McLaren Hart

DEC 1 0 1990

December 5, 1990

Mr. Phil Byers
Property Manger
Target Stores
33 South Sixth Street
Minneapolis, Minnesota 55440

Dear Mr. Byers:

CLOSURE REPORT FOR TARGET STORE T-328 LOCATED IN DUBLIN, CALIFORNIA

Enclosed you will find a copy of the facility closure report for Target Store T-328 that was submitted to Dr. Ravi Arulanantham of the Alameda County Department of Environmental Health. During a conversation on November 30, 1990, Dr. Arulanantham asked me to inform you that the Alameda County Health Department would like this site remediated as soon as possible.

We are currently in the process of estimating the costs for the treatment and/or disposal of approximately 160 yards of contaminated backfill that is present at the site. I will provide you with a list of disposal options and their approximate costs once the estimates are completed.

Please feel free to call me at (415) 748-5649 if you have any questions regarding the enclosed report or the status of the subject site.

Sincerely,

M. Bermudez

Martin Bermudez
Environmental Specialist I

1205NCV2

1135 Atlantic Avenue, Alameda, CA 94501 (415) 521-5200 FAX (415) 521-1547

FACILITY CLOSURE AND UNDERGROUND FUEL TANK REMOVAL REPORT FOR TARGET STORE T-328 LOCATED IN DUBLIN, CALIFORNIA

Dec 1990

Prepared for:
Target Stores, Inc.
33 South Sixth Street
Minneapolis, Minnesota 55440

Phil Byers 612-335-5200

Prepared by:
McLaren/Hart
1135 Atlantic Avenue
Alameda, California 94501

December 4, 1990
Job #38903-001

McLaren Hart

McLaren Hart

December 4, 1990

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

Dear Dr. Arulanantham:

FACILITY CLOSURE AND UNDERGROUND TANK REMOVAL REPORT FOR TARGET STORE T-328 LOCATED AT 7600 AMADOR VALLEY BOULEVARD IN DUBLIN, CALIFORNIA

McLaren/Hart was retained by Target Stores to conduct and supervise the removal of two unleaded, one leaded and one diesel underground fuel tank at a retail service station located 7600 Amador Valley Boulevard in Dublin, California. These tanks each had a capacity of approximately 12,000 gallons.

Permitting Activities

On September 10, 1990 the Bay Area Air Quality Management District (BAAQMD) was notified that four underground fuel storage tanks were to be removed from the subject site. A closure plan and a site specific health and safety plan were prepared on September 11, 1990, and were submitted to the Alameda County Health Agency's Department of Environmental Health on September 13, 1990 along with $933 in permit fees. The closure plan was approved by the Alameda County Department of Environmental Health on September 17, 1990. On September 17, 1990 a copy of the approved closure plan was delivered to the Dougherty Regional Fire Authority along with $175 in permit fees. A copy of the closure plan was also delivered to the City of Dublin Building Department along with a completed building permit application for the demolition of structures on-site. Building permit fees of $320 were paid on September 17, 1990, when the permit was issued. A grading permit was also required by the City of Dublin for the underground tank excavation if more than 140 cubic yards of soil were excavated. This permit was obtained and a $200 dollar inspection deposit was paid once the amount of soil excavated exceeded the permit threshold limit.

Tank Excavation and Removal

DECON Environmental Services, Inc. was retained to perform the excavation and removal of the underground tanks and their associated piping, in addition to the demolition of the pump islands and overhangs at the site. Demolition of the structures present on-site began on September 20 and was completed on September 21, 1990. Excavation of the tanks began on September 24, 1990. Backfill and native soils covering the tank cluster contained evidence of product. These soils were stockpiled on-site and covered with visqueen to minimize emissions

of volatile hydrocarbons to the atmosphere as required by the Bay Area Air Quality Management District.

The native soil at the site consisted of a stiff, fine-grained clay which was present from grade down to the groundwater level. Groundwater was encountered at a depth of seven feet below grade. The groundwater at the site contained a layer of floating petroleum which appeared to be a combination of product and a tar coating which had dissolved off the surface of the underground tanks. This layer was removed during subsequent groundwater evacuation. Product and groundwater removed from the excavation during the course of the tank removal were shipped under manifest to Refinery Services, Inc. in Patterson, California.

The underground tanks were rinsed on September 25, 1990 in order to remove sludge and scale that may have hindered the inerting process. Rinsate was hauled under manifest to Refinery Services, Inc. in Patterson, California. While rinsate was being evacuated from the super unleaded tank at the facility, groundwater was observed flowing into the tank, indicating the presence of perforations in this tank.

On September 26, 1990, the tanks were removed from the excavation after they had been inerted using dry ice and liquid nitrogen. Mr. Gil Wistar of the Alameda County Department of Environmental Health was present during the removal of the underground tanks. These tanks were inspected upon removal for the presence of perforations. No perforations were observed in any of the tanks, however the thick, irregular tar coating of the tanks may have prevented the identification of perforations present in the tank walls. The tanks were hauled under manifest to Erickson, Inc. for treatment and disposal. Due to the presence of product in the excavation and evidence indicating that the super unleaded tank may have leaked, an Underground Storage Tank Unauthorized Release (Leak)/Contamination Site Report from was completed and submitted to Mr. Wistar on September 26, 1990.

Soil and Groundwater Sampling

Soil samples from the excavation were collected on September 27, 1990 under your direction. Samples were collected at the soil and groundwater interface at a depth of approximately eight feet. A site plan with sampling locations is presented in Figure 1.

Soil samples from underneath the piping and composite samples of the stockpiled backfill were collected on October 1, 1990. The locations of the soil samples from underneath the piping were determined by your direction. Groundwater samples from the excavation were also collected on this date. Groundwater had been purged twice from the excavation prior to sampling per your request.

Soil samples were collected using laboratory-prepared brass sampling tubes. Following sampling, each end of the brass tube was covered with aluminum foil and then capped with a polyethylene lid, taped, and labeled. Water samples were

taken with pre-cleaned laboratory volatile organic analysis bottles. Water samples for diesel and analyses were collected in one-liter precleaned bottles. The samples were labeled and placed inside plastic bags, then stored in a cooler packed with ice. Chain-of-custody documentation was completed for courier transport of samples to McLaren/Hart Analytical Laboratory located in Rancho Cordova, California for analysis.

All soil samples were analyzed for benzene, toluene, ethylbenzene, and xylenes using EPA Method 8020. Soil samples taken adjacent to the gasoline tanks were analyzed for Total Petroleum Hydrocarbons as Gasoline (TPH/G) by DHS Leaking Underground Fuel Tank (LUFT) methods. Soil samples taken adjacent to the diesel tank were analyzed for Total Petroleum Hydrocarbons as Diesel (TPH/D) using LUFT methods. Soil samples of the stockpiled backfill were analyzed for both TPH/D and TPH/G. Two additional soil samples were collected adjacent to the leaded gasoline tank for lead analysis using EPA Method 7420 at your request.

Water samples were analyzed for TPH/G and TPH/D by LUFT methods and for benzene, toluene, xylene, and ethylbenzene using EPA Method 602. Groundwater was also analyzed for lead content using EPA Method 7420 per your request. Table 1 contains a full listing of the analytical results for all soil and groundwater samples collected during this project. Appendix A contains copies of the final laboratory analytical reports.

The excavation was backfilled with pea gravel up to the soil-groundwater interface. A visqueen liner was then placed along all of the edges of the excavation per your request. The excavation was then backfilled to grade with clean, non-expansive soil. A geotechnical report of the backfilling operation, which was required by the City of Dublin, was prepared by BSK Associates and submitted to McLaren/Hart and the City of Dublin Public Works Department. A copy of this report is presented in Appendix B.

Conclusions and Recommendations

Soils collected at the subject site were found to contain gasoline hydrocarbon concentrations of 80 to 600 ug/g (ppm) and diesel hydrocarbon concentrations of 10 to 30 ug/g. Benzene concentrations in these soils ranged from <0.01 to 0.50 ug/g. Toluene concentrations ranged from 0.2 to 13 ug/g. Ethylbenzene concentrations ranged from <0.01 to 14 ug/g. Xylene concentrations ranged from 0.02 to 74 ug/g.

Gasoline and diesel contamination was present in the groundwater at the site. A gasoline concentration of 28,000 ug/L (ppb) and a diesel concentration of 2000 ug/L were detected in groundwater samples collected from the excavation. Benzene, toluene, ethylbenzene, and xylene groundwater concentrations were determined to be: 1500, 2700, 50, and 3940 ug/L respectively. State of California Maximum Contaminant Level Regulatory Thresholds for benzene,

ethylbenzene and xylene are 1.0, 680, and 1750 ug/L respectively. The California Department of Health Services Recommended Action Level for toluene is 100 ug/L.

Groundwater at the subject site has been contaminated with fuel related compounds in concentrations that greatly exceed regulatory threshold levels. A complete hydrogeologic investigation of the subject site is needed in order to determine appropriate future remedial actions at the subject site. Target Stores, Inc. has been informed that soil and groundwater at the subject site will require remediation and that all workplans for future hydrogeologic investigations and remediation should be sent to the San Francisco Bay Regional Water Quality Control Board and the Alameda County Department of Environmental Health for approval prior to the commencement of such work.

Please feel free to call me at (415) 748-5649 if you need any additional information regarding this underground storage tank removal.

Sincerely,

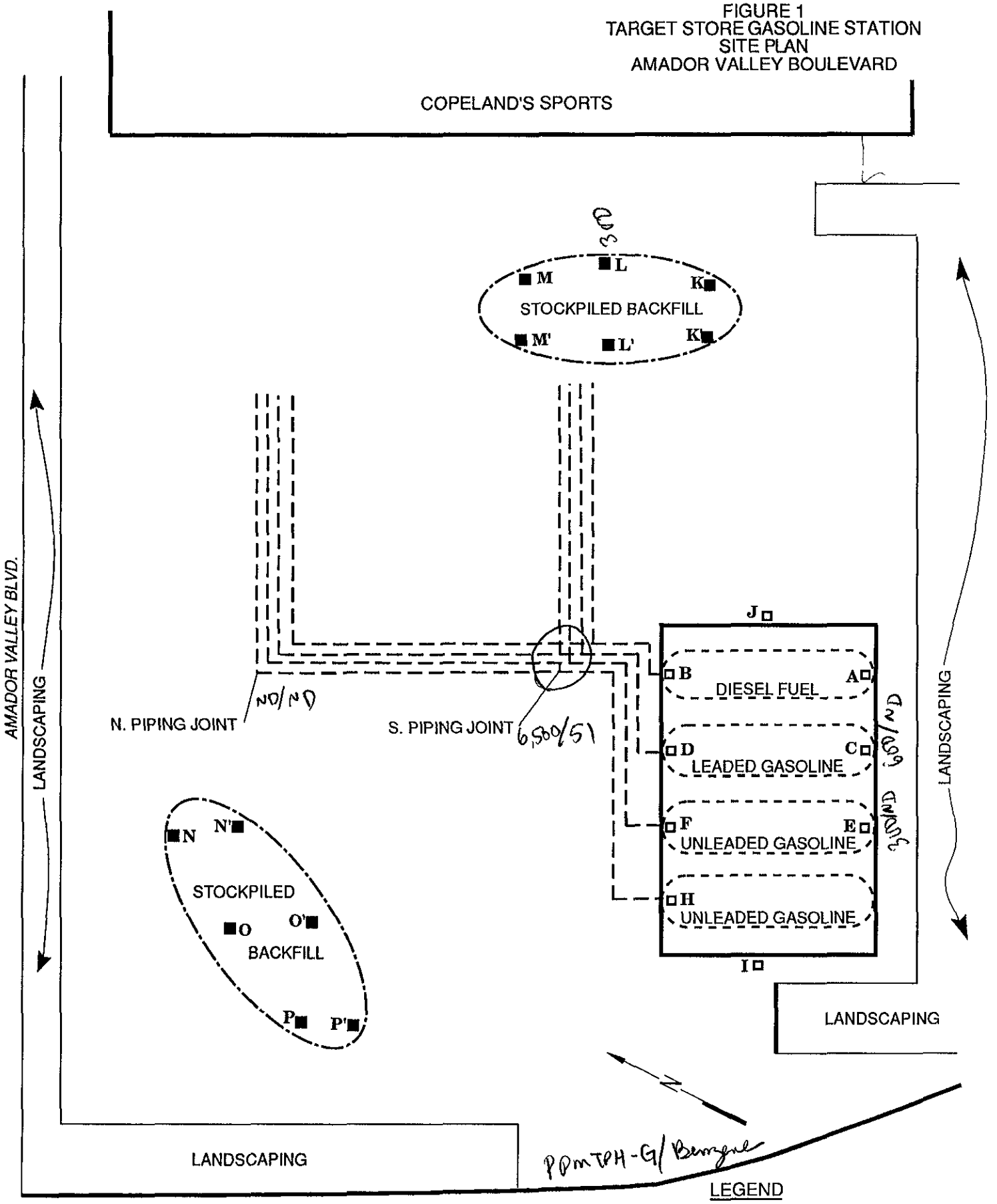
M. Bermudez

Martin Bermudez
Environmental Specialist I

1204DMS1

McLaren Hart

FIGURE 1
TARGET STORE GASOLINE STATION
SITE PLAN
AMADOR VALLEY BOULEVARD



LEGEND

I□ SINGLE SAMPLE LOCATIONS.

P■ COMPOSITE SAMPLE LOCATIONS.

McLaren Hart

TABLE 1

SOIL AND GROUNDWATER PETROLEUM HYDROCARBON CONCENTRATIONS
(All concentrations are in parts per million)
(X indicates analysis not requested, ND indicates a non-detectable concentration)

Sample Location	TPH G	TPH D	Benzene	Toluene	Ethylbenzene	Xylenes	Total lead
Location A	X	10	0.5	0.2	0.4	2.5	X
Location B	X	ND	ND	13	6	37	X
Location C	600	X	ND	11	14	74	12
Location D	ND	X	ND	0.11	ND	0.20	10
Location E	300	X	ND	11	6	34	X
Location F	80	X	ND	2.2	4.0	8.7	X
Location H	ND	X	ND	ND	ND	ND	X
Location I	ND	X	ND	0.02	ND	0.02	X
Location J	X	30	ND	0.2	0.4	1.9	X
Composite K	3	ND	0.06	0.02	0.08	0.30	X
Composite L	300	350	ND	ND	5	38	X

TABLE 1 (Continued)

Sample Location	TPH G	TPH D	Benzene	Toluene	Ethylbenzene	Xylenes	Total Lead
Composite M	5	400	ND	ND	0.16	1.0	X
Composite N	4	ND	0.02	0.09	0.11	0.80	X
Composite O	50	ND	ND	1.5	1.4	10.0	X
Composite P	50	ND	ND	1	ND	6	X
North Piping Joint	ND	ND	ND	ND	ND	ND	X
South Piping Joint	6500	50	51	320	74	372	X
Groundwater	28.000	2.000	1.500	2.700	0.050	3.940	ND

APPENDIX A

CHAIN OF CUSTODY FORMS AND LABORATORY ANALYTICAL REPORTS

McLaren Analytical Laboratory
11101 White Rock Road
Rancho Cordova, CA 95670
(916) 638-3696

Client: Lenni Carter
McLaren/Hart
Alameda, CA 94501

L.P. #:	3598	Project Name:	Target Dublin
Date Rec'd:	9/28/90	Project #:	38903
Date Due:	10/12/90	Phone:	415-521-5200

A total of 19 samples were received on 9/28/90 at 9:30 under chain of custody number(s) . The chain of custody form(s) agree(s) with the sample container(s). The analysis(es) requested for the sample(s) received included:

- 12 sample(s) for TPH-G and BTEX analysis;
- 2 sample(s) for Total Lead analysis;
- 3 sample(s) for BTEX analysis;
- 9 sample(s) for TPH-D analysis.

Correction(s) made and/or Problem(s): None

McLaren Hart

METHOD BLANK RESULTS: A method blank (MB) is a laboratory generated sample free of any contamination. The method blank assesses the degree to which the laboratory operations and procedures cause false-positive analytical results for your samples. The method blank results associated with your samples are attached.

LABORATORY CONTROL SPIKES

The LCS Program:

The laboratory control spike is a well characterized matrix (organic pure type II water for water samples and contamination free sand for soil samples) which is spiked with certain target parameters and analyzed in duplicate at approximately 10% of the sample load in order to assure the accuracy and precision of the analytical method. The results of the laboratory control spike associated with your samples are attached.

Accuracy is measured using percent recovery, i.e.:

$$\text{Percent Recovery} = \frac{\text{(measured concentration)}}{\text{(actual concentration)}} \times 100$$

Precision is measured using the relative percent difference (RPD) from duplicate tests, i.e.:

$$\text{RPD} = \frac{\%\ \text{Recovery of Spike}_{(1)} - \%\ \text{Recovery of Spike}_{(2)}}{(\%\ \text{Recovery of Spike}_{(1)} + \%\ \text{Recovery of Spike}_{(2)})/2} \times 100$$

Control limits for accuracy and precision are different for different methods. They may also vary with the different sample matrices. They are based on laboratory average historical data and EPA limits which are approved by the Quality Assurance Department. McLaren Analytical Laboratory reanalyzes samples if the precision or accuracy is out of acceptance control limits.

McLaren Hart

QUALITY CONTROL REPORT

Method: Mod. EPA 8020 (BTEX) & TPH/G
Units: ug/g (ppm)

Date Analyzed: 10/09/90
Date Extracted: 10/01/90
Batch Number: 901001-0303

METHOD BLANK

Compounds	Reporting Limits	Results of the MB
Benzene	0.01	BRL
Toluene	0.01	BRL
Ethyl Benzene	0.01	BRL
1,2-Xylene	0.01	BRL
1,3-Xylene	0.01	BRL
1,4-Xylene	0.01	BRL
Total Petroleum Hydrocarbons Gasoline	1.	BRL

LABORATORY CONTROL SPIKE

Compounds	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Chlorobenzene	0.10	0.11	110	10	75 - 125	<25
Benzene	0.10	0.10	100	0	75 - 125	<25
Ethyl Benzene	0.10	0.11	110	10	75 - 125	<25
Total Petroleum Hydrocarbons Gasoline	5.0	5.6	112	13	75 - 125	<25

[a] Acceptance limits are generic EPA limits.

(DC3-CN3598)

McLaren Hart

QUALITY CONTROL REPORT

Method: TPH/D
Units: ug/g (ppm)

Date Analyzed: 10/07/90
Date Extracted: 10/01/90
Batch Number: 901001-1301

METHOD BLANK

Compounds	Reporting Limits	Results of the MB
Diesel Range	10.	BRL

LABORATORY CONTROL SPIKE

Compounds	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Diesel Range	83.	86.	104	1	50 - 121	<25

[a] Acceptance limits were obtained statistically from McLaren quality control data.

(DC3-CN3598)

McLaren Hart

QUALITY CONTROL REPORT

Method: Metals (7000 Series)
Units: ug/g (ppm)

Date Analyzed: 10/08/90
Date Extracted: 10/04/90
Batch Number: 901004-1002

METHOD BLANK

Compounds	Reporting Limits	Results of the MB
Aluminum (Al)/7020	2.	Not Requested
Antimony (Sb)/7040	5.	Not Requested
Arsenic (As)/7061	0.05	Not Requested
Barium (Ba)/7080	10.	Not Requested
Beryllium (Be)/7090	0.5	Not Requested
Cadmium (Cd)/7130	0.4	Not Requested
Calcium (Ca)/7140	1.	Not Requested
Chromium (Cr)/7190	0.7	Not Requested
Cobalt (Co)/7200	0.8	Not Requested
Copper (Cu)/7210	0.9	Not Requested
Hex. Chromium (CrVI)/7195	0.5	Not Requested
Iron (Fe)/7380	0.4	Not Requested
Lead (Pb)/7420	1.	BRL
Magnesium (Mg)/7450	0.7	Not Requested
Manganese (Mn)/7460	0.5	Not Requested
Mercury (Hg)/7470	0.02	Not Requested
Molybdenum (Mo)/7480	10.	Not Requested
Nickel (Ni)/7520	2.	Not Requested
Potassium (K)/7610	2.	Not Requested
Selenium (Se)/7741	0.01	Not Requested
Silver (Ag)/7760	0.5	Not Requested
Sodium (Na)/7770	25.	Not Requested
Thallium (Tl)/7840	10.	Not Requested
Titanium (Ti)/283.1	6.	Not Requested
Vanadium (V)/7910	5.	Not Requested
Zinc (Zn)/7950	0.8	Not Requested

McLaren Hart

Method: Metals (7000 Series) Cont.

LABORATORY CONTROL SPIKE

Compounds	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Lead (Pb)/7420	1.0	0.96	96	2	75 - 125	<20

a Acceptance limits are generic EPA limits.

McLaren Hart

COMMENTS

The samples in this project were analyzed by the methods requested on the chain of custody with no deviations in procedure.

Values for total petroleum hydrocarbons were calculated based only on detected peaks.

Values for total petroleum hydrocarbons gasoline were calculated based only on detected peaks.

ANALYTICAL RESULTS

Test methods may include minor modifications of published EPA methods (e.g., reporting limits or parameter lists). Reporting limits are adjusted to reflect dilution of the sample when appropriate. Solids and waste are analyzed with no correction made for moisture content. Results are corrected for concentrations of analytes which may be found in the blanks.

ABBREVIATIONS USED IN THIS REPORT:

BRL	Below Reporting Limit
MB	Method Blank
MS	Matrix Spike
MSD	Matrix Spike Duplicate
LCS	Laboratory Control Spike
LCSD	Laboratory Control Spike Duplicate
RPD	Relative Percent Difference

Results are on the attached data sheets.

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Diesel by LUFT
Preparation Method: Modified EPA 3550 (a)

Project Name: Target - Dublin

Project Number: 38903

Sample Description: Location A2

Lab Project-ID Number: 3598-016

Sample Number: 036135

Date Sampled: 09/27/90

Date Received: 09/27/90

Date Extracted: 10/01/90

Date Analyzed: 10/07/90

Batch Number: 901001-1301

PETROLEUM HYDROCARBONS	CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Diesel Range	10.	10.

Dilution: None

Comments: (a) Shaker rather than sonication used for extraction.

Sample contains hydrocarbons in the C4-C12 boiling point range.

Approved By: C. Fong Date: 10/24/90

The cover letter and attachments are integral parts of this report.

McLaren Hart

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Diesel by LUFT
Preparation Method: Modified EPA 3550 (a)

Project Name:	Target - Dublin	Project Number:	38903
Sample Description:	Location J2	Lab Project-ID Number:	3598-018
Sample Number:	036133	Date Sampled:	09/27/90
Date Received:	09/27/90	Date Extracted:	10/01/90
Date Analyzed:	10/07/90	Batch Number:	901001-1301

PETROLEUM HYDROCARBONS	CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Diesel Range	30.	10.

Dilution: None

Comments: (a) Shaker rather than sonication used for extraction.

Sample contains hydrocarbons in the C4-C12 boiling point range.

Approved By: C. Fong Date: 10/24/90

The cover letter and attachments are integral parts of this report.

McLaren Hart

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Diesel by LUFT
Preparation Method: Modified EPA 3550 (a)

Project Name: Target - Dublin

Project Number: 38903

Sample Description: Location B2

Lab Project-ID Number: 3598-017

Sample Number: 036131

Date Sampled: 09/27/90

Date Received: 09/27/90

Date Extracted: 10/01/90

Date Analyzed: 10/07/90

Batch Number: 901001-1301

PETROLEUM HYDROCARBONS	CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Diesel Range	BRL	10.

Dilution: None

Comments: (a) Shaker rather than sonication used for extraction.

Approved By: _____ Date: 10/24/90
C. Fong

The cover letter and attachments are integral parts of this report.

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX)
Preparation Method: EPA 5030

Project Name: Target - Dublin

Project Number: 38903

Sample Description: Location B1

Lab Project-ID Number: 3598-003

Sample Number: 036130

Date Sampled: 09/27/90

Date Received: 09/27/90

Date Extracted: 10/01/90

Date Analyzed: 10/11/90

Batch Number: 901001-0303

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Benzene	BRL	1.
Toluene	13.	1.
Ethyl Benzene	6.	1.
1,2-Xylene	11.	1.
1,3-Xylene	17.	1.
1,4-Xylene	9.	1.

Surrogate	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	110	75 - 125

Dilution: 1:10

Comments:

Approved By: _____ Date: 10/24/90
A. Putnam

The cover letter and attachments are integral parts of this report.

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and Total Petroleum Hydrocarbons Gasoline
Preparation Method: EPA 5030

Project Name: Target - Dublin

Project Number: 38903

Sample Description: Location E

Lab Project-ID Number: 3598-005

Sample Number: 036138

Date Sampled: 09/27/90

Date Received: 09/27/90

Date Extracted: 10/01/90

Date Analyzed: 10/11/90

Batch Number: 901001-0303

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Benzene	BRL	1.
Toluene	11.	1.
Ethyl Benzene	6.	1.
1,2-Xylene	11.	1.
1,3-Xylene	16.	1.
1,4-Xylene	7.	1.
Total Petroleum Hydrocarbons Gasoline	300.	100.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	90	75 - 125

Dilution: 1:100

Comments:

Approved By: A. Putnam Date: 10/24/90

The cover letter and attachments are integral parts of this report.

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX)
Preparation Method: EPA 5030

Project Name: Target - Dublin

Project Number: 38903

Sample Description: Location A1

Lab Project-ID Number: 3598-001

Sample Number: 036134

Date Sampled: 09/27/90

Date Received: 09/27/90

Date Extracted: 10/01/90

Date Analyzed: 10/11/90

Batch Number: 901001-0303

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Benzene	0.5	0.1
Toluene	0.2	0.1
Ethyl Benzene	0.4	0.1
1,2-Xylene	0.5	0.1
1,3-Xylene	1.3	0.1
1,4-Xylene	0.7	0.1

Surrogate	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	105	75 - 125

Dilution: 1:10

Comments:

Approved By: A. Putnam Date: 10/24/90

The cover letter and attachments are integral parts of this report.

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX)
Preparation Method: EPA 5030

Project Name: Target - Dublin

Project Number: 38903

Sample Description: Location J1

Lab Project-ID Number: 3598-009

Sample Number: 036132

Date Sampled: 09/27/90

Date Received: 09/27/90

Date Extracted: 10/01/90

Date Analyzed: 10/11/90

Batch Number: 901001-0303

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Benzene	BRL	0.1
Toluene	0.2	0.1
Ethyl Benzene	0.4	0.1
1,2-Xylene	0.2	0.1
1,3-Xylene	1.1	0.1
1,4-Xylene	0.6	0.1

Surrogate	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	120	75 - 125

Dilution: 1:10

Comments:

Approved By: _____ Date: 10/24/90
A. Putnam

The cover letter and attachments are integral parts of this report.

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and Total Petroleum Hydrocarbons Gasoline
Preparation Method: EPA 5030

Project Name: Target - Dublin

Project Number: 38903

Sample Description: Location D1

Lab Project-ID Number: 3598-004

Sample Number: 036128

Date Sampled: 09/27/90

Date Received: 09/27/90

Date Extracted: 10/01/90

Date Analyzed: 10/11/90

Batch Number: 901001-0303

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Benzene	BRL	0.05
Toluene	0.11	0.05
Ethyl Benzene	BRL	0.05
1,2-Xylene	0.07	0.05
1,3-Xylene	0.07	0.05
1,4-Xylene	0.06	0.05
Total Petroleum Hydrocarbons Gasoline	BRL	5.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	85	75 - 125

Dilution: 1:5

Comments:

Approved By: A. Putnam Date: 10/24/90

The cover letter and attachments are integral parts of this report.

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and Total Petroleum Hydrocarbons Gasoline
Preparation Method: EPA 5030

Project Name: Target - Dublin

Project Number: 38903

Sample Description: Location I

Lab Project-ID Number: 3598-008

Sample Number: 036127

Date Sampled: 09/27/90

Date Received: 09/27/90

Date Extracted: 10/01/90

Date Analyzed: 10/09/90

Batch Number: 901001-0303

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Benzene	BRL	0.01
Toluene	0.02	0.01
Ethyl Benzene	BRL	0.01
1,2-Xylene	0.01	0.01
1,3-Xylene	0.01	0.01
1,4-Xylene	BRL	0.01
Total Petroleum Hydrocarbons Gasoline	BRL	1.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	90	75 - 125

Dilution: None

Comments:

Approved By: A. Putnam Date: 10/24/90

The cover letter and attachments are integral parts of this report.

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and Total Petroleum Hydrocarbons Gasoline
Preparation Method: EPA 5030

Project Name: Target - Dublin

Project Number: 38903

Sample Description: Location H

Lab Project-ID Number: 3598-007

Sample Number: 036125

Date Sampled: 09/27/90

Date Received: 09/27/90

Date Extracted: 10/01/90

Date Analyzed: 10/09/90

Batch Number: 901001-0303

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Benzene	BRL	0.01
Toluene	BRL	0.01
Ethyl Benzene	BRL	0.01
1,2-Xylene	BRL	0.01
1,3-Xylene	BRL	0.01
1,4-Xylene	BRL	0.01
Total Petroleum Hydrocarbons Gasoline	BRL	1.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	95	75 - 125

Dilution: None

Comments:

Approved By: _____ Date: 10/24/90
A. Putnam

The cover letter and attachments are integral parts of this report.

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and Total Petroleum Hydrocarbons Gasoline
Preparation Method: EPA 5030

Project Name: Target - Dublin

Project Number: 38903

Sample Description: Location F

Lab Project-ID Number: 3598-006

Sample Number: 036126

Date Sampled: 09/27/90

Date Received: 09/27/90

Date Extracted: 10/01/90

Date Analyzed: 10/11/90

Batch Number: 901001-0303

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Benzene	BRL	0.5
Toluene	2.2	0.5
Ethyl Benzene	4.0	0.5
1,2-Xylene	1.0	0.5
1,3-Xylene	3.1	0.5
1,4-Xylene	4.6	0.5
Total Petroleum Hydrocarbons Gasoline	80.	50.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	110	75 - 125

Dilution: 1:5

Comments:

Approved By: _____ Date: 10/24/90
A. Putnam

The cover letter and attachments are integral parts of this report.

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and Total Petroleum Hydrocarbons Gasoline
Preparation Method: EPA 5030

Project Name: Target - Dublin

Project Number: 38903

Sample Description: Location C2

Lab Project-ID Number: 3598-019

Sample Number: 036137

Date Sampled: 09/27/90

Date Received: 09/27/90

Date Extracted: 10/01/90

Date Analyzed: 10/11/90

Batch Number: 901001-0303

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Benzene	BRL	1.
Toluene	11.	1.
Ethyl Benzene	14.	1.
1,2-Xylene	19.	1.
1,3-Xylene	36.	1.
1,4-Xylene	19.	1.
Total Petroleum Hydrocarbons Gasoline	600.	100.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	90	75 - 125

Dilution: 1:100

Comments:

Approved By: _____ Date: 10/24/90
A. Putnam

The cover letter and attachments are integral parts of this report.

McLaren Hart

METAL ANALYSIS
Analytical Method: EPA 7000 Series (a)
Preparation Method: EPA 3050 (b)

Project Name: Target - Dublin

Project Number: 38903

Sample Description: Location D2

Lab Project-ID Number: 3598-020

Sample Number: 036129

Date Sampled: 09/27/90

Date Received: 09/27/90

Date Digested: 10/04/90

Batch Number: 9001004-1002

METAL (SYMBOL)/EPA METHOD	DATE ANALYZED	CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Aluminum (Al)/7020		Not Requested	2.
Antimony (Sb)/7040		Not Requested	5.
Arsenic (As)/7061		Not Requested	0.05
Barium (Ba)/7080		Not Requested	10.
Beryllium (Be)/7090		Not Requested	0.5
Cadmium (Cd)/7130		Not Requested	0.4
Calcium (Ca)/7140		Not Requested	1.
Chromium (Cr)/7190		Not Requested	0.7
Cobalt (Co)/7200		Not Requested	0.8
Copper (Cu)/7210		Not Requested	0.9
Hex. Chromium (CrVI)/7195		Not Requested	0.5
Iron (Fe)/7380		Not Requested	0.4
Lead (Pb)/7420	10/08/90	10.	1.
Magnesium (Mg)/7450		Not Requested	0.7
Manganese (Mn)/7460		Not Requested	0.5
Mercury (Hg)/7471		Not Requested	0.02
Molybdenum (Mo)/7480		Not Requested	10.
Nickel (Ni)/7520		Not Requested	2.
Potassium (K)/7610		Not Requested	2.
Selenium (Se)/7741		Not Requested	0.01
Silver (Ag)/7760		Not Requested	0.5
Sodium (Na)/7770		Not Requested	1.
Thallium (Tl)/7840		Not Requested	10.
Titanium (Ti)/283.1		Not Requested	6.
Vanadium (V)/7910		Not Requested	5.
Zinc (Zn)/7950		Not Requested	0.8

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McLaren Hart

METAL ANALYSIS
Analytical Method: EPA 7000 Series (a)
Preparation Method: EPA 3050 (b)

Lab Project-
ID Number: 3598-020

Dilution: None

Comments: (a) Except Ti which is not listed in SW846.

(b) Applies to all metals except As, Se, and Hg. EPA Method 7061 used for As digestion. EPA Method 7741 used for Se digestion. EPA Method 7471 used for Hg digestion.

Approved By: _____ Date: _____
F. Ramezanzadeh

The cover letter and attachments are integral parts of this report.

McLaren Hart

METAL ANALYSIS
Analytical Method: EPA 7000 Series (a)
Preparation Method: EPA 3050 (b)

Project Name: Target - Dublin

Project Number: 38903

Sample Description: Location C1

Lab Project-ID Number: 3598-002

Sample Number: 036136

Date Sampled: 09/27/90

Date Received: 09/27/90

Date Digested: 10/04/90

Batch Number: 9001004-1002

METAL (SYMBOL)/EPA METHOD	DATE ANALYZED	CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Aluminum (Al)/7020		Not Requested	2.
Antimony (Sb)/7040		Not Requested	5.
Arsenic (As)/7061		Not Requested	0.05
Barium (Ba)/7080		Not Requested	10.
Beryllium (Be)/7090		Not Requested	0.5
Cadmium (Cd)/7130		Not Requested	0.4
Calcium (Ca)/7140		Not Requested	1.
Chromium (Cr)/7190		Not Requested	0.7
Cobalt (Co)/7200		Not Requested	0.8
Copper (Cu)/7210		Not Requested	0.9
Hex. Chromium (CrVI)/7195		Not Requested	0.5
Iron (Fe)/7380		Not Requested	0.4
Lead (Pb)/7420	10/08/90	12.	1.
Magnesium (Mg)/7450		Not Requested	0.7
Manganese (Mn)/7460		Not Requested	0.5
Mercury (Hg)/7471		Not Requested	0.02
Molybdenum (Mo)/7480		Not Requested	10.
Nickel (Ni)/7520		Not Requested	2.
Potassium (K)/7610		Not Requested	2.
Selenium (Se)/7741		Not Requested	0.01
Silver (Ag)/7760		Not Requested	0.5
Sodium (Na)/7770		Not Requested	1.
Thallium (Tl)/7840		Not Requested	10.
Titanium (Ti)/283.1		Not Requested	6.
Vanadium (V)/7910		Not Requested	5.
Zinc (Zn)/7950		Not Requested	0.8

McLaren Hart

METAL ANALYSIS
Analytical Method: EPA 7000 Series (a)
Preparation Method: EPA 3050 (b)

Lab Project-
ID Number: 3598-002

Dilution: None

Comments: (a) Except Ti which is not listed in SW846.

(b) Applies to all metals except As, Se, and Hg. EPA Method 7061 used for As digestion. EPA Method 7741 used for Se digestion. EPA Method 7471 used for Hg digestion.

Approved By: _____ Date: _____
F. Ramezanzadeh

The cover letter and attachments are integral parts of this report.

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and Total Petroleum Hydrocarbons Gasoline
Preparation Method: EPA 5030

Project Name: Target - Dublin

Project Number: 38903

Sample Description: Composite K

Lab Project-ID Number: 3598-010

Sample Number: 036139

Date Sampled: 09/27/90

Date Received: 09/27/90

Date Extracted: 10/01/90

Date Analyzed: 10/11/90

Batch Number: 901001-0303

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Benzene	0.06	0.01
Toluene	0.02	0.01
Ethyl Benzene	0.08	0.01
1,2-Xylene	(a)	0.01
1,3-Xylene	0.11	0.01
1,4-Xylene	0.19	0.01
Total Petroleum Hydrocarbons Gasoline	3.	1.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	118	75 - 125

Dilution: None

Comments: (a) Coelutes with 1,4-Xylene.

Approved By: A Putnam Date: 10/24/90

A. Putnam

The cover letter and attachments are integral parts of this report.

McLaren Hart

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Diesel by LUFT
Preparation Method: Modified EPA 3550 (a)

Project Name:	Target - Dublin	Project Number:	38903
Sample Description:	Composite K	Lab Project-ID Number:	3598-010
Sample Number:	036139	Date Sampled:	09/27/90
Date Received:	09/27/90	Date Extracted:	10/01/90
Date Analyzed:	10/07/90	Batch Number:	901001-1301

PETROLEUM HYDROCARBONS	CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Diesel Range	BRL	10.

Dilution: None

Comments: (a) Shaker rather than sonication used for extraction.

Approved By: C. Fong Date: 10/24/90

The cover letter and attachments are integral parts of this report.

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and Total Petroleum Hydrocarbons Gasoline
Preparation Method: EPA 5030

Project Name: Target - Dublin

Project Number: 38903

Sample Description: Composite L

Lab Project-ID Number: 3598-011

Sample Number: 036140

Date Sampled: 09/27/90

Date Received: 09/27/90

Date Extracted: 10/01/90

Date Analyzed: 10/11/90

Batch Number: 901001-0303

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Benzene	BRL	1.
Toluene	BRL	1.
Ethyl Benzene	5.	1.
1,2-Xylene	9.	1.
1,3-Xylene	20.	1.
1,4-Xylene	9.	1.
Total Petroleum Hydrocarbons Gasoline	300.	100.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	110	75 - 125

Dilution: 1:100

Comments:

Approved By: A. Putnam Date: 10/24/90

The cover letter and attachments are integral parts of this report.

McLaren Hart

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Diesel by LUFT
Preparation Method: Modified EPA 3550 {a}

Project Name: Target - Dublin

Project Number: 38903

Sample Description: Composite L

Lab Project-ID Number: 3598-011

Sample Number: 036140

Date Sampled: 09/27/90

Date Received: 09/27/90

Date Extracted: 10/01/90

Date Analyzed: 10/07/90

Batch Number: 901001-1301

PETROLEUM HYDROCARBONS	CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Diesel Range	350.	20.

Dilution: 1:2

Comments: {a} Shaker rather than sonication used for extraction.

Sample contains hydrocarbons in the C4-C12 boiling point range.

Approved By: _____ Date: 10/24/90
C. Fong

The cover letter and attachments are integral parts of this report.

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and Total Petroleum Hydrocarbons Gasoline
Preparation Method: EPA 5030

Project Name: Target - Dublin

Project Number: 38903

Sample Description: Composite M

Lab Project-ID Number: 3598-012

Sample Number: 036141

Date Sampled: 09/27/90

Date Received: 09/27/90

Date Extracted: 10/01/90

Date Analyzed: 10/10/90

Batch Number: 901001-0303

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Benzene	BRL	0.01
Toluene	BRL	0.01
Ethyl Benzene	0.16	0.01
1,2-Xylene	0.18	0.01
1,3-Xylene	(a)	0.01
1,4-Xylene	0.82	0.01
Total Petroleum Hydrocarbons Gasoline	5.	1.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	120	75 - 125

Dilution: None

Comments: (a) Coelutes with 1,4-Xylene.

Approved By: A. Putnam Date: 10/24/90

The cover letter and attachments are integral parts of this report.

McLaren Hart

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Diesel by LUFT
Preparation Method: Modified EPA 3550 (a)

Project Name:	Target - Dublin	Project Number:	38903
Sample Description:	Composite M	Lab Project-ID Number:	3598-012
Sample Number:	036141	Date Sampled:	09/27/90
Date Received:	09/27/90	Date Extracted:	10/01/90
Date Analyzed:	10/12/90	Batch Number:	901001-1301

PETROLEUM HYDROCARBONS	CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Diesel Range	400.	100.

Dilution: 1:10

Comments: (a) Shaker rather than sonication used for extraction.

Approved By: _____ Date: 10/24/90
C. Fong

The cover letter and attachments are integral parts of this report.

McLaren Hart

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Diesel by LUFT
Preparation Method: Modified EPA 3550 (a)

Project Name:	Target - Dublin	Project Number:	38903
Sample Description:	Composite N	Lab Project-ID Number:	3598-013
Sample Number:	036144	Date Sampled:	09/27/90
Date Received:	09/27/90	Date Extracted:	10/01/90
Date Analyzed:	10/07/90	Batch Number:	901001-1301

PETROLEUM HYDROCARBONS	CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Diesel Range	BRL	10.

Dilution: None

Comments: (a) Shaker rather than sonication used for extraction.

Approved By: C. Fong Date: 10/24/90

The cover letter and attachments are integral parts of this report.

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and Total Petroleum Hydrocarbons Gasoline
Preparation Method: EPA 5030

Project Name: Target - Dublin

Project Number: 38903

Sample Description: Composite N

Lab Project-ID Number: 3598-013

Sample Number: 036144

Date Sampled: 09/27/90

Date Received: 09/27/90

Date Extracted: 10/01/90

Date Analyzed: 10/11/90

Batch Number: 901001-0303

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Benzene	0.02	0.01
Toluene	0.09	0.01
Ethyl Benzene	0.11	0.01
1,2-Xylene	(a)	0.01
1,3-Xylene	0.39	0.01
1,4-Xylene	0.41	0.01
Total Petroleum Hydrocarbons Gasoline	4.	1.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	112	75 - 125

Dilution: None

Comments: (a) Coelutes with 1,4-Xylene.

Approved By: _____ Date: 10/24/90
A. Putnam

The cover letter and attachments are integral parts of this report.

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and Total Petroleum Hydrocarbons Gasoline
Preparation Method: EPA 5030

Project Name: Target - Dublin

Project Number: 38903

Sample Description: Composite O

Lab Project-ID Number: 3598-014

Sample Number: 036143

Date Sampled: 09/27/90

Date Received: 09/27/90

Date Extracted: 10/01/90

Date Analyzed: 10/11/90

Batch Number: 901001-0303

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Benzene	BRL	0.5
Toluene	1.5	0.5
Ethyl Benzene	1.4	0.5
1,2-Xylene	4.1	0.5
1,3-Xylene	3.7	0.5
1,4-Xylene	2.2	0.5
Total Petroleum Hydrocarbons Gasoline	50.	50.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	105	75 - 125

Dilution: 1:5

Comments:

Approved By: A. Putnam Date: 10/24/90

The cover letter and attachments are integral parts of this report.

McLaren Hart

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Diesel by LUFT
Preparation Method: Modified EPA 3550 (a)

Project Name: Target - Dublin

Project Number: 38903

Sample Description: Composite O

Lab Project-ID Number: 3598-014

Sample Number: 036143

Date Sampled: 09/27/90

Date Received: 09/27/90

Date Extracted: 10/01/90

Date Analyzed: 10/08/90

Batch Number: 901001-1301

PETROLEUM HYDROCARBONS	CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Diesel Range	BRL	50.

Dilution: 1:5 dilution used in analysis due to the presence of Hydrocarbons in the C4-C12 boiling point range.

Comments: (a) Shaker rather than sonication used for extraction.

Approved By: C. Fong Date: 10/24/90

The cover letter and attachments are integral parts of this report.

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and Total Petroleum Hydrocarbons Gasoline
Preparation Method: EPA 5030

Project Name: Target - Dublin

Project Number: 38903

Sample Description: Composite P

Lab Project-ID Number: 3598-015

Sample Number: 036142

Date Sampled: 09/27/90

Date Received: 09/27/90

Date Extracted: 10/01/90

Date Analyzed: 10/11/90

Batch Number: 901001-0303

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Benzene	BRL	1.
Toluene	1.	1.
Ethyl Benzene	BRL	1.
1,2-Xylene	3.	1.
1,3-Xylene	2.	1.
1,4-Xylene	1.	1.
Total Petroleum Hydrocarbons Gasoline	50. (a)	100.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	115	75 - 125

Dilution: 1:100

Comments: (a) Data is taken from a different run to obtain results within linear range.

Approved By: _____ Date: 10/24/90
A. Putnam

The cover letter and attachments are integral parts of this report.

McLaren Hart

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Diesel by LUFT
Preparation Method: Modified EPA 3550 (a)

Project Name:	Target - Dublin	Project Number:	38903
Sample Description:	Composite P	Lab Project-ID Number:	3598-015
Sample Number:	036142	Date Sampled:	09/27/90
Date Received:	09/27/90	Date Extracted:	10/01/90
Date Analyzed:	10/08/90	Batch Number:	901001-1301

PETROLEUM HYDROCARBONS	CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Diesel Range	BRL	20.

Dilution: 1:2 dilution used in analysis due to the presence of hydrocarbons in the C4-C12 boiling point range and C22-C32 boiling point range.

Comments: (a) Shaker rather than sonication used for extraction.

Approved By: _____ Date: 10/24/90
C. Fong

The cover letter and attachments are integral parts of this report.

McLaren Hart

McLaren Analytical Laboratory
11101 White Rock Road
Rancho Cordova, CA 95670
(916) 638-3696

Client: Jenni Carter
McLaren/Hart
Alameda, CA

L.P. #:	3609	Project Name:	Target
Date Rec'd:	10/2/90	Project #:	38903
Date Due:	10/9/90	Phone:	818-841-0606

A total of 3 samples were received on 10/2/90 at 10:00 under chain of custody number(s) . The chain of custody form(s) agree(s) with the sample container(s). The analysis(es) requested for the samples received included:

- 3 sample(s) for TPH-G analysis(es);
- 3 sample(s) for TPH-D analysis(es);
- 1 sample(s) for Total Lead analysis(es);
- 3 sample(s) for BTEX analysis(es).

Correction(s) made and/or Problem(s): None

McLaren Hart

METHOD BLANK RESULTS: A method blank (MB) is a laboratory generated sample free of any contamination. The method blank assesses the degree to which the laboratory operations and procedures cause false-positive analytical results for your samples. The method blank results associated with your samples are attached.

LABORATORY CONTROL SPIKES

The LCS Program:

The laboratory control spike is a well characterized matrix (organic pure type II water for water samples and contamination free sand for soil samples) which is spiked with certain target parameters and analyzed in duplicate at approximately 10% of the sample load in order to assure the accuracy and precision of the analytical method. The results of the laboratory control spike associated with your samples are attached.

Accuracy is measured using percent recovery, i.e.:

$$\text{Percent Recovery} = \frac{\text{(measured concentration)}}{\text{(actual concentration)}} \times 100$$

Precision is measured using the relative percent difference (RPD) from duplicate tests, i.e.:

$$\text{RPD} = \frac{\%\ \text{Recovery of Spike}_{(1)} - \%\ \text{Recovery of Spike}_{(2)}}{(\%\ \text{Recovery of Spike}_{(1)} + \%\ \text{Recovery of Spike}_{(2)})/2} \times 100$$

Control limits for accuracy and precision are different for different methods. They may also vary with the different sample matrices. They are based on laboratory average historical data and EPA limits which are approved by the Quality Assurance Department. McLaren Analytical Laboratory reanalyzes samples if the precision or accuracy is out of acceptance control limits.

QUALITY CONTROL REPORT

Method: TPH-D
Units: ug/g (ppm)

Date Analyzed: 10/09/90
Date Extracted: 10/03/90
Batch Number: 901003-1302

METHOD BLANK

Compounds	Reporting Limit	Results of the MB
Total Petroleum Hydrocarbons Diesel	10.	BRL

LABORATORY CONTROL SPIKE

Compounds	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Diesel Range	83.	75.	91	4	50 - 121	<25

[a] Acceptance limits were obtained statistically from McLaren quality control data.

(DC3-CN3609)

McLaren Hart

QUALITY CONTROL REPORT

Method: TPH-D
Units: ug/ml (ppm)

Date Analyzed: 10/05/90
Date Extracted: 10/02/90
Batch Number: 901002-1301

METHOD BLANK

Compounds	Reporting Limit	Results of the MB
Total Petroleum Hydrocarbons Diesel	0.5	BRL

LABORATORY CONTROL SPIKE

Compounds	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Diesel Range	2.5	2.3	93.	1	43 - 152	<25

[a] Acceptance limits were obtained statistically from McLaren quality control data.

(DC3-CN3609)

McLaren Hart

QUALITY CONTROL REPORT

Method: Mod. EPA 8020 (BTEX) & TVH
Units: ug/g (ppm)

Date Analyzed: 10/07/90
Date Extracted: 10/05/90
Batch Number: 901005-0101

METHOD BLANK

Compounds	Reporting Limits	Results of the MB
Benzene	0.01	BRL
Toluene	0.01	BRL
Ethyl Benzene	0.01	BRL
1,2-Xylene	0.01	BRL
1,3-Xylene	0.01	BRL
1,4-Xylene	0.01	BRL
Total Volatile Hydrocarbons	1.	BRL

LABORATORY CONTROL SPIKE

Compounds	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Chlorobenzene	0.10	0.090	90	0	75 - 125	<25
Benzene	0.10	0.11	110	0	75 - 125	<25
Ethyl Benzene	0.10	0.10	100	0	75 - 125	<25
Total Volatile Hydrocarbons	5.0	5.1	102	13	75 - 125	<25

[a] Acceptance limits are generic EPA limits.

(DC3-CN3609)

McLaren Hart

QUALITY CONTROL REPORT

Method: Mod. EPA 602 (BTEX) & TVH Date Analyzed: 10/04/90
Units: ug/L (ppb)

METHOD BLANK

Compounds	Reporting Limits	Results of the MB
Benzene	0.5	BRL
Toluene	0.5	BRL
Ethyl Benzene	0.5	BRL
1,2-Xylene	0.5	BRL
1,3-Xylene	0.5	BRL
1,4-Xylene	0.5	BRL
Total Volatile Hydrocarbons	50.	BRL

LABORATORY CONTROL SPIKE

Compounds	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Chlorobenzene	10.	11.	110	0	80 - 120	<20
Benzene	10.	12.	120	0	80 - 120	<20
Ethyl Benzene	10.	12.	120	0	80 - 120	<20
Total Volatile Hydrocarbons	100.	110.	110	0	80 - 120	<20

[a] Acceptance limits are generic EPA limits.

(DC3-CN3609)

McLaren Hart

QUALITY CONTROL REPORT Cont.

Method: Metals (7000 Series)
Units: ug/ml (ppm)

Date Analyzed: 10/08/90
Date Extracted: 10/04/90
Batch Number: 901004-1001

METHOD BLANK

Compounds	Reporting Limits	Results of the MB
Aluminum (Al)/7020	0.2	Not Requested
Antimony (Sb)/7040	0.5	Not Requested
Arsenic (As)/7061	0.005	Not Requested
Barium (Ba)/7080	1.	Not Requested
Beryllium (Be)/7090	0.05	Not Requested
Cadmium (Cd)/7130	0.01	Not Requested
Calcium (Ca)/7140	0.1	Not Requested
Chromium (Cr)/7190	0.02	Not Requested
Cobalt (Co)/7200	0.08	Not Requested
Copper (Cu)/7210	0.09	Not Requested
Hex. Chromium (CrVI)/7195	0.05	Not Requested
Iron (Fe)/7380	0.04	Not Requested
Lead (Pb)/7420	0.1	BRL
Magnesium (Mg)/7450	0.07	Not Requested
Manganese (Mn)/7460	0.05	Not Requested
Mercury (Hg)/7470	0.002	Not Requested
Molybdenum (Mo)/7480	1.	Not Requested
Nickel (Ni)/7520	0.2	Not Requested
Potassium (K)/7610	2.	Not Requested
Selenium (Se)/7741	0.01	Not Requested
Silver (Ag)/7760	0.05	Not Requested
Sodium (Na)/7770	0.1	Not Requested
Thallium (Tl)/7840	1.	Not Requested
Titanium (Ti)/283.1	0.6	Not Requested
Vanadium (V)/7910	0.5	Not Requested
Zinc (Zn)/7950	0.08	Not Requested

Method: Metals (7000 Series) Cont.

LABORATORY CONTROL SPIKE

Compounds	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Lead (Pb)/7420	1.0	0.97	97	4	80 - 120	<20

[a] Acceptance limits are generic EPA limits.

McLaren Hart

COMMENTS

The samples in this project were analyzed by the methods requested on the chain of custody with no deviations in procedure.

Values for total petroleum hydrocarbons were calculated based only on detected peaks.

Values for total petroleum hydrocarbons gasoline were calculated based only on detected peaks.

ANALYTICAL RESULTS

Test methods may include minor modifications of published EPA methods (e.g., reporting limits or parameter lists). Reporting limits are adjusted to reflect dilution of the sample when appropriate. Solids and waste are analyzed with no correction made for moisture content. Results are corrected for concentrations of analytes which may be found in the blanks.

ABBREVIATIONS USED IN THIS REPORT:

BRL	Below Reporting Limit
MB	Method Blank
MS	Matrix Spike
MSD	Matrix Spike Duplicate
LCS	Laboratory Control Spike
LCSD	Laboratory Control Spike Duplicate
RPD	Relative Percent Difference

Results are on the attached data sheets.

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Diesel by LUFT
Preparation Method: Modified EPA 3550 (a)

Project Name:	Target	Project Number:	38903
Sample Description:	N. Piping Joint	Lab Project-ID Number:	3609-005
Sample Number:	46203	Date Sampled:	10/01/90
Date Received:	10/02/90	Date Extracted:	10/03/90
Date Analyzed:	10/09/90	Batch Number:	901003-1302

PETROLEUM HYDROCARBONS	CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Diesel Range	BRL	10.

Dilution: None

Comments: (a) Shaker rather than sonication used for extraction.

Approved By: C. Fong Date: 10/23/90

The cover letter and attachments are integral parts of this report.

McLaren Hart

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Diesel by LUFT
Preparation Method: Modified EPA 3550 (a)

Project Name:	Target	Project Number:	38903
Sample Description:	S. Piping Joint	Lab Project-ID Number:	3609-006
Sample Number:	46202	Date Sampled:	10/01/90
Date Received:	10/02/90	Date Extracted:	10/03/90
Date Analyzed:	10/09/90	Batch Number:	901003-1302

PETROLEUM HYDROCARBONS	CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Diesel Range	50.	10.

Dilution: None

Comments: (a) Shaker rather than sonication used for extraction.

Sample contains hydrocarbons in the C4 - C12 boiling point range.

Approved By: C. Fong Date: 10/23/90

The cover letter and attachments are integral parts of this report.

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and Total Volatile Hydrocarbons
Preparation Method: EPA 5030

Project Name: Target

Project Number: 38903

Sample Description: N. Piping Joint

Lab Project-ID Number: 3609-005

Sample Number: 46203

Date Sampled: 10/01/90

Date Received: 10/02/90

Date Extracted: 10/05/90

Date Analyzed: 10/07/90

Batch Number: 901005-0101

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Benzene	BRL	0.02
Toluene	BRL	0.02
Ethyl Benzene	BRL	0.02
1,2-Xylene	BRL	0.02
1,3-Xylene	BRL	0.02
1,4-Xylene	BRL	0.02
Total Volatile Hydrocarbons	BRL	1.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	90	75 - 125

Dilution: None

Comments:

Approved By: A. Putnam Date: 10/23/90

The cover letter and attachments are integral parts of this report.

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and Total Volatile Hydrocarbons
Preparation Method: EPA 5030

Project Name: Target

Project Number: 38903

Sample Description: S. Piping Joint

Lab Project-ID Number: 3609-006

Sample Number: 46202

Date Sampled: 10/01/90

Date Received: 10/02/90

Date Extracted: 10/05/90

Date Analyzed: 10/12/90

Batch Number: 901005-0101

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Benzene	51.	5.
Toluene	320.	5.
Ethyl Benzene	74.	5.
1,2-Xylene	110.	5.
1,3-Xylene	180.	5.
1,4-Xylene	82.	5.
Total Volatile Hydrocarbons	6500.	500.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	110	75 - 125

Dilution: 1:500

Comments:

Approved By: A. Putnam Date: 10/23/90

The cover letter and attachments are integral parts of this report.

McLaren Hart

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Diesel by LUFT
Preparation Method: Modified Luft (a)

Project Name:	Target	Project Number:	38903
Sample Description:	Groundwater	Lab Project-ID Number:	3609-001
Sample Number:	W.S1AB	Date Sampled:	10/01/90
Date Received:	10/02/90	Date Extracted:	10/02/90
Date Analyzed:	10/08/90	Batch Number:	901002-1301

PETROLEUM HYDROCARBONS	CONCENTRATION ug/ml (ppm)	REPORTING LIMIT ug/ml (ppm)
Diesel Range	2.	0.5

Dilution: None

Comments: (a) Methylene chloride rather than carbon disulfide used for extraction.

Sample contains hydrocarbons in the C4 - C12 boiling point range.

Approved By: C Fong Date: 10/23/90

C. Fong

The cover letter and attachments are integral parts of the report.

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 602 (BTEX) and Total Volatile Hydrocarbons
Preparation Method: EPA 602

Project Name: Target

Project Number: 38903

Sample Description: Groundwater

Lab Project-ID Number: 3609-004

Sample Number: W.S.4ABC

Date Sampled: 10/01/90

Date Received: 10/02/90

Date Analyzed: 10/04/90

COMPOUND	ANALYTE CONCENTRATION ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Benzene	1500.	50.
Toluene	2700.	50.
Ethyl Benzene	50.	50.
1,2-Xylene	1400.	50.
1,3-Xylene	1800.	50.
1,4-Xylene	740.	50.
Total Volatile Hydrocarbons	28000.	5000.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	100	80 - 120

Dilution: 1:100

Comments:

Approved By: _____ Date: 10/23/90
A. Putnam

The cover letter and attachments are integral parts of this report.

McLaren Hart

METAL ANALYSIS
Analytical Method: EPA 7000 Series (a)
Preparation Method: EPA 3005 (b)

Project Name: Target

Project Number: 38903

Sample Description: Groundwater

Lab Project-ID Number: 3609-002

Sample Number: W.S.2

Date Sampled: 10/01/90

Date Received: 10/02/90

Date Digested: 10/04/90

Batch Number: 901004-1001

METAL (SYMBOL)/EPA METHOD	DATE ANALYZED	CONCENTRATION ug/ml (ppm)	REPORTING LIMIT ug/ml (ppm)
Aluminum (Al)/7020		Not Requested	0.2
Antimony (Sb)/7040		Not Requested	0.5
Arsenic (As)/7061		Not Requested	0.005
Barium (Ba)/7080		Not Requested	1.
Beryllium (Be)/7090		Not Requested	0.05
Cadmium (Cd)/7130		Not Requested	0.01
Calcium (Ca)/7140		Not Requested	0.1
Chromium (Cr)/7190		Not Requested	0.02
Cobalt (Co)/7200		Not Requested	0.08
Copper (Cu)/7210		Not Requested	0.09
Hex. Chromium (CrVI)/7195		Not Requested	0.05
Iron (Fe)/7380		Not Requested	0.04
Lead (Pb)/7420	10/08/90	BRL	0.1
Magnesium (Mg)/7450		Not Requested	0.07
Manganese (Mn)/7460		Not Requested	0.05
Mercury (Hg)/7470		Not Requested	0.002
Molybdenum (Mo)/7480		Not Requested	1.
Nickel (Ni)/7520		Not Requested	0.2
Potassium (K)/7610		Not Requested	2.
Selenium (Se)/7741		Not Requested	0.01
Silver (Ag)/7760		Not Requested	0.05
Sodium (Na)/7770		Not Requested	0.1
Thallium (Tl)/7840		Not Requested	1.
Titanium (Ti)/283.1		Not Requested	0.6
Vanadium (V)/7910		Not Requested	0.5
Zinc (Zn)/7950		Not Requested	0.08

McLaren Hart

METAL ANALYSIS
Analytical Method: EPA 7000 Series (a)
Preparation Method: EPA 3005 (b)

Lab Project-
ID Number: 3609-002

Dilution: None

Comments: (a) Except Ti which is not listed in SW846.

(b) Applies to all metals except As, Se, and Hg. EPA Method 7061 used for As digestion. EPA Method 7741 used for Se digestion. EPA Method 7470 used for Hg digestion.

Approved By: _____ Date: _____
F. Ramezanzadeh

The cover letter and attachments are integral parts of this report.

McLaren Hart

2 02 4

McLaren

CHAIN OF CUSTODY RECORD

Pg. 1 of 3

FOR LABORATORY USE ONLY		
Laboratory Project No.: 3598		Secured:
Storage Refrigerator ID: 4-23		Yes ✓
Storage Freezer ID:		No

Project Name: TARGET - DUBLIN Project #: 38903 Sampler: MARTIN BERMUDEZ (Printed Name) M. Bermudez (Signature)

Relinquished by: (Signature and Printed Name)	Received by: (Signature and Printed Name)	Date:	Time:
MARTIN BERMUDEZ M. Bermudez	DAVID CHARETTE David Charette	9-27-90	16:45
Express - It	Logged by Jeffrey E. Barrie	9-28-90	09:30

SHIP TO:
McLaren Analytical Laboratory
11101 White Rock Road
Rancho Cordova, CA 95670
(916) 638-3696
FAX (916) 638-2842

Method of Shipment: EXPRESS-IT COURIER

Shipment ID:

Circle or Add Analysis(es) Requested

a) Identify specific metals requested under Special Instructions

	Sample ID Number	Date	Time	Description	601/8010 (Halogenated Volatiles-GC)	602/8020 (Aromatic Volatiles-GC)	604/8040 (Phenols-GC)	608/8080 (Pesticides/PCB-GC)	610/8100 (PNA-GC)	624/8240 (Volatiles-GC/MS)	625/8270 (BNA-GC/MS)	TPH/G (Gasoline-GC) & BTEX	TPH/D (Diesel-GC)	418.1 (IR)	8015 Modified (GC)	Metals-Total a	Metals-Soluble a	Fluoride/Perchlorate	Chloride/pH	TDS/Percent Solid	Specific Conductivity (EC)	TOTAL LEAD CAA	BTEX ONLY	TAT	Container(s) #	Container(s) Type	FOR LABORATORY USE ONLY Lab ID
1	036134	9/27	14:26	LOCATION A1																			X	4	1	B	3598-001
2	036136	11	14:40	LOCATION C1								~~X~~										X	~~X~~	4	1	B	002
3	036130	9/27	13:47	LOCATION B1																			X	4	1	B	003
4	036128	9/27	13:35	LOCATION D1								X												4	1	B	004
5	036138	11	14:54	LOCATION E								X												4	1	B	005
6	036126	9/27	13:13	LOCATION F								X												4	1	B	006
7	~~—~~			~~LOCATION G~~																				4	1	B	
8	036125	9/27	13:05	LOCATION H								X												4	1	B	007
9	036127	11	13:20	LOCATION I								X												4	1	B	008
10	036132	11	~~13:~~ 1405	LOCATION J1																			X	4	1	B	009

TAT (Analytical Turn-Around Times) 1 = 24 hours 2 = 48 hours 3 = 1 week 4 = 2 weeks

Container Types: B=Brass Tube, V=VOA Vial, A=1-Liter Amber, G=Glass Jar, C=Cassette, O = Other ______

Special Instructions/Comments: ______

Sample Archive/Disposal:
- ☐ Laboratory Standard
- ☐ Other ______

SEND DOCUMENTATION AND RESULTS TO (Check one):
- ☐ Project Manager/Office: Jenni Carter ALAMEDA
- ☐ Client Name: Phil Byers

Company: Target Stores, Inc.
Address: P.O. Box 1392 Minneapolis MN 55440
Phone: (____) ______ Fax: ______

FOR LABORATORY USE ONLY. Sample Condition Upon Receipt: ______

SAMPLES RECEIVED IN GOOD CONDITION

McLaren

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY
Laboratory Project No.: 3598
Storage Refrigerator ID: 4-23
Storage Freezer ID:
Secured: Yes ✓ No

Project Name: TARGET - DUBLIN Project #: 38903 Sampler: MARTIN BERMUDEZ (Printed Name) (Signature)

Relinquished by: (Signature and Printed Name) MARTIN BERMUDEZ	Received by: (Signature and Printed Name) DAVID CHMIETE	Date: 9-27-90	Time: 16:45
Relinquished by: (Signature and Printed Name) Express-06	Received by (Signature and Printed Name) Logged by Tiffy C. Barnes	Date: 9-28-90	Time: 09:50
Relinquished by: (Signature and Printed Name)	Received by: (Signature and Printed Name)	Date:	Time:
Relinquished by: (Signature and Printed Name)	Received by: (Signature and Printed Name)	Date:	Time:

SHIP TO:
McLaren Analytical Laboratory
11101 White Rock Road
Rancho Cordova, CA 95670
(916) 638-3696
FAX (916) 638-2842

Method of Shipment: COURIER
Shipment ID:

Circle or Add Analysis(es) Requested

a) Identify specific metals requested under Special Instructions

Sample ID Number	Sample Description: Date	Time	Description	601/8010 (Halogenated Volatiles-GC)	602/8020 (Aromatic Volatiles-GC)	604/8040 (Phenols-GC)	608/8080 (Pesticides/PCB-GC)	610/8100 (PNA-GC)	624/8240 (Volatiles-GC/MS)	625/8270 (BNA-GC/MS)	TPH/G (Gasoline-GC)	TPH/D (Diesel-GC)	418.1 (IR)	8015 Modified (GC)	Metals-Total a	Metals-Soluble a	Fluoride/Perchlorate	Chloride/pH	TDS/Percent Solid	Specific Conductivity (EC)	TAT	Container(s) #	Container(s) Type	FOR LABORATORY USE ONLY Lab ID
1	036139	9/27	15:03	COMPOSITE K						X	X										4	1	B	010
2	036140	11	15:41	COMPOSITE L						X	X										4	1	B	011
3	036141	11	15:49	COMPOSITE M						X	X										4	1	B	012
4	036144	11	16:31	COMPOSITE N						X	X										4	1	B	013
5	036143	11	16:21	COMPOSITE O						X	X										4	1	B	014
6	036142	11	16:00	COMPOSITE P						X	X										4	1	B	015
7	036135	9/27	14:38	LOCATION A2							X										4	1	B	016
8	036134	9/27	13:50	" B2							X										4	1	B	017
9	036133	11	14:08	" J2							X										4	1	B	018
10	036137	11	14:42	" C2								X									4	1	B	019

TAT (Analytical Turn-Around Times) 1 = 24 hours 2 = 48 hours 3 = 1 week 4 = 2 weeks
Container Types: B=Brass Tube, V=VOA Vial, A=1-Liter Amber, G=Glass Jar, C=Cassette, O = Other

Special Instructions/Comments:

Sample Archive/Disposal:
☐ Laboratory Standard
☐ Other

SEND DOCUMENTATION AND RESULTS TO (Check one):
☐ Project Manager/Office: Jenni Carter ALAMEDA
☐ Client Name:
Company:
Address:
Phone: ( ) Fax:

FOR LABORATORY USE ONLY. Sample Condition Upon Receipt:

SAMPLES RECEIVED IN GOOD

McLaren

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY
Laboratory Project No.: 3598
Storage Refrigerator ID: 4-25
Storage Freezer ID:
Secured: Yes ✓ No

Project Name: TARGET Project #: 38903 Sampler: MARTIN BERMUDEZ (Printed Name) (Signature)

Relinquished by: (Signature and Printed Name) MARTIN BERMUDEZ	Received by: (Signature and Printed Name) DAVID CHARETTE	Date: 9-27-90	Time: 16:45
Relinquished by: (Signature and Printed Name) Express-It	Received by: (Signature and Printed Name) Signed No	Date: 9-28-90	Time: 09:30
Relinquished by: (Signature and Printed Name)	Received by: (Signature and Printed Name)	Date:	Time:
Relinquished by: (Signature and Printed Name)	Received by: (Signature and Printed Name)	Date:	Time:

SHIP TO:
McLaren Analytical Laboratory
11101 White Rock Road
Rancho Cordova, CA 95670
(916) 638-3696
FAX (916) 638-2842

Method of Shipment:

Shipment ID:

Circle or Add Analysis(es) Requested

a) Identify specific metals requested under Special Instructions

Sample ID Number	Sample Description: Date	Time	Description	601/8010 (Halogenated Volatiles-GC)	602/8020 (Aromatic Volatiles-GC)	604/8040 (Phenols-GC)	608/8080 (Pesticides/PCB-GC)	610/8100 (PNA-GC)	624/8240 (Volatiles-GC/MS)	625/8270 (BNA-GC/MS)	TPH/G (Gasoline-GC)	TPH/D (Diesel-GC)	418.1 (IR)	8015 Modified (GC)	Metals-Total a	Metals-Soluble a	Fluoride/Perchlorate	Chloride/pH	TDS/Percent Solid	Specific Conductivity (EC)	TOTAL LEAD (AA)	TAT	Container(s) #	Container(s) Type	FOR LABORATORY USE ONLY: Lab ID
1 036129	9/27	13:40	LOCATION D2																	X		4	1	B	020
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									

TAT (Analytical Turn-Around Times) 1 = 24 hours 2 = 48 hours 3 = 1 week 4 = 2 weeks
Container Types: B=Brass Tube, V=VOA Vial, A=1-Liter Amber, G=Glass Jar, C=Cassette, O = Other

Special Instructions/Comments:

Sample Archive/Disposal:
☐ Laboratory Standard
☐ Other

FOR LABORATORY USE ONLY. Sample Condition Upon Receipt:
SAMPLES RECEIVED IN GOOD CONDITION

SEND DOCUMENTATION AND RESULTS TO (Check one):
☐ Project Manager/Office:
☐ Client Name:
Company:
Address:
Phone: ( ) Fax:

McLaren

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY
Laboratory Project No.: 3609
Storage Refrigerator ID: 4-84-23, 1
Storage Freezer ID:
Secured: Yes ✓ No

Project Name: TARGET Project #: 38903 Sampler: M. BERMUDEZ (Printed Name) M. Bermudez (Signature)

Relinquished by: (Signature and Printed Name) MARTIN BERMUDEZ M. Bermudez Received by: (Signature and Printed Name) E. Stump, E. Stump #1603 Date: 10/1/90 Time: 1606
Relinquished by: (Signature and Printed Name) E. Stump Stump X463 Received by: (Signature and Printed Name) M. B. x402 Blue Date: 10/2/90 Time: 0740
Relinquished by: (Signature and Printed Name) M. B. Blue x402 Received by: (Signature and Printed Name) Logged by Atty E. Barnes Date: 10/2/90 Time: 10:00
Relinquished by: (Signature and Printed Name) Received by: (Signature and Printed Name) Date: Time:

SHIP TO:
McLaren Analytical Laboratory
11101 White Rock Road
Rancho Cordova, CA 95670
(916) 638-3696
FAX (916) 638-2842

Method of Shipment: EXPRESS-IT
Shipment ID:

Circle or Add Analysis(es) Requested

a) Identify specific metals requested under Special Instructions

Sample ID Number	Sample Description: Date	Time	Description	601/8010 (Halogenated Volatiles-GC)	602/8020 (Aromatic Volatiles-GC)	604/8040 (Phenols-GC)	608/8080 (Pesticides/PCB-GC)	610/8100 (PNA-GC)	624/8240 (Volatiles-GC/MS)	625/8270 (BNA-GC/MS)	TPH/G (Gasoline-GC/MS)	TPH/D (Diesel-GC)	418.1 (IR)	8015 Modified (GC)	Metals-Total a	Metals-Soluble a	Fluoride/Perchlorate	Chloride/pH	TDS/Percent Solid	Specific Conductivity (EC)	TOTAL LEAD (AA) BTEX	TAT	Container(s) #	Container(s) Type	FOR LABORATORY USE ONLY Lab ID
1	W.S. 1AB	10/1/90	2:03	Groundwater							X											3	2	A	3609/001
2	W.S. 2	"	3:04	"																X		3	1	A	002
3	W.S. 3ABC	"	3:14	"						X												3	3	V	003
4	W.S. 4ABC	"	3:20	"																	X	3	3	V	004
5	46203	"	2:55	N. Piping joint						X	X										X	3	1	B	005
6	46202	"	2:40	S. Piping joint						X	X										X	3	1	B	006
7																									
8																									
9																									
10																									

TAT (Analytical Turn-Around Times) 1 = 24 hours 2 = 48 hours 3 = 1 week 4 = 2 weeks
Container Types: B=Brass Tube, V=VOA Vial, A=1-Liter Amber, G=Glass Jar, C=Cassette, O = Other

Special Instructions/Comments:

Sample Archive/Disposal:
☐ Laboratory Standard
☐ Other

SEND DOCUMENTATION AND RESULTS TO (Check one):
☐ Project Manager/Office: JENNI CARTER / ALPHA LAB
☐ Client Name: PHIL BYERS
Company: TARGET
Address:
Phone: ( ) Fax:

FOR LABORATORY USE ONLY. Sample Condition Upon Receipt:

APPENDIX B

GEOTECHNICAL BACKFILL COMPACTION REPORT

BSK & Associates, Geotechnical Consultants, Inc

Geotechnical Engineering • Engineering Geology • Environmental Engineering • Engineering Laboratories • Chemical Laboratories

October 31, 1990

OUR JOB P90210

McLaren/Hart
1135 Atlantic Avenue
Alameda, California 94501

Attention: Mr. Martin Bermudez

SUBJECT: Geotechnical Consultation and
Compaction Spot Testing
Tank Excavation Backfill
Amador Valley Boulevard at Amador Plaza
Dublin, California

Gentlemen:

At your request and authorization, we have provided geotechnical consultation, compaction spot testing, and laboratory testing services for the subject project.

Our activities were requested by Mr. Martin Bermudez in response to the City of Dublin Public Works requirements.

The work by the contractor consisted of backfilling a tank excavation resulting from the removal of former underground storage tanks. The excavation was 10 feet deep with groundwater approximately 8 feet below surface. The work consisted of (a) removal of loose soils from the excavation; (b) pumping of approximately 15,000 gallon of water with some fuel contamination and trucking it away; (c) placing pea gravel 1 to 2 feet over the water table in the pit; (d) covering the pea gravel and excavation side walls with visqueen; (e) placing Class II aggregate base (engineered fill) in lifts to approximately 3-inches below adjacent pavement grade and compacting the lifts to 90% (ASTM D-1557). The excavated fuel piping trenches were also cleaned of loose soil and debris, and backfilled to grade with compacted baserock.

[ ] Fresno, California 93706 • 1645 "F" Street, Suite 105 • Telephone (209) 485-3200, Fax (209) 485-7427
[ ] Fresno, California • 1445 "F" Street • Telephone (209) 485-0100
[ ] Fresno, California 93706 • 1414 Stanislaus Street • Telephone (209) 485-8310
[ ] Visalia, California 93291 • 808 E. Douglas Avenue • Telephone (209) 732-8857, Fax (209) 732-6570
[ ] Bakersfield, California 93304 • 417 "V" Street • Telephone (805) 327-0671, Fax (805) 324-4218
[X] Pleasanton, California 94566 • 5729-F Sonoma Drive • Telephone (415) 462-4000, Fax (415) 462-6283
[ ] Sacramento, California 95829 • 9901 Horn Road, Suite C • Telephone (916) 363-1871, Fax (916) 363-1875

Geotechnical Consultation and
Compaction Spot Testing
Tank Excavation Backfill
Amador Valley Boulevard at Amador Plaza
Dublin, California

Our Job P90210
October 31, 1990
Encl. 1, Page 1

SUMMARY OF FIELD ACTIVITIES

NUCLEAR FIELD DENSITY TESTS RESULTS

Test No.	Test Date (1990)	Location	Depth (Feet)	Moisture (Percent)	Maximum Dry Density (pcf)	Compaction (Percent)	Required Compaction
None							

REMARKS: Arrived on-site for a scheduled meeting with Mr. Martin Bermudez, Contractor Representative for McLaren/Hart. Observed the condition of the tank excavation pit. Groundwater table encountered during the removal of soil suspected of contamination (G.W. about 8' deep).

One to two feet of water was in the bottom of the excavation after removal of 15,000 ± gallons (information from Mr. Bermudez). Amber colored floating product on water present.

Recommended that pea gravel be placed to displace water and allowed to stabilize over the weekend.

A sample of the fill material, stockpiled was obtained at the jobsite for a laboratory moisture/density curve determination.

TESTED BY: M. Cline **WORK PERFORMED ON:** Friday, 10/05/90

NUMBER OF HOURS: 2

SUMMARY OF LABORATORY COMPACTION DATA

Test Method	ASTM D-1557 (6")
Date Sampled:	October 8, 1990
Sample Source:	Stockpile
Material Description:	Engineered Fill (Class II Aggregate Base)
Maxium Dry Density:	143.0 pcf
Optimum Moisture:	6.0 percent

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NUCLEAR FIELD DENSITY TESTS RESULTS

Test No.	Test Date (1990)	Location	Depth (Feet)	Moisture (Percent)	Maximum Dry Density (pcf)	Compaction (Percent)	Required Compactior

None

REMARKS: Observed placement of pea gravel and liner over pea gravel. Pea gravel placed one foot over water level (6 feet below existing grade); overall excavation depth 8-9 feet.

Polyethylene sheeting (.006-inches thick-placed over pea gravel. Overlap of joints of sheeting, 18 inches.

Contractor placed Class II aggregate base over sheeting and attempt to compact with "Hoe Pack."

Contractor decided this was not achieving compaction and shut down replace the compactor.

TESTED BY: M. Cline **WORK PERFORMED ON:** Monday, 10/08/90

NUMBER OF HOURS: 4

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SUMMARY OF FIELD ACTIVITIES

NUCLEAR FIELD DENSITY TESTS RESULTS

Test No.	Test Date (1990)	Location	Depth (Feet)	Moisture (Percent)	Maximum Dry Density (pcf)	Compaction (Percent)	Required Compaction
Fuel Tank - Excavation Backfill (Class II Aggregate Base)							
1	10/09	Excavation	5.5	8.2	143.0	96	90
2	"	Excavation	5.5	8.4	143.0	93	90
3	"	Excavation	5.5	8.4	143.0	95	90
4	"	Excavation	5.5	8.4	143.0	95	90
5	"	Excavation	4.5	8.4	143.0	91	90
6	"	Excavation	4.5	8.4	143.0	94	90
7	"	Excavation	4.5	8.4	143.0	92	90

REMARKS: Arrived on-site for a scheduled meeting with Mr. Bermudez. The contractor was using the Ramex-type vibratory compactor.

The north end of the pit was pumping under foot pressure. A test pit was dug at the northwest corner of the pit to determine the source of moisture.

The water level was 6 inches below level of sheeting indicating that the water had not migrated up from below.

Recommended that the aggregate base be scarified and allowed to dry. After drying and compacting, pumping ceased.

TESTED BY: M. Cline **WORK PERFORMED ON:** Tuesday, 10/09/90

NUMBER OF HOURS: 5

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NUCLEAR FIELD DENSITY TESTS RESULTS

Test No.	Test Date (1990)	Location	Depth (Feet)	Moisture (Percent)	Maximum Dry Density (pcf)	Compaction (Percent)	Required Compaction
None							

REMARKS: Observed site conditions and earthwork/grading operation.

The contractor was using a Ramex, self-propelled sheepsfoot roller to compact one foot lifts of Class II aggregate baserock. The base-rock was slightly wet of optimum and slightly unstable. The results of compaction tests performed by Martin Cline (BSK Technician) were satisfactory.

TESTED BY: K. O'Connell **WORK PERFORMED ON:** Tuesday, 10/09/90

NUMBER OF HOURS: 2

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SUMMARY OF FIELD ACTIVITIES

NUCLEAR FIELD DENSITY TESTS RESULTS

Test No.	Test Date (1990)	Location	Depth (Feet)	Moisture (Percent)	Maximum Dry Density (pcf)	Compaction (Percent)	Required Compaction
Fuel Tank - Excavation Backfill (Class II Aggregate Base)							
8	10/10	Excavation	3.5	7.5	143.0	94	90
9	"	Excavation	3.5	7.8	143.0	95	90
10	"	Excavation	3.5	6.2	143.0	91	90
11	"	Excavation	3.0	10.1	143.0	91	90
12	"	Excavation	3.0	8.4	143.0	93	90
13	"	Excavation	3.0	7.7	143.0	91	90

REMARKS: The Dublin City Inspector was on-site to check the progress.

TESTED BY: M. Cline **WORK PERFORMED ON:** Wednesday, 10/10/90

NUMBER OF HOURS: 5

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SUMMARY OF FIELD ACTIVITIES

NUCLEAR FIELD DENSITY TESTS RESULTS

Test No.	Test Date (1990)	Location	Depth (Feet)	Moisture (Percent)	Maximum Dry Density (pcf)	Compaction (Percent)	Required Compaction

None

REMARKS: Went to the jobsite for a scheduled compaction testing. The contrator was not on-site.

TESTED BY: M. Cline **WORK PERFORMED ON:** Monday, 10/15/90

NUMBER OF HOURS: 1

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SUMMARY OF FIELD ACTIVITIES

NUCLEAR FIELD DENSITY TESTS RESULTS

Test No.	Test Date (1990)	Location	Depth (Feet)	Moisture (Percent)	Maximum Dry Density (pcf)	Compaction (Percent)	Required Compaction

None

REMARKS: Arrived on-site at 8:00 a.m. to sample the new import fill for backfilling the remaining 2 to 3 feet of the tank excavation pit. Waited until 9:30 a.m. No fill arrived.

Julius Go (BSK Technician) picked up a sample and delivered it to ou laboratory. At the laboratory, the fill sample was examined, which consisted of gray/black clay (CH) with organics and not suitable (after consultation with Alex Eskandari, Project Engineer) as borrow

Returned to the site to notify the contractor that this type of fill (bacfill material) is not acceptable.

Discussed with Mr. Bermudez, who reported that the fill should have a Plasticity Index of less than 15, and Liquid Limit less than 40.

Mr. Bermudez indicated that he will remove the material and use another import fill.

TESTED BY: M. Cline **WORK PERFORMED ON:** Friday, 10/19/90

NUMBER OF HOURS: 2

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SUMMARY OF FIELD ACTIVITIES

NUCLEAR FIELD DENSITY TESTS RESULTS

Test No.	Test Date (1990)	Location	Depth (Feet)	Moisture (Percent)	Maximum Dry Density (pcf)	Compaction (Percent)	Required Compaction

None

REMARKS: First Trip:
Met with Mr. Bermudez who was in the process of hauling off the unsuitable import.

Second Trip:
Returned to observe that the unsuitable soil had been removed from the excavation pit.

Third Trip:
Returned to the jobsite to perform compaction test. Not enough Clas II aggregate base had been placed to perform compaction test.

Testing required tomorrow (a.m.). Pit should be 18"-2' below asphalt concrete on west road.

TESTED BY: M. Cline **WORK PERFORMED ON:** Monday, 10/22/90

NUMBER OF HOURS: 3 (three trips)

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SUMMARY OF FIELD ACTIVITIES

NUCLEAR FIELD DENSITY TESTS RESULTS

Test No.	Test Date (1990)	Location	Depth (Feet)	Moisture (Percent)	Maximum Dry Density (pcf)	Compaction (Percent)	Required Compaction
Fuel Tank - Excavation Backfill (Class II Aggregate Base)							
14	10/23	Excavation	2.5	5.7	142.0	91	90
15	"	Excavation	2.0	4.7	142.0	94	90

REMARKS: BSK gave the test results to Mr. Bermudez. Inquired when backfill would be up to finished subgrade; he said, probably in the morning of 10/24/90.

TESTED BY: R. Gregoras **WORK PERFORMED ON:** Tuesday, 10/23/90

NUMBER OF HOURS: 3

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SUMMARY OF FIELD ACTIVITIES

NUCLEAR FIELD DENSITY TESTS RESULTS

Test No.	Test Date (1990)	Location	Depth (Feet)	Moisture (Percent)	Maximum Dry Density (pcf)	Compaction (Percent)	Required Compaction
Fuel Tank - Excavation Backfill (Class II Aggregate Base)							
16	10/24	Northwest Area	1.0	6.4	140.0	94	95
17	"	Southeast Area	1.0	5.8	140.0	97	95

REMARKS: Final tests on tank excavation backfill. The contractor is in the process of cleaning out pipe trenches to be backfilled with engineered fill.

TESTED BY: M. Cline WORK PERFORMED ON: Wednesday, 10/24/90

NUMBER OF HOURS: 3

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Enclosure 2

Terms and Limitations

Compaction test results reported herein provide an indication of the degree of compaction of materials for specific, prescribed locations but do not necessarily reflect the overall character of the prepared materials. Test results should be considered accurate only at the locations and depths indicated. All results are submitted to the project engineer and representing job inspector for their review and evaluation.

Interpretation of test results as to the adequacy of compacted materials remains solely the responsibility of the project engineer and no engineering evaluations, unless specifically stated, are provided herein as to the adequacy of compacted material.

Respectfully submitted,

BSK & Associates

The results of our observation and testing were transmitted verbally to your filed representative on a daily basis.

Enclosed are summaries of our daily field activities, and results of field and laboratory tests performed for this project.

Respectfully submitted,

BSK & Associates

Alex Y. Eskandari, P.E.
C.E. 38101

REGISTERED PROFESSIONAL ENGINEER
YAHYA ESKANDARI
No. C038101
Exp. 3/31/93
CIVIL
STATE OF CALIFORNIA

AYE:hhc
(COMP#1.030)

Enclosures:
Summaries of Field and Laboratory Test Data (10 pages)
Terms and Limitations (1 page)

Copy to:
City of Dublin
Attn: Mr. Lee Thompson
Public Works Director