

NOTICE

All drawings located at the end of the document.



INTERNATIONAL
TECHNOLOGY
CORPORATION

Project No 763097
August 1996

**Tank Closure Report
Building 771, UST No 20
Rocky Flats Environmental Technology Site
Golden, Colorado**

Subcontract No ASC 501087JO3

Prepared for

**Safe Sites of Colorado
Golden, Colorado**

Prepared by

**IT Corporation
Denver, Colorado**

RESPONSIVE TO THE NEEDS OF ENVIRONMENTAL MANAGEMENT

**Project No. 763097
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List of Abbreviations and Acronyms

| | |
|-------|---|
| CDPHE | Colorado Department of Public Health and Environment |
| DOE | U S Department of Energy |
| FID | flame ionization detector |
| GC | gas chromatograph |
| IT | IT Corporation |
| OD | outside diameter |
| OIS | Oil Inspection Section of the Colorado Department of Labor and Employment |
| RFETS | Rocky Flats Environmental Technology Site |
| SSOC | Safe Sites of Colorado |
| TEH | total extractable hydrocarbons |
| UST | underground storage tank |

**Tank Closure Report
Building 771, UST No. 20
Rocky Flats Environmental Technology Site
Golden, Colorado**

Subcontract No. ASC 501087JO3

1.0 Introduction

This Tank Closure Report addresses the decommissioning and abandonment of an underground storage tank (UST) located south of Building 771 at the U S Department of Energy (DOE) Rocky Flats Environmental Technology Site (RFETS) in Golden, Colorado. The UST identified as RFETS Air Emissions Inventory Tank No 00192, or otherwise known as UST No 20, is a 3,000-gallon, carbon steel tank installed in 1952. The tank formerly supplied No 2 diesel fuel to the Building 715 emergency generators formerly located in Room 283 of Building 771. The tank was removed from service in the early 1970s. The tank contained fuel oil until 1994, at which time the tank contents were removed. Figure 1 is a site sketch of the area near UST No 20.

The tank closure was performed by IT Corporation (IT) under Safe Sites of Colorado (SSOC) contract No ASC 501087JO3.

2.0 Project Objectives

The objective of this project was the closure and abandonment of UST No 20 and the characterization of site conditions to determine the degree and extent, if any, of the hydrocarbon contamination in the surrounding soil. Activities to effectively decommission the tank included:

- Flush and pump out tank
- Characterize subsurface conditions by obtaining soil samples at predetermined depths at four different locations from around the UST
- Fill tank with polyurethane foam
- Prepare a tank closure report

The tank was closed in accordance with the March 13, 1996, letter to Mr Mark Silverman, DOE, from the Colorado Department of Public Health and Environment (CDPHE) and the Oil Inspection Section of the Colorado Department of Labor and Employment (OIS)

3.0 Tank Flushing and Liquid Removal

On June 18, 1996, IT mobilized a steam cleaner and vacuum truck to RFETS to proceed with tank flushing and liquid removal activities. Prior to the tank cleaning, approximately 5 gallons of residual fuel were removed from the tank through the tank fill pipe by the vacuum truck. Tank cleaning was accomplished by utilizing a steam cleaner with an extended wand fitted with a spray tip with a 90-degree bend so that pressurized steam could be directed at all four sides of the tank. Approximately 70 gallons of clean tap water were used to steam clean the tank through the tank fill pipe. The vacuum truck (provided by Evergreen Environmental Services) removed the tank rinse fluids. All residual fuel and tank rinse fluids were removed from RFETS by Evergreen Environmental Services for recycling at their Newark, California, facility.

4.0 Soil Borings and Sampling

On June 18, 1996, IT and Direct Geochemical mobilized a Geoprobe unit and a mobile laboratory to RFETS. Drilling of four soil borings proceeded on June 19, 1996, after RFETS personnel cleared the boring locations for subsurface utilities. Soil borings were located on each side of the tank (Figure 2) and were advanced to approximately 12 feet in depth. Each boring depth was approximately 2 feet below the bottom of the tank (as measured through the tank fill pipe) and penetrated the native soils (primarily silty to slightly sandy clays) beneath the original tank excavation. Groundwater was encountered at approximately 11 feet in each boring. Groundwater volume was not sufficient to collect a groundwater sample from any of the four soil borings.

Each boring was continuously sampled with a 4-foot-long, 2-inch-outside-diameter (OD) sampler equipped with a plastic liner. Appendix A contains complete boring logs of each boring. Soil core recovery from the sampler was poor (generally 50 percent) due to the rocky nature of the tank excavation fill. However, the soil core recovery was adequate to characterize the soils surrounding the tank for petroleum contamination. Boring UST 20/3 had to be moved approximately 1 foot west from the original location after encountering a large cobble at 7.5 feet in depth.

Air monitoring was performed continuously with a Gastech GT201 LEL/O₂ monitor and Foxboro TVA-1000 flame ionization detector (FID) during boring operations. All LEL/O₂ measurements were normal during boring operations. FID measurements of the soil samples collected for mobile laboratory analysis are presented in Table 1.

Soil samples for mobile laboratory analysis were collected at the base of each boring. Soil samples were contained in the sampler plastic sleeve, and were delivered to the mobile laboratory intact and analyzed immediately. The soils were analyzed for total extractable hydrocarbons (TEH - diesel range). The analyses were carried out using modified SW-846 method 8015. Extractions were completed following SW-846 method Colorado modified 8015. Samples were introduced into the instruments by method 8015 (injection). The mobile laboratory was equipped with two Tremeetrics model 9001 gas chromatographs (GC) interfaced with Tekmar LSC 2000 purge and trap units. The instruments were calibrated for TEH analysis. Results of the soil analyses are presented below.

Table 1
Soil Analytical Results
RFETS UST No. 20

| Analysis Date | Sample Number | FID (ppm) | TEH (ppm) |
|---------------|-----------------------|-----------|-----------|
| 06/19/96 | Method Blank | N/A | <1 |
| 06/19/96 | Method Blank | N/A | <1 |
| 06/19/96 | UST20/1/061996/12 | 16 05 | 5,340 |
| 06/19/96 | UST20/1/061996/12 DUP | N/A | 4,170 |
| 06/19/96 | UST20/2/061996/10 | 2 41 | <1 |
| 06/19/96 | UST20/3/061996/12 | 9 06 | 24 |
| 06/19/96 | UST20/4/061996/12 | 1 71 | <1 |
| 06/19/96 | Rinsate Blank | N/A | <1 |

Sample Number Nomenclature UST20/Boring No /Date/Depth

DUP = field duplicate

FID = flame ionization detector

TEH = total extractable hydrocarbons by SW-846 method 8015 (diesel range)

N/A = not applicable

ppm = parts per million (mg/Kg - soils)

Only one sample (UST20/1/061996/12) exhibited visual signs of petroleum contamination. This sample was stained dark gray for approximately 6 inches (from 11 to 11.5 feet) but had

unstained soils from 11.5 to 12.0 feet. Sample UST20/3/061996/12 was not stained but had a faint petroleum odor. The other two samples did not exhibit visual signs of petroleum contamination. Appendix B contains the mobile laboratory data summary.

The soil borings were backfilled with their sample core soils and the top 1-foot interval plugged with cement. A brass marker was placed in the cement at each boring location.

5.0 Tank Closure

On June 26, 1996, IT and Cellular Product Services, Inc., mobilized to complete closure of UST No. 20 by filling the tank with polyurethane foam. Prior to filling the tank with foam, approximately 5 gallons of bentonite pellets were placed in the tank to absorb any remaining rinse liquids (the foam products react violently with water). The tank was filled with approximately 3,000 gallons of 2-pound-per-cubic-foot-density polyurethane foam. The tank was filled in four lifts through the fill and vent pipe openings to minimize the formation of void spaces in the foam.

6.0 Waste Disposition

Personnel protective equipment, plastic sheeting, plastic sampling sleeves, and the 1-inch PVC piping used to remove liquid from the tank were placed in plastic bags and drummed (one drum) for disposal by RFETS. Approximately 15 gallons of decontamination liquids were generated during sample boring activities. These liquids were placed in one drum for disposal by RFETS. Approximately 10 pounds of soils from the borings (soils that could not be backfilled into the borings due to space constraints) were placed in a plastic bag and drummed (one 35-gallon drum) for disposal by RFETS. Excess solidified foam was removed from the tank openings and bagged for disposal in a dumpster near the site.

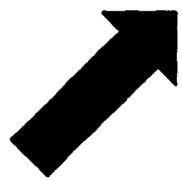
7.0 Conclusions

Soil samples collected from the base of the original tank excavation of UST No. 20 indicate there has been some hydrocarbon contamination of the surrounding soil. However, this contamination appears to be limited in extent, as only one sample (UST20/1/061996/12) showed significant hydrocarbon contamination (average 4,755 ppm TEH). This sample location is on the upgradient end of the tank as groundwater flow is generally north-northeast at this location. One other sample (UST20/3/061996/12) showed slight hydrocarbon contamination (24 ppm TEH). Since the samples were collected at the apparent groundwater interface and the sample with the highest hydrocarbon contamination was located on the

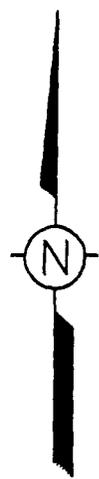
upgradient end of the tank, it appears that the hydrocarbon contamination is limited in extent and should not present a continuing hazard to the environment now that the tank has been cleaned and filled with foam

Figures

DRAWING NUMBER 763097 05-A1
 8/29/96
 9/9/96
 CHECKED BY
 APPROVED BY
 EJC
 07-01-96
 DRAWN BY

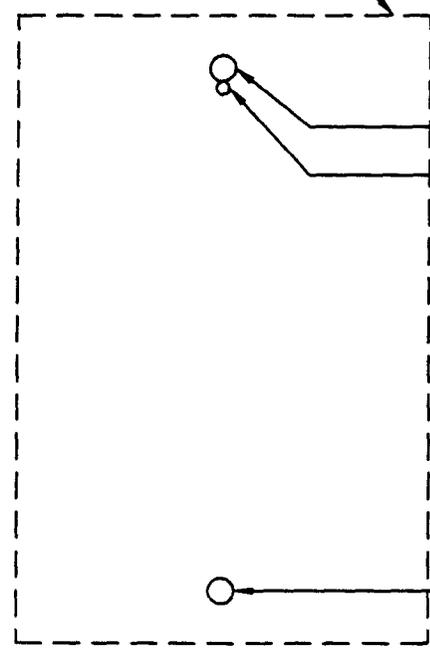


GENERAL GROUNDWATER
 FLOW DIRECTION



● UST 20/4
 <1ppm TEH

APPROXIMATE DIMENSIONS OF TANK



3" O D FILL PIPE
 1 5" O.D. PIPE

● UST 20/3
 24 ppm TEH

● UST 20/2
 <1ppm TEH

ABANDONED ● 7 5'

○ 3" O D VENT PIPE

● UST 20/1
 5340 ppm TEH
 4170 ppm TEH (Duplicate)

ppm = parts per million (mg/kg-soils)
 TEH = total extractable hydrocarbons by
 SW-846 method 8015 (diesel range)

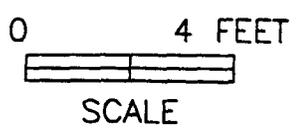


FIGURE 2
 BORING LOCATIONS
 ROCKY FLATS ENVIRONMENTAL
 TECHNOLOGY SITE
 BUILDING 771 UST #20

PREPARED FOR
 SAFE SITES OF COLORADO
 GOLDEN, COLORADO



Appendix A
Boring Logs

SOIL BORING LOG

HOLE NO
UST201/061996

| | | | | | | |
|--|--------------|--|---|---|---|---------------------------------------|
| 1 COMPANY NAME IT Corp | | 2 DRILLING SUBCONTRACTOR Direct Geotechnical | | 3 SHEET OF 2 SHEETS | | |
| 3 PROJECT RFETS Bldg 771 UST | | | 4 LOCATION RFETS - South of Bldg 771 | | | |
| 5 NAME OF DRILLER John Fontana | | | 6 MANUFACTURER'S DESIGNATION OF DRILL Geoprobe Systems | | | |
| 7 SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT | 1' Drive Rod | | 8 HOLE LOCATION 3' south of southern vent pipe | | | |
| | 2" CD Case | | 9 SURFACE ELEVATION NIA | | | |
| | | | 10 DATE STARTED 6-19-96 | | | |
| | | | 11 DATE COMPLETED 6-19-96 | | | |
| 12 OVERBURDEN THICKNESS 1' ± | | | 15 DEPTH GROUNDWATER ENCOUNTERED ± 11' | | | |
| 13 DEPTH DRILLED INTO ROCK 0' | | | 16 DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED NIA | | | |
| 14 TOTAL DEPTH OF HOLE 12' | | | 17 OTHER WATER LEVEL MEASUREMENTS (SPECIFY) NIA | | | |
| 18 GEOTECHNICAL SAMPLES NIA | | DISTURBED NIA | UNDISTURBED NIA | 19 TOTAL NUMBER OF CORE BOXES NIA | | |
| 20 SAMPLES FOR CHEMICAL ANALYSIS 1 + Dupe | | VOC-TPH 1+1 | METALS / | OTHER (SPECIFY) / | OTHER (SPECIFY) / | 21 TOTAL CORE RECOVERY 33 % |
| 21 DISPOSITION OF HOLE Cement Plug | | BACKFILLED <input checked="" type="checkbox"/> | MONITORING WELL <input type="checkbox"/> | OTHER (SPECIFY) <input type="checkbox"/> | 22 SIGNATURE OF INSPECTOR <i>[Signature]</i> | |

| ELEV b | DEPTH d | DESCRIPTION OF MATERIALS c | FIELD SCREENING RESULTS d | GEOTECH SAMPLE OR CORE BOX NO. e | ANALYTICAL SAMPLE NO. f | BLOW COUNTS g | REMARKS h |
|-----------|------------|--|------------------------------|-------------------------------------|----------------------------|------------------|--------------|
| NIA | | Soil, light brown, 7.54R613, surface | | Rec. 1' | | NIA | Start @ 0950 |
| | 1 | ----- | | | | | |
| | 2 | Fill, w/ gravels (2-3"), sandy, silty, thin clays, light brown, 7.54R614 - Recovery poor due to gravels - silty moist w/ clays | Oppn FID | Rec 1' | | | |
| | 3 | | | | | | |
| | 4 | | | | | | |
| | 5 | | | | | | |
| | 6 | | Oppn FID | Rec 1' | | | |
| | 7 | | | | | | |
| | 8 | | Oppn FID | | | | |
| | 9 | | | No Rec. | | | |
| | | ↓ | FID Oppn | | | | |

SOIL BORING LOG

HOLE NO
UST20/1

PROJECT
RFETS Bldg 771 UST

INSPECTOR
Jeffrey M Jordan

SHEET 2
OF 2 SHEETS

| ELEV a | DEPTH b | DESCRIPTION OF MATERIALS c | FIELD SCREENING RESULTS d | GEOTECH SAMPLE OR CORE BOX NO e | ANALYTICAL SAMPLE NO f | BLOW COUNTS g | REMARKS h |
|-----------|------------|---|------------------------------|------------------------------------|------------------------------|------------------|--|
| N/A | 10 | Clay - v Fin sand, light brown, 75YR 6/4, laminated, silty, silty plastic - top 6" stained grey - color bottom 6" not stained | ±16 ppm FID | Rec 1' | | N/A | Top 6' of core stained with grey (color) - Bottom 6" not stained. Loads clean Core wet @ ±11' |
| | 11 | | 0 ppm BZ | | UST20/1 06796/12 + Dup | | |
| | 12 | TO @ 12' @ 1045 | | | | | |
| | 13 | | | | | | |
| | 14 | | | | | | |
| | 15 | | | | | | |

SOIL BORING LOG

HOLE NO
UST 20/2

| | | | | | | | |
|---|--|--|---|--|--|--------------------------------------|--|
| 1. COMPANY NAME IT Corp | | 2. DRILLING SUBCONTRACTOR Direct Geotechnical | | SHEET 1 OF 2 SHEETS | | | |
| 3. PROJECT RFETS Bldg 771 UST | | | 4. LOCATION RFETS - South of Bldg 771 | | | | |
| 5. NAME OF DRILLER John Fontana | | | 6. MANUFACTURER'S DESIGNATION OF DRILL Geoprobe Systems | | | | |
| 7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT | | 1" D-in. Rod | | 8. HOLE LOCATION 5' east of tank centerline - middle of tank | | | |
| | | 2" OD Core | | | | | |
| | | 9. SURFACE ELEVATION N/A | | 10. DATE STARTED 6-19-96 | | 11. DATE COMPLETED 6-19-96 | |
| | | 12. OVERBURDEN THICKNESS ± 1' | | 15. DEPTH GROUNDWATER ENCOUNTERED ± 11' | | | |
| 13. DEPTH DRILLED INTO ROCK 0' | | 16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED N/A | | | | | |
| 14. TOTAL DEPTH OF HOLE 12' | | 17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY) N/A | | | | | |
| 18. GEOTECHNICAL SAMPLES | | DISTURBED N/A | UNDISTURBED N/A | 19. TOTAL NUMBER OF CORE BOXES N/A | | | |
| 20. SAMPLES FOR CHEMICAL ANALYSIS | | VOC - FID 1 | METALS 1 | OTHER (SPECIFY) 1 | OTHER (SPECIFY) 1 | OTHER (SPECIFY) 1 | |
| 21. DISPOSITION OF HOLE Cement Plug | | BACKFILLED <input checked="" type="checkbox"/> | MONITORING WELL <input type="checkbox"/> | OTHER (SPECIFY) <input type="checkbox"/> | 22. SIGNATURE OF INSPECTOR <i>[Signature]</i> | | |
| 21. TOTAL CORE RECOVERY 50 % | | | | | | | |

| ELEV a | DEPTH b | DESCRIPTION OF MATERIALS c | FIELD SCREENING RESULTS d | GEOTECH SAMPLE OR CORE BOX NO e | ANALYTICAL SAMPLE NO. f | BLOW COUNTS g | REMARKS h |
|-----------|------------|---|------------------------------|------------------------------------|----------------------------|------------------|--------------|
| N/A | | Soil, light brown, 75 YR 6/3, routed | | 2' Rec. | | N/A | Start @ 1135 |
| | 1 | Fill w/ gravels (2-3"), sandy, silty, w/ clay, light brown, 75 YR 6/4 - Recovery poor due to gravels - moist w/ length. | Dpp - FID | 2' Rec | | | |
| | 2 | | | | | | |
| | 3 | | | | | | |
| | 4 | | | | | | |
| | 5 | | | | | | |
| | 6 | | | | | | |
| | 7 | | | | | | |
| | 8 | | | | | | |
| | 9 | | | | | | |
| | 10 | | | | | | |

SOIL BORING LOG

HOLE NO
UST20/2

PROJECT
RFETS Bldg 771 UST

INSPECTOR
Jeffrey M Jordan

SHEET 2
OF 2 SHEETS

| ELEV b | DEPTH d | DESCRIPTION OF MATERIALS c | FIELD SCREENING RESULTS e | GEO TECH SAMPLE OR CORE BOX NO f | ANALYTICAL SAMPLE -NO g | BLOW COUNTS h | REMARKS i |
|-----------|------------|--|------------------------------------|---|---|---------------------|-------------------|
| N/A | 10 | Clay, s Hy, brown, 75 4R5/4, sl s. wdy, w/ trace gravel, sl particle no stain or color most | OPPA F10 | 2' Rec | id UST UST20/21 061496/10 | N/A | Core met @ 11' |
| | 11 | | | | | | |
| | 12 | TD @ 12' @ 1200 | | | | | |
| | 13 | | | | | | |
| | 14 | | | | | | |
| | 15 | | | | | | |

SOIL BORING LOG

HOLE NO
UST2013

| | | | | | |
|--|--|--|--|---|--|
| 1 COMPANY NAME <i>IT Corp</i> | | 2 DRILLING SUBCONTRACTOR <i>Direct Geotechnical</i> | | SHEET 1 OF 2 SHEETS | |
| 3 PROJECT <i>RFETS Bldg 771 UST</i> | | | 4 LOCATION <i>RFETS - South of Bldg 771</i> | | |
| 5 NAME OF DRILLER <i>John Fontana</i> | | | 6 MANUFACTURER'S DESIGNATION OF DRILL <i>Geoprobe Systems</i> | | |
| 7 SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT | | 1' Drive Rod | | 8 HOLE LOCATION <i>5' west of tank centerline - middle of tank</i> | |
| | | 2" OD Core | | 9 SURFACE ELEVATION <i>NIA</i> | |
| | | | | 10. DATE STARTED <i>6-19-96</i> | |
| | | | | 11. DATE COMPLETED <i>6-19-96</i> | |
| 12 OVERBURDEN THICKNESS <i>± 1'</i> | | | 13 DEPTH GROUNDWATER ENCOUNTERED <i>± 11'</i> | | |
| 13 DEPTH DRILLED INTO ROCK <i>0'</i> | | | 14. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED <i>NIA</i> | | |
| 14 TOTAL DEPTH OF HOLE <i>12'</i> | | | 17 OTHER WATER LEVEL MEASUREMENTS (SPECIFY) <i>NIA</i> | | |

| | | | | | | |
|---|--|---|---|---|---|--|
| 18 GEOTECHNICAL SAMPLES <i>NIA</i> | | DISTURBED <i>NIA</i> | UNDISTURBED <i>NIA</i> | 19 TOTAL NUMBER OF CORE BOXES <i>NIA</i> | | |
| 20 SAMPLES FOR CHEMICAL ANALYSIS <i>1</i> | | VOC - FEM <i>1</i> | METALS <i>/</i> | OTHER (SPECIFY) <i>/</i> | OTHER (SPECIFY) <i>/</i> | 21. TOTAL CORE RECOVERY <i>33 %</i> |
| 21. DISPOSITION OF HOLE <i>Cement Plug</i> | | BACKFILLED <input checked="" type="checkbox"/> | MONITORING WELL <input type="checkbox"/> | OTHER (SPECIFY) <input type="checkbox"/> | 23 SIGNATURE OF INSPECTOR <i>[Signature]</i> | |

| ELEV a | DEPTH b | DESCRIPTION OF MATERIALS c | FIELD SCREENING RESULTS d | GEOTECH SAMPLE OR CORE BOX NO. e | ANALYTICAL SAMPLE NO f | BLOW COUNTS g | REMARKS h | |
|------------|------------|---|------------------------------|-------------------------------------|---------------------------------|------------------|---|--|
| <i>NIA</i> | | <i>S. 1, light brown, 75 YR 6/3</i> | | <i>Rec 1'</i> | | <i>NIA</i> | <i>Start @ 1225</i> | |
| | 1 | <i>Fill, w/ gravels (2-3'), sandy, silty, w/ clay, light brown, 75 YR 6/4 - Recovery poor due to gravels - most w/ depth</i>  | <i>Opp-FID</i> | | | | | |
| | 2 | | | | | | | |
| | 3 | | | | | | | |
| | 4 | | | | | | | |
| | 5 | | | | <i>Rec 2'</i> | | | |
| | 6 | | | | | | | |
| | 7 | | | | | | | |
| | 8 | | | <i>Opp-FID</i> | | | | |
| | 9 | | | | <i>Rec 0.5'</i> <i>8-10'</i> | | | |
| | 10 | | | | | | <i>Ht rock (cable) @ 75 - offset boring 1' west</i> | |

SOIL BORING LOG

HOLE NO
UST 20/3

PROJECT
RFETS Bldg, 771 UST

INSPECTOR
Jeffrey M Jordan

SHEET 2
OF 2 SHEETS

| ELEV a | DEPTH D | DESCRIPTION OF MATERIALS C | FIELD SCREENING RESULTS b | GEO TECH SAMPLE OR CORE BOX NO e | ANALYTICAL SAMPLE NO f | BLOW COUNTS g | REMARKS h |
|-----------|------------|---|------------------------------------|---|---------------------------------|---------------------|---------------------|
| N/A | 10 | Clay, w/ fine sand - silt, 1 quart brown, 754R 613, silt laminated silt plastic - core moist - wet no visible staining | 0 ppm FID - B2 | Rec. 05 10-12 | UST 20/31 | N/A | Core wet @ ± 11' |
| | 11 | | 9 ppm FID | | 061976/12 | | |
| | 12 | TD @ 12' @ 1305 | | | | | |
| | 13 | | | | | | |
| | 14 | | | | | | |
| | 15 | | | | | | |

SOIL BORING LOG

HOLE NO
UST2014

| | | | | | |
|---|--------------|--|--|--|--|
| 1. COMPANY NAME <i>IT Corp</i> | | 2. DRILLING SUBCONTRACTOR <i>Direct Geochemical</i> | | SHEET 1 OF 2 SHEETS | |
| 3. PROJECT <i>RFETS Bldg 771 UST</i> | | | 4. LOCATION <i>RFETS - South of Bldg 771</i> | | |
| 5. NAME OF DRILLER <i>John Fontana</i> | | | 6. MANUFACTURER'S DESIGNATION OF DRILL <i>Geopac Systems</i> | | |
| 7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT | 1" O.D. Rod | | 8. HOLE LOCATION <i>4' north of northern vent pipe</i> | | |
| | 2" O.D. Core | | 9. SURFACE ELEVATION <i>N/A</i> | | |
| | | | 10. DATE STARTED <i>6-19-96</i> | | |
| | | | 11. DATE COMPLETED <i>6-19-96</i> | | |
| 12. OVERBURDEN THICKNESS <i>± 1'</i> | | | 13. DEPTH GROUNDWATER ENCOUNTERED <i>± 11'</i> | | |
| 13. DEPTH DRILLED INTO ROCK <i>0'</i> | | | 14. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED <i>N/A</i> | | |
| 14. TOTAL DEPTH OF HOLE <i>12'</i> | | | 15. OTHER WATER LEVEL MEASUREMENTS (SPECIFY) <i>N/A</i> | | |
| 16. GEOTECHNICAL SAMPLES <i>N/A</i> | | DISTURBED <i>N/A</i> | UNDISTURBED <i>N/A</i> | 17. TOTAL NUMBER OF CORE BOXES <i>N/A</i> | |
| 20. SAMPLES FOR CHEMICAL ANALYSIS <i>1</i> | | VOC -TFH <i>1</i> | METALS <i>/</i> | OTHER (SPECIFY) <i>/</i> | OTHER (SPECIFY) <i>/</i> |
| 21. DISPOSITION OF HOLE <i>Cement Plug</i> | | BACKFILLED <input checked="" type="checkbox"/> | MONITORING WELL <input type="checkbox"/> | OTHER (SPECIFY) <input type="checkbox"/> | 22. SIGNATURE OF INSPECTOR <i>[Signature]</i> |
| 23. TOTAL CORE RECOVERY <i>50%</i> | | | | | |

| ELEV a | DEPTH d | DESCRIPTION OF MATERIALS c | FIELD SCREENING RESULTS g | GEOTECH SAMPLE OR CORE BOX NO. e | ANALYTICAL SAMPLE NO. f | BLOW COUNTS b | REMARKS h |
|------------|------------|--|------------------------------|-------------------------------------|----------------------------|------------------|---------------------|
| <i>N/A</i> | | <i>Soil, light brown, 7.5 YR 6/3, rootred.</i> | | <i>Acc 3'</i> | | <i>N/A</i> | <i>Start @ 1330</i> |
| | 1 | | | | | | |
| | 2 | <i>Fill, w/ gravels (2-3"), sandy, silty, w/ clay, light brown, 7.5 YR 6/4 - Necessary per</i> | | | | | |
| | 3 | <i>due to gravels - most w/ depth</i> | <i>Upper FID</i> | | | | |
| | 4 | | | | | | |
| | 5 | | | <i>Acc 2'</i> | | | |
| | 6 | | | | | | |
| | 7 | | | | | | |
| | 8 | | <i>Upper FID</i> | | | | |
| | 9 | | | | | | |
| | 10 | | | | | | |

DIRECT GEOCHEMICAL, Inc.

Environmental Division

Client IT Corp

DGI Project 6223

Client Project UST 20 Closure

Data File F19GR 005

Sample ID Rinseate Blank

Sample Amount (g, mL) 250 00

Analysis Date 06/19/96

Sample Matrix Water

Project Location Rocky Flats Plant

Concentration Units ppm

Client Representative Chris Miller

Analyst RDE

The following analytes are also reported

TEH <1 ppm

DIRECT GEOCHEMICAL, Inc.

Environmental Division

Client IT Corp

DGI Project 6223

Client Project UST 20 Closure

Data File F19GR 006

Sample ID U20/4/12

Sample Amount (g, mL) 20 00

Analysis Date 06/19/96

Sample Matrix Soil

Project Location Rocky Flats Plant

Concentration Units ppm

Client Representative Chris Miller

Analyst RDE

The following analytes are also reported

TEH <1 ppm

DIRECT GEOCHEMICAL, Inc.

Environmental Division

Client IT Corp

DGI Project 6223

Client Project UST 20 Closure

Data File F19ER 005

Sample ID U20/3/12

Sample Amount (g, mL) 20 00

Analysis Date 06/19/96

Sample Matrix Soil

Project Location Rocky Flats Plant

Concentration Units ppm

Client Representative Chris Miller

Analyst RDE

The following analytes are also reported

TEH 24 ppm

SOIL BORING LOG

HOLE NO
UST20/4

PROJECT
RFETS Bldg 771 UST

INSPECTOR
Jeffrey M Jordan

SHEET 2
OF 2 SHEETS

| ELEV a | DEPTH b | DESCRIPTION OF MATERIALS c | FIELD SCREENING RESULTS d | GEOTECH SAMPLE OR CORE BOX NO e | ANALYTICAL SAMPLE NO f | BLOW COUNTS g | REMARKS h |
|-----------|------------|--|------------------------------------|--|---------------------------------|---------------------|----------------|
| N/A | 10 | Clay, with sand as it, light brown, 7.5 YR 6/3, s' lamin, sl plastic - no stain color - core moist/wet | Open FID | Rec 1' | UST20/4/ 061996/12 | N/A | Core wet @ 11' |
| | 11 | | | | | | |
| | 12 | TD @ 12' @ 1345 | | | | | |
| | 13 | | | | | | |
| | 14 | | | | | | |
| | 15 | | | | | | |

Appendix B
Laboratory Data Summary

Direct Geochemical, Inc.
Project Narrative Report
DGI Project Number 6223
Monday, August 26, 1996
DGI Client IT Corporation
Client Contact Chris Miller

The samples for this project were received on June 19, 1996 from the Direct Geochemical, Inc Field Services Division. The samples and their containers appeared to be in good condition.

The determinations were carried out using modified SW-846 method 8015. Calibrations for Total Extractable Hydrocarbons (TEH) were done in absolute nanograms using a #2 diesel fuel. Conversions to parts per million was then done on the sample report spreadsheets. Extractions were done following SW-846 Colorado modified method 8015.

Samples were introduced into the instruments by method 8015 (injection).

The laboratory is equipped with two Tremeetrics model 9001 gas chromatographs interfaced with Tekmar LSC 2000 purge and trap units. Each GC has FID, PID, and ELCD detectors mounted on the instrument.

DIRECT GEOCHEMICAL, Inc.

Environmental Division

Client IT Corp

DGI Project 6223

Client Project UST 20 Closure

Data File F19ER 002

Sample ID Method Blank

Sample Amount (g, mL) 250 00

Analysis Date 06/19/96

Sample Matrix Water

Project Location Rocky Flats Plant

Concentration Units ppm

Client Representative Chris Miller

Analyst RDE

The following analytes are also reported

TEH

<1 ppm

DIRECT GEOCHEMICAL, Inc.

Environmental Division

Client IT Corp

DGI Project 6223

Client Project UST 20 Closure

Data File F19GR 003

Sample ID Method Blank

Sample Amount (g, mL) 250 00

Analysis Date 06/19/96

Sample Matrix Water

Project Location Rocky Flats Plant

Concentration Units ppm

Client Representative Chris Miller

Analyst RDE

The following analytes are also reported

TEH <1 ppm

DIRECT GEOCHEMICAL, Inc.

Environmental Division

Client IT Corp

DGI Project 6223

Client Project UST 20 Closure

Data File F19ER 003

Sample ID UST20/1/12

Sample Amount (g, mL) 2 00

Analysis Date 06/19/96

Sample Matrix Soil

Project Location Rocky Flats Plant

Concentration Units ppm

Client Representative Chris Miller

Analyst RDE

The following analytes are also reported

TEH 5340 ppm

DIRECT GEOCHEMICAL, Inc.

Environmental Division

Client IT Corp

DGI Project 6223

Client Project UST 20 Closure

Data File F19ER 004

Sample ID UST20/1/12 Dup

Sample Amount (g, mL) 2 00

Analysis Date 06/19/96

Sample Matrix Soil

Project Location Rocky Flats Plant

Concentration Units ppm

Client Representative Chris Miller

Analyst RDE

The following analytes are also reported

TEH 4170 ppm

DIRECT GEOCHEMICAL, Inc.

Environmental Division

Client IT Corp

Client Project UST 20 Closure

Sample ID UST20/2/10

Analysis Date 06/19/96

Project Location Rocky Flats Plant

Client Representative Chris Miller

DGI Project 6223

Data File F19GR 004

Sample Amount (g, mL) 20 00

Sample Matrix Soil

Concentration Units ppm

Analyst RDE

The following analytes are also reported

TEH <1 ppm

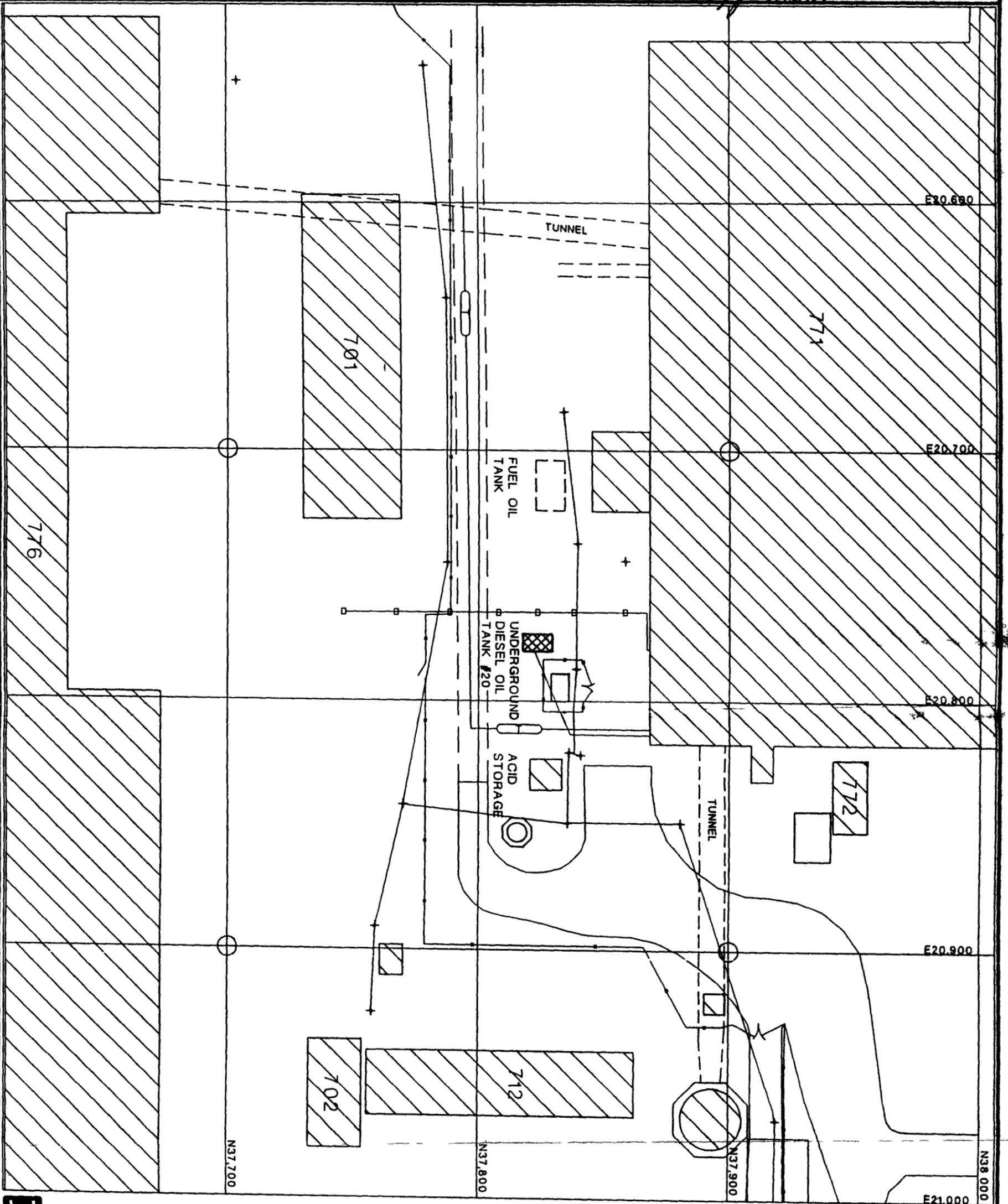


FIGURE 1

SITE SKETCH
 ROCKY FLATS PLANT
 BUILDING 771 UST #20
 PREPARED FOR
 SAFE SITES OF COLORADO
 GOLDEN COLORADO

