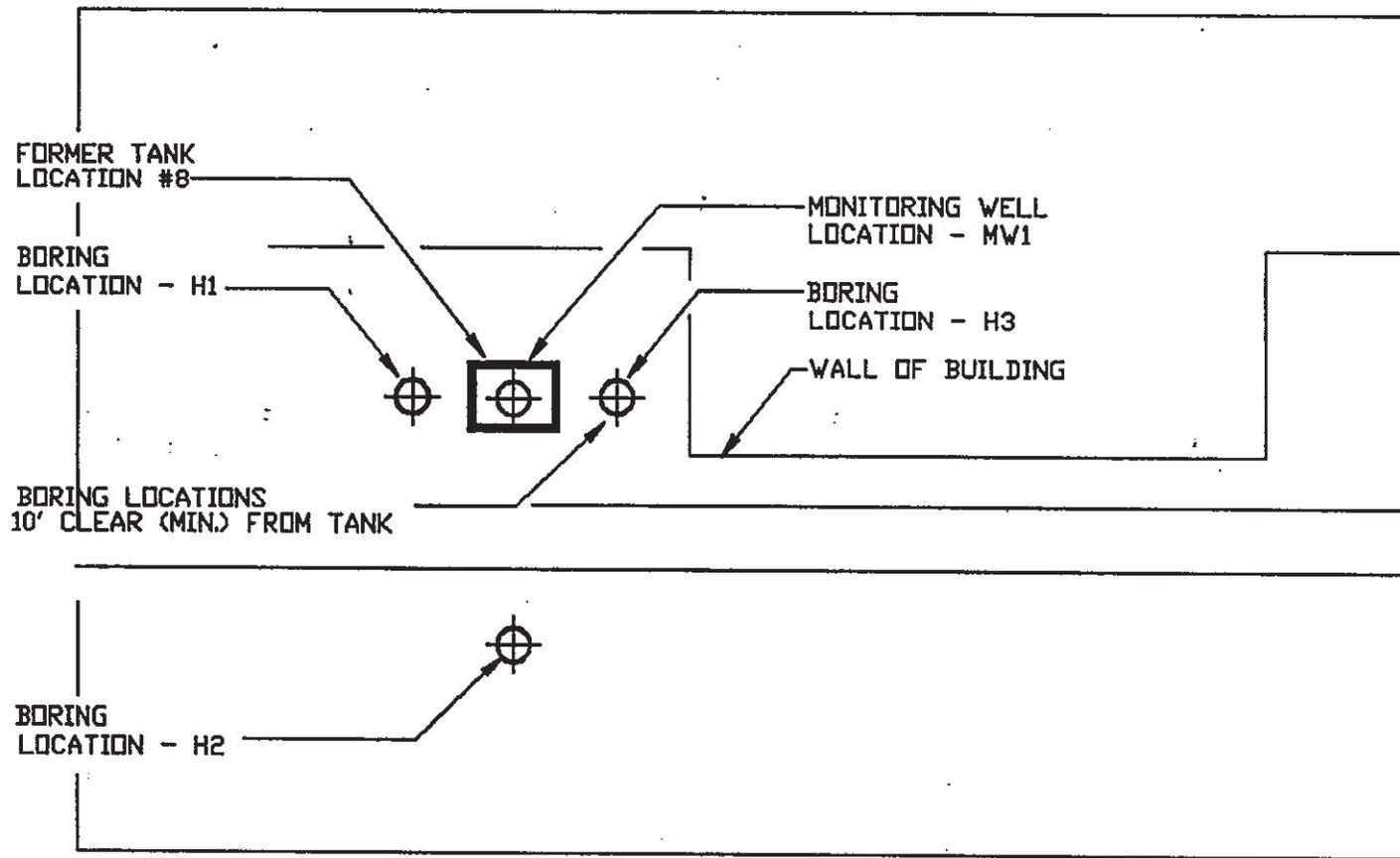
**FEDERAL BUILDING**

24000 AVILA ROAD  
 LAGUNA NIGEL, CALIF. 92656

Sheet Description:

SHOWING LOCATION  
 OF OVERALL SITE

Date: 5/21/83  
 Job No. 11878  
 Sheet No. 1 of 3



SO. ENT. AREA SITE PLAN

SCALE: N.T.S.

**LLL T.T.M.S. ENVIRONMENTAL CONSULTING ENGINEERS**

100 CORPORATE POINTE-SUITE 220  
 CULVER CITY, CALIF. 90230  
 (310) 568-8290  
 FAX (310) 568-8299

Project:

FEDERAL BUILDING

24000 AVILA ROAD  
 LAGUNA NIGEL, CALIF. 92656

Drawn by: J. Jensen  
 Designed by: J. Jensen  
 Checked by: R. Pilat

Site:

FEDERAL BUILDING  
 LAGUNA NIGEL

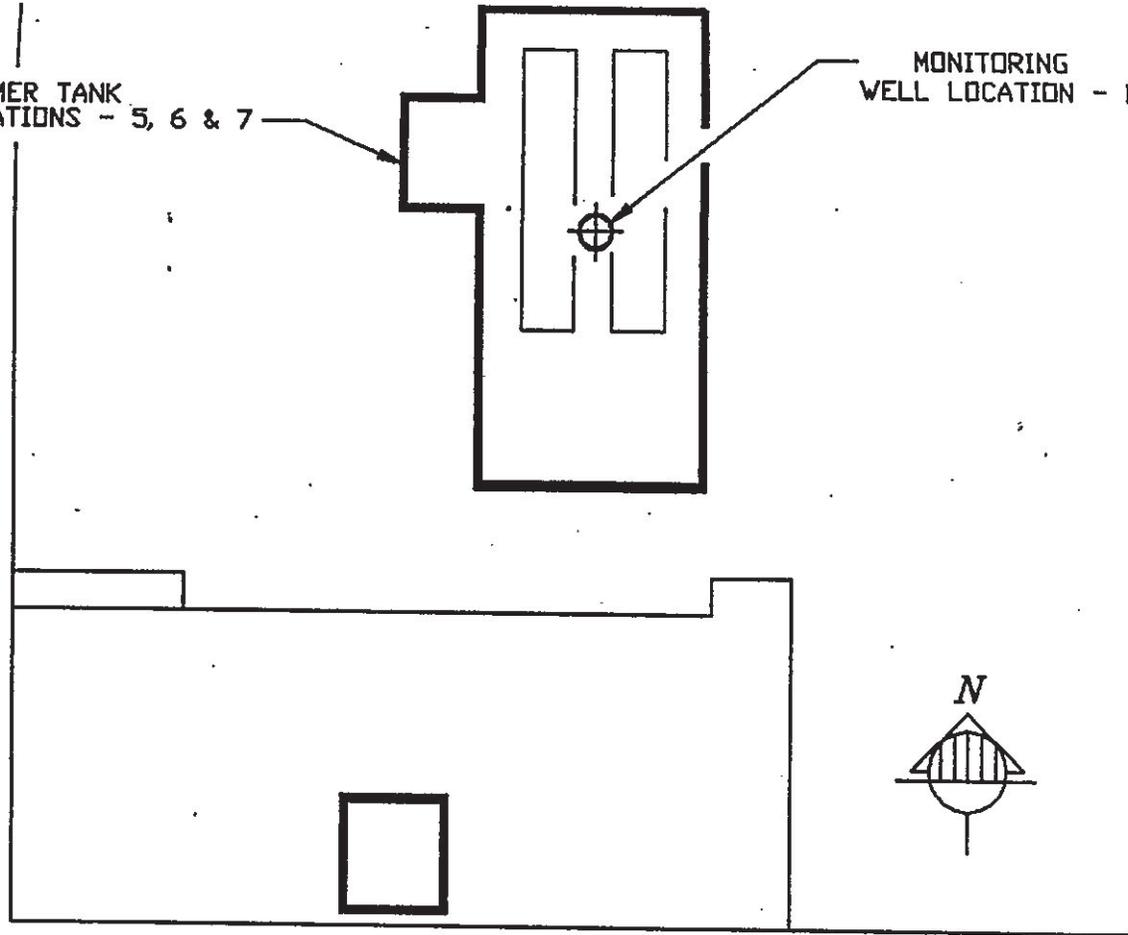
Sheet Description:

MONITORING WELL  
 AND BORING LOCATIONS

Date: July 1993  
 Job No: 11949  
 Sheet No:  
 2 of 3

FORMER TANK  
LOCATIONS - 5, 6 & 7

MONITORING  
WELL LOCATION - MW2



# SO. ENT. AREA SITE PLAN

SCALE: N.T.S.

**ELL** T.T.M.S. ENVIRONMENTAL CONSULTING ENGINEERS

100 CORPORATE PONTE-SUITE 220  
CULVER CITY, CALIF. 90230  
(310) 588-8290  
FAX (310) 585-8299

Project:

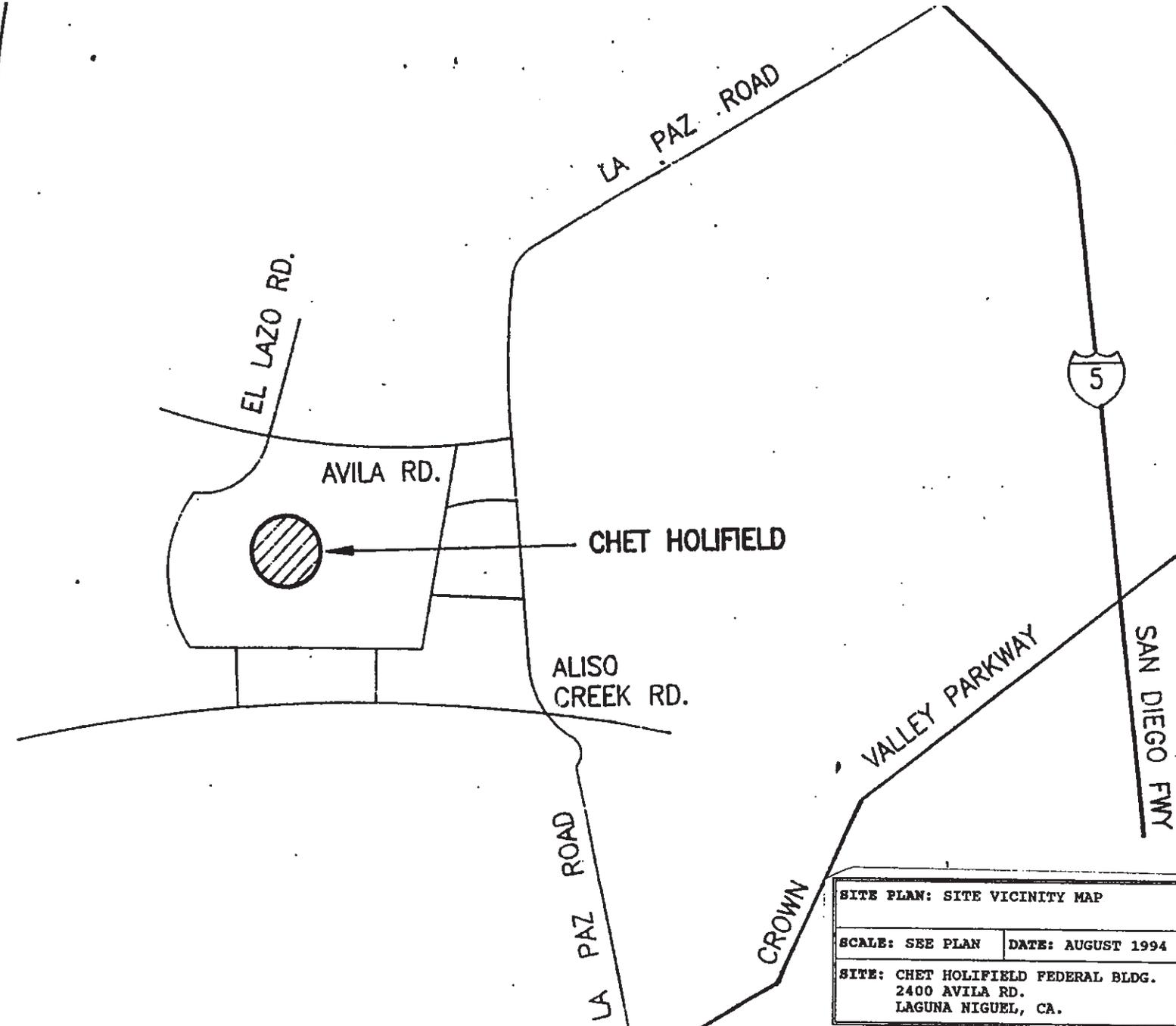
FEDERAL BUILDING  
24000 AVILA ROAD  
LAGUNA NIGEL, CALIF. 92656

Drawn by: J. Jensen  
Designed by: J. Jensen  
Checked by: R. Pfat

Site:  
FEDERAL BUILDING  
LAGUNA NIGEL

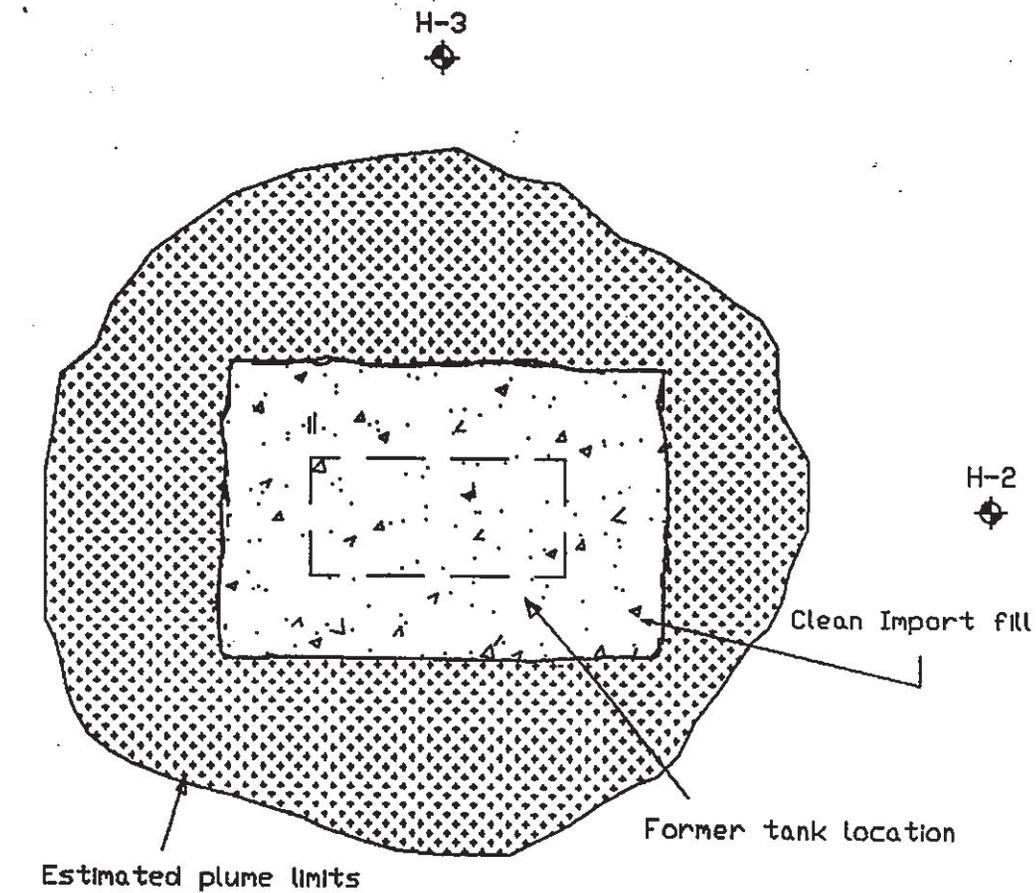
Sheet Description:  
MONITORING WELL  
AND BORING LOCATION

Date: July 1994  
Job No: 11848  
Sheet No:  
3



SITE PLAN: SITE VICINITY MAP		T.T.M.S.	
SCALE: SEE PLAN		100 CORPORATE POINT #220	
DATE: AUGUST 1994		CULVER CITY, CA. 90230	
SITE: CHET HOLIFIELD FEDERAL BLDG.		(310) 568-8290	
2400 AVILA RD.		JOB NO.	DRAWING NO.
LAGUNA NIGUEL, CA.		11949	4

# TANK: # 8 EXCAVATION (SOUTH ENTRANCE)



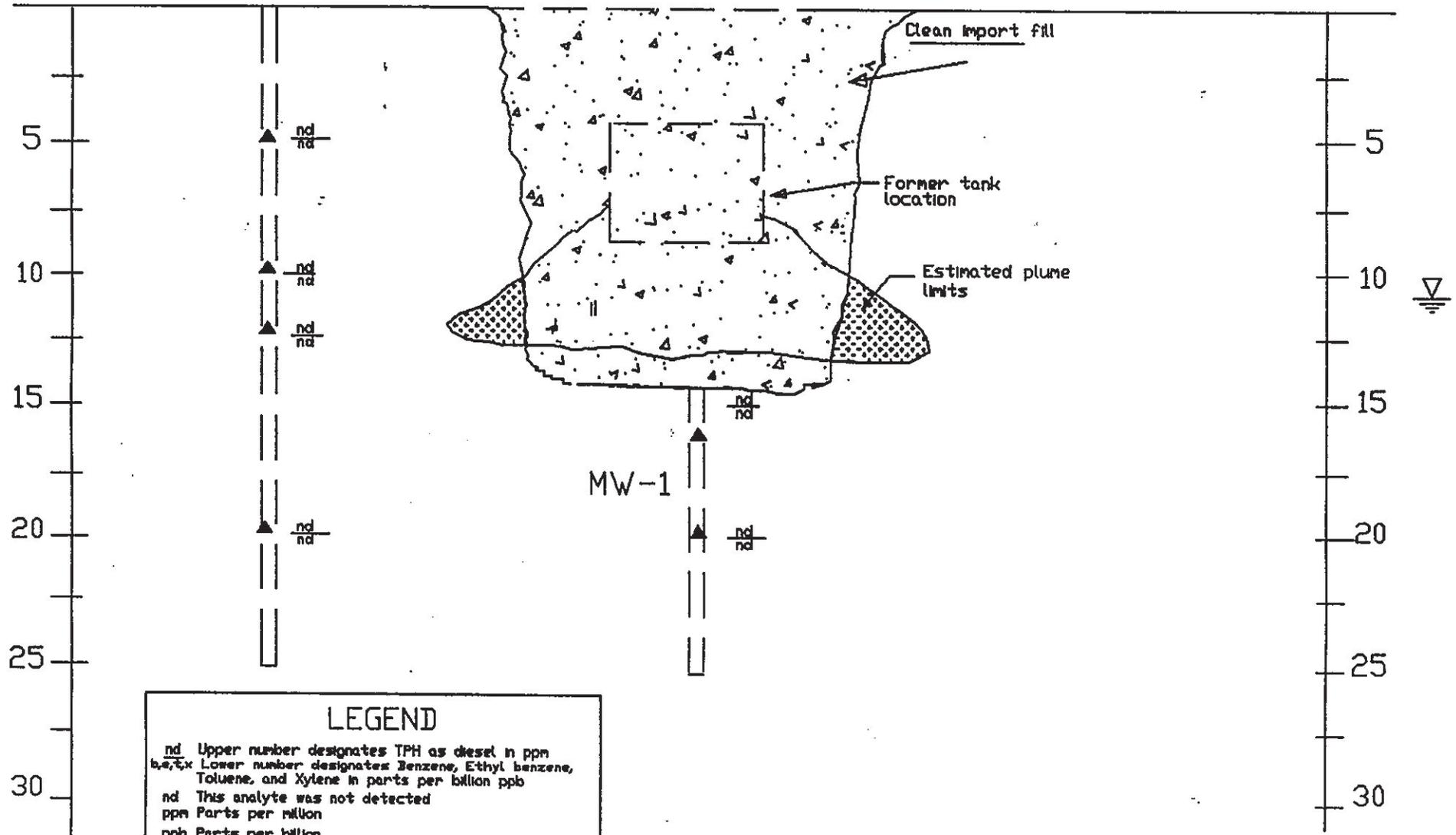
◆ Boring location

T.T.M.S.	
DATE	LOCATION
JULY, 1993	CHET HOLIFIELD FED. BLDG.

TANK # 8 EXCAVATION  
(SOUTH ENTRANCE)

A (South) H-2

A' (North)



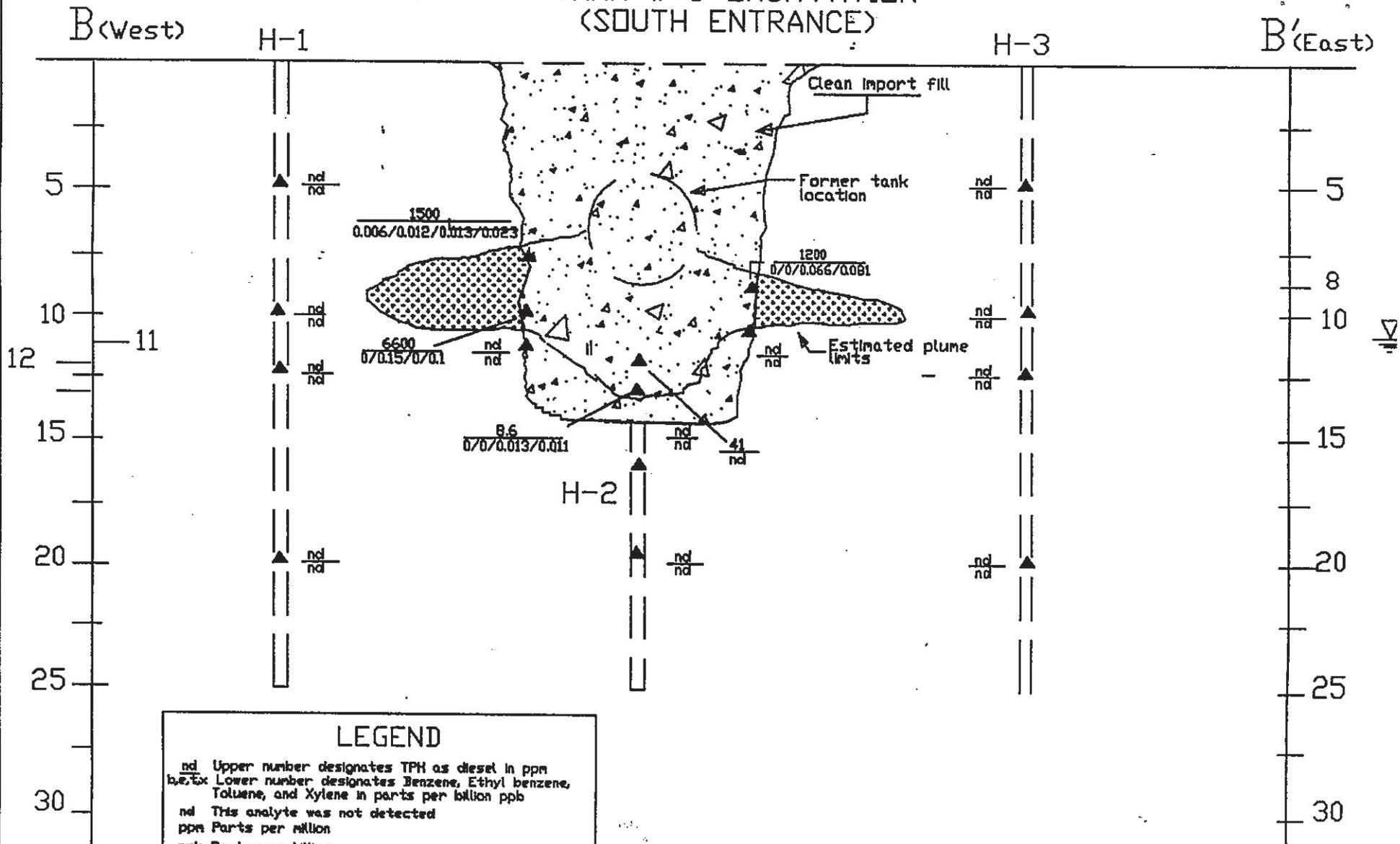
**LEGEND**

nd Upper number designates TPH as diesel in ppm  
 b,e,t,x Lower number designates Benzene, Ethyl benzene,  
 Toluene, and Xylene in parts per billion ppb  
 nd This analyte was not detected  
 ppm Parts per million  
 ppb Parts per billion  
 H-1 Boring number  
 ▲ Sample location

T.T.M.S.	
DATE	LOCATION
JULY, 1993	CHET HOLIFIELD FED. BLDG.

CROSS SECTION. A-A'

# TANK # 8 EXCAVATION (SOUTH ENTRANCE)



**LEGEND**

nd Upper number designates TPH as diesel in ppm  
 be,tx Lower number designates Benzene, Ethyl benzene, Toluene, and Xylene in parts per billion ppb  
 nd This analyte was not detected  
 ppm Parts per million  
 ppb Parts per billion  
 H-1 Boring number  
 ▲ Sample location

<b>T.T.M.S.</b>	
DATE JULY, 1993	LOCATION: CHET HOLIFIELD FED. BLDG.

## CROSS SECTION B-B'

**APPENDIX A**

**LABORATORY ANALYTICAL RESULTS OF JUNE, 1994 GROUNDWATER  
SAMPLING**

**MONITORING WELLS MW #1 AND MW #2**





Client Name: TTMS INC.  
Client Ref.: Chet Holifield Federal Building 11949  
Date Taken: 06/23/1994  
NET Job No.: 94.01089 Date Reported: 07/05/1994

Sample ID : MW-1 Monitoring Well #1

Lab No. : 65979 Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS/FLAGS	UNITS	REPORTING LIMIT
METHOD 8020 (BTXE)				
DATE ANALYZED		06-28-94		
Dilution Factor	8020	1		
Benzene	8020	ND	ug/L	0.5
Ethylbenzene	8020	ND	ug/L	0.5
Toluene	8020	ND	ug/L	0.5
Xylenes (Total)	8020	ND	ug/L	1.5
Surrogate Spike	8020	--		
Bromofluorobenzene	8020	83	% Rec.	
EXTRACTABLE HYDROCARBONS				
DATE ANALYZED		06-30-94		
DATE EXTRACTED		06-29-94		
Dilution Factor	8015 MOD.	1		
TOT. PET. HYDROCARBONS		--		
Diesel Range	8015 MOD.	ND	mg/L	1
Surrogate Spike-TPH		--		
Chlorobenzene	8015 MOD.	116	% Rec.	
Di-n-octyl phthalate	8015 MOD.	N/A	% Rec.	

ND: Not Detected at the Reporting Limit, if a dilution factor is reported the R.L. must be multiplied by the dilution factor to obtain actual R.L.



Client Name: TTMS INC.  
Client Ref.: Chet Holifield Federal Building 11949  
Date Taken: 06/23/1994  
NET Job No.: 94.01089  
Date Reported: 07/05/1994

Sample ID : MW-2 Monitoring Well #2

Lab No. : 65980 Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS/FLAGS	UNITS	REPORTING LIMIT
METHOD 8020/8015 COMB.				
Date Analyzed		06-28-94		
Dilution Factor	8020	1		
AROMATIC VOLATILES	8020	--		
Benzene	8020	ND	ug/L	0.5
Ethylbenzene	8020	ND	ug/L	0.5
Toluene	8020	ND	ug/L	0.5
Xylenes, total	8020	ND	ug/L	1.5
TOT. PET. HYDROCARBONS	8015 MOD.	--		
Gasoline Range	8015 MOD.	ND	ug/L	10
Surrogate Spike-8020/8015	8020	---		
Bromofluorobenzene	8020	85	% Rec.	

ND: Not Detected at the Reporting Limit, if a dilution factor is reported the R.L. must be multiplied by the dilution factor to obtain actual R.L.

# Analytical Laboratory Report

EPA Methods 8015 Modified / 8020

Date Sampled:	7/2/93	Proj. Mgr:	Mr. Rick Pilot
Date Received:	7/2/93	Client:	TTMS
TPHg/BTEX Analyzed:	7/6/93	Project:	Chet Holifield Federal Bldg.
TPHd Extracted:	7/6/93	Matrix:	Water
TPHd Analyzed:	7/6/93	COC #:	NA
Date Reported:	7/8/93	Report #:	307004.rpt

Lab ID No.	Field ID No.		Benzene	Toluene	Ethyl benzene	Xylenes - Total	TPHg	TPHd	
S0010793	MW-1		ND	ND	ND	ND	ND	NR	
S0020793	MW-2		ND	ND	ND	ND	ND	NR	

Detection Limits (DL)	0.5 ug/l	0.5 ug/l	0.5 ug/l	0.5 ug/l	50 ug/l	50 ug/l
-----------------------	----------	----------	----------	----------	---------	---------

**COMMENTS:**

**NOTES:**  
 NR - Analysis not requested.  
 COC - Chain of custody  
 ND - Analytes not detected at, or above the stated detection limit.  
 TPHg - Total petroleum hydrocarbons as gasoline.  
 TPHd - Total petroleum hydrocarbons as diesel #2.  
 mg/kg - Milligrams per kilogram (PPM).  
 ug/l - Microgram per Litre (PPB).  
 DL - Detection limit.  
 DL Factor - Detection Limit Factor  
 SDL - Specific Detection Limit - Multiply DL by the DL Factor to obtain the detection limit for a specific Field ID No.

**PROCEDURES:**

BTEX - This analysis was performed in using with EPA Method 8020, and EPA Method 5030 .  
 TPHg - This analysis was performed in using with EPA Method 8015 Mod., and EPA Method 5030.  
 TPHd - This analysis was performed in using with EPA Method 8015 Mod. and CA State Certified Method.

**CERTIFICATION:**

California Department of Health Services ELAP Certificate # 1774  
 Onsite Environmental Laboratories, 856 South Lime St., Anaheim, CA 92805 (714) 533-3322.

*[Signature]*  
 Laboratory Representative

7-13-93  
 Date

**GHET HOLIFIELD FEDERAL BUILDING**

**SOIL WATER SAMPLE ANALYTICAL RESULTS**

Well ID#	Depth	Benzene	Toluene	Ethyl Benzene	Xylenes-Total	TPH Gasoline	TPH Diesel
MW1	5 ft.	ND	ND	ND	ND	ND	ND
MW1	8 ft.	ND	ND	ND	ND	ND	ND
MW2	15 ft.	ND	ND	ND	ND	ND	ND
MW2	20 ft.	ND	ND	ND	ND	ND	ND

\* ND: (Non-Detectable contamination levels for all water samples tested.)

**WATER SAMPLE ANALYTICAL RESULTS**

Well ID#	Turbidity (NTU)	pH	TDS (Total Dissolved Solids, mg/L)
MW1	0.9	7.17	2,860
MW2	2.4	6.92	2,250

First Round of Water Sample Analytical Results  
 Performed in July 1993



General Services Administration

FACILITY SUPPORT CENTER  
DESIGN & CONSTRUCTION BRANCH, 9PXC  
350 S. FIGUEROA STREET, SUITE 301  
LOS ANGELES, CA 90071

July 29, 1993

Mr. James C. Strozier, Hazardous Waste Specialist  
Hazardous Materials Management Section  
County Of Orange  
2009 E. Edinger Ave., Santa Ana, CA 92702

Re: Project Name: Removal of 7 Storage Tanks  
Project No: RCA21418  
Project Site: Chet Holifield Federal Building  
24000 Avila Road, Laguna Niguel, CA 92677

Dear Mr. Strozier:

As up to this date, we have completed the construction work of this project. Please find the attached 2 reports attached:

**A. REPORT DOCUMENTING THE REMOVAL OF UNDERGROUND STORAGE, 7-19-93.**

This report is the continuation of the previous report dated 3-29-93 submitted to you. The contents include the removal and disposal of non-hazardous soil, replacement of clean soil, and the resurfacing of the tank sites. Documentation attached are figures, laboratory test results, work procedure, site safety plan, correspondences, etc.

**B. REPORT OF MONITORING GROUNDWATER WELL & SOIL BORINGS, 7-20-93.**

This report contains the additional site assessment performed on site. The assessment includes the installation and sampling of 2 monitoring groundwater wells, and 3 soil boring tests. We will schedule the monitoring groundwater test for early October 1993 as you requested.

It was our pleasure to have the chance to work with you on this project. We sincerely appreciate your cooperation.

Should you have any questions, please call me at 213-894-6329.

Sincerely,

  
Elsa L. Wong  
Project Director

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<b>E</b>	<b>REVISED SUPPLEMENTAL WORKPLAN</b>
<b>F</b>	<b>SAMPLING PLAN CORRESPONDENCE</b>
<b>G</b>	<b>APPROVAL LETTER FROM OCHCA</b>
<b>H</b>	<b>WELL INSTALLATION PERMIT</b>
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## 1.0 INTRODUCTION

TTMS, Inc. was contracted by the General Services Administration, United States Government, for an additional limited subsurface soil and groundwater investigation following underground storage tank (UST) removal and subsequent remedial activities at the property located at 24000 Avila Road, Laguna Niguel, California.

During previous underground storage tank removals performed by TTMS, Inc. on January 28, 1993, visual indications and State Certified Laboratory analysis of soils from beneath the USTs confirmed the presence of hydrocarbon contamination in subsurface soils in the western gasoline fueling area (Tanks 6 and 7) and the southern diesel tank area (Tank 8). All soil sampling and handling was performed under the direction of Orange County Health Care Agency (O.C.H.C.A.) personnel on site during field activities.

Due to the fact that contamination was discovered, and groundwater was present in one excavation, further assessment was required by O.C.H.C.A.. Since the contamination was apparently localized and relatively minor, contaminated soil was excavated and further soil sampling was conducted on March 15, and 16, 1993 under the direction of O.C.H.C.A..

Approximately 70 cubic yards of contaminated spoils generated during the tank removal in the southern diesel tank area (Tank 8) were profiled and transported as non-hazardous to Gibson Environmental, Bakersfield, CA and recycled.

Disposal of approximately 1800 cubic yards of soil from the western fuel tank removal was approved by local regulatory agencies and transported to the local landfill.

Because of the presence of both diesel and BTEX in subsurface soils and the proximity of groundwater at approximately 15 feet below ground surface, further assessment of soils in the southern diesel tank area and groundwater in both the southern diesel tank location and the western gasoline tank location was required by the O.C.H.C.A.

On June 28, 1993, under the direction of the O.C.H.C.A., and following TTMS, Inc. Supplemental Workplan (See Appendix E) three additional soil borings were advanced in the southern diesel tank area. Additionally, one water quality monitoring well in the southern diesel tank location and one well in the western gasoline tank area was also installed.

The wells were developed on June 30 1993, and sampled on July 1, 1993.

All soil and groundwater samples were analyzed for the same constituents as the respective tank contents (TPH as diesel or gasoline) and for BTEX by state certified Onsite Laboratories.

All laboratory analytical results were non-detect for tested constituents.

Based upon field observations and state certified laboratory data, groundwater has not been negatively impacted at the site at either of the two former tank location areas.

Based upon visual, olfactory and laboratory analysis of soils in place in the western gasoline tank area (Tanks 5, 6, and 7) there is no indication of the presence of any contamination, therefore, it is believed that all contaminated soil from this area has been removed and properly disposed of.

In the southern tank area (Tank 8) excavation sidewall, diesel and BTEX have been measured and remain in place. Although there were minor visual and olfactory indications of the presence of diesel noted in auger trailings from approximately 8 feet below grade in boring B-1, located approximately 10 feet west of the former tank location, laboratory analysis of soil samples from all samples from exploratory borings 10 feet from the excavation were non-detect for diesel or BTEX contamination.

Approximately 70 cubic yards of the contaminant plume has been removed and properly disposed of leaving an estimated 5 to 10 yards (approximately 10 % of the total suspected plume) of contaminated soil remaining in place. Given the fact that the dense shale aquitard exists below the suspected contaminant lens the likelihood of future threat to groundwater from the diesel release is considered to be minimal.

TTMS, Inc. recommends one additional quarterly water sampling be performed. If no groundwater contamination is detected, the groundwater wells should be properly abandoned, and the site should be closed with regard to any potential health threat from the former UST releases.

This investigation was conducted solely for the General Services Administration. All work was performed by TTMS, Inc. in accordance with the investigative protocols developed by TTMS, Inc. specifically intended for subsurface investigations and are included in Appendix I.

## **2.0 SITE DESCRIPTION**

### **2.1 Facility Description / Location**

The facility is located on the south side of Avila Road immediately west of La Paz Road in the City of Laguna Niguel. The property consists of several parking lots and a multi-story office building. The site is located approximately one mile to the east of Aliso Creek. The ground surface of the facility is relatively flat. The two areas of former USTs that further soil and groundwater assessment was performed are located to the west and south of the main building.

## **2.2 Local Geologic Conditions**

The site occupies a relatively narrow alluvial valley. At the western tank area (Tanks No. 5,6 and 7) below 4 inches of asphalt concrete (AC), approximately 5 inches of gravel fill was encountered, followed by approximately 5 feet of fine to medium grained sand, which was silty, slightly clayey, pebbly and yellow-brown in color (SM-SW in the United Soil Classification System, USCS). Beneath this was silty clay and black peat-rich sediment, which was moist to wet, has scattered shale pebbles and did not possess a petrochemical odor.

At the southern tank area (Tank No. 8) below a grass lawn, approximately 5 feet of silty sandy clay was encountered, which was mottled white, brown and yellow and was wet. Below this was about 4 feet of black peat-rich clay, which was wet to moist and possessed a sulfurous or diesel odor. From the subsurface depths of 9 to 12 feet was yellow diatomaceous shale, which was platy and was not odoriferous. Beneath this shale, brown silty diatomaceous shale was encountered.

## **2.3 Local Hydrogeologic Conditions**

Depth to groundwater in monitoring well #1 was 11.93 Ft. from the top of the casing, measured with electronic water level meter June 30, 1993 at the southern area (Tank No. 8).

Depth to groundwater in monitoring well #2 was 15.28 Ft. from the top of the casing, measured with electronic water level meter June 30, 1993 at the western (Tank No. 5-7).

During the previous excavation activities the tank pits remained open for several weeks. During this period the depth to groundwater in the western (Tank No. 5-7) excavation was 14 feet below ground surface (documented March 16, 1993 with a tape measure.)

Groundwater was not previously encountered in the southern area (Tank No. 8) in the 13-foot deep excavation. Groundwater levels appear to be variable at least in this location, based upon the recorded data. It is probable that the well's proximity to the substructure of the building and/or other groundwater level influencing characteristics of the site (i.e. leachate zones of site irrigation water transport) cause fluctuations in the groundwater levels in MW-1.

### **3.0 SCOPE OF WORK**

The following site investigation work has been completed by TTMS, Inc. at the facility are addressed in this report:

April 22, 1993:

Revised Supplemental Workplan Submitted to O.C.H.C.A.

June 21, 1993:

Final Agreement on Assessment Details and Final Approval of Workplan (Refer to Appendix F).

June 28, 1993:

Drill and Sample Three Soil Borings in the Southern Tank Area. Drill, Sample and Complete One Water Quality Monitoring Well in the Center of Each of the Former Tank Areas. Overseen by Mr. J. Strozier, O.C.H.C.A. Submit Soil Samples to State Certified Onsite Laboratories for Chemical Analysis.

June 30, 1993:

Development of the Groundwater Monitoring Wells by Surging and Pumping

July 1, 1993:

Purge and Sample the Groundwater Quality Monitoring Wells. Submit Water Samples to State Certified Onsite Laboratories for Chemical Analysis.

### **4.0 FIELD INVESTIGATIVE METHODS**

The following investigative methods were performed while completing the proposed site investigation in accordance with TTMS, Inc. Field Investigation and Soil Sample Protocols (see Appendix I).

#### **4.1 Soil Borings**

All onsite drilling was accomplished using a truck mounted CME 75 drill rig. The soil borings were advanced using steam cleaned, 6 3/4-inch hollow stem, continuous flight augers, in accordance with standard TTMS, Inc. protocols for soil investigations and sampling. Soil borings were terminated and properly abandoned at 20 Ft. below ground surface.

The lithologies and other pertinent data were recorded by TTMS, Inc. trained geologic personnel, under the supervision of a State of California Registered Geologist, on field boring log forms. This information was transferred to TTMS, Inc. computer generated logs for visual description and identification of the soils encountered (see Appendix C)

It should be noted that the abandonment of any boring, or part thereof, was accomplished using a minimum 5 foot bentonite bottom plug and cemented to surface.

#### **4.2 Soil Sample Collection**

Exploratory boring soil samples were collected using a steel split-spoon sampler and 2.5- x 6-inch Brass sample tubes driven by an ASTM standard pneumatic 140 pound hammer. Discrete, undisturbed soil samples were obtained from the borings at depths of 5, 8, 13 and 20 feet below ground surface per O.C.H.C.A. requirements. (See Appendix F)

#### **4.3 Soil Sample Analysis**

The soil samples obtained from the field investigation were transported to a California Department of Health Services (C.D.H.S.) certified laboratory for the specified analyses. Methods of testing included Environmental Protection Agency (EPA) method 8020 for benzene, toluene, xylenes, and ethylbenzene (BTXE), and CDHS TPH draft method for diesel (See Appendix B).

#### **4.4 Groundwater Monitoring Well Installation and Soil Sampling**

Two pilot soil borings were drilled and groundwater monitoring wells MW-1 and MW-2 were installed in the center of the two former tank location areas. 6-3/4 inch hollow stem augers were used for soil sample collection and the wells were completed with 10.5-inch, outside-diameter (O.D.), hollow-stem augers. Groundwater was encountered at approximately 15 below ground surface in each of the pilot borings. The borings were continued to a total depth of 25 feet below grade. Monitoring wells MW-1 and MW-2 were constructed using 4-inch-diameter polyvinyl chloride (PVC) casing with 0.010-inch machine-slotted screen and a No. 2/12 Monterey sand filter pack. Each well was screened from approximately 10 to 25 feet below grade and the filter pack was placed in the annular space around the screen up to 1 foot above the top of the screened interval. A 1-foot-thick bentonite seal was placed on top of the filter pack, followed by a cement surface seal to the surface. Each wellhead was completed with a traffic-rated, water-tight street box for protection from leakage and vandalism. A locking water-tight cap was fitted onto the top of the PVC well casing in both wells.

The well screen and filter pack selection was based on the previously observed subsurface lithologies. Appendix C contains the boring logs with well completion diagrams.

Soil samples were collected from the pilot soil borings at 20 and 25 below ground surface using a split-spoon, hammer-driven sampler to collect "undisturbed" soil samples. During drilling, all soil samples were inspected by a field geologist and screened for the presence of petroleum-hydrocarbon compounds using a flame-ionization detector (FID).

Two samples from each pilot boring was submitted for laboratory analyses of BTEX and TPH gasoline or diesel according to the former tank contents. The samples collected from 20 and 25 feet below ground surface were submitted for analysis. Samples from lesser depths were not taken due to the fact that the former tank excavations were backfilled with clean import fill.

Samples collected for laboratory analyses were collected in 2-1/2 inch diameter by 6 inch long brass tubes. They were then sealed in foil, capped, labeled, and place on ice in an insulated cooler for transportation to a C.D.H.S. certified laboratory. Samples were accompanied at all times by a chain-of-custody record included in Appendix A.

#### **4.5 GROUNDWATER MONITORING WELL DEVELOPMENT**

The two groundwater monitoring wells were developed according to TTMS, Inc. protocols to remove the fine-grained materials from the filter pack and borehole for improved well performance.

Water level measurements were made prior to well development and sampling. Development and sampling data is included in Appendix D. Development was accomplished by alternately surging and pumping the well until the extracted groundwater appeared relatively clear and free of sediment. Approximately four well volumes were pumped from each well during the development process.

#### **4.6 GROUNDWATER SAMPLING**

Prior to sampling , a minimum of four well volumes were removed from each of the monitoring wells. Samples were collected when groundwater had reached at least 80 percent of the original static water level and well parameters had stabilized. Field sampling data is included in Appendix D. The samples were obtained using a clean EPA-approved Teflon sampler and placed in 40-milliliter glass vials allowing no headspace and capped with Teflon septa lids for chemical analysis. One additional liter of groundwater from each well was placed in EPA clean wide mouth teflon capped jars. The sealed vials and jars with the groundwater samples were immediately placed in ice for delivery to the laboratory for analyses.

## **4.7 SOIL AND GROUNDWATER ANALYSIS**

Methods of testing included Environmental Protection Agency (EPA) Method 8020 for benzene, toluene, xylenes, and ethylbenzene (BTXE), California Department of Health Services Method 8015 total petroleum hydrocarbons (TPH) modified for gasoline (Tank 5-7 area) or modified for diesel (Tank 8 area). The Groundwater samples were tested for the same constituents as the soil, as well as turbidity, Ph, and total dissolved solids. For specific analysis and tabulated results of the sample analysis is contained in Appendix A.

## **5.0 FINDINGS/DISCUSSION**

### **5.1 Field Observations**

Minor visual and olfactory indications of the presence of diesel was noted in auger trailings from approximately 8 feet below grade in boring B-1, located approximately 10 feet west of the former tank location in the southern tank area (Tank 8). There were no indications of contamination encountered elsewhere in this investigation.

There were no visual or olfactory indications of contamination noted in any of the soil or groundwater samples.

There was no detection of hydrocarbons in any FID measurements.

### **5.2 Laboratory Analysis / Tabulated results**

The State certified laboratory analytical results and the detection limits of all the test results can be found in Appendix A.

\* Note:        ppm (parts per million) = mg/kg  
              ppb (parts per billion) = ug/kg

## **6.0 CONCLUSIONS**

All laboratory analytical results were non-detect for tested constituents.

Based upon field observations and state certified laboratory data, groundwater has not been negatively impacted at the site at either of the two former tank location areas.

Based upon visual, olfactory and laboratory analysis of soils in place in the western gasoline tank area (Tanks 5, 6, and 7) there is no indication of the presence of any contamination, therefore, it is believed that all contaminated soil from this area has been removed and properly disposed of.

In the southern tank area (Tank 8) excavation sidewall, diesel and BTEX have been measured and remain in place. Although there were minor visual and olfactory indications of the presence of diesel noted in auger trailings from approximately 8 feet below grade in boring B-1, located approximately 10 feet west of the former tank location, laboratory analysis of soil samples from all samples from exploratory borings 10 feet from the excavation were non-detect for diesel or BTEX contamination.

Approximately 70 cubic yards of the contaminant plume has been removed and properly disposed of leaving an estimated 5 to 10 yards (approximately 10 % of the total suspected plume) of contaminated soil remaining in place. Given the fact that the dense shale aquitard exists below the suspected contaminant lens the likelihood of future threat to groundwater from the diesel release is considered to be minimal.

It is concluded from the review of laboratory analytical results that groundwater has not been negatively impacted from any former UST releases. Because all samples from the borings and the groundwater monitoring wells tested non-detect, any potential contamination currently left in place is minimal.

## **7.0 RECOMMENDATIONS**

TTMS, Inc. recommends one additional quarterly water sampling be performed. If no groundwater contamination is detected, the groundwater wells should be properly abandoned, and the site should be closed with regard to any potential health threat from the former UST releases.

## **8.0 LIMITATIONS**

The conclusions and recommendations in this report are based on:

- 1). Information supplied by client.
- 2). Test borings and groundwater monitoring wells advanced/installed on this site.
- 3). The observations of field personnel.
- 4). Analysis of the laboratory test data.
- 5). Referenced documents.

The results contained in this report are based on the limited information acquired during the various phases of our site assessment. It is possible that variations in the subsurface conditions could exist beyond points explored during the course of the assessment. Therefore, it should be recognized that evaluation of geologic conditions is difficult, and an inexact process. Judgements leading to conclusions are often made with an incomplete knowledge of all the existing subsurface conditions. Changes in existing conditions could occur at some time in the future due to variations in rainfall, temperature, and other factors not apparent at the time of the field investigation. This assessment was performed in accordance with the general standard of practice exercised by other consultants working under similar conditions in Southern California at the time of the investigation. No warranty, express or implied, is made.

The limited soil sampling described herein was intended to provide a preliminary indication of the potential environmental impacts to the onsite soil and/or groundwater from the usage or release of hazardous materials, and should not be construed as a statistical evaluation of the site. A statistical evaluation of the site would require a comprehensive samprerence of hazardous materials

within a numerical confidence interval. A lack of significant indicators of the presence of hazardous materials does not preclude the presence of these materials on the subject property.

This report has been developed by formally educated and trained geologic personnel according to the environmental engineering protocols generated by TTMS. This report has been reviewed by the undersigned.

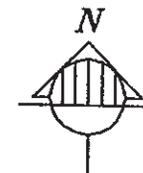
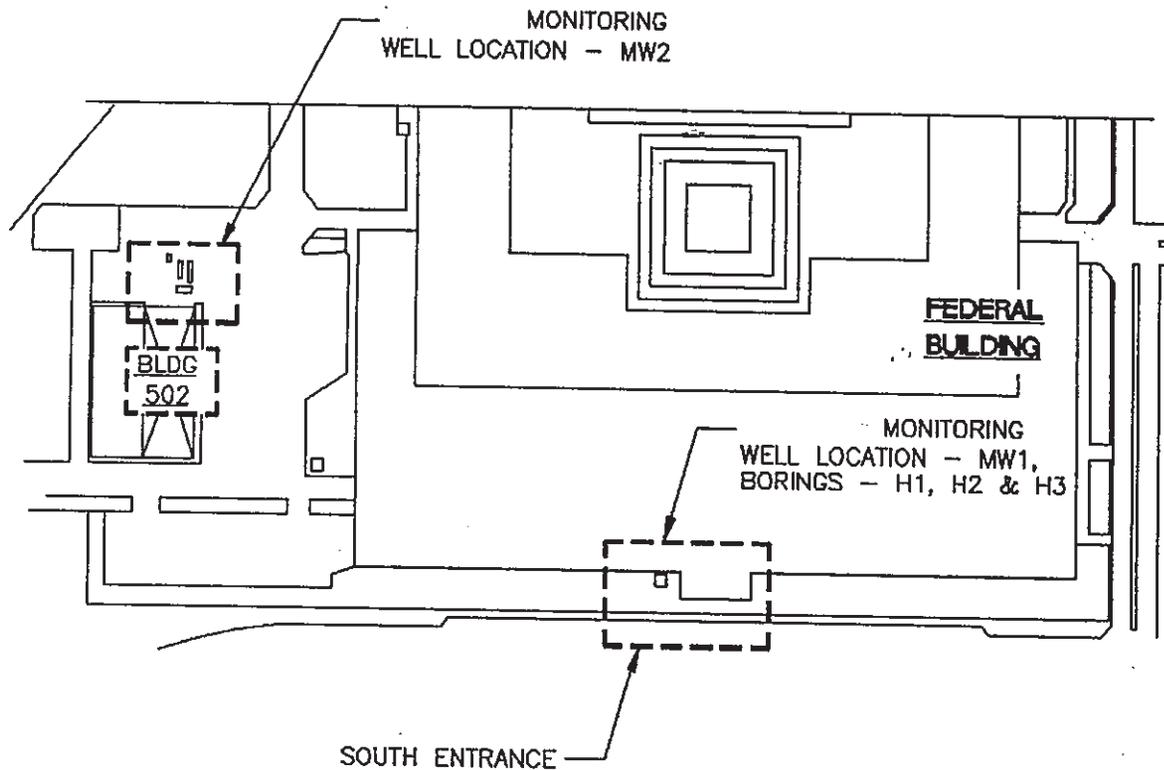


Michael Mulhern  
Registered Geologist CEG #1507



Richard W. Pilat  
Project Manager

# FIGURES



# OVERALL SITE PLAN

SCALE: N.T.S.

## LLT.T.M.S. ENVIRONMENTAL CONSULTING ENGINEERS

100 CORPORATE PONTE - STE 220  
 CULVER CITY, CALIF. 90230  
 (818) 588-8280  
 FAX (818) 588-8280

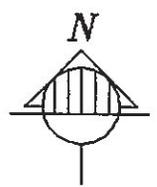
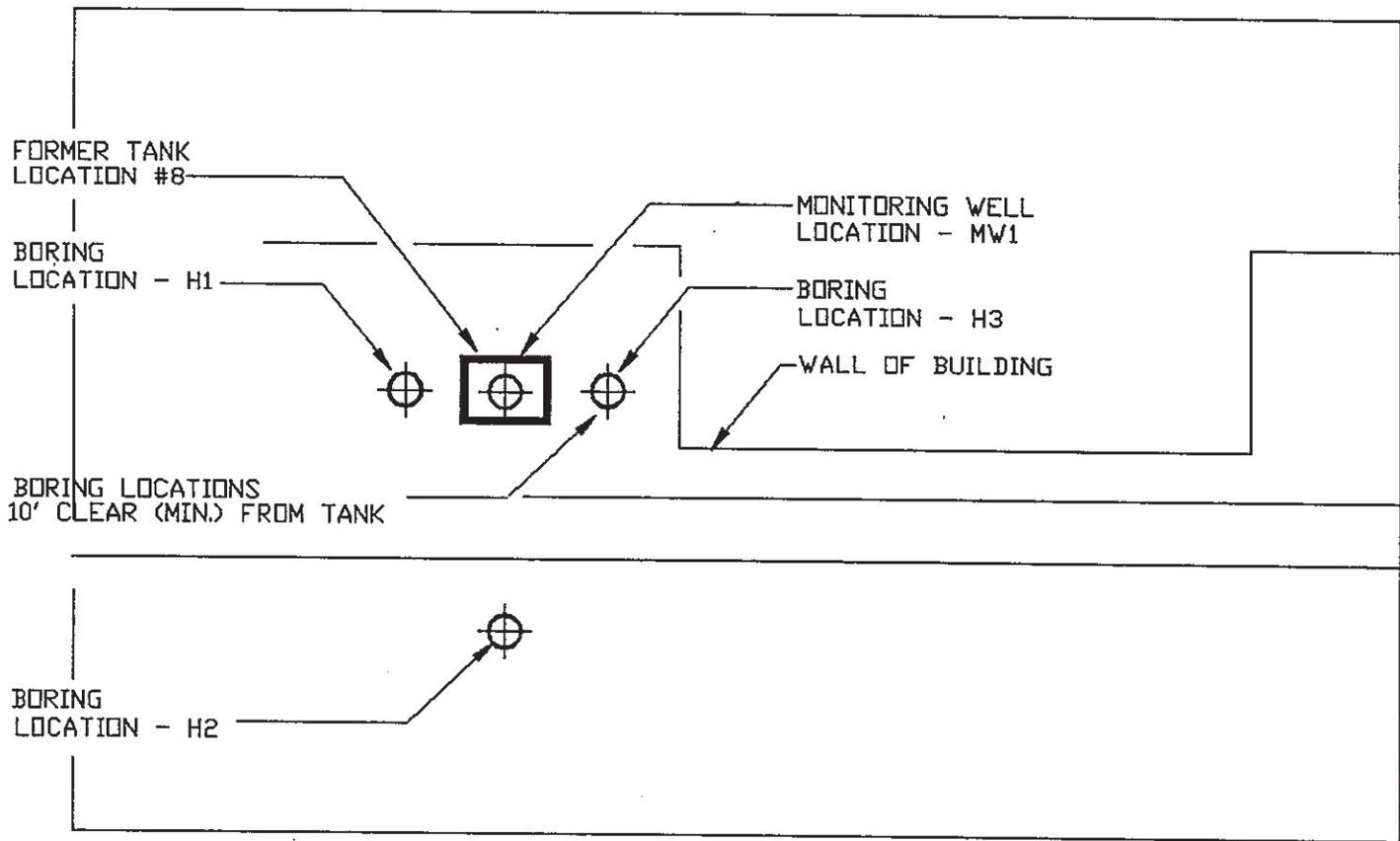
Project  
**FEDERAL BUILDING**  
 24000 AVILA ROAD  
 LAGUNA NIGEL, CALIF. 92656

Drawn By: J. JENSEN  
 Designed By: J. JENSEN  
 Checked By: R. PILAT

Site:  
**FEDERAL BUILDING**  
 LAGUNA NIGEL

Sheet Description:  
**SHOWING LOCATION**  
**OF OVERALL SITE**

Date: 5/21/83  
 Job No. 11078  
 Sheet No. 1 of 3



SO. ENT. AREA SITE PLAN

SCALE: N.T.S.



**LLT.T.M.S.** ENVIRONMENTAL CONSULTING ENGINEERS

100 CORPORATE POINTE-SUITE 220  
 CULVER CITY, CALIF. 90230  
 (310) 568-8290  
 FAX (310) 568-8299

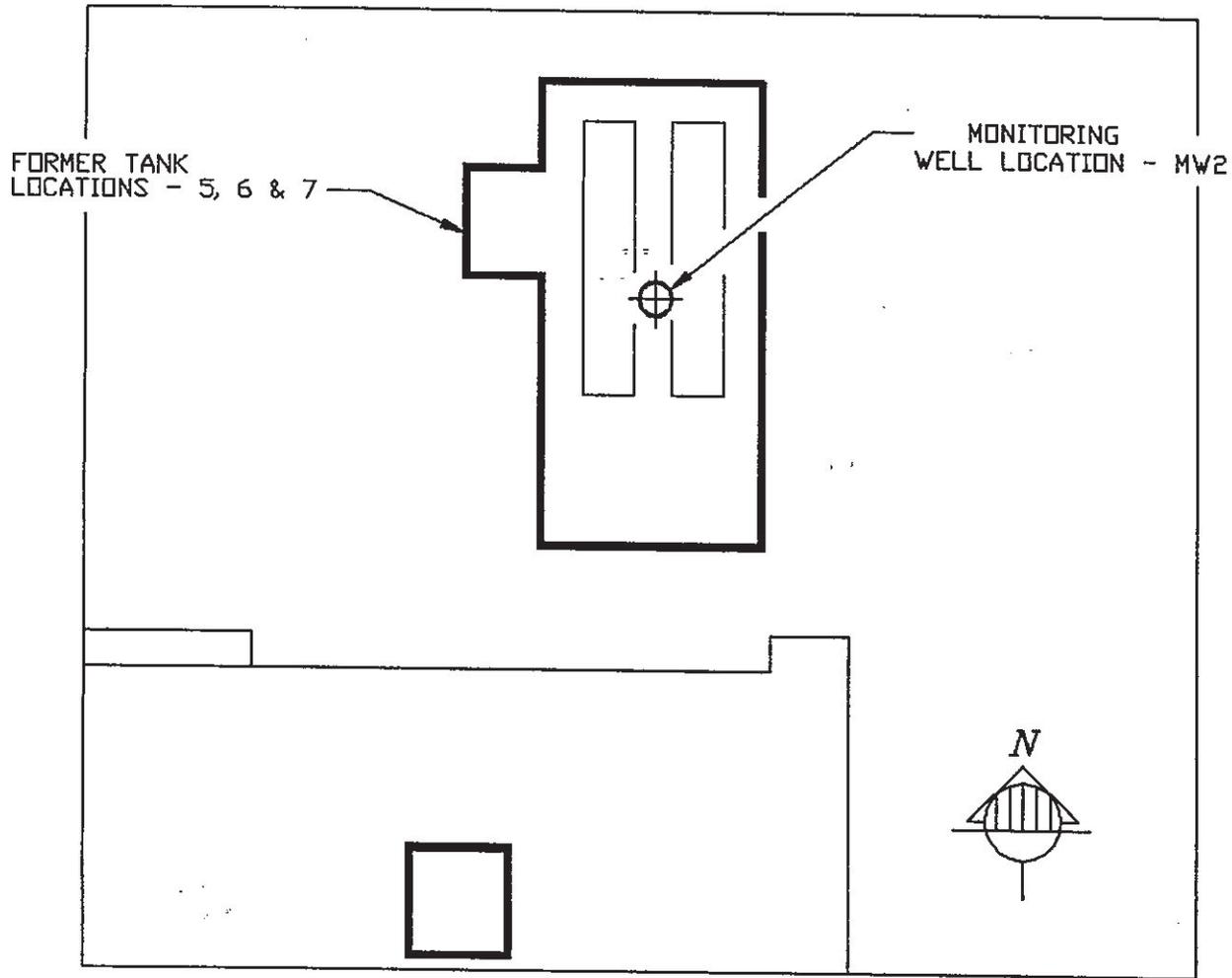
Project:  
**FEDERAL BUILDING**  
 24000 AVILA ROAD  
 LAGUNA NIGEL, CALIF. 92656

Drawn by: J. Jensen  
 Designed by: J. Jensen  
 Checked by: R. Pilot

Site:  
**FEDERAL BUILDING**  
 LAGUNA NIGEL

Sheet Description:  
**MONITORING WELL AND BORING LOCATIONS**

Date: July 1993  
 Job No: 11948  
 Sheet No: 2 of 3



# SO. ENT. AREA SITE PLAN

SCALE: N.T.S.



**LLL T.T.M.S. ENVIRONMENTAL CONSULTING ENGINEERS**

100 CORPORATE POINTE-SUITE 220  
 CULVER CITY, CALIF. 90230  
 (310) 588-8290  
 FAX (310) 565-8299

Project:

**FEDERAL BUILDING**

24000 AVILA ROAD  
 LAGUNA NIGEL, CALIF. 92656

Drawn by: J. Jensen  
 Designed by: J. Jensen  
 Checked by: R. Pflat

Site:  
 FEDERAL BUILDING  
 LAGUNA NIGEL

Sheet Description:  
 MONITORING WELL  
 AND BORING LOCATION

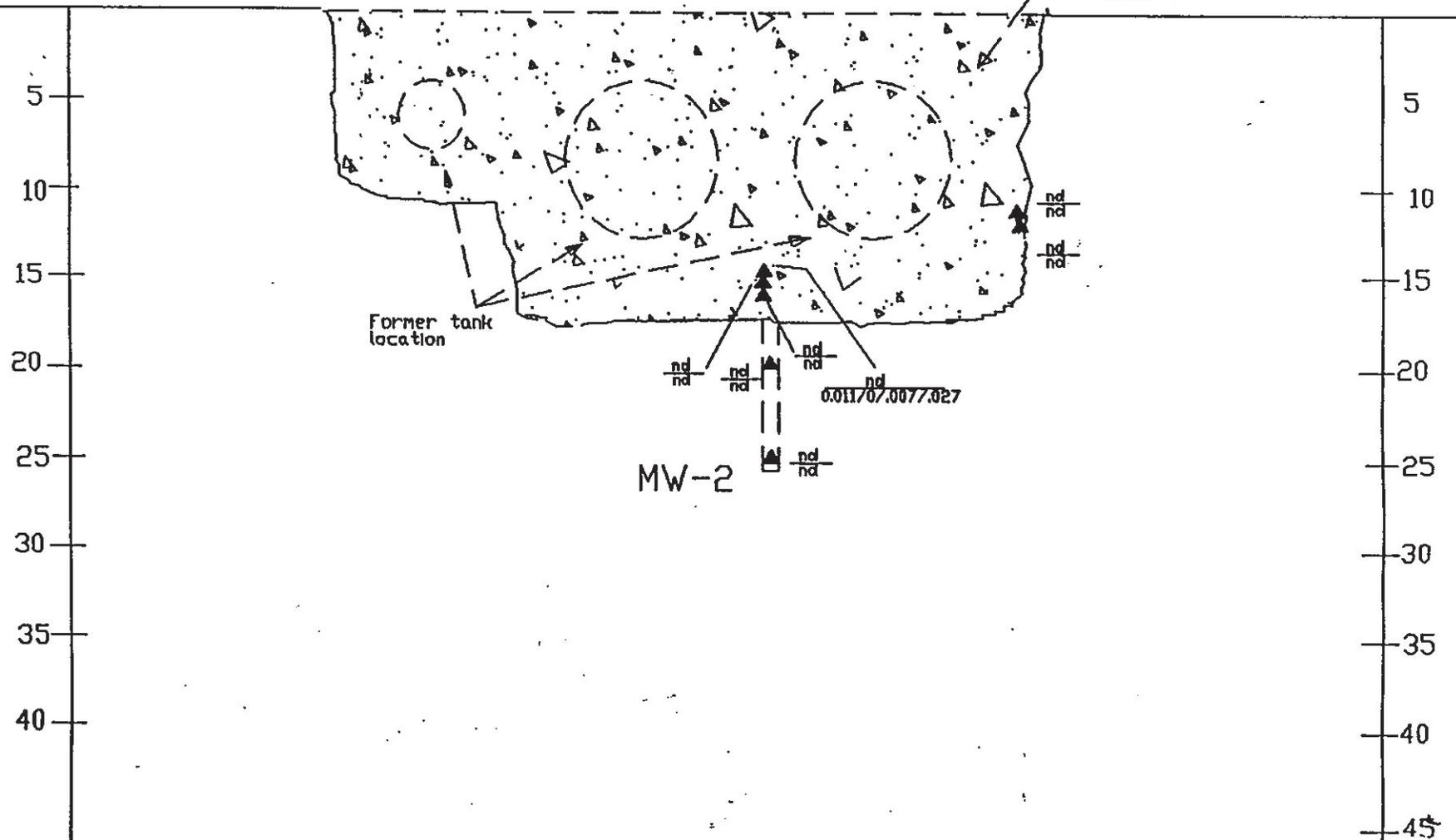
Date: July 1993  
 Job No: 11949  
 Sheet No:  
 3 of 3

B (West)

### TANK # 5,6,& 7 EXCAVATION

B' (East)

Clean Import fill



Former tank location

MW-2

0.011/0.0077/0.027

nd  
nd

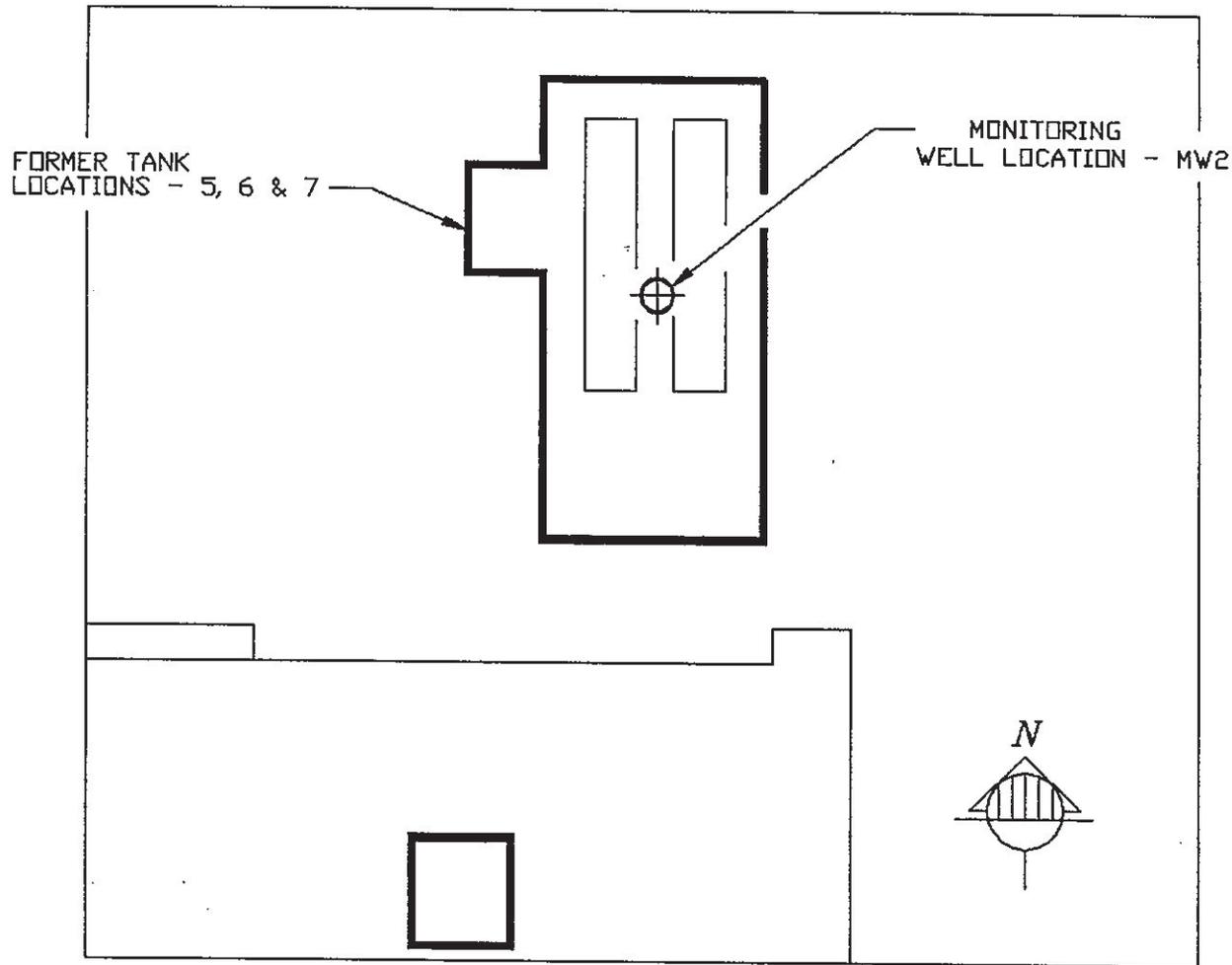
#### LEGEND

- nd Upper number designates TPH as gasoline in ppm
- nd, Ex Lower number designates Benzene, Ethyl benzene, Toluene, and Xylene in parts per billion ppb
- nd This analyte was not detected
- ppm Parts per million
- ppb Parts per billion
- H-1 Boring number
- ▲ Sample location

## CROSS SECTION B-B'

T.T.M.S.

DATE	LOCATION:
JULY, 1993	CHET HOLIFIELD FED. BLDG.



# SO. ENT. AREA SITE PLAN

SCALE: N.T.S.

**LLL T.T.M.S. ENVIRONMENTAL CONSULTING ENGINEERS**

100 CORPORATE POINTE-SUITE 220  
 CULVER CITY, CALIF. 90230  
 (310) 568-8290  
 FAX (310) 565-8299

Project:

**FEDERAL BUILDING**  
 24000 AVILA ROAD  
 LAGUNA NIGEL, CALIF. 92656

Drawn by: J. Jensen  
 Designed by: J. Jensen  
 Checked by: R. Pilat

Site:  
 FEDERAL BUILDING  
 LAGUNA NIGEL

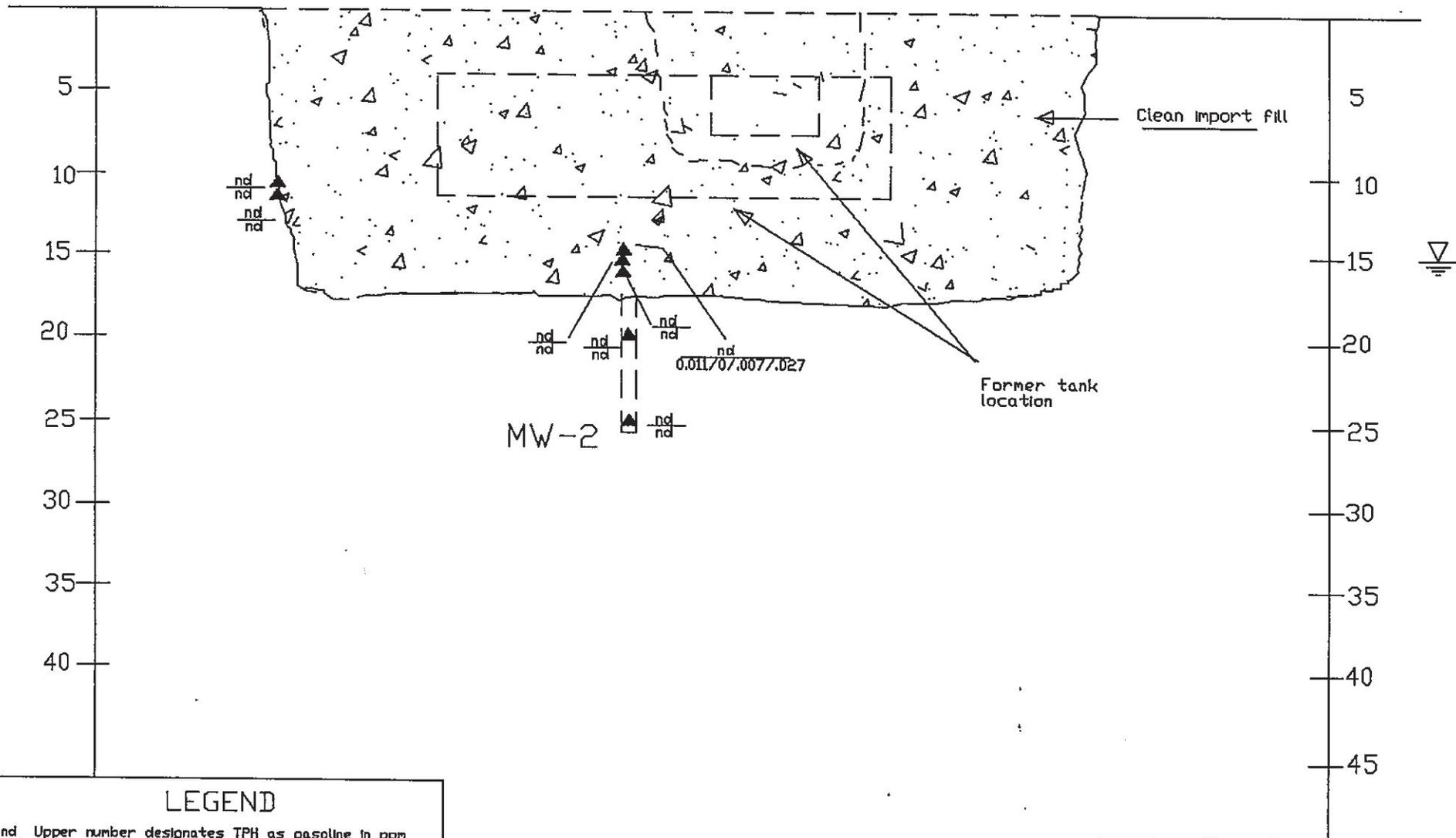
Sheet Description:  
 MONITORING WELL  
 AND BORING LOCATION

Date: July 1993  
 Job No: 11949  
 Sheet No:  
 3 of 3

A (South)

# TANK # 5,6,& 7 EXCAVATION

A' (North)



## LEGEND

- nd Upper number designates TPH as gasoline in ppm
- b,e,t,x Lower number designates Benzene, Ethyl benzene, Toluene, and Xylene in parts per billion ppb
- nd This analyte was not detected
- ppm Parts per million
- ppb Parts per billion
- H-1 Boring number
- ▲ Sample location

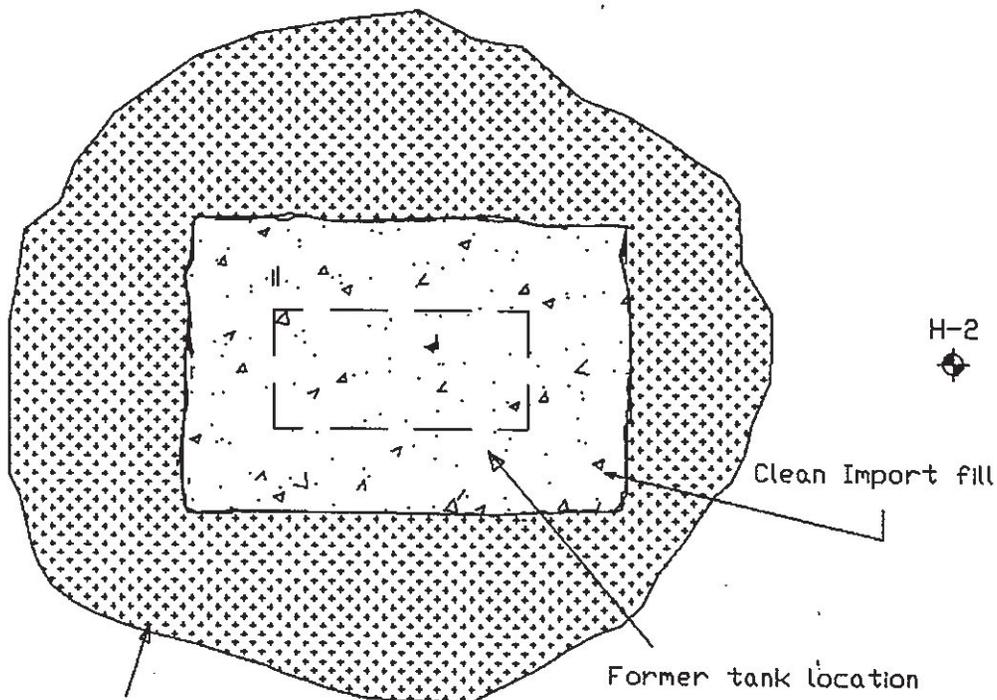
T.T.M.S.

## CROSS SECTION A-A'

DATE	LOCATION
JULY, 1993	CHET HOLIFIELD FED. BLDG.

# TANK # 8 EXCAVATION (SOUTH ENTRANCE)

H-3



H-2



Clean Import fill

Former tank location

Estimated plume limits



H-1

 Boring location

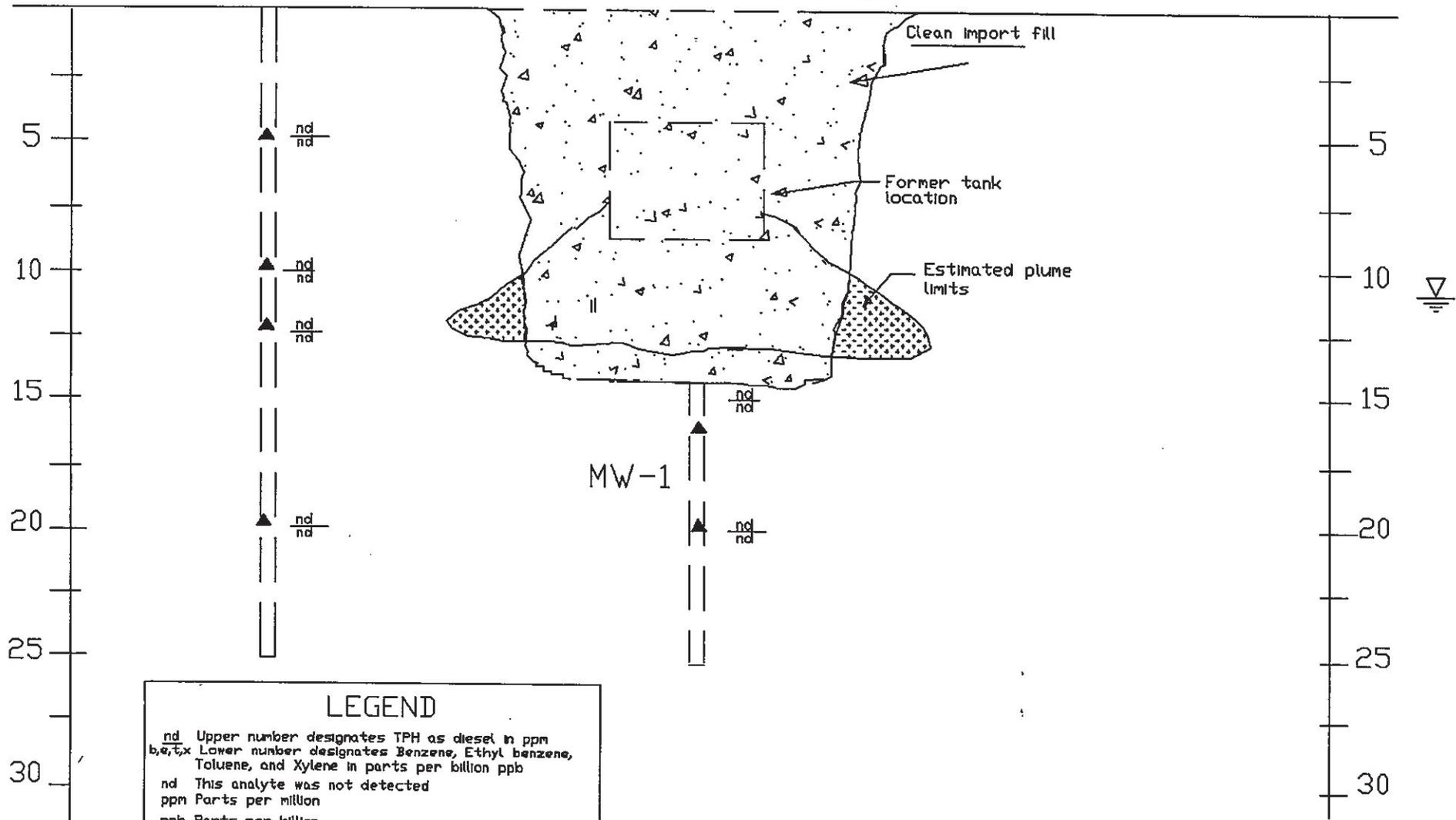
T.T.M.S.

DATE	LOCATION:
JULY, 1993	CHET HOLIFIELD FED. BLDG.

# TANK # 8 EXCAVATION (SOUTH ENTRANCE)

A (South) H-2

A' (North)



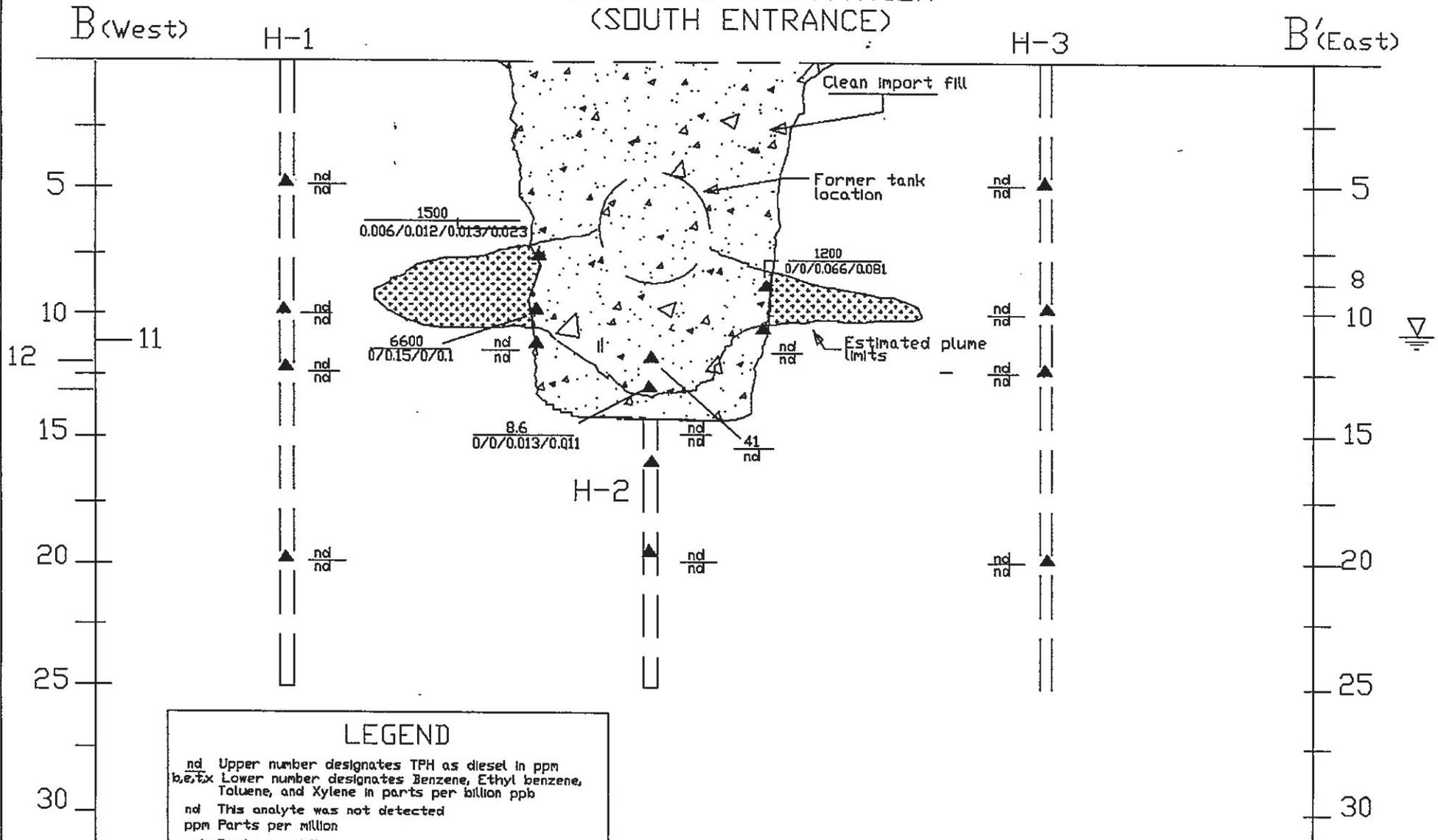
**LEGEND**

nd Upper number designates TPH as diesel in ppm  
 b,e,t,x Lower number designates Benzene, Ethyl benzene,  
 Toluene, and Xylene in parts per billion ppb  
 nd This analyte was not detected  
 ppm Parts per million  
 ppb Parts per billion  
 H-1 Boring number  
 ▲ Sample location

T.T.M.S.	
DATE	LOCATION
JULY, 1993	CHET HOLIFIELD FED. BLDG.

## CROSS SECTION A-A'

# TANK # 8 EXCAVATION (SOUTH ENTRANCE)



**LEGEND**

nd Upper number designates TPH as diesel in ppm  
 nd, x Lower number designates Benzene, Ethyl benzene, Toluene, and Xylene in parts per billion ppb  
 nd This analyte was not detected  
 ppm Parts per million  
 ppb Parts per billion  
 H-1 Boring number  
 ▲ Sample location

## CROSS SECTION B-B'

T.T.M.S.	
DATE	LOCATION
JULY, 1993	CHET HOLIFIELD FED. BLDG.

**APPENDIX A**

**LABORATORY RESULTS OF SOIL AND GROUNDWATER ANALYSIS**

# Analytical Laboratory Report

EPA Methods 8015 Modified / 8020

**Date Sampled:** 6/28/93      **Proj. Mgr:** Mr. Rick Pilot  
**Date Received:** 6/30/93      **Client:** TTMS  
**TPHg/BTEX Analyzed:** 7/7/93      **Project:** Chet Holifield Federal Bldg.  
**TPHd Extracted:** 7/7/93      **Matrix:** Soil  
**TPHd Analyzed:** 7/7/93      **COC #:** NA  
**Date Reported:** 7/8/93      **Report #:** 306104.rpt

Lab ID No.	Field ID No.	Benzene	Toluene	Ethyl benzene	Xylenes - Total	TPHg	TPHd
S6900693	H-1-5'	ND	ND	ND	ND	ND	ND
S6910693	H-1-8'	ND	ND	ND	ND	ND	ND
S6920693	H-1-13'	ND	ND	ND	ND	ND	ND
S6930693	H-1-20'	ND	ND	ND	ND	ND	ND
S6940693	H-2-5'	ND	ND	ND	ND	ND	ND
S6950693	H-2-8'	ND	ND	ND	ND	ND	ND
S6960693	H-2-13'	ND	ND	ND	ND	ND	ND
S6970693	H-2-20'	ND	ND	ND	ND	ND	ND
S6980693	H-3-5'	ND	ND	ND	ND	ND	ND
S6990693	H-3-8'	ND	ND	ND	ND	ND	ND

Detection Limits (DL)	0.005 mg/kg	0.005 mg/kg	0.005mg/kg	0.007 mg/kg	1.0 mg/kg	10 mg/kg
-----------------------	-------------	-------------	------------	-------------	-----------	----------

**COMMENTS:**

**NOTES:**

- NR - Analysis not requested.
- COC - Chain of custody
- ND - Analytes not detected at, or above the stated detection limit.
- TPHg - Total petroleum hydrocarbons as gasoline.
- TPHd - Total petroleum hydrocarbons as diesel #2.
- ng/kg - Milligrams per kilogram (PPM).
- µg/l - Microgram per Litre (PPB).
- DL - Detection limit.
- DL Factor - Detection Limit Factor
- SDL - Specific Detection Limit - Multiply DL by the DL Factor to obtain the detection limit for a specific Field ID No.

**PROCEDURES:**

- BTEX - This analysis was performed in using with EPA Method 8020, and EPA Method 5030.
- TPHg - This analysis was performed in using with EPA Method 8015 Mod., and EPA Method 5030.
- TPHd - This analysis was performed in using with EPA Method 8015 Mod. and CA State Certified Method.

**CERTIFICATION:**

California Department of Health Services ELAP Certificate #1774  
 Onsite Environmental Laboratories, 856 South Lime Street, Anaheim, CA 92805 (714) 533-3322.

  
 Laboratory Representative.  
 For Frank Jaime

7/12/93  
 Date

# Analytical Laboratory Report

EPA Methods 8015 Modified / 8020

Date Sampled: 6/28/93  
Date Received: 6/30/93  
TPHg/BTEX Analyzed: 7/7/93  
TPHd Extracted: 7/7/93  
TPHd Analyzed: 7/7/93  
Date Reported: 7/8/93

Proj. Mgr: Mr. Rick Pilot  
Client: TTMS  
Project: Chet Holifield Federal Bldg.  
Matrix: Soil  
COC #: NA  
Report #: 306104A.rpt

Lab ID No.	Field ID No.	Benzene	Toluene	Ethyl benzene	Xylenes - Total	TPHg	TPHd
S6700693	H-3-13'	ND	ND	ND	ND	ND	ND
S6710693	H-3-20'	ND	ND	ND	ND	ND	ND
S6720693	MW-1-15'	ND	ND	ND	ND	ND	ND
S6730693	MW-1-20'	ND	ND	ND	ND	ND	ND
S6740693	MW-1-25'	ND	ND	ND	ND	ND	ND
S6750693	MW-2-20'	ND	ND	ND	ND	ND	ND
S6760693	MW-2-25'	ND	ND	ND	ND	ND	ND

<b>Detection Limits (DL)</b>	0.005 mg/kg	0.005 mg/kg	0.005mg/kg	0.007 mg/kg	1.0 mg/kg	10 mg/kg
------------------------------	-------------	-------------	------------	-------------	-----------	----------

**COMMENTS:**

**NOTES:**

- NR - Analysis not requested.
- COC - Chain of custody
- ND - Analytes not detected at, or above the stated detection limit.
- TPHg - Total petroleum hydrocarbons as gasoline.
- TPHd - Total petroleum hydrocarbons as diesel #2.
- mg/kg - Milligrams per kilogram (PPM).
- ug/l - Microgram per Litre (PPB).
- DL - Detection limit.
- DL Factor - Detection Limit Factor
- SDL - Specific Detection Limit - Multiply DL by the DL Factor to obtain the detection limit for a specific Field ID No.

**PROCEDURES:**

- BTEX - This analysis was performed in using with EPA Method 8020, and EPA Method 5030 .
- TPHg - This analysis was performed in using with EPA Method 8015 Mod., and EPA Method 5030.
- TPHd - This analysis was performed in using with EPA Method 8015 Mod. and CA State Certified Method.

**CERTIFICATION:**

California Department of Health Services ELAP Certificate #1774  
Onsite Environmental Laboratories, 856 South Lime Street, Anaheim, CA 92805 (714) 533-3322.

  
\_\_\_\_\_  
Laboratory Representative  
For Frank Jaime

7/12/93  
\_\_\_\_\_  
Date

# Analytical Laboratory Report

EPA Methods 8015 Modified / 8020

<b>Date Sampled:</b>	7/2/93	<b>Proj. Mgr:</b>	Mr. Rick Pilot
<b>Date Received:</b>	7/2/93	<b>Client:</b>	TTMS
<b>TPHg/BTEX Analyzed:</b>	7/6/93	<b>Project:</b>	Chet Holifield Federal Bldg.
<b>TPHd Extracted:</b>	7/6/93	<b>Matrix:</b>	Water
<b>TPHd Analyzed:</b>	7/6/93	<b>COC #:</b>	NA
<b>Date Reported:</b>	7/8/93	<b>Report #:</b>	307004.rpt

Lab ID No.	Field ID No.		Benzene	Toluene	Ethyl benzene	Xylenes - Total	TPHg	TPHd	
S0010793	MW-1		ND	ND	ND	ND	ND	NR	
S0020793	MW-2		ND	ND	ND	ND	ND	NR	

<b>Detection Limits (DL)</b>	0.5 ug/l	0.5 ug/l	0.5 ug/l	0.5 ug/l	50 ug/l	50 ug/l
------------------------------	----------	----------	----------	----------	---------	---------

**COMMENTS:**

**NOTES:**

- NR - Analysis not requested.
- COC - Chain of custody
- ND - Analytes not detected at, or above the stated detection limit.
- TPHg - Total petroleum hydrocarbons as gasoline.
- TPHd - Total petroleum hydrocarbons as diesel #2.
- mg/kg - Milligrams per kilogram (PPM).
- ug/l - Microgram per Litre (PPB).
- DL - Detection limit.
- DL Factor - Detection Limit Factor
- SDL - Specific Detection Limit - Multiply DL by the DL Factor to obtain the detection limit for a specific Field ID No.

**PROCEDURES:**

- BTEX - This analysis was performed in using with EPA Method 8020, and EPA Method 5030 .
- TPHg - This analysis was performed in using with EPA Method 8015 Mod., and EPA Method 5030.
- TPHd - This analysis was performed in using with EPA Method 8015 Mod. and CA State Certified Method.

**CERTIFICATION:**

California Department of Health Services ELAP Certificate # 1774  
 Onsite Environmental Laboratories, 856 South Lime St., Anaheim, CA 92805 (714) 533-3322.

  
 \_\_\_\_\_  
 Laboratory Representative

7-13-93  
 \_\_\_\_\_  
 Date

**CHET HOLIFIELD FEDERAL BUILDING  
24000 Avila Road  
Laguna Niguel, California 92677**

**REPORT DOCUMENTING THE  
REMOVAL OF UNDERGROUND STORAGE  
TANKS**

**FOR**

**GENERAL SERVICES ADMINISTRATION  
350 S. FIGUEROA ST., #301  
LOS ANGELES, CALIFORNIA 90071**

**GSA PROJECT NO. RCA 21418  
GSA CONTRACT NO. GS-09P-93-NPC-0021**

**JULY 19, 1993**

  
**HAMID REZA ASSADI, R.E.A.  
VICE PRESIDENT**



  
**S. DERAVI, P.E.  
REGISTERED CIVIL ENGINEER**



**CHET HOLIFIELD FEDERAL BUILDING  
24000 Avila Road  
Laguna Niguel, California 92677**

**REPORT DOCUMENTING THE  
REMOVAL OF UNDERGROUND STORAGE  
TANKS**

**GSA PROJECT NO. RCA 21418  
GSA CONTRACT NO. GS-09P-93-NPC-0021**

**Prepared For**

**General Services Administration  
350 S. Figueroa St., #301  
Los Angeles, California 90071**

**&**

**County of Orange Health Care Agency  
2009 E. Edinger Ave.  
Santa Ana, California 92705**

**JULY 19, 1993**

**By**

**T.T.M.S., INC.  
100 Corporate Point, Suite 220  
Culver City, California 90230  
Phone: (310) 568-8290**

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## **APPENDICES**

- A. Figures
- B. Laboratory Results & Chain of Custody Report
- C. Uniform Hazardous Waste Manifests and Certificates
- D. Permits
- E. Compaction Reports
- F. Standard Sampling Procedures
- G. Site Safety Plan
- H. Non-Hazardous Waste Manifests
- J. County of Orange Letters

## **1. EXECUTIVE SUMMARY**

T.T.M.S., Inc. was retained by the United States Government, General Services Administration to remove: two (2) 10,000 gallon gasoline underground storage tanks (U.S.T.'s), two (2) 10,000 gallon diesel U.S.T.'s, one (1) 550 gallon diesel U.S.T., one (1) 550 gallon waste oil U.S.T., and one (1) 5000 gallon above ground sulfuric acid tanks. The six (6) underground and one (1) above ground storage tanks were located at the Chet Holifield Federal Building, 24000 Avila Rd., Laguna Niguel, Ca., 92677. (All related maps and plans are in Appendix A)

Before commencement of the work, the location was visited by a TTMS Inc. representative who drafted a site plan showing the orientation of the tanks and their associated product lines. Underground utilities and structures located on the property were also identified and noted. (See Figure 1 in Appendix A)

Permits were obtained on January 19, 1993, from the County of Orange Health Care Agency, and on January 29, 1993, from the County of Orange Fire Department (Copies of which are enclosed in Appendix D). Once the appropriate permits were obtained, Digalert (ref. #471-975) and South Coast Air Quality Management District (SCAQMD) (ref. #EA-93-0157), were notified.

On January 26, 1993, dry ice was placed in the tanks. Excavation began on January 26, and on January 27, Tanks #3, #4, #5, #6, #7, and #8 were fully exposed. All associated lines to the seven (7) tanks were removed and the tanks were prepared for removal. A fence was erected around each tank farm excavation site.

On January 28, 1993, Tanks #6 and 7 were degassed and a lower explosive level (LEL) reading of zero (0) was obtained in each tank. All of the tanks were decontaminated, associated fluids pumped and transported by American Oil Company to an approved TSD (Industrial Service Company). The tanks were certified "non-hazardous" by an industrial hygienist (CTL Environmental Services) and removed under the supervision of Inspector Lambeth of the County of Orange Fire Department and Inspector Puepke of the County of Orange Environmental Health Care Agency, Hazardous Materials Section. The tanks were transported on January 29, 1993 to American Metal Recycling and D.W. Russell Company for destruction. (Manifests, Certificates and other supporting documents are in Appendix C)

After the removal of the tanks from the excavations, on January 29, 1993, under the supervision of Inspector Puepke of the County of Orange Environmental Health Care Agency, Hazardous Materials Section, seventeen (17) soil samples were extracted from two (2) feet beneath the invert of the underground storage tanks, and two (2) feet beneath the surface of the stockpiled soil.

Samples were sent to American Analytics Laboratory for analysis. The soil samples collected at tank #3 & #4 were tested using Environmental Protection Agency (EPA) Method 8015m (Diesel), 8020 BTXE. The soil samples collected at Tanks #6 and #7 were tested using Environmental Protection Agency (EPA) Method 8015m (Gas), 8020 BTXE. The soil samples collected at Tank #8 were tested using Environmental Protection Agency (EPA) Method 8015m (Diesel), and 8020 BTXE. The soil sample collected at Tank #5 was tested using Environmental Protection Agency (EPA) Method 418.1.

The analytical results, received and reviewed on February 1, 1993, determined the presence of contamination in the excavations beneath tanks #7 and #8, and at the northern end of the stockpiled soils for Tanks #6 and #7. Samples #SST7S, #SST8C, and #SSSP6-7N were determined to have concentrations of contaminants above action levels at the detection limit tested. (See Appendix B for laboratory results)

## **2. SITE DESCRIPTION**

The site is located at the Chet Holifield Federal Building, 24000 Avila Road., Laguna Niguel California 92656. The property consists of several parking lots, and a multi-story office building. The three underground storage tank removal areas are located to the north, south, and west of the main building. The northern site contained two (2) 10,000 gallon diesel underground and one (1) 5000 gallon above ground sulfuric acid tanks. The western site contained one (1) 500 gallon waste oil, and two (2) 10,000 gallon diesel underground storage tanks. The southern site contained one (1) 500 gallon diesel underground storage tank. The underground storage tanks were four (4) feet below the surface. Figure 2 in Appendix A shows the locations of the tanks.

## **3. GROUNDWATER CONDITIONS**

The depth to groundwater in the western (Tank #5-7) excavation was 14 feet below grade (documented January 29, 1993). Groundwater was not encountered at the northern (Tank #3-4) site in the 14-foot deep excavation nor at the southern (Tank #8) site in the 13-foot deep excavation.

#### **4. FIELD OPERATIONS AND OBSERVATIONS**

The tanks were exposed on January 27, 1993. During the excavation emission levels were monitored for levels of volatile hydrocarbon emissions. An OVA (Gastech 1314) was used for this purpose. The recorded levels of volatiles are shown in Table 1A, 1B, & 1C and were measured for several depths during the process of excavation. The readings were taken 3 inches above the excavated soil. Hydrocarbon emission levels were continuously monitored and logged every 15 minutes during excavation.

On January 28, 1993 the gasoline tanks were degassed. Windows measuring approximately 2' X 2' were then cut on top of each tank. In accordance with County of Orange Fire Department requirements, the tanks were pressure washed, decontaminated and lower explosive level (LEL) readings of zero (0) were obtained. After certification of the tank as non-hazardous, the tanks were transported to American Metal Recycling and D.W. Russell Co. as scrap metal for destruction. (See Appendix C).

All associated fluids were transported by American Oil Company to a recycling facility (Industrial Services Company). (See Appendix C for certificates of disposal)

After the removal of the tanks from the excavations under the supervision of Inspector Puepke of the County of Orange Environmental Health Department, Hazardous Materials Section, seventeen (17) soil samples were extracted from two (2) feet beneath the invert of the underground storage tanks, and two (2) feet beneath the surface of the stockpiled soil. Samples were sent to American Analytics Laboratory for analyses. (See Table 2 and Table 3 for location of soil samples and results of field monitoring)

Following the extraction of the samples, two (2) sampling tubes were removed from sampler and a set of samples was prepared for shipment to the laboratory (Chain of Custody and lab results in Appendix B). The ends of the sampling tubes were then wrapped with plastic tape to reduce the possibility of volatilization (See Appendix F for standard soil sampling procedure). Duplicate soil samples were obtained and monitored using a Gastech model 1314. The result of field monitoring of duplicate soil samples are shown in Table 3.

Following the sampling process the samples were placed in an ice chest with blue ice and sent to American Analytics (state certified laboratory) for analysis.

**Table 1A:** The Results of Field Monitoring - Tanks #3 and #4:

TIME OF READING	LOCATION OF READING	OVA READING (ppm)
8:45	3" ABOVE STOCKPILED SOIL	ND
9:00	" " " " "	ND
9:15	" " " " "	ND
9:30	" " " " "	ND
9:45	" " " " "	ND
10:00	" " " " "	ND
10:15	" " " " "	ND
10:30	" " " " "	ND
10:45	" " " " "	ND
11:00	" " " " "	ND
11:15	" " " " "	ND
11:30	" " " " "	ND
11:45	" " " " "	ND
12:00	" " " " "	ND
END OF EXCAVATION @ 1200 ON 1-28-93		

**Table 1B:** The Results of Field Monitoring - Tank #8:

TIME OF READING	LOCATION OF READING	OVA READING (ppm)
1200	3" ABOVE STOCKPILED SOIL	
1215	" " " " "	ND
1230	" " " " "	ND
1245	" " " " "	ND
1300	" " " " "	ND
1315	" " " " "	ND
1330	" " " " "	ND
1345	" " " " "	ND
1400	" " " " "	ND
END OF EXCAVATION @ 1410 on 1-28-93		

**Table 1C:** The Results of Field Monitoring - Tanks #5, 6 and 7:

TIME OF READING	LOCATION OF READING	OVA READING (ppm)
0700	3" ABOVE THE STOCKPILED SOIL	ND
0715	" " " " "	ND
0730	" " " " "	ND
0800	" " " " "	ND
0815	" " " " "	ND
0830	" " " " "	ND
0845	" " " " "	ND
0900	" " " " "	ND
0915	" " " " "	ND
0930	" " " " "	ND
0945	" " " " "	ND
1000	" " " " "	ND
1015	" " " " "	ND
1030	" " " " "	ND
1045	" " " " "	ND
1100	" " " " "	ND
1115	" " " " "	ND
1130	" " " " "	ND
1145	" " " " "	ND
1200	" " " " "	ND
1215	" " " " "	ND
1230	" " " " "	ND
1245	" " " " "	ND
1300	" " " " "	ND
1315	" " " " "	ND
END OF EXCAVATION @ 1320 ON 1-27-93		

**ND** Not Detectable

Instrument Used: Gastech 1314      Date Calibrated: Jan. 27-28, 1993  
 Logged by: George Valdespino      Job Address: Federal Building  
 Date: Jan. 27-28, 1993      Laguna Niguel, Ca.  
 92656

**Table 2:** Results of field monitoring of duplicate soil samples

SAMPLE NUMBER	SAMPLE LOCATION	OVA READING (ppm)
SST8C	CENTER OF 500 GALLON DIESEL TANK #8	ND
SSSP8C	CENTER OF TANK #8 STOCKPILE	ND
SST5C	CENTER OF 500 GAL. WASTE OIL TANK #5	ND
SSSP6-7S	SOUTH END OF STOCKPILE FOR TANK #6 & #7	ND
SSSP6-7E	EAST END OF STOCKPILE FOR TANKS #6 & #7	ND
SSSP6-7W	WEST END OF STOCKPILE FOR TANKS #6 & #7	ND
SSSP6-7N	NORTH END OF STOCKPILE FOR TANKS #6 & #7	ND
SST6S	SOUTH END OF TANK #6	ND
SST6N	NORTH END OF TANK #6	ND
SST7S	SOUTH END OF TANK #7	ND
SST7N	NORTH END OF TANK #7	ND
SSSP3-4N	NORTH END OF STOCKPILE FOR TANKS #3 & #4	ND
SSSP3-4S	SOUTH END OF STOCKPILE FOR TANKS #3 & #4	ND
SST3N	NORTH END OF TANK #3	ND
SST3S	SOUTH END OF TANK #3	ND
SST4N	NORTH END OF TANK #4	ND
SST4S	SOUTH END OF TANK #4	ND

ND- Non Detected

## 5.0 LABORATORY ANALYSES

The results of the laboratory analyses indicate the presence of contamination at the southern end of tank #7, at the northern and southern ends of the stockpile for tanks #6 & #7, and at the center of tank #8. The soil samples collected at tank #3 & #4 were tested using Environmental Protection Agency (EPA) Method 8015m (Diesel), 8020 BTXE. The soil samples collected at tank #6 & #7 were tested using Environmental Protection Agency (EPA) Method 8015m (Gas), 8020 BTXE. The soil samples collected at tank #8 were tested using Environmental Protection Agency (EPA) Method 8015m (Diesel), and 8020 BTXE. The soil sample collected at tank #5 was tested using Environmental Protection Agency (EPA) Method 418.1.

**Table 3A:** Laboratory Analysis Results

SAMPLE NUMBER	TPH (8015) Gas (ppm)	TPH (8015) Diesel (ppm)	TRPH (418.1) (ppm)
SST8C		220	
SSSP8C		ND	
SST5C			10
SSSP6-7S	ND		
SSSP6-7E	ND		
SSSP6-7W	ND		
SSSP6-7N	ND		
SST6S	ND		
SST6N	ND		
SST7S	ND		
SST7N	ND		
SSSP3-4N		ND	
SSSP3-4S		ND	
SST3N		ND	
SST3S		ND	
SST4N		ND	
SST3S		ND	

Soil sample #SST7S, extracted two (2) feet beneath the invert of southern end of Tank #7, displayed levels of contamination for Benzene, Toluene, Ethylbenzene, and Xylenes. Soil sample #SST8C, extracted two (2) feet beneath the invert of the center of Tank #8, displayed elevated levels for total petroleum hydrocarbons. Soil sample #SSSP6-7N and #SSSP6-7S extracted two (2) feet beneath surface of the stockpiled soils displayed levels of xylenes. Tables 4A and 4B list the laboratory analysis results of the soil sample. Concentrations of contaminants were present at the detection limits tested. (See Appendix B).

**Table 3B: Laboratory Analysis Results**

SAMPLE NUMBER	BENZENE (ppb)	ETHYLBENZENE (ppb)	TOLUENE (ppb)	XYLENE (ppb)
SST8C	ND	ND	ND	ND
SSSP8C	ND	ND	ND	ND
SST5C				
SSSP6-7S	ND	ND	ND	34
SSSP6-7E	ND	ND	ND	ND
SSSP6-7W	ND	ND	ND	ND
SSSP6-7N	ND	ND	ND	29
SST6S	ND	ND	ND	ND
SST6N	ND	ND	ND	ND
<del>SST7S</del>	<del>11</del>	<del>14</del>	<del>48</del>	<del>91</del>
SST7N	ND	ND	ND	ND
SSSP3-4N	ND	ND	ND	ND
SSSP3-4S	ND	ND	ND	ND
SST3N	ND	ND	ND	ND
SST3S	ND	ND	ND	ND
SST4N	ND	ND	ND	ND
SST4S	ND	ND	ND	ND

ND- Not Detected

## **6. CONCLUSIONS**

Based on the analytical results provided by the laboratory, visual, olfactory and field monitoring:

The excavation at Tanks #3 and #4 (water cooling plant) was found to contain no contamination.

The samples extracted from the excavation at Tanks #5, #6 and #7 (service station facility) displayed levels of contamination for Benzene, Toluene, Ethylbenzene, and Xylenes at **Tank #7 only**. The samples at Tank #6 were found to contain no contamination; however, due to Tank #6 proximity to Tank #7 further investigation can not be ruled out. The sample at Tank #5 was found to contain very low levels of Total Recoverable Petroleum Hydrocarbons (TRPH) contamination, which may be naturally occurring.

The samples extracted from the excavation at Tank #8 (south entrance) displayed elevated levels of Total Petroleum Hydrocarbon (TPH) contamination.

## **7. RECOMMENDATIONS AND FOLLOW UP**

The following recommendations were made:

### **1. Tank Locations #3, #4, & #4a**

Based on the findings from the sampling plan and analytical results, no further action is recommended at Tanks #3, #4 and #4a.

### **2. Tank Locations #5, #6, #7, & #8**

Based upon the laboratory analysis, visual, olfactory, field observations and the report titled, Post UST Removal Soil Sampling and Remedial Excavation Activities, dated April 12, 1993, it was recommended that further soil and groundwater assessment be performed in the southern area of Tank #8 (south entrance) and at the location of Tanks #5, #6, and #7 (service station facility) to further assess the extent of petrochemical contamination.

Following the above remedial operations and based upon the recommendations of the report of those activities titled, Post UST Removal Soil Sampling and Remedial Excavation Activities, additional soil and groundwater assessment activities took place between June 28 and July 1, 1993. The results, observations, and closing recommendations from the additional soil and groundwater assessment can be found in the report titled, Additional Soil and Groundwater Assessment, dated July 19, 1993.

The report titled Additional Soil and Groundwater Assessment recommends one (1) additional quarterly water sampling be performed at the locations of Tank #8 (south entrance) and Tanks #5, #6, and #7 (service station facility). If no groundwater contamination is detected at these sites, the sites should be closed with regard to any potential health threat from the former UST releases.

#### **Follow-up Proceeding the Recommendations and Remedial Action:**

On March 15 and 16, 1993, non-hazardous contaminated soil (based upon laboratory results) was removed from the excavation of Tanks #6 and #7 (service station facility), and from the excavation of Tank #8 (south entrance).

These activities were monitored by Inspector Strozier of the County of Orange Environmental Health Care Agency, Hazardous Materials Section.

Documentation of these activities is provided in the report titled, Post UST Removal Soil Sampling and Remedial Excavation Activities, dated April 12, 1993.

On March 17, 1993, non-compactable soil was found beneath the concrete pad at Tank #4a (water cooling plant). This soil was found to contain excessive moisture content and 95% maximum dry density could not be achieved. This observation was witnessed by GSA field representative, Mr. Channing Tucker. Based upon the unsuitability of the soil for compaction, 15 tons of this material was removed and replaced with 15 tons of clean imported compactable soil. The non-compactable soil was stockpiled, covered with plastic sheeting for dust control, and scheduled for disposal at a later date.

On March 17 and 18, 1993, the excavation which had contained Tanks #3 and #4 (water cooling plant) was backfilled using existing clean stockpiled soils and approximately 200 tons of clean imported soils. The excavation was then compacted to 95% maximum dry density while monitored by a soil technician from ACCES. See appendix E for compaction reports.

On March 23, 1993, approximately 100 tons of excavated non-hazardous contaminated soil from Tanks #6 and #7 (service station facility), and approximately 82 tons of excavated non-hazardous contaminated soil from Tank #8 (south entrance) were profiled (ref # 15427) and disposed of at a state of California licensed class II disposal facility, Gibson Environmental (See Appendix G).

On that same day, the area over the since removed Tanks #3, #4, and #4a (water cooling plant) was resurfaced with asphaltic concrete paving. The resurfacing met contract requirements and specifications.

On May 10, 1993, the original stockpiled soil from Tanks #5, #6, and #7 (service station facility) was profiled and approved for disposal by Inspector Crail of the County of Orange Environmental Health Care Agency, Materials Regulation Supervisor, as (Class III) non-hazardous waste.

On May 12, 1993, 358.99 tons of stockpiled soil, excavated during the tank removal phase on January 27-28, 1993, from Tanks #5, #6, and #7 (service station facility) was disposed of at the County of Orange owned and operated, Frankbowerman Landfill (Class III), as non-hazardous waste. See Appendix J for permit letters from the County of Orange.

On May 13 and 14, 1993, the tank excavation which had contained Tanks #5, #6, and #7 (service station facility) was backfilled using approximately 500 tons of clean imported soils. The excavation was then compacted to 95% maximum dry density while monitored by a soil technician from ACCES. See appendix E for compaction reports

On May 14, 1993, the tank excavation which had contained Tank #8 (south entrance) was backfilled using approximately 90 tons of clean imported soils. The excavation was then compacted to 95% maximum dry density while monitored by a soil technician from ACCES. See appendix E for compaction reports

On May 17, 1993, the area over the since removed Tanks #5, #6, and #7 was resurfaced with asphaltic concrete pavings. The resurfacing met contract requirements and specifications.

On that same day the non-compactable soil found beneath the concrete pad at Tank #4a (water cooling plant), which had since been stockpiled and held for disposal, was disposed off at Ewles Materials, Stanton Ca., as clean material.

On May 18, 1993, the surface area over the since removed Tank #8 (south entrance) was reseeded with grass, the resurfacing met contract requirements and specifications.

## 8. DISCLAIMER

All properties are subject to some environmental risks. These risks cannot be eliminated completely. Many commercial and industrial properties that were developed prior to the enactment of modern environmental laws are particularly prone to risks associated with environmental hazards which include, but are not limited to materials or wastes which might be toxic, ignitable, corrosive or reactive. The identification or mitigation of the potential environmental hazards from the work that has been performed or prior to the development or redevelopment of the property can lead to the reduction or elimination of the impact of the environmental hazards on the use of the property. In some cases, it is not possible to ascertain that hazardous materials/wastes are present on the property prior to development.

No warranty, expressed or implied, of any kind is made or intended in connection with this report, or by any other oral or written statement.



Christopher R. Thixton  
Project Manager



Hamid Reza Assadi  
Vice President



**LABORATORY ANALYSIS RESULTS**

Client: TTMS, Inc.  
Project No.: 11875  
Project Name: Chet Holifield Federal Building  
Sample Matrix: Soil  
Method: EPA 8020 (BTEX)/8015M (Gasoline)

AA Project No.: A10781  
Date Sampled: 1/29/93  
Date Received: 1/30/93  
Date Reported: 2/1/93

Date Analyzed:	1/30/93	1/30/93	1/30/93	1/30/93	Reporting	Units
AA I.D. #:	13308	13309	13311	13312	Detection Limits	
Client I.D. #:	SST8C	SSSP8C	SSSP6-7S	SSSP6-7E		

**Compound**

Benzene	<5	<5	<5	<5	5	µg/Kg
Toluene	<5	<5	<5	<5	5	µg/Kg
Ethylbenzene	<5	<5	<5	<5	5	µg/Kg
Xylenes	<10	<10	34	<10	10	µg/Kg
Gasoline Range Organics			<2	<2	2	mg/Kg

<: Not detected at or above the value of the concentration indicated.

  
George Havalias  
Laboratory Director

mls



## LABORATORY ANALYSIS RESULTS

Client: TTMS, Inc.  
Project No.: 11875  
Project Name: Chet Holifield Federal Building  
Sample Matrix: Soil  
Method: EPA 8020 (BTEX)/8015M (Gasoline)

AA Project No.: A10781  
Date Sampled: 1/29/93  
Date Received: 1/30/93  
Date Reported: 2/1/93

Date Analyzed:	1/30/93	1/30/93	1/30/93	1/30/93	Reporting	Units
AA I.D. #:	13313	13314	13315	13316	Detection Limits	
Client I.D. #:	SSSP6-7W	SSSP6-7N	SST6S	SST6N		
<u>Compound</u>						
Benzene	<5	<5	<5	<5	5	µg/Kg
Toluene	<5	<5	<5	<5	5	µg/Kg
Ethylbenzene	<5	<5	<5	<5	5	µg/Kg
Xylenes	<10	29	<10	<10	10	µg/Kg
Gasoline Range Organics	<2	<2	<2	<2	2	mg/Kg

<: Not detected at or above the value of the concentration indicated.

  
George Havalias  
Laboratory Director

mls



**LABORATORY ANALYSIS RESULTS**

Client: TTMS, Inc.  
Project No.: 11875  
Project Name: Chet Hollifield Federal Building  
Sample Matrix: Soil  
Method: EPA 8020 (BTEX)/8015M (Gasoline)

AA Project No.: A10781  
Date Sampled: 1/29/93  
Date Received: 1/30/93  
Date Reported: 2/1/93

Date Analyzed:	1/30/93	1/30/93	1/30/93	1/30/93	Reporting	Units
AA I.D. #:	13317	13318	13319	13320	Detection Limits	
Client I.D. #:	SST7N	SST7S	SSSP3-4N	SSSP3-4S		
<u>Compound</u>						
Benzene	<5	11	<5	<5	5	µg/Kg
Toluene	<5	48	<5	<5	5	µg/Kg
Ethylbenzene	<5	14	<5	<5	5	µg/Kg
Xylenes	<10	91	<10	<10	10	µg/Kg
Gasoline Range Organics	<2	<2			2	mg/Kg

<: Not detected at or above the value of the concentration indicated.

  
George Havalias  
Laboratory Director

mls



**LABORATORY ANALYSIS RESULTS**

**Client:** TTMS, Inc.  
**Project No.:** 11875  
**Project Name:** Chet Holifield Federal Building  
**Sample Matrix:** Soil  
**Method:** EPA 8020 (BTEX)

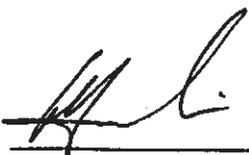
**AA Project No.:** A10781  
**Date Sampled:** 1/29/93  
**Date Received:** 1/30/93  
**Date Reported:** 2/1/93

Date Analyzed:	1/30/93	1/30/93	1/30/93	1/30/93	Reporting	
AA I.D. #:	13321	13322	13323	13324	Detection Limits	Units
Client I.D. #:	SST3N	SST3S	SST4N	SST4S		

**Compound**

Benzene	<5	<5	<5	<5	5	µg/Kg
Toluene	<5	<5	<5	<5	5	µg/Kg
Ethylbenzene	<5	<5	<5	<5	5	µg/Kg
Xylenes	<10	<10	<10	<10	10	µg/Kg

<: Not detected at or above the value of the concentration indicated.

  
George Havalias  
Laboratory Director

mls



LABORATORY QA/QC REPORT

Client: TTMS  
Method: EPA 8020 (BTEX)/8015M (Gasoline)  
Sample ID: Matrix Spike

AA Project No.: A10781  
Sample Matrix: Soil  
Date Analyzed: 1/30/93  
Date Reported: 2/1/93

Compounds	Spike Recovery (%)	Spike/Duplicate Recovery (%)	RPD (%)
Benzene	99	85	15.2
Toluene	99	84	16.4
Ethylbenzene	100	84	17.4
Xylenes	100	85	16.2
Gasoline Range Organics	86	93	7.8

RPD: Relative Percent Difference.

  
George Havalias  
Laboratory Director

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**LABORATORY ANALYSIS RESULTS**

**Client:** TTMS  
**Project No.:** 11875  
**Project Name:** Chet Holifield Federal Building  
**Sample Matrix:** Soil  
**Method:** EPA 8015M (Diesel)

**AA Project No.:** A10781  
**Date Sampled:** 1/29/93  
**Date Received:** 1/30/93  
**Date Reported:** 2/1/93  
**Units:** mg/Kg

AA I.D. No.	Client I.D. No.	Date Extracted	Date Analyzed	Results	Reporting Detection Limits
13308	SST8C	1/30/93	1/30/93	220	10
13309	SSSP8C	1/30/93	1/30/93	<10	10
13319	SSSP3-4N	1/30/93	1/30/93	<10	10
13320	SSSP3-4S	1/30/93	1/30/93	<10	10
13321	SST3N	1/30/93	1/30/93	<10	10
13322	SST3S	1/30/93	1/30/93	<10	10
13323	SST4N	1/30/93	1/30/93	<10	10
13324	SST4S	1/30/93	1/30/93	<10	10

<: Not detected at or above the value of the concentration indicated.

  
George Havalias  
Laboratory Director

mls



**LABORATORY QA/QC REPORT**

**Client:** TTMS, Inc.  
**Project No.:** 11875  
**Project Name:** Chet Holifield Federal Building  
**Sample Matrix:** Soil  
**Method:** EPA 8015M (Diesel)  
**Sample ID:** Matrix Spike  
**Concentration:** 200 mg/Kg

**AA ID No.:** 13321  
**AA Project No.:** A10781  
**Date Sampled:** 1/29/93  
**Date Extracted:** 1/30/93  
**Date Analyzed:** 1/30/93  
**Date Reported:** 2/1/93

<b>Compounds</b>	<b>Spike Recovery (%)</b>	<b>Spike/Dup. Recovery (%)</b>	<b>RPD (%)</b>
Diesel Range Organics	86	88	2.3

---

**RPD: Relative Percent Difference**

George Havalias  
Laboratory Director

mls



**LABORATORY ANALYSIS RESULTS**

**Client:** TTMS, Inc.  
**Project No.:** 11875  
**Project Name:** Chet Holifield Federal Building  
**Sample Matrix:** Soil  
**Method:** EPA 418.1 (TRPH)

**AA Project No.:** A10781  
**Date Sampled:** 1/29/93  
**Date Received:** 1/30/93  
**Date Analyzed:** 2/1/93  
**Date Reported:** 2/1/93  
**Units:** mg/Kg

AA ID No.	Client ID	Results	Reporting Detection Limits
13310	SST5C	10	5

---

George Havalias  
Laboratory Director

mls



LABORATORY QA/QC REPORT

**Client:** TTMS, Inc.  
**Method:** EPA 418.1 (TRPH)  
**Sample ID:** Matrix Spike  
**Concentration:** 40 mg/Kg

**AA Project No.:** A10781  
**Sample Matrix:** Soil  
**Date Analyzed:** 2/1/93  
**Date Reported:** 2/1/93

Compounds	Spike Recovery (%)	Spike/Duplicate Recovery (%)	RPD (%)
TRPH	101	85	17

---

**TRPH:** Total Recoverable Petroleum Hydrocarbons.  
**RPD:** Relative Percent Difference.

  
George Havalias  
Laboratory Director

mls

**CHET HOLIFIELD FEDERAL BUILDING  
24000 AVILA ROAD,  
LAGUNA NIGUEL, CA 92677**

**REPORT OF POST UNDERGROUND TANK REMOVAL  
SOIL SAMPLING AND REMEDIAL EXCAVATION**

**APRIL 12, 1993**

**PREPARED BY:**

**TTMS INC.  
100 CORPORATE POINTE SUITE #220  
CULVER CITY, CA 90230**

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- F. SUPPLEMENTAL WORKPLAN FOR GROUNDWATER MONITORING WELL INSTALLATIONS.
- G. SOIL REMOVAL MANIFESTS

## 1.0 INTRODUCTION

TTMS Inc was contracted by the General Services Administration, United States Government, for a limited subsurface soil investigation and underground storage tank (UST) removal at the property located at 24000 Avila Road, Laguna Niguel, California.

During UST removals performed by TTMS Inc. on January 28, 1993, visual indications and State Certified Laboratory analysis of soils from beneath the USTs confirmed the presence of hydrocarbon contamination in subsurface soils in the western gasoline fueling area (Tanks 5, 6 and 7) and the southern diesel tank area (Tank 8). All soil sampling and handling was performed under the direction of Orange County Health Care Agency (O.C.H.C.A.) personnel on site during field activities. Appendix B contains TTMS Inc Report of Removal of Underground Tanks for the facility.

Due to the fact that contamination was discovered, and groundwater was present in one excavation, further assessment was required by O.C.H.C.A.. Since the contamination was apparently localized and relatively minor, contaminated soil was excavated and further soil sampling was conducted on March 15, and 16, 1993 under the direction of O.C.H.C.A.. TTMS Inc Workplan for Soil Remediation Activities is included in Appendix C

Contaminated spoils generated during the March 15, and 16, sampling activities in the western gasoline fueling area (Tanks 5, 6 and 7) and the southern diesel tank area (Tank 8) were profiled and on March 23, 1993 was transported as non-hazardous to Gibson Environmental, Bakersfield, CA and recycled.

One stockpile of soil consisting of approximately 400 to 600 tons from the previous tank removal activities in the western gasoline fueling area (Tanks 5, 6 and 7) remains on site. Analytical test results from soil samples taken the near surface of the stockpile confirmed the presence of low levels of priority pollutants.

TTMS Inc recommends that the soil be treated on site using approved remedial technologies and backfilled or transported to an approved facility for recycling.

TTMS Inc further recommends that further soil and groundwater assessment required by O.C.H.C.A. be performed.

This investigation was conducted solely for the General Services Administration. All work was performed by TTMS in accordance with the investigative protocols developed by TTMS specifically intended for subsurface soils investigations.

## **2.0 SITE DESCRIPTION**

### **2.1 Facility Description / Location**

The facility is located on the south side of Avila Road immediately west of La Paz Road in the City of Laguna Niguel. The property consists of several parking lots and a multi-story office building. The site is located approximately one mile to the east of Aliso Creek. The ground surface of the facility is relatively flat. The two areas of former USTs where the additional assessment and remedial excavation described herein was performed are located to the west and south of the main building.

### **2.2 Local Geologic Conditions**

The site is located a relatively narrow alluvial valley. At the western tank area (Tanks No. 5, 6 and 7) below 4 inches of asphalt concrete (AC), approximately 5 inches of gravel fill was encountered, followed by approximately 5 feet of fine to medium grained sand, which was silty, slightly clayey, pebbly and yellow-brown in color (SM-SW in the United Soil Classification System, USCS). Beneath this was silty clay and black peat-rich sediment, which was moist to wet, has scattered shale pebbles and did not possess a petrochemical odor.

At the southern tank area (Tank No. 8) below a grass lawn, approximately 5 feet of silty sandy clay was encountered, which was mottled white, brown and yellow and was wet. Below this was approximately 4 feet of black peat-rich clay, which was wet to moist and possessed a sulfurous or diesel odor. From the subsurface depths of 9 to 12 feet was yellow diatomaceous shale, which was platy and non-odoriferous. Beneath this shale, brown silty diatomaceous shale was encountered.

### **2.3 Local Hydrogeologic Conditions**

The depth to groundwater in the western (Tank No. 5-7) excavation was 14 feet below ground surface (documented March 16, 1993 with a tape measure.) Groundwater was not encountered in the southern area (Tank No. 8) in the 13-foot deep excavation.

### **3.0 SCOPE OF WORK**

The following services which have been completed by TTMS Inc at the facility are addressed in this report:

March 15 and 16, 1993:

In the western gasoline fueling area (Tanks 5, 6 and 7) and the southern diesel tank area (Tank 8) sample subsurface and stockpiled soils, excavate and stockpile contaminated soil, analyze soil samples onsite with State Certified mobile laboratory. Overseen by Mr. J. Strozier, O.C.H.C.A.

March 23, 1993:

Load and transport for recycling at State Licensed TSDf 181.86 tons of contaminated soil excavated March 15 and 16 from the western gasoline fueling area (Tanks 5, 6 and 7) and the southern diesel tank area (Tank 8).

March 24, 1993:

Preparation of a Revised Workplan for Further Subsurface Assessment as required by the O.C.H.C.A.

### **4.0 FIELD INVESTIGATIVE METHODS**

#### **4.1 Soil Sample Collection**

Soil samples were collected from an excavator bucket using a 2.5 x 3-inch brass sample tubes. The sampler was driven by hand, then covered by foil and capped with plastic. All soil samples were immediately delivered to the mobile Onsite Environmental Laboratories Inc. laboratory. All sampling and chain of custody protocol followed State of California LUFT Manual guidelines. Grab soil samples were obtained from excavation sidewalls and approximately one to two feet below invert of the removed tanks per the O.C.H.C.A. regulator, Mr. James Strozier.

## 4.2 SOIL ANALYSIS

Methods of testing included Environmental Protection Agency (EPA) Method 8020 for benzene, toluene, xylenes, and ethylbenzene (BTXE), California Department of Health Services Method 8015 total petroleum hydrocarbons (TPH) modified for gasoline (Tank 5, 6, and 7) or modified for diesel (Tank 8 area). The specific analysis and tabulated results of the sample analysis is contained in Appendix A: Laboratory Results of Sample Analysis.

## 4.3 Spoils Storage

Spoils and cuttings generated during excavation and tank removal activities were measured for volatile organic compound (VOC) levels using a portable Flame Ionization Detector (FID). The stockpiles were bottom-lined and completely covered with Visqueen sheeting.

It must be noted that secure containment, storage, and disposal of all wastes generated during the subsurface exploration is the responsibility of the owner.

## 5.0 FINDINGS/DISCUSSION

### 5.1 Field Observations

A strong product odor and visible staining was noted during soil excavation activities at the southern (Tank No. 8) site. Only minor olfactory indications of gasoline were present at the western tank area (Tanks No. 5, 6 and 7) and there were no visual indications of contamination in this area.

### 5.2 Laboratory Analysis

For the State certified laboratory analytical results and the detection limits of all the test results see Appendix A.

\* Note:        ppm (parts per million) = mg/kg  
              ppb (parts per billion) = ug/kg

Tabulated results indicating the locations of detected contamination are included in Appendix C.

## **6.0 CONCLUSIONS**

It is concluded from the review of laboratory analytical results that soils place in western tank area (Tanks No. 5, 6 and 7) contain trace levels of benzene toluene and xylene. Soils in place in the southern tank area (Tank No. 8) contain trace levels of benzene toluene and xylene and ethylbenzene and levels of hydrocarbons in the diesel range.

It is concluded from the review of laboratory analytical results that surface soils of the stockpile remaining onsite from the original tank excavation in western tank area (Tanks No. 5, 6 and 7) contain low levels of benzene toluene xylenes and ethylbenzene.

## **7.0 RECOMMENDATIONS**

It is recommended that further subsurface soil and/or groundwater assessment be performed in the southern area of the Tank No. 8 and the western tank area to assess the extent of petrochemical contamination.

All excavated contaminated soil which is currently stockpiled onsite be treated onsite and backfilled or transported to a State approved facility for recycling.

## **10.0 LIMITATIONS**

The conclusions and recommendations in this report are based on:

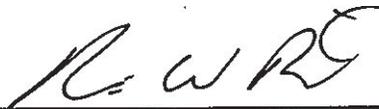
- 1). Information supplied by client.
- 2). Soil sampling on this site.
- 3). The observations of field personnel.
- 4). Analysis of the laboratory test data.

The results contained in this report are based on the limited information acquired during the various phases of our site assessment. It is possible that variations in the subsurface conditions could exist beyond points explored during the course of the assessment. Therefore, it should be recognized that evaluation of geologic conditions is difficult, and a inexact process. Judgements leading to conclusions are often made with a incomplete knowledge of all the existing subsurface conditions. Changes in existing conditions could occur at some time in the future due to variations in rainfall, temperature, and other factors not apparent at the time of the field investigation.

This assessment was performed in accordance with the general standard of practice exercised by other consultants working under similar conditions in Southern California at the time of the investigation. No warranty, express or implied, is made.

The limited soil sampling described herein was intended to provide a preliminary indication of the potential environmental impacts to the onsite soil and/or groundwater from the usage or release of hazardous materials, and should not be construed as a statistical evaluation of the site. A statistical evaluation of the site would require a comprehensive sampling effort along with a extensive laboratory analysis program to provide a basis for approximating the potential for the presence of hazardous materials within a numerical confidence interval. A lack of significant indicators of the presence of hazardous materials does not preclude the presence of these materials on the subject property.

This report has been developed by formally educated and trained geologic personnel according to the environmental engineering protocols generated by TTMS. This report has been reviewed by the undersigned.



---

Richard W. Pilat  
Project Manager



---

Michael Mulhern EG 1507  
Reg. Exp. 6/30/94

**APPENDIX A**

# Analytical Laboratory Report

## EPA Methods 8015 Modified / 8020

**Date Sampled:** 3/16/93  
**Date Received:** 3/16/93  
**Date Analyzed:** 3/16/93  
**Date Reported:** 3/19/93  
**Report #:** 303031.rpt

**Proj. Mgr:** Mr. Chris Dixon  
**Client:** TTMS  
**Project:** 11875, Chet Holifield Bldg., Laguna Niguel  
**Matrix:** Soil  
**COC #:** NA

Lab ID No.	Field ID No.	TPHg/BTEX DL Factor	Benzene	Toluene	Ethyl benzene	Xylenes - Total	TPHg	TPHd	TPHd DL Factor
076-0393	#1	1	ND	ND	ND	ND	ND	NR	
077-0393	#2	1	ND	ND	ND	ND	ND	NR	
078-0393	#3	1	0.011	0.0070	ND	0.027	ND	NR	
079-0393	#4	1	ND	0.0078	ND	0.0077	ND	NR	
080-0393	#5	1	0.0060	0.013	0.012	0.023	NR	1500	10
081-0393	#6	10	ND	0.066	ND	0.081	NR	1200	50
082-0393	#7	1	ND	0.013	ND	0.011	NR	8.6	1
083-0393	#8	1	ND	0.011	ND	0.011	ND	NR	
084-0393	#9	1	ND	0.014	ND	0.013	ND	NR	
085-0393	#10	1	ND	0.011	ND	0.011	ND	NR	

<b>Detection Limits (DL)</b>	0.005 mg/kg	0.005 mg/kg	0.005mg/kg	0.005 mg/kg	1.0 mg/kg	5.0 mg/kg
------------------------------	-------------	-------------	------------	-------------	-----------	-----------

**NOTES:**  
 NR - Analysis not requested.  
 COC - Chain of custody  
 ND - Analytes not detected at, or above the stated detection limit.  
 PHg - Total petroleum hydrocarbons as gasoline.  
 PHd - Total petroleum hydrocarbons as diesel #2.  
 mg/kg - Milligrams per kilogram (PPM).  
 µg/l - Microgram per Litre (PPB).  
 DL - Detection limit.  
 DL Factor - Detection Limit Factor  
 DL - Specific Detection Limit - Multiply DL by the DL Factor to obtain the detection limit for a specific Field ID No.

**PROCEDURES:**  
 BTEX - This analysis was performed in using with EPA Method 8020, and EPA Method 5030.  
 PHg - This analysis was performed in using with EPA Method 8015 Mod., and EPA Method 5030.  
 PHd - This analysis was performed in using with EPA Method 8015 Mod. and CA State Certified Method.

**CERTIFICATION:**  
 California Department of Health Services ELAP Certificate # 1842  
 Onsite Environmental Laboratories, 43353 Osgood Rd., Ste B, Fremont, CA 94539 (510) 490-8571

  
 \_\_\_\_\_  
 Laboratory Representative

3-22-93  
 \_\_\_\_\_  
 Date



# Analytical Laboratory Report

EPA Methods 8015 Modified / 8020

Date Sampled: 3/16/93  
 Date Received: 3/16/93  
 Date Analyzed: 3/16/93  
 Date Reported: 3/19/93  
 Report #: 303031a.rpt

Proj. Mgr: Mr. Chris Dixon  
 Client: TTMS  
 Project: 11875, Chet Holifield Bldg., Laguna Niguel  
 Matrix: Soil  
 COC #: NA

Lab ID No.	Field ID No.	TPH <sub>g</sub> /BTEX DL Factor	Benzene	Toluene	Ethyl benzene	Xylenes - Total	TPH <sub>g</sub>	TPH <sub>d</sub>	TPH <sub>d</sub> DL Factor
36-0393	#11	1	ND	ND	ND	ND	ND	NR	
37-0393	#12	1	ND	ND	ND	ND	ND	NR	
38-0393	#13	1	ND	ND	ND	ND	ND	NR	
39-0393	SSSP6-7CS	1	ND	ND	ND	ND	ND	NR	
40-0393	SSSP6-7CN	1	ND	ND	ND	ND	ND	NR	

Detection Limits (DL)	0.005 mg/kg	0.005 mg/kg	0.005mg/kg	0.005 mg/kg	1.0 mg/kg	5.0 mg/kg
-----------------------	-------------	-------------	------------	-------------	-----------	-----------

- TES:  
 - Analysis not requested.  
 C - Chain of custody  
 - Analytes not detected at, or above the stated detection limit.  
 g - Total petroleum hydrocarbons as gasoline.  
 d - Total petroleum hydrocarbons as diesel #2.  
 kg - Milligrams per kilogram (PPM).  
 l - Microgram per Litre (PPB).  
 - Detection limit.  
 Factor - Detection Limit Factor  
 L - Specific Detection Limit - Multiply DL by the DL Factor to obtain the detection limit for a specific Field ID No.

- PROCEDURES:**  
 EX - This analysis was performed in using with EPA Method 8020, and EPA Method 5030 .  
 g - This analysis was performed in using with EPA Method 8015 Mod., and EPA Method 5030.  
 d - This analysis was performed in using with EPA Method 8015 Mod. and CA State Certified Method.

**CERTIFICATION:**  
 California Department of Health Services ELAP Certificate # 1842  
 Onsite Environmental Laboratories, 43353 Osgood Rd., Ste B, Fremont, CA 94539 (510) 490-8571

  
 Laboratory Representative

3-22-93  
 Date



# Analytical Laboratory Report

EPA Methods 8015 Modified / 8020

Sampled: 3/15/93  
 Date Received: 3/15/93  
 Date Analyzed: 3/15/93  
 Date Reported: 3/19/93  
 Report #: 303032a.rpt

Proj. Mgr: Mr. Chris Dixon  
 Client: TTMS  
 Project: 11875, Chet Holifield Bldg., Laguna Niguel  
 Matrix: Soil  
 COC #: NA

Field ID No.	Field ID No.	TPHg/BTEX DL Factor	Benzene	Toluene	Ethyl benzene	Xylenes - Total	TPHg	TPHd	TPHd DL Factor
73-0393	SST8-WW20I	10	ND	ND	0.15	0.10	NR	6600	100
74-0393	SST8-4BI	1	ND	ND	ND	ND	NR	41	1
75-0393	SST8-WW	1	ND	ND	ND	ND	NR	ND	1

Detection Limits (DL)	0.005 mg/kg	0.005 mg/kg	0.005mg/kg	0.005 mg/kg	1.0 mg/kg	5.0 mg/kg
-----------------------	-------------	-------------	------------	-------------	-----------	-----------

TES:  
 - Analysis not requested.  
 C - Chain of custody  
 - Analytes not detected at, or above the stated detection limit.  
 g - Total petroleum hydrocarbons as gasoline.  
 d - Total petroleum hydrocarbons as diesel #2.  
 kg - Milligrams per kilogram (PPM).  
 µ - Microgram per Litre (PPB).  
 - Detection limit.  
 Factor - Detection Limit Factor  
 L - Specific Detection Limit - Multiply DL by the DL Factor to obtain the detection limit for a specific Field ID No.

PROCEDURES:  
 EX - This analysis was performed in using with EPA Method 8020, and EPA Method 5030.  
 g - This analysis was performed in using with EPA Method 8015 Mod., and EPA Method 5030.  
 d - This analysis was performed in using with EPA Method 8015 Mod. and CA State Certified Method.

CERTIFICATION:  
 California Department of Health Services ELAP Certificate # 1842  
 Onsite Environmental Laboratories, 43353 Osgood Rd., Ste B, Fremont, CA 94539 (510) 490-8571

  
 Laboratory Representative

3.22.93  
 Date



# Analytical Laboratory Report

## EPA Methods 8015 Modified / 8020

**ate Sampled:** 3/15/93  
**ate Received:** 3/15/93  
**ate Analyzed:** 3/15/93  
**ate Reported:** 3/19/93  
**eport #:** 303032.rpt

**Proj. Mgr:** Mr. Chris Dixon  
**Client:** TTMS  
**Project:** 11875, Chet Holifield Bldg., Laguna Niguel  
**Matrix:** Soil  
**COC #:** NA

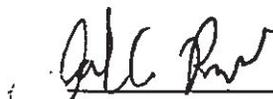
Lab ID No.	Field ID No.	TPHg/BTEX DL Factor	Benzene	Toluene	Ethyl benzene	Xylenes - Total	TPHg	TPHd	TPHd DL Factor
063-0393	SST6N-S1	1	ND	ND	ND	0.0053	ND	NR	
064-0393	SST6N-S2	1	ND	ND	ND	0.012	ND	NR	
065-0393	SST6N-3'BI	1	ND	ND	ND	ND	ND	NR	
066-0393	SST7S-S-1	10	ND	0.37	0.23	1.3	12	NR	
067-0393	SST7S-S-2	2	0.044	0.37	0.22	1.2	10	NR	
068-0393	SST7S-4'BI	1	ND	ND	ND	ND	ND	NR	
069-0393	SST7S-SW	1	ND	ND	ND	ND	ND	NR	
070-0393	SST7S-EW	1	ND	ND	ND	ND	ND	NR	
071-0393	SST8-S1	100	ND	0.60	0.58	0.99	NR	12000	100
072-0393	SST8-EW	1	ND	ND	ND	ND	NR	ND	1

<b>Detection Limits (DL)</b>	0.005 mg/kg	0.005 mg/kg	0.005mg/kg	0.005 mg/kg	1.0 mg/kg	5.0 mg/kg
------------------------------	-------------	-------------	------------	-------------	-----------	-----------

**NOTES:**  
 R - Analysis not requested.  
 OC - Chain of custody  
 D - Analytes not detected at, or above the stated detection limit.  
 PHg - Total petroleum hydrocarbons as gasoline.  
 PHd - Total petroleum hydrocarbons as diesel #2.  
 µg/kg - Milligrams per kilogram (PPM).  
 µ/l - Microgram per Litre (PPB).  
 L - Detection limit.  
 L Factor - Detection Limit Factor  
 DL - Specific Detection Limit - Multiply DL by the DL Factor to obtain the detection limit for a specific Field ID No.

**PROCEDURES:**  
 TEX - This analysis was performed in using with EPA Method 8020, and EPA Method 5030.  
 PHg - This analysis was performed in using with EPA Method 8015 Mod., and EPA Method 5030.  
 PHd - This analysis was performed in using with EPA Method 8015 Mod. and CA State Certified Method.

**CERTIFICATION:**  
 California Department of Health Services ELAP Certificate # 1842  
 Onsite Environmental Laboratories, 43353 Osgood Rd., Ste B, Fremont, CA 94539 (510) 490-8571

  
 \_\_\_\_\_  
 Laboratory Representative

3-22-93  
 \_\_\_\_\_  
 Date



# QC DATA REPORT

Date Sampled:	3/15/93	Proj Mgr:	Mr. Chris Dixon
Date Extracted:	3/15/93	Client:	TTMS
Date Analyzed:	3/15/93	Project:	11875, Chet Hollifield Bldg.
Lab ID #:	N063-0393	Matrix:	Soil
Report #:	303032.QAC	C-O-C #:	NA

Parameter	R1 mg/kg	SP mg/kg	MS mg/kg	MSD mg/kg	PR1 %	PR2 %	RPD %
Benzene	2	100	95	96	93%	94%	1%
Toluene	5	100	99	100	94%	95%	1%
E-benzene	1	100	99	100	98%	99%	1%
T-Xylenes	7	200	196	200	95%	97%	2%
TPHg	120	900	1100	1100	109%	109%	0%
TPHd	200	1000	1040	1070	84%	87%	NR

**DEFINITION OF TERMS:**

- R1 - Results of First Analysis
- SP - Spike Concentration Added to Sample
- MS - Matrix Spike Results
- MSD - Matrix Spike Duplicate Results
- PR1 - Percent Recovery of MS:  $(MS - R1) / SP \times 100$
- PR2 - Percent Recovery of MSD:  $(MSD - R1) / SP \times 100$
- RPD - Relative Percent Difference:  $(MS - MSD) / (MS + MSD) \times 100 \times 2$

**LABORATORY QC CRITERIA**

Parameter	Acceptable % Recoveries	
Benzene	80%	120%
Toluene	80%	120%
Ethylbenzene	80%	120%
Xylenes Total	80%	120%
TPHg	70%	125%
TPHd	70%	125%
Surrogate	75%	120%
%RPD	0%	25%

*J.C. Perotti*  
Laboratory Representative

3-22-93  
Date



CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

PROJECT NO. 4875		PROJECT NAME/SITE Chet Holifield Fed'l. Bldg.						ANALYSIS REQUESTED										P.O. #:
SAMPLERS <i>M Mulher</i>		(SIGN) <i>R. Pilar</i>		(PRINT) <i>M. Mulher</i>		NO. CONTAINERS	SAMPLE TYPE	/										REMARKS
SAMPLE IDENTIFICATION		DATE	TIME	COMP	GRAB			PRES. USED	ICED	BTEX (802/8020)	TPHs (8015)	TPHs (8015)	TOC #18.1/5330	801/8010	824/8240	825/8270		
SSSP 6-7-CN		3/16/93	8:10 am		X			1	Sil	X	X							Stockpile - Center North
SSSP 6-7-CS			8:12					1	S	X	X							Stockpile - Center South
1			9:40					1	S	X	X							11.5' deep, S wall Tank 7
2			9:45					1	S	X	X							12.5' deep, E wall Tank 7
3			9:50					1	S	X	X							2' below GWT, center Tank 7
4			9:53					1	S	X	X							4' below Tank 7 center
5			10:30					1	S	X		X						W. wall, 7.5' deep Tank 8
6			10:37					1	S	X		X						E. wall, 8.0' deep Tank 8
7			10:45					1	S	X		X						Center of Tank 8, 13' deep, Tank 8
8			10:50					1	S	X	X							Old Stockpile Tank 6-7
9			10:55					1	S	X	X							(See Map)
10			11:10					1	S	X	X							
11			11:10					1	S	X	X							
12			11:15					1	S	X	X							
13			11:20					1	S	X	X							

RELINQUISHED BY: <i>M Mulher</i>	DATE 3/16/93	TIME 11:50 am	RECEIVED BY:	LABORATORY:	PLEASE SEND RESULTS TO: <i>Att: TTMS Inc. (Rick Pined)</i>
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	REQUESTED TURNAROUND TIME:	
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	RECEIPT CONDITION:	
RELINQUISHED BY:	DATE	TIME	RECEIVED BY LABORATORY:	PROJECT MANAGER:	

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

PROJECT NO. 11875		PROJECT NAME/SITE Chet Holifield Federal Bldg.) 24000 Avila Rd., Laguna Niguel, CA 92677						ANALYSIS REQUESTED										P.O. #:				
SAMPLERS <i>M. Malin</i>		(SIGN) <i>R. Pilat</i> (PRINT) <i>M. Malin</i>						NO. CONTAINERS	SAMPLE TYPE	/										REMARKS		
SAMPLE IDENTIFICATION	DATE	TIME	COMP	GRAB	PRES. USED	ICED	BTEX (802/8020)			TPHs (8015)	TPHs (8015)	TOC #18.1/5520	801/8010	804/8040	805/8050							
SST6N-3'BI	3/15/93	7:40 am		X			1	S	X	X												3' below Summit of Tank No. 6, center
SST6N-S1		7:55 am		X			1	S	X	X												So. Side, Stockpile of Tank 6
SST6N-S2		8:05 am		X			1	S	X	X												No. Side, stockpile of Tank 6
SST7S-4'BI		8:25 am		X			1	S	X	X												4' below Summit of Tank No. 7, center
SST7S-S1		8:30 am		X			1	S	X	X												So. Side Stockpile of Tank No. 7
SST7S-S2		8:35 am		X			1	S	X	X												No. Side Stockpile of Tank No. 7
SST7S-SW		9:10 am		X			1	S	X													So. Wall of Tank 7-12' deep
SST7S-EW		9:15 am		X			1	S	X													E. Wall of Tank 7-12' deep
SST8-4BI		10:10 am		X			1	S	X	X												4' below Summit of Tank No. 8
SST8-S1		10:15 am		X			1	S	X	X												So. Center of Stockpile of Tank 8
SST8-EW		10:20 am		X			1	S	X	X												11' deep East wall
SST8-SW		10:35 am		X			1	S	X	X												11' deep West wall
SST8-WW20E		10:50 am		X			1	S	X	X												10' Peaty Material West Wall

RELINQUISHED BY: <i>Richard Pilat</i>	DATE 3/15/93	TIME 11:25 am	RECEIVED BY:	LABORATORY: <i>Onsite Labs, Fremont</i>	PLEASE SEND RESULTS TO: <i>Chris Dixon</i>
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	REQUESTED TURNAROUND TIME: <i>ASAP</i>	
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	RECEIPT CONDITION: <i>ambient</i>	PROJECT MANAGER:
RELINQUISHED BY:	DATE 3-15-93	TIME 1125	RECEIVED BY LABORATORY: <i>Julie Kim</i>		

# TPHG/BTEX/TPHD WORKSHEET

EPA Methods 8015 Modified / 8020

Date Sampled: 3-16-93

Client: TTMS

Lab #: 2

Date Received: 3-16-93

Project: 11875

Operator: JP

Date Analyzed: 3-16-93

Matrix: soil

Report To: Chrs Dixon

Date Reported:

C-O-C No.:

Report Due:

Lab ID No.	Field ID No.	TPHG/BTEX DL Factor	TPHG	BTEX	TPHD	DL	TPHD	TPHD DL Factor
1	N0760393 #1	1	ND	ND	ND	ND	ND	
2	N0770393 #2	1	ND	ND	ND	ND	ND	
3	N0780393 #3	1	0.011	0.0070	ND	0.027	ND	
4	N0790393 #4	1	ND	0.0078	ND	0.0077	ND	
5	N0800393 #5	1	0.0060	0.013	0.012	0.023	<del>5.4</del> 1500	10
6	N0810393 #6	10	ND	0.066	ND	0.081	-	1200
7	N0820393 #7	1	ND	0.013	ND	0.011	-	8.6
8	N0830393 #8	1	ND	0.011	ND	0.011	ND	
9	N0840393 #9	1	ND	0.014	ND	0.013	ND	
10	N0850393 #10	1	ND	0.011	ND	0.011	ND	
11	N0860393 #11	1	ND	0.011	ND	0.012	ND	
12	N0870393 #12	1	ND	0.016	ND	0.015	ND	
13	N0880393 #13	1	ND	0.0090	ND	0.011	ND	
14	N0890393 SSP6-7CS	1	ND	0.014	ND	0.014	ND	
15	N0900393 SSP6-7CN	1	0.0056	0.018	ND	0.017	ND	
16								
17								
18								
19								
20								
21								
23								
24								
25								
26								
27								

Detection Limits (DL)	0.005	0.005	0.005	0.005	1.0 <sup>mg</sup> / <sub>kg</sub>	5.0 <sup>mg</sup> / <sub>kg</sub>
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## QC DATA REPORT

Date Sampled:	3/16/93	Proj Mgr:	Mr. Chris Dixon
Date Extracted:	NA	Client:	TTMS
Date Analyzed:	3/18/93	Project:	11875, Chet Holifield Bldg.
Lab ID #:	N090-0393	Matrix:	Soil
Report #:	303031.qac	C-O-C #:	NA

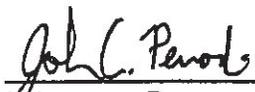
Parameter	R1 mg/kg	SP mg/kg	MS mg/kg	MSD mg/kg	PR1 %	PR2 %	RPD %
Benzene	ND	100	92	94	92%	94%	2%
Toluene	ND	100	95	97	95%	97%	2%
E-benzene	ND	100	95	97	95%	97%	2%
T-Xylenes	ND	200	185	187	93%	94%	1%
TPHg	ND	900	960	960	107%	107%	0%
TPHd	NR	NR	NR	NR	NR	NR	NR

### DEFINITION OF TERMS:

- R1 - Results of First Analysis
- SP - Spike Concentration Added to Sample
- MS - Matrix Spike Results
- MSD - Matrix Spike Duplicate Results
- PR1 - Percent Recovery of MS:  $(MS - R1) / SP \times 100$
- PR2 - Percent Recovery of MSD:  $(MSD - R1) / SP \times 100$
- RPD - Relative Percent Difference:  $(MS - MSD) / (MS + MSD) \times 100 \times 2$

### LABORATORY QC CRITERIA

Parameter	Acceptable % Recoveries	
Benzene	80%	120%
Toluene	80%	120%
Ethylbenzene	80%	120%
Xylenes Total	80%	120%
TPHg	70%	125%
TPHd	70%	125%
Surrogate	75%	120%
%RPD	0%	25%

  
 Laboratory Representative

3-22-93  
 Date





**LABORATORY ANALYSIS RESULTS**

Client: TTMS, Inc.  
Project No.: 11875  
Project Name: Chet Holifield Federal Building  
Sample Matrix: Soil  
Method: EPA 8020 (BTEX)

AA Project No.: A10781  
Date Sampled: 1/29/93  
Date Received: 1/30/93  
Date Reported: 2/1/93

Date Analyzed:	1/30/93	1/30/93	1/30/93	1/30/93	Reporting	
AA I.D. #:	13321	13322	13323	13324	Detection Limits	Units
Client I.D. #:	SST3N	SST3S	SST4N	SST4S		

**Compound**

Benzene	<5	<5	<5	<5	5	µg/Kg
Toluene	<5	<5	<5	<5	5	µg/Kg
Ethylbenzene	<5	<5	<5	<5	5	µg/Kg
Xylenes	<10	<10	<10	<10	10	µg/Kg

<: Not detected at or above the value of the concentration indicated.

  
George Havalias  
Laboratory Director

mls



**LABORATORY ANALYSIS RESULTS**

**Client:** TTMS, Inc.  
**Project No.:** 11875  
**Project Name:** Chet Holifield Federal Building  
**Sample Matrix:** Soil  
**Method:** EPA 8020 (BTEX)/8015M (Gasoline)

**AA Project No.:** A10781  
**Date Sampled:** 1/29/93  
**Date Received:** 1/30/93  
**Date Reported:** 2/1/93

Date Analyzed:	1/30/93	1/30/93	1/30/93	1/30/93	Reporting	
AA I.D. #:	13308	13309	13311	13312	Detection Limits	Units
Client I.D. #:	SST8C	SSSP8C	SSSP6-7S	SSSP6-7E		

Compound						
Benzene	<5	<5	<5	<5	5	µg/Kg
Toluene	<5	<5	<5	<5	5	µg/Kg
Ethylbenzene	<5	<5	<5	<5	5	µg/Kg
Xylenes	<10	<10	34	<10	10	µg/Kg
Gasoline Range Organics			<2	<2	2	mg/Kg

<: Not detected at or above the value of the concentration indicated.

  
George Havalias  
Laboratory Director

mls

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**LABORATORY ANALYSIS RESULTS**

Client: TTMS, Inc.  
Project No.: 11875  
Project Name: Chet Holifield Federal Building  
Sample Matrix: Soil  
Method: EPA 8020 (BTEX)/8015M (Gasoline)

AA Project No.: A10781  
Date Sampled: 1/29/93  
Date Received: 1/30/93  
Date Reported: 2/1/93

Date Analyzed:	1/30/93	1/30/93	1/30/93	1/30/93	Reporting	
AA I.D. #:	13313	13314	13315	13316	Detection Limits	Units
Client I.D. #:	SSSP6-7W	SSSP6-7N	SST6S	SST6N		

<u>Compound</u>						
Benzene	<5	<5	<5	<5	5	µg/Kg
Toluene	<5	<5	<5	<5	5	µg/Kg
Ethylbenzene	<5	<5	<5	<5	5	µg/Kg
Xylenes	<10	29	<10	<10	10	µg/Kg
Gasoline Range Organics	<2	<2	<2	<2	2	mg/Kg

<: Not detected at or above the value of the concentration indicated.

George Havalias  
Laboratory Director

mls

02



**LABORATORY ANALYSIS RESULTS**

Client: TTMS, Inc.  
Project No.: 11875  
Project Name: Chet Holifield Federal Building  
Sample Matrix: Soil  
Method: EPA 8020 (BTEX)/8015M (Gasoline)

AA Project No.: A10781  
Date Sampled: 1/29/93  
Date Received: 1/30/93  
Date Reported: 2/1/93

Date Analyzed:	1/30/93	1/30/93	1/30/93	1/30/93	Reporting	
AA I.D. #:	13317	13318	13319	13320	Detection	Units
Client I.D. #:	SST7N	SST7S	SSSP3-4N	SSSP3-4S	Limits	

**Compound**

Benzene	<5	11	<5	<5	5	µg/Kg
Toluene	<5	48	<5	<5	5	µg/Kg
Ethylbenzene	<5	14	<5	<5	5	µg/Kg
Xylenes	<10	91	<10	<10	10	µg/Kg
Gasoline Range Organics	<2	<2			2	mg/Kg

<: Not detected at or above the value of the concentration indicated.

George Havalias  
Laboratory Director

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**LABORATORY QA/QC REPORT**

**Client:** TTMS, Inc.  
**Project No.:** 11875  
**Project Name:** Chet Holifield Federal Building  
**Sample Matrix:** Soil  
**Method:** EPA 8015M (Diesel)  
**Sample ID:** Matrix Spike  
**Concentration:** 200 mg/Kg

**AA ID No.:** 13321  
**AA Project No.:** A10781  
**Date Sampled:** 1/29/93  
**Date Extracted:** 1/30/93  
**Date Analyzed:** 1/30/93  
**Date Reported:** 2/1/93

Compounds	Spike Recovery (%)	Spike/Dup. Recovery (%)	RPD (%)
Diesel Range Organics	86	88	2.3

RPD: Relative Percent Difference

  
George Havalias  
Laboratory Director

mls



**LABORATORY QA/QC REPORT**

**Client:** TTMS  
**Method:** EPA 8020 (BTEX)/8015M (Gasoline)  
**Sample ID:** Matrix Spike

**AA Project No.:** A10781  
**Sample Matrix:** Soil  
**Date Analyzed:** 1/30/93  
**Date Reported:** 2/1/93

<b>Compounds</b>	<b>Spike Recovery (%)</b>	<b>Spike/Duplicate Recovery (%)</b>	<b>RPD (%)</b>
Benzene	99	85	15.2
Toluene	99	84	16.4
Ethylbenzene	100	84	17.4
Xylenes	100	85	16.2
Gasoline Range Organics	86	93	7.8

RPD: Relative Percent Difference.

  
George Havalias  
Laboratory Director

mls



**LABORATORY ANALYSIS RESULTS**

Client: TTMS, Inc.  
Project No.: 11875  
Project Name: Chet Holifield Federal Building  
Sample Matrix: Soil  
Method: EPA 418.1 (TRPH)

AA Project No.: A10781  
Date Sampled: 1/29/93  
Date Received: 1/30/93  
Date Analyzed: 2/1/93  
Date Reported: 2/1/93  
Units: mg/Kg

AA ID No.	Client ID	Results	Reporting Detection Limits
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13310

SST5C

10

5

George Havalias  
Laboratory Director

mls



LABORATORY QA/QC REPORT

Client: TTMS, Inc.  
Method: EPA 418.1 (TRPH)  
Sample ID: Matrix Spike  
Concentration: 40 mg/Kg

AA Project No.: A10781  
Sample Matrix: Soil  
Date Analyzed: 2/1/93  
Date Reported: 2/1/93

Compounds	Spike Recovery (%)	Spike/Duplicate Recovery (%)	RPD (%)
TRPH	101	85	17

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TRPH: Total Recoverable Petroleum Hydrocarbons.  
RPD: Relative Percent Difference.

  
George Havalias  
Laboratory Director

mls



**LABORATORY ANALYSIS RESULTS**

**Client:** TTMS  
**Project No.:** 11875  
**Project Name:** Chet Hollifield Federal Building  
**Sample Matrix:** Soil  
**Method:** EPA 8015M (Diesel)

**AA Project No.:** A10781  
**Date Sampled:** 1/29/93  
**Date Received:** 1/30/93  
**Date Reported:** 2/1/93  
**Units:** mg/Kg

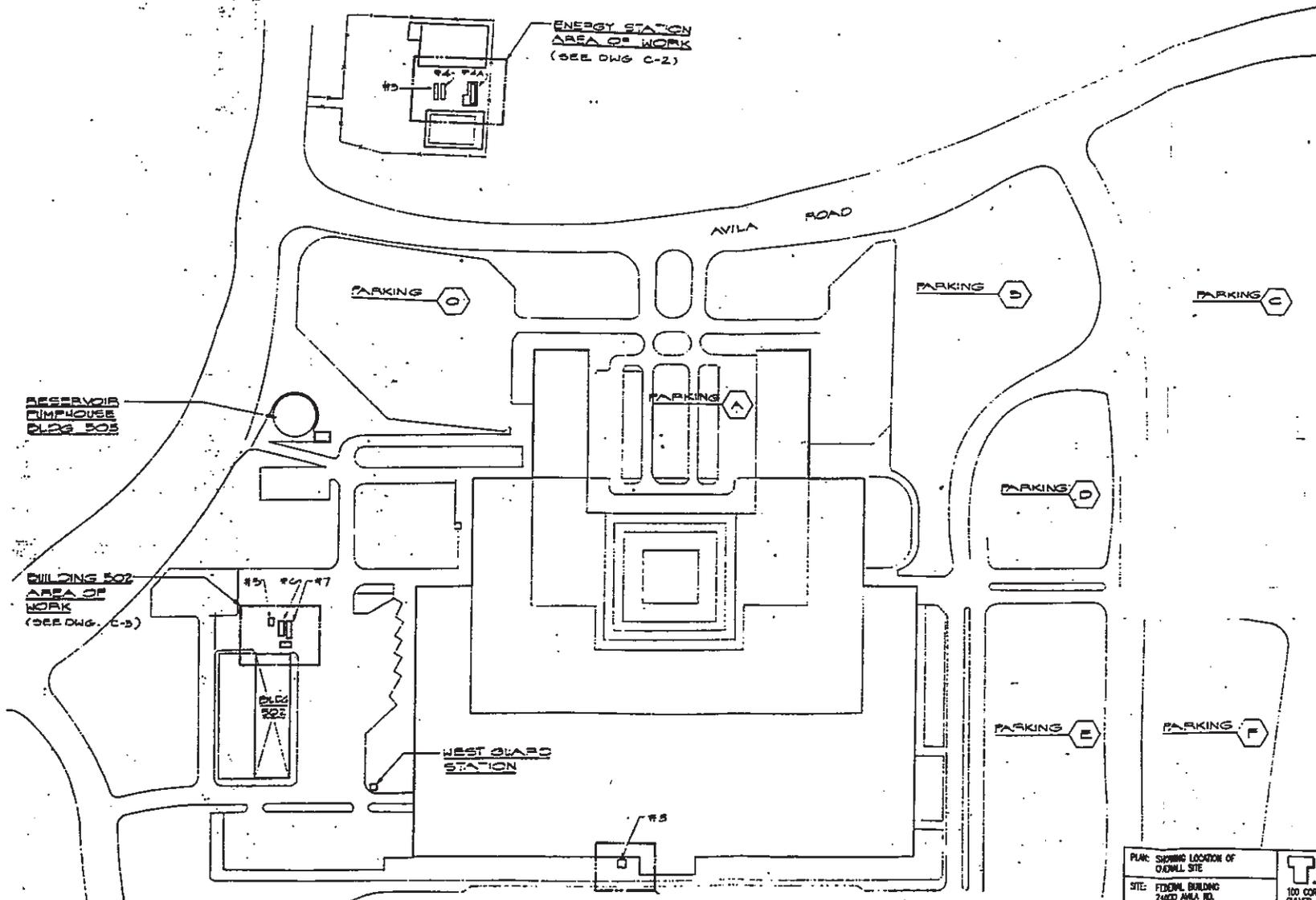
AA I.D. No.	Client I.D. No.	Date Extracted	Date Analyzed	Results	Reporting Detection Limits
13308	SST8C	1/30/93	1/30/93	220	10
13309	SSSP8C	1/30/93	1/30/93	<10	10
13319	SSSP3-4N	1/30/93	1/30/93	<10	10
13320	SSSP3-4S	1/30/93	1/30/93	<10	10
13321	SST3N	1/30/93	1/30/93	<10	10
13322	SST3S	1/30/93	1/30/93	<10	10
13323	SST4N	1/30/93	1/30/93	<10	10
13324	SST4S	1/30/93	1/30/93	<10	10

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<: Not detected at or above the value of the concentration indicated.

  
George Havalias  
Laboratory Director

mls



**OVERALL SITE PLAN**

PLAN SHOWING LOCATION OF OVERALL SITE		<b>T.T.M.S.</b>	
SITE: FEDERAL BUILDING 2400 AVILA RD. LAGUNA HILLS, CA 92656		100 CORPORATE POINTS SUITE #220 CULVER CITY, CA 90230 1-800-368-TTMS	
DATE: JAN 1983	REV. A	SCALE: SEE PLAN	JOB # 11875
REV. A	REV. A		DWG # 1



**PR0111356**

**SEA BREEZE CLEANERS**  
**27901 LA PAZ RD STE C**  
**LAGUNA NIGUEL, CA 92677**

Record ID: FA0046745  
 Inspection Date: 04/02/2018  
 Reinspection Date: N/A

Mailing Address:  
 OC LIGHTHOUSE INC  
 27901 LA PAZ RD STE C  
 LAGUNA NIGUEL, CA 92677

Type of Facility: 5801-HAZ MAT DISCLOSURE 1-4  
 CHEMICALS  
 Service: A01-ROUTINE INSPECTION  
 BRI DEWEY, REHS  
 HAZARDOUS MATERIALS SPECIALIST III  
 (657) 622-9434  
 6:30-9:00 a.m.  
 bdewey@ochca.com

*THE ITEMS NOTED BELOW WERE OBSERVED DURING COURSE OF THE SITE VISIT. ANY VIOLATIONS OBSERVED MUST BE CORRECTED*

**OPENING COMMENTS**

On site to conduct a new hazardous materials chemical inventory and business emergency plan inspection this date, consent to enter, inspect and take photographs was given by - Andrew Jung, manager  
 Hazardous materials storage area were reviewed at this time. The facility has the following hazardous materials that exceed the required disclosure quantities:

- 70 gallons of hydrocarbon

The facility is required (and is notified) to electronically submit the following documents within 30 days of this inspection:

- Business Activities form
- Owner/Operator Identification form
- Hazardous Material Chemical Inventory forms
- Facility Site Map
- Business Emergency Plan

The above documents can be electronically submitted by going to <http://cers.calepa.ca.gov/> and requesting a user name and password. User guides and tutorials are located on the home page to help you get started.

Site Map directions and template can be located at:  
<http://occupainfo.com/civicax/filebank/blobdload.aspx?BlobID=14769>  
 The completed site map will need to be uploaded to the reporting website.

The map is required to have all of the following; -site orientation, -loading areas, -internal roads, -adjacent streets, -storm drains (outside), -access and exit points, -emergency shutoffs inside and out for electric, natural gas and water, -evacuation staging areas, -hazardous material storage and handling areas, -emergency response equipment (spill equipment and fire extinguishers), -location of nearest fire hydrant/fire pumps/fire risers, -knox box location if you have one.

E-mailed inspection report this date.

**VIOLATIONS OBSERVED**

**I311 - Actual or threatened release reported to the CUPA and the California OES Warning Center Failure of business to provide an immediate, verbal report of a release or threatened release of a hazardous material to the CUPA and the California Office of Emergency Services (OES) Warning Center. HSC 6.95 25510(a)**

**VIOLATIONS OBSERVED**

**I208 - Established and adequately implemented a business plan Failed to adequately establish and implement a Hazardous Materials Business Plan (HMBP) when storing and/or handling a hazardous material in reportable quantities. 19 CCR 4 2729.1, 2731, 2732; HSC 6.95 25507 HSC 6.95 25507**



PR0111356

**SEA BREEZE CLEANERS  
27901 LA PAZ RD STE C  
LAGUNA NIGUEL, CA 92677**

Record ID: FA0046745  
Inspection Date: 04/02/2018  
Reinspection Date: N/A

1758 - Remote unstaffed facility exemption requirements are met when not submitting a business plan Failure to meet one or more of the

following to comply with the remote unstaffed facility exemption of electronically submitting a business plan:

(1) The types and quantities of materials onsite are limited to one or more of the following:

(A) One thousand standard cubic feet of compressed inert gases (asphyxiation and pressure hazards only).

(B) Five hundred gallons of combustible liquid used as a fuel source.

(C) Two hundred gallons of corrosive liquids used as electrolytes in closed containers.

(D) Five hundred gallons of lubricating and hydraulic fluids.

(E) One thousand two hundred gallons of flammable gas used as a fuel source.

(F) Any quantity of mineral oil contained within electrical equipment, such as transformers, bushings, electrical switches, and voltage regulators, if the spill prevention control and countermeasure plan has been prepared for quantities that meet or exceed 1,320 gallons.

(2) The facility is secured and not accessible to the public.

(3) Warning signs are posted and maintained for hazardous materials pursuant to the California Fire Code.

(4) A one-time notification and inventory are provided to the unified program agency along with a processing fee in lieu of the existing fee. The fee shall not exceed the actual cost of processing the notification and inventory, including a verification inspection, if necessary.

(5) If the information contained in the initial notification or inventory changes and the time period of the change is longer than 30 days, the notification or inventory shall be resubmitted within 30 days to the unified program agency to reflect the change, along with a processing fee, in lieu of the existing fee, that does not exceed the actual cost of processing the amended notification or inventory, including a verification inspection, if necessary.

HSC 6.95 25505, 25506, 25507, 25508(a)(1)



PR0111356

**SEA BREEZE CLEANERS  
27901 LA PAZ RD STE C  
LAGUNA NIGUEL, CA 92677**

Record ID: FA0046745  
Inspection Date: 04/02/2018  
Reinspection Date: N/A

**I239 - Initial and annual employee training completed, documented and records made available for 3 years Failure to (1) provide initial training and annual training, including refresher courses, to all employees in safety procedures in the event of a release or threatened release of a hazardous material, including, but not limited to, the Emergency Response Plan, and (2) document electronically or by hard copy and make available for a minimum of three years. HSC 6.95 25505(a)(4)**

OBSERVATION: Training documentation for all applicable employees was not available. CORRECTIVE ACTION: Submit documentation to the CUPA demonstrating that employees have received training on safe handling of hazardous materials and the Emergency Response Plan (the 4 page policy you are completing), in the form of a training log, within 30 days.

**I336 - HMBP updated within 30 days: chemical inventory, change of address, ownership, or business name Failure to electronically update the Hazardous Materials Business Plan (HMBP) information within 30 days of:**  
(a) A 100 percent or more increase in the quantity of a previously disclosed material.  
(b) Any handling of a previously undisclosed hazardous material  
(c) Change of business address.  
(d) Change of business ownership.  
(e) Change of business name. HSC 6.95 25508.1(a)-(e)

**I368 - Adequate completion and electronic submission of Owner/Operator and Business Activities Forms Failure to complete and electronically submit the Business Activities Page and/or Business Owner Operator Identification Page. HSC 25508(a)(1), 19 CCR 4 2729.2(a)(1)**

**I381 - Facility on leased site notified property owner of HMBP and if requested provided copy within 5 days Failure to notify the property owner or provide a copy of the Hazardous Materials Business Plan (HMBP) to the owner or the owners agent within five working days after receiving a request for a copy from the owner or the owners agent. HSC 6.95 25505.1**

**I463 - Annually reviewed and electronically certified that HMBP is complete, accurate and up-to-date Failure to annually review and electronically certify that the Hazardous Materials Business Plan (HMBP) is complete, accurate, and up-to-date. HSC 6.95 25508(c), 25508.2**

**I551 - Training program submitted and adequate for the size of the business and materials handled Failure to include and electronically submit an adequate training program in the Hazardous Materials Business Plan (HMBP), which is reasonable and appropriate for the size of the business and the nature of the hazardous material handled. HSC 6.95 25505(a)(4), 25508(a)(1)**

**I632 - Adequate completion and electronic submission of annotated Site Map with all required content Failure to complete and electronically submit an annotated site map with all required content (north orientation, loading areas, internal roads, adjacent streets, storm and sewer drains, access and exit points, emergency shutoffs, evacuation staging areas, hazardous material handling and storage areas, and emergency response equipment). Updates to existing maps to meet these requirements shall be completed by January 1, 2015. HSC 25505(a)(2), 25508(a)(1)**



INSPECTION REPORT

County of Orange, Health Care Agency, Environmental Health  
1241 EAST DYER ROAD, SUITE 120 SANTA ANA, CA 92705-5611  
(714) 433-6000

PR0054573

**SEA BREEZE CLEANERS**  
**27901 LA PAZ RD**  
**LAGUNA NIGUEL, CA 92677**

Record ID: FA0046745  
Inspection Date: 09/11/2008  
Reinspection Date: 10/11/2008

Type of Facility: 5110-HAZARDOUS WASTE SPECIAL  
GENERATOR

Service: A01-ROUTINE INSPECTION  
Joyce Krall, REHS  
HAZARDOUS WASTE SPECIALIST III  
(714) 433-6236

Mailing Address:  
KILYUL JUNG  
27901 LA PAZ ROAD  
LAGUNA NIGUEL, CA 92677

*THE ITEMS NOTED BELOW WERE OBSERVED DURING COURSE OF THE SITE VISIT. ANY VIOLATIONS OBSERVED MUST BE CORRECTED*

**W90M - REPORTING AND RECORD KEEPING** Manifests, exception/biennial reports and test results/waste analysis not maintained for 3 years. (CA Code of Regulations 66262.40)

Consolidated manifests and bills of lading must be available for review during normal business hours. Copies must be kept for a minimum of three years from date of disposal. Obtain a set of all applicable copies for your files. Forward a 2007 to present set to this Agency for review. A CRC cover sheet is provided for your convenience to use for faxing or mailing the requested copies to our Agency.

On site for a routine hazardous waste inspection. Andrew Jung was present for the inspection.

The storage of the facility's hazardous waste was inspected. The storage container was observed closed and properly labeled.

A Hazardous Waste Emergency Response card was provided for fill-in and posting in a visible location.

*I declare that I have examined and received a copy of this inspection report.*

Print Name and Title ANDREW JUNG MANAGER

Signature [Signature] Date 9.11.08

Hazardous Waste Stream

PR0054573 SEA BREEZE CLEANERS  
 FA0046745 27901 LA PAZ RD  
 CONTACT: ANDREW JUNG

LAGUNA NIGUEL 92677  
 9498315060 Ext  
 Ext

OWNER NAME: KILYUL JUNG

EPA ID NUMBER

NUMBER OF EMPLOYEES: 4 PE: 5110  
 RCRA-LQG  Thomas Guide:

Waste ID	Specific Waste	Location	Max Vol. Stored	Units	Form	How Stored	One Time Only	Annual Volume Generated	Annual Volume Disposed	How Disposed	Hauler Code
<del>741.W</del> XD0034881 2105w	<del>TRICHLOROETHYL WASTE PERC</del> <del>TRICHLORETHE</del> aliphatic hydrocarbon DS2000	BEHIND MACHINE	55 GALLONS	1 GALLONS	2 LIQUID	1 DRUM >= 55G-METAL	N	120 55	79 120	RECYCLED OFF-SITE -	<del>9993</del> 325 SEE HOW DISPOSED Veolia

PROCESS:

NO. OF WASTE STREAMS: 1



INSPECTION REPORT  
 County of Orange, Health Care Agency, Environmental Health  
 1241 EAST DYER ROAD, SUITE 120 SANTA ANA, CA 92705-5611  
 (714) 433-6000

20041795

Record ID: *HA 0041795/RP 0054573*  
 Inspection Date: 10/19/2005

Type of Facility: 5111-HAZARDOUS WASTE GENERATOR  
 UNDER 11 EMPLOYEES

Service: A21-HMS NEW FACILITY/CHG OF  
 OWNER/CHG OF ADDRESS

Reinspection Date: 12/18/2005

Steve Sharp, REHS  
 HAZARDOUS WASTE SPECIALIST III  
 (714) 433-6225

Mailing Address:

THE FOLLOWING VIOLATION(S) WERE OBSERVED DURING THE INSPECTION AND MUST BE CORRECTED

**W052 - IDENTIFICATION NUMBERS** Generator has not obtained proper identification number. (800) 61-TOXIC (CA Code of Regulations 66262.12(a))

A cal EPA identification number must be obtained from www.dtsc.ca.gov  
 Follow the web page prompts to download/complete the application.

**W312 - ACCUMULATION TIMES** Each container and portable tank is not clearly marked with beginning accumulation date. (CA Code of Regulations 66262.34(f)(1)&(2))  
 Provided labels for the 15 gallon hazardous waste drum behind the dry cleaning machine.

**W322 - ACCUMULATION TIMES** Each container and portable tank is not marked "Hazardous Waste" including: Composition and Physical State of Waste.  
 Hazardous Properties (i.e. Flammable, Toxic).  
 Generators Name and Address. (CA Code of Regulations 66262.34(f)(3))

Lido Cleaners  
 27901 la Paz Road  
 Laguna Niguel, CA 92677  
 949-831-5060

New generator inspection.

Facility changed ownership as of 10-13-2005

Discussed hazardous waste management requirements with Andrew Jung, son of the new owner Mr. Kilyu Jung.

According to Andrew Jung the perc machine is going to be changed to a hydrocarbon machine in the next few weeks.

Discussed the above violations

A copy of the Cal EPA identification number must be submitted to this Agency as soon as it is received.  
 I declare that I have examined and received a copy of this inspection report.

Print Name and Title

*Andrew Jung*

Hazardous Waste Stream

PR0050897 LIDO CLEANERS  
 FA0043666 27901 LA PAZ RD

OWNER NAME: OAK LEE

EPA ID NUMBER

LAGUNA NIGUEL 92677

CONTACT: ~~LEONARD LEE~~  
*ANDREW TUNG*

9498315060 Ext  
 Ext

NUMBER OF EMPLOYEES: 5 PE: 5111

RCRA-LQG  Thomas Guide:

Waste ID	Specific Waste	Location	Max Vol. Stored	Units	Form	How Stored	One Time Only	Annual Volume Generated	Annual Volume Disposed	How Disposed	Hauler Code
741.W	TRICHLOROETHYL WASTE PERC TRICHLORETHE	BEHIND MACHINE	55	1	2	1	N	55	79	RECYCLED OFF-SITE -	<del>9999</del> <del>UNKNOWN HAULER</del> <i>993</i>

PROCESS:

NO. OF WASTE STREAMS: 1



## **Appendix I**

### **Environmental Professional Resumes**



## Christopher Rua, CHMM ENVIRONMENTAL SCIENTIST

### EDUCATION

B.S., Environmental Planning & Design, Rutgers University, 2001

M.S., Environmental Management, University of Maryland-University College, 2014

### PROFESSIONAL CERTIFICATIONS

STI Certified Aboveground Storage Tank Inspector

Certified Hazardous Materials Manager

AHERA Building Inspector

OSHA Hazardous Waste Site Worker and Site Supervisor Training

OSHA 10-Hour Construction Safety Training

### PROFESSIONAL EXPERIENCE

Mr. Rua has over 18 years of experience in the environmental consulting industry, all of which have been with PHE. His duties have included extensive fieldwork related to soil and groundwater investigations; monitoring well installation and sampling; asbestos surveys and sampling; ASTM Phase I Environmental Site Assessments (ESA); wetland delineation; noise monitoring; and Global Positioning System (GPS) data collection, among others. In the office, Mr. Rua has extensive experience with Phase I ESA reports, assisting or personally drafting well over 50 such reports. Mr. Rua has also conducted numerous environmental compliance audits for state and federal government clients across the U.S., having acted as Auditor or Lead Auditor at nearly 100 such facilities. Mr. Rua has also performed fieldwork in support of NEPA projects across the country, and has acted as an author or lead author for resource areas such as solid & hazardous waste; geology & soils; and water resources on numerous EAs and EISs.

### PROJECT HISTORY

#### NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

**Supplemental Environmental Impact Statement (EIS) for the Line 67 Capacity Expansion Project, 2014 – 2015.** Mr. Rua served as a Technical Resource Analyst for a Supplemental EIS for a new Presidential Permit for the proposed expansion of an oil pipeline that could transport approximately 890,000 barrels per day of diluted bitumen from the Western Canadian Sedimentary Basin to Superior, Wisconsin. This SEIS is being prepared to support the U.S. Department of State's Presidential Permit decision and involves the analysis of environmental issues related to increasing the volume of oil transported in the pipeline from approximately 500,000 barrels per day to 890,000 barrels per day. The several hundred-mile pipeline enters the United States in North Dakota and traverses the state of Minnesota before terminating at a large oil storage terminal in Wisconsin. Alternatives considered within the SEIS include transport of oil by rail and interconnections between existing pipelines. Mr. Rua served as the Lead Author for the *Wetlands and Floodplains* resource section, and assisted with the *Soils and Surface Water* resource sections.

### TECHNICAL EXPERIENCE

#### Investigations

Phase I ESAs

Phase II ESAs

Preliminary Assessments

Remedial Investigations

Asbestos Surveys

Hazardous Waste

Characterizations

Hazardous Materials

Inventories & Surveys

Wetlands Delineations

#### Compliance

CAA • CWA

CERCLA

NEPA • RCRA

SPCC • TCSA

USTs

#### Impact Analysis

Health & Safety Plans

Human Health &

Ecological Risk Assessments

NEPA EAs and EISs

Noise & Traffic Studies

Global Positioning Systems

CADD

**Environmental Assessment of Proposed Installation and Operation of Photovoltaic (Solar) Systems, Alexandria Veterans Affairs Medical Center, City of Pineville, Rapides Parish, LA.** Authored or co-authored the majority of the EA report, including resource areas such as air quality, water resources, solid and hazardous waste, wildlife, utilities, and transportation and parking. Also conducted the site inspection, which included two areas proposed for PV array installation. PHE prepared an Environmental Assessment to identify, analyze, and document the potential physical, environmental, cultural, and socioeconomic impacts associated with the Department of Veterans Affairs (VA) proposed installation and operation of a photovoltaic (solar) system at two locations at the Alexandria VA medical Center in Pineville, Louisiana, pursuant to Section 203 of the Energy Policy Act of 2005; Executive Order (EO) 13423, Strengthening Environmental, Energy, and Transportation Management (2007); and EO 13514, Federal Leadership in Environmental, Energy, and Economic Performance (2009). The EA evaluated possible effects to aesthetics, land use; air quality; the noise environment; geology, topography and soils (including erosion and sedimentation); biological resources, including threatened and endangered species; water resources and wetlands; cultural resources; socioeconomics; Environmental Justice (Executive Order [EO] 12898); Protection of Children (EO 13045); infrastructure; transportation; and hazardous and toxic materials and wastes. One of the proposed areas included a 33-acre parcel of undeveloped, primarily wooded land which included a man-made lake, freshwater wetlands, floodplains, streams, and a small former landfill containing buried medical waste. The facility also included a historic district listed on the National Register.

**Environmental Impact Statement, FutureGen 2.0 Project, Illinois.** Acted as co-author for several sections of the EIS, including wetlands & floodplains, surface water, and soils. Mr. Rua also assisted with fieldwork as part of data collection for the EIS, conducting noise monitoring, traffic analysis, and wetland delineation activities. PHE prepared the Draft and Final EIS for the FutureGen 2.0 Project. FutureGen 2.0 is a fully integrated carbon capture and storage (CCS) project that includes the repowering of an existing electricity generation facility with clean coal technologies, capture of generated carbon dioxide (CO<sub>2</sub>), compression and transport of captured CO<sub>2</sub> in a new regional pipeline, and injection and permanent storage of the CO<sub>2</sub> in a deep geologic formation. The project includes a new coal-fired boiler based on oxy-combustion technology that produces a high-concentration CO<sub>2</sub> flue gas, a new pipeline extending approximately 30 miles to a proposed injection site in Morgan County, Illinois, and a Class VI injection well(s) to inject CO<sub>2</sub> for permanent storage in the Mount Simon formation more than a mile below the earth's surface. The EIS evaluated potential environmental consequences of the project to support DOE's decision whether to provide financial assistance for FutureGen 2.0. PHE prepared a high-quality and comprehensive Draft EIS that received a Lack of Objection (LO) rating from the USEPA.

**Environmental Assessment of Proposed Installation and Operation of Wind Turbines, James J. Peters Veterans Affairs Medical Center, Bronx, NY.** Conducted site visit and interviews in support of the EA for this project. Mr. Rua also authored several sections of the EA, including aesthetics, water resources, soil and topography, transportation, land use, and solid & hazardous waste. This Environmental Assessment (EA) evaluated the Proposed Action of the Department of Veterans Affairs (VA) to install and operate up to five (5) wind turbines at the James J. Peters VA Medical Center (VAMC) located at 130 West Kingsbridge Road in Bronx, Bronx County, New York. The EA discussed two alternatives: the Preferred Action Alternative of installing up to five (5) roof-mounted wind turbines on Building 100 at the VAMC, and the No Action Alternative. The EA evaluated possible effects to aesthetics; land use; air quality; the noise environment; geology, topography and soils (including erosion and sedimentation); biological resources, including threatened and endangered species; water resources and wetlands; cultural

resources; socioeconomics; environmental justice (Executive Order [EO] 12898); protection of children (EO 13045); infrastructure; transportation; and hazardous and toxic materials and wastes. The EA concluded there would be no significant adverse impact, either individually or cumulatively, to the local environment or quality of life associated with implementing the Proposed Action, provided routine management measures are implemented.

**American Electric Power Service Corporation's Mountaineer Commercial Scale Carbon Capture and Storage Project, EIS, West Virginia, 2010.** Assisted with and led an extensive fieldwork effort in support of this project, which included wetlands delineation across several hundred acres of undeveloped property and along 20+ miles of existing transmission line rights-of way. The fieldwork also included a survey of sensitive receptors and a survey for suitable bat habitat. The fieldwork was in support of an Environmental Impact Statement (EIS) for DOE to assess the potential environmental impacts of providing financial assistance for the construction and operation of a project proposed by American Electric Power Service Corporation (AEP). AEP's Mountaineer Commercial Scale Carbon Capture and Storage Project (Mountaineer CCS II Project) would construct a commercial scale carbon dioxide (CO<sub>2</sub>) capture and storage (CCS) system at AEP's existing Mountaineer Power Plant and located near New Haven, West Virginia. DOE selected this project for an award of financial assistance through a competitive process under the Clean Coal Power Initiative (CCPI) Program. The Mountaineer CCS II Project would design, construct, and operate a CCS facility using Alstom's chilled ammonia process (CAP) that would capture approximately 1.5 million metric tons annually of CO<sub>2</sub> from a 235-megawatt (MW) flue gas slip stream of the 1,300 MWe Mountaineer Plant. The captured CO<sub>2</sub> would be treated, compressed, and transported by pipeline to proposed injection site(s) at AEP-owned properties within an estimated 12 miles of the Mountaineer Plant where it would be injected into one or more geologic formations. The Mountaineer CCS II Project would further the specific objective of the CCPI program by demonstrating advanced coal-based technologies that capture and sequester, or put to beneficial use, CO<sub>2</sub> emissions from coal-fired power plants.

**Taylorville Energy Center, Environmental Impact Statement (EIS), Taylorville, Christian County, Illinois (2009), U.S. Department of Energy.** Assisted with extensive fieldwork studies assessing traffic and noise impacts in support of an EIS for the Taylorville Energy Center (TEC). The TEC is a proposed 716-megawatt (MW) (gross) electric generation facility that would utilize Integrated Gasification Combined Cycle (IGCC) technology to produce electricity from Illinois bituminous coal. The project proponent proposes to construct the plant on a 713-acre agricultural site approximately two miles north of the Taylorville downtown area in Christian County and has applied for a loan guarantee from the U.S. Department of Energy (DOE) to cover the commercial funding sought. As currently planned, the TEC would gasify up to 1.58 million tons of coal per year to produce pipeline-quality substitute natural gas (SNG). The TEC would combust SNG to contribute 3.9 billion kilowatt-hours (kWh) of electricity per year to the electric grid system and would distribute excess SNG to the natural gas market. The project would also capture and geologically store more than 50 percent of the carbon dioxide that would otherwise be emitted. Key elements of the EIS include, air quality, human health and safety, water resources, traffic and transportation, noise, and material and waste management. As part of the NEPA process, PHE planned and implemented a public involvement program to include a public scoping meeting held in October 2009 and a public hearing to be held when the Draft EIS is distributed.

**Department of Energy, Proposed Western Greenbrier Co-generation Plant, Environmental Impact Statement (EIS), Greenbrier County, West Virginia.** Contributed with desktop research, site

inspections, and report text for an EIS for a proposed waste coal power plant in West Virginia. Assisted with field surveys to assess the vegetative communities and wildlife habitat present on the site of the proposed plant as well as at the off-site location from which the waste coal would be obtained. Evaluated information regarding threatened and endangered species known from the area. Also assisted with an extensive wetland delineation at the proposed site and coordinated with the project surveyor. Also assisted with groundwater characterization sampling, long-term groundwater pump test activities, noise monitoring, traffic counts, and regulatory research. Assisted with preparation the corresponding sections of the EIS for these topics.

**U.S. General Services Administration, Centers for Disease Control and Prevention, National Institute of Occupational Safety and Health.** Contributed with desktop research, site inspections, and report text for an EIS to consolidate and relocate two existing NIOSH facilities into one new facility.

## ENVIRONMENTAL COMPLIANCE

**FY 2015, FY 2016, and FY 2017 Environmental Compliance Evaluations, USCG, 2016-2017.** Mr. Rua served as Auditor or Lead Auditor as part of multimedia compliance audits conducted at more than 20 Coast Guard installations in California, Washington, Hawaii, Alaska, North Carolina, Virginia, Maryland, Connecticut, Alabama, Puerto Rico, and the District of Columbia. The work was part of three separate task orders to conduct the FY2015, FY2016, and FY2017 ECEs at over 40 separate USCG facilities and independently moored vessels. Mr. Rua was part of a team of auditors at more than 20 facilities to complete a physical inspection of regulated facilities and operations, interview appropriate personnel, review on-site records and procedural documents, and gather supplemental data as needed to assess compliance. PHE conducted a detailed review of the emergency planning and response documents at each installation, including SPCC Plans, ICPs, OHSCPs, RCPs, and FRPs. PHE evaluated these plans for compliance with applicable federal, state, and local requirements. PHE also assessed the extent to which each plan was implemented and provided recommendations to improve plans and plan implementation.

**EMS and Compliance Audit, Marine Corps Air-Ground Combat Center, Twentynine Palms, CA, 2016.** Auditor for an internal ECE conducted at the MCAGCC/MAGTFTC Twentynine Palms. The purpose of the internal audit inspection (“self-ECE”) was to provide an independent and objective evaluation of compliance, as well as external perspectives on best practices and required corrective actions. Mr. Rua served as the media-area specialist for hazardous waste compliance, assessing the Combat Center’s compliance with local, State, and Federal hazardous waste regulations. Findings were uploaded into the Marine Corps WEBCASS Online system and were also detailed in a written report.

**Environmental Compliance Audits, VA Medical Centers, Various Locations, Nationwide, 2008-2015.** Served as an auditor assisting with multimedia compliance audits at VA Medical Centers in Perry Point, MD; Marion, IN; Indianapolis, IN; Fort Wayne, IN; Miami, FL; West Palm Beach, FL; Boise, ID; Columbus, OH; Dayton, OH; Walla Walla, WA; and White City, OR. The audits consisted all aspects of environmental regulation in accordance with the TEAM Guide prepared by the CERL, and associated state supplement guides. The audits included a review of compliance with the Clean Water Act, the Resource Conservation and Recovery Act, the Toxic Substances Control Act, the National Environmental Policy Act, hazardous/universal/infectious waste management, solid waste management, water quality, wastewater management, underground storage tanks, Spill Prevention, Control, and Countermeasures, and air emissions were evaluated during site visits and on-site document review. Participated in all

audits, acting as lead auditor on three inspections, and assisted with providing recommended corrective actions to environmental management staff. Also assisted with entering findings into an online database (CP-Track) and preparing draft and final reports.

**Development of an Integrated Waste Management (IWM) Guidance Manual, USCG, Nationwide, 2016-Present.** Mr. Rua is a lead author currently supporting SILC EMD in development of Coast Guard-wide material and waste management guidance. The scope of the project addresses the full hazardous material and waste lifecycle (procurement, hazardous materials management, and hazardous waste generation, management, and disposal), as well as universal waste and non-hazardous solid waste management, recycling, and disposal. Deliverables include an IWM Job Guide, providing shop-level procedures for facility level compliance, and an IWM Process Guide to standardize material and waste management program implementation for Coast Guard facilities nationwide.

**Environmental Compliance Audits, Maryland State Highway Administration, MD.** Assisted with several compliance audits for Maryland highway maintenance facilities throughout the state to ensure compliance with RCRA, EPCRA, TSCA, CAA, wastewater and storm water, PCBs, wastewater and storm water management, and best management practices. Audits included a review of facility operations, documentation, and permits compared to pertinent Federal, state and local regulations to ensure compliance. Participated with the development and presentation of preliminary audit findings with state and facility personnel at closure of onsite audit and helped prepared written reports detailing the findings of the audit and recommendations to correct any deficiencies identified.

**Environmental Compliance Audit, U.S. Department of the Treasury, Philadelphia and San Francisco U.S. Mint Facilities, 2012, 2015-2016.** Assisted with two multimedia environmental compliance audit inspection at the U.S. Mint facility in Philadelphia, PA (2012 and 2015) as well as the U.S. Mint facility in San Francisco, CA (2016). The audits included a review of compliance with the Clean Water Act, the Resource Conservation and Recovery Act, the Toxic Substances Control Act, the National Environmental Policy Act, hazardous/universal/infectious waste management, solid waste management, water quality, wastewater management, underground storage tanks, Spill Prevention, Control, and Countermeasures, and air emissions were evaluated during site visits and on-site document review. The process included a site inspection, personnel interviews, records review, and report preparation.

**Hazardous Waste Survey and Characterization, VISNs 20, 10, 5, and 2, 2013-2018.** Under three separate projects with the Department of Veterans Affairs, Mr. Rua served as Field and Technical Lead for facility-wide hazardous waste identification and characterization at six VA Medical Centers in Alaska, Washington, Oregon, Idaho, Ohio, West Virginia, and New York. The projects consisted of an onsite inspection of all known and potential hazardous waste generation activities, as well as certain industrial wastewater discharges, and characterization of each based on personnel interviews, process inspections, review of Material Data Sheets and other manufacturer documents, and previous laboratory data. The inspections included a review of Federal and state hazardous waste regulation and local wastewater discharge ordinances to determine compliance. All waste streams identified were compiled into an MS Access database with all supporting documentation and characterization justification.

**EMS and Internal Audit Program Development and Implementation, U.S. Naval Hospital Yokosuka, Japan, 2017-2018.** Auditor and co-author in support of redeveloping and implementing the environmental management system (EMS) and Internal Audit Program at U.S. Naval Hospital (USNH)

Yokosuka, Japan. The work was conducted and prepared in accordance with ISO 14001, OPNAVINST 5090.1D, and NAVFAC Headquarters' July 2017 Internal Audit Procedure. Prior to execution of this task order, USNH EMS documentation had not been updated for several years, and an audit team from NAVFAC Pacific identified numerous non-conformances in a prior external audit. Project scope and objectives included developing and implementing corrective actions for identified non-conformances and ultimately included an overhaul of the EMS and development of new or extensively revised EMS documentation

## SITE ASSESSMENTS, CHARACTERIZATION, INVESTIGATION AND REMEDIATION

**USCG Yard Grove Dump Site Investigation, Baltimore, MD, 2018-2019.** Senior Scientist for a site investigation (SI) at the USCG Yard in Baltimore, Maryland. The SI was conducted in accordance with the Federal Facility Agreement between USEPA and the USCG and a Work Plan developed by PHE with concurrence from the USCG and USEPA. The site was addressed under the Site-Screening Process (SSP) as outlined in the FFA to determine whether a hazard to human health or the environment exists that warrants the completion of a Remedial Investigation/Feasibility Study. Mr. Rua led the field efforts, which consisted of text pit exploration, logging and soil sampling; soil core logging and sampling; and monitoring well installation, development and groundwater sampling; and sampling and characterization of investigation-derived wastes. Mr. Rua was also the lead author for both the Site Investigation Work Plan as well as the Site Investigation Report, which also included a screening-level ecological risk assessment and an evaluation of potential impacts to human health by comparing contaminant concentrations with USEPA regional screening levels.

**Hazardous Materials Inventory and Asbestos/Lead Paint Survey, U.S. Coast Guard Sector Southeast New England Facility, Woods Hole, Massachusetts, 2014-2015.** Field Leader for a comprehensive hazardous material inventory (HMI) at four buildings located at the USCG facility in Woods Hole, MA. The fieldwork included a survey for asbestos-containing materials (ACM) and lead-based paint (LBP). Over 250 ACM samples were collected and submitted for laboratory analysis. The LBP survey was conducted using a combination of X-ray fluorescence (XRF) and physical sample collection. Mr. Rua subsequently prepared a detailed report identifying the findings from the survey as well as an order of magnitude cost estimate for abatement.

**U.S. General Services Administration (GSA) Federal Courthouse Project, Mobile, AL (2002 – Present).** Mr. Rua served as Technical Lead on Phase I, Phase II, Remedial Investigation, and Remedial Action for a proposed Federal courthouse site in Mobile, Alabama. The project involved historical research, site reconnaissance, project planning, and extensive fieldwork implementation including soil and groundwater sampling, soil gas module installation, and monitoring well and piezometer installation and sampling. After initial investigation and site characterization, remedial activities were performed, including waste classification, transport, and disposal of over 400 cubic yards of petroleum- and solvent-contaminated soil. The remediation also included the excavation, removal, and closure of a 900-gallon hazardous waste underground storage tank. Over 500 gallons of sludge and product removed from the tank were characterized via laboratory analysis and determined to be hazardous waste. Mr. Rua worked on behalf of GSA to register the site as a RCRA large quantity generator of hazardous waste and obtain an EPA ID Number. Mr. Rua coordinated with subcontractors to transport and dispose of the hazardous waste.

**Fats, Oil, and Grease (FOG) Management Study, United States Army Garrison West Point, NY (2016).**

Mr. Rua acted as a Field Investigation for a detailed study of fats, oils, and grease (FOG) management at the United States Army Garrison West Point (West Point). The purpose of this project was to: 1) assess baseline FOG management practices at West Point; 2) develop Standard Operating Procedures (SOPs) applicable to all units; 3) identify best management practices for improvement; 4) provide recommendations that focus on improving efficiency to increase grease trap program capabilities while maintaining or reducing current costs/manpower requirements; and 5) develop training materials related to proper management of FOG. To meet project objectives, PHE began by conducting a detailed survey of all grease traps, grease interceptors, and oil/water separators onsite. As part of the survey, PHE conducted a physical inspection of each unit, collecting information on the make, model, capacity, and any other available information on system design and installation, as well as assessing condition, structural integrity, and functional ability of each unit. PHE also recorded the location of each unit using existing site plans and Geographic Information System (GIS) data. PHE then performed an Industrial Waste Survey (IWS) to identify and characterize all wastewater sources discharging into each unit by performing a detailed inspection of applicable facility operations and conducting interviews with relevant personnel and staff members. At the conclusion of the study, PHE prepared a FOG Management Study for West Point which provided a summary of results, conclusions, and recommendations.

**Outdoor Air Monitoring at Construction Sites, Various Sites in New Jersey and New York, Private Client, 2011-2016.**

Mr. Rua helped implement air monitoring programs by conducting perimeter air monitoring to measure off-site concentrations of inhalable particulates during construction and other earth-moving activities at several known contaminated sites. The sites included three Brownfields properties in Jersey City, NJ, and one Brownfields site in Staten Island, NY. Contaminants of concern included heavy metals, PCBs, polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), and total petroleum hydrocarbons (TPH). Construction and remedial operations occurring at these sites resulted in the increased potential for generation of airborne dust and migration of contaminants off-site. The purpose of the perimeter air sampling was to determine the concentration of airborne particulates migrating off-site, and to implement necessary dust suppression measures when airborne concentrations exceeded criteria levels.

**Environmental Condition of Property (ECOP), Environmental Baseline Survey (EBS), Dobbins Air Reserve Base, Marietta, Georgia, 2012.**

Primary author for an Environmental Baseline Survey (EBS) prepared in April 2012 for an approximately 25-acre portion of Dobbins Air Reserve Base (DARB) in Marietta, GA, on behalf of the Georgia Army National Guard (GAARNG)/Georgia Department of Defense (GaDoD). The EBS was prepared in accordance with the procedures set forth by the Army National Guard (ARNG) Environmental Condition of Property (ECOP) Handbook (2011); the US Environmental Protection Agency's (USEPA's) "All Appropriate Inquiries" Final Rule (40 Code of Federal Regulations [CFR] Part 312); the American Society for Testing and Materials (ASTM) guidelines outlined in ASTM D 5746-98 (2010), ASTM D 6008-96 (2005); and generally recognized industry practices. The EBS consisted of an extensive review of over 1,000 pages of previous environmental documentation, reports, surveys, and permits; a site walk-through and inspection; and interviews with current and past employees. The EBS identified several environmental concerns for the property, which included the potential presence of USTs, asbestos-containing materials, and prior improper disposal of hazardous wastes.

**Specialty metal alloy manufacturing facility, Various environmental compliance services, 2001-2011.**

PHE has assisted an industrial metal alloy manufacturing facility with various environmental compliance

activities since 2001. Assisted with the collection of effluent storm water samples following storm events from various discharge points at the site in support of the facility's NPDES permit. Has also mapped the facility outfalls in AutoCAD using GPS in support of permit report submittals. Other activities have included wetlands delineation and permitting; threatened and endangered species and habitat surveys; soil and groundwater monitoring, treatment, and remediation pursuant to an Administrative Consent Order issued for the facility by NJDEP; and indoor and ambient air sampling.

**Mold Inspection, Residential Apartment and Townhouse Complex, Private Client, Silver Spring, MD.**

Assisted with field inspection and report preparation as part of a mold inspection survey for a residential housing facility. As part of the due diligence investigation associated with a planned commercial real estate transaction, PHE conducted a mold inspection survey in accordance with the American Society of Testing and Materials (ASTM) Standard E2418-06, *Readily Observable Mold and Conditions Conducive to Mold in Commercial Buildings, Baseline Survey Process*, at a 450-unit apartment and townhouse complex in Silver Spring, Maryland. The residential complex consists of 57 two- and three-story residential buildings occupying approximately 22 acres. As part of the Baseline Survey Process (BSP), PHE conducted a walk-through of a representative sample of the units that comprise the Falkland Chase apartment and townhouse complex in an effort to identify readily visible mold and conditions conducive to mold, such as moisture intrusion, leaks, and other signs of deterioration. The visual review portion of the BSP included a review of 103 single- and double-bedroom apartments (27%), 16 three-bedroom townhouses (22%), two of the four communal laundry rooms, and one basement maintenance area. The project included a detailed physical inspection of the representative portions of the property and conducted interviews with representatives of the property that have knowledge of the physical characteristics, maintenance, and repair of the property, including both staff and tenants. In addition to visual observations, PHE collected ambient air and direct-read measurements of building components. A Protimeter® Moisture Meter System 2 (MMS2) was used to collect ambient air readings of relative humidity (%RH) and temperature, parameters indicative of conditions that may support mold growth, as well as direct readings of suspect or previously impacted building material for moisture and condensation potential. The BSP identified that persistent condensation on many of the windows of the older units had resulted in a widespread issue of minor to moderate water damage along window sills and adjacent drywall. Microbial growth was also observed within several apartments and townhouses on the premises.

**Abandoned Former Quarry site, Environmental Due Diligence and Remediation.** Conducted extensive fieldwork in support of an environmental due diligence investigation and subsequent remediation at an abandoned property in central new Jersey that had been the location of potential illegal "midnight dumping" activities. The investigation included an onsite storm water swale which received runoff from the property. Conducted sampling of sediment and storm water within this swale for a full suite of chemical analyses. The sampling included upstream, midstream, and downstream sampling to determine the nature and extent of contamination being contributed to this swale from the site. Conducted sampling activities, recorded sample points with GPS, and mapped and compiled all sample locations and analytical data in AutoCAD. Also conducted extensive soil and groundwater sampling at the site, and provided oversight of all remedial activities, which consisted of excavation and offsite disposal, and post-remedial sampling. A freshwater wetlands permit was also required prior to implementing remedial activities. Assisted with a wetlands delineation and preparation of the permit application to NJDEP.

**Site Investigation and Remedial Action oversight for natural gas pipeline installation, NJNG.** Supported New Jersey Natural Gas (NJNG) during installation of 1,700 feet of natural gas pipeline in Rockaway Township, Morris County, New Jersey. The newly installed gas line location is situated in the rights-of-way (roadway shoulder and/or driving lane) of one local street and one County roadway adjacent to several commercial properties, including a facility which was listed as a Known Contaminated Site by NJDEP. During project planning it was determined that contaminated soil and groundwater would likely be encountered during pipeline trench excavation activities adjacent to this facility, and would require investigation and ultimate treatment/remediation. PHE helped the client apply for a New Jersey NPDES permit from NJDEP, which was ultimately approved. PHE designed a groundwater treatment system consisting of activated carbon to treat contaminated groundwater prior to discharge to surface water, as per the NPDES permit. Collected several samples of the groundwater effluent in accordance with permit requirements throughout the life of the project, and assisted with preparation and submittal of required Discharge Monitoring Notices to NJDEP. Assisted with the fieldwork (soil and groundwater sampling) and report preparation in support of a Site Investigation (SI) for the proposed pipeline trench. The SI sampling was conducted to characterize the presence and type of contamination in soil and groundwater that would be encountered during the pipeline installation project so that arrangements could be made for its proper management and disposal. Waste classification analyses were also conducted in accordance with the permit requirements of disposal facilities so that disposal approval could be obtained prior to construction.

**Site Characterization and Remediation Services, Fuel Oil Release, Martinsburg Veterans Affairs Medical Center, Martinsburg, WV.** PHE has been providing continuous support to the VAMC for over 14 years as part of efforts to investigate, monitor, and remediate a 1993 fuel spill. PHE has established a groundwater monitoring program with concurrence from the West Virginia Department of Environmental Protection (WVDEP) and has compiled historical groundwater monitoring data for the site, developed a database for interpreting site data, and collected and interpreted new data on a quarterly basis. Fourteen groundwater monitoring wells have been monitored in accordance with a State of West Virginia consent order. PHE has conducted negotiations with the WVDEP regarding consent order terms and negotiated reduced monitoring when warranted.

- Assisted with multiple rounds of quarterly groundwater sampling at the VA Medical Center in Martinsburg, West Virginia. Groundwater sampling has been required in response to a release of fuel oil at the site, as well as to investigate the presence of chlorinated compounds present in ground water at the site resulting from an unknown source. Sampling was conducted with dedicated bladder pumps or peristaltic pumps utilizing low-flow techniques. Contamination had been historically detected in onsite potable water production wells, which requires continuous onsite treatment, which currently includes an air-stripper. In addition, excessive lime in the groundwater also requires treatment. PHE has assisted with the design and construction of a new drinking water treatment system consisting primarily of activated carbon. During initial design, Mr. Rua collected multiple samples of both raw and treated water at various points within the collection, treatment, and distribution system of the onsite water treatment plant for various analyses, and assisted with data interpretation and reporting.
- To evaluate bioremediation as a remedial option, PHE collected groundwater samples for analysis and testing by a consulting laboratory specializing in bioremediation studies. The goal of the laboratory testing and analysis was to determine the optimal bio-enhancement combination for the site to promote bioremediation of site contaminants including diesel range

organic compounds, benzene, toluene, xylenes, ethylbenzene and methyl tertiary butyl ether (MTBE).

- Other groundwater studies, has also assisted with a preliminary biofeasibility study assessment for natural attenuation of the site. PHE completed an in-depth analysis of remedial options to address groundwater contamination at the VA. The study focused on the determination of whether in situ oxidation and nutrient addition could be used to effectively increase the rate at which biodegradation of site contaminants occurs. He participated with a pump test and slug test at the site to determine various aquifer conditions and interconnectedness amongst the well network established at the site; several events utilizing Vacuum-Enhanced Recovery to remove free product from groundwater wells.

**Site Characterization and Remediation Services, Chlorinated Solvent Investigation, Martinsburg Veterans Affairs Medical Center, Martinsburg, WV.** PHE conducted a site characterization study to identify potential sources of chlorinated contamination in groundwater on the property. This investigation included a geophysical survey over a large portion of the property and a passive soil gas survey over the areas identified as potentially contributing to the contamination. The data from these surveys was used to support the siting of additional groundwater monitoring wells and a groundwater sampling program. As a result of the site characterization work, PHE identified a primary contaminant source under the schedule agreed to by the WVDEP. Assisted with field installation and retrieval of over 100 soil gas modules across four potential areas of concern. Assisted with subsurface soil sampling, monitoring well sampling, and an inspection and investigation of pipes, pits, sumps, and drains within the presumed source area for the onsite chlorinated solvent contamination. Helped prepared a Site Characterization Report and Workplan for submittal to WVDEP, which was subsequently approved.

**Environmental due diligence activities, major car dealership and service facility, Manhattan, NY.** Acted as field technical lead for various environmental due diligence activities at an active car dealership/service facility in New York City, New York. The property has been used for this purpose by various entities since the building was constructed in the 1920s. A Phase I Environmental Site Assessment (ESA) conducted by PHE for the site identified the presence of at least 4 out-of-service USTs, one active UST, potential asbestos-containing materials (ACM) and potential lead-based paint. A Phase II ESA was conducted to address these issues. A ground-penetrating radar survey was first conducted to identify potential current and former locations of USTs. Soil borings were then installed in proximity to these areas and soil and groundwater samples were collected. Various petroleum-related contaminants were observed in soil samples collected near interior potential UST locations and the exterior active heating oil UST. Soil staining and petroleum odors were observed during field sampling, further confirming the discharge of petroleum to the subsurface. PHE subsequently conducted oversight, on behalf of the contract purchaser, of the removal and closure of the out-of-service USTs conducted by the seller. During removal activities, three additional previously unknown USTs were discovered. The ACM and lead-based paint survey identified the presence of several types of ACM, including pipe wrap insulation and epoxy floor coating on a portion of the roof of the building. Lead-based paint was determined to be minimal in quantity.

**U.S. General Services Administration (GSA) Federal Courthouse Projects, Southeastern United States.** Technical lead on Phase I, Phase II, and Remedial Investigations for various federal courthouse sites in the southeastern United States conducted on behalf of the U.S. General Services Administration, Southeast Sunbelt Region. Projects were located in Jackson, MS; Ft. Pierce, FL; Greenville, SC; and

Nashville, TN involving historical research, site reconnaissance, project planning, and extensive fieldwork implementation including soil and groundwater sampling, soil gas module installation, and monitoring well and piezometer installation and sampling. Was additionally responsible for data compilation and interpretation and report preparation.

**Asbestos-containing materials (ACM) survey at car dealership and service facility, Freehold, NJ.**

Conducted a Phase I Environmental Site Assessment (ESA) for an active car dealership and auto service/body shop facility. The Phase I ESA identified the potential for asbestos-containing material (ACM) within the two buildings located onsite based upon their appearance and approximate ages. Implemented a sampling scheme at the site modeled after the requirements of the Asbestos Hazard Emergency Response Act (AHERA). However, PHE deviated from AHERA requirements (as permitted) where applicable based upon professional judgment and client objectives to reduce the number of samples collected. He collected a total of 189 bulk samples at the site for analysis. Samples were collected throughout the interior of the building on all floors, including the telephone, elevator, and mechanical rooms, as well as on portions of the exterior of the building, including the roof. ACM was identified in floor tiles, mastic, and several roofing adhesives and joint compounds.

**Foggia Landfill Remedial Investigation.** Assisted with logging and sampling of over 60 test pits excavated at former landfill site to categorize extent and type of fill and trash material. Was responsible for field planning support, sampling, and data compilation, and assisted with report preparation. Also compiled historical data required for wetland permit considerations. Site is to be used for residential development.

**Soil and groundwater sampling, various sites with current or former USTs.** Has assisted with or has been the lead on numerous environmental investigations for potential purchasers of various residential or commercial sites. Tasks include inspection and logging of soil cores, collection of soil samples, installation of temporary wellpoints, and groundwater sampling. Has also acted in an oversight role for such investigations, observing and evaluating the work of third-party consultants. Responsible for data evaluation and management, and report drafting and production.

**Quarterly Groundwater Sampling, Marine Corps Base Quantico.** Assisted with multiple rounds of quarterly groundwater sampling, methane gas monitoring, and landfill inspections at the Russell Road and MCB-2 Landfills, Marine Corps Base Quantico, Virginia. Groundwater sampling was conducted with dedicated bladder pumps or peristaltic pumps utilizing low-flow techniques. MrAssisted with sample management, data review and evaluation, and report drafting.

**Volunteer Army Ammunition Plant Phase I ESA and Phase II Site Investigation.** Primary researcher and author for Phase I ESA. Conducted soil sampling at former TNT manufacturing plant in Chattanooga, Tennessee, in October 2001. Responsible for field planning and mobilization, and assisted in drafting and production of reports for Phase I and Phase II investigations.

**Howell Township BOE Phase II Site Investigation/Remedial Investigation/Remediation.** Conducted soil sampling at 77-acre farm field in Howell Township, Monmouth County, to delineate contamination of Dieldrin, a Target Compound List pesticide. Site is proposed location of an elementary and middle school for Howell Township. Over two hundred surface and subsurface were collected at the site. Sampling was conducted in accordance with New Jersey Department of Environmental Protection Historic Pesticide Contamination Task Force "Findings and Recommendations for the Remediation of Historic Pesticide Contamination" and the NJDEP "Technical Requirements for Site Remediation"

(N.J.A.C. 7:26E). Was responsible for mobilization, fieldwork/sampling, data collection and interpretation, project planning assistance, and report preparation for this year-long project.

**Various Pesticide Phase II Investigations.** Responsible for numerous other soil investigations to determine the presence and extent of pesticides. Technical lead, having start to finish responsibility including project scoping and proposal preparation, project planning, mobilization, fieldwork/sampling, data compilation and interpretation, and report preparation.

**Various All Appropriate Inquiry (AAI)/ Phase I Environmental Site Assessments (ESAs).** Has personally conducted or assisted with well over 50 Phase I ESAs and/or AAI investigations throughout New Jersey and across the country, including Florida, Alabama, Mississippi, Tennessee, Maryland, Delaware, New York, and Oregon. Served as primary investigator/author on a majority of these investigations, ranging from rural agricultural properties to multi-parcel commercial or industrial sites.

## LAND DEVELOPMENT

**Dover Air Force Base (DAFB), DE.** Assisted with wetlands delineation and verification at DAFB in Dover, DE. Previous wetland delineation by a third-party had expired. Accompanied Sr. Environmental Scientist to site to check existing wetlands and investigated areas of new potential wetlands. Wetlands delineation was guided predominantly by topography and vegetation.

**Precision Rolled Products, Inc., Florham Park, NJ.** Assisted with wetlands remediation and restoration activities at contaminated site in Morris County, NJ. Conducted vegetation health/survival inventory, assisted with replanting activities, assessed hydric soil presence, and prepared wetland monitoring reports for the site. Additional monitoring reports will be prepared over the next four years.

**Centers for Disease Control and Prevention (CDC).** Conducted field visit and assisted with wetland delineation for the CDC in Chamblee, GA. Wetlands work included investigation of the hydrology, soils and plant identification in order to properly delineate boundaries of wetlands on site in accordance with the Army Corps of Engineers Wetland Delineation Manual (1987).

**Little Silver Cleaners, Little Silver, NJ.** Conducted a wetland delineation on a 2.5-acre site in Central New Jersey. Investigated soil and hydrology characteristics on site, as well as assisted identifying dominant tree and other plant species as part of wetland delineation in accordance with the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1989). Also prepared permit application for submittal to NJDEP.

**Proposed residential subdivision, Fieldsboro, NJ.** Conducted a wetland delineation at an approximately 10-acre site in Fieldsboro, Burlington County. Independently conducted all fieldwork activities and application preparation and submittal for this project. Investigated soil and hydrology characteristics on site, as well as assisted identifying dominant tree and other plant species as part of wetland delineation in accordance with the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1989). Independently conducted all fieldwork activities and application preparation and submittal for this project.

**Threatened Species Survey.** Conducted field visit with Senior Environmental Scientist to survey property in Manalapan Township for evidence of wood turtles (*Clemmys insculpta*), a threatened species in New Jersey.

## SUPPLEMENTAL INFORMATION

### EMPLOYMENT HISTORY

2001 - Present Potomac-Hudson Engineering, Inc.

### PROFESSIONAL/SPECIALIZED/SKILL TRAINING/ADDITIONAL COURSEWORK

Environmental Audits and Site Assessments, Rutgers University, Cook College, February 2001, 2004

Hydric Soils, Rutgers University, June 2001

Coastal Project Review Workshop, Rutgers University, April 2004

AutoCAD Fundamental, NAPCO, 2004

Getting Started with GIS, ESRI, 2013

Due Diligence at Dawn, Environmental Data Resources, Inc., 2004-2008

The Complete Groundwater Monitoring Field Course, Nielsen Environmental Field School, 2006

Certified Asbestos Inspector, EPA, New York State

Certified Hazardous Materials Manager, 2012

### COMPUTER SKILLS

Both Macintosh and PC Platforms. MS Word; MS Excel; MS PowerPoint; MS Access; AutoCAD.

### U.S. CITIZEN/FOREIGN STATUS

U.S. Citizen



**Paul DiPaolo**

**Project Manager | Environmental Scientist**

## EDUCATION

M.S., Environmental Planning and Management, Johns Hopkins University, MD, 2017

B.S., Environmental Science and Policy, University of Maryland-College Park, MD, 2010

## PROFESSIONAL CERTIFICATIONS

OSHA HAZWOPER 24-hour certification, 2018-present

OSHA 10-hour construction safety training, 2019

## PROFESSIONAL MEMBERSHIPS

Society of American Military Engineers (SAME)

## PROFESSIONAL EXPERIENCE

Mr. DiPaolo is an environmental scientist with over 9 years of professional experience serving a project manager and technical lead on National Environmental Policy Act (NEPA)-related projects, environmental planning, and environmental compliance projects. He supported the preparation of Environmental Impact Statements (EISs) and Environmental Assessments (EAs) for a variety of federal clients, including the U.S. Department of Energy (DOE), U.S. Department of Veterans Affairs (VA), U.S. Army, U.S. Navy, U.S. Air Force, and Department of State. Mr. DiPaolo has provided technical assistance for a wide range of media areas and topics, including socioeconomics, environmental justice, land use, water resources, soils, biological resources, utilities, traffic and transportation, and aesthetics. Mr. DiPaolo has led or closely supported the preparation of storm water management plans and spill prevention control and countermeasure plans; conducted Emergency Planning and Community Right-to-Know Act (EPCRA) reporting; provided Environmental Management Systems support; conducted air emissions and ozone depleting substance inventories; supported solid waste management surveys; and conducted environmental compliance audits for U.S. Mint, U.S. Marine Corps, U.S. Coast Guard, VA, and Maryland State Highway Administration facilities.

## TECHNICAL EXPERIENCE

### IMPACT ANALYSIS

NEPA EAs & EISs  
Land Use

Soil Erosion

Socioeconomics

Facilities & Utilities

Noise Assessment

Biological Resources

Water Resources

Wetlands

Solid/Haz Waste &

Materials

Cumulative Impacts

### FACILITY SITING

Military/Defense

Federal Buildings

Transmission Lines

Clean Coal Energy

Pipelines

Renewable Energy

### DOCUMENT MANAGEMENT

Proj. Management

Admin Records

Editorial Reviews

Technical Reviews

Public Involvement

## PROJECT HISTORY

### ENVIRONMENTAL STUDIES & IMPACT ANALYSIS

#### Department of State

- **Supplemental Environmental Impact Statement (SEIS) for the Keystone XL Project. 2018-present.** Mr. DiPaolo is currently serving as a Technical Resource Analysis for an SEIS that supplements the 2014 Keystone XL Final SEIS, considers the direct, indirect and cumulative

impacts related to changes in the Project since 2014 and incorporates updated information and new studies, as applicable. Changes to the Project include the Mainline Alternative Route (MAR) in Nebraska, and the SEIS utilizes a revised methodology for accidental releases. Mr. DiPaolo served as the Lead Author for the socioeconomics and environmental justice sections.

- **Supplement Environmental Impact Statement (EIS) for the Line 67 Capacity Expansion Project, 2014 – 2017.** Mr. DiPaolo served as the lead author for the socioeconomics and environmental justice sections for a supplemental EIS for a new Presidential Permit for the proposed expansion of an oil pipeline that would transport approximately 890,000 barrels per day of heavy crude oil from the western sedimentary basin in Canada to Superior, Wisconsin. This SEIS is being prepared to support the U.S. Department of State's Presidential Permit decision, and involves the analysis of environmental issues related to increasing the volume of oil transported in the pipeline from approximately 500,000 barrels per day to 890,000 barrels per day. The several hundred mile pipeline enters the United States in North Dakota and traverses the state of Minnesota before terminating at a large oil storage terminal in Wisconsin. Preparation of the socioeconomics and environmental justice sections required the analysis of potential impacts, to include spill impacts, to a 20 county-area and over 550,000 individuals. Analysis considers impacts to housing, economic base, public services, tax revenues, transportation, and environmental justice populations (including four tribal nations within the Region of Influence).
- **Environmental Assessment for the Burgos Pipeline Projects, 2015 – 2016.** Mr. DiPaolo served as the Deputy Project Manager for an EA for two Presidential Permits overseeing petroleum product transport near Edinburg, TX. If approved, the first Presidential Permit would allow NuStar Logistics, L.P. to transport additional petroleum products (including liquid petroleum gases [LPG] and natural gas liquids [NGLs]) through an 8-inch diameter existing pipeline, and the second Presidential Permit would allow the construction and operation of a new 10-inch diameter pipeline that could transport approximately 108,000 barrels per day of petroleum products, including naphtha, LPG and NGLs. The two pipelines would occupy the same, existing 34-mile long right-of-way from Mexico to the Edinburg Terminal in Texas. Mr. DiPaolo provided project management support by attending the internal kick-off meeting with the Department, attending weekly conference calls and preparing meeting minutes, preparing project progress reports, managing data provided from NuStar and ensuring it is appropriately transmitted to section authors, and providing technical review support. Mr. DiPaolo also served as the lead author for the environmental justice, land use, and biological resources sections.
- **Environmental Impact Statement for the Uplands Pipeline Project, North Dakota, 2016-2017.** Mr. DiPaolo provided technical support for the socioeconomics and environmental justice sections for an EIS that considered issuance of a new Presidential Permit for the construction, connection, operation and maintenance of cross-border pipeline facilities on the United States border with Canada. The Presidential Permit, if issued, would authorize Upland to construct, connect, operate and maintain facilities at the border of the United States with Canada, including an approximately 17.77-mile segment of 20-inch diameter pipeline, for the exportation of up to 300,000 barrels per day (bpd) of crude oil from a shale oil geologic formation known as the Williston Basin in North Dakota to Canada. Mr. DiPaolo supported the impact analysis for the direct impacts, cumulative impacts, and impacts from accidental release scenarios and determined the extent to which environmental justice populations would be affected from the Proposed Action.

## **Projects for the U.S. Department of Energy Nationwide National Environmental Policy Act (NEPA) Contract**

- **EIS for the FutureGen 2.0 Project, Illinois. 2010-2014.** Mr. DiPaolo served as the lead author for Aesthetics and Community Services for the DOE FutureGen 2.0 Project. FutureGen 2.0 is a fully integrated carbon capture and storage (CCS) project that includes the proposed construction and operation of commercial scale coal-fired power plant, capture of generated carbon dioxide, compression and transport of captured CO<sub>2</sub> in a new regional pipeline, and injection and permanent storage of the CO<sub>2</sub> in deep geologic formations. DOE is considering providing financial support to the FutureGen 2.0 project and is preparing the EIS to evaluate potential environmental consequences of the project and connected actions. The proposed action analyzed the impacts construction of an approximately 450-foot stack and 30 miles of pipeline, and included a Region of Influence population of approximately 78,000.
- **American Electric Power (AEP) Mountaineer Carbon Capture and Storage (CCS) II Project EIS, Mason County, West Virginia, 2011.** Mr. DiPaolo assisted in data management and verification and provided technical support on an EIS for the Mountaineer CCS II Project. The Project would utilize a chilled ammonia process (CAP) technology to capture at least 90 percent of the CO<sub>2</sub> from the existing Mountaineer Plant which would then be compressed and conveyed via pipeline to injection wells for local geologic storage in the Rose Run and Copper Ridge geologic (saline aquifer) formations approximately 1.5 miles below the land surface. Mr. DiPaolo's duties included compilation of an acronyms list as well as editorial and consistency checks within the document. Additionally, he served as supporting author of the Utilities section.
- **Industrial Carbon Capture and Sequestration Area 2, 216 Review, DOE/NETL, Nationwide, 2010.** Mr. DiPaolo assisted in the drafting of the Environmental Synopsis for the "216" review Environmental Critique (EC) of 11 applicants responding to Funding Opportunity Announcement DE-FOA-0000015 by the DOE, National Energy Technology Laboratory (NETL) in support of the Industrial Carbon Capture and Sequestration Area 2. The objective of ICCS Technology Area 2 is to demonstrate innovative concepts for beneficial CO<sub>2</sub> use, which include, but are not limited to, CO<sub>2</sub> mineralization to carbonates directly through conversion of CO<sub>2</sub> in flue gas; use of CO<sub>2</sub> from power plants or industrial applications to grow algae/biomass; or, conversion of the CO<sub>2</sub> to fuels and chemicals. The EC was prepared pursuant to DOE's NEPA regulations that establish specific procedures (in 10 CFR §1021.216) for reviewing projects seeking financial assistance. Specifics of the review are proprietary to NETL; PHE provided a high quality EC to NETL, on-time and within budget.
- **Industrial Carbon Capture and Sequestration Area 1, 216 Review, DOE/NETL, Nationwide, 2010.** Mr. DiPaolo assisted in the drafting of the Environmental Synopsis for the "216" review Environmental Critique (EC) of 8 applicants responding to Funding Opportunity Announcement DE-FOA-0000015 by the DOE, National Energy Technology Laboratory (NETL) in support of the Industrial Carbon Capture and Sequestration Area 1. The objective of ICCS Technology Area 1 is to demonstrate advanced technologies that capture and sequester CO<sub>2</sub> emissions from industrial sources into underground formations and systems. The EC was prepared pursuant to DOE's NEPA regulations that establish specific procedures (in 10 CFR §1021.216) for reviewing projects seeking financial assistance. Specifics of the review are proprietary to NETL; PHE provided a high quality EC to NETL, on-time and within budget.

- **Mesaba Energy Project Environmental Impact Statement (EIS), Taconite and Hoyt Lakes, Minnesota (2005-2010).** Mr. DiPaolo assisted in the compilation of the ROD for the Mesaba Energy Project EIS that PHE prepared as sole contractor for DOE. The project involved a coal-based Integrated Gasification Combined Cycle (IGCC) power plant to be constructed in the Iron Range of northeastern Minnesota with DOE support under the Clean Coal Power Initiative. The project would represent the first phase of a proposed two-phase generating station, each phase of which would nominally generate 600 megawatts of electricity. The project sponsor considered two alternative sites (1,700 and 1,300 acres) located 70 miles apart. DOE collaborated with the Minnesota Department of Commerce to satisfy both Federal and Minnesota EIS requirements. The USACE and the USDA Forest Service participated as cooperating Federal agencies for the EIS. A comprehensive public involvement program included four scoping meetings and two public hearings on the Draft EIS, as well as eight conferences with representatives from more than 20 Native American tribes. Principal issues on the EIS included potential impacts on air quality, wetlands, public health and water resources. DOE published the Final EIS in November 2009.

#### Projects for the Department of Army

- **Ord Military Community (OMC) and La Mesa Village Residential Communities Initiative (RCI) Housing Redevelopment Environmental Assessment, California, 2017 – present.** Mr. DiPaolo is serving as Project Manager for an EA assessing the impacts of conducting housing redevelopment over the next ten years at the U.S. Army Garrison (USAG) Presidio of Monterey (POM) and Naval Support Activity (NSA) Monterey. The Proposed Action is to implement the 2019-2023 Outyear Development Plan (ODP) and subsequent redevelopment that is planned to occur within the next ten years at the Lower Stilwell neighborhood of the OMC, USAG POM and the Pineview neighborhood, La Mesa Village of the NSA Monterey. The Proposed Action would result in an overall decrease of 144 housing units between the two neighborhoods. Mr. DiPaolo's duties included overall management of EA and document review. Mr. DiPaolo also oversaw management of subcontractors to perform a cultural resources survey and preparation of consultation documents for the State Historic Preservation Officer.
- **Programmatic EA (PEA) for the Conversion and Stationing of an Infantry Brigade Combat Team to Armored Brigade Combat Team, Colorado, Texas, Kansas and Georgia. 2017-2018.** Mr. DiPaolo served as a Technical Lead for an EA analyzing the impacts of converting and Infantry Brigade Combat Team (IBCT) to an Armored Brigade Combat Team (ABCT) at Fort Carson, Colorado and stationing the ABCT at one of five Army installations including Fort Carson, Fort Bliss or Fort Hood, Texas, Fort Reilly, Kansas, or Fort Stewart, Georgia. His duties included preparation of the socioeconomics and environmental justice sections for the PEA. Primary concerns of the PEA were regarding the potential effects and mitigation requirements for minimizing impacts of ABCT training at each installation and an assessment of the existing infrastructure and measures in place which could support an additional ABCT.
- **EA for Army Total Force Training Integration at Fort Hunter Liggett, California. 2015-2016.** Mr. DiPaolo served as the Deputy Project Manager, as well as Lead Author for Biological Resources and Water Resources, for an EA analyzing the impacts of increasing the frequency of brigade-level training exercises and incorporating off-road maneuvers of company-size units at Fort Hunter Liggett, California. As part of this effort, the Army is proposing to designate maneuver corridor areas for off-road maneuver training. Mr. DiPaolo's management duties include project management support, serving as the PHE representative at the project kick-off meeting, coordination of public involvement efforts, preparation of monthly status reports, and document

review. Mr. DiPaolo also prepared the biological resources section, which required detailed analysis due to the extensive presence of federally- and state-protected species on the installation that could be affected by off-road maneuvers. Water resources also required in-depth analysis, including consideration of soil physics and climatology, due to the high potential for sedimentation as a result of off-road maneuvers. Both resources were determined to have potential for significant but mitigable impacts, due to the implementation of a dedicated land restoration and monitoring program proposed within the analysis as a mitigation measure.

- **EA for the Implementation of the Army Residential Communities Initiative at Moffett Community Housing, Mountain View, California. 2015-2018.** Mr. DiPaolo served as the Project Manager for an EA analyzing the transfer and sale of a 17.1 acre residential parcel known as Shenandoah Square to a private developer. The EA considers indirect impacts of potential future demolition of the existing 126 units and construction of 615 to 1,367 new high-density residential units, possibly including mixed-use light retail. An Environmental Condition of Property Report was prepared as part of the planning process and was incorporated into the EA analysis. Mr. DiPaolo also served as the primary author of the EA, to include Chapters 1 and 2, most resources sections, and supporting chapters. He is also responsible for direct communication and project status review with the primary contractor for the project, InDepth.
- **EA for the Expansion of Restricted Airspace R-3803A at Fort Polk, Louisiana. 2014-2016.** Mr. DiPaolo served as the Deputy Project Manager for an EA analyzing the impacts of expansion of restricted airspace over newly acquired lands at Peason Ridge. Restricted airspace is needed to enable realistic weapons firing training in newly acquired lands. The Federal Aviation Administration is serving as a cooperating agency for this project. Mr. DiPaolo's duties include project management support, attendance of kick-off meeting, preparation of Chapters 1 and 2, public involvement support, public meeting coordination, preparation of monthly status reports, and document review. Mr. DiPaolo also supported technical writing for the cumulative resources analysis and socioeconomics discussion.
- **EA for the Stationing of the Company (Co) 229th Aviation Regiment (AVN RGN) Grey Eagle Extended Range/Multi-purpose (ERMP) at the National Training Center (NTC), California. 2013-2014.** Mr. DiPaolo served as Deputy Project Manager for an EA analyzing the impacts of operating, maintaining, sustaining, storing, and training the Co 229th AVN RGN (ERMP) that would coordinate with training rotations through the NTC. The proposed action would involve construction of a runway and additional facilities, and transfer of approximately 1,000 acres of property leased from the Army to the National Aeronautics and Space Administration (NASA) Goldstone back to Fort Irwin. Operations would include training the proposed new unit, including training alongside rotations going through the NTC and integration of UAS components. Mr. DiPaolo's tasks included attendance of periodic project status calls, information management, assistance in the development of the Description of the Proposed Action and Alternatives (DOPAA), preparation of monthly status reports, and technical review support. He also served as lead author for the socioeconomics section.
- **Piñon Canyon Maneuver Site (PCMS) Training and Operations EIS, Fort Carson, Colorado. 2013-2015.** Mr. DiPaolo provided project management support and technical assistance on an EIS to evaluate the environmental and socioeconomic impacts of proposed mission and training actions at PCMS. The proposed action includes implementing enhanced training on PCMS to accommodate training for existing current and evolving tactics, and new equipment; replacing one Heavy Brigade Combat Team (HBCT) at Fort Carson with a Stryker BCT; and analyzes the

potential addition of a maneuver battalion to each of the remaining BCTs. Tasks included attendance of kick-off and scoping meetings, information and document management, public and internal comment resolution, and other project management support activities. Mr. DiPaolo also served as lead author of the land use and socioeconomics sections.

- **EA for Implementing High Altitude Mountain Environment Training Strategy (HAMETS) at Fort Bliss, Texas. 2013-2018.** Mr. DiPaolo served as Project Manager for a highly controversial EA analyzing impacts from HAMETS training mission at Fort Bliss and the Lincoln National Forest to train active duty, National Guard and U.S. Army Reserve aviation units. The Proposed Action would include helicopter training at designated helicopter landing zones in high-altitude, forested environments, as well as staging a local airports. As part of the Proposed Action, a noise study was conducted to document noise levels at Alamogordo Airport (KALM). In addition, surveys of select HLZs for presence of Mexican spotted owl and northern goshawk were conducted as part of this effort and a Biological Assessment was prepared. PHE was also tasked with preparing a Training Operations Plan to support active duty units while training in the forest. PHE also prepared specialist reports on the resource areas considered in the EA to support internal review by the U.S. Forest Service. Mr. DiPaolo's duties include overall management of the EA effort and subcontractors, development of Description of the Proposed Action and Alternatives, and coordination of the public involvement effort. He worked with closely with Fort Bliss staff to identify the structure and content of the EA, refine alternatives, and ensure consistency with U.S. Forest Service NEPA requirements. He served as lead author for land use and recreation, socioeconomics and environmental justice, and public health and safety. Mr. DiPaolo also led preparation of a supporting task to prepare Specialist Reports for land use, socioeconomics, cultural resources, and noise for the USFS.
- **EA for Upgrading Electrical Infrastructure Associated with Utility Privatization at Aberdeen Proving Ground (APG), Maryland. 2013-2015.** Mr. DiPaolo served as lead author for the biological resources, water resources, wetlands, and hazardous materials/hazardous waste sections for an EA analyzing impacts from the replacement of approximately 380 miles of power lines at Aberdeen Proving Ground. The Proposed Action includes burial of power lines, construction of new aboveground power lines, replacement of existing underground and aboveground power lines, demolition of existing substations, and construction of new substations and switching stations. As APG is sited on the Chesapeake Bay, it is home to numerous sensitive species and extensive wetlands. In addition, due to historical contamination from weapons testing, APG is a designated Superfund site. A wetlands delineation was conducted as a part of the Proposed Action. Mr. DiPaolo also provided support in development of Chapters 1 and 2.
- **Fort Gordon Range Construction and Ongoing Field Training Operations EA, Georgia. 2013-2014.** Mr. DiPaolo served as the lead author for the land use and soils sections of an EA for proposed range construction and operations at Fort Gordon. This EA considered a range of alternatives, including establishment of Infantry Maneuver Corridors and Designation of Sub Training Areas to streamline the environmental review process for routine Soldier training activities on Fort Gordon's range and training lands. In addition, construction and operation of Theater Information Network and Heavy Equipment Training areas, artillery and mortar firing points, and a Squad Defense Course are under consideration. Mr. DiPaolo provided project management support, including attendance of the kick-off meeting and in-progress review meeting, and comment resolution. He is provided technical review and support for the biological resources analysis,

including assessing impacts to the federally-endangered gopher tortoise and red-cockaded woodpecker and associated habitat.

- **U.S. Army Garrison (USAG) West Point Net Zero Energy Installation Initiative EA, New York. 2012-2014.** Mr. DiPaolo served as Deputy Project Manager and lead author for an EA to implement the Army's Net Zero energy goals at USAG West Point to secure the Installation's critical missions moving into the future by establishing itself as a Net Zero Energy Installation. The Army's Proposed Action includes evaluation of efforts to produce as much renewable energy on the Installation as it uses annually through installation of photovoltaic systems, combined heat and power plants, solar collectors, and river water cooling technologies. An Environmental Screening Criteria Checklist was also developed to tier off the programmatic aspects contained within the EA. Mr. DiPaolo's duties included attendance of two kick-off meetings/site visits, lead author of the biological resources and land use sections, overall technical and editorial review of the document, drafting agency correspondence letters, development of draft EA/FNSI comment responses, and Administrative Record compilation.
- **U.S. Army Garrison Fort Campbell, Kentucky, Training Mission and Mission Support Activities Programmatic Environment Impact Statement (PEIS), Tennessee and Kentucky. 2012-2016.** Mr. DiPaolo provided technical and public involvement support on a PEIS for the continued training mission at Fort Campbell and for mission support activities. Specifically, Mr. DiPaolo prepared meeting materials (e.g., handouts, posters, presentation slides) for Scoping and Draft PEIS meetings and attended and supported meeting facilitation. In addition, he has provided document management and technical support for land use and socioeconomics. The PEIS evaluates routine range construction activities, implementation of known foreseeable, site-specific construction projects, adoption of designated adaptable use zones within training lands for focused development and training activities, and adoption of best management practices and standard operating procedures. The PEIS also considers airspace modifications as an alternative to accommodate future anticipated training needs and airspace use. The PEIS serves as a planning tool in siting range construction projects and assists Fort Campbell to expedite routine construction projects to meet military readiness, evolving soldier training objectives, and accommodate increasingly sophisticated equipment.
- **Programmatic EA (PEA) for Army 2020 Force Structure Realignment (FSR), Nationwide. 2012-2013.** Mr. DiPaolo served as Deputy Project Manager and Document/Public Comment Manager for the Army 2020 FSR PEA, coordinating and supporting Headquarters, Department of the Army, U.S. Army Environmental Command (USAEC), U.S. Army Corps of Engineers (USACE) Mobile District, and 21 U.S. Army installations in the preparation of a PEA analyzing the highly political and controversial potential force structure realignment of 21 installations within an aggressive schedule. Mr. DiPaolo closely coordinated with USAEC and USACE, Mobile District to update the original socioeconomic analyses involving population, tax loss, and tax gain for all 21 installations, led the comment compilation of over 8,000 comments, and attended the IPR meeting with USAEC and HDQA legal staff. PHE was responsible for reviewing and editing all sections to identify data gaps and issues with impacts and mitigation measures; ensuring that all installations provided the appropriate information; and that the PEA read as one voice. PHE also prepared the NOA for USA Today.
- **Fort Knox Multi-purpose Machine Gun (MPMG) Range EA, Kentucky. 2012-2013.** Mr. DiPaolo served as lead author for the biological resource section and provided technical review for an EA which evaluated the potential impacts from construction and operation of a new MPMG Range

at Fort Knox on a former range site. The proposed range would utilize the former Boydston Range and involve placement of permanent targets and maintenance access roads. The MPMG Range would also include construction of a Range Operations Control Area (ROCA). The EA document received minimal comments allowing the EA to be completed ahead of schedule.

- **Joint Base Lewis-McChord Yakima Training Center (JBLM YTC) Convoy Live Fire (CLF) Range EA, Washington. 2012-2013.** Mr. DiPaolo served as the lead author for soils for an EA which evaluated range construction at JBLM YTC. The analysis required the evaluation of over 20 soil types and assessment of vehicular training impacts on a range that consists almost entirely of highly erodible land. In addition, Mr. DiPaolo also provided technical support for additional resource areas, include infrastructure, solid and hazardous waste, land use, and socioeconomics; however, these resource areas were dismissed from further analysis. The EA analyzed potential environmental impacts associated with the construction and operation of a CLF Range at JBLM YTC as part of the Army Master Range Program. The CLF Range would also include construction of a Range Operations Control Area (ROCA) which would consist of an approximate 800-square foot control building, vaulted latrine and gravel parking area. In addition, placement of buried fiber optic cables along the shoulder of existing roads and trails to targets would be required for communications between the ROCA and targets.
- **Fort Carson Net Zero Waste, Water, and Energy Implementation EA, Colorado. 2011-2012.** Mr. DiPaolo served as lead author for the land use section for the implementation of the Net Zero initiative at Fort Carson, Colorado. Mr. DiPaolo also provided technical support for the socioeconomics analysis. The Army's Proposed Action includes evaluation of efforts to (1) produce as much renewable energy on the installation as it uses annually through installation of photovoltaic systems, wind turbines, or a biomass plant; (2) limit the consumption of freshwater resources so as not to deplete the groundwater and surface water resources through expansion of their existing greywater re-use system; and (3) reduce, reuse, and recover waste streams, converting them to resource value with zero solid waste landfilling through construction of a potential waste-to-energy facility. The Proposed Action involves both site-specific actions and a programmatic element which would facilitate the Army in identifying and pursuing future Net Zero energy projects. An environmental checklist for future tiering off this EA has been developed as part of this effort.
- **Fort Carson Combat Aviation Brigade (CAB) Stationing Implementation, Colorado. 2011-2012.** Mr. DiPaolo served as Document Manager for an EA for the stationing of a CAB at Fort Carson, Colorado. Duties included technical and editorial review, attendance of two In-Progress Review meetings, coordination of the public comment period, and agency and public comment response development. This EA analyzes potential environmental impacts associated with CAB stationing, resulting in a total growth in Army forces and equipment of approximately 2,700 Soldiers and 113 helicopters at the Installation. Additionally, the CAB would maintain and operate between 600 to 700 wheeled vehicles and trucks to support aviation operations. Implementation of the stationing decision would include construction of new facilities at Fort Carson, including administrative offices, barracks, vehicle and aircraft parking, maintenance facilities, equipment storage, recreational facilities, roads, and other infrastructure required to support a CAB, along with the associated hangars for helicopters, helicopter parking aprons, vehicle parking areas, and storage space. Demolition of some existing structures at Butts Army Airfield would also be required. The proposed action would also include CAB training activities at Fort Carson and Piñon Canyon Maneuver Site (PCMS) and CAB maneuvers and support of air-ground integrated maneuvers at

Fort Carson and PCMS. This project resulted in substantial public controversy, with over 280 commentors providing comments on the Draft EA.

- **Fort Benning Training Land Expansion EIS, Georgia and Alabama. 2010-2012.** Mr. DiPaolo assisted in data management and verification for an EIS that analyzes the environmental, cultural, and socioeconomic impacts for the acquisition, conversion, and management of approximately 82,800 acres of lands for military training. As part of the Proposed Action, the Army would convert the use of commercial and private lands to training land utilization through design and construction of road and trail infrastructure and other training enhancements, capable of supporting maneuver training and artillery firing points. As the Proposed Action involved private land holdings, considerable data gathering including internet searches, aerial photography review, agency and resource expert coordination, and the use of geographic information systems (GIS) was required to accurately describe the affected environment. Mr. DiPaolo's tasks included information management, editorial and consistency checks, acronym management, drafting of consultation letters for the U.S. Fish and Wildlife Services, and drafting a ROD. He also served as a supporting author the Socioeconomics section that analyzed impacts from land acquisition in portions of eight different counties with a combined population of over 300,000.
- **Final Environmental Impact Statement for Resumption of Year-Round Firing Opportunities at Fort Richardson, Alaska, 2010.** Mr. DiPaolo assisted in the editorial review for an EIS evaluating ways to maximize live-fire weapons training opportunities year-round at Fort Richardson. This included evaluation of expanding live-fire opportunities within Eagle River Flats or the option of constructing a new live-fire training area within the southwestern portion of Fort Richardson.

#### Projects for the Veterans Administration

- **EA for the Proposed Combined Heat and Power (CHP) Plant at the Atlanta Department of Veterans Affairs Medical Center (VAMC), Georgia. 2013.** Mr. DiPaolo served as lead author for the hydrology and water quality; noise; solid and hazardous waste; utilities; transportation and parking; and floodplains and wetlands sections for an EA for the construction and operation of a CHP system fueled by natural gas. The Proposed Action consists of the installation of up to three, 2.6 megawatt (mW) reciprocating engines, housed within a new building. To address agency concerns with the siting of the structure within a floodplain, the CHP would be founded on caissons with a finished floor elevation of approximately one foot above the floodplain level. A stack would be required.
- **NEPA/California Environmental Quality Act/Environmental Assessment/Initial Study for the Enhanced-Use Lease of Certain Real Property and Facilities at the Palo Alto Health Care System, Menlo Park Division, California. 2013.** Mr. DiPaolo provided technical support for the Socioeconomics analysis for an EA for the VA analyzing the construction and operation of a new housing structure at the VA Palo Alto Health care System, Menlo Park Division. The Proposed Action involved the construction of up to 60 residential units, 40 parking stalls, as well as support facilities, and a permanent population increase of approximately 130 residents. Mr. DiPaolo also served as a technical and editorial reviewer of the EA.
- **Site-Specific Environmental Assessment of the Proposed Construction and Operation of a Tallahassee National Cemetery, Florida. 2013.** Mr. DiPaolo provided technical support for the noise section on a site-specific EA (SEA) for the VA to analyze the potential effects of the construction and operation of a new National Cemetery on a 250-acre site near Tallahassee in

Leon County, Florida. This SEA is “tiered” from the August 2012 Final PEA which identified that VA would prepare this subsequent, tiered SEA to more precisely analyze and evaluate the potential effects of the construction and operation of the proposed National Cemetery at the selected site, when site-specific design information is available. The noise section evaluated operational impacts associated with gun-salutes for funeral ceremonies of deceased Veterans.

- **Proposed Combined Heat and Power Plant at the Veterans Affairs Medical Center Jamaica Plain Campus, Massachusetts. 2011.** Mr. DiPaolo served as the Document Manager and Lead Author for an EA to identify, analyze, and document the potential physical, environmental, cultural, and socioeconomic impacts associated with the VA’s proposed installation and operation of a new 250 kilowatt natural gas-fired, reciprocating CHP plant at the Jamaica Plain Campus. Duties included assistance in preparation of a site visit plan; preparation of the description of the proposed action and alternatives; evaluation of impacts to utilities and noise; document review; and assistance in coordination of the public comment period. A site visit and data collection were performed under this task as well as coordination with state and Federal wildlife agencies and the State Historic Preservation Office. The contract’s aggressive schedule requiring submission of a preliminary draft EA 30 days from the initial site visit required Mr. DiPaolo to coordinate closely with the Project Manager and the VA, and to keep a thorough log of data received and outstanding data items.
- **Proposed Combined Heat and Power Plant at the Veterans Affairs Medical Center West Roxbury Campus, Massachusetts. 2011.** Mr. DiPaolo served as Document Manager and Lead Author for an EA to identify, analyze, and document the potential physical, environmental, cultural, and socioeconomic impacts associated with the VA’s proposed installation and operation of two new 250 kilowatt natural gas-fired, reciprocating CHP plants at the West Roxbury Campus. Duties included assistance in preparation of a site visit/project management plan; preparation of the description of the proposed action and alternatives; evaluation of impacts to utilities and noise; document review; and assistance in coordination of the public comment period. A site visit and data collection was also performed under this task as well as coordination with state and Federal wildlife agencies and the State Historic Preservation Office. The contract’s aggressive schedule requiring submission of a preliminary draft EA 30 days from the initial site visit required Mr. DiPaolo to coordinate closely with the Project Manager and the VA, and to keep a thorough log of data received and outstanding data items.
- **Environmental Assessment of Proposed Installation and Operation of Photovoltaic (Solar) Systems, VA Gulf Coast Health Care System Campus, City of Biloxi, Harrison County, Mississippi, 2011.** Mr. DiPaolo served as the Document Manager and Lead Author for an EA to identify, analyze, and document the potential physical, environmental, cultural, and socioeconomic impacts associated with the VA’s proposed installation and operation of a photovoltaic (solar) system at the VA Gulf Coast Health Care System Campus in Biloxi, Mississippi. Duties included assistance in preparation of a site visit/project management plan; preparation of the description of the proposed action and alternatives; evaluation of impacts to utilities and solid and hazardous wastes; document review; and assistance in coordination of the public comment period. The contract’s aggressive schedule requiring submission of a preliminary draft EA 30 days from the initial site visit required Mr. DiPaolo to coordinate closely with the Project Manager and the VA, and to keep a thorough log of data received and outstanding data items.

### Projects for the U.S. Air Force

- **Natural Gas Pipeline Easement at Joint Base McGuire-Dix-Lakehurst EA, New Jersey, 2016.** Mr. DiPaolo provided technical support for the socioeconomic and environmental justice analyses for an EA to grant an easement to New Jersey Natural Gas (NJNG) at Joint Base McGuire-Dix-Lakehurst (JB MDL). The easement would allow NJNG to construct, operate, and maintain a segment of a proposed 30-inch natural gas pipeline that would traverse JB MDL. The proposed pipeline segment, approximately 10 miles in length, would be part of the larger NJNG Southern Reliability Link Project (SRL Project), which originates in Chesterfield Township and terminates in Manchester Township, New Jersey. Mr. DiPaolo evaluated the demographic composition of the potentially affected area and determined the extent to which the Proposed Action would have impacts on minority or low income populations.
- **Proposed Range 71 Desert Operations Area Expansion EA at the Nevada Test and Training Range, Nevada, 2013.** Mr. DiPaolo served as lead author for biological resources and water resources sections on an EA analyzing expanded training operations at Range 71 on NTTR. Under the Proposed Action, the USAF would expand the Range 71 Desert Training Operations Area to allow for the development of new tactics, techniques, and procedures applicable to Military Operations in Urban Terrain (MOUT) and High Desert Mountain Terrain (HDMT). Mr. DiPaolo identified applicable BMPs and mitigation measures to reduce or avoid impacts to the numerous regional special-status species. In addition, Mr. DiPaolo provided direct internal comment resolution to agency concerns regarding impacts to nearby isolated wetlands.

### Projects for the U.S. Navy

- **Barry M. Goldwater Range (BMGR) Barrier System EIS, Arizona, 2018 – present.** Deputy Project Manager for a highly controversial EIS to construct a secondary barrier system along 31 miles of range land at the BMGR. The Department of the Navy was tasked by Department of Homeland Security to improve border security along the U.S.-Mexico border portion of the BMGR. The EIS evaluates the environmental, cultural, and socioeconomic impacts associated with construction and operation of a secondary barrier parallel to the existing primary barrier. Duties include coordinating subcontractor field survey efforts for cultural and biological resources; data management and communication of information to internal team of analysts; recordation of meeting minutes and tracking of action items; public meeting coordination support; and supporting the Project Manager with overall management of the project.
- **EA for the Re-commissioning of Three Military Training Routes and Modification of the Three Military Training Routes in the Special Use Airspace Ending at the El Centro Ranges, 2015-2017.** Mr. DiPaolo is serving as the Project Manager for an EA analyzing the impacts from re-commissioning of three Visual Routes (VRs) in southeastern California to meet the Navy's Fleet Response Training Plan for the foreseeable future, as well as the modification of three VRs in southwestern Arizona to avoid conflicting with Arizona National Guard special use airspace. Management duties included direct interaction with the NAVFAC Project Manager; development of the Description of the Proposed Action and Alternatives; leading and facilitating comment resolution meetings with NAVFAC; directing the internal PHE team in conducting the EA analysis, to include managing subcontractors performing a Noise Study and writing other EA sections; and conducting technical review of the document. Mr. DiPaolo also served as Lead Author for the Public Health and Safety and Environmental Justice sections.

- **EA for MILCON Project P-1131 Hospital H-100 Renovation and Roadway Improvements at Marine Corps Base Camp Pendleton, CA, 2015-2018.** Mr. DiPaolo served as Project Manager for an EA analyzing the potential environmental consequences resulting from reuse of the former Naval Hospital Camp Pendleton (Building H-100) on Marine Corps Base Camp Pendleton. The Proposed Action includes the renovation of Building H-100, involving internal reconfiguration, electrical and mechanical infrastructure upgrades, as well as parking lot construction, roadway improvements, and the use of temporary construction laydown areas. Also included in the Proposed Action is the demolition of 41 buildings and structures in several different cantonment areas following the consolidation of multiple logistical and administrative functions currently housed in those structures into the renovated Building H-100 facility. The project also included preparation of a Biological Assessment (BA) and Traffic Study to support the NEPA analysis. Mr. DiPaolo's duties included overall management of the EA document and subcontractors. Mr. DiPaolo worked closely with Camp Pendleton staff to reconcile comments internal review comments on the EA and BA, including those from U.S. Fish and Wildlife, to ensure issuance of a Biological Opinion of no adverse effect.
- **EA for the Construction, Operation, and Maintenance of Photovoltaic Systems, Naval Weapons Station Seal Beach, CA, 2015.** Mr. DiPaolo served as a technical reviewer for an EA analyzing the construction and operation of photovoltaic systems on 138 acres of land previously used for agricultural purposes. This renewable energy project aids the Navy in meeting the Secretary of the Navy's goal to procure 1 gigawatt of renewable energy by the close of 2015 by producing up to 25 megawatts of renewable energy. Mr. DiPaolo also supported in the comment resolution process for the draft and final versions of the EA.
- **EA for the Construction, Operation, and Maintenance of Photovoltaic Systems, Naval Base Ventura County, Port Hueneme, CA, 2015.** Mr. DiPaolo served as a technical reviewer for an EA analyzing the construction and operation of photovoltaic systems on up to 45 acres of land previously disturbed lands and existing agriculture land. This renewable energy project aids the Navy in meeting the Secretary of the Navy's goal to procure 1 gigawatt of renewable energy by the close of 2015 by producing up to 13 megawatts of renewable energy. Mr. DiPaolo also supported in the comment resolution process for the draft and final versions of the EA.
- **EA for Construction and Operation of a Solar Photovoltaic System at Naval Air Facility El Centro, CA, 2015.** Mr. DiPaolo supported public involvement efforts and served as a technical reviewer for an EA analyzing the construction and operation of photovoltaic systems on up to 71 acres of land previously disturbed lands, including paved surfaces and a closed landfill. This renewable energy project aids the Navy in meeting the Secretary of the Navy's goal to procure 1 gigawatt of renewable energy by the close of 2015 by producing up to 8 megawatts of renewable energy. Mr. DiPaolo also supported in the comment resolution process for the draft and final versions of the EA.

## COMPLIANCE

**Environmental Compliance Audits, U.S. Coast Guard Facilities, Various Locations, Nationwide, 2015 – 2019.** Served as an auditor assisting with multimedia compliance audits at USCG Base Seattle, WA; Base San Diego, CA; Base Long Beach, CA; Training Center (TRACEN) Petaluma, CA; Coast Guard Cutter (CGC) Hickory, AK; CGC Mustang, Seward, AK; CGC Naushon, AK; Forward Operating Location Kotzebue, AK; Base Kodiak, AK; Air Station Port Angeles, WA; Sector Humboldt Bay, CA; Station Neah Bay, and Marine Safety Unit Portland. The audits consisted all aspects of environmental regulation in accordance with the TEAM

Guide prepared by the CERL, and associated state supplement guides. The audits included a review of compliance with the Clean Water Act, the Resource Conservation and Recovery Act, the Toxic Substances Control Act, the National Environmental Policy Act, hazardous/universal/infectious waste management, solid waste management, water quality, wastewater management, underground storage tanks, Spill Prevention, Control, and Countermeasures, and air emissions were evaluated during site visits and on-site document review. Mr. DiPaolo provided auditor support for all media areas and assisted with providing recommended corrective actions to environmental management staff. Mr. DiPaolo also assisted with entering findings into an online database (CP-Track) and preparing draft and final reports. Mr. DiPaolo served as Lead Auditor for compliance audits at Station Neah Bay and Air Station Port Angeles in 2019.

**Environmental Compliance Audit, U.S. Department of the Treasury, Denver Mint, CO, 2015 and 2019.** Served as an auditor for an inspection at the U.S. Mint facility in Denver, CO in 2015 and again in 2019. The audits included a review of compliance with the Clean Water Act, the Resource Conservation and Recovery Act, the Toxic Substances Control Act, the National Environmental Policy Act, hazardous/universal/infectious waste management, solid waste management, water quality, wastewater management, underground storage tanks, Spill Prevention, Control, and Countermeasures, and air emissions were evaluated during site visits and on-site document review. The process included a site inspection, personnel interviews, records review, and report preparation.

**Preconstruction Nesting Bird Survey for Proposed Annie's Alley Roofing Project, Naval Base Point Loma (NBPL) Main Base, San Diego County, CA. 2019 – present.** Mr. DiPaolo served as Project Manager for a preconstruction nesting bird survey and follow-on biomonitoring in support of a proposed roofing repair project along Annie's Alley on NBPL, California. Surveys were conducted in compliance with the Project Record of Categorical Exclusion dated February 8, 2018, pursuant to the California Environmental Quality Act (CEQA). A survey report was prepared and given the presence of nesting blue heron, it was recommended that bio monitors be deployed to perform spot checks during construction. Mr. DiPaolo was responsible for overall management of subcontractors, quality of deliverables, and client management.

**Biological Support Services for the NASA Ames Campus Housing Development, Mountain View, California, 2019 – present.** Mr. DiPaolo served as Project Manager for a project to provide biological compliance services in support of the NASA Ames Development Plan, Research Park South Housing Development in Mountain View, California. The Project involves development of approximately 47 acres for 2,000 apartment housing units and a 100,000 square foot retail area. The support leasing requirements derived from mitigation requirements of 2002 Record of Decision for the Area Development Plan, the PHE team conducted a literature review, performed updated burrowing owl and bat surveys, conducted a baseline photometric analysis, prepared survey reports, developed and negotiated refined mitigation measures for a housing pet policy, and coordinated with regulatory agencies. Mr. DiPaolo managed a team of subcontractors performing the majority of the technical work. He was responsible for overall quality of deliverables, adherence to project schedule, and overall client management.

**Sikes Act Compliance and Biological Resource Analysis at Naval Base Coronado, Camp Michael Monsoor, California, 2018 – present.** Mr. DiPaolo served as Project Manager for a project to conduct seed procurement and plant propagation, storage, and maintenance of Quino Checkerspot Butterfly (QCB) host plant species at Camp Michael Monsoor, California. Mr. DiPaolo managed a team of subcontractors performing the majority of the technical work. Mr. DiPaolo was responsible for overall quality of deliverables and adherence to project schedule. Mr. DiPaolo provided review support for the project

Accident Prevention Plan and Work Plan, prepared monthly progress reports, and attended the project kick-off meeting.

**Solid Waste Characterization Study, MAGTFTC MCAGCC, 29 Palms, CA, 2017.** Conducted a series of field investigations over the course of four weeks to characterize recyclable materials and solid waste disposed of at the Combat Center. The survey included sorting the contents of 100 exterior non-residential solid waste dumpsters, residential waste from four base housing areas (200 residents), and interviews of 60 personnel at base work centers. Facilities within the Combat Center include offices, training facilities, aircraft hangars, mechanical and automotive repair shops, fueling operations, warehouse supply, ordnance supply, food service, and aircraft maintenance. Determined percentages of each type of waste, and provided recommendations to assist the facility in meeting waste minimization goals.

**Storage Tank Management Plan, Marine Corps Air Ground Combat Center Twentynine Palms, 2016.** Provided database support and supported report preparation for a facility-wide inventory of all storage tanks located on MCAGCC Twentynine Palms. The database was created in Microsoft® Office Access® and included documentation of storage tanks, storage tank features, and condition assessment of each storage tank. The storage tank management plan delineated a path for the installation to maintain compliance with the storage tank policies and requirements of the United States Marine Corps and all applicable Department of the Navy, federal, state, and local regulations.

**Spill Prevention Control and Countermeasures (SPCC) Plan, MCAS Camp Pendleton, 2016.** Supported an update to the Air Station's SPCC Plan. As part of the update, Mr. DiPaolo supported field surveys to verify accuracy of the existing plan. Mr. DiPaolo also closely supported the plan update to include new elements and missing data from previous versions.

**Wastewater Source Control Pretreatment Program, MCB Camp Pendleton, CA, 2016-ongoing.** Provides technical support for a program to identify, characterize, and eliminate pollutants that interfere with the wastewater collection system on Base. Conducts field assessments of grease trap collectors throughout base and documents condition assessment. Interviews personnel responsible for grease trap operation to assess equipment operation. Assists in preparation of quarterly reports summarizing sampling and inspection results. Attends quarterly meetings with Base personnel to review sampling results and is responsible for capturing meeting minutes and action items. Supports preparation of annual permit compliance reports required by regulation for the Regional Water Quality Control Board.

**SPCC Plan Update, Stuart Mesa Maintenance Facility, CA, 2016.** Mr. DiPaolo conducted a revision of the SPCC Plan for the Stuart Mesa Maintenance Facility (SMMF) which is operated by Transit America Services, Inc. and services locomotives for the North County Transit District in San Diego County, CA. This SPCC Plan addressed oil storage operations at a variety of operational, maintenance and utility activities at the facility. Mr. DiPaolo supported the site visit and led preparation of the Plan Update. The Plan was reviewed and certified by a Professional Engineer.

**Environmental Compliance Audit, Marine Corps Air Ground Combat Center 29 Palms, 29 Palms, CA, 2016.** Mr. DiPaolo served as a lead auditor for pesticides, EPCRA reporting, and emergency response and preparedness. The audit consisted all aspects of environmental regulation in accordance with the TEAM Guide prepared by the CERL, and associated state supplement guides. The audits included a review of compliance with the Resource Conservation and Recovery Act, the Toxic Substances Control Act, the hazardous/universal/infectious waste management, petroleum storage tanks, Spill Prevention, Control, and Countermeasures, munitions, Environmental Management Systems (EMS), and air emissions were

evaluated during site visits and on-site document review. Mr. DiPaolo also assisted with entering findings into an online database (CP-Track) and preparing draft and final reports.

**Air Emissions Inventory and Ozone Depleting Substances Survey for Naval Support Activity (NSA) Bahrain. 2015-2016.** Mr. DiPaolo served on a team that conducted an on-site air emissions inventory and Ozone Depleting Substances Survey for NSA Bahrain over a two week period. The air emissions inventory included documentation of potential emissions from generators, firing ranges, aviation training, hazardous substances, and other equipment or activities that could release air emissions. The ozone depleting substances survey included an inventory of refrigerant-containing equipment such as air conditioners and chillers, equipment description, and the amount and type of charge within the equipment. Mr. DiPaolo supported in the preparation of the final reports.

**Municipal Separate Storm Sewer Systems (MS4) Program Plan for U.S. Coast Guard Training Center (TRACEN) Yorktown, Yorktown, VA. 2014.** Mr. DiPaolo served as the primary author for the preparation of an MS4 Program Plan update for U.S. Coast Guard TRACEN Yorktown. The plan update was needed to maintain compliance with the installation MS4 permit, including new requirements for meeting the Chesapeake Bay Total Maximum Daily Load (TMDL) limits. Duties included an inspection of stormwater infrastructure, including all outfalls and management systems. Preparation of the plan update included assessment of existing protocols and best management practices, as well as provision of recommendations for stormwater management improvement.

**EPCRA Section 311/312 and 313 Reporting Support, various facilities, Naval Facilities Engineering Command Southeast (NAVFAC SE), 2013-2014.** Supported multiple NAVFAC SE facilities in meeting reporting obligations under EPCRA Section 311/312 and 313. Navy installations use several toxic substances in the course of meeting mission requirements, and are required to report inventories and releases of these substances to the USEPA under Sections 311/312 and 313 of EPCRA. Duties include data compilation of chemical composition for toxic substance inventory and spreadsheet management for over 300 chemicals.

**Department of Veterans Affairs, Environmental Compliance Audits. VISN 20. 2011.** Mr. DiPaolo was part of a team that conducted compliance audits at two medical centers in Portland, Oregon and Vancouver, Washington for the Department of Veterans Affairs VISN 20. As an Auditor, he assisted with project management duties, tracking and reviewing documents, assisted in conducting the onsite audits, and authoring the audit findings report. Mr. DiPaolo reviewed the Spill Prevention, Controls, and Countermeasures Plans of both sites for compliance with Army regulations. Findings of non-compliance, root cause analysis, identification of applicable regulatory citations, and recommended corrective actions were recorded using the "CP-Track" software.

**Environmental Compliance Audits, Maryland State Highway Administration. 2011.** Mr. DiPaolo provided assistance during a multi-media environmental compliance audits conducted for a State Highway Administration facility in Maryland. This audit program was designed to meet the requirements of a Self Audit/Self Disclosure Agreement with the U.S. Environmental Protection Agency (EPA). The audit consisted of on-site visual observations, review of environmental documentation, and personnel interviews. The audit team conducted a detailed walk-through of the facility to confirm the presence of operational activities and associated waste streams and environmental impacts and to inspect SHA's systems for compliance with the environmental regulations specifically outline in the Self Audit/Self Disclosure Agreement. A Facility Audit Report was prepared to document the findings of the audit and document recommended engineering or administrative corrective actions appropriate to resolve any

findings of noncompliance. The audit report and findings were reviewed by SHA lawyers and EPA Region 3 enforcement staff.

## ENVIRONMENTAL PROGRAM SUPPORT

**Turnover Folders for Water Resource Manager and RCRA D/I Manager at Marine Air Ground Task Force Training Command (MAGTFTC) Marine Corps Air Ground Combat Center (MCAGCC) Twentynine Palms, California, 2016 – 2017.** Mr. DiPaolo supported preparation of two turnover folders intended to be position guides and turnover document for Combat Center's Water Resources and RCRA D/I managers in accordance with the requirements of Marine Corps Order (MCO) P5090.2A, Marine Corps Environmental Compliance and Protection Manual. The Water Resources manager is responsible for the following program areas: Drinking Water; Wastewater; Storm Water; Recycled Water. The RCRA D/I Manager is responsible for the following program areas: Solid Waste; Medical Waste; Waste Tires; Pest Management; and Storage Tanks. The folders included descriptions of applicable regulations, permits, inspections, reports, public outreach tasks, compliance requirements, training, points of contact, standard operating procedures, and other applicable information for each position. Mr. DiPaolo supported compilation of information for each role, address client comments on the turnover folders, and lead document finalization.

**Project Assistant, Data Collection for the Environmental Management (EM) Data Call (to provide information for the Defense Environmental Programs Annual Report to Congress (DEP ARC)), Environmental Core Support, Headquarters, Headquarters Marine Corps Environmental Management Section (LFL-6), 2011.** The DEP ARC describes the Department of Defense's (DoD's) environmental accomplishments for each fiscal year. This report fulfills congressional reporting requirements under title 10 United States Code (U.S.C.) section 2706 (a) and (b), and other Federal laws. Defense environmental programs covered in the report – environmental management systems (EMS), natural and cultural resources, compliance, pollution prevention and restoration - provide the framework for managing the environmental and cultural resources across the Department, while protecting human health and the environment. Preparation of each DEP ARC requires extensive interface with USMC personnel, at both the installation and headquarters levels. As project assistant, Mr. DiPaolo provided support in data entry and data validation.

**Project Assistant, Development and Updates of Marine Corps Orders (MCOs), Manuals, and Directives that implement the Marine Corps environmental program, Environmental Core Support, Headquarters, Headquarters Marine Corps Environmental Management Section (LFL-6), 2011.** Mr. DiPaolo provided document support in the coordination of the latest update/revision of MCO P5090.2A, Environmental Compliance and Protection Manual, involving 21 chapters and 19 appendices. This 900-page manual covers topics including environmental management, funding, compliance audits, and training; clean air; emergency planning and response; historic, cultural and archaeological resources protection; hazardous waste management; environmental restoration; natural resources management; NEPA; noise management; pollution prevention (P2), water quality, solid waste management and resource recovery; PCB's, underground storage tanks (USTs), and waste military munitions. Under this task, Mr. DiPaolo performed data validation, editorial review, and formatting of the document.

## SUPPLEMENTAL INFORMATION

### EMPLOYMENT HISTORY

2010 - present Potomac-Hudson Engineering, Inc.

### PROFESSIONAL/SPECIALIZED/SKILL TRAINING/ADDITIONAL COURSEWORK

MS Project Training, 2010

Hazardous/Toxic Waste Management Online Course, Lion Technology, 2016

Portable Equipment Registration Program (PERP) / Portable Engine ATCM 8-hour Course, California Air Resources Board, 2018

### PROFESSIONAL MEMBERSHIPS

Society of American Military Engineers

Associate of Environmental Professionals

### COMPUTER SKILLS

MS Word; MS Excel; MS PowerPoint; MS Project; MS Access; Adobe Acrobat; and Google Earth.