



94 MAR 24 PM 1:33

March 18, 1994

Ms. Susan Hugo
Alameda County Health Agency
Department of Environmental Health
Division of Hazardous Materials
80 Swan Way, Room 350
Oakland, California 94621

Subject: **Removal of Underground Storage Tanks
Chiron Corporation
4560 Horton Street
Emeryville, California
Law/Crandall Project No. 2123-30113-1**

Dear Ms. Hugo:

This report summarizes the activities associated with the removal of two underground butanol storage tanks from the Chiron Corporation (Chiron) Horton Street campus located in Emeryville, California (Figure 1). The 550-gallon, stainless steel tanks were located north of the Pilot Development Unit (PDU) building on the west side of the Chiron facility (Figure 2). Following removal of the underground storage tanks (UST), soil samples were collected and a pressure test of the underground piping associated with the tanks was performed.

Background

The USTs were removed to facilitate remodeling activities of the manufacturing system at the PDU facility. The USTs were used to store on-test and off-test butanol for manufacturing purposes in the PDU facility. A one-inch diameter, double contained stainless steel pipe conveyed the butanol to and from the off-test tank to the PDU facility. The USTs have been replaced with one above-ground double contained Convault storage tank containing a 1,000-gallon on-test tank and a 1,000-gallon off-test tank.

Tank Removal Activities

Chiron obtained a tank removal permit from Alameda County. A five-day written notice to the Bay Area Air Quality Management District (BAAQMD) was provided. A copy of the notice is included as Attachment A (BAAQMD Written Notice). The City of Emeryville was also advised of the UST removal plan.

Prior to UST removal, the contents were removed. The piping and tanks were then rinsed and surface piping was removed. On November 19, 1993, DPR Construction Inc. (DPR) removed the concrete slab and soil located above the tanks in preparation for tank removal; approximately nine cubic yards of concrete and soil were removed. The concrete material was cleaned of soil and disposed at a landfill. The associated soil was stockpiled on visqueen in the parking lot north of the PDU facility (see Figure 2). On November 20, 1993, DPR drove shoring to a depth of approximately 15 feet below ground surface on the north, east, and west sides of the tank pit. The shoring was placed to protect the tank pit from collapsing due to the presence of an above-ground tank located approximately 5 feet northwest of the pit.

Decon Environmental Services, Inc. (Decon) was subcontracted for the UST removal, UST disposal, and the pipeline test. On November 22, 1993, Decon removed approximately 7 cubic yards of soil from around the tanks to allow for tank removal. This soil was stockpiled as previously described. The stockpiled soil was covered with visqueen and subsequently sampled by URS Consultants, Inc (URS).

Ms. Susan Hugo from the Alameda County Health Agency, Division of Hazardous Materials and Mr. George Warren of the Emeryville Fire Department were present during tank removal activities. The tanks were made of stainless steel and each had a 550-gallon capacity; approximate tank measurements (4' by 6') taken after removal confirmed the capacity. The tanks were removed using a backhoe. Dry ice was placed in the tank more than one hour before removal. The lower explosivity limit (LEL) and oxygen levels were checked with a combustible gas indicator and an oxygen meter by Ms. Eileen Flynn of Chiron and Mr. Warren; levels were less than 10 percent immediately before tank removal.

The tanks were inspected for holes after removal; none were found. The tanks were loaded onto an Erickson, Inc. truck and transported to their facility in Richmond, California. A copy of the hazardous waste manifest which accompanied the shipment is included in Attachment B (Tank Hazardous Waste Manifest)

The tank pit was approximately 8 feet wide, 11 feet long, and 8 feet deep from the top of the concrete slab. Groundwater was not encountered and no odors or soil staining were observed.



Soil Sampling and Laboratory Analysis

Soil sampling was conducted in accordance with the Tri-Regional Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites, dated August 10, 1990 (Regional Board guidelines). Since each tank had a capacity less than 1,000 gallons, only one sample was collected beneath each tank, in accordance with the Regional Board guidelines. Ms. Hugo designated a soil sample location about 6 inches beneath the bottom center of each tank. These locations were designated as T-NORTH and T-SOUTH (Figure 2).

Soil samples were obtained with a backhoe. After removing the top 3 inches of soil from the backhoe bucket, soil samples were collected in brass tubes using a slide hammer. The samples were covered with teflon, capped, sealed, labeled, and placed in a chilled ice cooler. The samples were delivered to a California-certified laboratory, Superior Analytical, Inc., with chain-of-custody documentation.

The samples were analyzed on a 24-hour rush basis for butanol by EPA Modified Method 8015. The analytical results and chain-of-custody documentation are included in Attachment C (Laboratory Results and Chain-of-Custody Documentation). The analytical results indicated that the samples did not contain concentrations of butanol above the detection limit of 2 milligrams per kilogram (mg/kg).

Backfill

On November 22, 1993, Decon backfilled the tank pit. Two 10-cubic-yard loads of clean Class II fill were imported to the Chiron facility and placed in the tank pit. A backhoe was used to spread the clean soil evenly in the tank pit area. The tank pit was filled with the fill to within 1'-6" from the bottom of the existing concrete slab. Per Mr. David Edgar of DPR, the soil was later compacted with a trackhoe vibratory ram, and further compacted with a hand-operated vibratory plate compactor after fine grade was added.

Pipeline Pressure Test

Decon initially performed the underground pipeline pressure test on November 23, 1993. The test was conducted on the two, one-inch-diameter stainless steel pipes used to convey butanol to and from the PDU facility. A compressed nitrogen gas tank was attached to one of the pipes with a closed valve on the opposite end of the pipe. The pipes were pressurized to 30 pounds per square inch (psi) which was 200% of the reported 15 psi operating pressure. According to the UST installation requirements of the California State Water Resources Control Board, pipelines must be tested at 150% of the pipe operating pressure for a minimum of one hour. Ms. Hugo witnessed the pipeline pressure test and approved the test on its completion.



The operating pressure was later discovered to be 25 psi; the original 15 psi estimate was the operating pressure of the new system. This made the first pressure test results unacceptable.

Decon performed a second underground pipeline pressure test on December 6, 1993, using the previously described protocol. The second test was conducted at a pressure of 40 psi which was 160% of the 25 psi operating pressure of the pipeline. Mr. Brian Oliva of the Alameda County Health Agency witnessed the pressure test. After approving the pipeline pressure test, Mr. Oliva indicated that sampling under the pipeline was not required and the pipeline could be abandoned in place. DPR capped the pipes.

Stockpiled Soil Sampling and Laboratory Analysis

The total amount of soil stockpiled from tank removal activities was approximately 16 cubic yards. URS collected samples of the stockpiled soil and submitted them to Curtis and Tompkins, a state-certified laboratory, for analysis. URS collected four discrete samples from the stockpiled soil. The samples were composited in the field, placed in a stainless steel tube and sealed with teflon sheets and plastic end caps. The samples were analyzed for total recoverable petroleum hydrocarbons (TRPH) by EPA Method 418.1 and volatile organic compounds (VOCs) by EPA Method 8240.

Laboratory analysis for the composite samples indicated 240 micrograms per kilogram ($\mu\text{g}/\text{kg}$) of 2-butanone and 40 mg/kg of TRPH. The State of California does not publish guidelines for allowable soil concentrations. The Regional Board guidelines require additional work (a ground water investigation) if soil samples collected from beneath the tanks (not stockpiled soil) contain greater than 100 mg/kg of TRPH. URS's report dated December 22, 1993, is included in Attachment D (URS Report).

Soil Disposal

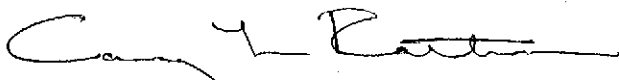
On January 10, 1994, the stockpiled soil was removed from the Chiron facility and taken to the Forward Landfill in Stockton, California following appropriate approval by the landfill; a URS employee observed the soil loading. Six truck loads of soil were taken to the landfill for disposal. This soil included the stockpiled soil generated from the tank removal activities and other soil generated during construction activities at the Chiron facility. Copies of the non-hazardous waste manifests are included in Attachment E (Soil Non-Hazardous Waste Manifests). The signed manifests from Forward Landfill have not yet been received.



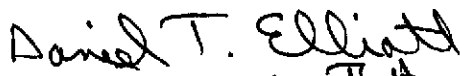
If you have any questions or need additional information regarding the tank removal activities or pressure test, please contact Mr. Cory Rathman at (415) 834-2040.

Sincerely,

LAW/CRANDALL, INC.



Cory L. Rathman, E.I.T.
Staff Engineer



by: TE, with permission

Daniel T. Elliott, R.G. 4129
Principal Geologist
Remediation Services Manager

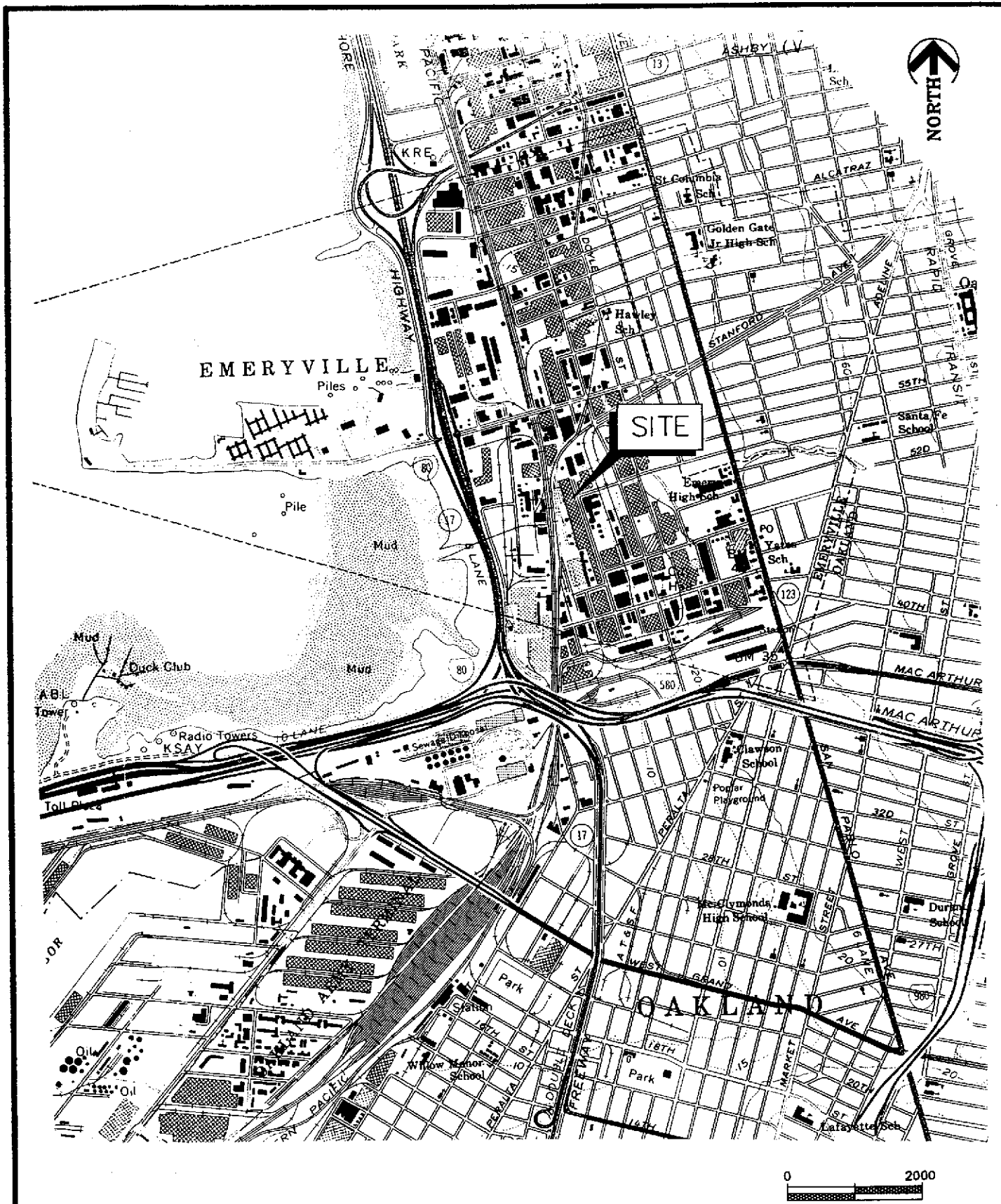


Susan Gahry, P.E.
Senior Chemical Engineer

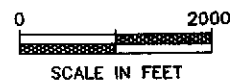
cc: Brian Oliva - Alameda County Health Agency
Carolyn Owen - Chiron Corporation
George Warren - Emeryville Fire Department
David Edgar - DPR Construction, Inc.

i:\proj\30113\ustremov.rpt





SOURCE: USGS 7.5 MINUTE SERIES TOPOGRAPHIC MAP OF OAKLAND WEST, CALIFORNIA DATED 1959, (PHOTOREMSED 1980).



CHIRON CORPORATION
EMERYVILLE, CALIFORNIA



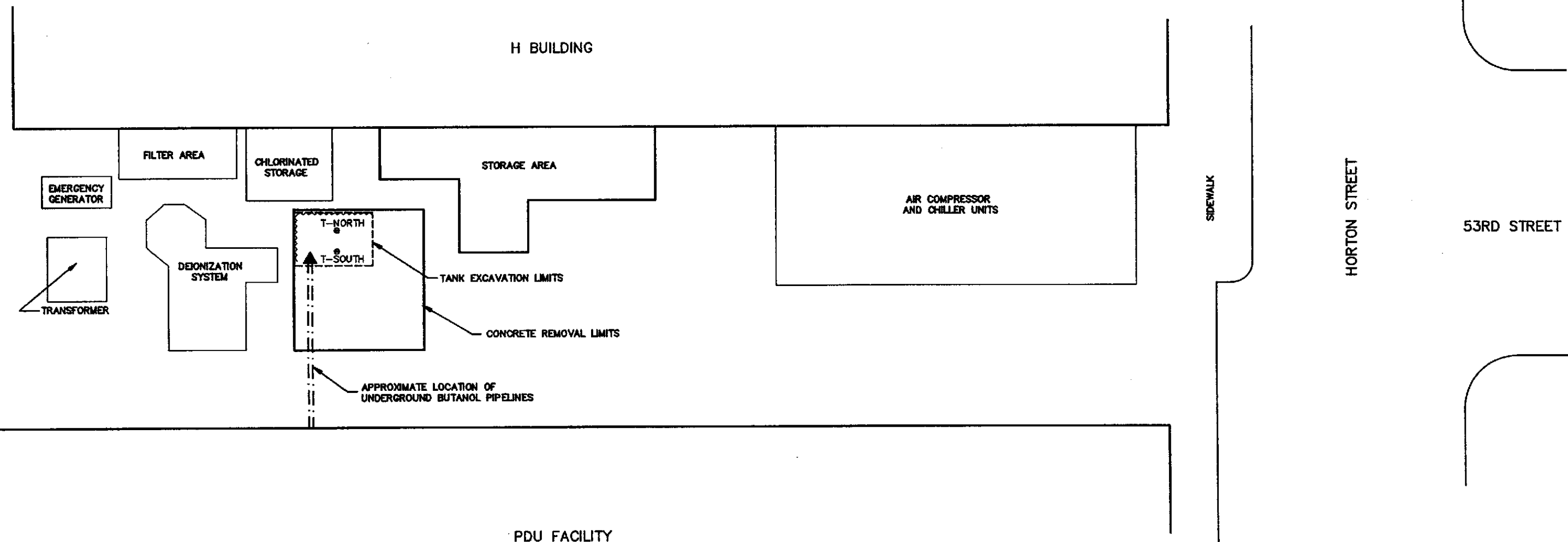
LAW/CRANDALL, INC.

SITE LOCATION MAP
CHIRON CORPORATION
EMERYVILLE, CALIFORNIA

JOB NO. 2123-30113-1

FIGURE 1

C:\DWGS\CHIRON\30113\F1 M.A.H. R11 12/3/93



LEGEND

- ⊗ SAMPLE COLLECTION LOCATION
- ~~~~ TANK PIT SHORING
- T-NORTH SOIL SAMPLE IDENTIFICATION
- ▲ APPROXIMATE PIPE PRESSURE TEST LOCATION

NOTE: EXCAVATED SOIL WAS STOCKPILED IN THE PARKING LOT LOCATED ON THE NORTH END OF HORTON STREET.

SOURCE: DPR CONSTRUCTION SITE DEMOLITION PLAN, DRAWING NO. D1, DATED 8/30/93.



CHIRON CORPORATION
EMERYVILLE, CALIFORNIA



LAW/CRANDALL, INC.

SITE VICINITY SKETCH
CHIRON CORPORATION
EMERYVILLE, CALIFORNIA

JOB NO. 2123-30113-1 FIGURE 2

C:\DWG\CHIRON\30113F2 M.A.H. R11 12/7/93

**ATTACHMENT A
BAAQMD WRITTEN NOTICE**



BAY AREA AIR QUALITY MANAGEMENT DISTRICT

939 ELLIS STREET
SAN FRANCISCO, CALIFORNIA 94109
(415) 771-6000

REGULATION 8, RULE 40 Aeration of Contaminated Soil and Removal of Underground Storage Tanks

NOTIFICATION FORM

Removal or Replacement of Tanks
 Excavation of Contaminated Soil

SITE INFORMATION

SITE ADDRESS 4560 Horton Street
 CITY, STATE Emeryville, CA ZIP 94608
 OWNER NAME Chiron Corporation
 SPECIFIC LOCATION OF PROJECT PDU Yard Underground Butanol Tanks

TANK REMOVAL
 SCHEDULED STARTUP DATE 11/15/93
 VAPORS REMOVED BY:
 WATER WASH
 VAPOR FREEING (CO²)
 VENTILATION

CONTAMINATED SOIL EXCAVATION
 SCHEDULED STARTUP DATE _____
 STOCKPILES WILL BE COVERED? YES _____ NO _____
 ALTERNATIVE METHOD OF AERATION (DESCRIBE BELOW):

 (MAY REQUIRE PERMIT)

CONTRACTOR INFORMATION

NAME Law/Crandall Inc. CONTACT Susan Gahry
 ADDRESS 875 Battery Street PHONE (415) 834-2040
 CITY, STATE, ZIP San Francisco CA 94111

CONSULTANT INFORMATION (IF APPLICABLE)

NAME URS Consultants CONTACT Ken Eichstaedt
 ADDRESS 100 California Street, Suite 500 PHONE (415) 774-2700
 CITY, STATE, ZIP San Francisco CA 94111

FOR OFFICE USE ONLY

DATE RECEIVED FAX _____ BY _____
 DATE POSTMARKED _____ BY (init.) _____
 CC: INSPECTOR NO. _____ DATE _____ BY _____
 UPDATE: CONTACT NAME _____ DATE _____ BY (init.) _____
 BAAQMD N # _____ DATA ENTRY _____ BY (init.) _____

**ATTACHMENT B
TANK HAZARDOUS WASTE MANIFEST**

Please print or type. Form designed for use on elite (12-pitch typewriter).

| | | | | | | | |
|--|--|---|----------------|---|--------------|--|--|
| UNIFORM HAZARDOUS WASTE MANIFEST | | 1. Generator's US EPA ID No. <i>CA1D10146181616141613213191415</i> | | Manifest Document No. <i>1 of 1</i> | | 2. Page 1 Information in the shaded areas is not required by Federal law. | |
| 3. Generator's Name and Mailing Address <i>CHIRON CORPORATION 4560 HORTON ST., EMERYVILLE CA 94608</i> | | | | ATTN: ELLIOTT EASTON | | A. State Manifest Document Number <i>90713945</i> | |
| 4. Generator's Phone (510) <i>420-3398</i> | | | | | | B. State Generator's ID | |
| 6. Transporter 1 Company Name <i>ERICKSON INC</i> | | 6. US EPA ID Number <i>CA1D101094663912</i> | | C. State Transporter's ID <i>402964</i> | | D. Transporter's Phone <i>510 2351393</i> | |
| 7. Transporter 2 Company Name | | 8. US EPA ID Number | | E. State Transporter's ID | | F. Transporter's Phone | |
| 9. Designated Facility Name and Site Address <i>ERICKSON INC 255 PARK BLVD RICHMOND, CA 94401</i> | | | | 10. US EPA ID Number <i>CA1D101094663912</i> | | G. State Facility's ID | |
| | | | | | | H. Facility's Phone | |
| 11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number) | | | 12. Containers | 13. Total Quantity | 14. Unit | 1. Waste No. | |
| a. RESIDUE BUTANOL TANKS | | | No. | Type | WI/Vol | State | |
| NON-FLAM HAZARDOUS WASTE SOLID | | | <i>012</i> | <i>TP</i> | <i>01200</i> | EPA/Other <i>P</i> | |
| b. | | | | | | State | |
| c. | | | | | | EPA/Other | |
| d. | | | | | | State | |
| | | | | | | EPA/Other | |
| 3. Additional Descriptions for Materials Listed Above | | | | K. Handling Codes for Wastes Listed Above | | | |
| <i>TWO EMPTY 550 GAL TANKS LAST CONTAINING BUTANOL. TANK INERTED WITH DRY ICE FOR TRANSPORT</i> | | | | a. | | | |
| <i>Site - 2 Empty storage tanks 12612, 12613</i> | | | | b. | | | |
| | | | | c. | | | |
| | | | | d. | | | |
| 16. Special Handling Instructions and Additional Information <i>24 HR EMERGENCY CONTACT CHEMTREC 1-800-424-9300</i> | | | | | | | |
| 18. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford. | | | | | | | |
| Printed/Typed Name <i>ELLIOTT F EASTON</i> | | | | Signature <i>[Signature]</i> | | Month Day Year <i>11/22/93</i> | |
| 17. Transporter 1 Acknowledgement of Receipt of Materials | | | | | | | |
| Printed/Typed Name <i>DAVID BUNCE</i> | | | | Signature <i>[Signature]</i> | | Month Day Year <i>11/22/93</i> | |
| 18. Transporter 2 Acknowledgement of Receipt of Materials | | | | | | | |
| Printed/Typed Name | | | | Signature | | Month Day Year | |
| 19. Discrepancy Indication Space | | | | | | | |
| 20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. | | | | | | | |
| Printed/Typed Name | | | | Signature | | Month Day Year | |

392-7
24-8
FOR ALL
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TRANSPORTER
FACILITY

Do Not Write Below This Line

White: TSDF SENDS THIS COPY TO DOHS WITHIN 30 DAYS
To: P.O. Box 3000, Sacramento, CA 95812

ATTACHMENT C
LABORATORY RESULTS AND CHAIN-OF CUSTODY
DOCUMENTATION



Superior Precision Analytical, Inc.

1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

LAW/CRANDALL S.F.
Attn: CORY RATHMAN

Project 2123-30113-1
Reported 23-November-1993

Alcohols and Ketones by Modified Method 8015

Chronology

Laboratory Number 57351

| Identification | Sampled | Received | Extracted | Analyzed | Run # | Lab # |
|----------------|----------|----------|-----------|----------|-------|-------|
| T-SOUTH | 11/22/93 | 11/22/93 | 11/22/93 | 11/23/93 | | 1 |
| T-NORTH | 11/22/93 | 11/22/93 | 11/22/93 | 11/23/93 | | 2 |



Superior Precision Analytical, Inc.

1555 Burke, Unit I ▪ San Francisco, California 94124 ▪ (415) 647-2081 / fax (415) 821-7123

LAW/CRANDALL S.F.
Attn: CORY RATHMAN

Project 2123-30113-1
Reported 23-November-1993

Alcohols and Ketones by Modified Method 8015

| Laboratory Number | Sample Identification | Matrix |
|-------------------|-----------------------|--------|
| 57351- 1 | T-SOUTH | Soil |
| 57351- 2 | T-NORTH | Soil |

RESULTS OF ANALYSIS

Laboratory Number: 57351- 1 57351- 2

| | | |
|----------------|-------|-------|
| n-Butanol: | ND<2 | ND<2 |
| Concentration: | mg/kg | mg/kg |



Superior Precision Analytical, Inc.

1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

Alcohols and Ketones by Modified Method 8015 Quality Assurance and Control Data - Soil

Laboratory Number 57351

| Compound | Method Blank (mg/kg) | RL (mg/kg) | Spike Recovery (%) | Limits (%) | RPD (%) |
|-------------------------|----------------------------|---------------|--------------------------|---------------|------------|
| Ethanol: | ND<2 | 2 | 106/103 | 50-130 | 3% |
| Methyl-tert-Butylether: | ND<10 | 10 | 97/100 | 50-130 | 3% |
| n-Butanol: | ND<2 | 2 | | | |
| Methyl-iso-Butylketone: | ND<6 | 6 | 101/105 | 50-130 | 4% |

Definitions:

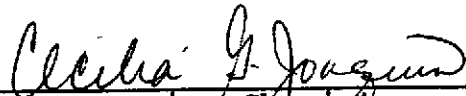
ND = Not Detected

RPD = Relative Percent Difference

RL = Reporting Limit

mg/kg = Parts per million (ppm)

QC File No. 57351


Senior Chemist
Account Manager

CHAIN OF CUSTODY RECORD

BCA Log Number

5/39

| Client name LAW/CRANDALL | | | Project or PO# 2123-30113-1 | | Analyses required EPA MD8 8015 (AUX) | | | | | | |
|---|-----------------|----------------|---|--------------------------------------|--|----------|--|--|--|--|----------------------------------|
| Address 875 BATTERY STREET | | | Phone # (415) 834-2040 | | | | | | | | |
| City, State, Zip SAN FRANCISCO CA 94111 | | | Report attention CORY RATHMAN | | | | | | | | |
| Lab Sample number | Date sampled | Time sampled | Type* See key below | Sampled by | Number of containers | Remarks | | | | | |
| | | | | CLP | | | | | | | |
| | 11/22/93 | 3:20 PM | SO | XXXXXXXXXX T-SOUTH | 1 | X | | | | | ** REPORT ETANOL ONLY !!! |
| | 11/22/93 | 3:35 PM | SO | T-NORTH | 1 | X | | | | | ** 24 HR RUSH |

RUSH

Please initial: **CLP**

Samples Stored in ice **Yes**

Appropriate containers **Yes**

Samples preserved **NA**

VOA's without hood **NA**

Comments:

| Signature | Print Name | Company | Date | Time |
|---------------------------|---------------------------|---------------------|-----------------|----------------|
| <i>Cory L. Rathman</i> | CORY L. RATHMAN | LAW/CRANDALL | 11/22/93 | 3:50 PM |
| <i>T. Berry</i> | TOM BOURNE | AERO | 11/22/93 | 3:50 |
| <i>Hugo Salazar</i> | HUGO SALAZAR | AERO | 11/22 | 6:25 |
| <i>Cecilia G. Joaquin</i> | Cecilia G. Joaquin | Superior Lab | 11/22/93 | 6:25 pm |

BC ANALYTICAL

- 1255 Powell Street, Emeryville, CA 94608 (510) 428-2300
- 801 Western Avenue, Glendale, CA 91201 (818) 247-5737
- 1200 Gene Autry Way, Anaheim, CA 92805 (714) 978-0113

Note: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client's expense.

Disposal arrangements: _____

*KEY: WW—Wastewater SU—Surface Water SO—Soil
 SL—Sludge PE—Petroleum OT—Other
 NA—Nonaqueous GW—Groundwater AQ—Aqueous

ATTACHMENT D
URS REPORT

URS

A PROFESSIONAL SERVICES ORGANIZATION

December 22, 1993

URS CONSULTANTS, INC.
 100 CALIFORNIA STREET, SUITE 500
 SAN FRANCISCO, CALIFORNIA 94111-4529
 TEL: (415) 774-2700
 FAX: (415) 398-1904

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 COLUMBUS
 LOUISVILLE
 PARANJUS
 AKRON
 BUFFALO
 EAST HARTFORD
 NEW ORLEANS
 RALEIGH
 ATLANTA
 BOSTON

Ms. Eileen Flynn
 Environmental Health and Safety
 Chiron Corporation
 4560 Horton Street
 Emeryville, California 94608-2916

Subject: **Environmental Investigation Results
 PDU Building Butanol Tanks and CMF Loading Dock
 Chiron Corporation
 Emeryville, California**

43-66436.04

Dear Ms. Flynn:

This letter presents the results of URS Consultants, Inc. (URS) environmental investigations related to the Chiron Corporation's (Chiron) removal of two butanol tanks adjacent to the PDU Building and the excavation of soil for the CMF building loading dock improvements. URS assessed the environmental condition of soil from both areas.

1.0 ENVIRONMENTAL INVESTIGATIONS

Two 688-gallon butanol underground storage tanks located between the PDU Building and Building H were removed as part of the PDU Building fermenter improvements. Prior to removal of the two tanks, all of the fill material surrounding the tanks was excavated and stockpiled by DPR Construction. Chiron, DPR Construction, and Law/Crandle, Inc. were responsible for health and safety monitoring activities during the tank removal and confirmation sample collection from the bottom of the tank excavation.

Soil from the CMF loading dock improvements has been stockpiled on-site since August 1993 when construction of a new loading dock began. The objectives of the environmental portion of these investigations were:

- To assess the concentrations of petroleum hydrocarbons and volatile organic compounds in the excavated fill material from the two tanks;
- To assess the concentration of benzene, toluene, ethylbenzene, and xylenes in soil excavated and stockpiled as part of the CMF loading dock improvements; and
- Provide the necessary sampling/analysis and documentation for off-site disposal of the material from the tank removals and the CMF loading dock improvements.

Ms. Eileen Flynn
December 22, 1993

Page 2 of 3

2.0 FIELD WORK

2.1 Butanol Tanks

Prior to conducting both investigations a health and safety plan was prepared for URS' sampling activities in conformance with the California Occupational Safety and Health Administration Regulation 1910.120. A description of both investigation activities is provided below.

On November 22, 1993 two 688-gallon butanol tanks were removed from the area between the PDU Building and Building H. DPR construction excavated the material surrounding both of the tanks to expose them for removal. The excavated fill material was stockpiled on the northern side of the Chiron facility. Both of the tanks had dry ice placed in them to displace a potentially explosive atmosphere. Chiron monitored the lower explosive limit (LEL) of the tanks with a GasTech Model 1314 combustible gas indicator (CGI).

Upon arrival of Inspector George Warren of the Emeryville Fire Department, the two tanks were removed by DPR Construction. Inspector Warren assessed that neither of the tanks indicated the presence of holes, rust, or signs of stress and, therefore, could be transported off-site for disposal. After both tanks had been removed Mr. Corey Rathman of Law/Crandle, Inc. collected two 2-point composite samples from the bottom of the excavation (one composite from each end of the tanks). The soil samples were collected under the supervision of Ms. Susan Hugo of the Alameda County Health Department.

During a previous investigation of the butanol tanks (URS letter report dated June 1, 1993), four soil borings were advanced at each corner of the concrete tank pad that covered both of the tanks. Soil samples were collected from the borings and analyzed for butanol (EPA Test Method 8015), petroleum hydrocarbons (LUFT Manual, 1989), and metals (EPA Test Method 3050). Because the laboratory results indicated either non-detectable concentrations or concentrations of constituents acceptable to the landfill, these analyses were not duplicated as part of this investigation.

URS collected one 4-point composite sample from the excavated stockpiled material. The sample was composited in the field and placed in a stainless steel container, which was sealed with Teflon® sheeting and plastic end caps. The sample was placed on ice and transported under chain-of-custody protocol to Curtis & Tompkins, Ltd., a State-certified laboratory. The sample was analyzed for total recoverable petroleum hydrocarbons (TRPH; EPA Test Method 418.1) and volatile organic compounds (VOCs; EPA Test Method 8240).

2.2 CMF Loading Dock

URS conducted a soil investigation of the CMF loading dock in August 1993 (URS letter report August 30, 1993). At that time, the landfill did not indicate that benzene, toluene, ethylbenzene, and xylenes (BTEX) analyses were needed for disposal. However, because it was requested for the butanol tank

URS

A PROFESSIONAL SERVICES ORGANIZATION

Ms. Eileen Flynn
December 22, 1993

Page 3 of 3

material disposal, URS and Chiron decided to collect a sample from the stockpiled CMF loading dock material and have it analyzed for BTEX. A 4-point composite sample was collected and placed in a stainless steel container sealed with Teflon® and plastic end caps. The sample was placed on ice and transported under strict chain-of-custody protocol to Curtis & Tompkins, Ltd, a State-certified laboratory for the analyses performed.

3.0 ANALYTICAL RESULTS

The sample from the excavated butanol tanks material indicated 240 parts per billion (ppb) of 2-butanone, a common oxygenated solvent, and 40 parts per million (ppm) of TRPH. The CMF loading dock sample did not indicate the presence of BTEX above the instrument detection limits (IDLs).

4.0 CONCLUSIONS AND RECOMMENDATIONS

Forward Landfill (Forward) of Stockton, California has reviewed the analytical data for both soil stockpiles and has indicated that the soil meets their disposal criteria. Two waste characterization forms were sent to Chiron on December 13, 1993 for approval and signature. Upon receipt of the two signed copies of the waste characterization form, Forward will accept the material for disposal.

If you have any questions, please do not hesitate to contact the undersigned at 415/774-2700.

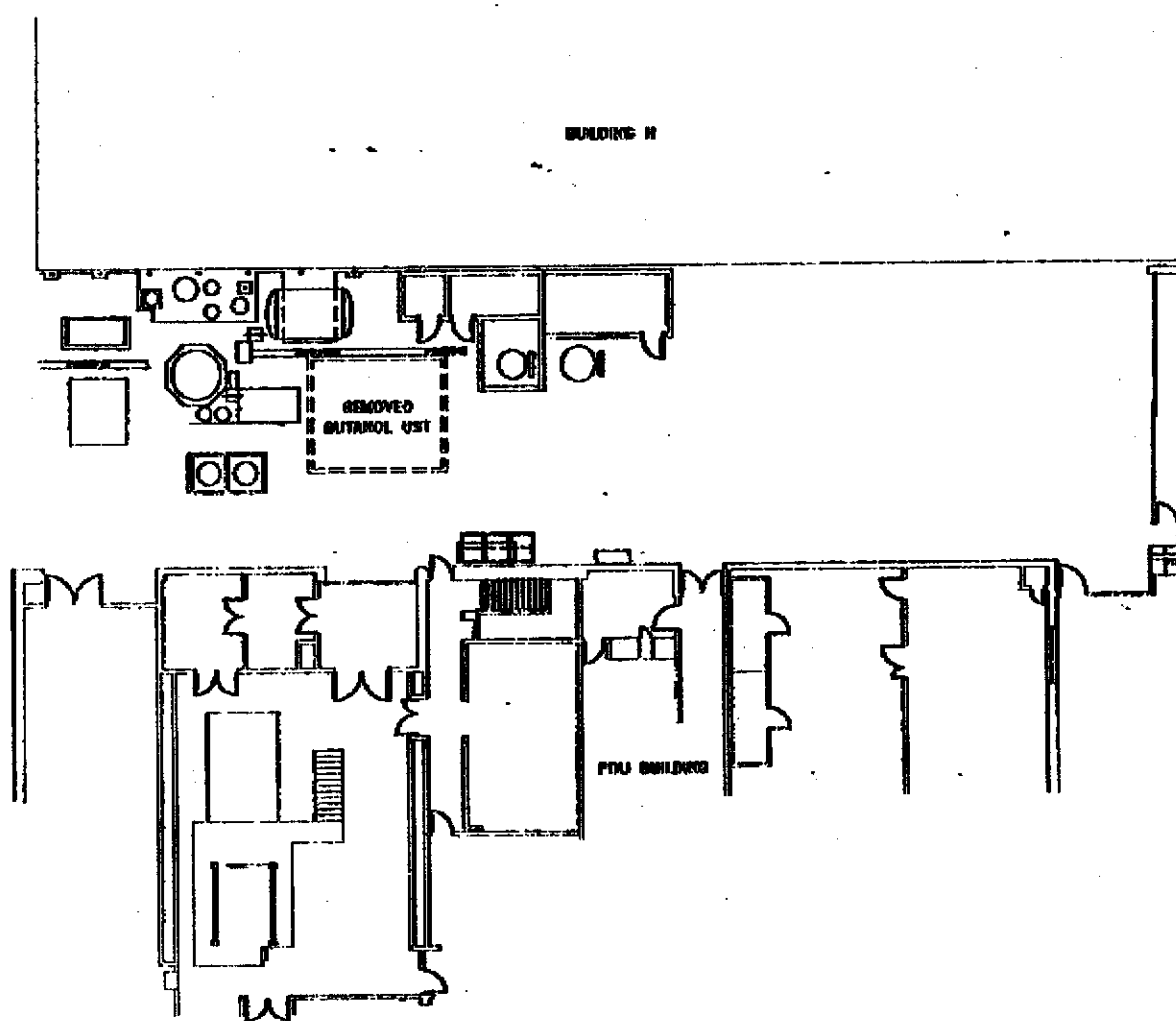
Sincerely,
URS CONSULTANTS, INC.


Hollis E. Phillips
Geologist


Kenneth E. Eichstaedt, P.E.
Project Civil Engineer

Attachments: Figure 1 - Butanol Tank Locations
Curtis & Tompkins, Ltd. Analytical Results dated 12/08/93 (Lab ID 113308) and
12/09/93 (Lab ID 113286)

cc: Kurt Vorheis/Chiron
George Pfeffer/DPR Construction
Ken Remmers/DPR Construction
Bill Ritthaler/URS
project file-RF



Source:
GEZ Architects/Engineers

| | | | | | | | |
|--|--------------|------------|--------------|----------|--|---|-------------|
| | PROJECT NO.: | 68436.04 | DATE: | 12/22/93 | OFFICE CORPORATION EMERYVILLE, CALIFORNIA | PDU Building Butanol Tanks and CMF Loading Dock Environmental Investigation Results | FIGURE 1 |
| | FILE NAME: | PO4CMF.DWG | SCALE: | NIS | | | |
| | DESIGNED BY: | REP | DRAWN BY: | AS | | | |
| | CHECKED BY: | NEE | APPROVED BY: | NEE | | | |



Curtis & Tompkins, Ltd., Analytical Laboratories. Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

URS CONSULTANTS

| |
|-----------------|
| DEL 14 '93 |
| JOB # |
| Org to |
| Correspondence |
| Budget Contract |
| Order to |
| |
| |
| |

ANALYTICAL REPORT

Prepared for:

URS Consultants, Inc.
100 California Street
Suite 500
San Francisco, CA 94111

Date: 08-DEC-93
 Lab Job Number: 113308
 Project ID: 43-66436.04
 Location: Chiron

Reviewed by:

[Handwritten signature]

Reviewed by:

[Handwritten signature]

This package may be reproduced only in its entirety.



LABORATORY NUMBER: 113308-001
 CLIENT: URS CONSULTANTS, INC.
 PROJECT ID: 43-66436.04
 LOCATION: CHIRON
 SAMPLE ID: CMF

DATE SAMPLED: 11/22/93
 DATE RECEIVED: 11/22/93
 DATE ANALYZED: 12/06/93
 DATE REPORTED: 12/08/93

EPA 8240: Volatile Aromatic Hydrocarbons in Soils & Wastes
 Extraction Method: EPA 5030 - Purge & Trap

| COMPOUND | Result ug/Kg | Reporting Limit ug/Kg |
|--------------------------|-----------------|-----------------------------|
| Benzene..... | ND | 5 |
| Toluene..... | ND | 5 |
| Ethyl Benzene..... | ND | 5 |
| Total Xylenes..... | ND | 5 |
| Chlorobenzene..... | ND | 5 |
| 1,3-Dichlorobenzene..... | ND | 5 |
| 1,4-Dichlorobenzene..... | ND | 5 |
| 1,2-Dichlorobenzene..... | ND | 5 |

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

§ SURROGATE RECOVERY

85



LABORATORY NUMBER: 113308 METHOD BLANK
 CLIENT: URS CONSULTANTS, INC.
 PROJECT ID: 43-66436.04
 LOCATION: CHIRON

DATE SAMPLED: N/A
 DATE RECEIVED: N/A
 DATE ANALYZED: 12/06/93
 DATE REPORTED: 12/08/93

EPA 8240: Volatile Aromatic Hydrocarbons in Soils & Wastes
 Extraction Method: EPA 5030 - Purge & Trap

| COMPOUND | Result ug/Kg | Reporting Limit ug/Kg |
|--------------------------|-----------------|-----------------------------|
| Benzene..... | ND | 5 |
| Toluene..... | ND | 5 |
| Ethyl Benzene..... | ND | 5 |
| Total Xylenes..... | ND | 5 |
| Chlorobenzene..... | ND | 5 |
| 1,3-Dichlorobenzene..... | ND | 5 |
| 1,4-Dichlorobenzene..... | ND | 5 |
| 1,2-Dichlorobenzene..... | ND | 5 |

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

† SURROGATE RECOVERY



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710. Phone (510) 486-0900

ANALYTICAL REPORT

Prepared for:

URS Consultants, Inc.
 100 California Street
 Suite 500
 San Francisco, CA 94111

Date: 07-DEC-93
 Lab Job Number: 113286
 Project ID: 43-66436.04
 Location: Chiron

Reviewed by:

[Handwritten signature]

Reviewed by:

[Handwritten signature]

This package may be reproduced only in its entirety.



LABORATORY NUMBER: 113286
 CLIENT: URS CONSULTANTS
 PROJECT ID: 43-66436.04
 LOCATION: CHIRON

DATE SAMPLED: 11/22/93
 DATE RECEIVED: 11/22/93
 DATE EXTRACTED: 11/30/93
 DATE ANALYZED: 11/30/93
 DATE REPORTED: 12/07/93

EPA 418.1: Total Recoverable Petroleum Hydrocarbons by IR

| LAB ID | CLIENT ID | RESULT (mg/Kg) | REPORTING LIMIT (mg/Kg) |
|--------------|-----------|-------------------|-------------------------------|
| 113286-001 | PDU | 40 | 10 |
| METHOD BLANK | | ND | 10 |

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

| | |
|-------------|----|
| RPD, % | 1 |
| RECOVERY, % | 95 |



Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 113286-001
 CLIENT: URS CONSULTANTS
 PROJECT ID: 43-66436.04
 LOCATION: CHIRON
 SAMPLE ID: PDU

DATE SAMPLED: 11/22/93
 DATE RECEIVED: 11/22/93
 DATE ANALYZED: 12/01/93
 DATE REPORTED: 12/07/93

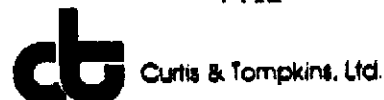
EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES

| COMPOUND | Result (ug/Kg) | Reporting Limit (ug/Kg) |
|---------------------------|-------------------|----------------------------|
| Chloromethane | ND | 10 |
| Bromomethane | ND | 10 |
| Vinyl chloride | ND | 10 |
| Chloroethane | ND | 10 |
| Methylene chloride | ND | 20 |
| Acetone | ND | 20 |
| Carbon disulfide | ND | 5 |
| Trichlorofluoromethane | ND | 5 |
| 1,1-Dichloroethane | ND | 5 |
| 1,1-Dichloroethane | ND | 5 |
| trans-1,2-Dichloroethene | ND | 5 |
| cis-1,2-Dichloroethene | ND | 5 |
| Chloroform | ND | 5 |
| Freon 113 | ND | 20 |
| 1,2-Dichloroethane | ND | 5 |
| 2-Butanone | 240 | 10 |
| 1,1,1-Trichloroethane | ND | 5 |
| Carbon tetrachloride | ND | 5 |
| Vinyl acetate | ND | 50 |
| Bromodichloromethane | ND | 5 |
| 1,2-Dichloropropane | ND | 5 |
| cis-1,3-Dichloropropene | ND | 5 |
| Trichloroethene | ND | 5 |
| Dibromochloromethane | ND | 5 |
| 1,1,2-Trichloroethane | ND | 5 |
| Benzene | ND | 5 |
| trans-1,3-Dichloropropene | ND | 5 |
| Bromoform | ND | 5 |
| 2-Hexanone | ND | 10 |
| 4-Methyl-2-pentanone | ND | 10 |
| 1,1,2,2-Tetrachloroethane | ND | 5 |
| Tetrachloroethene | ND | 5 |
| Toluene | ND | 5 |
| Chlorobenzene | ND | 5 |
| Ethyl benzene | ND | 5 |
| Styrene | ND | 5 |
| Total xylenes | ND | 5 |

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: SURROGATE RECOVERIES

| | |
|-----------------------|-------|
| 1,2-Dichloroethane-d4 | 105 % |
| Toluene-d8 | 111 % |
| Bromofluorobenzene | 95 % |



LABORATORY NUMBER: 113286 METHOD BLANK
 CLIENT: URS CONSULTANTS
 PROJECT ID: 43-66436.04
 LOCATION: CHIRON

DATE SAMPLED: N/A
 DATE RECEIVED: N/A
 DATE ANALYZED: 12/02/93
 DATE REPORTED: 12/07/93

EPA METHOD 8240: VOLATILE ORGANICS IN SOILS & WASTES

| COMPOUND | Result (ug/Kg) | Reporting Limit (ug/Kg) |
|---------------------------|----------------|-------------------------|
| Chloromethane | ND | 10 |
| Bromomethane | ND | 10 |
| Vinyl chloride | ND | 10 |
| Chloroethane | ND | 10 |
| Methylene chloride | ND | 20 |
| Acetone | ND | 20 |
| Carbon disulfide | ND | 5 |
| Trichlorofluoromethane | ND | 5 |
| 1,1-Dichloroethene | ND | 5 |
| 1,1-Dichloroethane | ND | 5 |
| trans-1,2-Dichloroethene | ND | 5 |
| cis-1,2-Dichloroethene | ND | 5 |
| Chloroform | ND | 5 |
| Freon 113 | ND | 20 |
| 1,2-Dichloroethane | ND | 5 |
| 2-Butanone | ND | 10 |
| 1,1,1-Trichloroethane | ND | 5 |
| Carbon tetrachloride | ND | 5 |
| Vinyl acetate | ND | 50 |
| Bromodichloromethane | ND | 5 |
| 1,2-Dichloropropane | ND | 5 |
| cis-1,3-Dichloropropene | ND | 5 |
| Trichloroethene | ND | 5 |
| Dibromochloromethane | ND | 5 |
| 1,1,2-Trichloroethane | ND | 5 |
| Benzene | ND | 5 |
| trans-1,3-Dichloropropene | ND | 5 |
| Bromoform | ND | 5 |
| 2-Hexanone | ND | 10 |
| 4-Methyl-2-pentanone | ND | 10 |
| 1,1,2,2-Tetrachloroethane | ND | 5 |
| Tetrachloroethene | ND | 5 |
| Toluene | ND | 5 |
| Chlorobenzene | ND | 5 |
| Ethyl benzene | ND | 5 |
| Styrene | ND | 5 |
| Total xylenes | ND | 5 |

ND = Not detected at or above reporting limit.

QA/QC SUMMARY: SURROGATE RECOVERIES

| | |
|-----------------------|-------|
| 1,2-Dichloroethane-d4 | 103 % |
| Toluene-d8 | 98 % |
| Bromofluorobenzene | 97 % |

Curtis & Tompkins, Ltd



Curtis & Tompkins, Ltd.

8240 Laboratory Control Sample Report

Lab No: QC53363
 Date Analyzed: 01-DEC-93
 Matrix: WATER
 Batch No: 11679 939480

LCS Datafile: >BL103

Operator: NCI

| Compound | Instrdg | SpikeAmt | % Rec | Limits |
|--------------------|---------|----------|-------|---------|
| 1,1-Dichloroethene | 48.48 | 50 | 97 % | 61-145% |
| Trichloroethene | 46.18 | 50 | 92 % | 71-120% |
| Benzene | 47.41 | 50 | 95 % | 76-127% |
| Toluene | 45.05 | 50 | 90 % | 76-125% |
| Chlorobenzene | 51.67 | 50 | 103 % | 75-130% |

Surrogate Recoveries

| | | | | |
|-----------------------|-------|----|-------|---------|
| 1,2-Dichloroethane-d4 | 51.94 | 50 | 104 % | 76-114% |
| Toluene-d8 | 51.87 | 50 | 104 % | 88-110% |
| Bromofluorobenzene | 48.16 | 50 | 96 % | 86-115% |

Results within specifications - PASS

CW 12/2/93



**VERBAL ADDITIONS/CANCELLATIONS TO ANALYSIS
REQUEST SHEET**

Client: URS Date: 11/28/93

Requested By: Hollis Time: AM PM

Recorded By: LB

| Current Lab ID (Previous Lab ID) | Client ID | Circle Matrix | Specify add or cancel | Analysis | Due Date |
|-------------------------------------|-----------|---|-----------------------------|----------|----------|
| 113286-1 () | PDU | water <u>soil</u> waste oil other | CANCEL | BUTANOL | |
| 113308-1 (113286-2) | CMF | water <u>soil</u> waste oil other | CANCEL - 8010 ADD - 8020 | | |
| () | | water soil waste oil other | | | |
| () | | water soil waste oil other | | | |
| () | | water soil waste oil other | | | |
| () | | water soil waste oil other | | | |



100 California St., Ste. 600 San Francisco, CA 94111
FAX: (415) 398-1904

CHAIN OF CUSTODY RECORD

| PROJECT NO: | | SITE NAME: | | NUMBER OF CONTAINERS | ANALYSIS REQUESTED | | | | REMARKS |
|------------------------------|------|------------|-------|---|------------------------------|-------|----------|--------------------------|----------------|
| SAMPLERS: | | | | | | | | | |
| STATION NUMBER | DATE | TIME | COMP | GRAB | SAMPLE NUMBER | | | | |
| 43-66436.04 | | CHIRON | | | | | | | |
| H. PHILLIPS | | | | | | | | | |
| 1 | PDU | 11-22-94 | 14:50 | X | PDU-1 | 1 | X | X | |
| 2 | CMF | 11-22-94 | 15:01 | X | CMF | 1 | X | X | new CT# 113308 |
| RELINQUISHED BY: (Signature) | | DATE | TIME | RECEIVED BY: (Signature) | RELINQUISHED BY: (Signature) | DATE | TIME | RECEIVED BY: (Signature) | |
| H. Phillips | | 11-22-94 | 15:12 | | | | | | |
| RELINQUISHED BY: (Signature) | | DATE | TIME | RECEIVED BY: (Signature) | RELINQUISHED BY: (Signature) | DATE | TIME | RECEIVED BY: (Signature) | |
| RELINQUISHED BY: (Signature) | | DATE | TIME | RECEIVED FOR LABORATORY BY: (Signature) | DATE | TIME | REMARKS: | | |
| | | | | W. K. Nozzio | 11/22 | 15:12 | | | |

Laboratory Copy
White

File Copy
Yellow

Project Copy
Pink



**VERBAL ADDITIONS/CANCELLATIONS TO ANALYSIS
REQUEST SHEET**

Client: URS Date: 11/23/93

Requested By: Hollis Time: AM PM

Recorded By: LB

| Current Lab ID (Previous Lab ID) | Client ID | Circle Matrix | Specify add or cancel | Analysis | Due Date |
|-------------------------------------|-----------|---|-----------------------------|----------|----------|
| 113286-1 () | PDU | water <u>soil</u> waste oil other | CANCEL | BUTANOL | |
| 113308-1 (113286-2) | CMF | water <u>soil</u> waste oil other | CANCEL - 8010 ADD - 8020 | | |
| () | | water soil waste oil other | | | |
| () | | water soil waste oil other | | | |
| () | | water soil waste oil other | | | |
| () | | water soil waste oil other | | | |

ATTACHMENT E
SOIL NON-HAZARDOUS WASTE MANIFESTS

FORWARD INC.

JOB ACCEPTANCE NO. [REDACTED]

P. 2

NON-HAZARDOUS WASTE MANIFEST

WASTE TREATMENT AND DISPOSAL FACILITY

TO BE COMPLETED BY THE GENERATOR

GENERATOR
 CHIRON CORPORATION
MAILING ADDRESS
 4560 HURON STREET
 EMERYVILLE, CA 94608
PHONE
 510/420-3469
CONTACT PERSON
 EILEEN FLYNN
SIGNATURE OF AUTHORIZED AGENT / TITLE
 * Eileen Flynn

REQUIRED PERSONAL PROTECTIVE EQUIPMENT:
 GLOVES GOGGLES RESPIRATOR HARD HAT
 TY-VEK OTHER

SPECIAL HANDLING PROCEDURES:

WASTE TYPE:

| | |
|---|---|
| <input type="checkbox"/> TREATMENT SOIL | <input type="checkbox"/> SLUDGE |
| <input type="checkbox"/> DISPOSAL SOIL | <input type="checkbox"/> NON-FRIABLE ASBESTOS |
| <input checked="" type="checkbox"/> CONSTRUCTION SOIL | <input type="checkbox"/> WOOD |
| | <input type="checkbox"/> ASH |
| | <input type="checkbox"/> OTHER |

RECEIVING FACILITY:

FORWARD INC. LANDFILL
 9999 SOUTH AUSTIN ROAD
 MANTECA, CALIFORNIA 95336
 (209) 982-4298 PHONE
 (209) 982-1009 FAX

GENERATING FACILITY:
 CHIRON CORPORATION
 4560 HURON STREET
 EMERYVILLE, CA

NAME: PILES TRAINING # 555
ADDRESS: 275 LEU STREET
 SAN JOSE, CA 95118
PHONE: 408/279-8775
SIGNATURE OF AUTHORIZED AGENT OR DRIVER / DATE:
 * F. J. [Signature] 1/10/94

NOTES:

END DUMP **BOTTOM DUMP** **TRANSFER**
ROLL-OFF(S) **FLAT-BED** **VAN** **DRUMS**

FORWARD INC. LANDFILL

Forward shall have no obligation to accept the waste if weather or other conditions impair the safe and effective disposal of the waste or if the waste impairs the safe and effective operation of the Landfill. Forward shall use reasonable efforts to promptly notify Disposer of its inability to accept the waste for any reason. If Forward's refusal to accept the waste is based on weather or other site conditions, Forward shall notify the Disposer when site conditions are expected to change such that Forward will be able to accept the waste.

REMARKS:

FACILITY TICKET NUMBER:

SIGNATURE OF AUTHORIZED AGENT / DATE:
 *

CUBIC YARDS:

| DISPOSAL METHOD | (TO BE COMPLETED BY FORWARD) | | | | |
|---|------------------------------|-----|--------|-----------|-------|
| | DISPOSE | BIO | AERATE | STOCKPILE | OTHER |
| <input type="checkbox"/> SOIL | | | | | |
| <input type="checkbox"/> SLUDGE | | | | | |
| <input type="checkbox"/> NON-FRIABLE ASBESTOS | | | | | |
| <input type="checkbox"/> WOOD | | | | | |
| <input type="checkbox"/> ASH | | | | | |
| <input type="checkbox"/> OTHER | | | | | |

SCHEDULING MUST BE MADE PRIOR TO 4:00 P.M. THE DAY PRIOR TO EXPECTED ARRIVAL • ANY UNSCHEDULED LOADS ARE SUBJECT TO REFUSAL UPON ARRIVAL. ONGOING DAILY DELIVERIES MUST BE SCHEDULED WITH THE LANDFILL THE DAY BEFORE TO SCHEDULE CALL (209) 982-4298

MANIFEST # 15744

FACILITY REQUIREMENTS

NON-HAZARDOUS WASTE MANIFEST
WASTE TREATMENT AND DISPOSAL FACILITY

FORWARD INC.

JOB ACCEPTANCE NO. [REDACTED]

TO BE COMPLETED BY THE GENERATOR

GENERATOR
CHIRON CORPORATION
MAILING ADDRESS
4560 HURON STREET
CITY, STATE, ZIP
EMERYVILLE, CA 94608
PHONE
510/420-3469
CONTACT PERSON
EILEEN FLYNN
SIGNATURE OF AUTHORIZED AGENT / TITLE: *Eileen Flynn* DATE: _____

REQUIRED PERSONAL PROTECTIVE EQUIPMENT
 GLOVES GOGGLES RESPIRATOR HARD HAT
 TY-VEK OTHER

SPECIAL HANDLING PROCEDURES:

WASTE TYPE:
 TREATMENT SOIL
 DISPOSAL SOIL
 CONSTRUCTION SOIL
 SLUDGE
 NON-FRIABLE ASBESTOS
 WOOD
 ASH
 OTHER

RECEIVING FACILITY:
FORWARD INC. LANDFILL
9999 SOUTH AUSTIN ROAD
MANTECA, CALIFORNIA 95336
(209) 982-4298 PHONE
(209) 982-1009 FAX

GENERATING FACILITY:
CHIRON CORPORATION
11560 HURON STREET
EMERYVILLE, CA

NAME: PILES TRUCKING # 555
ADDRESS: 275 LEO STREET
CITY, STATE, ZIP: SAN JOSE, CA 95112
PHONE: 408/279-8775
SIGNATURE OF AUTHORIZED AGENT OR DRIVER: *E J Perez* DATE: 1/10/94

NOTES: _____ TRUCK NUMBER: _____

END DUMP BOTTOM DUMP TRANSFER
ROLL-OFF(S) FLAT-BED VAN DRUMS

FORWARD INC. LANDFILL
Forward shall have no obligation to accept the waste if weather or other conditions impair the safe and effective disposal of the waste or if the waste impairs the safe and effective operation of the Landfill. Forward shall use reasonable efforts to promptly notify Disposer of its inability to accept the waste for any reason. If Forward's refusal to accept the waste is based on weather or other site conditions, Forward shall notify the Disposer when site conditions are expected to change such that Forward will be able to accept the waste.
REMARKS:
FACILITY TICKET NUMBER:
SIGNATURE OF AUTHORIZED AGENT: _____ DATE: _____

CUBIC YARDS: _____

| DISPOSAL METHOD: | (TO BE COMPLETED BY FORWARD) | | | | |
|---|------------------------------|-----|--------|-----------|-------|
| | DISPOSE | BIO | AERATE | STOCKPILE | OTHER |
| <input type="checkbox"/> SOIL | | | | | |
| <input type="checkbox"/> SLUDGE | | | | | |
| <input type="checkbox"/> NON-FRIABLE ASBESTOS | | | | | |
| <input type="checkbox"/> WOOD | | | | | |
| <input type="checkbox"/> ASH | | | | | |
| <input type="checkbox"/> OTHER | | | | | |

SCHEDULING MUST BE MADE PRIOR TO 4:00 P.M. THE DAY PRIOR TO EXPECTED ARRIVAL • ANY UNSCHEDULED LOADS ARE SUBJECT TO REFUSAL UPON ARRIVAL. ONGOING DAILY DELIVERIES MUST BE SCHEDULED WITH THE LANDFILL THE DAY BEFORE TO SCHEDULE CALL (209) 982-4298

MANIFEST # 15744

FACILITY REQUIREMENTS

**FORWARD
INC.**

JOB ACCEPTANCE NO. [REDACTED]

TO BE COMPLETED BY THE GENERATOR

GENERATOR: **CHIRON CORPORATION**
 ADDRESS: **4560 HORTON ST**
 CITY STATE ZIP: **EMERYVILLE, CA 94608**
 PHONE: **510/420-3465**

SIGNATURE OF AUTHORIZED AGENCY TITLE: *** Eileen Flynn** DATE: _____

WASTE TYPE:
 TREATMENT SOIL
 DISPOSAL SOIL
 CONSTRUCTION SOIL
 SLUDGE
 NON-FRIABLE ASBESTOS
 WOOD
 ASH
 OTHER

GENERATOR FACILITY:
CHIRON CORPORATION
4560 HORTON ST
EMERYVILLE, CA 94608

NAME: **PIRES TRUCKING**
 ADDRESS: **775 LED AVE**
 CITY STATE ZIP: **SAN JOSE, CA 95112**

PHONE: **408/279-8775**
 SIGNATURE OF AUTHORIZED AGENCY OR DRIVER: *** [Signature]** DATE: **1-10-94**

FORWARD INC. LANDFILL
 Forward shall have no obligation to accept the waste if weather or other conditions impair the safe and effective disposal of the waste or if the waste impairs the safe and effective operation of the Landfill. Forward shall use reasonable efforts to promptly notify Disposer of its inability to accept the waste for any reason. If Forward's refusal to accept the waste is based on weather or other site conditions, Forward shall notify the Disposer when site conditions are expected to change such that Forward will be able to accept the waste.

REMARKS: _____
 FACILITY TICKET NUMBER: _____
 SIGNATURE OF AUTHORIZED AGENCY: ***** DATE: _____

REQUIRED PERSONAL PROTECTIVE EQUIPMENT:
 GLOVES GOGGLES RESPIRATOR HARD HAT
 TY-VEK OTHER

SPECIAL HANDLING PROCEDURES:

RECEIVING FACILITY:
FORWARD INC. LANDFILL
9999 SOUTH AUSTIN ROAD
MANTECA, CALIFORNIA 95336
(209) 982-4298 PHONE
(209) 982-1009 FAX

MODE: _____
 TRANSFER: _____
 TRUCK RAIL BARGE TANKER OTHER

| WEIGHT | DISPOSAL METHOD | STORAGE | FORWARD | REMARKS |
|--------------------------|----------------------|---------|---------|---------|
| <input type="checkbox"/> | SOIL | | | |
| <input type="checkbox"/> | SLUDGE | | | |
| <input type="checkbox"/> | NON-FRIABLE ASBESTOS | | | |
| <input type="checkbox"/> | WOOD | | | |
| <input type="checkbox"/> | ASH | | | |
| <input type="checkbox"/> | OTHER | | | |

SCHEDULING MUST BE MADE PRIOR TO 4:00 P.M. THE DAY PRIOR TO EXPECTED ARRIVAL. • ANY UNSCHEDULED LOADS ARE SUBJECT TO REFUSAL UPON ARRIVAL. ONGOING DAILY DELIVERIES MUST BE SCHEDULED WITH THE LANDFILL THE DAY BEFORE TO SCHEDULE CALL (209) 982-4298

MANIFEST # **15742**

FORWARD INC.

JOB ACCEPTANCE NO. [REDACTED]

TO BE COMPLETED BY THE GENERATOR

GENERATOR
CHIRON CORPORATION
 4560 HURTON STREET
 EMERYVILLE, CA 94609
 510/420-3469

REQUIRED PERSONAL PROTECTIVE EQUIPMENT:
 GLOVES GOGGLES RESPIRATOR HARD HAT
 TY-VEK OTHER

SPECIAL HANDLING PROCEDURES:

NAME: **EILEEN FLYNN**
 TITLE: **HORIZONTAL TANK ATTENDANT** DATE: _____
 * *Eileen Flynn*

RECEIVING FACILITY:
FORWARD INC. LANDFILL
 9999 SOUTH AUSTIN ROAD
 MANTECA, CALIFORNIA 95336
 (209) 982-4298 PHONE
 (209) 982-1009 FAX

TREATMENT SOIL
 DISPOSAL SOIL
 CONSTRUCTION SOIL
 SLUDGE
 NON-FRIABLE ASBESTOS
 WOOD
 ASH
 OTHER

GENERATOR
CHIRON CORPORATION
 4560 HURTON STREET
 EMERYVILLE, CA 94609

DESP
PIRES TRUCKING
 275 LEU AVE
 SAN JOSE CA 9512
 408/279-8775

WASTE TYPE: SOIL SLUDGE ASBESTOS WOOD ASH OTHER

SIGNATURE OF AUTHORIZED AGENT OR DRIVER: *Bruce Keith* DATE: **01-10-94**

FORWARD INC. LANDFILL
 Forward shall have no obligation to accept the waste if weather or other conditions impair the safe and effective disposal of the waste or if the waste impairs the safe and effective operation of the Landfill. Forward shall use reasonable efforts to promptly notify Disposer of its inability to accept the waste for any reason. If Forward's refusal to accept the waste is based on weather or other site conditions, Forward shall notify the Disposer when site conditions are expected to change such that Forward will be able to accept the waste.
 REMARKS:
 FACILITY IDENTIFICATION NUMBER:
 SIGNATURE OF AUTHORIZED AGENT OR DRIVER:
 *

| | | | | |
|---|--|--|--|--|
| <input type="checkbox"/> SOIL | | | | |
| <input checked="" type="checkbox"/> SLUDGE | | | | |
| <input type="checkbox"/> NON-FRIABLE ASBESTOS | | | | |
| <input type="checkbox"/> WOOD | | | | |
| <input type="checkbox"/> ASH | | | | |
| <input type="checkbox"/> OTHER | | | | |

SCHEDULING MUST BE MADE PRIOR TO 4:00 P.M. THE DAY PRIOR TO EXPECTED ARRIVAL • ANY UNSCHEDULED LOADS AT SUBJECT TO REFUSAL UPON ARRIVAL. ONGOING DAILY DELIVERIES MUST BE SCHEDULED WITH THE LANDFILL THE DAY BEFORE TO SCHEDULE CALL (209) 982-4298

MANIFEST # 15740

FORWARD
INC.

JOB ACCEPTANCE NO. [REDACTED]

NON-HAZARDOUS WASTE MANIFEST
WASTE TREATMENT AND DISPOSAL FACILITY

TO BE COMPLETED BY THE GENERATOR

GENERATOR:
CHIRON CORPORATION
MAILING ADDRESS:
4560 HORTON STREET
EMERYVILLE CA 94608
PHONE:
510/426-3469
CONTACT PERSON:
EILEEN FLYNN
SIGNATURE OF AUTHORIZED AGENT/TITLE/DATE:
* Eileen Flynn

REQUIRED PPE:
 GLOVES GOGGLES RESPIRATOR HARD HAT
 TY-VEK OTHER

SPECIAL HANDLING PROCEDURES:

WASTE:
 TREATMENT SOIL
 DISPOSAL SOIL
 CONSTRUCTION SOIL
 SLUDGE
 NON-FRIABLE ASBESTOS
 WOOD
 ASH
 OTHER

RECEIVING FACILITY:
FORWARD INC. LANDFILL
9999 SOUTH AUSTIN ROAD
MANTECA, CALIFORNIA 95336
(209) 982-4298 PHONE
(209) 982-1009 FAX

GENERATOR FACILITY:
CHIRON CORPORATION
4560 HORTON STREET
EMERYVILLE, CA 94608
PIPER/TERRILL
ADDRESS:
275 LED STREET
SAN JOSE CA 95122
PHONE:
408/949-8775
SIGNATURE OF AUTHORIZED AGENT OR DRIVER/DATE:
* E J Piper 1/19/95

| | | | | |
|----------------------|--|--|--|--|
| SOIL | | | | |
| SLUDGE | | | | |
| NON-FRIABLE ASBESTOS | | | | |
| WOOD | | | | |
| ASH | | | | |
| OTHER | | | | |

FORWARD INC. LANDFILL
Forward shall have no obligation to accept the waste if weather or other conditions impair the safe and effective disposal of the waste or if the waste impairs the safe and effective operation of the Landfill. Forward shall use reasonable efforts to promptly notify Disposer of its inability to accept the waste for any reason. If Forward's refusal to accept the waste is based on weather or other site conditions, Forward shall notify the Disposer when site conditions are expected to change such that Forward will be able to accept the waste.
REMARKS:
FACILITY TICKET NUMBER:
SIGNATURE OF AUTHORIZED AGENT/DATE:
*

| | | | | |
|----------------------|--|--|--|--|
| SOIL | | | | |
| SLUDGE | | | | |
| NON-FRIABLE ASBESTOS | | | | |
| WOOD | | | | |
| ASH | | | | |
| OTHER | | | | |

SCHEDULING MUST BE MADE PRIOR TO 4:00 P.M. THE DAY PRIOR TO EXPECTED ARRIVAL. * ANY UNSCHEDULED LOADS ARE SUBJECT TO REFUSAL UPON ARRIVAL. ONGOING DAILY DELIVERIES MUST BE SCHEDULED WITH THE LANDFILL THE DAY BEFORE. TO SCHEDULE CALL (209) 982-4298

MANIFEST # 15745

FORWARD INC.

JOB ACCEPTANCE NO. [REDACTED]

NON-HAZARDOUS WASTE MANIFEST WASTE TREATMENT AND DISPOSAL FACILITY

TO BE COMPLETED BY THE GENERATOR

GENERATOR
CHIRON CORPORATION
MAILING ADDRESS
 4560 HORTON STREET
 EMERYVILLE CA 94608
PHONE
 510 480-3469
CONTACT PERSON
 EILEEN FLYNN
SIGNATURE OF AUTHORIZED AGENT DATE

** Eileen Flynn*

REQUIRED PERSONAL PROTECTIVE EQUIPMENT

GLOVES GOGGLES RESPIRATOR HARD HAT
 TY-VEK OTHER

SPECIAL HANDLING PROCEDURES:

WASTE TYPE

TREATMENT SOIL
 DISPOSAL SOIL
 CONSTRUCTION SOIL

SLUDGE
 NON-FRIABLE ASBESTOS
 WOOD
 ASH
 OTHER

RECEIVING FACILITY

FORWARD INC. LANDFILL
 9999 SOUTH AUSTIN ROAD
 MANTECA, CALIFORNIA 95336
 (209) 982-4298 PHONE
 (209) 982-1009 FAX

GENERATING FACILITY
 CHIRON CORPORATION
 4560 HORTON ST.
 EMERYVILLE, CA

PIPER TRUCKING
ADDRESS
 275 LEO ST.
CITY/STATE
 EMERYVILLE CA 9. SAN JOSE CA 95111
PHONE
 408/279-8775
SIGNATURE OF AUTHORIZED AGENT OF DRIVER DATE

** Bruce Keith* 9/10-93

WASTE QUANTITY

T-90

SOIL SLUDGE NON-FRIABLE ASBESTOS
 WOOD ASH OTHER

FORWARD INC. LANDFILL

Forward shall have no obligation to accept the waste if weather or other conditions impair the safe and effective disposal of the waste, or if the waste impairs the safe and effective operation of the Landfill. Forward shall use reasonable efforts to promptly notify Disposer of its inability to accept the waste for any reason. If Forward's refusal to accept the waste is based on weather or other site conditions, Forward shall notify the Disposer when site conditions are expected to change such that Forward will be able to accept the waste.

FACILITY ID NUMBER

SIGNATURE OF AUTHORIZED AGENT

| WASTE TYPE | RECEIVED | DISPOSED | RECEIVED | FORWARDED |
|---|----------|----------|----------|-----------|
| <input type="checkbox"/> SOIL | | | | |
| <input type="checkbox"/> SLUDGE | | | | |
| <input type="checkbox"/> NON-FRIABLE ASBESTOS | | | | |
| <input type="checkbox"/> WOOD | | | | |
| <input checked="" type="checkbox"/> ASH | | | | |
| <input type="checkbox"/> OTHER | | | | |

SCHEDULING MUST BE MADE PRIOR TO 4:00 P.M. THE DAY PRIOR TO EXPECTED ARRIVAL • ANY UNSCHEDULED LOADS ARE SUBJECT TO REFUSAL UPON ARRIVAL. ONGOING DAILY DELIVERIES MUST BE SCHEDULED WITH THE LANDFILL THE DAY BEFORE TO SCHEDULE CALL (209) 982-4298

MANIFEST # 15747

FORWARD INC.

JOB ACCEPTANCE NO. [REDACTED]

NON-HAZARDOUS WASTE MANIFEST WASTE TREATMENT AND DISPOSAL FACILITY

TO BE COMPLETED BY THE GENERATOR

GENERATOR:
 CHIRON CORPORATION
MAILING ADDRESS:
 4560 HORTON ST
 EMERALVILLE, CA 94608
PHONE:
 510 420-3469
CONTACT PERSON:
 EILEEN FLYNN
SIGNATURE OF AUTHORIZED AGENT/TITLE: * Eileen Flynn
DATE:

REQUIRED PERSONAL PROTECTIVE EQUIPMENT:

GLOVES GOGGLES RESPIRATOR HARD HAT
 TY-VEK OTHER

SPECIAL HANDLING PROCEDURES:

WASTE TYPE:

TREATMENT SOIL SLUDGE
 DISPOSAL SOIL NON-FRIABLE ASBESTOS
 CONSTRUCTION SOIL WOOD
 ASH
 OTHER

RECEIVING FACILITY:

FORWARD INC. LANDFILL
 9999 SOUTH AUSTIN ROAD
 MANTECA, CALIFORNIA 95336
 (209) 982-4298 PHONE
 (209) 982-1009 FAX

DISPOSER:
 CHIRON CORPORATION
 4560 HORTON ST
 EMERALVILLE, CA 94608

TRANSPORTER:
 PIRETS TRUCKING
 275 LEO ST
 SAN JOSE, CA 95128
PHONE:
 408 279-8775
SIGNATURE OF AUTHORIZED AGENT/TITLE: * [Signature] 1-10-94

QUANTITY: 16

WASTE RECEIVED: **WASTE REJECTED:**

FORWARD INC. LANDFILL

Forward shall have no obligation to accept the waste if weather or other conditions impair the safe and effective disposal of the waste or if the waste impairs the safe and effective operation of the Landfill. Forward shall use reasonable efforts to promptly notify Disposer of its inability to accept the waste for any reason. If Forward's refusal to accept the waste is based on weather or other site conditions, Forward shall notify the Disposer when site conditions are expected to change such that Forward will be able to accept the waste.

FACILITY NUMBER:

SIGNATURE OF AUTHORIZED AGENT/TITLE: *

| WASTE TYPE | QUANTITY | DATE RECEIVED | DATE REJECTED | REASON FOR REJECTION |
|---|----------|---------------|---------------|----------------------|
| <input type="checkbox"/> SOIL | | | | |
| <input type="checkbox"/> SLUDGE | | | | |
| <input type="checkbox"/> NON-FRIABLE ASBESTOS | | | | |
| <input type="checkbox"/> WOOD | | | | |
| <input type="checkbox"/> ASH | | | | |
| <input type="checkbox"/> OTHER | | | | |

SCHEDULING MUST BE MADE PRIOR TO 4:00 P.M. THE DAY PRIOR TO EXPECTED ARRIVAL. ANY UNSCHEDULED LOADS ARE SUBJECT TO REFUSAL UPON ARRIVAL. ONGOING DAILY DELIVERIES MUST BE SCHEDULED WITH THE LANDFILL THE DAY BEFORE TO SCHEDULE CALL (209) 982-4298.

MANIFEST # 15746