INTERNATIONAL TECHNOLOGY CORPORATION

March 29, 1989

Project No. 190452

Mr. Philip Krejci
Manager, Environmental Engineering
ARATEX Services, Inc.
1834 Walden Office Square, Suite 450
Schaumberg, IL 60173

Ground Water Monitoring Well Installation

Dear Mr. Krejci:

On February 16 and 17, 1989, one soil boring was completed beneath the site of the former 500-gallon fuel oil tank. Three ground water monitoring wells were installed, soil samples were taken at five-foot intervals, and three ground water samples were collected adjacent to the site of the former 7,000-gallon underground unleaded gasoline tank (Figure 1). This report details the results of this investigation.

BACKGROUND

The property is located at 958 28th Street, Oakland, California. The tanks had no reported history of leaking at the time of the tank removal. During the tank removal, soil samples were obtained from beneath each tank and from the tank walls as required for tank closure.

Analysis of soil samples revealed 98 parts per million (ppm) of high boiling hydrocarbons, calculated as diesel, at the east end of the fuel oil tank located near the loading dock. The Alameda County Health Agency required that an additional sample be taken from two feet below the east end of the excavation.

Soil samples were also collected from beneath the 7,000-gallon gasoline tank located under the sidewalk on Myrtle Street. Contamination, in varying levels, was detected around the tank, except at the north wall. The highest levels of contamination were detected in the west wall of the excavation, and contamination was also prominent in the south wall. Due to requirements of the Alameda County Health Agency, three monitoring wells were deemed necessary to establish the extent of contamination and the hydraulic gradient of the area.

During the removal of the 7,000 gallon unleaded gasoline tank, all contaminated soil above the water table and within the confines of the excavation shoring was removed. This amounted to approximately 40 yards of contaminated soil.

SOIL BORING

The soil boring (SB-A201) at the fuel oil tank was completed to a depth of 17.0 feet below ground surface. The boring was completed by drilling through the tank excavation backfill which consisted of pea gravel to a depth of 15.0 feet. Beneath the gravel, a brown silty clay was encountered and a sample was taken from 16.5 to 17.0 feet.

GROUND WATER MONITORING WELLS

The three monitoring wells with boring logs (Appendix A) were all completed within ten feet of the excavation area from which the 7,000-gallon gasoline tank, located under the sidewalk on Myrtle Street, was removed. To establish relative well elevations MW-A1, -A2, -A3 were surveyed using a hand level. MW-A3 was assumed to be 20.0 feet above mean sea level. This elevation was taken from Oakland West, California 7.5 minute topographic map. The elevation of MW-A1 is 20.38 feet and MW-A2 is 19.91 feet above mean sea level.

Subsurface Materials

Monitoring well MW-A1 was completed along the western edge of the tank excavation backfill (Figure 1). Due to the close proximity of the tank removal area to the building, MW-A1 was initiated through the excavation backfill material (pea gravel) after penetration of the concrete sidewalk and associated subgrade. The gravel backfill extends to a depth of 14.0 feet below ground surface. Beneath this backfill unit, a brown silty clay was encountered from 14.0 feet to approximately 25.0 feet. Below this unit, a gravelly sand was encountered, which continued to a depth of 30.0 feet, where a five-foot thick, pale yellow-brown clay was found. Ground water was encountered in native soil at approximately 21.0 feet below ground surface. The uppermost aquifer was encountered at 25 feet and extended to 30 feet below ground surface. Samples were not collected from the pea gravel, but were collected for chemical analysis from native silty clay soil at a depth of 17.5 to 18.0 feet.

MW-A2 is located within ten feet of the southern edge of the excavation backfill area (Figure 1). The well boring was initiated through the sidewalk and associated subgrade. The first soil encountered was a sandy clay which extends to a depth of about 7.5 feet below ground surface. A silty clay then extends to a depth of about 14.5 feet. A fine-grained sand was found to a depth of 18.0 feet, where a silty clay was encountered to a depth of 21.5 feet. Sandy silt underlies this to 25.0 feet, and a sandy clay below this to 28.0 feet which is the total depth of the hole. Ground water was encountered in this boring at a depth of approximately 22.0 feet below ground surface. The uppermost aquifer was encountered at 22 feet and extended to 25 feet below ground surface. Samples were collected for chemical analysis at depths of 5.5 to 6.0 feet, 9.5 to 10.0 feet, 14.5 to 15.0 feet, and 19.5 to 20.0 feet.

MW-A3 is located beneath the asphalt pavement on Myrtle Avenue and within ten feet of the tank excavation (Figure 1). Beneath the asphalt pavement and associated subgrade, an organic clay extends to about four feet, where a silty clay extends to about 18.0 feet below ground surface. A silty sand lies beneath this to 23.0 feet, where a silty clay extends to 27.0 feet. A clayey sand was found from 27.0 to 31.0 feet and is underlain by a silty clay to 35.5 feet, which is the total depth of the hole. Ground water was found at 27.0 feet below ground surface. The uppermost aquifer was encountered at 27 feet and extended to 32 feet below ground surface. Samples were taken for chemical analysis at 4.5 to 5.0 feet, 9.5 to 10.0 feet, 14.5 to 15.0 feet, and 19.5 to 20.0 feet.

Well Installation

All monitoring wells were installed using a four-inch-diameter PVC Schedule 40 casing, 0.020-inch-continuous-slot PVC well screen, Sand No. 3 filter pack, bentonite pellets, neat cement, a locking top cap, and a christy box finish which is flush with the surface.

MW-A1 has ten feet of screen from 16.5 to 26.5 feet. The sand pack extends from 16.0 to 28.0 feet. Bentonite pellets extended from 14.0 to 16.0 feet. Above 14.0 feet, pea gravel (tank excavation backfill) closed in around the casing. Because this boring was initiated through pea gravel, a grout protection seal was not possible. The top 1.5 feet was sealed using a sand-cement-pea gravel slurry into which the christy box was set flush with the sidewalk which overlies the pea gravel.

MW-A2 has ten feet of screen installed from 18.0 to 28.0 feet. The sand pack extends from 16.5 to 28.0 feet. Bentonite pellets were installed from 15.0 to 16.5 feet. The well is sealed by neat cement grout, and covered with a flush mounted christy box.

MW-A3 has ten feet of screen installed from 24.5 to 34.5 feet. The sand pack extends from 23.5 to 34.5 feet. Bentonite pellets seal the sand pack from 21.5 to 23.5 feet. The well is sealed with a sand/cement slurry above the bentonite, and covered with a flush mounted christy box.

SOIL SAMPLING METHODS

Soil samples were taken using the California Modified Sampler (split-spoon) with a two-inch inside diameter. The sampler was lined with three two-inch by six-inch brass sleeves. The sampler was driven by a 140-pound hammer dropped from 30 inches. Samples were taken through the hollow-stem auger. Immediately after sampling, the brass tubes were removed from the sampler, capped and sealed, and placed in a cooler.

DECONTAMINATION
All downhole equipment was decontaminated by standard IT procedures which include, but are not limited to, steam-cleaning of augers between holes and the use of decontaminated brass sleeves which are individually foil-wrapped and sealed in ziploc bags.

WELL DEVELOPMENT
All three wells, MW-1, MW-2, and MW-3, were developed by the surge block method on March 7, 1989. Because of turbidity in the wells, they were allowed to settle overnight and were sampled on March 8, 1989.

SAMPLE ANALYSIS
All soil and water samples were analyzed for benzene, toluene, xylene, and ethyl benzene as well as low boiling hydrocarbons calculated as gasoline and high boiling hydrocarbons calculated as diesel. Methods used were those recommended by the San Francisco Bay Regional Water Quality Control Board of the State of California, Department of Health Services, and by the Alameda County Health Agency. Samples were analyzed at IT's Analytical Services, San Jose Laboratory.

RESULTS
The following sections summarize results for soil samples and water samples.

Soil Samples
Soil sample SB-A201 (16.5 to 17.0 feet) showed none detected for all constituents analyzed except for benzene. The sample was found to contain 0.08 parts per million (ppm) benzene with a detection limit of 0.05 ppm.

Soil sample MW-A1 (17.5 - 18.0 feet) from monitoring well MW-A1 showed none detected for all constituents analyzed except xylenes which were 0.3 ppm with a detection limit of 0.3 ppm.

Soil samples from monitoring well MW-A2 showed the following results:

- Sample MW-A2 (5.5 - 6.0 feet) showed 33 ppm low boiling hydrocarbons, 180 ppm high boiling hydrocarbons, 0.05 ppm benzene, 0.1 ppm toluene, 0.3 ppm xylenes, and none detected for ethylbenzene.

- MW-A2 (9.5 - 10.0 feet) had 390 ppm low boiling hydrocarbons calculated as gasoline, 310 high boiling hydrocarbons calculated as diesel, 1.4 ppm benzene, 6 ppm toluene, 11 ppm ethylbenzene, and 58 ppm xylenes. MW-A2 (14.5 - 15.0 feet) had 4,000 ppm low boiling hydrocarbons calculated as gasoline, 4,100 ppm high boiling hydrocarbons calculated as diesel, 22 ppm benzene, 190 ppm toluene, 67 ppm ethylbenzene, and 420 ppm xylenes.

- MW-A2 (19.5 - 20.0 feet) showed 8 ppm low boiling hydrocarbons calculated as gasoline, 1.0 ppm benzene, 0.6 ppm toluene, 0.2 ppm ethylbenzene and 1.0 ppm xylenes. High boiling hydrocarbons were found to be none detected.

Soil samples identified as MW-A3 from monitoring well MW-A3 show the following results:

- MW-A3 (4.5 - 6.0 feet) had none detected for all constituents analyzed.
- MW-A3 (9.5 - 10.0 feet) showed none detected for all constituents analyzed except benzene which was 0.42 ppm.
- MW-A3 (14.5 - 15.0 feet) showed none detected for all constituents analyzed.

The complete analytical report for soil samples is in Appendix B.

Water Samples

Water sample identified as 01-89 MW-A1 was collected from monitoring well MW-A1. This sample showed 7,200 ppb low boiling hydrocarbons, 120 ppb benzene, 150 ppb toluene, 60 ppb ethyl benzene, 2,100 ppb xylenes and 12,000 ppb high boiling hydrocarbons.

Water sample identified as 02-89 MW-A2 was collected from monitoring well MW-A2. This sample showed 5,200 ppb low boiling hydrocarbons, 380 ppb benzene, 200 ppb toluene, none detected ethyl benzene, 700 ppb xylenes and 7,700 ppb high boiling hydrocarbons.

Water sample identified as 03-89 MW-A3 was collected from monitoring well MW-A3. This sample showed none detected for all constituents analyzed except low boiling hydrocarbons 50 ppb, benzene 10 ppb and xylenes 5 ppb.

Water sample identified as trip blank showed none detected for all constituents analyzed. All results for both soil and water samples reported as high boiling hydrocarbons, calculated as diesel, appear to be the less volatile components of gasoline, as noted on the lab reports.

The complete analytical report for the water samples is in Appendix C.

## CONCLUSION

Soil Borings

The analytical results acquired from testing the soil sample from SB-A201 showed none detected for all constituents analyzed except for benzene which was present in trace amounts.

The soil sample obtained from SB-A201 indicates that the contamination initially identified in the east wall of the 500-gallon fuel oil tank was removed during excavation and no vertical migration of the contaminants has occurred.

Monitoring Wells

Soil samples were collected from various depths from each of the three monitoring wells. The analytical results from tested soil samples in MW-A1 indicated only a trace amount of xylenes. The analytical results occurring from MW-A2 soil samples indicated significant contamination at 5 1/2 feet to 18 feet with the largest concentrations of contaminants in a poorly sorted sand (14 to 18 feet). The contamination included BTX & E, high and low boil hydrocarbons calculated to be diesel and gasoline, respectively. (The high boiling hydrocarbons were calculated as diesel but appear to be the less volatile components of gasoline, as noted on the lab reports.) The soil sample results acquired from MW-A3 showed none detected for all constituents analyzed at all depths except for a slight amount of benzene in a zone from 9 1/2 to 10 feet.

Water samples were collected from each of the monitoring wells. The analytical results from the water sample from MW-A1 showed the highest amount of contamination of any of the three monitoring wells with the water samples from MW-A3 having the least amount of contamination.

The soil samples collected and analyzed from the varying depths in the three monitoring wells indicates a concentration of contaminants in the vadose zone of MW-A2. The increasing concentrations with depth indicates a vertical migration of the contaminants to a maximum depth of 18 feet which is in a poorly sorted sand. The silty clay encountered at a depth of approximately 18 feet appears to be a barrier to the downward movement of contaminants. The contamination in the soil samples of MW-A1 and MW-A3 was minimal.

The water samples from MW-A1 showed the highest concentration of contaminants with the water sample from MW-A2 having less contamination but still a significant amount. The water sample from MW-A3 was essentially clean, suggesting ground water movement to the southwest.

If you have any questions or require any additional information, please call me at (415) 372-9100.

Sincerely,

John P. McGuire
Supervisor, Underground
Storage Tank Engineering

MA:ENG:4604-L

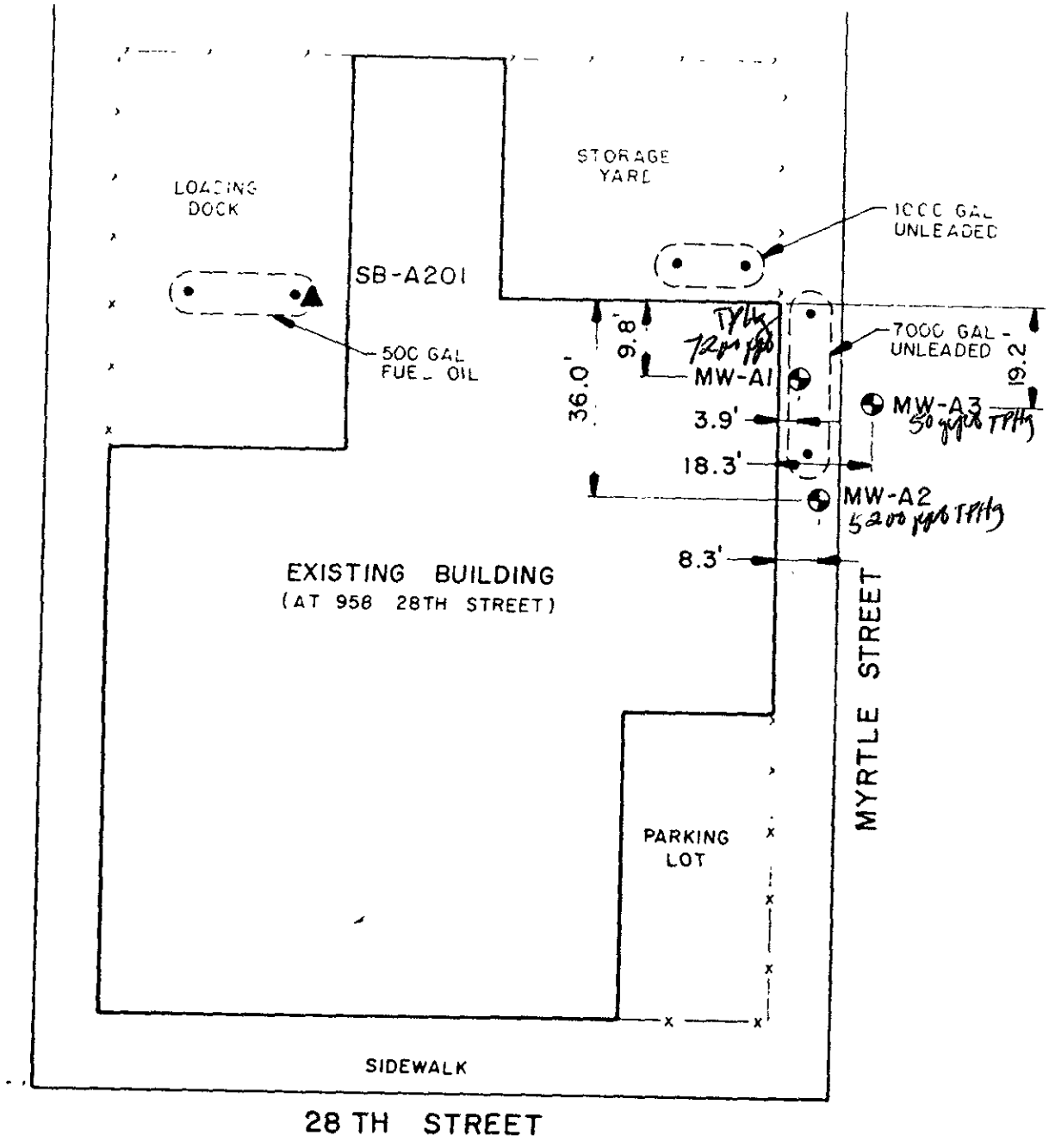


FIGURE 1

NOT TO SCALE

LEGEND

- MONITOR WELL LOCATION
- SOIL BORING LOCATION

SOIL BORING AND MONITORING WELL LOCATIONS

PREPARED FOR

ARATEX SERVICES, INC.
OAKLAND, CA.

DRAWN BY | T R S 3-14-89 | CHECKED BY | APPROVED BY | DRAWING NUMBER 190452 - A2



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126076

# BORING NO. SB-A201

FIELD GEOLOGIST W. Hopkins
EDITED BY W. Hopkins
CHECKED BY H. Fleck
TOTAL DEPTH 17 feet

COORDINATES N NA
E NA
DATE BEGAN 2-16-89
DATE FINISHED 2-16-89
GROUND SURFACE EL. NA

| DEPTH IN FEET | SAMPLE TYPE & NUMBER | RECOVERY (IN.) | WELL SUMMARY | BLOWS ON SAMPLER (PER 6") | USCS SYMBOL | PROFILE | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 0 | | | | | GP | | PEA GRAVEL, backfill material for tank excavation area. |
| 15 | SB-A201 | 18/18 | | 13,20,25 | CL | | SILTY CLAY; brown, wet, medium stiff, low to moderate plasticity. |
| | | | | | | | TOTAL DEPTH 17 FEET<br>No ground water encountered |

DRILLING CO.: Exploration Geosciences
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHODS: California Modified Split Barrel Sampler
PROJECT NO.: 190452
CLIENT: Aratex Services
Oakland, California



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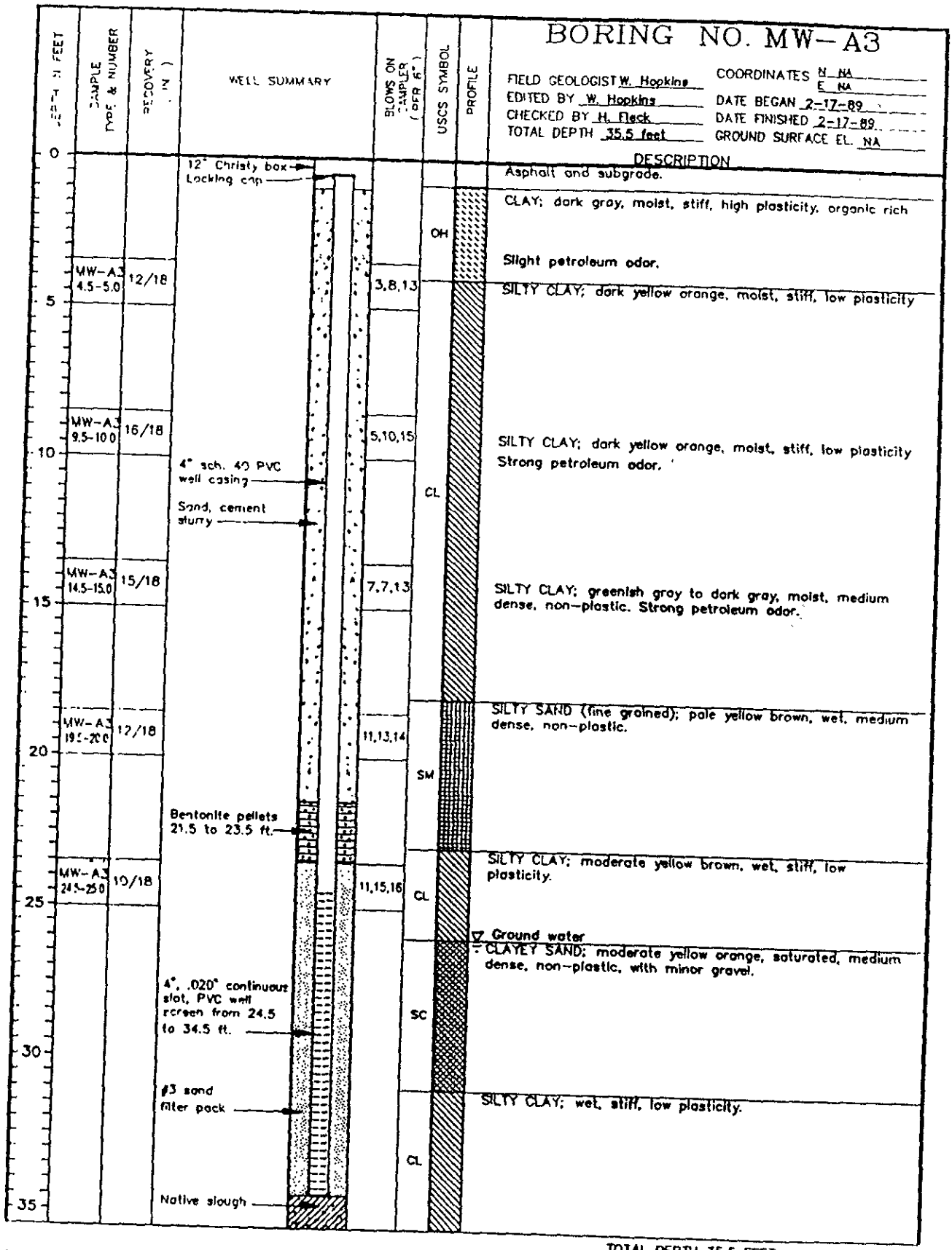
SEE LEGEND FOR LOGS AND TEST PITS
FOR EXPLANATION OF SYMBOLS AND TERMS

SB-A201(*AX-1)

# BORING NO. MW-A3

FIELD GEOLOGIST W. Hopkins
EDITED BY W. Hopkins
CHECKED BY H. Fleck
TOTAL DEPTH 35.5 feet

COORDINATES N NA
E NA
DATE BEGAN 2-17-89
DATE FINISHED 2-17-89
GROUND SURFACE EL. NA




TOTAL DEPTH 35.5 FEET

DRILLING CO.: Exploration Geosciences
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHODS: California Modified Split Barrel Sampler
PROJECT NO.: 190452
CLIENT: Aratex Services
Oakland, California



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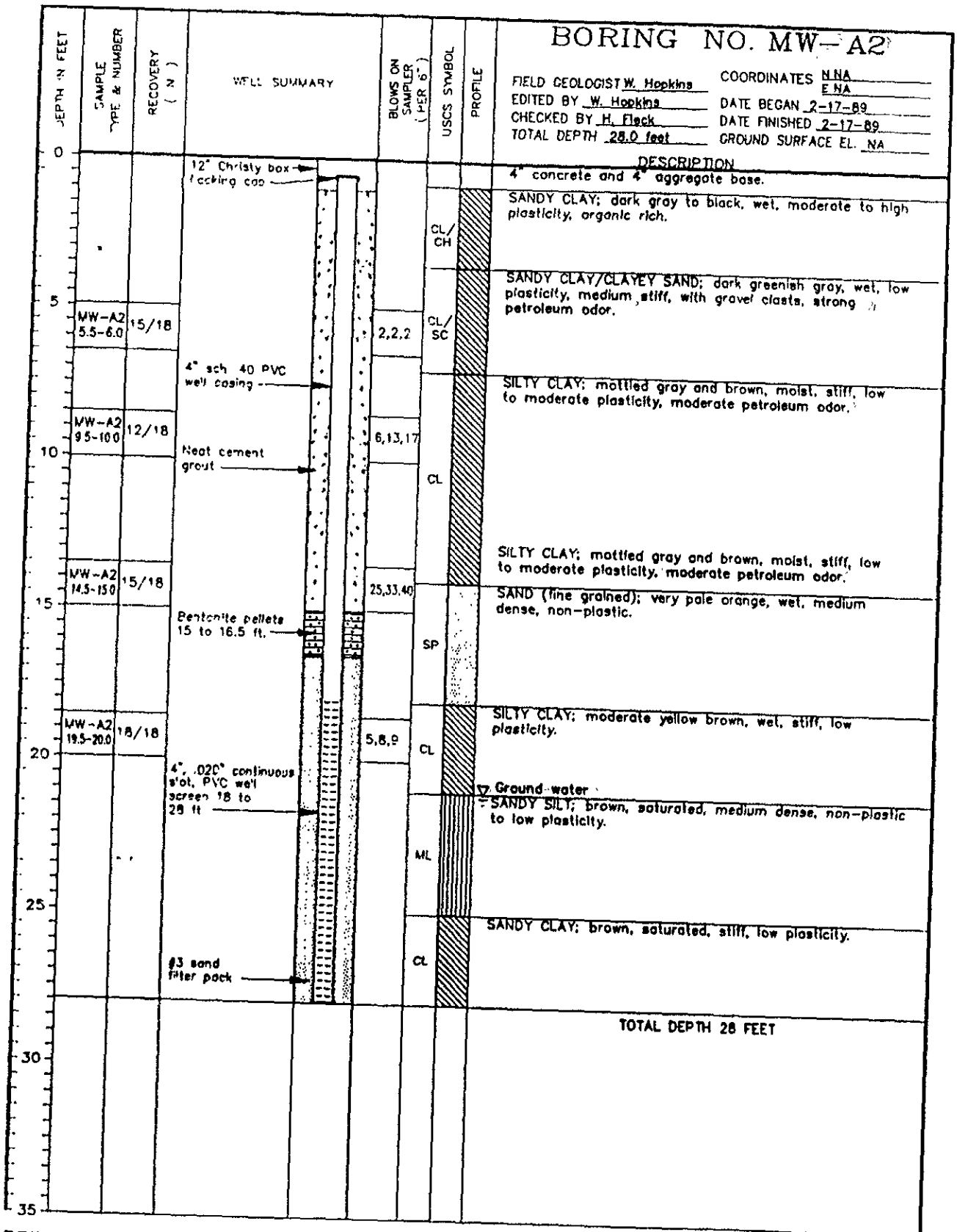
SEE LEGEND FOR LOGS AND TEST PITS
FOR EXPLANATION OF SYMBOLS AND TERMS

# BORING NO. MW-A2

FIELD GEOLOGIST W. Hopkins
EDITED BY W. Hopkins
CHECKED BY H. Flack
TOTAL DEPTH 28.0 feet

COORDINATES N NA / E NA
DATE BEGAN 2-17-89
DATE FINISHED 2-17-89
GROUND SURFACE EL. NA




DRILLING CO.: Exploration Geosciences
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHODS: California Modified Split Barrel Sampler
PROJECT NO.: 190452
CLIENT: Aratex Services
Oakland, California



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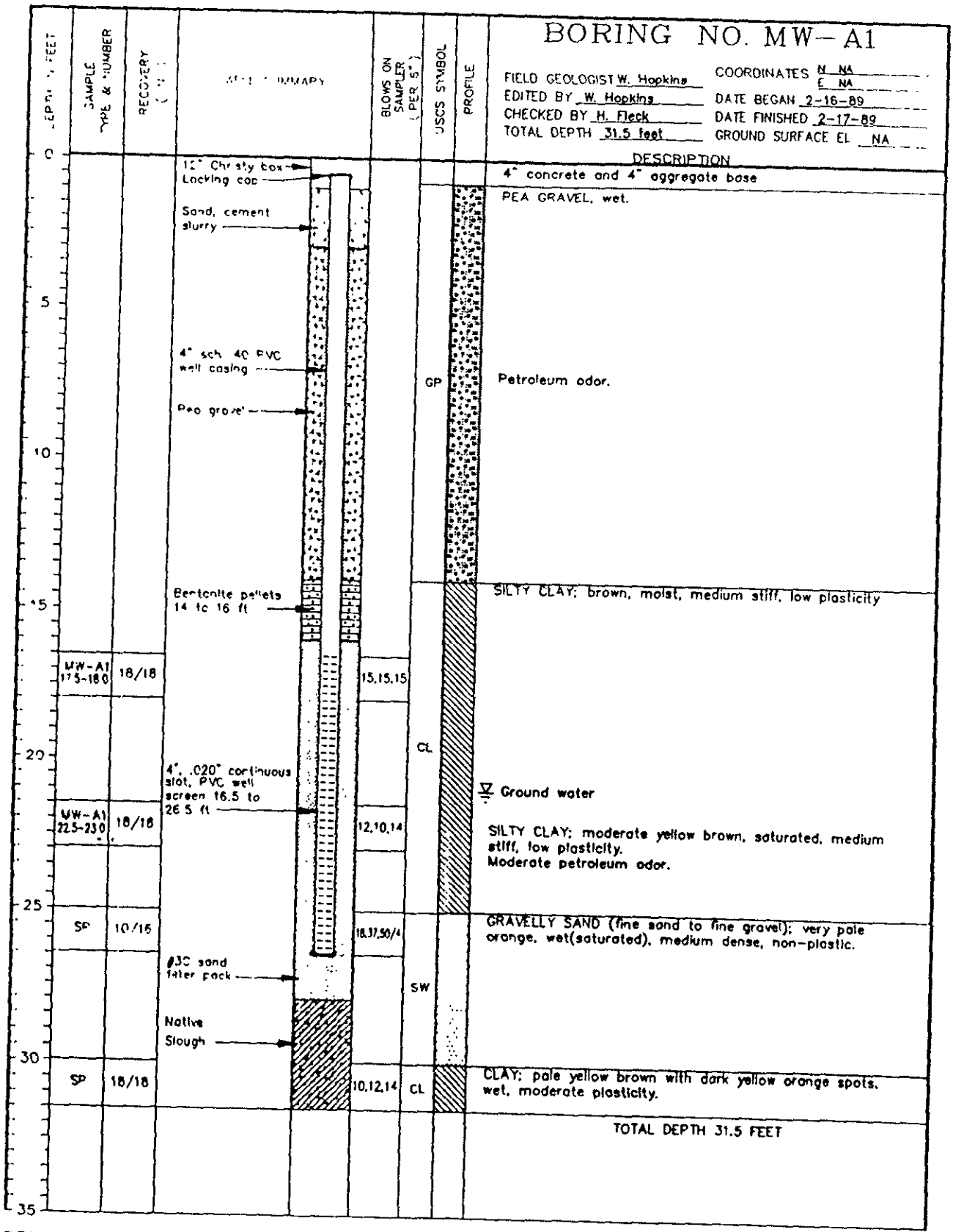
SEE LEGEND FOR LOGS AND TEST PITS
FOR EXPLANATION OF SYMBOLS AND TERMS

MW-A2(+AX-1)

# BORING NO. MW-A1

FIELD GEOLOGIST W. Hopkins
EDITED BY W. Hopkins
CHECKED BY H. Fleck
TOTAL DEPTH 31.5 feet

COORDINATES N NA
E NA
DATE BEGAN 2-16-89
DATE FINISHED 2-17-89
GROUND SURFACE EL NA




DRILLING CO.: Exploration Geosciences
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHODS: California Modified Split Barrel Sampler
PROJECT NO.: 190452
CLIENT: Arotex Services
Oakland, California



IT ...Creating a Safer Tomorrow

SEE LEGEND FOR LOGS AND TEST PITS
FOR EXPLANATION OF SYMBOLS AND TERMS

# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. R-1
SHEET NO. 1 OF 2
PROJECT NAME ARATEX - SERVISCO
PROJECT NO. 12012.13
LOCATION OAKLAND, CA
INSTALLATION
CONTRACTOR WEST HAZMAT DRILLING
SURFACE ELEV.
DRILLING METHOD HOLLOW STEM AUGER
BOREHOLE DIA. 10 IN.

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS | GENERAL WELL CONSTRUCT. |
|---|---|---|---|---|---|---|---|
| INTERVAL | | RECOVERY | | MOISTURE | | | |
| NO. | TYPE | N | % | | DEPTH | | |
| | | | | | | ASPHALT 4 - 6 IN. | |
| 1 | SS | 23 | 100 | W | | SILTY CLAY (CL)<br>Some silt, very stiff, mod. plasticity, dusky brown, roots. | |
| 2 | SS | 20 | 100 | SM | | CLAY (CL-CH)<br>Trace silt, very stiff, mod. plastic, pale yellowish brown to dark yellowish brown. | |
| 3 | SS | 50 | 100 | SM | | SANDY SILTY CLAY (CL)<br>Some sand and silt, trace gravel, hard, mod. yellowish brown. | |
| | | | | | 5 | | |
| 4 | SS | 50 | 100 | SM | | increasing silt and sand. | |
| 5 | SS | 50 | 100 | M | | SILTY SAND (SM)<br>Some silt, little clay and gravel, gradational upper contact, very dense, mod. yellowish brown, stained lt. olive gray lower 6 in., mottling and oxidation lower 6 in. | |
| 6 | SS | 30 | 100 | M | | GRAVELLY SAND (SW)<br>Fine - coarse sand, fine gravel, trace silt, well graded, dense, angular, stained olive gray, strong petroleum odor. | |
| 7 | SS | 50 | 100 | M | 10 | | |

## GENERAL NOTES

DATE STARTED 22 MAR 93
DATE COMPLETED 22 MAR 93
RIG CME-53
CREW CHIEF
LOGGED T. DAVIS CHECKED

## WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 12.5
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

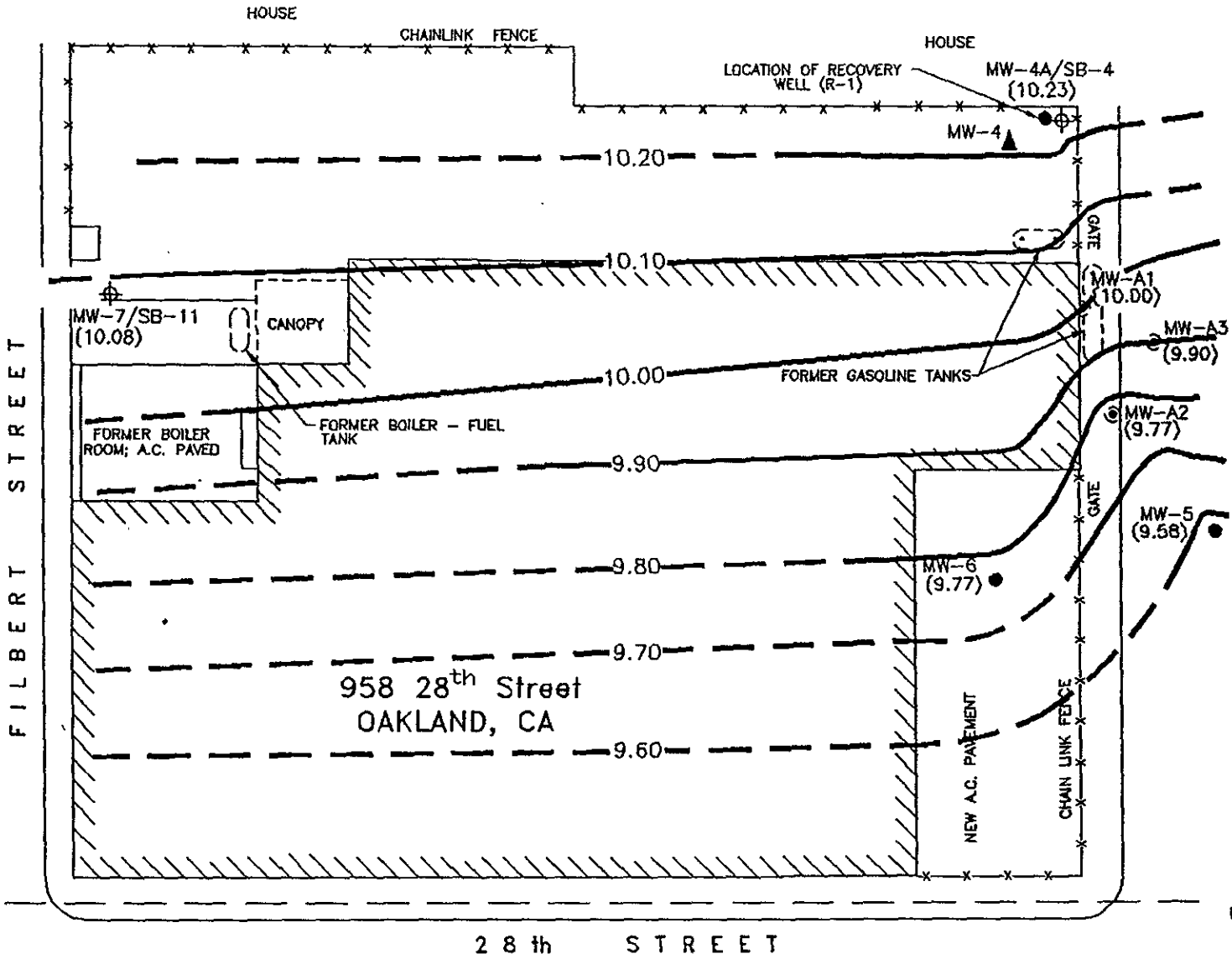
# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. R-1
SHEET NO. 2 OF 2

PROJECT NAME ARATEX - SERVISCO
PROJECT NO. 12012.13
LOCATION OAKLAND, CA
INSTALLATION
CONTRACTOR WEST HAZMAT DRILLING
SURFACE ELEV.
DRILLING METHOD HOLLOW STEM AUGER
BOREHOLE DIA. 10 IN.

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS | GENERAL WELL CONSTRUCT. |
|---|---|---|---|---|---|---|---|
| INTERVAL | | RECOVERY | | MOISTURE | | | |
| NO. | TYPE | N | % | | DEPTH | | |
| 8 | SS | 48 | 100 | M | | CLAYEY SANDY GRAVEL (GP)<br>Fine - coarse, angular sand and gravel, little clay (decreasing w/ depth), very dense, lt. to mod. brown with variegated gravel, sl. mottled, tr. petroleum odor. | |
| | | | | | ▽ | | |
| 9 | SS | 12 | 66 | M | | SANDY CLAY (CL)<br>clay with little fine Sand, hard, lt. brown. | |
| | | | | | | GRAVELLY SAND (SW)<br>Sand, fine - coarse, some gravel, fine - coarse, angular, well graded, tr. clay, medium dense, lt. olive gray. | |
| 10 | SS | 13 | 66 | M | | | |
| | | | | | 15 | SILTY SANDY CLAY (CL)<br>Little silt and very fine sand, tr. gravel, medium dense to dense, low plasticity, alternating lt. brown and pale olive. | |
| 11 | SS | 38 | 100 | | | | |
| 12 | SS | 38 | 100 | | | | |
| 13 | SS | 18 | 100 | | | | |
| | | | | | 20 | | |
| | | | | | | Total depth = 20.5 ft. | |




NOTES:

1. Top of casing elevations based on survey relative to mean sea level.
2. Groundwater elevations and interpretations based on measurements of December 12, 1991, by RMT, Inc.
3. Well MW-A3 monitors interval from 23.5'-31.0'; all others monitor groundwater above 25-foot depth.
4. Wells MW-A1 & MW-A2 may be influenced by proximity of former tank excavation which was backfilled with pea gravel that would act as a sink relative to in situ soils and geology

Legend:

- Groundwater monitoring wells installed by IT corp. February 1989.
- Groundwater monitoring wells installed by RMT, Inc: 3/90.
- Groundwater monitoring wells installed by RMT, Inc: 7/91
- Abandoned groundwater monitoring well.

0 40 80

SCALE: 1" = 40'

# ARATEX SERVISCO
# GROUNDWATER CONTOUR MAP

RMT INC.

| | |
|---|---|
| DWN. BY: | RAS |
| DATE: | JUNE, 1993 |
| PROJ.# | 12012.13 |
| FILE # | 12012135 |

FIGURE 3

# TABLE 1

## TANK CLOSURES:
## SUBGRADE SOIL SAMPLES HYDROCARBON ANALYSES

958 - 28TH Street
Oakland, California

| SAMPLE NO. | Location and Description | Low Boiling Pt. Hydrocarbons | High Boiling Pt. Hydrocarbons | Benzene | Toluene | Ethyl benzene & Xylenes |
|---|---|---|---|---|---|---|
| SB-05-201-05 | West End of 500 gallon Fuel Oil T | N.A. | N.D. | N.A. | N.A. | N.A. |
| SB-05-201-06 | East End of 500 gallon Fuel Oil Ta | N.A. | 98 ppm | N.A. | N.A. | N.A. |
| SB-05-201-01 | West End of 1,000 gallon Tank | N.D. | N.A | N.D | N.D | N.D. |
| SB-05-201-02 | East End of 1,000 gallon Tank | N.D. | N.A | N.D | N.D | N.D. |
| SB-05-201-03 | South End of 7,000 gallon Tank | N.D. | N.A | 0.10 ppm | N.D. | N.D. |
| SB-05-201-04 | North End of 7,000 gallon Tank | N.D. | N.A | 0.28 ppm | N.D | N.D. |
| SB-05-274-01 | South Wall of 7,000 gallon Tank | 90 ppm | N.A. | 0.76 ppm | 4.1 ppm | 120 ppm |
| SB-05-274-02 | North Wall of 7,000 gallon Tank | N.D. | N.A | N D | N.D. | N.D. |
| SB-05-274-03 | West Wall of 7,000 gallon Tank | 530 ppm | N.A | 4.8 ppm | 21 ppm | 530 ppm |
| SB-05-274-04 | East Wall of 7,000 gallon Tank | 5 ppm | N.A | 1.7 ppm | N.D. | N.D. |

NOTES:
1. Excerpted from "Underground Storage Tan Permanent Closure Report"; IT Corp.; July 5, 1988.
2. See Figure 2 for approximate tank locations.
3. Sampling depths not indicated.

N.D. = Not detected
N.A. = Not analyzed

## TABLE 2

## SCI's FUEL OIL TANK AREA HYDROCARBONS ANALYSES

958 - 28th Street

Oakland, California

| COMPOUND | UNITS | TEST METHOD | SAMPLE 1 | SAMPLE 2 |
|---|---|---|---|---|
| **Total Extractable Hydrocarbons** | mg/kg | EPA 8015M | 1,600 | ND |
| **Total Oil & Grease** | mg/kg | SWM 17:5520 E&F | 4,900 | 370 |
| **Aromatics:** | | EPA 8020 | | |
| Benzene | µg/kg | " | 300 | ND |
| Toluene | µg/kg | " | 89 | ND |
| Ethylbenzene | µg/kg | " | 910 | 5,300 |
| Xylenes | µg/kg | " | 3,400 | 15,000 |

NOTES:

1. Data from Subsurface Consultants, Inc.: letter report to Ms. Beatrice Slater/GSL Properties, dated May 23, 1991,
2. Approximate sampling locations indicated to be in area of former fuel oil tank at fifteen to twenty feet west of canopy's northwest corner.

# TABLE 3

## MONITORING WELL CONSTRUCTION SUMMARY

958 - 28th Street
Oakland, California

| ITEM \ WELL | MW-A1 | MW-A2 | MW-A3 | MW-4 | MW-4A | MW-5 | MW-6 | MW-7 |
|---|---|---|---|---|---|---|---|---|
| **General Data:** | | | | | | | | |
| Constructed By | IT Corp. | IT Corp. | IT Corp. | WHMDC | WHMDC | WHMDC | WHMDC | WHMDC |
| Construction Date | 2/17/89 | 2/17/89 | 2/17/89 | 3/5/90 | 7/16/91 | 3/6/90 | 3/5/90 | 7/17/91 |
| Nominal Size | 4-inch | 4-inch | 4-inch | 2-inch | 4-inch | 4-inch | 4-inch | 4-inch |
| Material | PVC | PVC | PVC | PVC | PVC | PVC | PVC | PVC |
| Schedule | | | | 40 | 40 | 40 | 40 | 40 |
| **Well Screen Data** | | | | | | | | |
| Slot Size | 0.02-inch | 0.02-inch | 0.02-inch | 0.01-inch | 0.01-inch | 0.01-inch | 0.01-inch | 0.01-inch |
| From Depth (ft) | 16.5 | 18 | 24.5 | 10 | 15 | 10 | 10 | 15 |
| To Depth (ft) | 26.5 | 28 | 34.5 | 25 | 25 | 30 | 30 | 30 |
| Length (ft) | 10.0 | 10.0 | 10.0 | 15.0 | 10.0 | 20.0 | 20.0 | 15.0 |
| **Filter Pack Data** | | | | | | | | |
| Sand | #3 | #3 | #3 | #1C | #3 | #1C | #1C | #3 |
| From Depth (ft) | 16 | 16.5 | 23.5 | 8 | 13.8 | 8 | 8 | 13.5 |
| To Depth (ft) | 28 | 28 | 34.5 | 25 | 25 | 30 | 30 | 30 |
| Length | 12.0 | 11.5 | 11.0 | 17.0 | 11.2 | 22.0 | 22.0 | 16.5 |
| **Well Location Data** | | | | | | | | |
| T.O.C. (MSL) | 23.50 | 22.87 | 23.08 | abandoned | 24.13 | 22.89 | 23.37 | 21.37 |
| Northing | 485,433.3 | 485,406.8 | 485,420.5 | 7/15/91 | 485,474.5 | 485,372.0 | 485,376.6 | 485,506.1 |
| Easting | 1,486,767.0 | 1,486,766.5 | 1,486,771.9 | | 1,486,771.9 | 1,486,782.8 | 1,486,726.8 | 1,486,538.8 |

NOTES:

1. Details for wells installed by International Technology Corporation (IT Corp,) obtained from boring logs include in their report title: "Ground Water Monitoring Well Installation; 958-28 Street; Oakland, California", dated March 29, 1989 .
2. Well MW-4 through MW-7 installed by West Hazmat Drilling Corp. (WHDC) as part of investigations performed by RMT, Inc.
3. Well locations survey to California State Coordinate System 1927, Grid North; Survey performed by Kier & Wright, Civil Engineers & Surveyors, Inc. of Pleasonton, California. Original data on file; ref City of Oakland Bench Mark No. 2578 at 26.70 MSL].
4. Well MW-4 abandoned on July 15, 1991 by RMT, Inc./WHDC.

# TABLE 4

## WELL FILTER PACK AND SCREEN SIZING SUMMARY

958 - 28th Street
Oakland, California

| Boring No. | Sample Depth (ft.-ft.) | U.S.C.S. | D85,base (mm) | D15,base (mm) | Piping Ratio | Piping Ratio | Permeability Ratio | Permeability Ratio | Comments |
|---|---|---|---|---|---|---|---|---|---|
| MW-4 | 15.0 - 15.5 | CL | < 0.074 | << 0.074 | n.a | n.a | n.a. | n.a. | See note #4 |
| MW-5 | 16.0 - 16.5 | SW-GW | 10.84 | 0.17 | 0.05 | 0.09 | 3.24 | 5.68 | Acceptable |
| MW-5 | 26.0 - 26.5 | SW | 7.59 | 0.19 | 0.07 | 0.13 | 2.89 | 5.08 | Acceptable |
| MW-6 | 20.5 - 26.0 | SC-CL | 7.08 | < 0.074 | 0.08 | 0.14 | > 7.4 | > 13 | Acceptable |

| U.S. Standard Sieve Size | Percent Passing #1C | | Percent Passing #3 | |
|---|---|---|---|---|
| | MAX | MIN. | MAX | MIN. |
| # 6 | - | - | 100 | - |
| # 8 | - | - | 97 | 91 |
| #12 | 100 | - | 68 | 52 |
| #16 | 99 | 94 | 15 | 9 |
| #20 | 70 | 50 | 2 | 0 |
| #30 | 25 | 10 | 1 | - |
| #40 | 5 | - | - | - |
| D85 size (mm) | | 0.9 mm | | 2.03 |
| D15 size (mm) | | 0.55 mm | | 0.97 |

NOTES:

1. Individual particle size distributions presented in "Supplementary Subsurface Investigations" report dated July 1990, by RMT,Inc.
2. Dnn,base = particle size for percent "nn" finer; where "base" is the in situ soil and "filter" is the sand pack.
3. Gradations of "#1C" and "#3" sands obtained from supplier; Diversified Well Products, Inc.
4. Design criteria [below] not directly applicable for predominantly fine-grained and cohesive materials.

Design Criteria:

Piping Ratio = D15,filter/D85,base < ~5; to guard against migration of base into filter pack.
Permeability Ratio = D15,filter/D15,base > ~5; to gaurd against filter pack retarding flow from the in situ material.

# TABLE 7a

## SOIL SAMPLES ANALYSES SUMMARY

Storage Yard Area

958 - 28th Street
Oakland, California

| TEST METHOD | Sample Location | | SB-4 | SB-4 | SB-4 | SB-4 | SB-5 | SB-5 | SB-5 | SB-6 | SB-6 | SB-6 | SB-7 | SB-7 | SB-7 | MAX Value Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sample Depth (ft) | | 9.0 | 12.0 | 15.0 | 17.5 | 5.5 | 8.0 | 12.5 | 9.0 | 10.5 | 12.0 | 7.5 | 9.5 | 12.5 | |
| | Date Sampled: | | 7/16/91 | 7/16/91 | 7/16/91 | 7/16/91 | 7/15/91 | 7/15/91 | 7/15 | 7/15/91 | 7/15/91 | 7/15/91 | 7/15/91 | 7/15/91 | 7/15/91 | |
| | Date Injected: | | 7/24/91 | 7/24/91 | 7/24/91 | 7/24/91 | 7/23/91 | 7/23/91 | 7/23 | 7/23/91 | 7/23/91 | 7/23/91 | 7/23/91 | 7/23/91 | 7/23/91 | |
| | FUEL RANGE | MDL | | | | | | | | | | | | | | |
| 8015M | Gasoline [C5-C12] | 1 mg/kg | ND | ND | 1.07 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1 |
| | Jet Fuel [C10-C16] | 3 mg/kg | 150 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 150 |
| | Diesel [C9-C22] | 1 mg/kg | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0 |
| | Hydraulic | 5 mg/kg | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 |
| | Date Injected: | | 7/23/91 | 7/22/91 | 7/27/91 | 7/22/91 | 7/22/91 | 7/22/91 | 7/22/91 | 7/22/91 | 7/22/91 | 7/22/91 | 7/22/91 | 7/22/91 | 7/22/91 | |
| 8020 | AROMATIC COMPOUNDS | | [Dil=50] | [Dil=50] | [Dil=5] | [Dil=5] | | [Dil=50] | [Dil=5] | [Dil=5] | [Dil=5] | [Dil=5] | [Dil=5] | [Dil=5] | [Dil=5] | |
| | Benzene | 2.5 µg/kg | ND | 130 | [illegible] | ND | ND | [illegible] | 5 | ND | ND | ND | ND | ND | ND | 500 |
| | Toluene | 2.5 µg/kg | ND | ND | 5 | ND | 5 | [illegible] | 4 | 5 | 8 | ND | 5 | 10 | 13 | 100 |
| | Ethylbenzene | 2.5 µg/kg | ND | ND | 30 | ND | ND | [illegible] | ND | ND | ND | ND | ND | ND | ND | 450 |
| | Xylenes | 2.5 µg/kg | ND | ND | 55 | ND | ND | [illegible] | ND | ND | ND | ND | ND | ND | ND | 750 |

NOTES:

1. Laboratory analyses by Thermo Analytical Inc. (TMA/Norcal) of Richmond, California.
2. Complete Laboratory reports presented in Appendix E.

# TABLE 7b

## SOIL SAMPLES ANALYSES SUMMARY

Loading Dock Area

958 - 28th Street
Oakland, California

| TEST METHOD | | | Sample Location | SB-8 | SB-8 | SB-8 | SB-9 | SB-9 | SB-9 | SB-9 | SB-10 | SB-10 | SB-10 | SB-11 | SB-11 | SB-12 | SB-12 | SB-12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Depth (ft) | 2.5 | 9.0 | 10.0 | 2.0 | 6.0 | 9.5 | 12.0 | 6.0 | 9.5 | 14.0 | 2.0 | 9.0 | 2.0 | 8.0 | 9.5 |
| | | | Date Sampled: | 7/17/91 | 7/17/91 | 7/17/91 | 7/16/91 | 7/16/91 | 7/16/91 | 7/16/91 | 7/16/91 | 7/16/91 | 7/16/91 | 7/17/91 | 7/17/91 | 7/16/91 | 7/16/91 | 7/16/91 |
| | | | Date Injected: | 7/31/91 | 7/31/91 | 7/31/91 | 7/24/91 | 7/24/91 | 7/24/91 | 7/24/91 | 7/24/91 | 7/24/91 | 7/24/91 | 7/31/91 | 7/31/91 | 7/24/91 | 7/24/91 | 7/25/91 |
| 8015M | FUEL RANGE | MDL | | | | | | | | | | | | | | | | |
| | Gasoline [C5-C12] | 1 mg/kg | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | Jet Fuel [C10-C16] | 3 mg/kg | | ND | ND | ND | ND | ND | ND | ND | 344 | ND | ND | ND | ND | ND | ND | ND |
| | Diesel [C9-C22] | 1 mg/kg | | 24 | 2,110 | 310 | ND | ND | ND | ND | ND | ND | 77 | 120 | ND | ND | ND | ND |
| | Hydraulic | 5 mg/kg | | 98 | - | - | - | - | - | - | - | - | - | 23 | - | - | - | - |
| | | | Date Injected: | 7/31/91 | 7/30/91 | 7/31/91 | 7/22/91 | 7/22/91 | 7/22/91 | 7/22/91 | 7/22/91 | 7/23/91 | 7/23/91 | 7/31/91 | 7/31/91 | 7/23/91 | 7/23/91 | 7/23/91 |
| 8020 | AROMATIC COMPOUNDS | | | [Dil=5] | [Dil=5] | [Dil=5] | [Dil=5] | [Dil=5] | [Dil=5] | [Dil=5] | [Dil=5] | [Dil=5] | [Dil=5] | [Dil=50] | [Dil=50] | [Dil=5] | [Dil=5] | [Dil=5] |
| | Benzene | 2.5 µg/kg | | ND | 5 | 40 | 10 | ND | ND | 25 | ND | 23 | ND | ND | ND | ND | ND | ND |
| | Toluene | 2.5 µg/kg | | ND | ND | 10 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 4 | ND | 5 |
| | Ethylbenzene | 2.5 µg/kg | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | Xylenes | 2.5 µg/kg | | 65 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

NOTES:

1. Laboratory analyses by Thermo Analytical Inc. (TMA/Norcal) of Richmond, California.
2. Complete Laboratory reports presented in Appendix E.

## TABLE 7b (Cont.)

## SOIL SAMPLES ANALYSES SUMMARY

Unloading Dock Area

958 - 28th Street
Oakland, California

| TEST METHOD | | | Sample Location | SB-12 | SB-13 | SB-13 | SB-13 | SB-14 | SB-14 | SB-14 | SB-15 | SB-15 | SB-16 | SB-16 | SB-17 | SB-17 | SB-17 | Max. Value Detected |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Depth (ft) | 14.0 | 2.0 | 7.0 | 9.0 | 2.0 | 7.0 | 11.0 | 4.0 | 8.5 | 9.0 | 11.0 | 3.5 | 5.0 | 10.5 | |
| | | | Date Sampled: | 7/16/91 | 7/17/91 | 7/17/91 | 7/17/91 | 7/17/91 | 7/17/91 | 7/17/91 | 7/17/91 | 7/17/91 | 7/17/91 | 7/17/91 | 7/17/91 | 7/17/91 | 7/17/91 | |
| | | | Date Injected: | 7/25/91 | 7/31/91 | 7/31/91 | 7/31/91 | 7/31/91 | 7/31/91 | 7/31/91 | 7/31/91 | 7/31/91 | 7/31/91 | 7/31/91 | 7/31/91 | 7/31/91 | 7/31/91 | |
| 8015M | FUEL RANGE | MDL | | | | | | | | | | | | | | | | |
| | Gasoline [C5-C12] | 1 mg/kg | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | Jet Fuel [C10-C16] | 3 mg/kg | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 344 |
| | Diesel [C9-C22] | 1 mg/kg | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | [illegible] | [illegible] | ND | 2110 |
| | Hydraulic | 5 mg/kg | | - | - | - | - | - | - | - | - | - | - | - | [illegible] | [illegible] | - | 500 |
| | | | Date Injected: | 7/23/91 | 7/30/91 | 7/31/91 | 7/31/91 | 7/31/91 | 7/31/91 | 7/31/91 | 7/31/91 | 7/31/91 | 7/31/91 | 7/31/91 | 7/31/91 | 7/31/91 | 7/31/91 | |
| 8020 | AROMATIC COMPOUNDS | | | [Dil=5] | [Dil=5] | [Dil=5] | [Dil=5] | [Dil=5] | [Dil=5] | [Dil=5] | [Dil=5] | [Dil=5] | [Dil=5] | [Dil=5] | [Dil=50] | [Dil=50] | [Dil=50] | |
| | Benzene | 2.5 µg/kg | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 40 |
| | Toluene | 2.5 µg/kg | | [illegible] | ND | ND | ND | ND | ND | ND | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 330 |
| | Ethylbenzene | 2.5 µg/kg | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | Xylenes | 2.5 µg/kg | | ND | ND | ND | ND | ND | ND | ND | ND | ND | 410 | ND | 450 | 380 | ND | 450 |

NOTES:

1. Laboratory analyses by Thermo Analytical Inc. (TMA/Norcal) of Richmond, California.
2. Complete Laboratory reports presented in Appendix E.

Laborato
Complet

# TABLE 8

## MONITORING WELLS ANALYSES SUMMARY

## ADDITIONAL SUBSURFACE INVESTIGATION

### 958 - 28th Street
### Oakland, California

| | Ground Water Well | | MW-A1 | MW-A2 | MW-A3 | MW-4A | MW-5 | MW-6 | MW-7 | Max. | Blind |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date Sampled: | | 7/18/91 | 7/18/91 | 7/18/91 | 7/19/91 | 7/18/91 | 7/18/91 | 7/19/91 | Value | 7/19/91 |
| METHOD | Date Injected: | | 8/1/91 | 8/1/91 | 8/1/91 | 8/1/91 | 8/1/91 | 8/1/91 | 8/1/91 | Detected | 8/1/91 |
| 8015M | FUEL RANGE | MDL | | | | | | | | | |
| [5030] | Gasoline [C5-C12] | 0.05 mg/L | ND | ND | ND | 2.60 | ND | 0.30 | ND | 2.60 | 2.50 |
| | Jet Fuel [C10-C16] | 0.05 mg/L | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| [3520] | Diesel [C9-C22] | 0.05 mg/L | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | Date Injected: | | 7/30/91 | 7/30/91 | 7/30/91 | 7/30/91 | 7/30/91 | 7/30/91 | 7/30/91 | | 7/30/91 |
| 8020 | AROMATIC COMPOUNDS | | | | | | | | | | |
| [5030] | Benzene | 0.5 µg/L | ND | 28 | ND | 68 | ND | 42 | ND | 68 | 98 |
| " | Toluene | 0.5 µg/L | ND | ND | ND | 3 | ND | 1 | ND | 3 | 7 |
| " | Ethylbenzene | 0.5 µg/L | ND | ND | ND | 8 | ND | 3 | ND | 8 | 11 |
| " | Xylenes | 0.5 µg/L | ND | ND | ND | 31 | ND | 9 | ND | 31 | 47 |

NOTES:

1. Laboratory Analyses by Thermo Analytical Inc. (TMA/Norcal) of Richmond, California.
2. All ground water monitoring wells were sampled after purging at least 3 well caseing volumes of water from each well and physical properties had stabilized. in area of former fuel oil tank area.
3. All sample analyses were performed on undiluted samples, i.e. dilution=1.00.
4. Blind sample was a duplicate of well MW-4A.
5. Complete laboratory analyses report contained in Appendix F.

# TABLE 9

## MONITORING WELLS ANALYSES SUMMARY

### 958 - 28th Street
### Oakland, California

| METHOD | Ground Water Well / Date Sampled: | | | MW-A1 Mar-90 | MW-A1 Nov-90 | MW-A1 7/18/91 | MW-A2 Mar-90 | MW-A2 Nov-90 | MW-A2 7/18/91 | MW-A3 Mar-90 | MW-A3 Nov-90 | MW-A3 7/18/91 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8015M | FUEL RANGE | MDL | MCL | | | | | | | | | |
| [5030] | Gasoline [C5-C12] | 50 µg/L | NA | ~~1.3E+06~~ | ND | ND | 1.1E+06 | ~~719~~ | ND | ND | ND | ND |
| | Jet Fuel [C10-C16] | 50 µg/L | NA | - | - | ND | - | - | ND | - | - | ND |
| [3510] | Diesel [C9-C22] | 50 µg/L | NA | ND | - | ND | ND | - | ND | ND | - | ND |
| 8020 | AROMATIC COMPOUNDS | | | | | | | | | | | |
| [5030] | Benzene | 0.5 µg/L | 1 µg/L | ~~266~~ | ~~53~~ | ND | ~~85~~ | ~~32.5~~ | ~~28~~ | ND | ND | ND |
| " | Toluene | 0.5 µg/L | NA | ND | ND | ND | ~~2.4~~ | ~~2.4~~ | ND | ND | ND | ND |
| " | Ethylbenzene | 0.5 µg/L | 680 µg/L | ~~45~~ | ND | ND | ND | ND | ND | ND | ND | ND |
| " | Xylenes | 0.5 µg/L | 1750 µg/L | ~~24.3~~ | ~~35.3~~ | ND | ~~8.9~~ | ~~6.4~~ | ND | ND | ND | ND |

| METHOD | Ground Water Well / Date Sampled: | | | MW-4 Nov-90 | MW-4A 7/19/91 | MW-5 Mar-90 | MW-5 Nov-90 | MW-5 7/18/91 | MW-6 Mar-90 | MW-6 Nov-90 | MW-6 7/18/91 | MW-7 7/19/91 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8015M | FUEL RANGE | MDL | MCL | | | | | | | | | |
| [5030] | Gasoline [C5-C12] | 50 µg/L | NA | NA | ~~2,600~~ | ND | ND | ND | ND | ~~70~~ | ~~0.30~~ | ND |
| | Jet Fuel [C10-C16] | 50 µg/L | NA | NA | ND | - | - | ND | - | - | ND | ND |
| [3510] | Diesel [C9-C22] | 50 µg/L | NA | NA | ND | ND | - | ND | ND | - | ND | ND |
| 8020 | AROMATIC COMPOUNDS | | | | | | | | | | | |
| [5030] | Benzene | 0.5 µg/L | 1 µg/L | NA | ~~68~~ | ND | ND | ND | ND | ~~1.9~~ | ~~4.2~~ | ND |
| " | Toluene | 0.5 µg/L | NA | NA | ~~5~~ | ND | ND | ND | ND | ND | 1. | ND |
| " | Ethylbenzene | 0.5 µg/L | 680 µg/L | NA | ~~8~~ | ND | ND | ND | ND | ND | 3. | ND |
| " | Xylenes | 0.5 µg/L | 1750 µg/L | NA | ~~31~~ | ND | ND | ND | ND | 1.8 | ~~9~~ | ND |

NOTES:

1. Laboratory Analyses by Thermo Analytical Inc. (TMA/Norcal) of Richmond, California.
2. All ground water monitoring wells were sampled after purging at least 3 well caseing volumes of water from each well and physical properties had stabilized. in area of former fuel oil tank area.
3. All sample analyses,excepting MW-4 on March 1990, were performed on undiluted samples. Dilution for MW-4 was 5 x.
4. Quality Control testing not included.
5. Post-November 1990 sampling excluded MW-4, which contained free product and subsequent abandonment.

BORING LOGS

# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. MW-4A
SHEET NO. 1 OF 1
PROJECT NAME ARATEX
PROJECT NO. 12012.10
LOCATION OAKLAND
INSTALLATION
CONTRACTOR W. HAZMAT
SURFACE ELEV. 24.3
DRILLING METHOD HOLLOW STEM AUGER
BOREHOLE DIA. 6 IN.

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS |
|---|---|---|---|---|---|---|
| INTERVAL NO. | TYPE | RECOVERY N | % | MOISTURE | DEPTH | |
| | | | | | | 3" asphalt |
| 1 | SS | 8/11/11 | 100 | M | | **SILT (ML)** dark gray<br>OVM = 0 |
| | | | | | | **CLAY (CL)**, dark gray, some silt, stiff |
| 2 | SS | 12/21/26 | 66 | | 5 | **SANDY CLAY (CL)**, brownish yellow, trace gravel, stiff<br>OVM = 0 |
| 3 | SS | 16/24/36 | 100 | M | | brownish yellow, trace gravel |
| 4 | SS | 9/27/32 | 100 | M | | stained olive gray<br>OVM = > 2,000 |
| | | | | | 10 | **SAND (SW)**, stained olive gray, trace gravel, sub angular, some clay<br>OVM = > 2,000 |
| 5 | SS | 16/21/24 | 100 | V.M | | **SANDY GRAVEL (GW)**, some clay, brownish yellow<br>OVM = 71 |
| 6 | SS | 8/14/16 | 100 | WET | ▽ | **CLAYEY SAND (SC)**, fine sand, brownish yellow, trace gravel<br>OVM = 277 |
| 7 | SS | 7/10/10 | 33 | V.W | 15 | **SAND (GP)**, poor sand, brownish yellow, poorly graded |
| 8 | SS | 13/24/34 | 100 | V.M | | **CLAY (CL)**, brownish yellow, stiff<br>OVM = 0 |
| 9 | SS | 12/14/21 | 33 | WET | | **CLAY (CL)**, brownish yellow, very stiff, pockets of silt<br>OVM = 318 |
| | | | | | 20 | **SILTY CLAY (CL-ML)**, yellowish red, very stiff<br>OVM = 44 |
| 10 | SS | 9/12/14 | 100 | M | | **CLAY (CL)**, pockets of silt, yellowish red, stiff, plastic<br>OVM = 3 |
| 11 | SS | 7/10/12 | 33 | V.W | | **SANDY CLAY (CL)**, yellowish red, loose<br>OVM = 0 |
| 12 | SS | 14/17/22 | 33 | V.W | 25 | OVM = 0 |

REGISTERED GEOLOGIST
CATHY L. LIELAUSIS
No. 4426
STATE OF CALIFORNIA

## GENERAL NOTES

DATE STARTED 16 JUL 91
DATE COMPLETED 16 JUL 91
RIG CME 75
CREW CHIEF T. JARAMILLO
LOGGED M.K. CHECKED CLL

## WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 13.0
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME _____ DEPTH _____
WATER: DATE/TIME _____ DEPTH _____

# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. SB-5
SHEET NO. 1 OF 1
PROJECT NO. 12012.10
INSTALLATION
SURFACE ELEV. 24.2
BOREHOLE DIA. 6 IN.

PROJECT NAME ARATEX
LOCATION OAKLAND
CONTRACTOR W. HAZMAT
DRILLING METHOD HOLLOW STEM AUGER

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS |
|---|---|---|---|---|---|---|
| INTERVAL NO. | TYPE | RECOVERY N | % | MOISTURE | DEPTH | |
| | | | | | | 3" asphalt<br>6" base |
| 1 | SS | 17/21/22 | 100 | | | **SILT (ML)**, dark gray, debris, brick (fill) |
| | | | | | | **CLAY (CL)**, brownish yellow, trace fine gravel, trace sand, very stiff<br>OVM = 5 |
| 2 | SS | 12/21/2 | 100 | | 5 | **CLAYEY SAND (SC)**, trace medium to coase gravel, reddish brown<br>OVM = 34 |
| 3 | SS | 27/27/1 | 100 | | | stained olive gray |
| | | | | | | **GRAVEL (GP)**, coarse sand, stained olive gray<br>OVM = > 2,000 |
| 4 | SS | 12/21 | 100 | | | **SILTY SAND (SM)**, trace gravel, olive gray<br>OVM = > 2,000 |
| 5 | SS | 12/23/38 | 100 | F.P | 10 | **SAND (SW)**, trace coarse sand, trace silt, stained olive gray, free product |
| 6 | SS | 6/10/10 | 66 | WET | | **SANDY CLAY (CL)**, brownish yellow, trace red sand, trace coarse sand, stiff<br>OVM = 230 |
| 7 | SS | 6/9/15 | 33 | WET | ▽ | OVM = 269 |

REGISTERED GEOLOGIST
CATHY L. LIELAUSIS
No. 4426
STATE OF CALIFORNIA

GENERAL NOTES

DATE STARTED 15 JUL 91
DATE COMPLETED 15 JUL 91
RIG CME 75
CREW CHIEF T. JARAMILLO
LOGGED M.K. CHECKED CLL

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 13.5
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. SB-7
SHEET NO. 1 OF 1
PROJECT NO. 12012.10
INSTALLATION
SURFACE ELEV. 24.2
BOREHOLE DIA. 6 IN.

PROJECT NAME ARATEX
LOCATION OAKLAND
CONTRACTOR W. HAZMAT
DRILLING METHOD HOLLOW STEM AUGER

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS |
|---|---|---|---|---|---|---|
| INTERVAL NO. | TYPE | RECOVERY N | % | MOISTURE | DEPTH | |
| | | | | | | 3" asphalt |
| 1 | SS | 8/11/13 | 100 | M | | SILT (ML), dark gray<br>OVM = 0 |
| | | | | | | SILTY CLAY (CL), dark gray |
| 2 | SS | 4/4/8 | 100 | M | 5 | CLAY (CL), brownish yellow, trace fine gravel, trace sand,<br>OVM = 0 |
| 3 | SS | 8/11/15 | 100 | M | | CLAYEY SILT (CL), brownish yellow |
| 4 | SS | 15/18/20 | 100 | | | SAND (SP), some gravel, some clay, brownish yellow<br>OVM = 0 |
| | | | | | 10 | |
| 5 | SS | 22/32/45 | 100 | WET | | SANDY CLAY (CL), some gravel, brownish yellow<br>OVM = 12 |
| | | | | | ▽ | |
| | | | | | 15 | |

REGISTERED GEOLOGIST
CATHY L. LIELAUSIS
No. 4426
STATE OF CALIFORNIA

## GENERAL NOTES

DATE STARTED 15 JUL 91
DATE COMPLETED 15 JUL 91
RIG CME 75
CREW CHIEF T. JARAMILLO
LOGGED M.K. CHECKED CAL

## WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 12.5
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. SB-6
SHEET NO. 1 OF 1

PROJECT NAME ARATEX
LOCATION OAKLAND
CONTRACTOR W. HAZMAT
DRILLING METHOD HOLLOW STEM AUGER

PROJECT NO. 12012.10
INSTALLATION
SURFACE ELEV. 24.2
BOREHOLE DIA. 6 IN.

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS |
|---|---|---|---|---|---|---|
| INTERVAL NO. | TYPE | RECOVERY N | % | MOISTURE | DEPTH | |
| | | | | | | 3" asphalt |
| 1 | SS | 13/8/9 | 100 | M | | SILT (ML), dark gray |
| | | | | | | CLAY (CL), brownish yellow, trace fine sand and gravel |
| | | | | | | OVM = 0 |
| 2 | SS | 13/14/26 | 100 | M | 5 | |
| 3 | SS | 15/18/22 | 66 | M | | SANDY CLAY (CL), brownish yellow, trace gravel |
| | | | | | | OVM = 0 |
| 4 | SS | 15/36/334 | 100 | M | | OVM = 0 |
| 5 | SS | 15/22/30 | 66 | WET | 10 | SILTY SAND (SM), brownish yellow, trace gravel |
| 6 | SS | 18/24/20 | 100 | WET | ▽ | SANDY CLAY (CL), trace gravel, brownish yellow |
| | | | | | 15 | |

REGISTERED GEOLOGIST
CATHY L. LIELAUSIS
No. 4426
STATE OF CALIFORNIA

## GENERAL NOTES

DATE STARTED 15 JUL 91
DATE COMPLETED 15 JUL 91
RIG CME 75
CREW CHIEF T. JARAMILLO
LOGGED M.K. CHECKED CLL

## WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 11.5
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. SB-17
SHEET NO. 1 OF 1

PROJECT NAME ARATEX
PROJECT NO. 12012.10
LOCATION OAKLAND
INSTALLATION
CONTRACTOR W. HAZMAT
SURFACE ELEV. 22.3
DRILLING METHOD HOLLOW STEM AUGER
BOREHOLE DIA. 6 IN.

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS |
|---|---|---|---|---|---|---|
| INTERVAL NO. | INTERVAL TYPE | RECOVERY N | RECOVERY % | MOISTURE | DEPTH | |
| | | | | | | 3" asphalt |
| | | | | | | 9" base |
| 1 | SS | 12/21/22 | 100 | M | | SILT (ML), dark gray |
| | | | | | | CLAY (CL), dark gray, trace silt, stiff |
| | | | | | | OVM = > 2,000 |
| 2 | SS | 9/11/12 | 100 | M | | stained |
| | | | | | | OVM = 56 |
| 3 | SS | 24/32/35 | 100 | M | 5 | CLAYEY SANDY GRAVEL (GW), stained olive gray, |
| | | | | | | OVM = > 2,000 |
| 4 | SS | 20/22/25 | 100 | M | | OVM = 44 |
| 5 | SS | 25/18/15 | 100 | M | | |
| 6 | SS | 15/21/25 | 100 | M | 10 | CLAY (CH), olive brown, stiff |
| | | | | | | OVM = 62 |
| 7 | SS | 18/20/25 | 100 | M | ▽ | SANDY CLAY (CL), some fine sand, trace gravel, brownish yellow, very stiff |
| | | | | | | OVM = 56 |
| | | | | | | OVM = 4.7 |
| | | | | | 15 | |

REGISTERED GEOLOGIST
CATHY L. LIELAUSIS
No. 4426
STATE OF CALIFORNIA

## GENERAL NOTES

DATE STARTED 18 JUL 91
DATE COMPLETED 18 JUL 91
RIG CME 75
CREW CHIEF T. JARAMILLO
LOGGED M.K CHECKED

## WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 13.0
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. SB-8
SHEET NO. 1 OF 1

PROJECT NAME ARATEX
LOCATION OAKLAND
CONTRACTOR W. HAZMAT
DRILLING METHOD HOLLOW STEM AUGER

PROJECT NO. 12012.10
INSTALLATION
SURFACE ELEV. 22.5
BOREHOLE DIA. 6 IN.

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS |
|---|---|---|---|---|---|---|
| INTERVAL NO. | TYPE | RECOVERY N | % | MOISTURE | DEPTH | |
| | | | | | | 3" asphalt |
| | | | | | | 9" base |
| | | | | | | BRICK |
| | | | | | | SILT (ML), dark gray |
| 1 | SS | 6/7/10 | 100 | M | | CLAY (CL), dark gray , stained, trace gravel, OVM = 566 |
| | | | | | | CLAYEY SANDY GRAVEL (GW), stained olive blue |
| 2 | SS | 6/10/12 | 100 | M | 5 | *OVM = > 2,000* |
| 3 | SS | 14/23/28 | 100 | F.P. | | free product OVM = > 2,000 |
| 4 | SS | 12/23/22 | 100 | F.P. | | SANDY CLAY (CL), some gravel, stained, free product OVM = < 2,000 |
| 5 | SS | 10/11/15 | 100 | M | 10 | OVM = < 2,000 |
| | | | | | | CLAY (CL), olive brown, trace gravel OVM = 6.7 |
| 6 | SS | 12/15/20 | 100 | M | | trace sand and silt OVM = 6.7 |
| | | | | | ▽ | |

REGISTERED GEOLOGIST
CATHY L. LIELAUSIS
No. 4426
STATE OF CALIFORNIA

GENERAL NOTES

DATE STARTED 17 JUL 91
DATE COMPLETED 17 JUL 91
RIG CME 75
CREW CHIEF T. JARAMILLO
LOGGED M.K. CHECKED CLL

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 13.5
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. SB-9
SHEET NO. 1 OF 1

PROJECT NAME ARATEX
PROJECT NO. 12012.10
LOCATION OAKLAND
INSTALLATION
CONTRACTOR W. HAZMAT
SURFACE ELEV. 22.4
DRILLING METHOD HOLLOW STEM AUGER
BOREHOLE DIA. 6 IN.

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS |
|---|---|---|---|---|---|---|
| INTERVAL NO. | INTERVAL TYPE | RECOVERY N | RECOVERY % | MOISTURE | DEPTH | |
| | | | | | | **SILT (ML)**, dark gray |
| 1 | SS | 5/7/8 | 100 | M | | |
| | | | | | | **CLAY (CL)**, dark gray, trace silt<br>OVM = > 2,000 |
| 2 | SS | 9/15/18 | 100 | M | | stained olive gray<br>OVM = > 2,000 |
| 3 | SS | 12/28/39 | 100 | M | 5 | **CLAYEY SAND (SC)**, some gravel, stained olive gray,<br>OVM = 174 |
| 4 | SS | 13/26/8 | 100 | M | | **SANDY GRAVEL (GW)**, trace clay and silt, yellowish red<br>OVM = 64 |
| 5 | SS | 12/13/16 | 100 | M | | OVM = 86 |
| | | | | | 10 | **CLAY (CL)**, yellowish red, pockets of gray silt, trace gravel<br>OVM = 0 |
| 6 | SS | 17/19/23 | 100 | M | | |
| 7 | SS | 17/18/20 | 100 | WET | ▽ | OVM = 0 |

REGISTERED GEOLOGIST
CATHY L. LIELAUSIS
No. 4426
STATE OF CALIFORNIA

## GENERAL NOTES

DATE STARTED 16 JUL 91
DATE COMPLETED 16 JUL 91
RIG CME 75
CREW CHIEF T. JARAMILLO
LOGGED M.K. CHECKED

## WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 13.0
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. SB-10
SHEET NO. 1 OF 1

PROJECT NAME ARATEX
LOCATION OAKLAND
CONTRACTOR W. HAZMAT
DRILLING METHOD HOLLOW STEM AUGER

PROJECT NO. 12012.10
INSTALLATION
SURFACE ELEV. 22.1
BOREHOLE DIA. 6 IN.

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS |
|---|---|---|---|---|---|---|
| INTERVAL NO. | TYPE | RECOVERY N | % | MOISTURE | DEPTH | |
| | | | | | | 3" base |
| | | | | | | SILT (ML), dark gray |
| 1 | SS | 10/10/11 | 100 | M | | CLAY (CL), dark gray, trace silt<br>OVM = > 2,000 |
| 2 | SS | 7/13/24 | 100 | M | 5 | SANDY SILTY CLAY (CL), trace gravel, stained olive gray,<br>OVM = < 2,000 |
| 3 | SS | 12/14/21 | 100 | M | | SANDY GRAVEL (GW), trace clay stained olive gray<br>OVM = 277 |
| 4 | SS | 4/6/10 | 100 | M | | CLAY (CL), olive brown, plastic<br>OVM = > 2,000 |
| | | | | | 10 | |
| 5 | SS | 8/14/22 | 100 | M | | CLAY (CL), trace sand, brownish yellow, trace gravel, pockets of silt,<br>OVM = 15 |
| 6 | SS | 12/21/26 | 100 | M | ▽ | OVM = 650 |

REGISTERED GEOLOGIST
CATHY L. LIELAUSIS
No. 4426
STATE OF CALIFORNIA

GENERAL NOTES

DATE STARTED 16 JUL 91
DATE COMPLETED 16 JUL 91
RIG CME 75
CREW CHIEF T. JARAMILLO
LOGGED M.K. CHECKED CLL

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 13.0
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. SB-11
SHEET NO. 1 OF 1

PROJECT NAME ARATEX
PROJECT NO. 12012.10
LOCATION OAKLAND
INSTALLATION
CONTRACTOR W. HAZMAT
SURFACE ELEV. 21.6
DRILLING METHOD HOLLOW STEM AUGER
BOREHOLE DIA. 6 IN.

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS |
|---|---|---|---|---|---|---|
| INTERVAL NO. | INTERVAL TYPE | RECOVERY N | RECOVERY % | MOISTURE | DEPTH | |
| | | | | | | 5" base |
| 1 | SS | 7/16/10 | 100 | M | | SILT (ML), dark gray |
| 2 | SS | 16/16/20 | 100 | M | | CLAY (CL), dark gray, trace silt<br>OVM = > 2,000 |
| | | | | | | OVM = 29 |
| 3 | SS | 5/11/15 | 100 | M | 5 | SANDY GRAVEL (GW), yellowish red, some clay<br>OVM = 2.8 |
| | | | | | | CLAY (CL), brownish yellow<br>OVM = 11 |
| 4 | SS | 6/7/9 | 100 | M | | OVM = 0 |
| 5 | SS | 9/12/15 | 100 | M | 10 | OVM = 0 |
| 6 | SS | 12/13/24 | 100 | M | ▽ | SANDY CLAY (CL), trace silt, trace gravel<br>OVM = 0 |
| 7 | SS | 17/59 | 66 | M | | |
| | | | | | 15 | CLAY (CL), brownish yellow with yellowish red silt<br>OVM = 0 |
| 8 | SS | 29/50 | 66 | M | | |
| 9 | SS | 24/50 | 66 | M | | SILTY CLAY (CL), brownish yellow , trace gravel<br>OVM = 0 |
| 10 | SS | 12/18/23 | 100 | V.W. | 20 | OVM = 10.7 |
| 11 | SS | 6/17/24 | 100 | V.W. | | OVM = 29 |
| 12 | SS | 12/17/23 | 100 | V.W. | | CLAY (CL), yellowish red, some silt<br>OVM = 0 |
| | | | | | 25 | |
| 13 | SS | 10/12/15 | 100 | V.W. | | SANDY GRAVEL (GW), poor, brownish yellow<br>OVM = 0<br>OVM = 0 |
| 14 | SS | 7/8 | 33 | WET | 30 | SAND (SP), medium, brownish yellow |
| | | | | | | SANDY GRAVEL (GW), brownish yellow,<br>OVM = 0 |

REGISTERED GEOLOGIST
CATHY L. LIELAUSIS
No. 4426
STATE OF CALIFORNIA

## GENERAL NOTES

DATE STARTED 17 JUL 91
DATE COMPLETED 17 JUL 91
RIG CME 75
CREW CHIEF T. JARAMILLO
LOGGED M.K. CHECKED CLL

## WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 13.0
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. SB-12
SHEET NO. 1 OF 1

PROJECT NAME ARATEX
LOCATION OAKLAND
CONTRACTOR W. HAZMAT
DRILLING METHOD HOLLOW STEM AUGER

PROJECT NO. 12012.10
INSTALLATION
SURFACE ELEV. 22.2
BOREHOLE DIA. 6 IN.

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS |
|---|---|---|---|---|---|---|
| INTERVAL NO. | TYPE | RECOVERY N | % | MOISTURE | DEPTH | |
| | | | | | | SILT (ML), dark gray |
| 1 | SS | 8/4/5 | 100 | M | | CLAY (CL), dark gray, trace of silt, stiff<br>OVM = 0 |
| 2 | SS | 4/8/9 | 100 | M | | brownish yellow |
| | | | | | 5 | SANDY CLAY (CL), trace gravel, brownish yellow,<br>OVM = 0 |
| 3 | SS | 21/34/46 | 100 | M | | SANDY GRAVEL (GW), trace clay, yellowish red<br>OVM = 0 |
| 4 | SS | 12/7/9 | 100 | M | | CLAY (CH), olive brown, plastic<br>OVM = 86 |
| | | | | | 10 | |
| 5 | SS | 10/12/15 | 100 | M | | SANDY CLAY (CL), brownish yellow, trace gravel<br>OVM = > 2,000 |
| 6 | SS | 6/9/15 | 100 | M | ▽ | pockets of yellowish red silt<br>OVM = > 2,000 |
| | | | | | 15 | |

REGISTERED GEOLOGIST
CATHY L. [illegible] ANALYSIS
No. 4[illegible]
STATE OF CALIFORNIA

GENERAL NOTES

DATE STARTED 16 JUL 91
DATE COMPLETED 16 JUL 91
RIG CME 75
CREW CHIEF T. JARAMILLO
LOGGED M.K. CHECKED CRL

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 13.0
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

# LOG OF TEST BORING

F-203 (R 01-87)

RMT

| | | | |
|---|---|---|---|
| PROJECT NAME | ARATEX | BORING NO. | SB-13 |
| LOCATION | OAKLAND | SHEET NO. | 1 OF 1 |
| CONTRACTOR | W. HAZMAT | PROJECT NO. | 12012.10 |
| DRILLING METHOD | HOLLOW STEM AUGER | INSTALLATION | |
| | | SURFACE ELEV. | 21.0 |
| | | BOREHOLE DIA. | 6 IN. |

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS |
|---|---|---|---|---|---|---|
| INTERVAL NO. | INTERVAL TYPE | RECOVERY N | RECOVERY % | MOISTURE | DEPTH | |
| | | | | | | SILT (ML), dark gray |
| 1 | SS | 3/6/7 | 100 | M | | CLAY (CL), dark gray, trace silt, stiff<br>OVM = 0 |
| 2 | SS | 6/11/16 | 100 | M | | GRAVELLY CLAY SAND (CL), fine sand, brownish yellow, dense<br>OVM = 0 |
| 3 | SS | 14/22/5 | 100 | M | 5 | SANDY GRAVEL (GW), yellowish red trace clay<br>OVM = 4.7 |
| 4 | SS | 9/7/6 | 100 | M | | CLAY (CH), olive brown, stiff |
| 5 | SS | 11/16/18 | 100 | M | | SANDY CLAY (CL), brownish yellow, trace gravel, stiff<br>OVM = 19 |
| 6 | SS | 12/13/12 | 66 | M | 10 | pockets of silt<br>OVM = 2 |
| 7 | SS | 6/13/28 | 100 | M | ▽ | SILTY CLAY (CL), interbedded red silt, stiff<br>OVM = 0 |
| | | | | | 15 | |

REGISTERED GEOLOGIST
CATHY L. LIELAUSIS
No. 4426
STATE OF CALIFORNIA

## GENERAL NOTES

| | |
|---|---|
| DATE STARTED | 17 JUL 91 |
| DATE COMPLETED | 17 JUL 91 |
| RIG | CME 75 |
| CREW CHIEF | T. JARAMILLO |
| LOGGED | M.K. CHECKED CLL |

## WATER LEVEL OBSERVATIONS

| | | |
|---|---|---|
| WHILE DRILLING | ▽ | 12.5 |
| AT COMPLETION | ▽ | |
| AFTER DRILLING | | |
| CAVE-IN: DATE/TIME | | DEPTH |
| WATER: DATE/TIME | | DEPTH |

# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. SB-14
SHEET NO. 1 OF 1
PROJECT NO. 12012.10
INSTALLATION
SURFACE ELEV. 20.8
BOREHOLE DIA. 6 IN.

PROJECT NAME ARATEX
LOCATION OAKLAND
CONTRACTOR W. HAZMAT
DRILLING METHOD HOLLOW STEM AUGER

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS |
|---|---|---|---|---|---|---|
| INTERVAL NO. | INTERVAL TYPE | RECOVERY N | RECOVERY % | MOISTURE | DEPTH | |
| | | | | | | **SILT (ML)**, dark gray |
| 1 | SS | 8/9/9 | 100 | M | | **SILTY CLAY (CL)**, dark gray, trace gravel |
| | | | | | | OVM = 0 |
| 2 | SS | 14/14/16 | 100 | M | | **GRAVELLY CLAY SAND (CL)**, sand, brownish yellow, little gravel |
| | | | | | | **SANDY GRAVEL (GW)**, yellowish red, trace clay |
| | | | | | | OVM = 0 |
| 3 | SS | 32/50 | 100 | M | 5 | |
| | | | | | | OVM = 0 |
| 4 | SS | 6/7/9 | 100 | | | **CLAY (CH)**, o;ive brown, stiff |
| | | | | | | OVM = 0 |
| 5 | SS | 6/14/25 | 100 | | | |
| | | | | | | OVM = 0 |
| | | | | | | **SANDY CLAY (CL)**, brownish yellow, trace gravel, stiff |
| 6 | SS | 7/13/21 | 100 | M | 10 | OVM = 0 |
| 7 | SS | 4/11/17 | 100 | M | ▽ | **SANDY CLAY (CL)**, yellowish red, pockets of silt, loose |
| | | | | | 15 | |

REGISTERED GEOLOGIST
CATHY L. LIELAUSIS
No. 4426
STATE OF CALIFORNIA

## GENERAL NOTES

DATE STARTED 17 JUL 91
DATE COMPLETED 17 JUL 91
RIG CME 75
CREW CHIEF T. JARAMILLO
LOGGED M. K. CHECKED

## WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 12.5
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. SB-15
SHEET NO. 1 OF 1
PROJECT NO. 12012.10
INSTALLATION
SURFACE ELEV. 22.1
BOREHOLE DIA. 6 IN.

PROJECT NAME ARATEX
LOCATION OAKLAND
CONTRACTOR W. HAZMAT
DRILLING METHOD HOLLOW STEM AUGER

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS |
|---|---|---|---|---|---|---|
| INTERVAL | | RECOVERY | | MOISTURE | | |
| NO. | TYPE | N | % | | DEPTH | |
| 1 | SS | 12/11/11 | 100 | M | | **SILT (ML)**, dark gray<br>OVM = 0 |
| 2 | SS | 9/14/25 | 100 | M | | **CLAY (CL)**, dark gray, trace silt, stiff<br>OVM = 0 |
| 3 | SS | 15/23/35 | 100 | M | 5 | **SANDY CLAY (CL)**, brownish yellow, stiff<br>OVM = 0 |
| 4 | SS | | | DRY | | **SANDY GRAVEL (GW)**, brownish yellow, dense |
| 5 | SS | 6/21/35 | 100 | GREASY | | **CLAY (CH)**, olive brown, trace gravel, stiff<br>OVM = 0<br>OVM = 0 |
| 6 | SS | 8/19/29 | 100 | M | 10 | **CLAYEY SAND (SC)**, brownish yellow, trace gravel<br>OVM = 0 |
| 7 | SS | 9/19/25 | 100 | M | ▽ | **SANDY CLAY (CL)**, little silt, trace gravel, very stiff<br>OVM = 0 |
| 8 | SS | 9/13/17 | 66 | M | 15 | **SILTY SANDY CLAY (CL)**, brownish yellow, loose |

REGISTERED GEOLOGIST
CATHY L. LIELAUSIS
No. 4426
STATE OF CALIFORNIA

## GENERAL NOTES

DATE STARTED 17 JUL 91
DATE COMPLETED 17 JUL 91
RIG CME 75
CREW CHIEF T. JARAMILLO
LOGGED M.K. CHECKED CLL

## WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 13.5
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME ____ DEPTH ____
WATER: DATE/TIME ____ DEPTH ____

# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. SB-16
SHEET NO. 1 OF 1
PROJECT NO. 12012.10
INSTALLATION
SURFACE ELEV. 22.5
BOREHOLE DIA. 6 IN.

PROJECT NAME ARATEX
LOCATION OAKLAND
CONTRACTOR W. HAZMAT
DRILLING METHOD HOLLOW STEM AUGER

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS |
|---|---|---|---|---|---|---|
| INTERVAL NO. | INTERVAL TYPE | RECOVERY N | RECOVERY % | MOISTURE | DEPTH | |
| | | | | | | 3" asphalt |
| | | | | | | 9" base |
| | | | | | | BRICK |
| 1 | SS | 6/6/10/11 | 66 | M | | **CLAY (CL)**, dark gray, trace silt, stiff<br>OVM = 10 |
| 2 | SS | 17/28/2 | 100 | M | 5 | OVM = 0 |
| | | | | | | **SANDY GRAVEL (GW)**, some clay, yellowish red |
| 3 | SS | 23/32/38 | 100 | | | stained<br>OVM = 341 |
| 4 | SS | 18/14/11 | 100 | | | OVM = 517 |
| 5 | SS | 7/8/11 | 100 | M | 10 | **CLAY (CH)**, olive brown, greasy, stiff<br>OVM = 0 |
| 6 | SS | 11/12/14 | 100 | M | ▽ | **CLAY (CL)**, brownish yellow, very stiff, trace sand<br>OVM = 19 |
| | | | | | 15 | |

REGISTERED GEOLOGIST
CATHY L. LIELAUSIS
No. 4426
STATE OF CALIFORNIA

## GENERAL NOTES

DATE STARTED 18 JUL 91
DATE COMPLETED 18 JUL 91
RIG CME 75
CREW CHIEF T. JARAMILLO
LOGGED M.K. CHECKED CLL

## WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 13.0
AT COMPLETION ▼
AFTER DRILLING
CAVE-IN: DATE/TIME DEPTH
WATER: DATE/TIME DEPTH

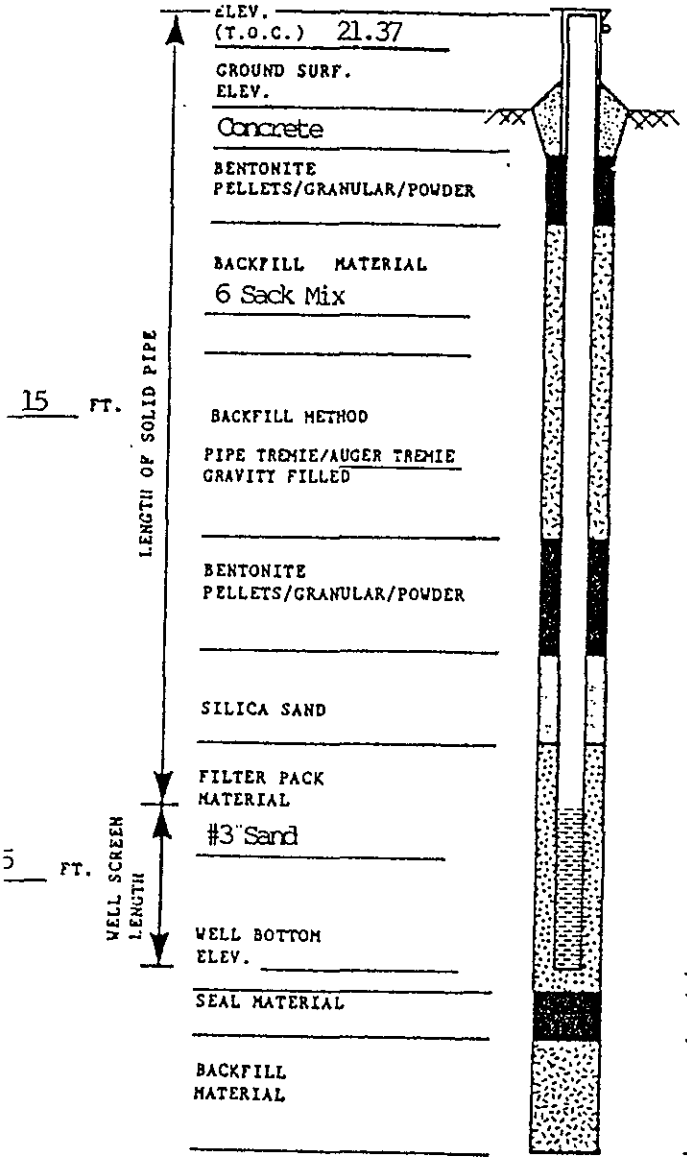
RMT

Well Diagram
F-17 (R 11-85)

PROJECT NAME: SERVISCC NO. 12012.10

WELL NO. MW-7

DATE INSTALLED 06-17-91




1) CASING DETAILS

A) TYPE OF PIPE:

PVC, STAINLESS, TEFLON, OTHER _____

PIPE SCHEDULE 40

B) TYPE OF PIPE JOINTS;

COUPLINGS, THREADED (W/TAPE?), OTHER _____

C) WAS SOLVENT USED? YES OR NO

D) TYPE OF WELL SCREEN:

PVC, STAINLESS, TEFLON, OTHER _____

E) WELL SCREEN SLOT SIZE 0.01

F) PIPE DIA: ID IN. _____ OD IN. _____

G) INSTALLED PROTECTOR PIPE W/LOCK? YES OR NO

PROTECTOR PIPE DIA. ____ IN.

2) WELL DEVELOPMENT

A) METHOD

BAILING, PUMPING, SURGING, COMPRESSED AIR

OTHER BK Hand Pump

(NOTE ADDITIONAL COMMENTS BELOW)

B) TIME SPENT FOR DEVELOPMENT? 3 Hours

C) APPROXIMATE WATER VOLUME: REMOVED 110--Gallon

ADDED _____

D) WATER CLARITY BEFORE DEVELOPMENT?

CLEAR, TURBID, OPAQUE

E) WATER CLARITY AFTER DEVELOPMENT?

CLEAR, SLIGHTLY TURBID, TURBID, OPAQUE

F) ODOR? YES OR NO

3) WATER LEVEL SUMMARY

A) DEPTH FROM TOP OF CASING AFTER DEVELOPMENT?

33.45 FT. OR DRY

B) OTHER MEASUREMENTS (T.O.C.):

DATE/TIME 07-17-91/Initial 30.87 F

DATE/TIME 07-18-91/Pre Sampling 33.86 F

DATE/TIME 08-27-91/ 34.37 F

ADDITIONAL COMMENTS: Developed 09-19-91, the well was surveyed for 15 minutes, 110 gallons bailed, water was very turbid. Completed with flush mounted cristy-box type cover. T.O.C. elevation surveyed relative to mean sea level.

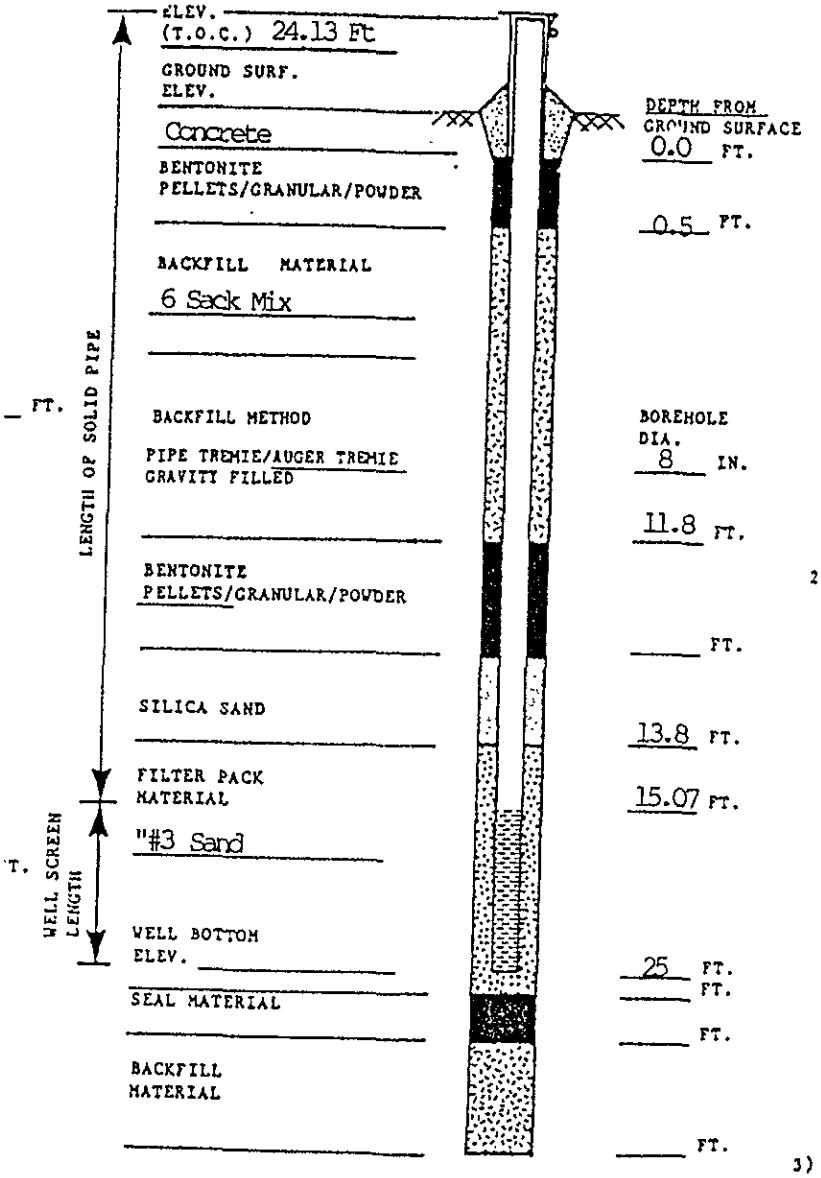
RMT

11 Diagram
17 (R 11-85)

PROJECT NAME: SERVISCO NO. 12012.10

WELL NO. MW-4A

DATE INSTALLED 07-16-91




1) CASING DETAILS

A) TYPE OF PIPE:

PVC, STAINLESS, TEFLON, OTHER _____

PIPE SCHEDULE 40

B) TYPE OF PIPE JOINTS;

COUPLINGS, THREADED (W/TAPE?), OTHER _____

C) WAS SOLVENT USED? YES OR NO

D) TYPE OF WELL SCREEN:

PVC, STAINLESS, TEFLON, OTHER _____

E) WELL SCREEN SLOT SIZE 0.01

F) PIPE DIA: ID IN. 4 OD IN. _____

G) INSTALLED PROTECTOR PIPE W/LOCK? YES OR NO
PROTECTOR PIPE DIA. ___ IN.

2) WELL DEVELOPMENT

A) METHOD

BAILING, PUMPING, SURGING, COMPRESSED AIR

OTHER _____

(NOTE ADDITIONAL COMMENTS BELOW)

B) TIME SPENT FOR DEVELOPMENT? 4 Hours

C) APPROXIMATE WATER VOLUME: REMOVED 25-Gallon

ADDED _____

D) WATER CLARITY BEFORE DEVELOPMENT?

CLEAR, TURBID, OPAQUE

E) WATER CLARITY AFTER DEVELOPMENT?

CLEAR, SLIGHTLY TURBID, TURBID, OPAQUE

F) ODOR? YES OR NO

3) WATER LEVEL SUMMARY

A) DEPTH FROM TOP OF CASING AFTER DEVELOPMENT?

39.2 FT. OR DRY

B) OTHER MEASUREMENTS (T.O.C.):

DATE/TIME 07-15-91/Initial 45.43 F

DATE/TIME 07-18-91/Pre Sampling 39.2 F

DATE/TIME 08-27-91/39.26 F

ADDITIONAL COMMENTS: Developed 07-19-91, the well was swabbed for 15 minutes, 55 gallons bailed. Water was very turbid. Completed with flush mounted cristy-box type cover. T.O.C. Elevation surveyed reactive to mean sea Level.

APPENDIX E

**APPENDIX E**

**GEOLOGIC LOGS**

## LEGEND

1. Standard split spoon sampler used where indicated by "SS". Modified California Sampler indicated by "CS".

2. Lithologic samples from liner #1 or shoe.

3. Backfilled to surface with Type II portland cement and capped with fast dry Burke Cement.

4. Penetration resistance values (N) by tube-type, 140 pound hammer, free-falling 30 inches; rope and cat-head operated.

5. Asterisk indicates sample submitted for laboratory hydrocarbon analyses.

# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. SB-1
SHEET NO. 1 OF 1

PROJECT NAME Aratex Servisco - SSI
PROJECT NO. 1660.05
LOCATION Oakland, CA
INSTALLATION 03/06/90
CONTRACTOR W. Hazmat Drilling
SURFACE ELEV.
DRILLING METHOD HSA
BOREHOLE DIA. 8.5 IN.

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS |
|---|---|---|---|---|---|---|
| INTERVAL | | RECOVERY | | MOISTURE | | |
| NO. | TYPE | N | IN | | DEPTH | |
| | | | | | | Concrete sidewalk over base course. |
| 1 | SS | 12 | 1 | | | Medium GRAVEL, some sand, trace silt, brown, dry. (FILL) |
| 2 | SS | 24 | 14 | | 5 | Silty CLAY, occasional fine gravel, olive gray, very stiff, plastic, moist. (CH) |
| 3* | CS | 33 | 18 | | 10 | Light olive gray CLAY with brownish-yellow silty CLAY pockets, very stiff (p.p. = 3.75), highly plastic, moist. (CH)<br>[hnu = 55 ppm; slight odor] |
| 4* | CS | 45 | 18 | | 15 | Silty, fine SAND, trace medium to fine gravels, light olive gray, occasional brownish-yellow silty clay pockets, moist (SM)<br>[hnu= 100 ppm; gasoline odor] |
| | | | | | | END OF BORING AT 16.5 FT. |
| | | | | | | See Attached Legend. |

## GENERAL NOTES

DATE STARTED 6 MAR 90
DATE COMPLETED 6 MAR 90
RIG CME 55
CREW CHIEF B. Keevey
LOGGED Z. Batchko CHECKED Davis

## WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ N/A
AT COMPLETION ▼ N/A
AFTER DRILLING
CAVE-IN: DATE/TIME _____ DEPTH _____
WATER: DATE/TIME _____ DEPTH _____

# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. SB-2
SHEET NO. 1 OF 1

PROJECT NAME Aratex Servisco - SSI
PROJECT NO. 1660.05
LOCATION Oakland, CA
INSTALLATION 03/06/90
CONTRACTOR W. Hazmat Drilling
SURFACE ELEV.
DRILLING METHOD HSA
BOREHOLE DIA. 8.5 IN.

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS |
|---|---|---|---|---|---|---|
| INTERVAL | | RECOVERY | | MOISTURE | | |
| NO. | TYPE | N | IN | | DEPTH | |
| | | | | | | 4" Concrete sidewalk over 3" base course. |
| 1 | SS | 7 | 12 | | | SILT, some clay, Dk. Br., loose, wet, dilatent. (FILL) |
| | | | | | | Silty CLAY, occasional fine gravel, olive gray with yellowish red mottling, v. stiff, plastic, moist. (CH) |
| 2 | SS | 40 | 18 | | 5 | Same at 5 with (p.p.=3.5 and T.V.>1.0tsf) and occasional fine sand pocket. |
| 3* | CS | 35 | 18 | | 10 | CLAY, light olive gray, with brownish yellow silty clay pockets, very stiff (p.p.=3.2 and T.V.>1.0tsf), plastic, moist. (CH) [hnu=150 ppm; slight odor] |
| | | | | | | SILT, some clay, olive gray to brown, moist. (MH) |
| 4* | CS | 50-6" | 12 | | 15 | SAND, silty, fine, trace fine gravels, occasional silty clay pockets, moist (no free water). (SM) [hnu=200 ppm; odorous] |
| | | | | | | END OF BORING AT 16.5 FT. |
| | | | | | | See Attached Legend. |

## GENERAL NOTES

DATE STARTED 6 MAR 90
DATE COMPLETED 6 MAR 90
RIG CME 55
CREW CHIEF B. Keevey
LOGGED Z. Batchko CHECKED Davis

## WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ N/A
AT COMPLETION ▼ N/A
AFTER DRILLING
CAVE-IN: DATE/TIME _____ DEPTH _____
WATER: DATE/TIME _____ DEPTH _____

# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. SB-3
SHEET NO. 1 OF 1
PROJECT NAME Aratex Servisco - SSI
PROJECT NO. 1660.05
LOCATION Oakland, CA
INSTALLATION 03/06/90
CONTRACTOR W. Hazmat Drilling
SURFACE ELEV.
DRILLING METHOD HSA
BOREHOLE DIA. 8.5 IN.

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS |
|---|---|---|---|---|---|---|
| INTERVAL | | RECOVERY | | MOISTURE | | |
| NO. | TYPE | N | IN | | DEPTH | |
| | | | | | | 4.5" concrete over 4" base course. |
| 1 | SS | 6 | 18 | | 5 | Silty CLAY, trace fine sand, light olive gray, stiff, plastic, moist (CH). |
| 2* | CS | 30 | 18 | | 10 | CLAY, light olive gray with brownish yellow mottling, very stiff (p.p.=4.25 and T.V.>1.0tsf), occasional silt pockets, plastic, moist (CH).<br>[hnu=5 ppm; no odor] |
| 3* | CS | 29 | 18 | | 15 | SAND, silty, fine, some medium to fine subangular gravels, loose-medium dense, trace clay, nonplastic, wet (no free water). (SM)<br>[hnu=25 ppm; very slight odor] |
| | | | | | | END OF BORING AT 15.0 FT. |
| | | | | | | See Attached Legend. |

GENERAL NOTES

DATE STARTED 6 MAR 90
DATE COMPLETED 6 MAR 90
RIG CME 55
CREW CHIEF B. Keevey
LOGGED Z. Batchko CHECKED Davis

WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ N/A
AT COMPLETION ▼ N/A
AFTER DRILLING
CAVE-IN: DATE/TIME _____ DEPTH _____
WATER: DATE/TIME _____ DEPTH _____

# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. MW-4
SHEET NO. 1 OF 2
PROJECT NAME Aratex Servisco - SSI
PROJECT NO. 1660.05
LOCATION Oakland, CA
INSTALLATION 03/05/90
CONTRACTOR W. Hazmat Drilling
SURFACE ELEV.
DRILLING METHOD HSA
BOREHOLE DIA. 8.5 IN.

| SAMPLING NOTES | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS | GENERAL WELL CONSTRUCT. |
|---|---|---|---|---|---|---|
| INTERVAL NO. | TYPE | RECOVERY N | IN | DEPTH | | |
| | | | | | 2" a.c. over 3" gravel base. | |
| | | | | | Clayey SILT, dark brown with occasional reddish brown sand pockets, plastic, moist. (FILL) | |
| 1 | SS | 40 | 18 | 5 | Silty CLAY, occasional fine gravel, brownish yellow, very stiff, plastic, moist. (CH) [hnu=7 ppm; no odor] With 1mm 0 roots at 5.5'. With dense fine SAND seam at 6'. | |
| 2* | CS | 40 | 18 | 10 | SAND, trace fine to medium gravel, subangular, some silt and clay, brownish yellow-olive gray, medium dense, wet (no free water). (SP-SM) [hnu=170 ppm; gasoline-like odor] | |
| 3* | CS | 26 | 18 | 15 ▼ | Silty CLAY, trace fine sand, brownish yellow, stiff (T.V.=0.65tsf), wet (no free water), plastic, with occasional reddish-brown silty-fine sand pockets. (CH) [hnu=4 ppm; slight gasoline odor] Grading more silty at 20' with green gray clay pockets, stiff (T.V.=0.55tsf), wet (trace free water), plastic. (CH) [hnu=4; no odor detected] | |

## GENERAL NOTES

DATE STARTED 5 MAR 90
DATE COMPLETED 5 MAR 90
RIG CME 55
CREW CHIEF B. Keevey
LOGGED Z. Batchko CHECKED Davis

## WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 22.0
AT COMPLETION ▼ 15.0
AFTER DRILLING
CAVE-IN: DATE/TIME ____ DEPTH ____
WATER: DATE/TIME 3/5 16:15 DEPTH 13.1'

# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. MW-4
SHEET NO. 2 OF 2

PROJECT NAME Aratex Servisco - SSI
PROJECT NO. 1660.05
LOCATION Oakland, CA
INSTALLATION 03/05/90
CONTRACTOR W. Hazmat Drilling
SURFACE ELEV.
DRILLING METHOD HSA
BOREHOLE DIA. 8.5 IN.

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS | GENERAL WELL CONSTRUCT. |
|---|---|---|---|---|---|---|---|
| INTERVAL NO. | TYPE | RECOVERY N | IN | MOISTURE | DEPTH | | |
| 4 | SS | 16 | 18 | | | | |
| | | | | | | Sandy CLAY, occasional fine gravel, brownish-yellow with reddish-brown mottling, firm, slightly plastic, moist. (CL) | |
| 5 | SS | 35 | 18 | | 25 | | |
| | | | | | | [hnu=0; no odor detected] | |
| | | | | | | END OF BORING AT 26.5 | |
| | | | | | | 2-inch well completed at 14:15. | |
| | | | | | 30 | | |
| | | | | | | See Attached Legend. | |
| | | | | | 35 | | |
| | | | | | 40 | | |

# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. MW-5
SHEET NO. 1 OF 2
PROJECT NAME Aratex Servisco - SSI
PROJECT NO. 1660.05
LOCATION Oakland, CA
INSTALLATION 03/06/90
CONTRACTOR W. Hazmat Drilling
SURFACE ELEV.
DRILLING METHOD HSA
BOREHOLE DIA. 105 IN.

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS | GENERAL WELL CONSTRUCT. |
|---|---|---|---|---|---|---|---|
| INTERVAL NO. | TYPE | RECOVERY N | IN | MOISTURE | DEPTH | | |
| | | | | | | 2" + 2" a.c. over approximately 4" base course. | |
| | | | | | | Clayey SAND, with trace gravel, dark brown, medium dense, dry grading to moist, slightly plastic, no odor. (SC) | |
| 1 | CS | 50 | 18 | | 5 | | |
| | | | | | | Silty CLAY, trace sand, brownish yellow, very stiff, plastic, moist. (CH) [hnu=0, no odor detected] | |
| 2* | CS | 29 | 18 | | 10 | Same as above with occasional fine gravel and very stiff (T.V>1.0tsf). [hnu=7 ppm; hint of gasoline-like odor] | |
| 2* | CS | 78 | 16 | | 15 ▼ | Gravelly SAND, subrounded, trace clay, brownish yellow-olive gray, dense, wet (no free water). (SW) [hnu=10 ppm; weak hydrocarbon odor] | |
| | | | | | ▽ | | |
| | | | | | | Silty CLAY, trace fine sand, brownish yellow, stiff (T.V=0.95tsf), plastic, wet. (CH) | |

## GENERAL NOTES

DATE STARTED 6 MAR 90
DATE COMPLETED 6 MAR 90
RIG CME 55
CREW CHIEF B. Keevey
LOGGED Z. Batchko CHECKED Davis

## WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 17.0
AT COMPLETION ▼ 15.0
AFTER DRILLING
CAVE-IN: DATE/TIME _____ DEPTH _____
WATER: DATE/TIME 3/6 10:00 DEPTH 15.30'

# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. MW-5
SHEET NO. 2 OF 2

PROJECT NAME Aratex Servisco - SSI
LOCATION Oakland, CA
CONTRACTOR W. Hazmat Drilling
DRILLING METHOD HSA

PROJECT NO. 1660.05
INSTALLATION 03/06/90
SURFACE ELEV.
BOREHOLE DIA. 105 IN.

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS | GENERAL WELL CONSTRUCT. |
|---|---|---|---|---|---|---|---|
| INTERVAL | | RECOVERY | | MOISTURE | | | |
| NO. | TYPE | N | IN | | DEPTH | | |
| 4 | CS | 35 | 6 | | | [hnu=10 ppm; slight hydrocarbon-like odor] | |
| 5 | CS | 70 | 18 | | 25 | Gravelly SAND, subrounded, trace silt and clay, brownish yellow, dense, wet with some free water, (SW).<br>[hnu=6 ppm; no odor distinguished] | |
| 6 | CS | 32 | 4 | | 30 | SILT, trace fine sand and clay, brownish yellow, medium dense, wet with trace free water, slightly dilatant, slightly plastic. (ML)<br>[no odor detected] | |
| | | | | | | END OF BORING AT 31.5 FT.<br>4-inch well completed at 9:45. | |
| | | | | | 35 | See Attached Legend. | |
| | | | | | 40 | | |

# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. MW-6
SHEET NO. 1 OF 2
PROJECT NAME Aratex Servisco - SSI
PROJECT NO. 1660.05
LOCATION Oakland, CA
INSTALLATION 03/05/90
CONTRACTOR W. Hazmat Drilling
SURFACE ELEV.
DRILLING METHOD HSA
BOREHOLE DIA. 105 IN.

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS | GENERAL WELL CONSTRUCT. |
|---|---|---|---|---|---|---|---|
| INTERVAL NO. | TYPE | RECOVERY N | IN | MOISTURE | DEPTH | | |
| 1 | CS | 12 | 18 | | 5 | SAND, some medium to fine gravel, subangular, trace clay, well graded, dark brown to brown, loose, dry, no odor. (SW)<br>[hnu=2; no distinguishable odor] | |
| 2* | CS | 21 | 18 | | 10 | CLAY, some silt, light olive gray, very stiff (T.V.=1.0 tsf), plastic, moist, flocculated. (CH)<br>[hnu=15 ppm; slight organic odor] | |
| 3* | CS | 34 | 15 | | 15 | SAND and CLAY, some medium to fine angular gravels, light olive gray, with greenish gray clay pockets, trace free water, nonplastic-slightly plastic, wet. (SC-CL)<br>[hnu=200 ppm; slight stale organic odor] | |

## GENERAL NOTES

DATE STARTED 5 MAR 90
DATE COMPLETED 5 MAR 90
RIG CME 55
CREW CHIEF B. Keevey
LOGGED Z. Batchko CHECKED Davis

## WATER LEVEL OBSERVATIONS

WHILE DRILLING ▽ 18.0
AT COMPLETION ▼ 14.2
AFTER DRILLING
CAVE-IN: DATE/TIME _____ DEPTH _____
WATER: DATE/TIME _____ DEPTH _____

# LOG OF TEST BORING

F-203 (R 01-87)

BORING NO. MW-6
SHEET NO. 2 OF 2

PROJECT NAME Aratex Servisco - SSI
PROJECT NO. 1660.05
LOCATION Oakland, CA
INSTALLATION 03/05/90
CONTRACTOR W. Hazmat Drilling
SURFACE ELEV.
DRILLING METHOD HSA
BOREHOLE DIA. IN.

| SAMPLING NOTES | | | | | | VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS | GENERAL WELL CONSTRUCT. |
|---|---|---|---|---|---|---|---|
| INTERVAL | | RECOVERY | | MOISTURE | | | |
| NO. | TYPE | N | IN | | DEPTH | | |
| 4 | CS | 18 | 18 | | | Silty CLAY, trace fine sand, with occasional fine sand pockets and fine gravel, brownish yellow, firm (T.V.=0.27 tsf), wet (no free water), plastic. (CH) | |
| | | | | | | [hnu=15 ppm; slight organic odor]. | |
| | | | | | 25 | | |
| 5 | CS | 56 | 18 | | | T.V. at 25'=0.5 tsf. | |
| | | | | | | SAND, well, some medium to fine gravels, subrounded, yellowish red, medium dense, wet with free water. (SW) | |
| | | | | | | [hnu=10 ppm; no odor detected] | |
| | | | | | 30 | SILT, trace fine sand, some clay, brownish yellow, stiff (T.V.=0.65tsf), wet with trace free water, slightly dilatant, slightly plastic. (ML) | |
| 6 | SS | | 18 | | | [no odor detected] | |
| | | | | | | END OF BORING AT 31.5 FT. | |
| | | | | | | 4-inch well completed at 12:00. | |
| | | | | | 35 | See Attached Legend. | |
| | | | | | 40 | | |