LIMITED SUBSURFACE INVESTIGATION REPORT
1501 DOOLITTLE DRIVE
SAN LEANDRO, CALIFORNIA

NOVA PROJECT NO.: M7M-149

October 10, 1997

(212) 483-2323

Prepared for:
J.P. MORGAN INVESTMENT COMPANY
522 FIFTH AVENUE
NEW YORK, NY 10036

Andy Leith

Prepared by:
NOVA ENVIRONMENTAL SERVICES, INC.
1107 HAZELTINE BOULEVARD, SUITE 400
CHASKA, MINNESOTA 55318
(612) 448-9393

Prepared by:

Timothy G. Rogers
Environmental Scientist

Reviewed by:

Robert J. Rykken, P.E.
Group Manager

Table of Contents

List of Tables

List of Figures

List of Appendices

1.0 SCOPE OF SERVICES

Nova was authorized by Mr. Mark Mezzullo to perform a limited subsurface investigation at 1501 Doolittle Drive, San Leandro, California (Figure 1). The purpose of the investigation was to determine if soil and/or ground water have been impacted by petroleum hydrocarbons from the leaking underground storage tank (LUST) site located adjacent to the subject property. Nova provided the following services as part of the investigation:

- Reviewing information on previous investigations associated with the adjacent LUST site;
- Advancing six soil borings along the south property border;
- Screening soil samples for organic vapors using a Mini Rae Photoionization Detector (PID);
- Collecting water samples for laboratory analyses of benzene, toluene, ethyl benzene and xylenes (BTEX) and total petroleum hydrocarbons (TPH) as fuel oil and gasoline;
- Preparing this Limited Subsurface Investigation Report summarizing the results of the investigation.

2.0 FIELD INVESTIGATION

Field activities at the site included advancing six (6) geoprobe borings, field screening of soil samples for organic vapors and collecting six (6) water samples for laboratory analyses.

Six soil borings (GP-1 through GP-6) were advanced on September 21, 1997, at the locations shown on Figure 2. The borings were advanced along the south property border to a depth of 12 feet below grade.

The borings were advanced by a representative of Fast-Tek Engineering Support Services using a truck mounted Geoprobe Model 5400. Soil samples were collected with a 2 inch diameter by 4 feet long stainless steel "macro" sampler which was hydraulically pushed or hammered into the soil. Extensions were added to the sampler as it was advanced deeper into the soil. Soil samples were collected continuously in a plastic sleeve which was removed from the sampler after each sample was retrieved.

A portion of each sample was placed in a ziplock sealable plastic bag and screened for headspace organic vapors with a PID. The PID was equipped with 10.6 eV lamp and calibrated with an isobutylene standard. The sample was broken up in the bag and agitated by shaking for approximately ten seconds before and after a period of headspace development. The concentration of organic vapors in the headspace above the sample was measured by opening the bag wide enough to allow the sampling probe to be inserted.

Soil samples collected from the borings were visually classified by the on-site Nova scientist. All probe rods and sampling equipment were decontaminated prior to arrival on site. All down hole sampling equipment was decontaminated between samples using a trisodium phosphate wash and tap water rinse.

Ground water samples were collected by advancing a one inch diameter slotted PVC screen to the desired depth and manually collecting the ground water with a bottom closing disposable bailer. The water samples were placed into laboratory cleaned containers.

The ground water sample containers were labeled with the project number, location and sampling date. A Chain of Custody form was completed and delivered with the samples. The samples were submitted to Minnesota Valley Testing Laboratories, Inc. (MVTL) on September 24, 1997.

3.0 RESULTS

3.1 Local Geology

Soil at the site consists of sandy silty clay and silty sand from 1 to 12 feet below grade (Table 1). Ground water was encountered in the soil borings at a depth of 7 to 8 feet below grade. The ground water flow direction is most likely to the northwest, but probably varies seasonally.

3.2 Organic Vapor Monitoring Results

No organic vapors were detected in any of the soil samples collected from soil borings GP-1, GP-2, GP-3, GP-5 or GP-6. Organic vapors were detected in the soil samples collected from boring GP-4 ranging in concentration from 50 to 200 parts per million (ppm) per volume . Soil samples collected from boring GP-4 at a depth of 4 to 12 feet exhibited a petroleum (fuel oil) odor. Soil sampling depths, soil classification and field screening results are summarized in Table 1.

3.3 Ground Water Analytical Results

The laboratory analytical report of ground water samples collected from the borings (GP-1 through GP-6) is included in Appendix A. Laboratory analytical results show that BTEX compounds were not detected above the laboratory detection limits in the ground water samples collected from borings GP-1 through GP-6. No TPH as fuel oil or as gasoline was detected above the laboratory detection limits in ground water samples collected from borings GP-1, GP-2, GP-3, GP-5 or GP-6. Laboratory analyses detected TPH as fuel oil and TPH as gasoline in the ground water sample collected from boring GP-4 at concentrations of 2,000 parts per billion (ppb) and 500 ppb, respectively. The ground water analyses are summarized in Table 2.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Based on field observations and laboratory analytical data, a petroleum release has impacted soil and ground water near boring GP-4. Laboratory analytical results of the ground water sample collected from boring GP-4 did not detect BTEX compounds above the State of California Maximum Contaminant Levels (MCLs) for drinking water. Based on the facts that the impacted groundwater is a non-resource aquifer and BTEX compound concentrations are below the MCLs, notification of the petroleum release to California regulatory agencies is not required.

Laboratory analytical results of the ground water sample collected from GP-4 show TPH as fuel oil and gasoline to be present in the area of boring GP-4. The suspected source of the release are the USTs removed (in 1988) from the property currently known as the Polvorosa Business Park, located directly south of the site. The release was extensive and consisted of free product on the ground water. Soil boring GP-4 was advanced approximately 125 feet northeast of the former USTs.

Potential receptors of impacted ground water associated with a petroleum release include vapors in buildings and water supply wells. Petroleum impacted ground water below the site may be migrating under the warehouse. The warehouse is built on a concrete slab so the potential of petroleum vapors entering the warehouse is low. No water supply wells are located on the property and the warehouse is supplied by municipal water. Based on the lack of potential receptors, no further investigation or corrective action is recommended.

The Alameda County Department of Environmental Health (DEH) is the lead agency investigating the 1988 petroleum release at the Polvorosa Businesss Park. Information contained in this report and the Nova Phase I report dated August 18,1997 should be sent to the Alameda County DEH if an "off-site source" determination letter is needed.

TABLE 1
GEOPROBE BORING RESULTS
1501 DOOLITTLE DRIVE

Boring	Depth (ft)	Soil Description	PID (ppm)
GP-1	1-4	Brown sandy silty CLAY, moist, no odor	ND
	4-8	Brown silty CLAY, wet with silty sand seams, no odor	ND
	8-12	Dark brown silty sandy CLAY, moist, no odor	ND
GP-2	1-4	Grey/brown mottled sandy silty CLAY, moist, no odor	ND
	4-8	Brown silty CLAY, wet with silty sand seams, no odor	ND
	8-12	Black silty sandy CLAY, moist, no odor	ND
GP-3	1-4	Brown sandy silty CLAY, moist, no odor	ND
	4-8	Brown silty CLAY, wet with silty sand seams, no odor	ND
	8-12	Dark brown silty sandy CLAY, moist, no odor	ND
GP-4	1-4	Brown sandy silty CLAY, moist, no odor	50
	4-8	Brown silty CLAY, wet with silty sand seams, no odor	200
	8-12	Black silty sandy CLAY, moist, no odor	200
GP-5	1-4	Grey/brown mottled sandy silty CLAY, moist, no odor	ND
	4-8	Brown silty CLAY, wet with silty sand seams, no odor	ND
	8-12	Black silty sandy CLAY, moist, no odor	ND
GP-6	1-4	Brown sandy silty CLAY, moist, no odor	ND
	4-8	Brown silty CLAY, wet with silty sand seams, no odor	ND
	8-12	Black silty sandy CLAY, moist, no odor	ND

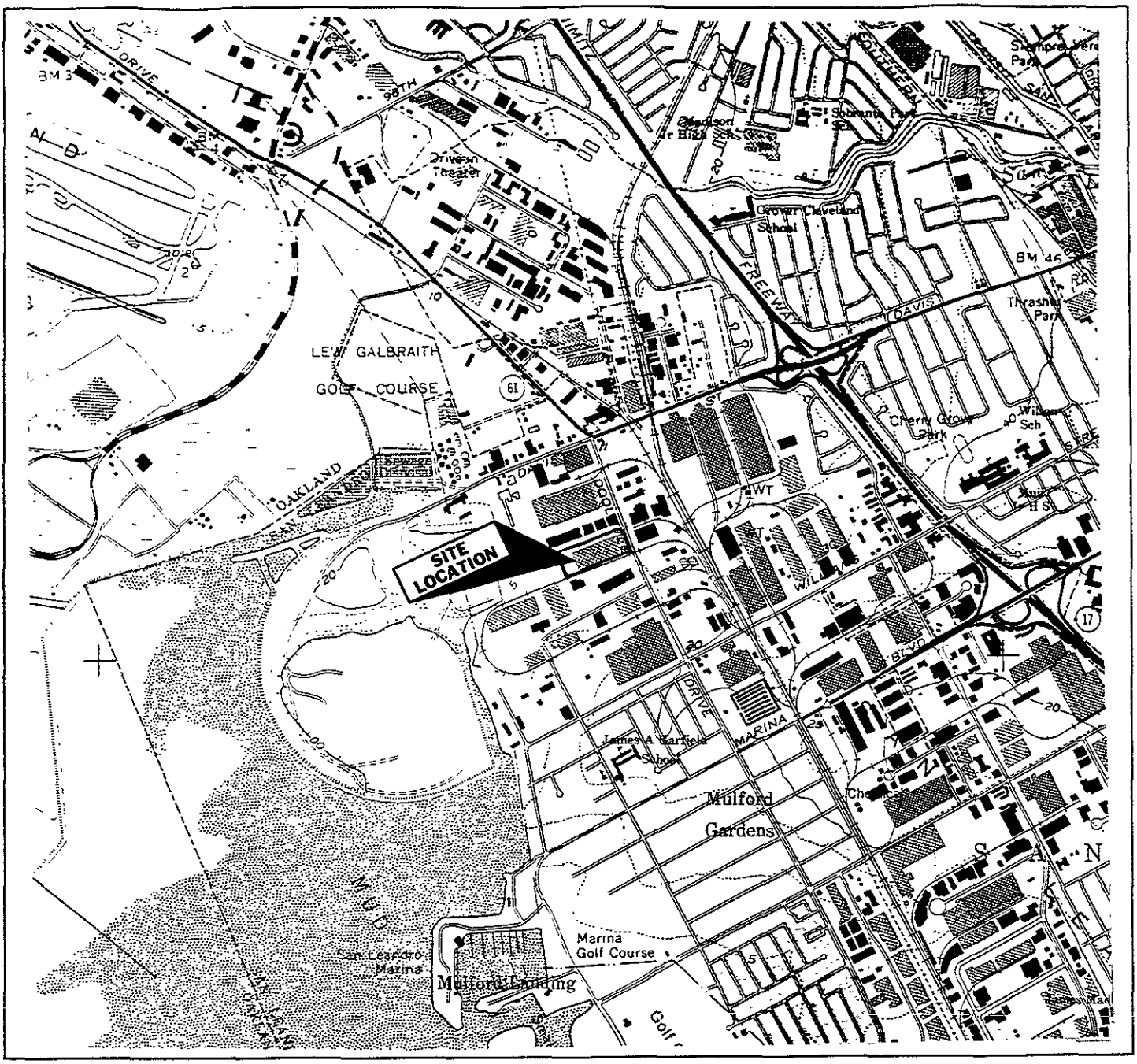
ND = Not Detected
PID = Photoionization detector
ppm = Parts per million

TABLE 2
GROUNDWATER LABORATORY ANALYTICAL RESULTS
1501 DOOLITTLE DRIVE

PARAMETER	SAMPLE LOCATION (Concentrations in Parts per Billion)					
	GP-1	GP-2	GP-3	GP-4	GP-5	GP-6
Benzene	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND
Xylenes	ND	ND	ND	ND	ND	ND
TPH as fuel oil	ND	ND	ND	2,000	ND	ND
TPH as gasoline	ND	ND	ND	500	ND	ND

ND = Not detected above the laboratory detection limits
TPH = Total petroleum hydrocarbons

FIGURES



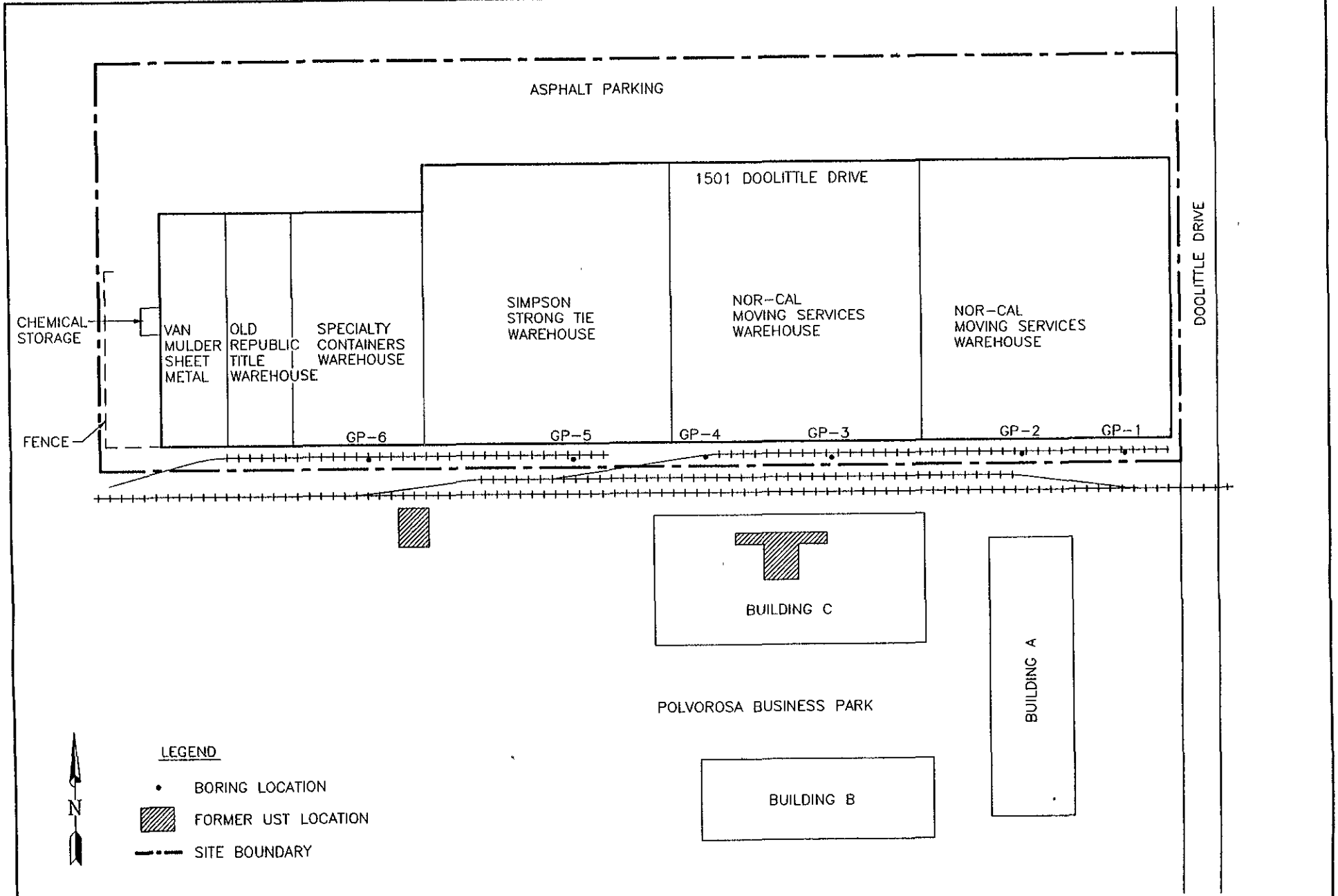
SITE LOCATION MAP
1501 DOOLLITTLE DRIVE
SAN LEANDRO, CALIFORNIA

M1546/M7M-149

Nova Environmental Services, Inc.

OCT - 97

1



SITE DIAGRAM
1501 DOOLITTLE DRIVE
SAN LEANDRO, CALIFORNIA

M1546/M7M-149

Nova Environmental Services, Inc.

SEP - 97

APPENDIX A

LABORATORY ANALYTICAL REPORT

MVTL LABORATORIES, Inc.
P.O. BOX 249, 1126 N. FRONT STREET
NEW ULM, MN 56073-0249
PHONE (507) 354-8517 WATS (800) 782-3557 FAX (507) 359-2890

MEMBER ACIL

WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Report Date: 7 Oct 1997

Lab Number: 97-L23001
Work Order #: 22-448
Account #: 003017

TIM ROGERS
NOVA ENVIRONMENTAL SERVICES INC
1107 HAZELTINE BLVD STE 420
CHASKA MN 55318-1008

Date Received: 25 Sep 1997

Date Sampled: 21 Sep 1997

Temperature at Receipt: ON ICE
Project Number: M7M-149

Project Name: SAN LEANDRO

EPA SW-846 Method 8020/5030 MODIFIED

PVOC Analysis Date: 1 Oct 1997
PVOC Dilution Factor: 1

EPA SW-846 Method 8015

TPH Analysis Date: 1 Oct 1997
TPH Dilution Factor: 1

Sample Description: GP-1

ANALYTE	Result	Units	RL	Analyst
Benzene	< 1.1	ppb	1.1	ST
Toluene	< 1.0	ppb	1.0	ST
Ethyl Benzene	< 1.1	ppb	1.1	ST
Xylenes (Total)	< 3.5	ppb	3.5	ST
TPH as Gas	< 0.2	ppm	0.2	ST
TPH as Fuel Oil	< 0.5	ppm	0.5	ST

AAA-TFT (SURROGATE) RECOVERY: 97 %

RL = Reporting Limits

All data for this report has been approved by MVTL Laboratory Management.

MVTL LABORATORIES, Inc.
P.O. BOX 249, 1126 N. FRONT STREET
NEW ULM, MN 56073-0249
PHONE (507) 354-8517 WATS (800) 782-3557 FAX (507) 359-2890

MEMBER ACIL

WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Report Date: 7 Oct 1997

Lab Number: 97-L23002
Work Order #: 22-448
Account #: 003017

TIM ROGERS
NOVA ENVIRONMENTAL SERVICES INC
1107 HAZELTINE BLVD STE 420
CHASKA MN 55318-1008

Date Received: 25 Sep 1997

Date Sampled: 21 Sep 1997

Temperature at Receipt: ON ICE
Project Number: M7M-149

Project Name: SAN LEANDRO

EPA SW-846 Method 8020/5030 MODIFIED

PVOC Analysis Date: 4 Oct 1997
PVOC Dilution Factor: 1

EPA SW-846 Method 8015

TPH Analysis Date: 4 Oct 1997
TPH Dilution Factor: 1

Sample Description: GP-2

ANALYTE	Result	Units	RL	Analyst
Benzene	< 1.1	ppb	1.1	ST
Toluene	< 1.0	ppb	1.0	ST
Ethyl Benzene	< 1.1	ppb	1.1	ST
Xylenes (Total)	< 3.5	ppb	3.5	ST
TPH as Gas	< 0.2	ppm	0.2	ST
TPH as Fuel Oil	< 0.5	ppm	0.5	ST

AAA-TFT (SURROGATE) RECOVERY: 95 %

RL = Reporting Limits

All data for this report has been approved by MVTL Laboratory Management.

MVTL LABORATORIES, Inc.
P.O. BOX 249, 1126 N. FRONT STREET
NEW ULM, MN 56073-0249
PHONE (507) 354-8517 WATS (800) 782-3557 FAX (507) 359-2890

MEMBER ACIL

WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Report Date: 7 Oct 1997

Lab Number: 97-L23003
Work Order #: 22-448
Account #: 003017

TIM ROGERS
NOVA ENVIRONMENTAL SERVICES INC
1107 HAZELTINE BLVD STE 420
CHASKA MN 55318-1008

Date Received: 25 Sep 1997

Date Sampled: 21 Sep 1997

Temperature at Receipt: ON ICE
Project Number: M7M-149

Project Name: SAN LEANDRO

EPA SW-846 Method 8020/5030 MODIFIED

PVOC Analysis Date: 1 Oct 1997
PVOC Dilution Factor: 1

EPA SW-846 Method 8015

TPH Analysis Date: 1 Oct 1997
TPH Dilution Factor: 1

Sample Description: GP-3

ANALYTE	Result	Units	RL	Analyst
Benzene	< 1.1	ppb	1.1	ST
Toluene	< 1.0	ppb	1.0	ST
Ethyl Benzene	< 1.1	ppb	1.1	ST
Xylenes (Total)	< 3.5	ppb	3.5	ST
TPH as Gas	< 0.2	ppm	0.2	ST
TPH as Fuel Oil	< 0.5	ppm	0.5	ST

AAA-TFT (SURROGATE) RECOVERY: 98 %

RL = Reporting Limits

All data for this report has been approved by MVTL Laboratory Management.

MVTL LABORATORIES, Inc.
P.O. BOX 249, 1126 N. FRONT STREET
NEW ULM, MN 56073-0249
PHONE (507) 354-8517 WATS (800) 782-3557 FAX (507) 359-2890

MEMBER ACIL

WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Report Date: 7 Oct 1997

Lab Number: 97-L23004
Work Order #: 22-448
Account #: 003017

TIM ROGERS
NOVA ENVIRONMENTAL SERVICES INC
1107 HAZELTINE BLVD STE 420
CHASKA MN 55318-1008

Date Received: 25 Sep 1997

Date Sampled: 21 Sep 1997

Temperature at Receipt: ON ICE
Project Number: M7M-149

Project Name: SAN LEANDRO

EPA SW-846 Method 8020/5030 MODIFIED

PVOC Analysis Date: 4 Oct 1997
PVOC Dilution Factor: 1

EPA SW-846 Method 8015

TPH Analysis Date: 4 Oct 1997
TPH Dilution Factor: 1

Sample Description: GP-4

ANALYTE	Result	Units	RL	Analyst
Benzene	< 1.1	ppb	1.1	ST
Toluene	< 1.0	ppb	1.0	ST
Ethyl Benzene	< 1.1	ppb	1.1	ST
Xylenes (Total)	< 3.5	ppb	3.5	ST
TPH as Gas	0.5	ppm	0.2	ST
TPH as Fuel Oil	2.0	ppm	0.5	ST

TPH sample is characteristic of fuel oil.

AAA-TFT (SURROGATE) RECOVERY: 98 %

RL = Reporting Limits

All data for this report has been approved by MVTL Laboratory Management.

MVTL LABORATORIES, Inc.
P.O. BOX 249, 1126 N. FRONT STREET
NEW ULM, MN 56073-0249
PHONE (507) 354-8517 WATS (800) 782-3557 FAX (507) 359-2890

MEMBER ACIL

WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Report Date: 7 Oct 1997

Lab Number: 97-L23005
Work Order #: 22-448
Account #: 003017

TIM ROGERS
NOVA ENVIRONMENTAL SERVICES INC
1107 HAZELTINE BLVD STE 420
CHASKA MN 55318-1008

Date Received: 25 Sep 1997

Date Sampled: 21 Sep 1997

Temperature at Receipt: ON ICE
Project Name: SAN LEANDRO
Project Number: M7M-149

EPA SW-846 Method 8020/5030 MODIFIED
PVOC Analysis Date: 1 Oct 1997
PVOC Dilution Factor: 1

EPA SW-846 Method 8015
TPH Analysis Date: 1 Oct 1997
TPH Dilution Factor: 1

Sample Description: GP-5

ANALYTE	Result	Units	RL	Analyst
Benzene	< 1.1	ppb	1.1	ST
Toluene	< 1.0	ppb	1.0	ST
Ethyl Benzene	< 1.1	ppb	1.1	ST
Xylenes (Total)	< 3.5	ppb	3.5	ST
TPH as Gas	< 0.2	ppm	0.2	ST
TPH as Fuel Oil	< 0.5	ppm	0.5	ST

Comment: Headspace found in all three sample vials.

AAA-TFT (SURROGATE) RECOVERY: 98 %

RL = Reporting Limits

All data for this report has been approved by MVTL Laboratory Management.

MVTL LABORATORIES, Inc.
P.O. BOX 249, 1126 N. FRONT STREET
NEW ULM, MN 56073-0249
PHONE (507) 354-8517 WATS (800) 782-3557 FAX (507) 359-2890

MEMBER ACIL

WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Report Date: 7 Oct 1997

Lab Number: 97-L23006
Work Order #: 22-448
Account #: 003017

TIM ROGERS
NOVA ENVIRONMENTAL SERVICES INC
1107 HAZELTINE BLVD STE 420
CHASKA MN 55318-1008

Date Received: 25 Sep 1997

Date Sampled: 21 Sep 1997

Temperature at Receipt: ON ICE
Project Number: M7M-149

Project Name: SAN LEANDRO

EPA SW-846 Method 8020/5030 MODIFIED

PVOC Analysis Date: 1 Oct 1997
PVOC Dilution Factor: 1

EPA SW-846 Method 8015

TPH Analysis Date: 1 Oct 1997
TPH Dilution Factor: 1

Sample Description: GP-6

ANALYTE	Result	Units	RL	Analyst
Benzene	< 1.1	ppb	1.1	ST
Toluene	< 1.0	ppb	1.0	ST
Ethyl Benzene	< 1.1	ppb	1.1	ST
Xylenes (Total)	< 3.5	ppb	3.5	ST
TPH as Gas	< 0.2	ppm	0.2	ST
TPH as Fuel Oil	< 0.5	ppm	0.5	ST

AAA-TFT (SURROGATE) RECOVERY: 97 %

RL = Reporting Limits

All data for this report has been approved by MVTL Laboratory Management.

MVTL LABORATORIES, Inc.
P.O. BOX 249, 1126 N. FRONT STREET
NEW ULM, MN 56073-0249
PHONE (507) 354-8517 WATS (800) 782-3557 FAX (507) 359-2890

MEMBER ACIL

WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Report Date: 7 Oct 1997

Lab Number: 97-L23007
Work Order #: 22-448
Account #: 003017

TIM ROGERS
NOVA ENVIRONMENTAL SERVICES INC
1107 HAZELTINE BLVD STE 420
CHASKA MN 55318-1008

Date Received: 25 Sep 1997

Date Sampled: 21 Sep 1997

Temperature at Receipt: ON ICE
Project Name: SAN LEANDRO
Project Number: M7M-149

EPA SW-846 Method 8020/5030 MODIFIED

PVOC Analysis Date: 1 Oct 1997
PVOC Dilution Factor: 1

EPA SW-846 Method 8015

TPH Analysis Date: 1 Oct 1997
TPH Dilution Factor: 1

Sample Description: LAB BLANK

ANALYTE	Result	Units	RL	Analyst
Benzene	< 1.1	ppb	1.1	ST
Toluene	< 1.0	ppb	1.0	ST
Ethyl Benzene	< 1.1	ppb	1.1	ST
Xylenes (Total)	< 3.5	ppb	3.5	ST
TPH as Gas	< 0.2	ppm	0.2	ST
TPH as Fuel Oil	< 0.5	ppm	0.5	ST

AAA-TFT (SURROGATE) RECOVERY: 98 %

RL = Reporting Limits

All data for this report has been approved by MVTL Laboratory Management.

Nova Environmental Services, Inc.

Minneapolis Office ☒
1107 Hazeltine Blvd. Ste. 420
Chaska, MN 55318
(612) 448-9393
Fax # 612-448-9572

Chain of Custody Record

Chicago Office ☐
O'Hare Atrium Office Plaza, Ste 170
2860 River Road
Des Plaines, Il 60018
(312) 803-4510
Fax # 312-803-0780

Name of Project	Project Number	Project Manager
San Leandro	M7M-149	TGR

Laboratory: MVTL

Sample No.	Date	No. & Vol. of Containers	Sample Location	Requested Analysis: TPH as Fuel Oil	TPH as Gas	BETX				Sample Description / Remarks	Special Instructions
	9/21	3, 40-ml	GP-1	X	X	X				water	L23001
	"	"	GP-2	X	X	X				"	L23002
	"	"	GP-3	X	X	X				"	L23003
	"	"	GP-4	X	X	X				"	L23004
	"	"	GP-5	X	X	X				"	L23005
	"	"	GP-6	X	X	X				"	L23006
										OH LB ICL	L23007

Sampler (Signature)	Relinquished By	Affiliation	Date	Time	Received By	Affiliation	Date	Time
Affiliation: NovA	TGR	NOVA	9/24/97			MVTL	9-24-97	9:40
Date: 9/21/97 Time: 6:00		MVTL	11	3:30		MVTL	9-25-97	