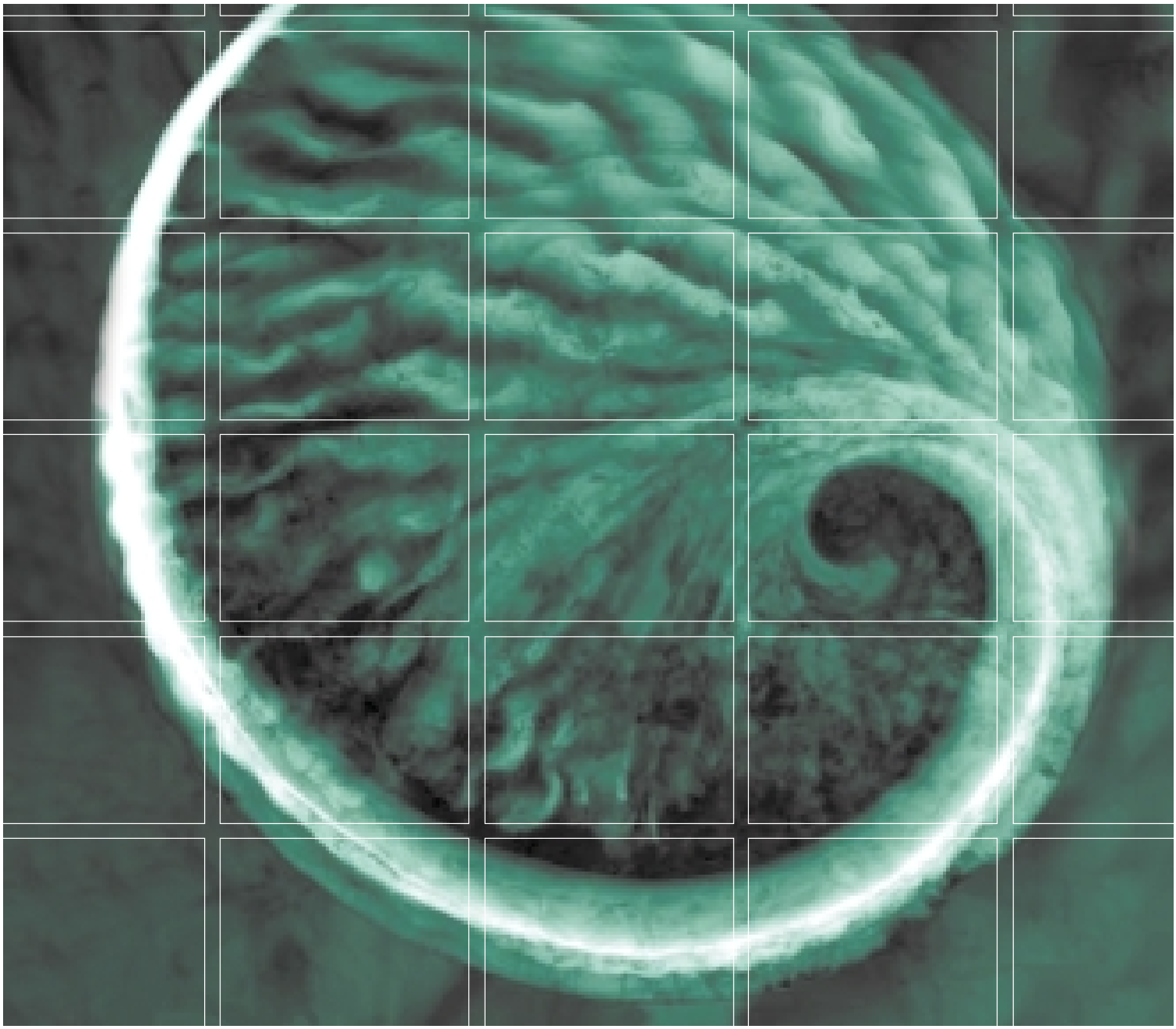

Interim Status Report and CAS Work Plan Revision

Whirlpool Facility, Ft. Smith, Arkansas
Prepared for Whirlpool Corporation

June 25, 2004

Volume 2 of 3

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Conceptual Site Model and CSM Addendum

Appendix B

June 25, 2004
Project No. 0014507

Environmental Resources Management
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Houston, Texas 77084-5140
(281) 600-1000

Whirlpool Corporation, Inc.

Conceptual Site Model

Fort Smith, Arkansas

August 2, 2002

W.O. #581-007

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

Whirlpool Corporation, Inc.

Conceptual Site Model

Fort Smith, Arkansas

August 2, 2002

W.O. #581-007

Troy W. Meinen

H. Reiffert Hedgcoxe, P.G.
Senior Associate

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APPENDIX

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1.0 INTRODUCTION

1.1 SITE BACKGROUND

The Whirlpool Fort Smith facility is located at 6400 Jenny Lind Road on the south side of Fort Smith, Arkansas (Figure 1-1). The facility manufactures side-by-side household refrigerators, trash compactors and icemakers. The facility has been operated by Whirlpool for over 30 years.

A series of soil and ground water studies were initiated at the site as part of a project to remove an underground fuel storage tank (UST). That work indicated that there was no evidence of releases of petroleum hydrocarbons from the UST. However, the analytical data showed the presence of trichloroethylene (TCE) and other solvents not related to the UST in the shallow ground water. Subsequent investigations, including a soil investigation to assess the potential source area, have been conducted to delineate the ground water plume.

Whirlpool has implemented a voluntary semi-annual ground water sampling program to monitor ground water conditions at the site. Studies are also currently under way to evaluate options for remediation of the on-site affected ground water.

Data from wells in the northern part of the facility indicate that TCE affected ground water is present near the northern boundary of the facility and may extend off site. In addition, recent site investigations indicate that there may be a limited northerly component to ground water flow. Based on these data, Whirlpool initiated discussions with the Arkansas Department of Environmental Quality (ADEQ) to enter a letter of agreement (LOA) to implement a Corrective Action Strategy (CAS) at the Whirlpool Facility.

1.2 OBJECTIVES OF THE CSM

This Conceptual Site Model (CSM) has been prepared to fulfill the requirements specified in Section II. F. of the LOA dated (June 6). Based on the LOA, a CSM must be submitted at the scoping meeting that has been tentatively scheduled for August 14, 2002

Successful implementation of the CAS relies on the development of a complete, yet concise CSM. To that end, the CSM for the whirlpool facility was developed using readily available data to illustrate the relationship between potential constituents of concern (COCs), potential exposure pathways, and potential receptors. Specifically, this CSM will be used as the framework on which the implementation of the CAS will be based.

2.0 FACILITY PROFILE

2.1 SITE FEATURES

The facility consists of the main manufacturing building (approximately 1.3 million square feet), and adjoining warehouse and administrative offices (Figure 2-1). Additional buildings located on the north side of the property include a water treatment plant and boiler house. The majority of the property surrounding the buildings is covered with concrete or asphalt for parking. Some gravel parking areas are also present. An outdoor waste storage area is located on the south side of the manufacturing facility. This paved area is enclosed with a chain-link fence topped with razor wire.

As stated in the LOA, the focus of the CAS is the area north and northwest of the facility. The major structures in that portion of the facility are the water treatment plant and boiler house mentioned previously (Figure 2-2). However, historical records indicate that a small building located west of the boiler house was formerly used for degreasing operations. This small building has not been used since the mid 1980's.

2.2 FACILITY OPERATIONS

Whirlpool-Fort Smith is a refrigerator manufacturing facility. The manufacturing processes conducted at the site include polyurethane foaming, metal fabrication, plastic thermoforming and assembly operations. All storage of hazardous wastes is limited to 90 days or less in containers, no hazardous waste treatment activities are conducted on site. It is believed that constituents in the soils and groundwater identified in the facility investigation are the result of historical practices prior to 1980.

Dating back to approximately 1967, equipment degreasing operations utilizing trichloroethylene (TCE) were performed in the former degreaser building located near the northwestern corner of the main manufacturing building. The use of TCE was discontinued in the mid 1980's and the degreaser building is not currently used for any cleaning operations.

Based on verbal reports from former workers, the degreasing equipment consisted of a tank and a parts rack. The degreasing operations involved placing parts into the parts rack positioned over the tank. The TCE tank was then heated creating a TCE vapor in the area where the parts were placed. Following degreasing activities, the vapor was condensed and returned to the tank below the parts rack.

3.0 LAND USE AND EXPOSURE PROFILE

3.1 FACILITY AND ADJACENT PROPERTIES

The Whirlpool facility is a manufacturing and warehousing operation. No other specific land use categories are present on the property.

Surrounding property uses include light industrial/commercial activities to the south and east, residential to the north and undeveloped land to the west (Figure 3-1). Residential properties to the north include single-family homes and two multi-family units. No recreational or agricultural properties are located in the vicinity of the Whirlpool facility. In addition, schools, hospitals, day care centers, etc. are located at least 0.5 miles from the facility.

3.2 RESOURCE USE AND LOCATIONS

Based on the EPA ground water classification guidelines Ground water in the vicinity of the Whirlpool facility would be classified as Class IIB ground water (a potential drinking water source). Following EPA guidance, the area near the facility has been evaluated to identify potential groundwater use and ecological receptors.

As is detailed in Section 6.0 of this submittal, there are no ecologically vital areas within a two–mile radius of the Whirlpool facility.

A water well search was performed within a one-mile radius of the Whirlpool facility. No federal, state or public water supply wells were identified within the search distance (Figure 3-2). Drinking water and sanitary sewer services for both commercial/industrial and residential properties in the vicinity of the Whirlpool plant are supplied by the City of Fort Smith. Drinking water supplies include Lake Fort Smith, Lake Shepherd Springs and the Lee Creek Reservoir. These reservoirs are not located near the facility. (http://www.fsark.com/NewsReleases/Archive/2001-07-24SpecialReportWaterSupplyPlanning.html)

Additionally, available literature indicates that the majority of shallow wells in the Fort Smith area are completed in the McAlester Shale. Apparently, the thin alluvial deposits in the Fort Smith area (specifically those not associated with the Arkansas River) yield insufficient quantities of water to justify shallow wells. Most wells completed in the McAlester Shale are completed to depths up to 475 feet and produce poor quality water with yields of 25 to 75 gallons per minute.

3.3 APPLICABLE EXPOSURE SCENARIOS AND PATHWAYS

Whirlpool has conducted a survey of the land use and potential exposure scenarios/pathways in the immediate vicinity of the impacted area. Based on this survey, both industrial and residential exposure scenarios are potentially applicable. Industrial exposure pathways may include incidental soil ingestion, dermal contact with soil or inhalation or volatiles by a construction or

maintenance worker. Residential pathways appear to be limited to inhalation of volatiles through the use of underground storm shelters at locations immediately north of the plant (across Ingersoll Avenue.).

4.0 PHYSICAL PROFILE

4.1 TOPOGRAPHY

The facility is situated near the crest of a low hill such that the topography of the Whirlpool facility gently slopes to the east-northeast along the northern portion of the facility, and to the south-southeast along the southern portion of the facility. The location of the site is identified on the USGS 7.5 min. topographic quadrangle for Fort Smith, Arkansas in Figures 3-1 and 3-2). The site is located outside the 100-year and 500-year floodplains.

Drainage ditches are located along Ingersoll Avenue on the north side of the facility and along Jenny Lind Road on the east side of the facility. Surface water generally flows toward the northeast corner of the facility where it enters the city storm sewer system under Jenny Lind Road and flows toward Mill Creek.

4.2 GEOLOGY

The geology of the Fort Smith area of Western Arkansas is generally characterized by Pennsylvanian age sediments. The Whirlpool facility, situated on the Northwestern flank of the Massard Prairie Anticline, overlies Quaternary Alluvium and gently dipping Pennsylvanian McAlester Shale.

Quaternary Alluvium is present from ground surface to a depth of 29 to 37 feet at the Whirlpool facility. Site boring logs and previous site literature indicate the alluvium is generally composed of a shallow fine-grained unit, and a coarse-textured basal unit (Figures 4-1 and 4-2).

The Upper Fine-Grained unit exhibits significant variations in lithologic texture throughout the site and with depth, generally varying from fine-grained silt to sandy clay. In general, the central portion of this unit (from 4 to 10 feet below ground surface (bgs)) consists of sandy clay. The thickness of this sandy-clay zone is highly variable; ranging from a maximum thickness of approximately 13 feet to 1 foot or less at many locations. This sandy-clay zone is not recognizable in approximately half of the borings at the site.

The lower unit of the alluvium at the site, commonly referred to as the Basal Aquifer, consists of sands and gravels. The upper portion of the Basal Aquifer unit is typically composed of a fine-grained silty sand to sandy silt. This sandy silt grades to a sandy gravel with depth in the lower portrion. Where present, the silty sand portion of the unit is from 5 to 10 feet thick and forms a gradational transition between the Upper Fine-Grained unit and the Basal Aquifer.

The sandy gravel at the base of the Basal Aquifer is commonly 3 to 6 feet thick and has variable amounts of clay and silt. This sand and gavel layer is present in the majority of the borings at the site and it rests unconformably on either weathered shale or clay associated with the weathered shale.

The alluvial units are underlain by the McAlester Shale. This formation ranges up to 1000 feet thick in the Fort Smith region. In the vicinity of the Whirlpool facility the upper portion has been eroded leaving a thickness of 100 to 500 feet. The full thickness of the McAlester Shale immediately beneath the Whirlpool facility has not been determined.

Based on the site boring logs, the top of the shale is present from 26 to 35 feet bgs (Figure 4-3). The upper portion of the shale is typically silty, black to dark-gray, fissile, micaceous shale. Commonly, there is a thin veneer of friable red-orange to gray-brown clay between the base of the gravel zone and the weathered shale. This clay typically grades to the black or dark gray shale of the McAlester Formation.

Soil boring logs, cone penetrometer test logs and monitoring well completion details are provided in Appendix A.

4.3 HYDROGEOLOGY

The facility has been conducting ground water monitoring activities since 1989. Water level measurements from these sampling events, indicate that the predominate direction of shallow ground water flow during fall is to the south and southwest (Figure 4-4). This dominant flow direction, however, changes during the spring to the southeast (Figure 4-5). In addition, recent information implies that ground water flow in the northern portion of the site may have a limited northerly component.

Based on data from numerous ground water investigations at the site, the Basal Aquifer is semi-confined. Calculated hydraulic conductivity values for the Basal Aquifer unit range from 1.74 x 10-4 cm/s up to 1.0 x 10-2 cm/s. One aquifer pumping test conducted at the facility indicated that the average hydraulic conductivity for the north side of the facility is 4.6 x 10-3 cm/s based on an aquifer thickness of 16 feet. The storage coefficient was estimated at 6.5 x 10-3.

Ground water flow velocity for the northern portion of the facility has been calculated at 24 feet per year. Based on a limited number of borings and piezometers installed north of the site, it appears the basal coarse-grained formation pinches out to the north and, consequently, additional studies are needed to assess the potential and characteristics of off-site, northerly ground water flow.

5.0 RELEASE PROFILE

As discussed in Section 3, equipment degreasing operations utilizing TCE were previously performed at the facility. However, the use of TCE was discontinued in the mid 1980's and the degreaser building is no longer used for any cleaning operations.

There are no historical records that document any specific spills or other release incidents from the degreaser building. However, it is possible that historical leaks from the tank may have occurred, resulting in releases to the soil and ground water.

Based on historical process knowledge, and recent analytical data, the major constituent of concern (COC) is TCE. Daughter products (including tetrachloroethene, cis- and trans-1,2 dichloroethylene, 1,1-dichloroethylene, and vinyl chloride) resulting from degredation of TCE have also been periodically detected in site wells.

Analytical data from the monitoring well system show that the majority of the affected ground water has migrated from the apparent source area (near MW-25) in a southerly and southwesterly direction under the northwest corner of the main manufacturing building (Figure 5-1). The extent of affected ground water to the south and southwest appears to be limited to the Whirlpool property; that is, the ground water plume does not extend off site in that direction. However, recent data from wells north of the main building, along the north side of Ingersoll Avenue (MW-23, MW-31 through MW-33), indicate that affected ground water is present near the north boundary of the Whirlpool facility and extends off site in a limited area (Figure 5-1).

6.0 ECOLOGICAL PROFILE

The Whirlpool Fort Smith facility consists of approximately 153 acres. Approximately 21 acres are undeveloped and consist of open grassy areas on the southwestern portion of the property. As indicated previously, the developed portion of the property consists of a warehouse, manufacturing facility and water treatment plant. Concrete driveways and concrete and asphalt parking areas surround the structures. Residential areas are located to the north and south of the property, and commercial industrial properties are located to the east and west.

City of Fort Smith stormwater drainage ditches are located along the northern and eastern boundaries of the property along Ingersoll Avenue and Jenny Lind Road, respectively.

In accordance with the requirements of the CAS an assessment to identify potential endangered and threatened species habitat in the vicinity of the facility has been requested from the U.S Fish and Wildlife Service.

There are no wetlands or gaining streams located north of the facility. Therefore, off-site migration of affected ground water to the north of the facility does not appear to impact any surface water features. Data collected during limited off-site investigation activities indicate that only off-site ground water is affected. Affected off-site soils have not been encountered.

An intermittent drainage channel is also located on the west side of the property and appears to drain to an unnamed tributary of the Poteau River approximately 1.0 mile to the west. The nearest major surface water body is Mill Creek located approximately 0.25-mile to 0.5-mile east of the property. All of these features are located outside of the limit of affected ground water. Based on this profile, it appears that there are no complete exposure pathways from the affected ground water to any ecological receptors in the vicinity of the facility.

7.0 RISK MANAGEMENT PROFILE

Once additional data is collected and this CSM will be updated. That additional information will then be used to develop a risk management profile for the site. The risk management profile will include the following components:

- Summary of risks
- Impact of a risk management activity on release and exposure characteristics
- Performance monitoring locations and media
- Contingency plans

Figures

August 2, 2002
W.O. # 581-007

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Houston, Texas 77094-1611
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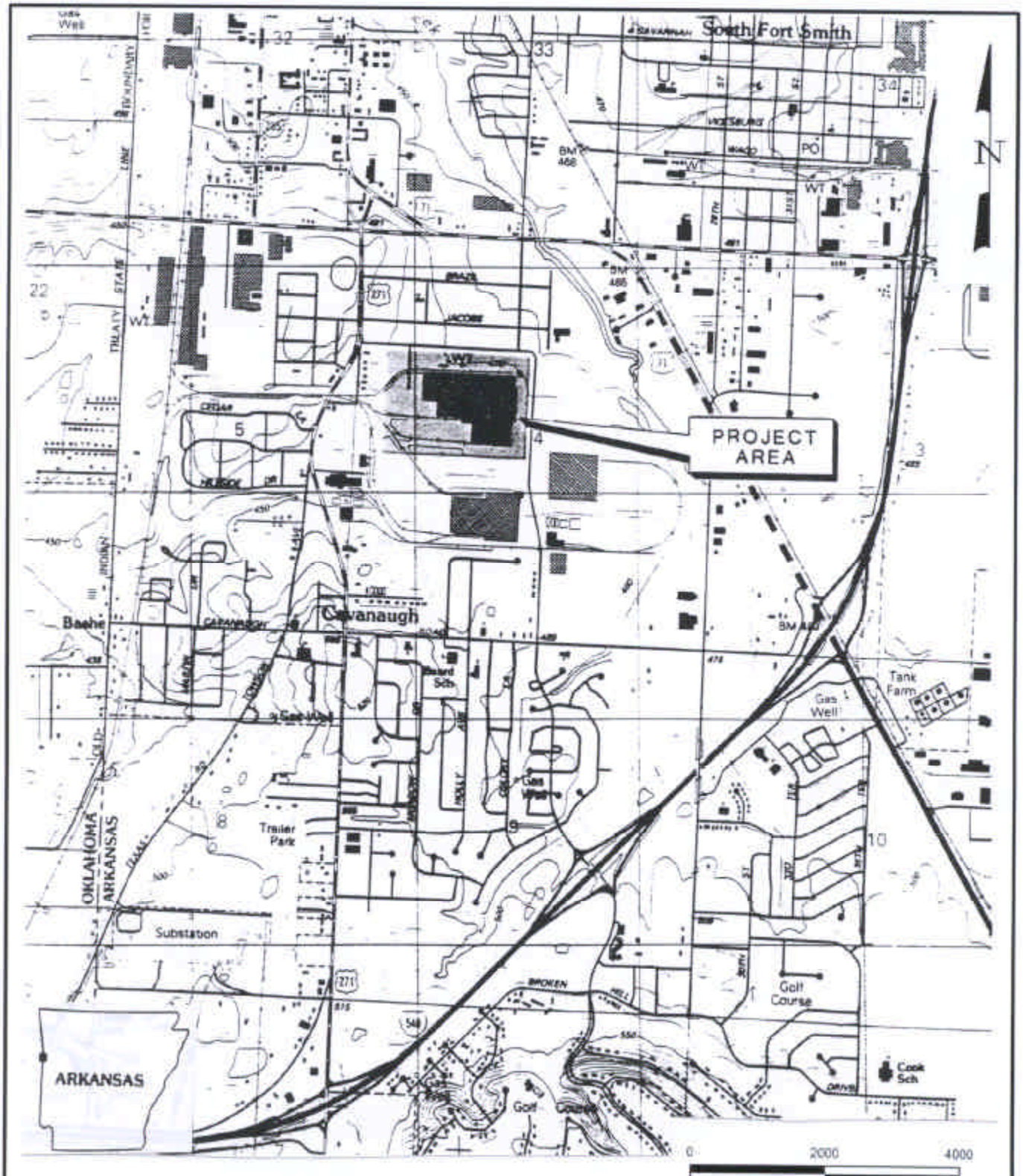

SOURCE: U.S.G.S. 7.5' QUADRANGLE, SOUTH FORT SMITH, ARK.-OKLA., 1987.

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HOUSTON · NEW ORLEANS · AUSTIN · DALLAS · BEAUMONT · BATON ROUGE

FIGURE 1-1
SITE LOCATION MAP
Whirlpool Corporation
Fort Smith, Arkansas

DESIGN:	CHKD.: SK	DATE: 10/23/00	REV.:
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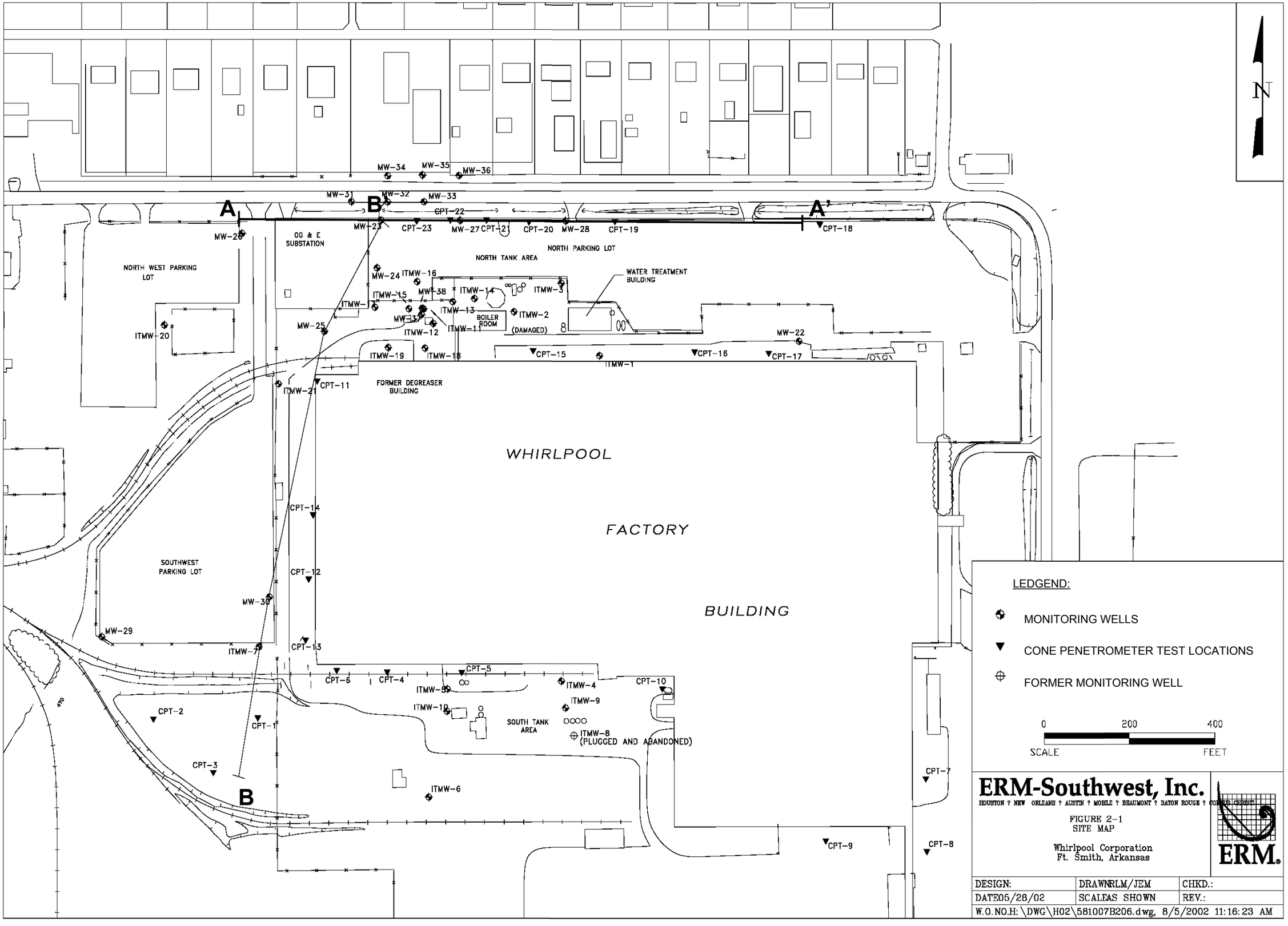
g:\2004\006296\0014507\5578Hfig1-1.pdf

ERM



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HOUSTON ? NEW ORLEANS ? AUSTIN ? MOBILE ? BEAUMONT ? BATON ROUGE ? CORPUS CHRISTI

FIGURE 2-1
SITE MAP

Whirlpool Corporation
Ft. Smith, Arkansas

ERM

DESIGN:	DRAWNRLM/JEM	CHKD.:
DATE05/28/02	SCALEAS SHOWN	REV.:
W.O.NO.H:\DWG\H02\581007B206.dwg, 8/5/2002 11:16:23 AM		

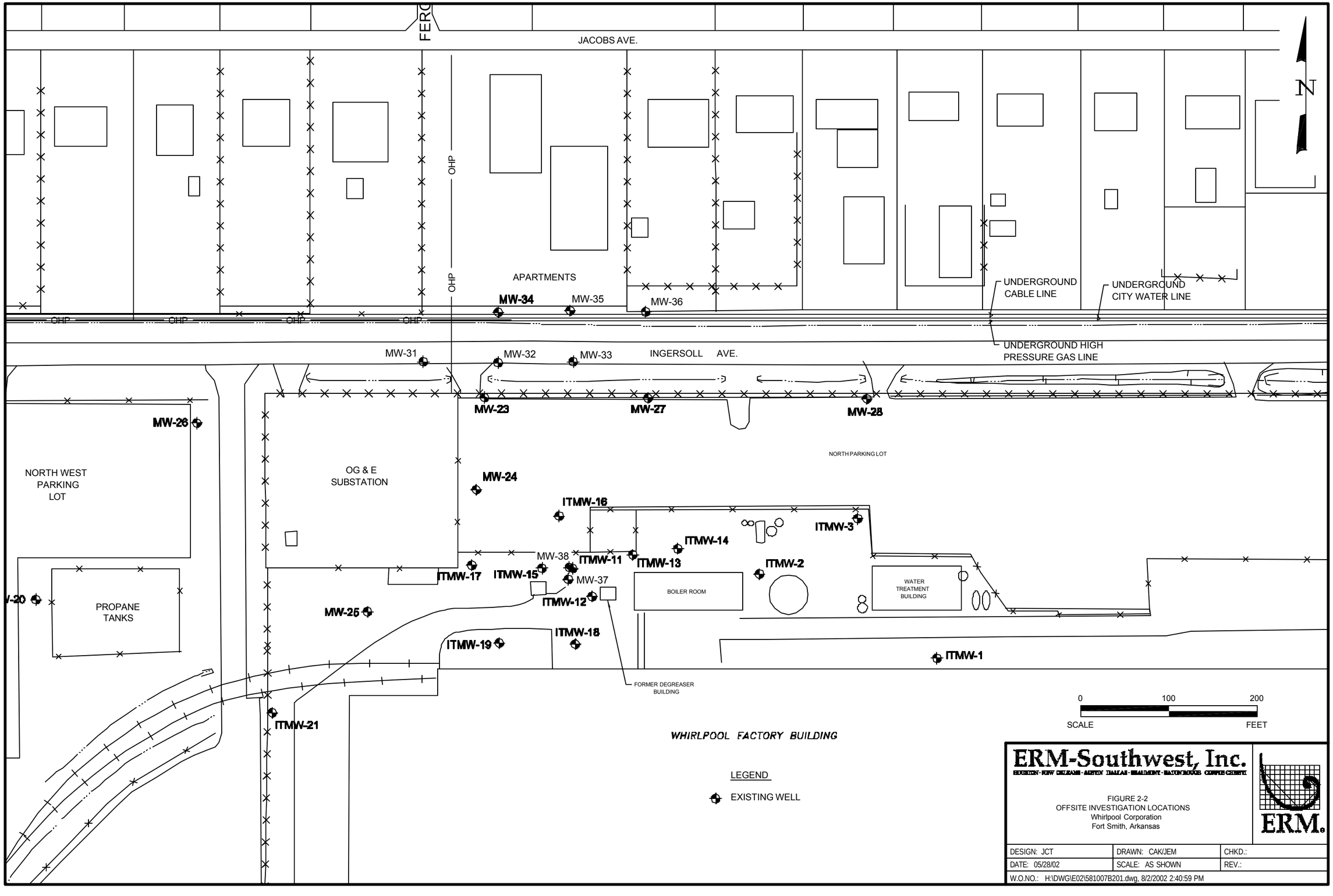

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FIGURE 2-2
OFFSITE INVESTIGATION LOCATIONS
Whirlpool Corporation
Fort Smith, Arkansas

DESIGN: JCT	DRAWN: CAK/JEM	CHKD.:
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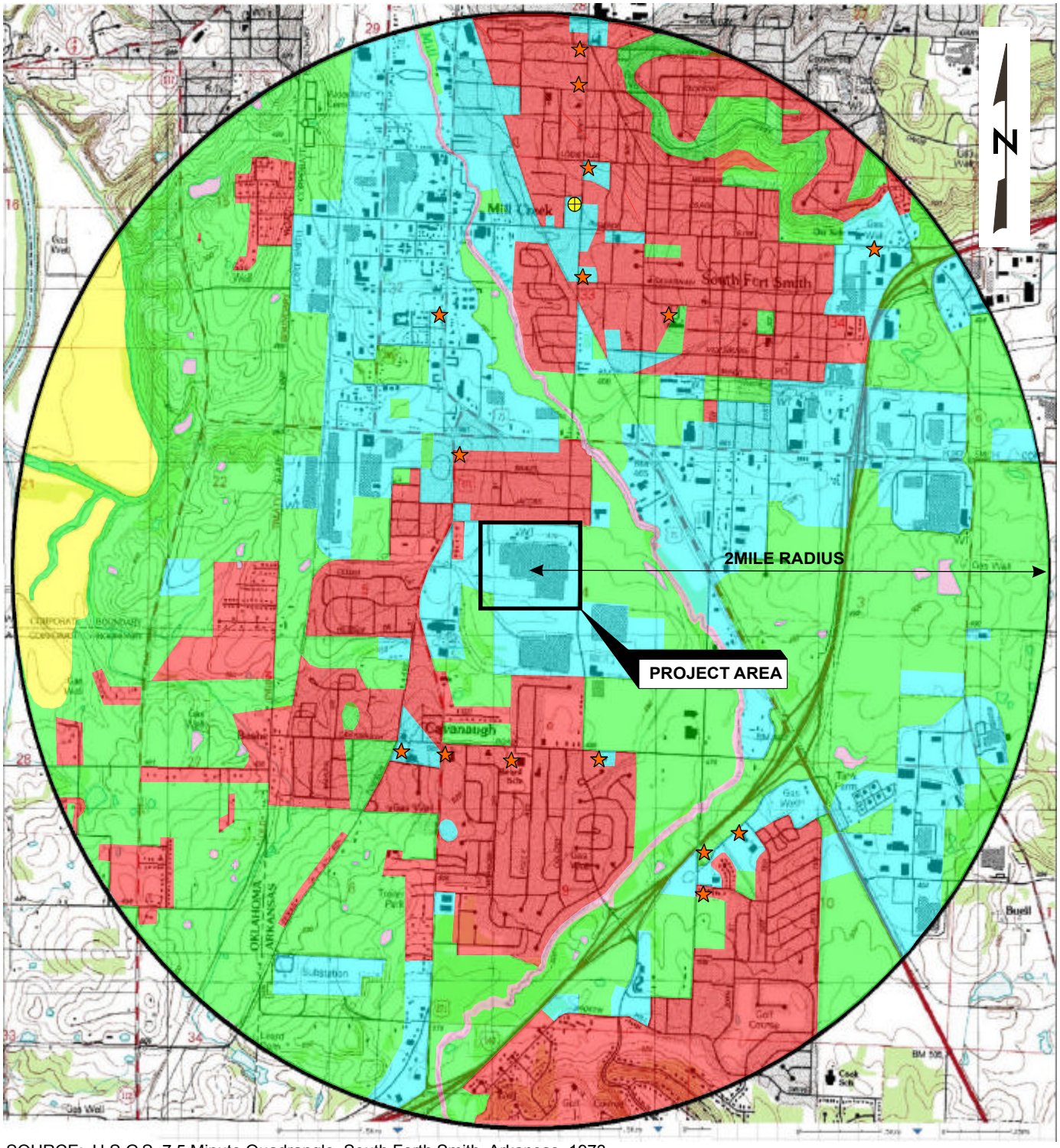

SOURCE: U.S.G.S. 7.5 Minute Quadrangle, South Forth Smith, Arkansas, 1973

LEGEND:

- RESIDENTIAL
- UNDERDEVELOPED
- AGRICULTURAL
- COMMERCIAL / INDUSTRIAL
- SURFACE WATER
- HOSPITAL
- SCHOOL / DAYCARE

0 3000 6000

SCALE FEET

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FIGURE 3-1
LAND USE MAP
Whirlpool Corporation
Fort Smith, Arkansas

DESIGN: JCT	CHKD.: TM	DATE: 05/31/02	REV.: 0
DRAWN: JEM	SCALE: AS SHOWN	W.O.NO.: 581007A208 E02	

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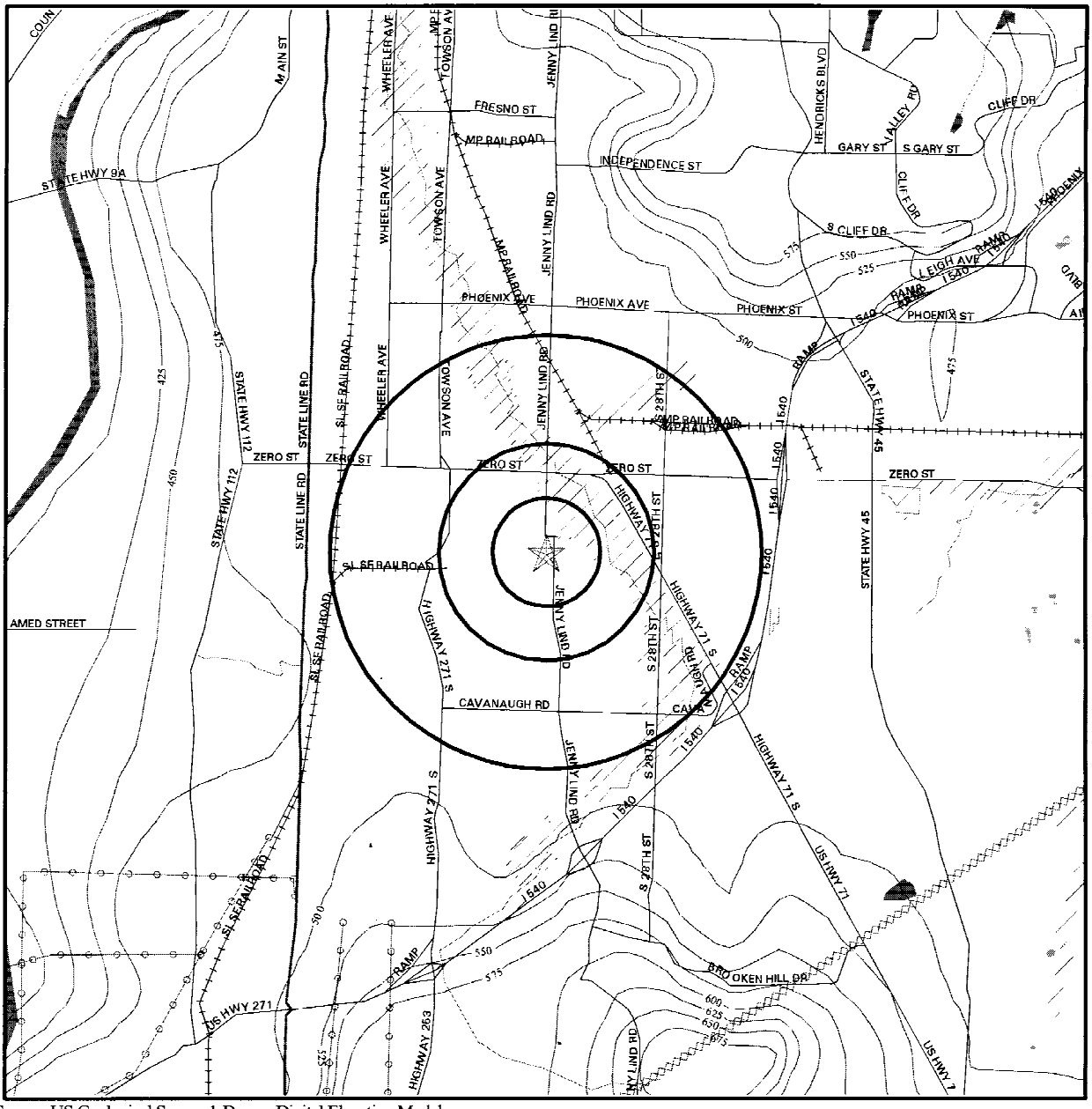
TOPOGRAPHIC MAP –591164.1s –'ERM –Southwest, Inc.'



Source: US Geological Survey 1-Degree Digital Elevation Model
Compiled 09/15/92

0 1/2 1 2

scale in miles

–Major Roads

–Contour lines (25 foot interval unless otherwise shown)

–Waterways

–Wells within search distance to Target Property

–Earthquake Epicenters (Richter 5 or greater)

–Power lines

–Pipe lines

–Fault lines

–Water

–Wetlands

–100-year flood zone

–500-year flood zone

N

TARGET PROPERTY:	Whirlpool Corporation	CUSTOMER:	ERM –Southwest, Inc.
ADDRESS:	6400 Jenny Lind Rd	CONTACT:	Roberta Smith
CITY/STATE/ZIP:	Fort Smith AR 72908	INQUIRY #:	591164.1s
LAT/LONG:	35.3224 / 94.4137	DATE:	February 02, 2001

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DESIGN:	DRAWN:	CHKD.:
DATE: 05/23/02	SCALE: AS SHOWN	REV.:
W.O.NO.: H:\DWG\E02\581007A207.dwg, 8/2/2002 2:14:22 PM		

FIGURE 3-2
WATER WELL RADIUS SEARCH RESULTS
Whirlpool Corporation
Fort Smith, Arkansas

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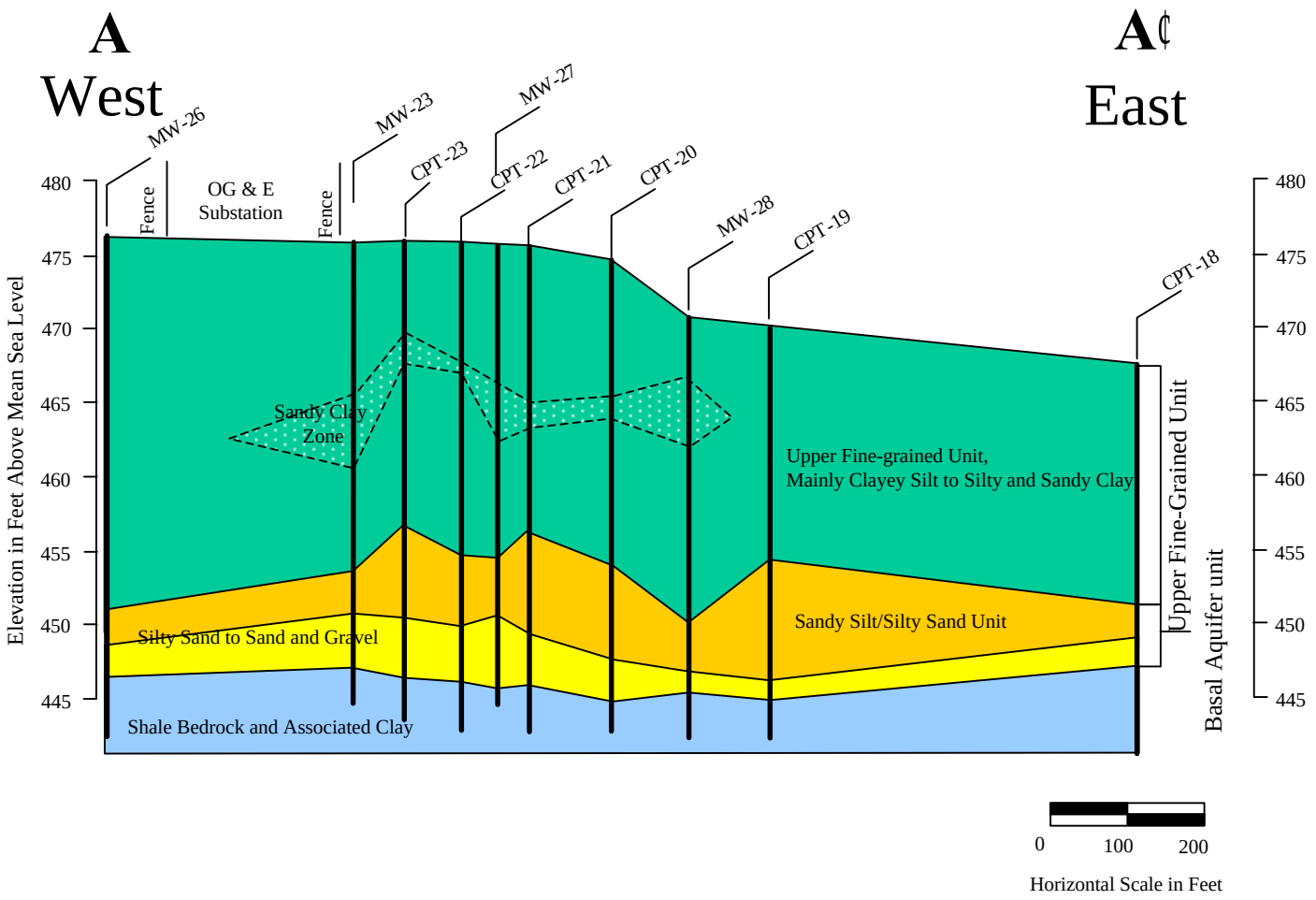

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DESIGN:	CHKD.:	DATE: 05/21/02	REV.:
DRAWN:	SCALE:AS SHOWN	W.O.NO.: 581007A205 H02	

FIGURE 4-1
Cross Section along Ingersoll Avenue
Whirlpool Corporation
Fort Smith, Arkansas

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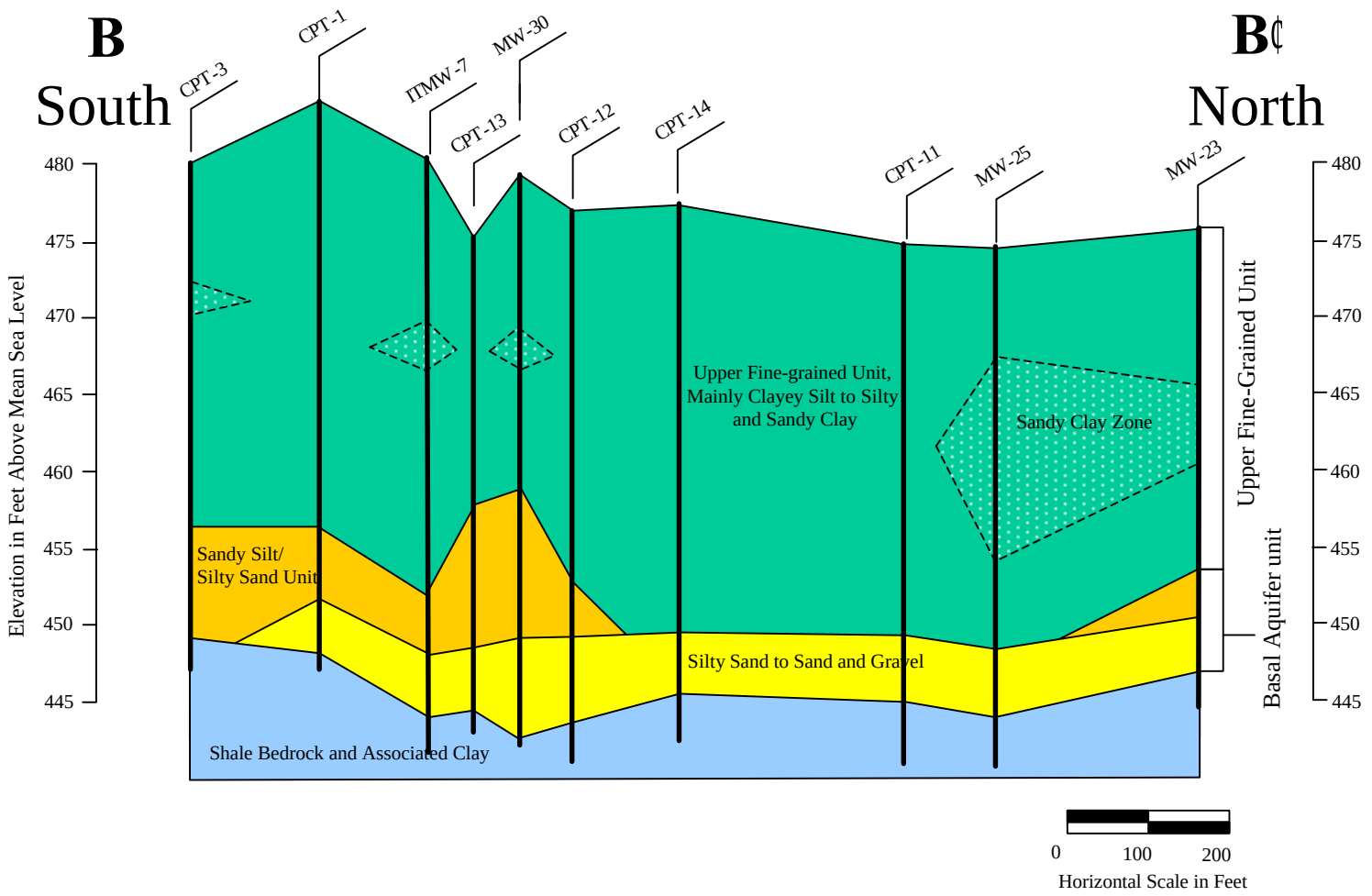

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DESIGN:	CHKD.:	DATE: 05/21/02	REV.:
DRAWN:	SCALE:AS SHOWN	W.O.NO.: 581007A205 E02	

FIGURE 4-2
Cross Section Along West Side of Building
Whirlpool Corporation
Fort Smith, Arkansas

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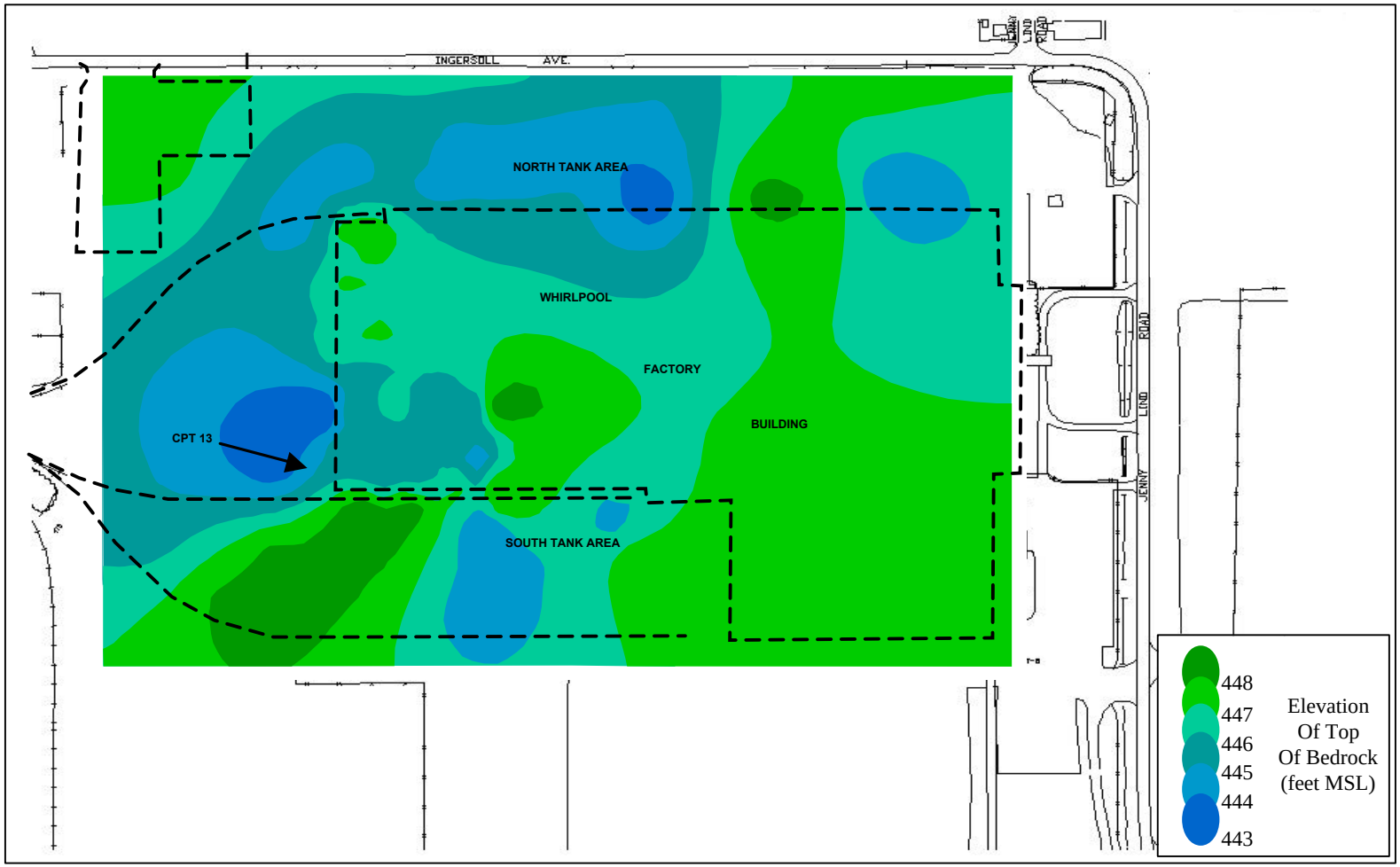

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DESIGN:	CHKD.:	DATE: 07/31/02	REV.:
DRAWN:	SCALE: AS SHOWN	W.O.NO.: 581007A210.ppt G02	

FIGURE 4-3
Contour Map of McAlester Shale Surface
Whirlpool corporation
Fort Smith, Arkansas

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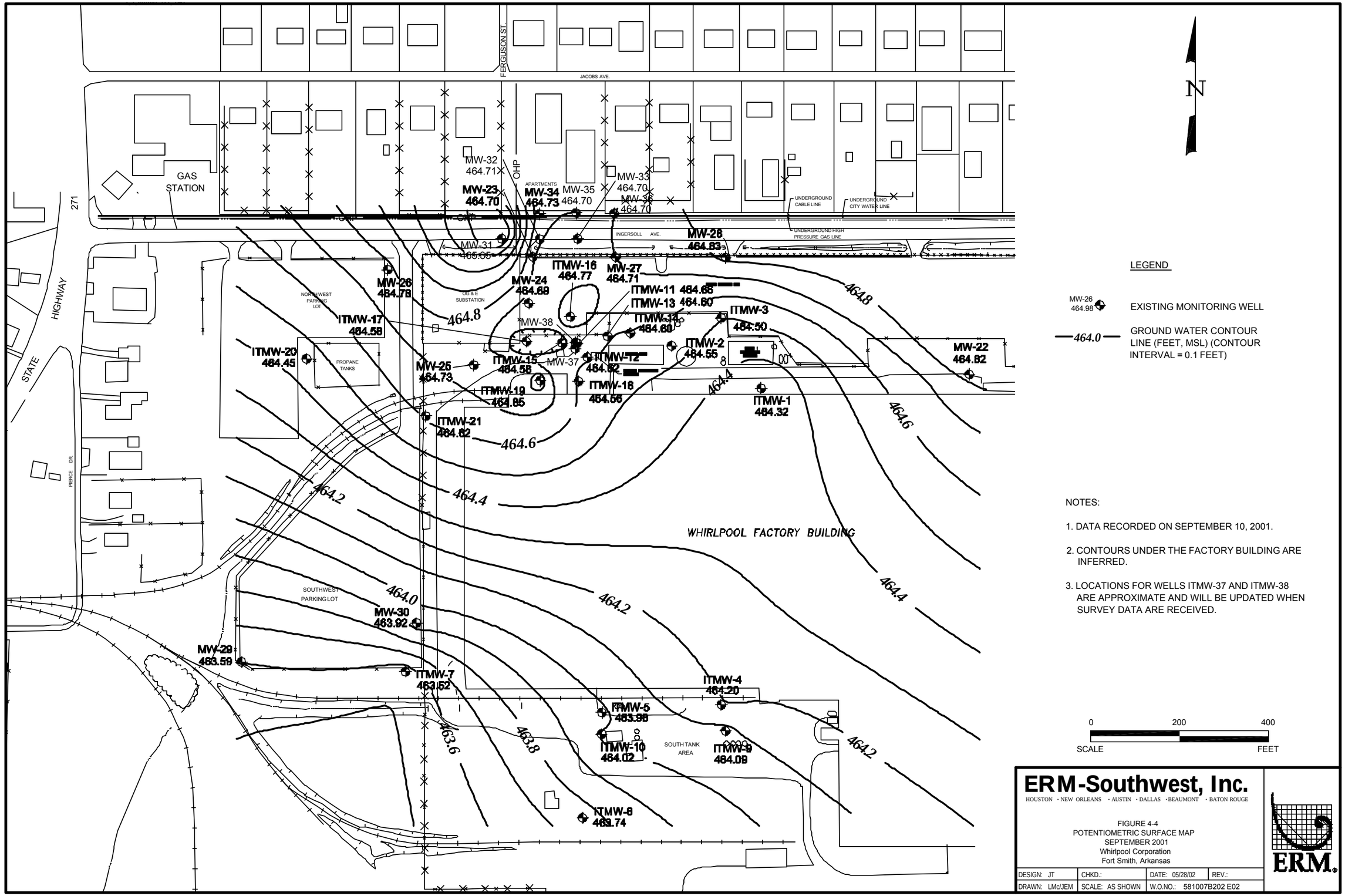

LEGEND

MW-26 464.98 — EXISTING MONITORING WELL

464.0 — GROUND WATER CONTOUR LINE (FEET, MSL) (CONTOUR INTERVAL = 0.1 FEET)

NOTES:

1. DATA RECORDED ON SEPTEMBER 10, 2001.
2. CONTOURS UNDER THE FACTORY BUILDING ARE INFERRED.
3. LOCATIONS FOR WELLS ITMW-37 AND ITMW-38 ARE APPROXIMATE AND WILL BE UPDATED WHEN SURVEY DATA ARE RECEIVED.

0 200 400
SCALE FEET

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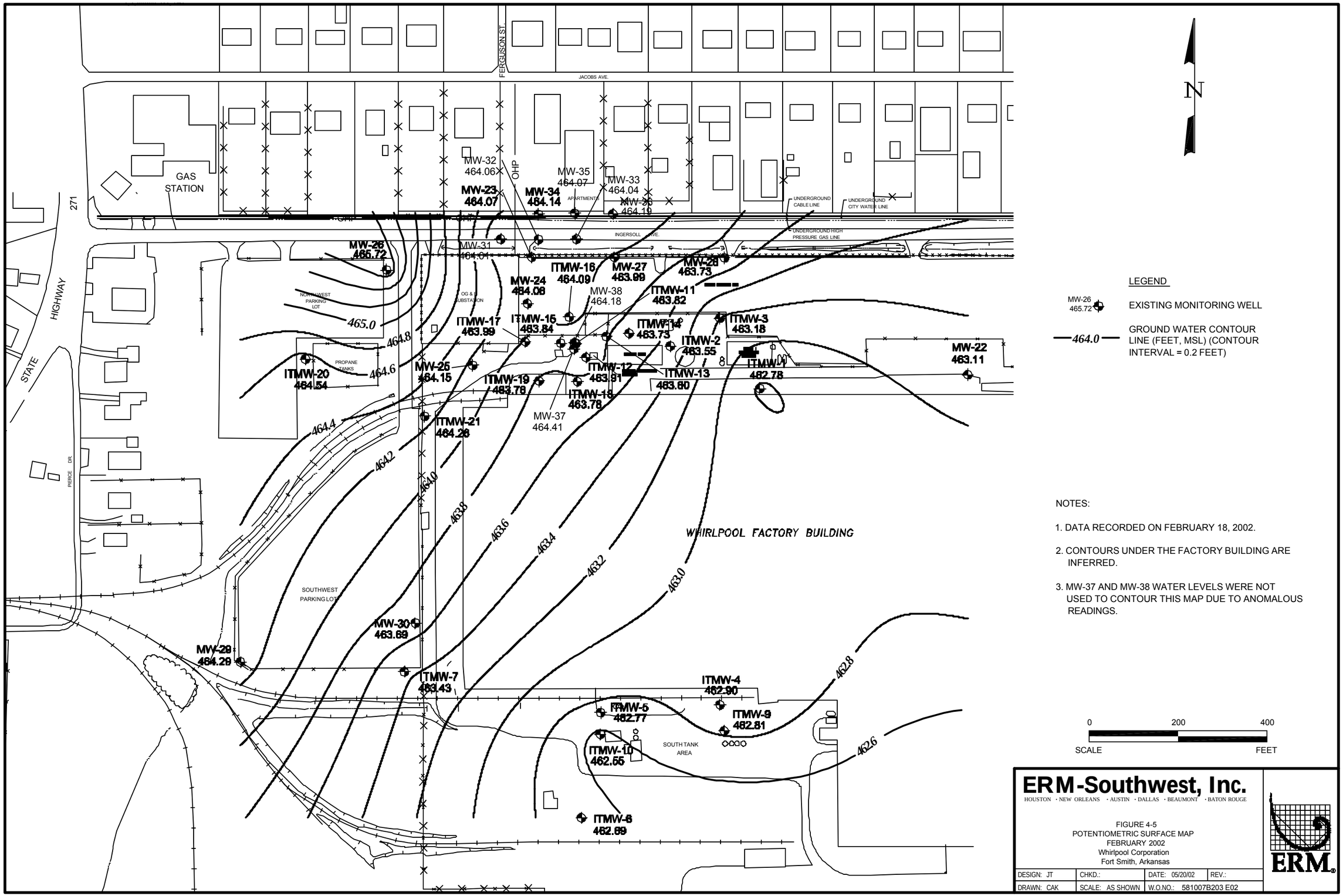
FIGURE 4-4
POTENTIOMETRIC SURFACE MAP
SEPTEMBER 2001
Whirlpool Corporation
Fort Smith, Arkansas

DESIGN: JT	CHKD.:	DATE: 05/28/02	REV.:
DRAWN: LMc/JEM	SCALE: AS SHOWN	W.O.NO.: 581007B202 E02	

ERM



LEGEND

MW-26 465.72 — EXISTING MONITORING WELL

464.0 — GROUND WATER CONTOUR LINE (FEET, MSL) (CONTOUR INTERVAL = 0.2 FEET)

NOTES:

1. DATA RECORDED ON FEBRUARY 18, 2002.
2. CONTOURS UNDER THE FACTORY BUILDING ARE INFERRED.
3. MW-37 AND MW-38 WATER LEVELS WERE NOT USED TO CONTOUR THIS MAP DUE TO ANOMALOUS READINGS.

0 200 400
SCALE FEET

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FIGURE 4-5
POTENTIOMETRIC SURFACE MAP
FEBRUARY 2002
Whirlpool Corporation
Fort Smith, Arkansas

DESIGN: JT	CHKD.:	DATE: 05/20/02	REV.:
DRAWN: CAK	SCALE: AS SHOWN	W.O.NO.: 581007B203 E02	

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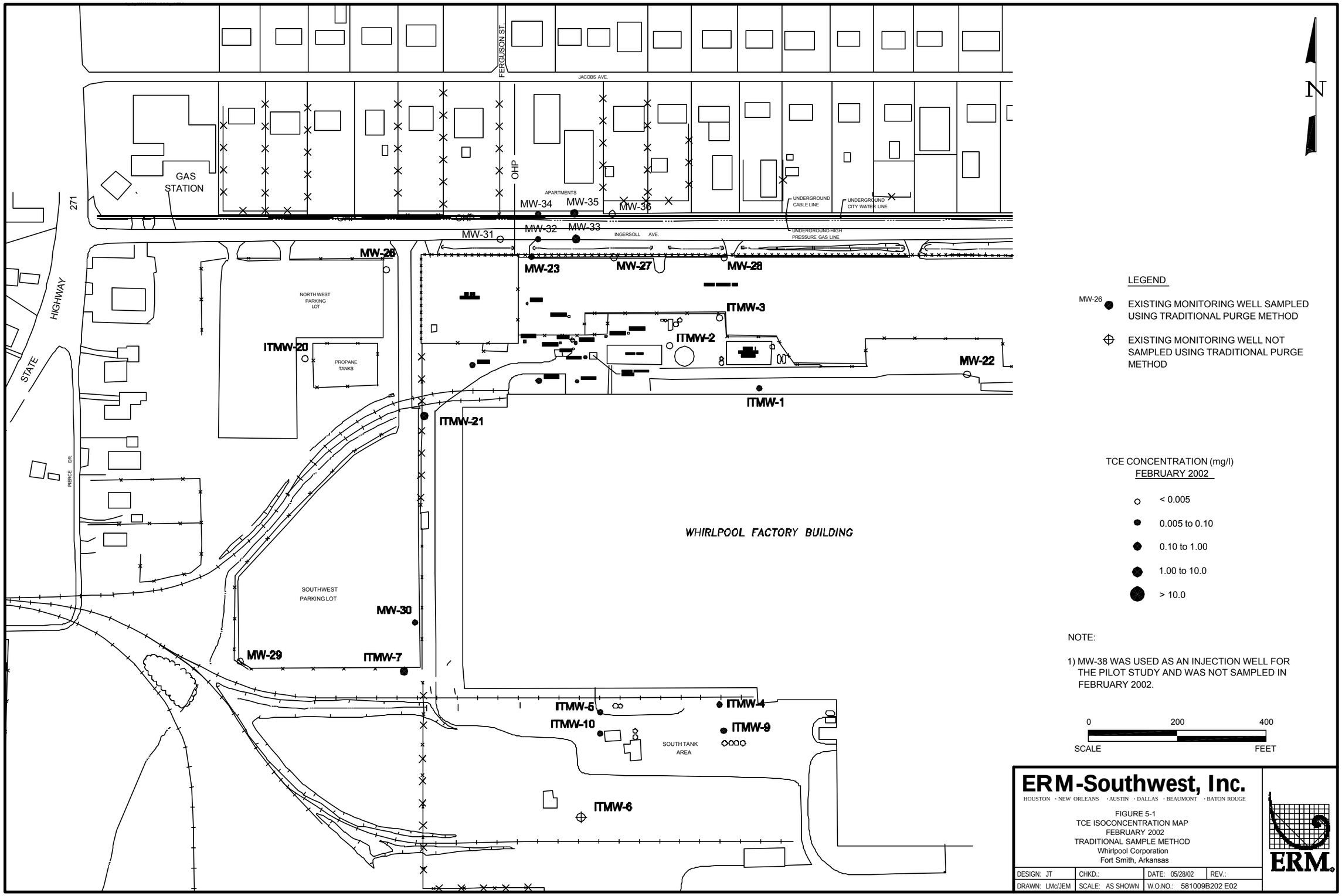

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FIGURE 5-1
TCE ISOCONCENTRATION MAP
FEBRUARY 2002
TRADITIONAL SAMPLE METHOD
Whirlpool Corporation
Fort Smith, Arkansas

DESIGN: JT	CHKD.:	DATE: 05/28/02	REV.:
DRAWN: LMc/JEM	SCALE: AS SHOWN	W.O.NO.: 581009B202 E02	

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Boring Logs

Appendix A

August 2, 2002
W.O. # 581-007

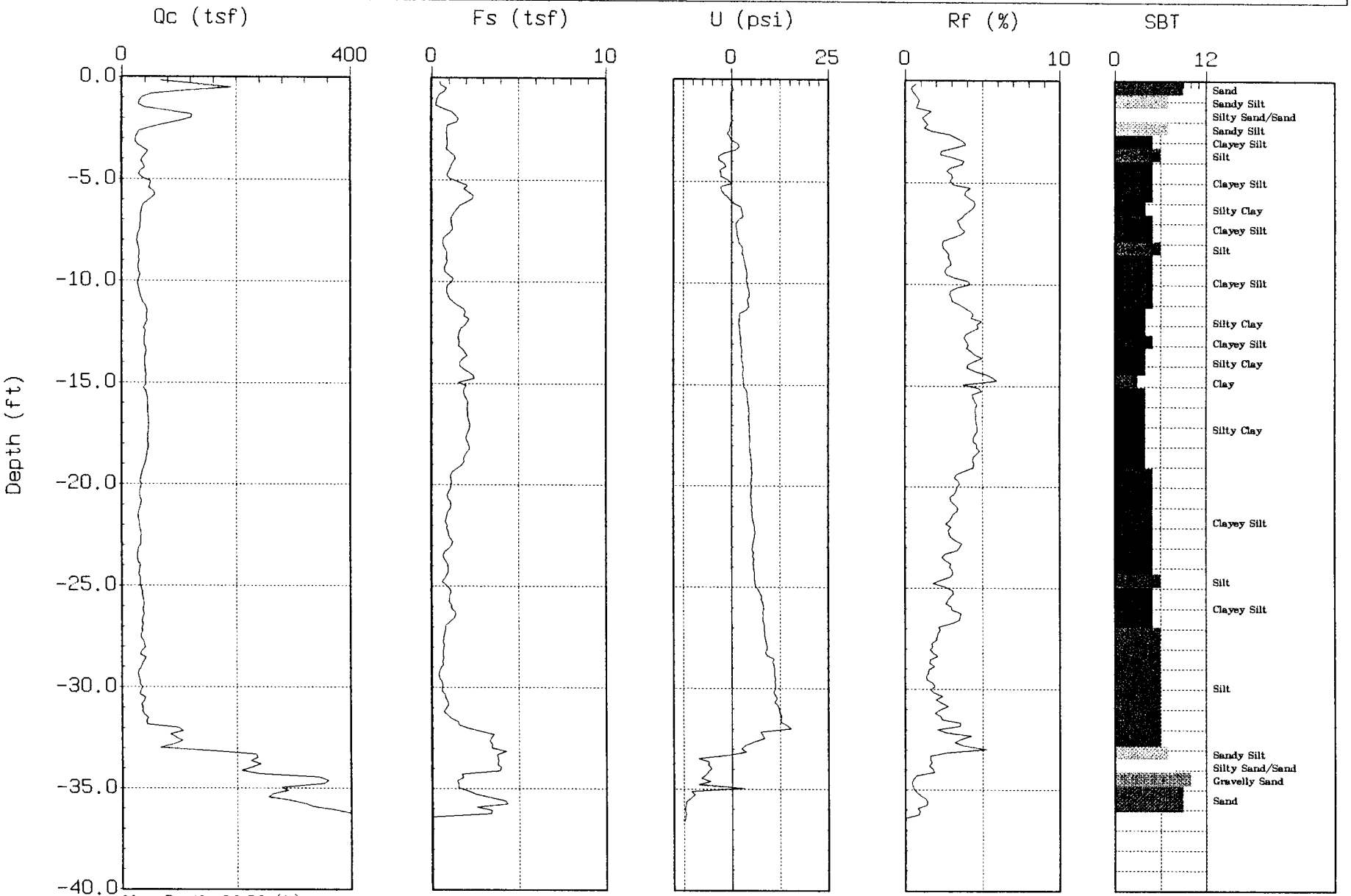
Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

GREGG

ERM Southwest

Site : WHIRLPOOL
Location : CPT-01

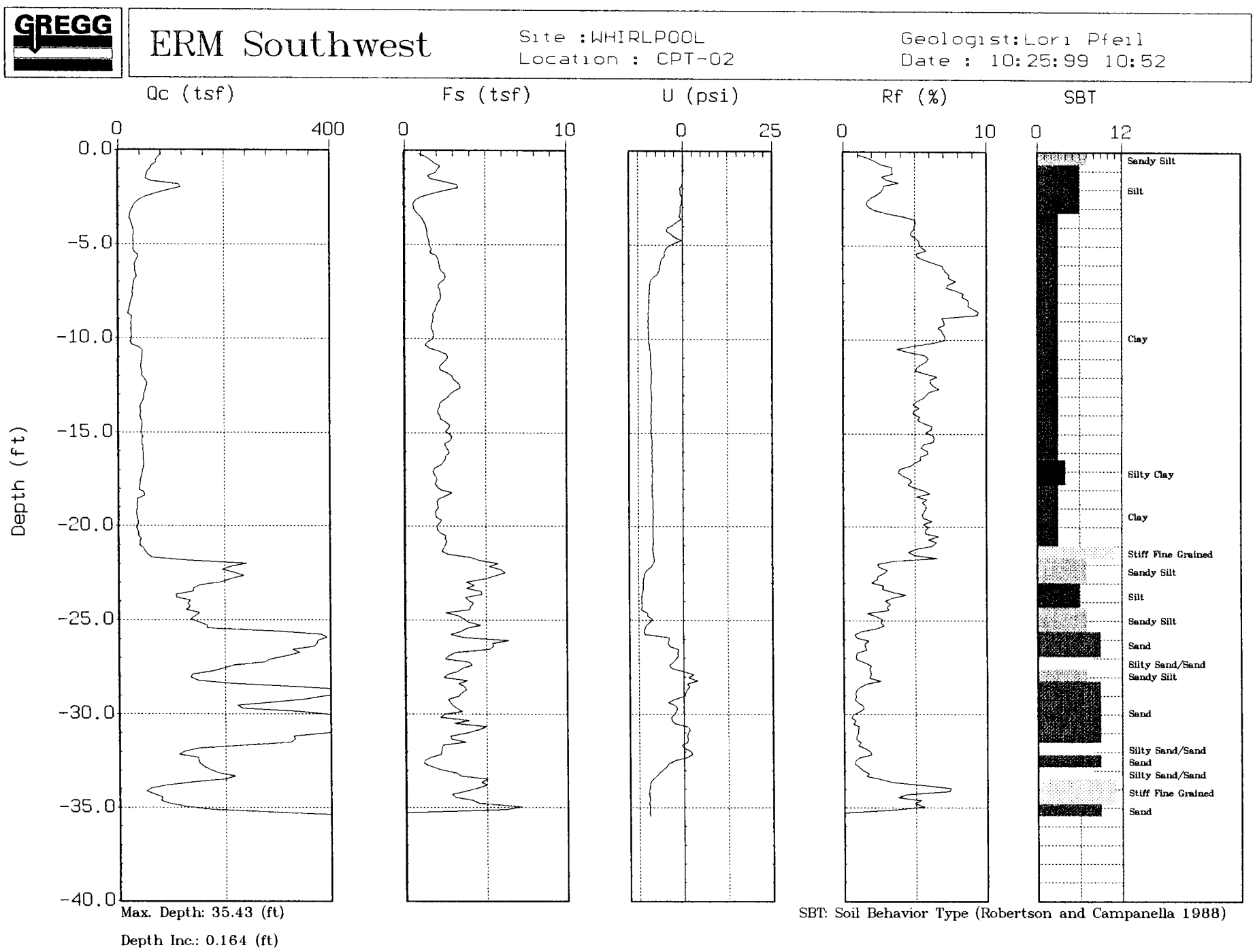
Geologist : Lori Pfeil
Date : 10:25:99 09:57



Max. Depth: 36.58 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson and Campanella 1988)

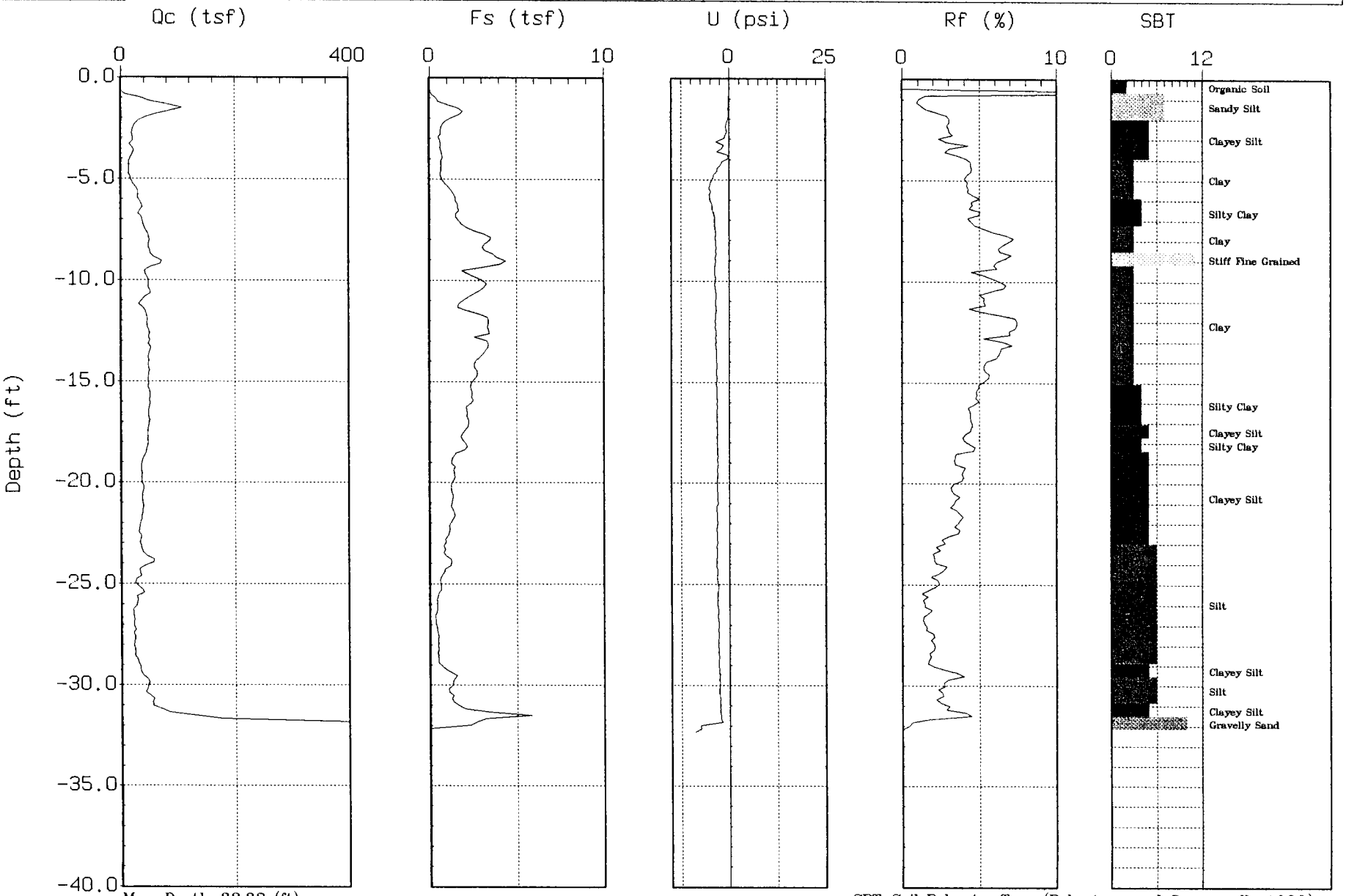

GREGG
ERM Southwest
Site :WHIRLPOOL
Location : CPT-02
Geologist:Lori Pfeil
Date : 10:25:99 10:52
Qc (tsf)
Fs (tsf)
U (psi)
Rf (%)
SBT
0
400
10
25
12
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
-35.0
-40.0
Depth (ft)
Sandy Silt
Silt
Clay
Silty Clay
Clay
Stiff Fine Grained
Sandy Silt
Silt
Sandy Silt
Sand
Silty Sand/Sand
Sandy Silt
Sand
Silty Sand/Sand
Sand
Silty Sand/Sand
Stiff Fine Grained
Sand
Max. Depth: 35.43 (ft)
Depth Inc.: 0.164 (ft)
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

ERM Southwest

Site : WHIRLPOOL
Location : CPT-03

Geologist: Lori Pfeil
Date : 10:25:99 11:35



Max. Depth: 32.32 (ft)

Depth Inc.: 0.164 (ft)

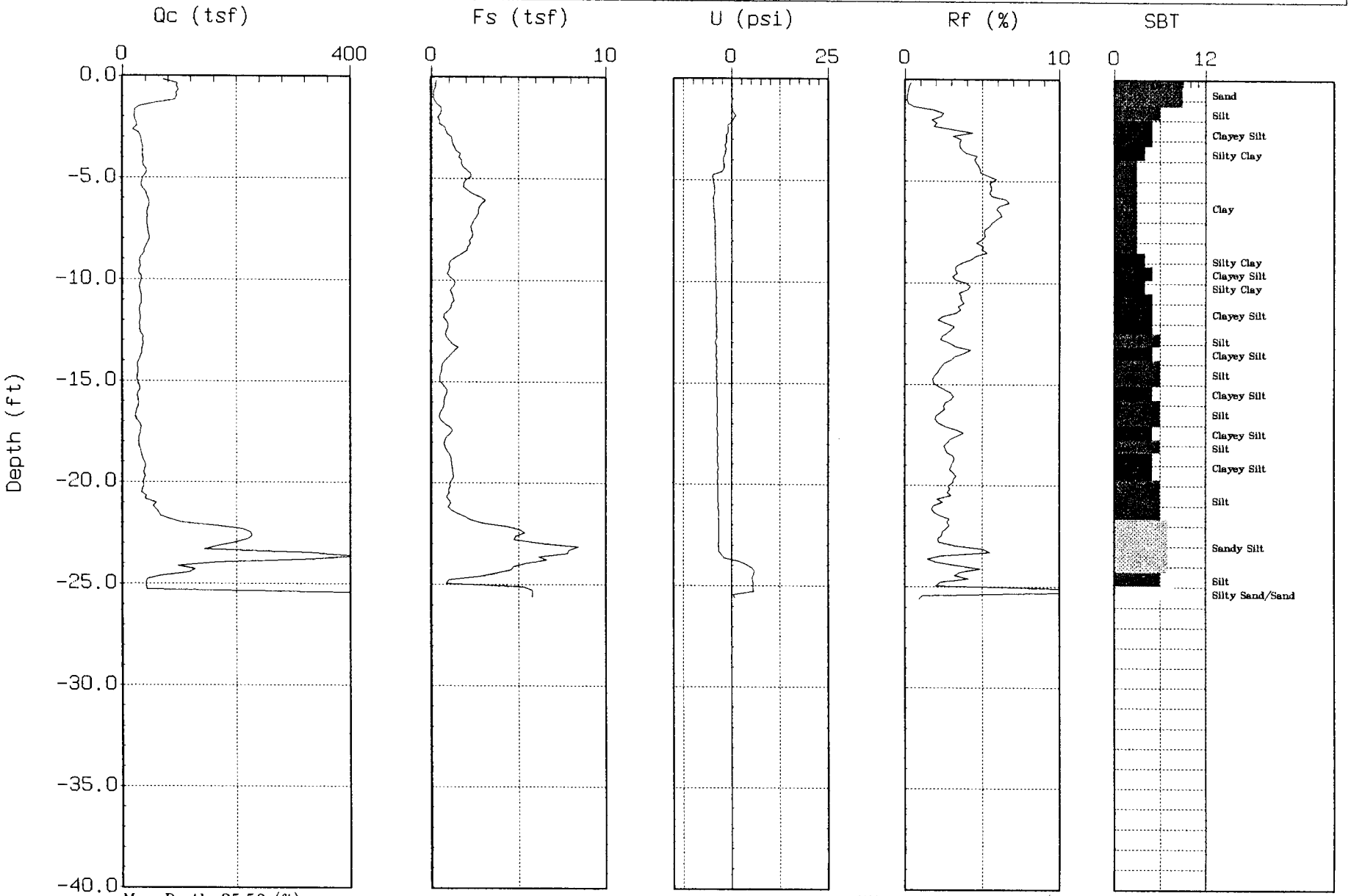
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

ERM Southwest

Site : WHIRLPOOL
Location : CPT-04

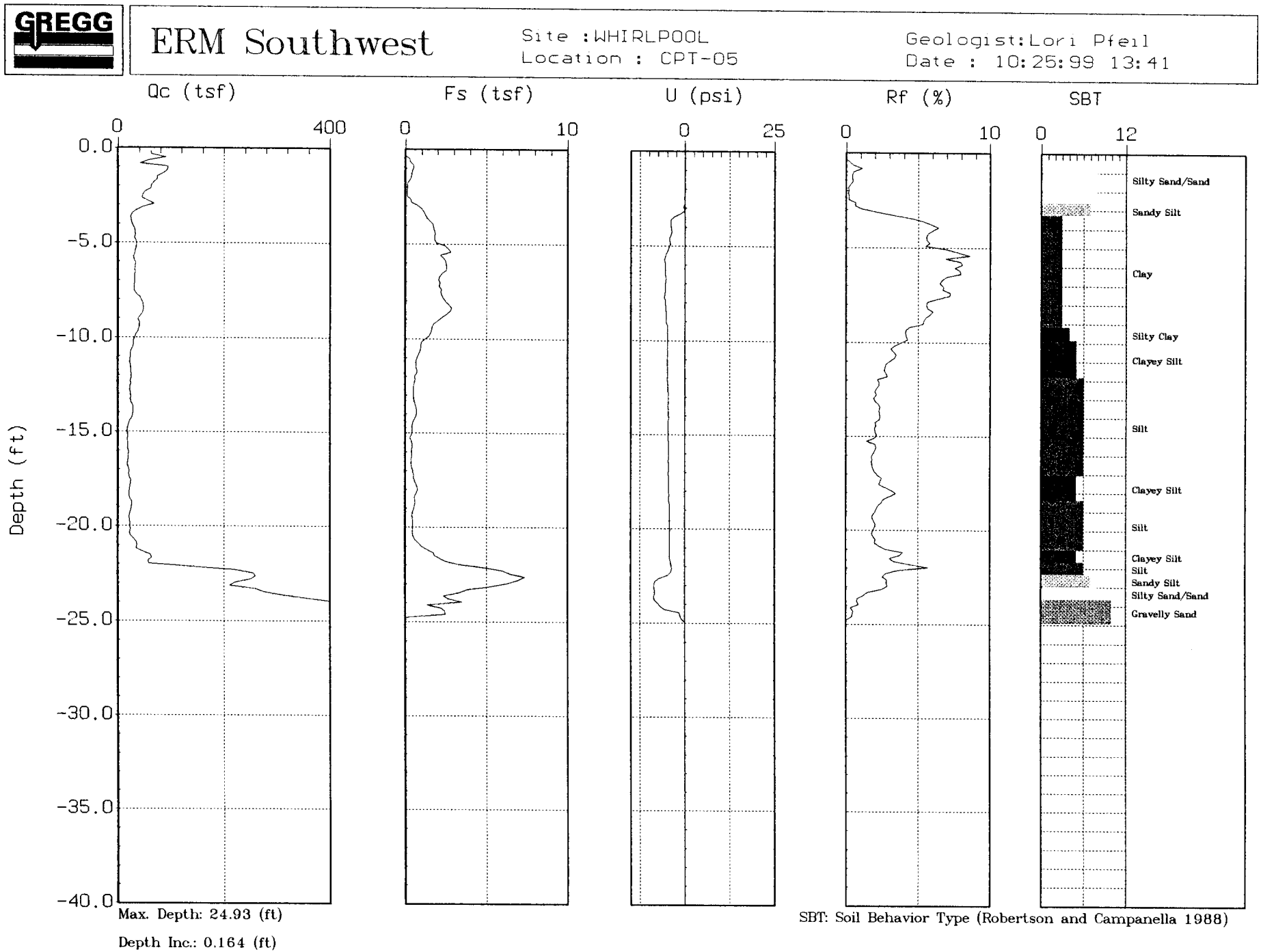
Geologist: Lori Pfeil
Date : 10:25:99 13:03



Max. Depth: 25.59 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson and Campanella 1988)

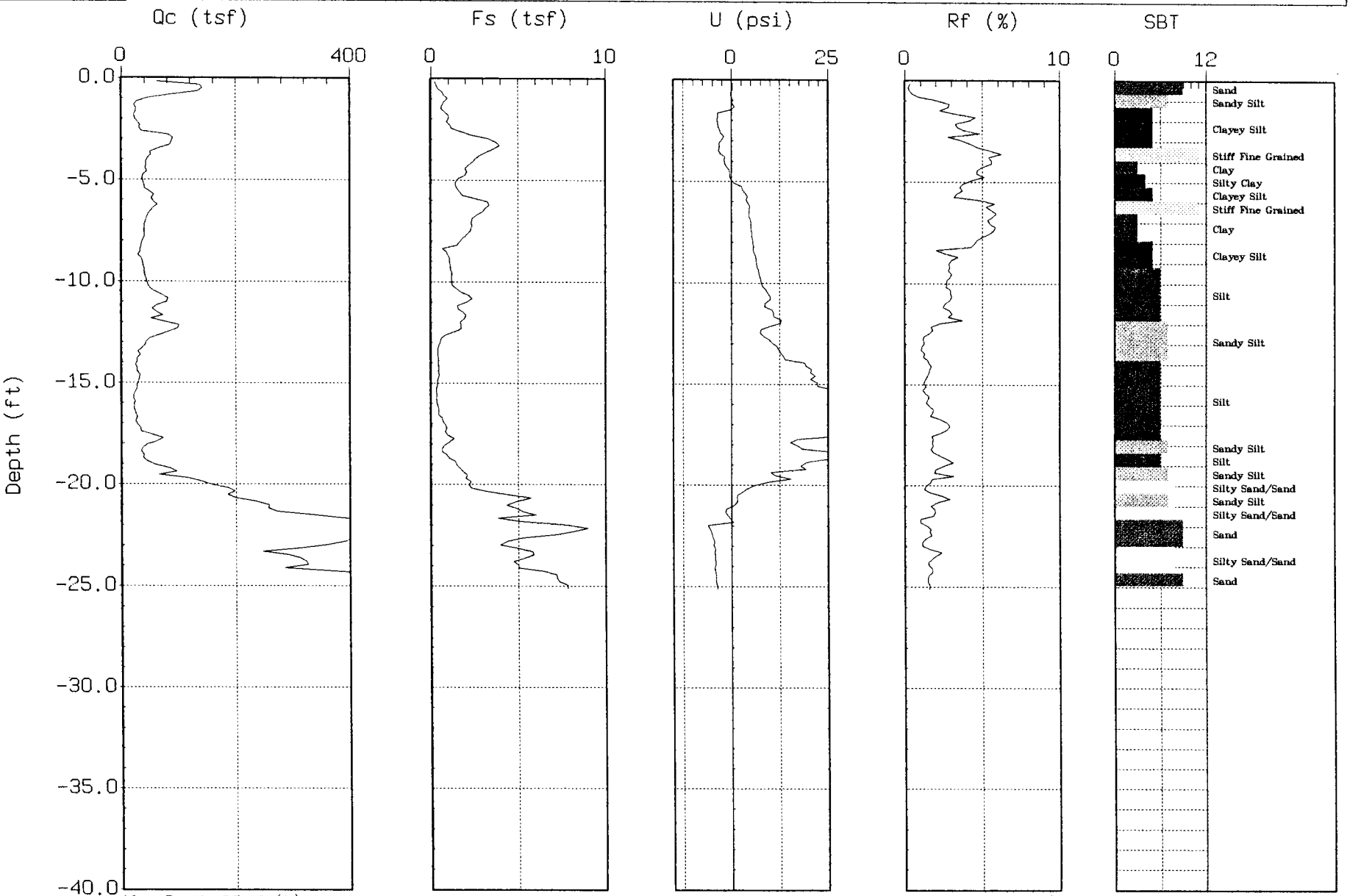

GREGG
ERM Southwest
Site :WHIRLPOOL
Location : CPT-05
Geologist:Lori Pfeil
Date : 10:25:99 13:41
Qc (tsf)
Fs (tsf)
U (psi)
Rf (%)
SBT
0
400
10
25
12
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
-35.0
-40.0
Depth (ft)
Silty Sand/Sand
Sandy Silt
Clay
Silty Clay
Clayey Silt
Silt
Clayey Silt
Silt
Clayey Silt
Silt
Sandy Silt
Silty Sand/Sand
Gravelly Sand
Max. Depth: 24.93 (ft)
Depth Inc.: 0.164 (ft)
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

ERM Southwest

Site : WHIRLPOOL
Location : CPT-06

Geologist: Lori Pfeil
Date : 10:25:99 14:34



Max. Depth: 25.10 (ft)

Depth Inc.: 0.164 (ft)

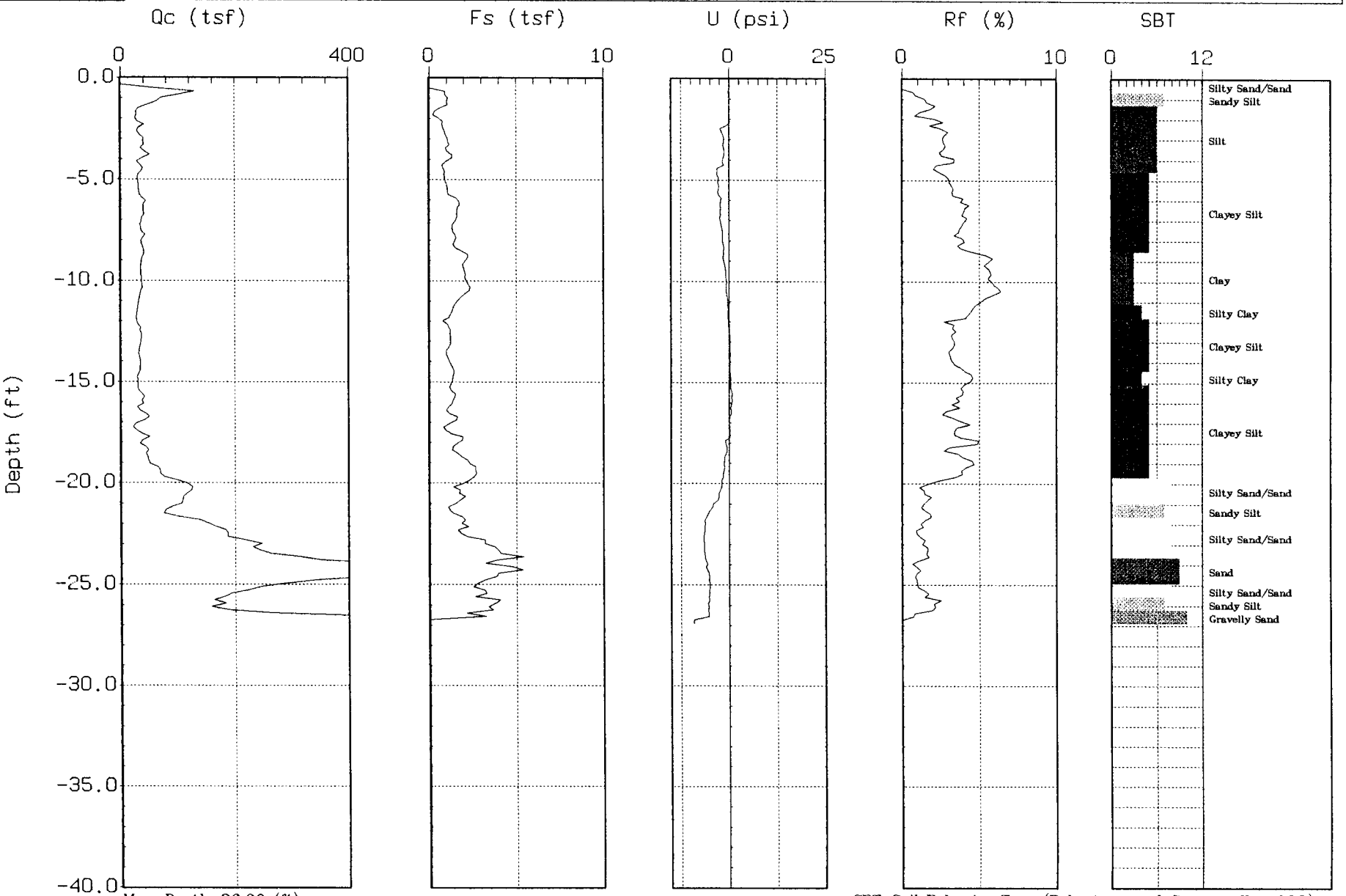
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

ERM Southwest

Site : WHIRLPOOL
Location : CPT-07

Geologist: Lori Pfeil
Date : 10:25:99 15:28



Max. Depth: 26.90 (ft)

Depth Inc.: 0.164 (ft)

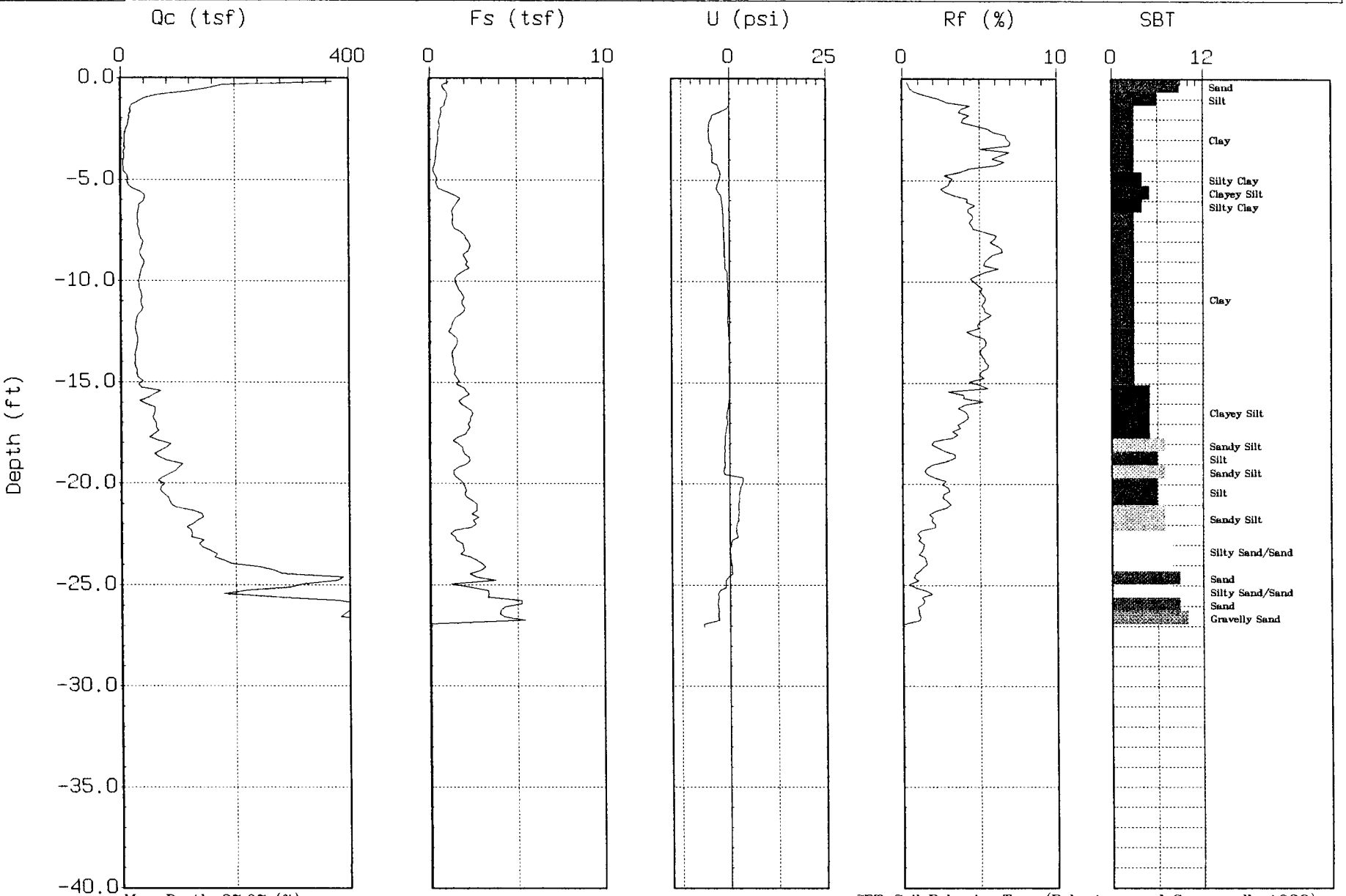
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

ERM Southwest

Site : WHIRLPOOL
Location : CPT-08

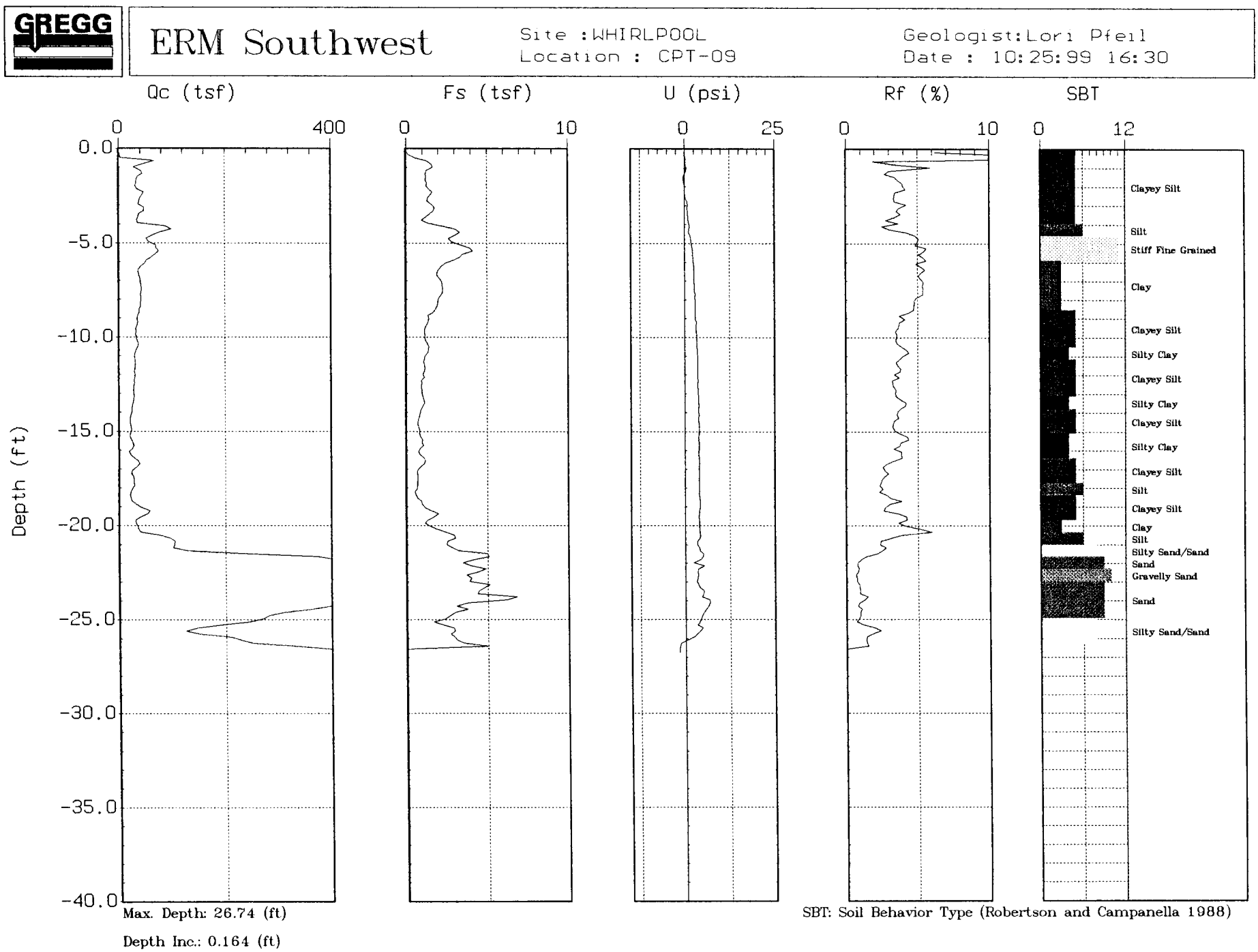
Geologist: Lori Pfeil
Date : 10:25:99 16:02



Max. Depth: 27.07 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson and Campanella 1988)

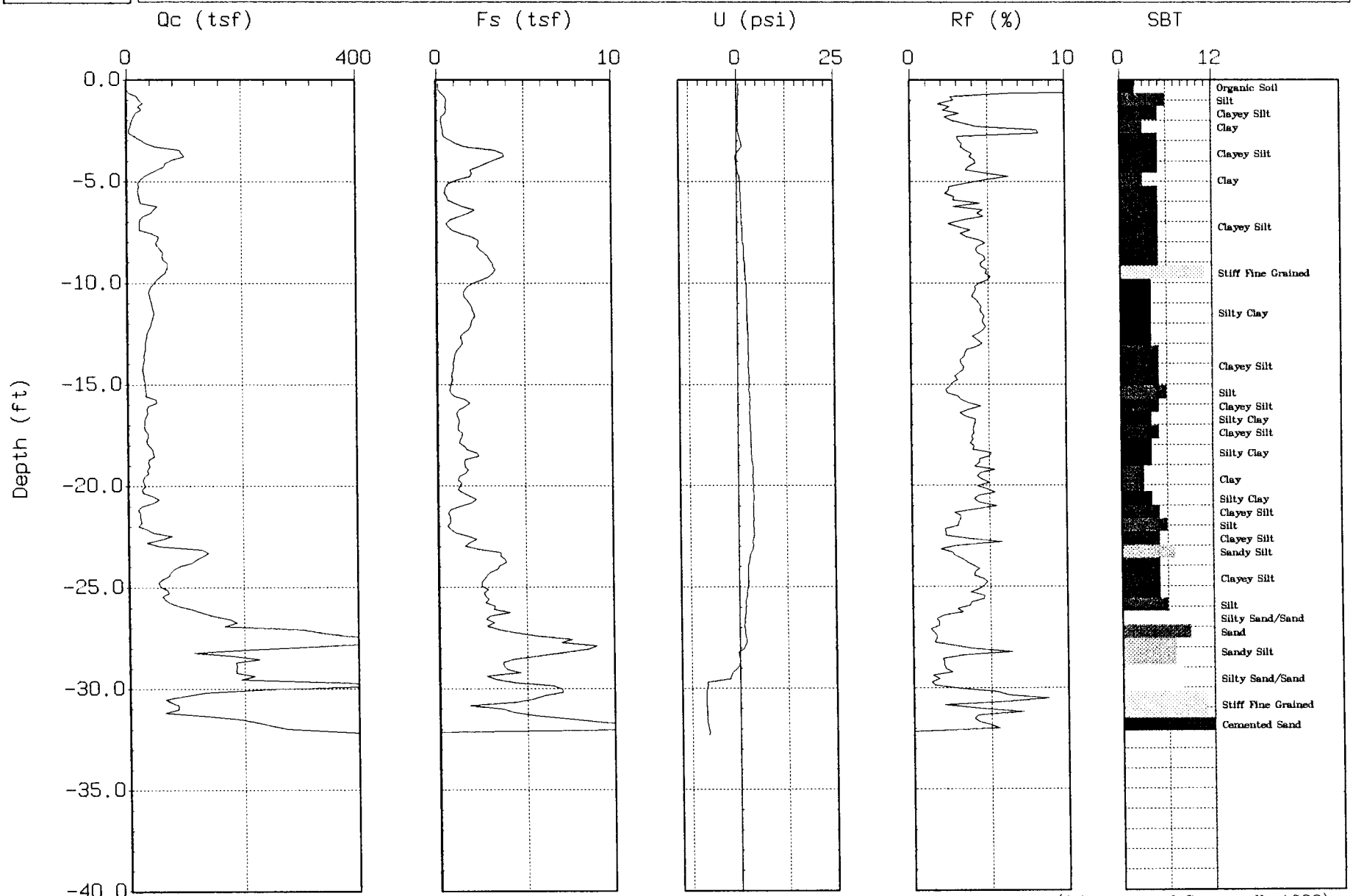

GREGG
ERM Southwest
Site :WHIRLPOOL
Location : CPT-09
Geologist:Lori Pfeil
Date : 10:25:99 16:30
Qc (tsf)
Fs (tsf)
U (psi)
Rf (%)
SBT
0
400
10
25
12
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
-35.0
-40.0
Depth (ft)
Clayey Silt
Silt
Stiff Fine Grained
Clay
Clayey Silt
Silty Clay
Clayey Silt
Silty Clay
Clayey Silt
Silty Clay
Clayey Silt
Silt
Clayey Silt
Clay
Silt
Silty Sand/Sand
Sand
Gravelly Sand
Sand
Silty Sand/Sand
Max. Depth: 26.74 (ft)
Depth Inc.: 0.164 (ft)
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

ERM Southwest

Site : WHIRLPOOL
Location : CPT-10

Geologist: Lori Pfeil
Date : 10:25:99 17:01



Max. Depth: 32.32 (ft)

Depth Inc.: 0.164 (ft)

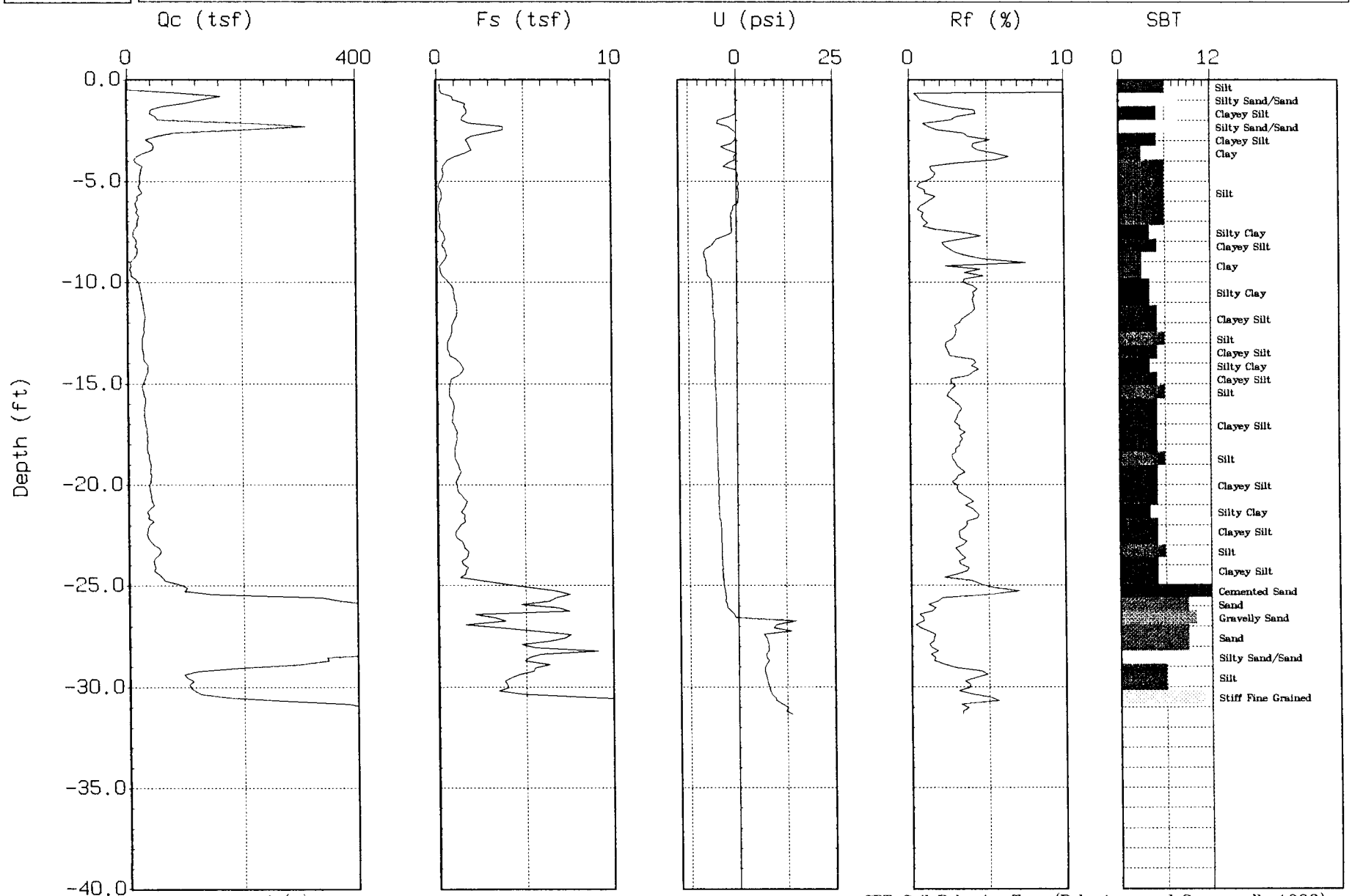
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

ERM Southwest

Site : WHIRLPOOL
Location : CPT-11

Geologist: Lori Pfeil
Date : 10:25:99 17:55



Max. Depth: 31.33 (ft)

Depth Inc.: 0.164 (ft)

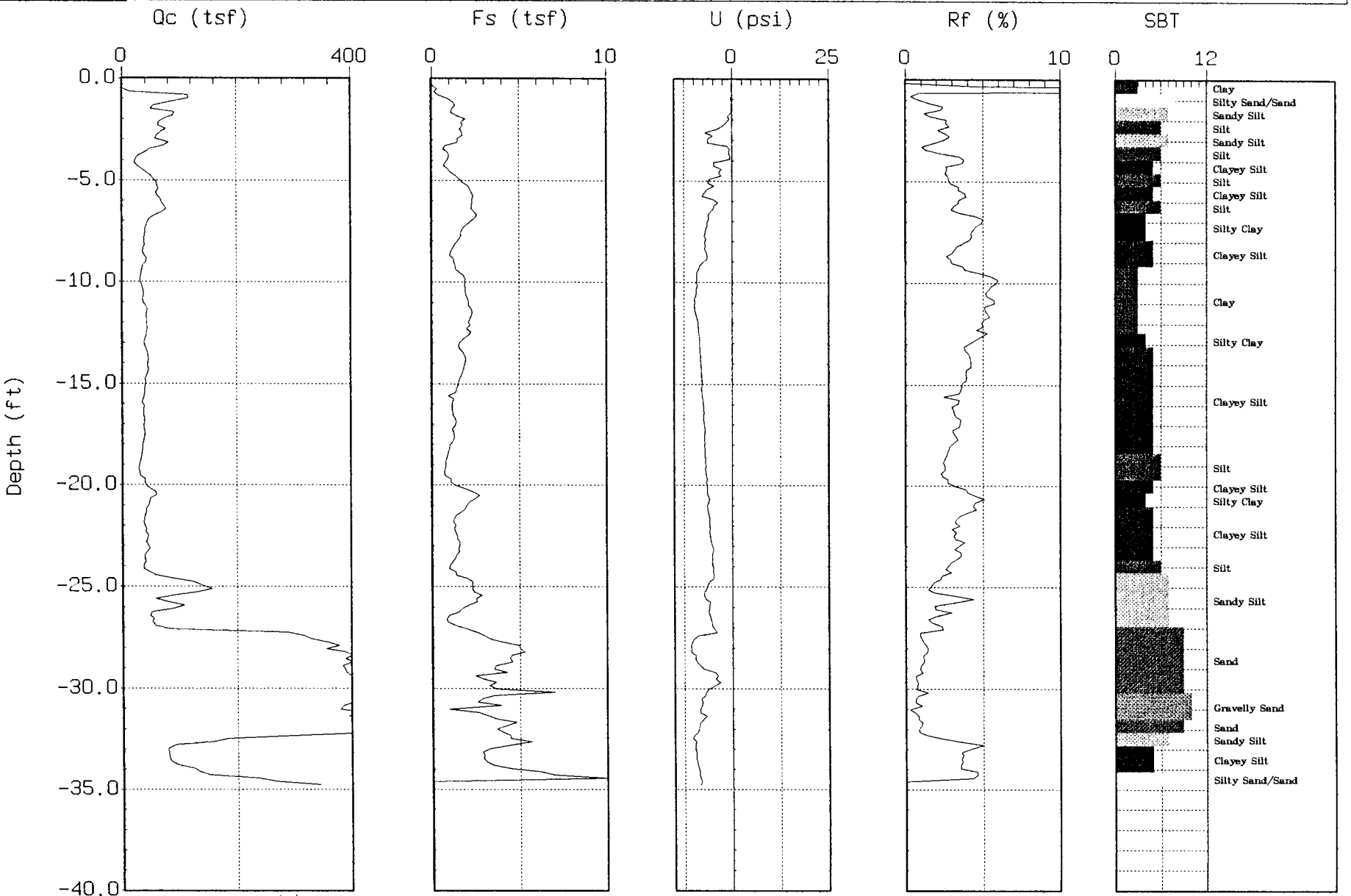
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

ERM Southwest

Site : WHIRLPOOL
Location : CPT-12

Geologist: Lori Pfeil
Date : 10:26:99 08:42



Max. Depth: 34.78 (ft)

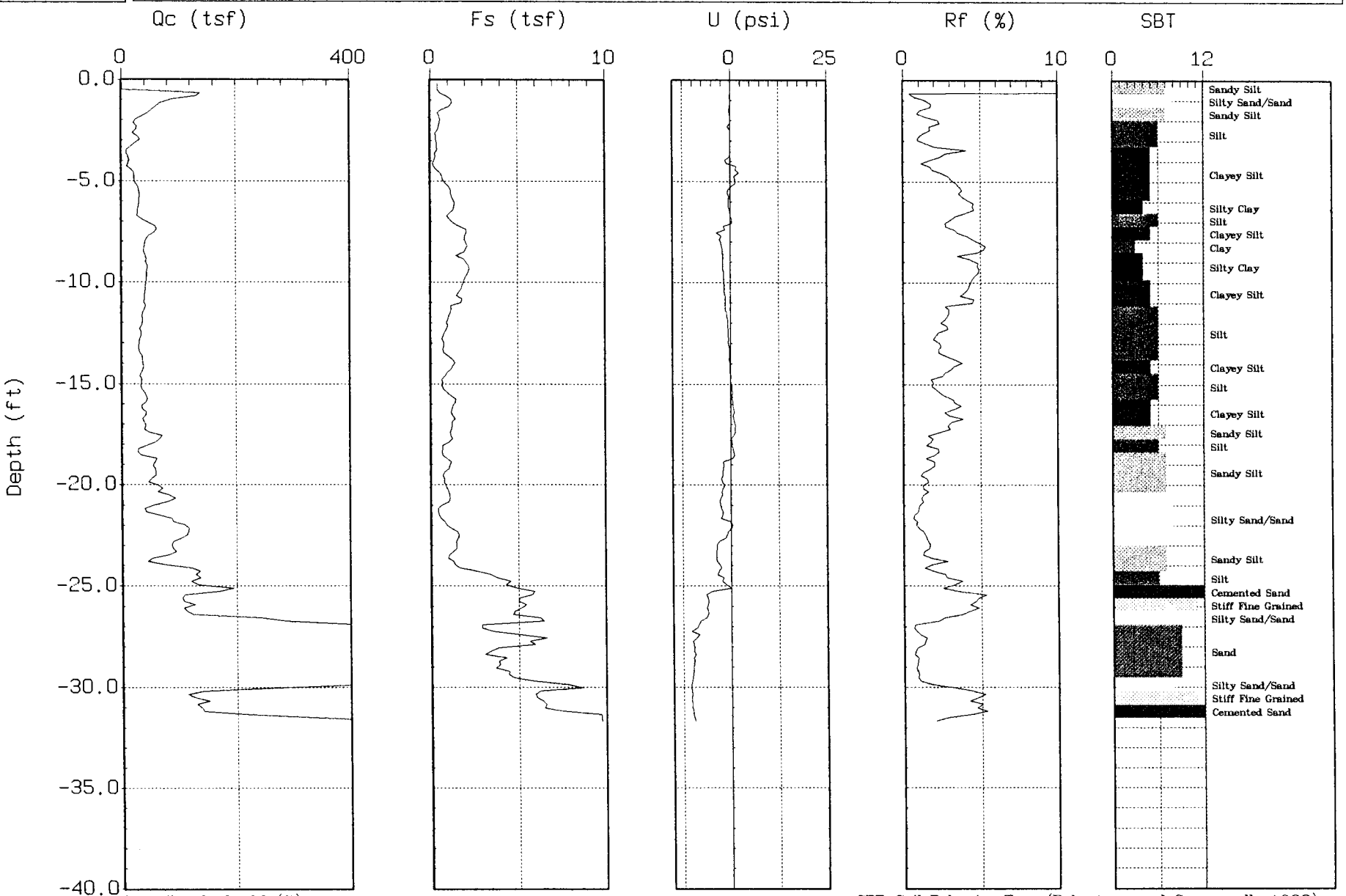
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson and Campanella 1988)

ERM Southwest

Site : WHIRLPOOL
Location : CPT-13

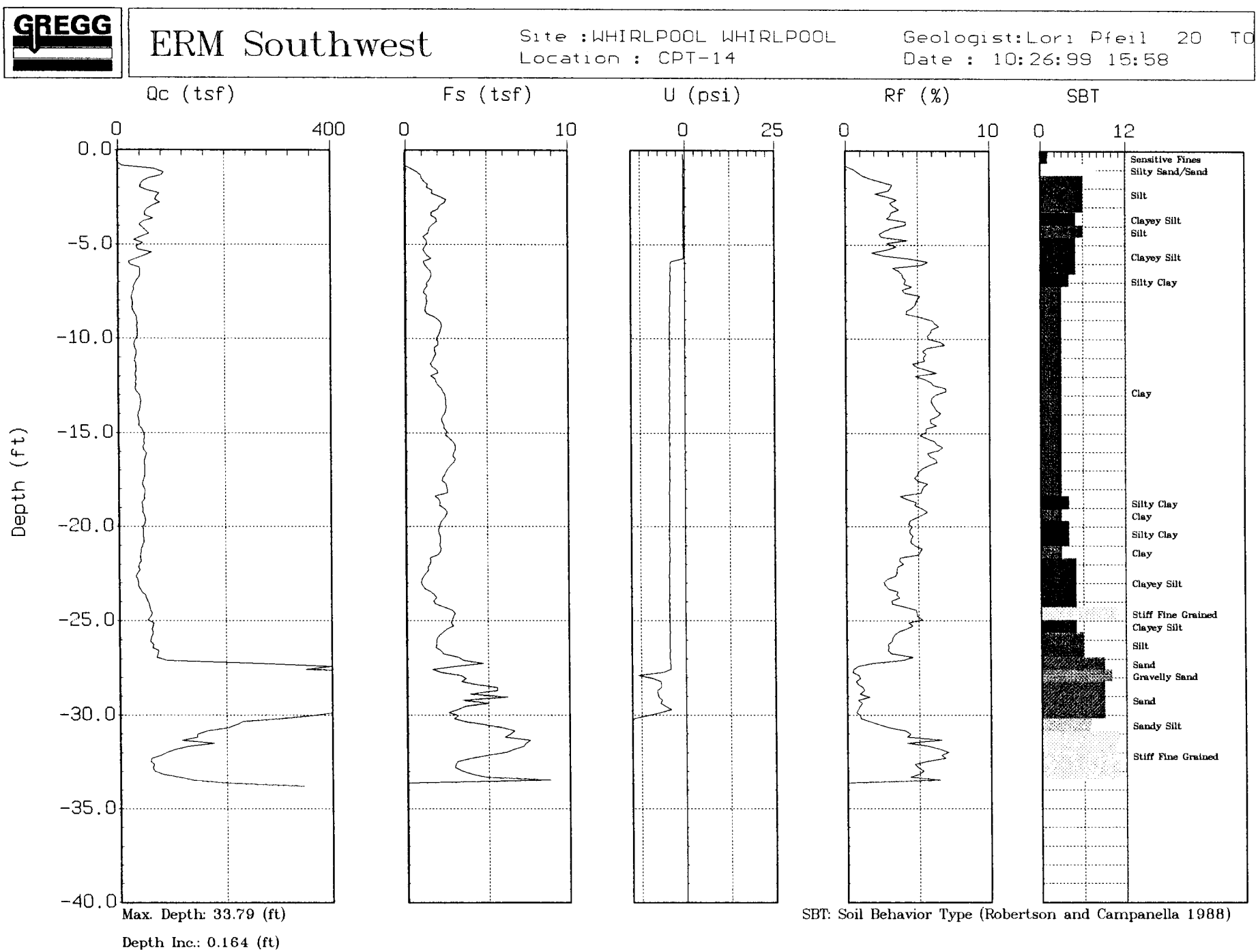
Geologist: Lori Pfeil
Date : 10:26:99 09:24



Max. Depth: 31.66 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson and Campanella 1988)



Max. Depth: 33.79 (ft)

Depth Inc.: 0.164 (ft)

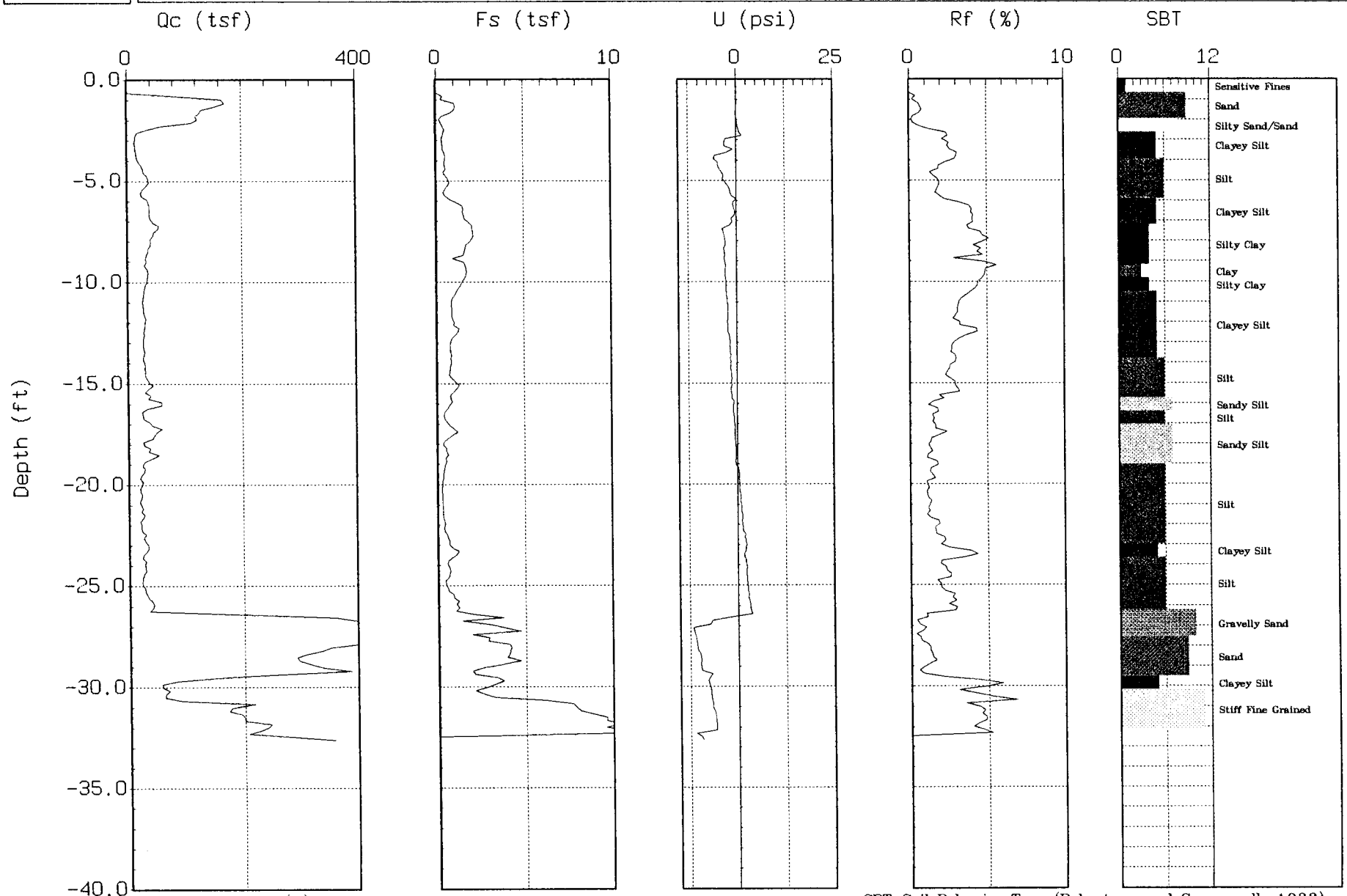
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

ERM Southwest

Site : WHIRLPOOL
Location : CPT-15

Geologist: Lori Pfeil
Date : 10:26:99 10:20



Max. Depth: 32.64 (ft)

Depth Inc.: 0.164 (ft)

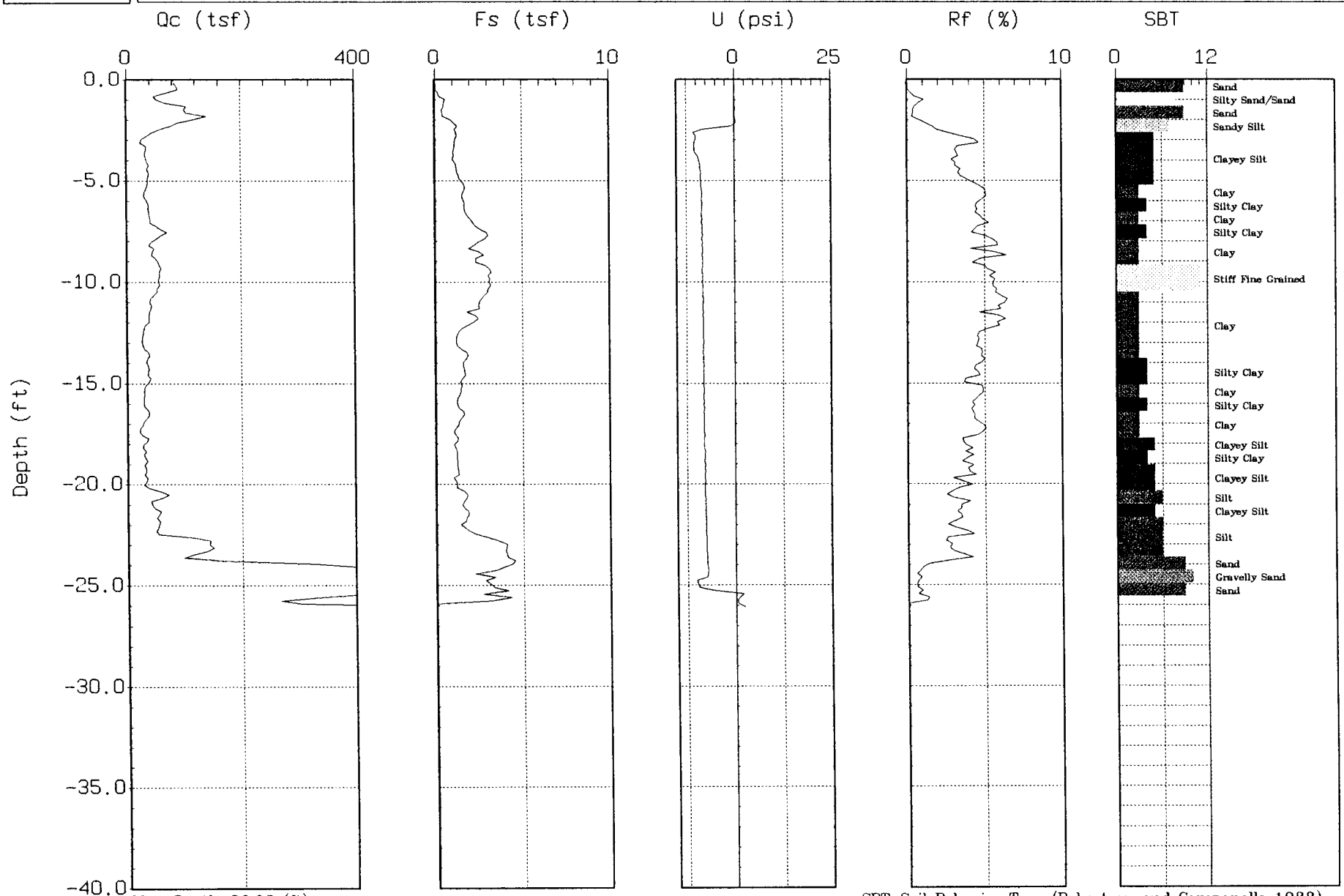
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

ERM Southwest

Site : WHIRLPOOL
Location : CPT-16

Geologist: Lori Pfeil
Date : 10:26:99 11:16



Max. Depth: 26.08 (ft)

Depth Inc.: 0.164 (ft)

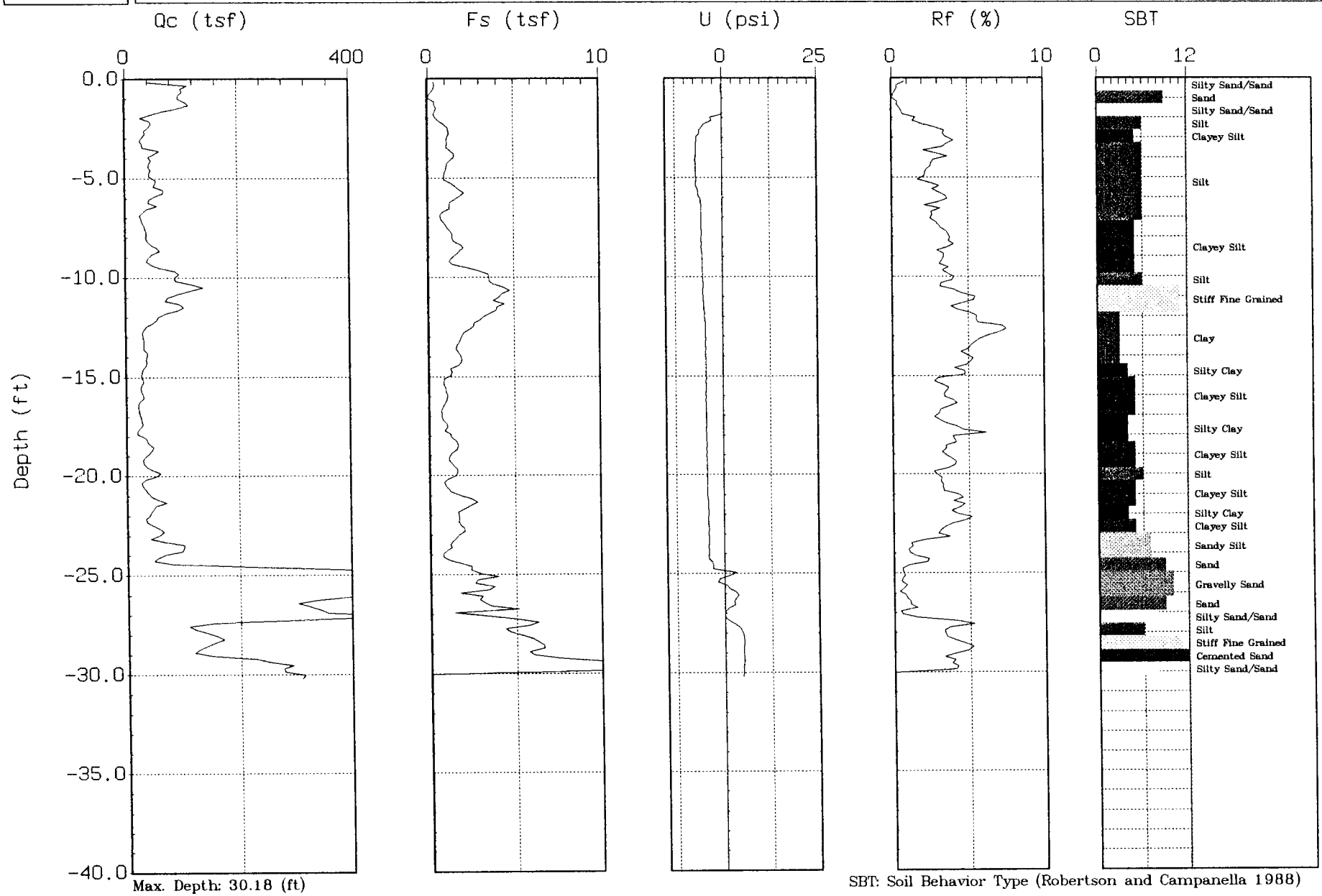
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

ERM Southwest

Site : WHIRLPOOL
Location : CPT-17

Geologist: Lori Pfeil
Date : 10:26:99 11:47



Max. Depth: 30.18 (ft)

Depth Inc.: 0.164 (ft)

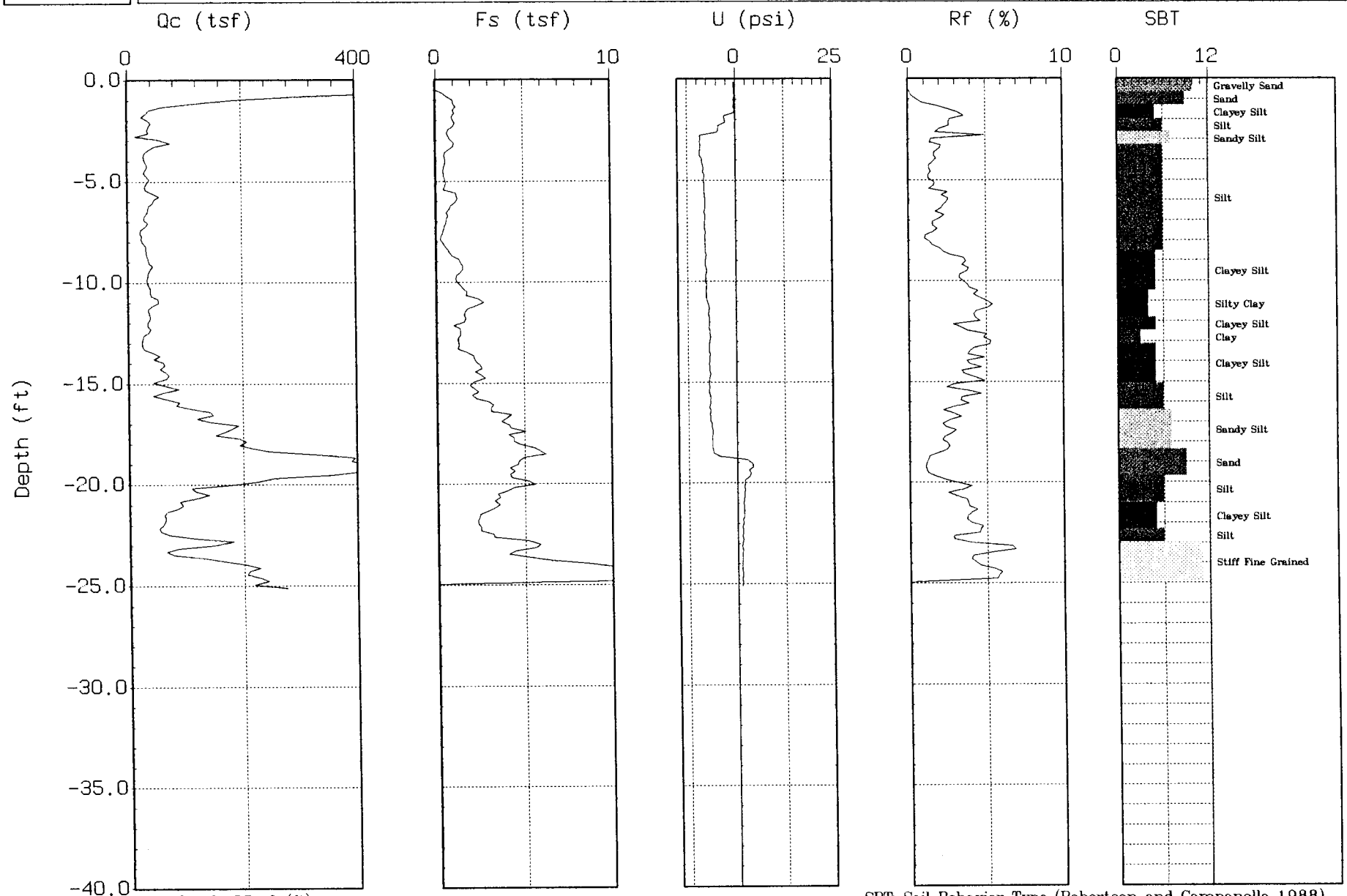
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

ERM Southwest

Site : WHIRLPOOL
Location : CPT-18

Geologist: Lori Pfeil
Date : 10:26:99 12:45



Max. Depth: 25.10 (ft)

Depth Inc.: 0.164 (ft)

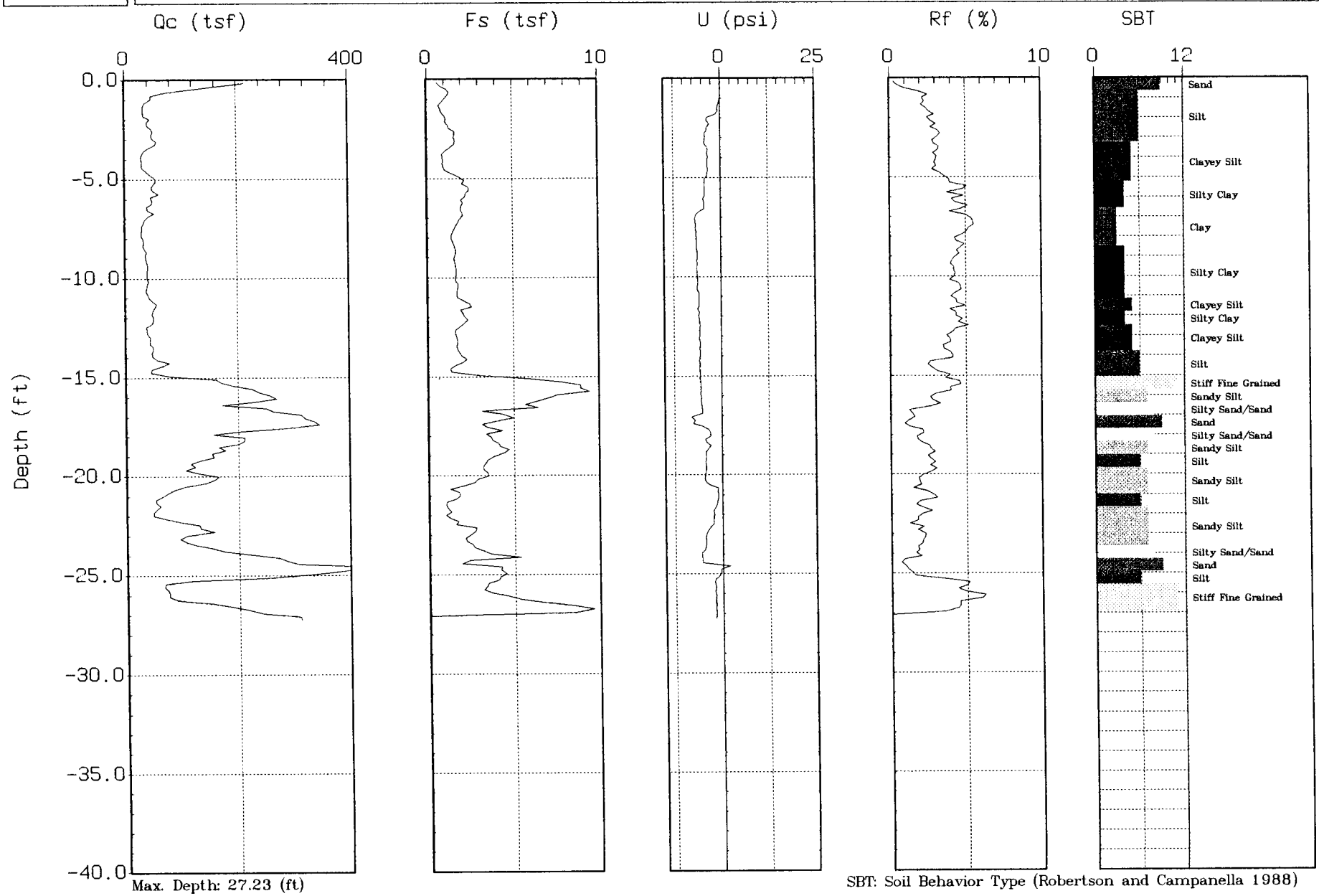
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

ERM Southwest

Site : WHIRLPOOL
Location : CPT-19

Geologist: Lori Pfeil
Date : 10:26:99 13:14



Max. Depth: 27.23 (ft)

Depth Inc.: 0.164 (ft)

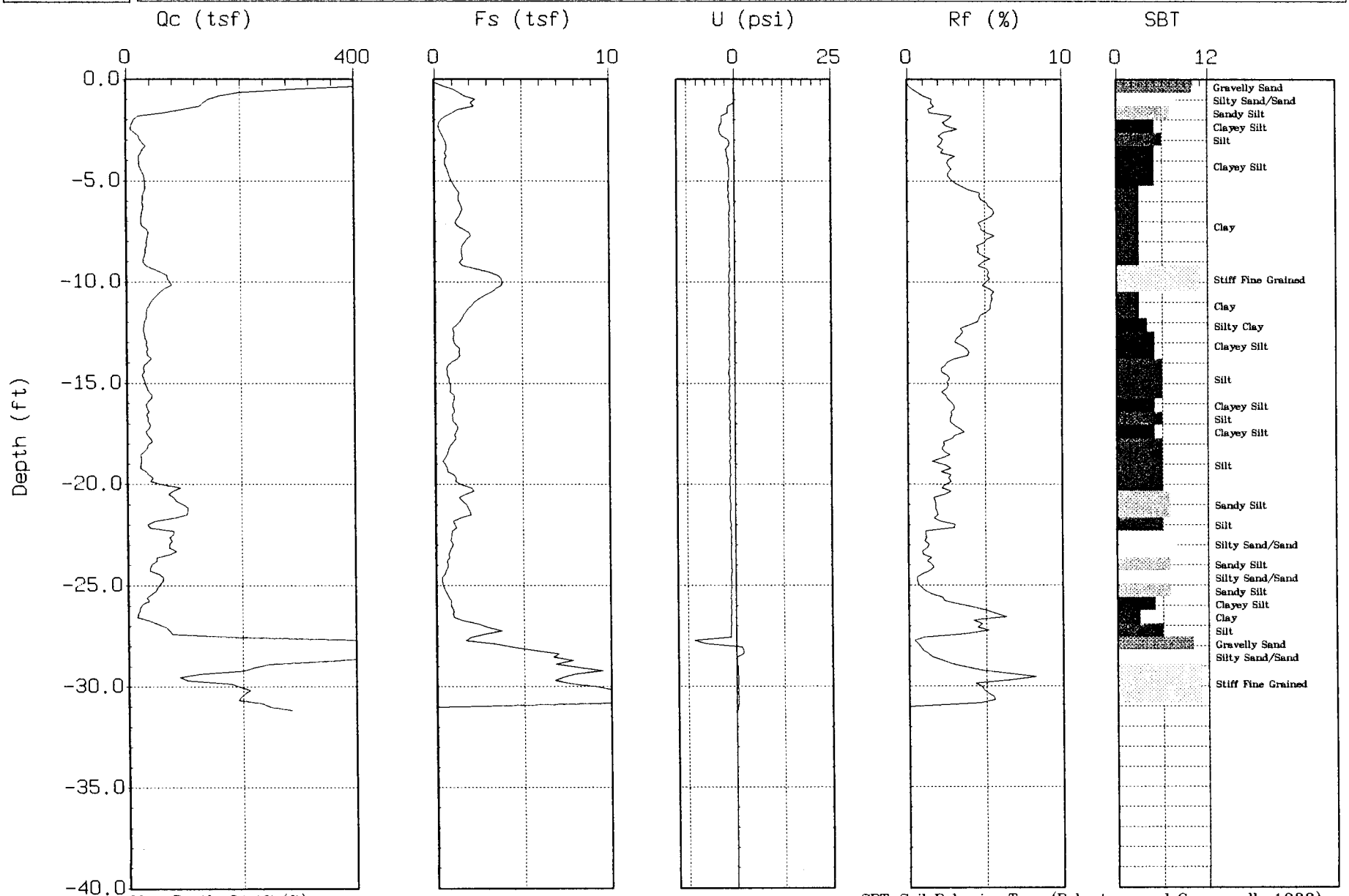
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

ERM Southwest

Site : WHIRLPOOL
Location : CPT-20

Geologist: Lori Pfeil
Date : 10:26:99 13:35



Max. Depth: 31.17 (ft)

Depth Inc.: 0.164 (ft)

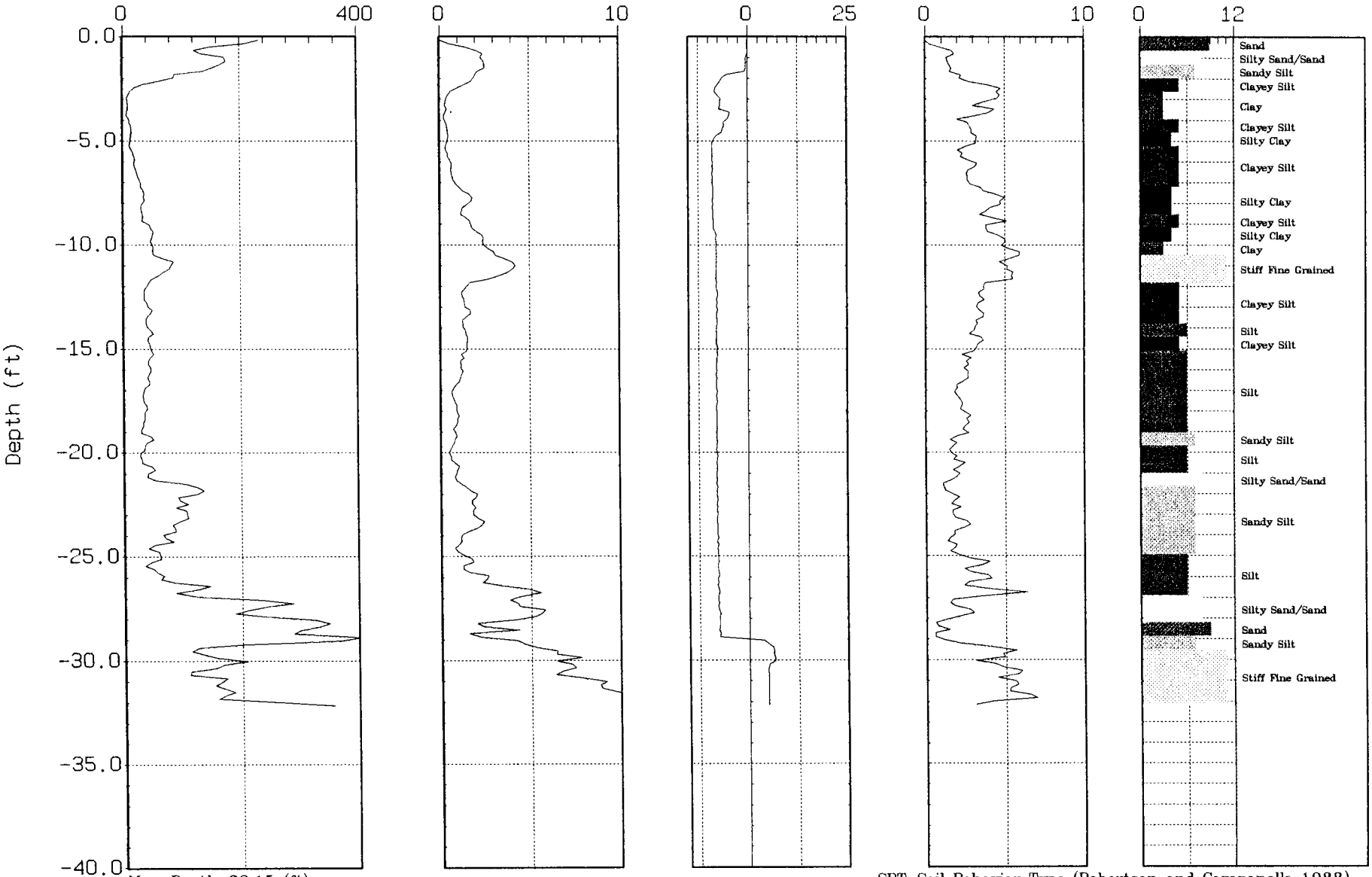
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

ERM Southwest

Site : WHIRLPOOL
Location : CPT-21

Geologist: Lori Pfeil
Date : 10:26:99 14:05



Max. Depth: 32.15 (ft)

Depth Inc.: 0.164 (ft)

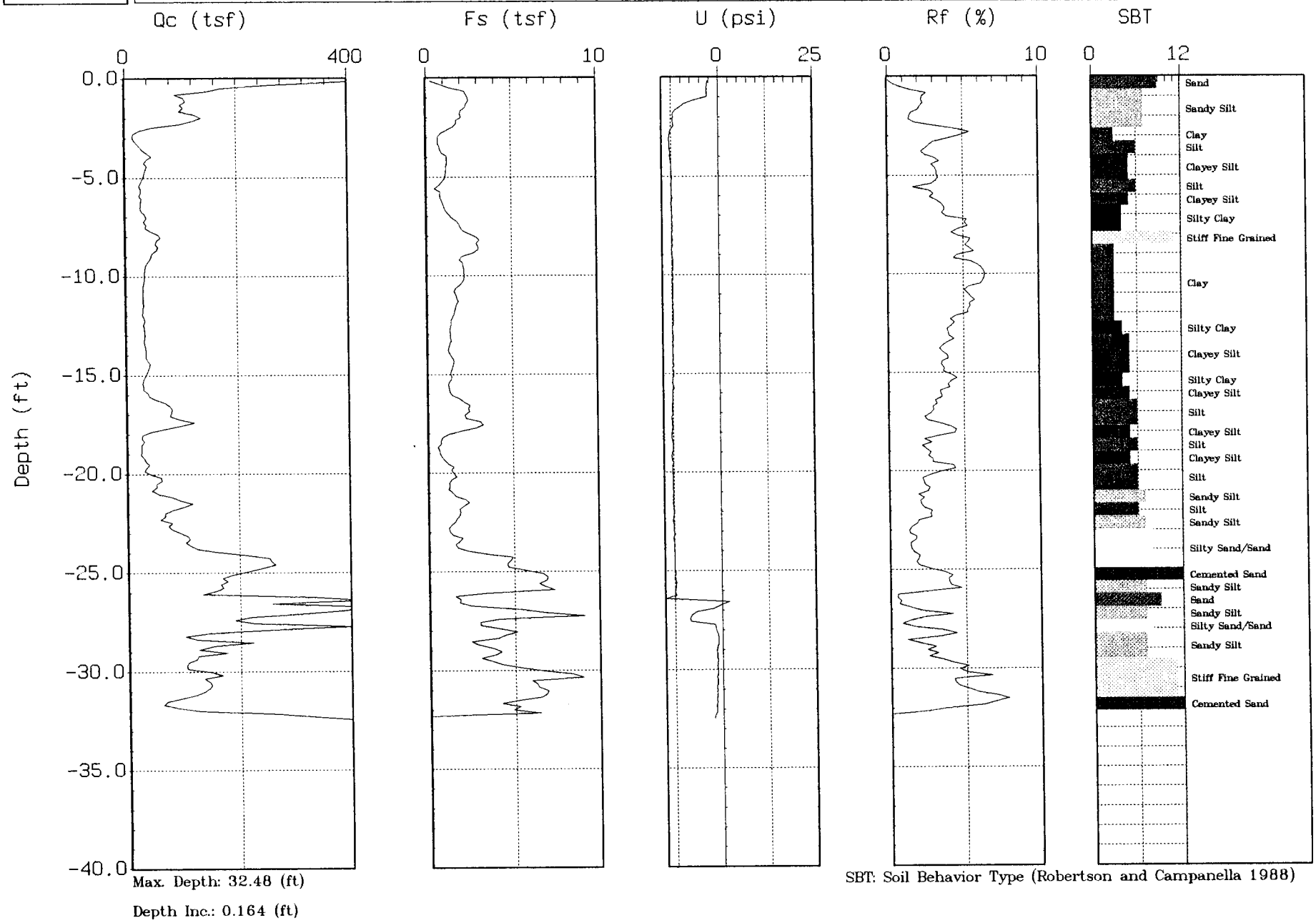
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

ERM Southwest

Site : WHIRLPOOL
Location : CPT-22

Geologist: Lori Pfeil
Date : 10:26:99 14:34



Max. Depth: 32.48 (ft)

Depth Inc.: 0.164 (ft)

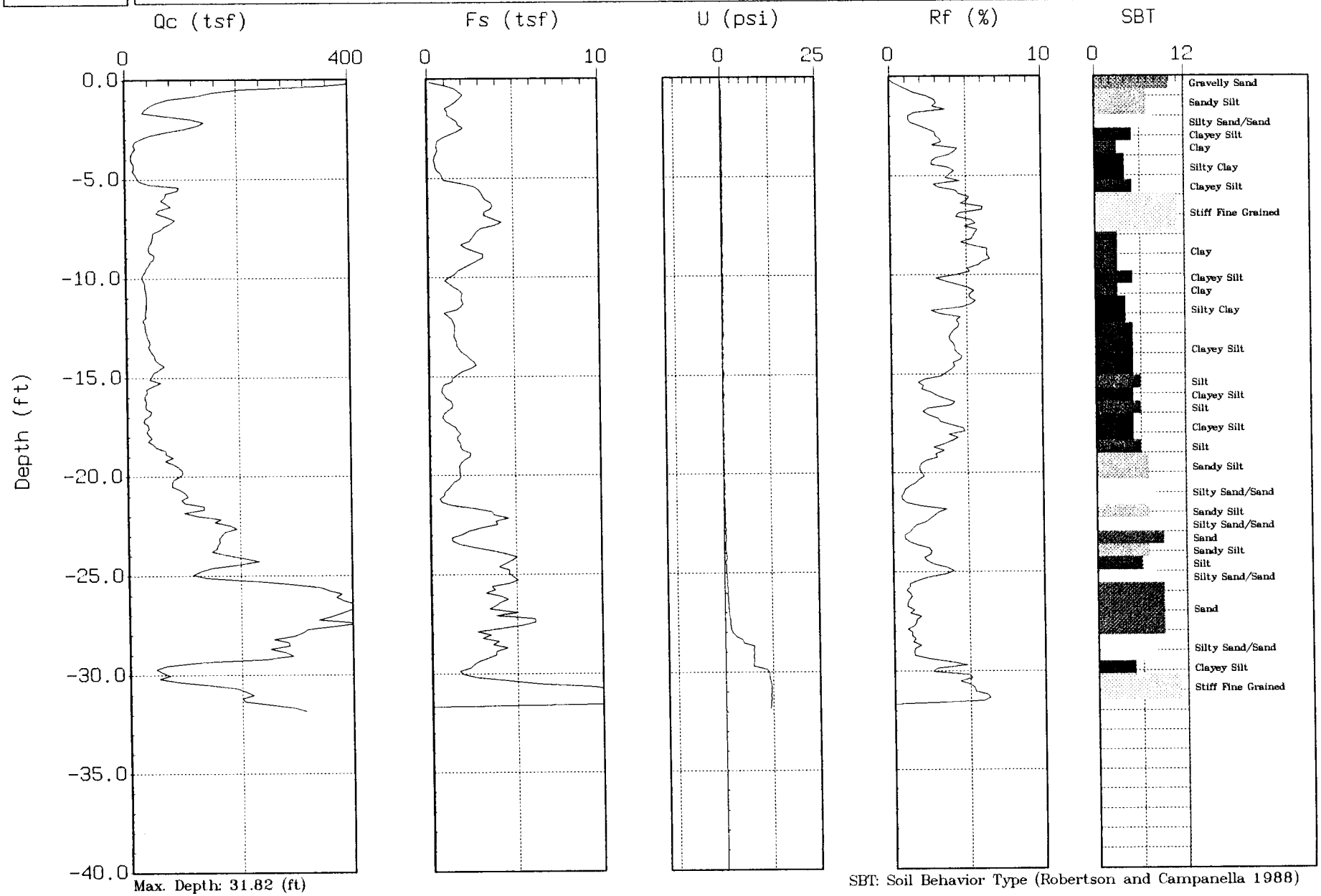
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

ERM Southwest

Site : WHIRLPOOL
Location : CPT-23

Geologist: Lori Pfeil
Date : 10:26:99 15:11



Max. Depth: 31.82 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson and Campanella 1988)

DRAFT

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

STMW 1

Well No [illegible]

Client [illegible] Job No [illegible] Date Drilled [illegible] 89 Sheet [illegible] of [illegible]

Site FORT SMITH AR Elevation Pad [illegible] Top of PVC Casing [illegible]

Total Depth [illegible] Casing Size & Type [illegible] Screen Size [illegible]

Comments [illegible] HOLLOW STEM AUGER [illegible] HOLLOW STEM AUGER AND MUD ROTARY

[illegible] UPTO 32FOOT 5' CONTINUOUS SAMPLES

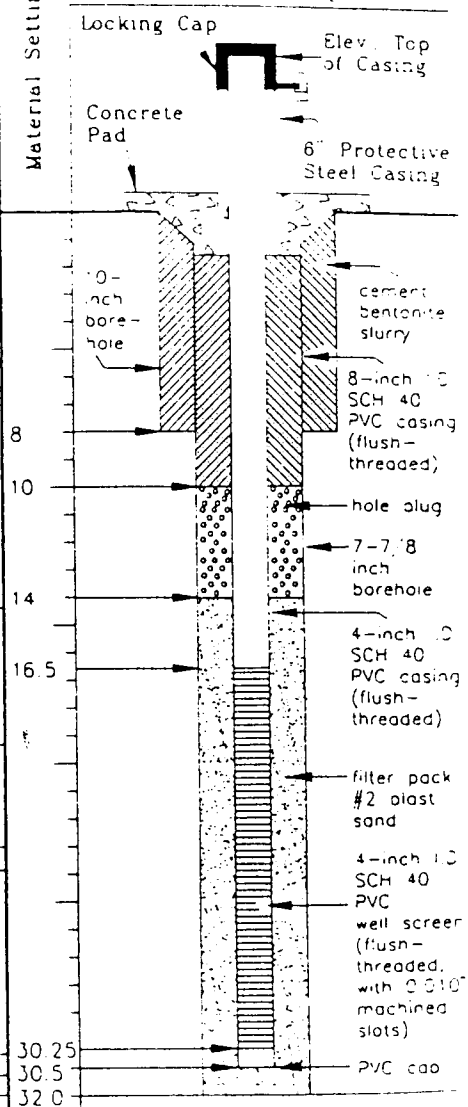
Depth in Feet	PID (ppm)	Symbol	Stratigraphy	Sample Description
				GRAVEL FILL, saturated
5		ML		CLAYEY SILT, yellowish brown, silt with clay, low plasticity, firm, moist
10	0.6			CLAYEY SILT, yellowish brown, silt with clay(20-40%) low plasticity, firm,dry
15		ML		SANDY SILT, yellowish brown/light gray, silt with very fine sand(20-30%) moderately firm, moist
20	0.1	SW		SILTY SAND, yellowish brown, very fine-fine sand with silt SILTY SAND, yellowish brown, fine-medium sand with silt SILTY SAND, yellowish brown, medium-coarse sand and silt
	0.2	ML		SANDY SILT, silt with very fine sand (10-30%)
25		GW		SANDY GRAVEL, yellowish-brown, gravel up to 1" diameter with sand, fine-coarse, trace of silt SANDY GRAVEL, strong brown, gravel up to 1" predominately 1/8" with sand, fine-coarse, trace of silt
30		ML		CLAYEY SILT, strong brown, silt with clay(20-40%) low plasticity
		ML		SILT, dark gray, silt, slightly-medium lithified fissile

TOTAL DEPTH = 32.0 FEET

Material Setting

Completion Data

Material Description



DRAWN BY NAL [illegible] CHECKED BY [illegible] APPROVED BY [illegible] DRAWING NUMBER [illegible]

DRAFT

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

ITMW 2

Well No.

Client [redacted] Job No [redacted] Date Drilled [redacted] Sheet of

Site [redacted] Elevation Pad 425.14 Top of PVC Casing

Total Depth 31.0 FEET Casing Size & Type 4-INCH SCH 40 PVC Screen Size

Comments 8 INCH HOLLOW STEM AUGER

2" SPLIT-SPOON 5' CONTINUOUS SAMPLE

Depth in Feet	PID (ppm)	Symbol	Stratigraphy	Sample Description
				CONCRETE FILL
		GW		SILTY GRAVEL, yellowish brown, gravel up to 3/8" of decomposing shale and rock, 3" clayey silt, low plasticity, moist
	7.6	ML		CLAYEY SILT, yellowish brown, silt with clay, low plasticity, moderate-firm moist, mottled in color
5		GW		SILTY SANDY GRAVEL, 2" layer of gravel up to 1/2" with medium-coarse sand and silt
	3.0	ML		CLAYEY SILT, strong brown/light gray, silt with clay(25-45%) low plasticity, moist, slight odor.
	6.1			
10		ML		GRAVELY CLAYEY SILT, strong brown, silt with clay and gravel sized decomposing shale and rock up to 1/8", moist, mottled in color medium-firm
	3.4	ML		CLAYEY SILT, silt with clay, low plasticity, moist, moderate, firm
15		ML		CLAYEY SANDY SILT, silt with clay and very fine sand, wet saturated, NEOC
		ML		CLAYEY SILT, strong brown/light gray, silt with clay (20-40%) low plasticity, firm, dry.
	0.7	ML		SANDY SILT, silt with very fine sand, moist, wet, low plasticity
20				
	0.7			SANDY SILT, strong brown/light gray, silt with very fine sand, wet throughout.
25				AT 24.5' a 1" layer of coarse sand.
		ML		CLAYEY SILT, strong brown.
	0.0	GW		SILTY SANDY GRAVEL, strong brown, gravel up to 1" diameter with fine-coarse sand and silt, wet, saturated.
30		ML		CLAYEY SILT, strong brown, silt with clay (20-40%) laminated.
	0.0	ML		SILT, dark gray, silt moderately lithified, finely laminated, moist

TOTAL DEPTH = 31.0 FEET

Material Setting

Completion Data
Material Description

Locking Cap

Elev. Top of Casing

Concrete Pad

6" Protective Steel Casing

cement bentonite slurry

7.0 hole plug

10.5 8-inch borehole

12.75 4-inch I.D. SCH 40 PVC well casing (flush-threaded)

4-inch I.D. SCH 40 PVC well screen (flush-threaded, with 0.010" machined slots)

27.2 PVC cap

27.5 filter pack #2 silica sand

31.0

DRAWN BY [redacted] DATE [redacted] CHECKED BY [redacted] APPROVED BY [redacted] DRAWING NUMBER [redacted]

DRAFT

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

ITMW3

Client [illegible] Job No [illegible] Date Drilled [illegible] Well No [illegible]

Site [illegible] Elevation Pad [illegible] Top of PVC Casing [illegible] Sheet [illegible] of

Total Depth [illegible] Casing Size & Type 4-INCH SCH 40 PVC Screen Size [illegible]

Comments [illegible] HOLLOW STEM AUGER AND 10-INCH HOLLOW STEM AUGER

[illegible] SPOON [illegible] CONTINUOUS SAMPLE

Depth in Feet	PID (ppm)	Symbol	Stratigraphy	Sample Description
0	0.0	ML		CLAYEY SILT, brown silt with clay (10-30%) moist, wet, roots
	0.0	ML		CLAYEY SILT, brownish yellow, silt with clay, low plasticity, some gravel sized decomposing shale, intermittant roots, moist
5	0.0	ML		SANDY CLAYEY SILT, silt with clay (20-30%) low plasticity, with very fine sand (10-20%) moist, wet
		ML		CLAYEY SILT, strong brown/light gray, silt with clay(20-40%) low-moderate plasticity, firm, moist, mottled in color
		ML		GRAVELY CLAYEY SILT, strong brown, silt with clay (10-30%) and gravel sized shale fragments and rock up to 1/8"
10		ML		CLAYEY SILT, strong brown/light gray, silt with clay(25-45%) low-moderate plasticity, firm, moist, mottled in color, some black staining
		ML		SANDY CLAYEY SILT, strong brown/light gray, silt with clay (10-25%) and very fine sand, moist, wet
15				
20				
	0.0	SW		CLAYEY SAND, sand coarse-very coarse, well graded, with clay (10-20%) saturated
		GW		CLAYEY SANDY GRAVEL, strong brown, gravel up to 1" diameter with sand medium-coarse, and clay (10-30%) saturated
25		GW		SILTY SANDY GRAVEL, strong brown, gravel up to 1 1/2" diameter with fine-coarse sand and silt, wet, saturated
		ML		SILT, dark gray, silt moderately lithified, finely laminated, dry fissile
30				TOTAL DEPTH = 29.0 FEET

Material Setting	Completion Data Material Description
	Locking Cap
	Elev Top of Casing
	Concrete Pad
	6" Protective Steel Casing
	cement bentonite slurry
4.0	
	hole plug
7.0	
	4-inch I.D. SCH 40 PVC well casing (flush-threaded)
10.65	
	10-inch borehole
	filter pack, #2 blast sand
	4-inch I.D. SCH 40 PVC well screen (flush-threaded, with 0.010" machined slots)
25.45	
26.0	
	PVC cap
29.0	

DRAWN BY NAL [illegible] CHECKED BY [illegible] APPROVED BY [illegible] DRAWING NUMBER [illegible]

DRAFT

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

ITMW4

Well No [illegible]

Client [illegible] Job No [illegible] Date Drilled [illegible] Sheet of

Site [illegible] Elevation Asphalt [illegible] Top of PVC Casing [illegible]

Total Depth 33.0 FEET Casing Size & Type [illegible] Screen Size [illegible]

Comments 8 INCH HOLLOW STEM AUGER TO [illegible] HOLLOW STEM AUGER AND MUD ROTARY

2" SPLIT-SPOON 5' CONTINUOUS SAMPLE

Depth in Feet	PID (ppm)	Symbol	Stratigraphy	Sample Description
				ASPHALT
	1.4	SW		GRAVEL FILL, black, gravel [illegible] saturated with oily sheen and odor present
5	1.4			
	0.7	ML		CLAYEY SILT, strong brown, silt with clay (20–40%) low plasticity moderate–firm, moist
10	3.9			CLAYEY SILT, strong brown
	2.7			CLAYEY SILT, olive, silt with clay, low plasticity, moist, odorous
				CLAYEY SILT, light olive brown
15	2.0			CLAYEY SILT, light gray/light olive brown, silt with clay, low plasticity, moist trace of very fine sand
	2.5			CLAYEY SILT, light gray/yellowish brown, silt with clay, low plasticity, moist trace of fine sand
20	1.9	SW		SILTY SAND, yellowish brown, medium–coarse sand with silt (15–35%) wet, saturated
		ML		CLAYEY SILT, yellowish brown, silt with clay (20–40%) moist–wet
	1.3	SW		SILTY SAND, yellowish brown, medium–coarse sand with silt (20–40%) saturated, becoming coarse with depth, well graded
25	1.1	GW		SILTY SANDY GRAVEL, dark yellowish brown, gravel up to 1 1/4" diameter with fine–coarse sand and silt
	0.9			SILTY SANDY GRAVEL, dark yellowish brown, gravel up to 1/2" with fine to coarse sand, mostly medium–coarse and silt (10–15%) gravel becomes much finer than above
	0.7			SILTY SANDY GRAVEL, gravel up to 1/2" thick with fine–coarse sand and silt, increasing in silt with depth, becoming slightly lithified
30				CLAYEY SILT, yellowish brown, silt with clay (25–45%) laminated, low plasticity, firm
				SILT, dark gray, silt moderately lithified, laminated

TOTAL DEPTH = 33.0 FEET

Completion Data

Material Description

Material Setting

Locking Cap

Elev. Top of Casing

6" Protective Steel Casing

cement bentonite slurry

10-inch borehole

9.1

11

8-inch ID SCH 40 PVC well casing (flush-threaded)

hole plug

14.5

8-inch borehole

18.2

4-inch ID SCH 40 PVC well casing (flush-threaded)

filter pack, #2 blast sand

4-inch ID SCH 40 PVC well screen (flush-threaded, with 0.010" machined slots)

32.2

32.5

PVC cap

33.0

DRAWN BY [illegible] CHECKED BY [illegible] APPROVED BY [illegible] DRAWING NUMBER [illegible]

DRAFT

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

ITMW 5

Well No. [illegible]

Client WHIRLPOOL Job No 446498 Date Drilled [illegible] Sheet [illegible] of [illegible]

Site FORT SMITH AR Elevation Pad 476.57 Top of PVC Casing 478.93

Total Depth [illegible] Casing Size & Type 4-INCH SCH 40 PVC Screen Size 0.010 INC

Comments: 8 INCH HOLLOW STEM AUGER, 10-INCH HOLLOW STEM AUGER AND MUD ROTARY

2" SPLIT SPOON 5' CONTINUOUS SAMPLE

Depth in Feet	PID (ppm)	Symbol	Stratigraphy	Sample Description
				GRAVEL FILL
	0.0			CLAYEY SILT, light gray/strong brown, silt with clay (20-40%) low plasticity moist-wet, mottled in color
	0.0			CLAYEY SILT, light gray/strong brown, silt with clay (20-40%) low plasticity moist, some gravel sized shale fragments intermittant
5	0.0			CLAYEY SILT, strong brown/light gray, silt with clay (20-40%) low plasticity dry, firm, gravel sized shale fragments intermittant
	0.5			CLAYEY SILT, light gray/strong brown, silt with clay (30-45%) low plasticity firm, dry, mottled in color, some black staining
10				
	0.7	ML		CLAYEY SILT, light gray/strong brown, silt with clay (35-45%) low plasticity very firm, dry, slickensides at 13.5', black staining throughout mottled in color
15				
				CLAYEY SILT, light gray/strong brown, silt with clay (35-45%) low plasticity very firm, dry, mottled in color, black staining
20				
	0.5			
25		GW		CLAYEY SANDY GRAVEL, strong brown, gravel up to 1 1/2" with medium-coarse sand and clay, moist-wet
				CLAYEY SANDY GRAVEL, strong brown, gravel with medium-coarse sand and clay, saturated
30		ML		CLAYEY SILT, strong brown, silt finely laminated, crumbly with clay(10-25%)
	0.0	ML		SILT, dark gray, silt, finely laminated, medium-well lithified, fissile
				TOTAL DEPTH = 32.0 FEET

Material Setting	Completion Data Material Description
	Locking Cap
	Elev. Top of Casing
	Concrete Pad
	6" Protective Steel Casing
	cement, bentonite slurry
	10-inch borehole
	4-inch I.D. SCH 40 PVC well casing (flush-threaded)
15	
	hole plug
17	
	filter pack, #2 blast sand
19.9	
	4-inch I.D. SCH 40 PVC well screen (flush-threaded, with 0.010" machined slots)
29.65	
30	PVC cap
32	

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INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

ITMW 6

Well No [illegible]

Client [illegible] Job No [illegible] Date Drilled [illegible] 89 Sheet [illegible] of

Site [illegible] Elevation Pad 481.05 Top of PVC Casing [illegible]

Total Depth [illegible] FEET Casing Size & Type 4-INCH [illegible] Screen Size [illegible]

Comments [illegible] INCH HOLLOW STEM AUGER

[illegible] SPLIT-SPOON [illegible] CONTINUOUS SAMPLE

Depth in Feet	PID (ppm)	Symbol	Stratigraphy	Sample Description
	[illegible]	SW		CLAYEY SILTY GRAVEL, brown, gravel fill with clay and silt
5	0.0	ML		CLAYEY SILT, red/dark yellowish brown, silt with clay (20–40%) firm, dry, roots, mottled in color
	0.0	ML		CLAYEY GRAVELY SILT, silt with clay (30–40%) and gravel (5%) up to 3/8" diameter, firm, dry
10				CLAYEY SILT, yellowish brown, silt with clay (30–40%) firm, dry
	0.0	ML		CLAYEY SILT, strong brown, silt with clay (30–40%) firm, dry, at 12.5' a 3" layer of clayey gravely silt, with shale fragment, gravel size abundant, mottled in color becoming strong brown at 13'
15				CLAYEY SILT, strong brown, silt with clay (20–30%) moderately firm slightly moist, some decomposed shale intermittant
	0.0			
20				
	9			CLAYEY SILT, strong brown, silt with clay (30–40%) moderately firm slightly moist
25		ML		CLAYEY SANDY SILT, strong brown, silt with clay (20–30%) and very fine sand (10–20%) moist–wet
		SP		SAND, yellowish brown, very fine–fine sand, poorly graded, saturated
30		SP		SILTY SAND, light gray, very fine sand with silt(20–30%) wet–saturated
		ML		CLAYEY SILT, strong brown, silt with clay
		GW		CLAYEY GRAVEL, strong brown, gravel up to 1", most 1/8–1/4" with clay (10–20%) saturated
35		GW		CLAYEY SANDY GRAVEL, strong brown, gravel 1/8–1/4" with medium–coarse sand and clay (10–20%)
		ML		SILT, dark gray, finely laminated, moderately lithified, fissile silt

TOTAL DEPTH = 36.7 FEET

Material Setting	Completion Data — Material Description
	Locking Cap
	Elev. Top of Casing
	Concrete Pad
	6" Protective Steel Casing
	Cement Bentonite slurry
	4-inch I.D. SCH 40 PVC well casing (flush-threaded)
	10-inch borehole
15	
17.5	hole plug
	filter pack, #2 blast sand
21.65	
	4-inch I.D. SCH 40 PVC well screen (flush-threaded, with 0.010" machined slots)
	PVC cap
36.15	
36.7	

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DRAFT

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

ITMW8

Client [illegible] Job No 446498 Date Drilled [illegible] 89 Sheet [illegible] of [illegible]

Well No MW8

Site [illegible] Elevation Cover Rim 482.33 Top of PVC Casing 481.79

Total Depth 34.60 FEET Casing Size & Type 4-INCH SCH 40 PVC Screen Size 0.010 NO. [illegible]

Comments 8-INCH HOLLOW STEM AUGER 10-INCH HOLLOW STEM AUGER

2' SPLIT-SPOON 5' CONTINUOUS SAMPLE

Depth in Feet	PID (ppm)	Symbol	Stratigraphy	Sample Description
				CONCRETE SLAB
		ML		SANDY SILT, brown, silt with sand, very fine to fine, moist, odorous
5	1.0	ML		CLAYEY SILT, yellowish brown/light gray, silt with clay (10-20%), trace very fine sand, roots, rock fragments, moist, odorous
	0.4			
	0.4			CLAYEY SILT, yellowish brown/light gray, silt with clay (10-30%), trace (10%) very fine sand, weathered rock fragments, roots, black staining, moist
10		GW		SILTY SANDY GRAVEL, yellowish brown, gravel with medium to coarse sand and silt, moist
	0.4	ML		SANDY SILT, yellowish brown/light gray, silt with very fine sand (30-50%), moist, intermitant rock fragments, black staining
15		ML		SANDY SILT, yellowish brown, silt with sand, fine to medium (30-50%), moist, rock fragments
				SANDY SILT, same as above
	0.2			CLAYEY SANDY SILT, yellowish brown/light gray, silt with clay (10-20%), fine sand, trace (10%), moist
20				SANDY SILT, silt with fine to medium sand, moist
		ML		SANDY CLAYEY SILT, yellowish brown/light gray, silt with clay and very fine to fine sand, wet
	0.4			
25	0.2	SW		SILTY SAND, yellowish brown, medium to coarse, sand with silt, saturated
		GW		SILTY SANDY GRAVEL, yellowish brown, gravel up to 1", angular, with medium to very coarse sand and silt, saturated
30				
	0.2			SILTY SANDY GRAVEL, yellowish brown, same as above
		ML		CLAYEY SILT, yellowins brown, silt with clay (10-30%), firm, moist
		ML		SHALE, gray, shale
35				TOTAL DEPTH = 35.0 FEET

Material Setting

Completion Data
Material Description

Flush Completion

16.0
18.0
20.45
33.90
34.45
34.60

locking cap
cement/ bentonite slurry
4-inch I.D. SCH 40 PVC well casing (flush-threaded)
10-inch borehole
hole plug
filter pack, #2 blast sand
4-inch I.D. SCH 40 PVC well screen (flush-threaded, with 0.010" machined slots)
PVC cap

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DRAFT

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

ITMW9

Client [illegible] Job No 345498 Date Drilled 12/19/89 Well No MW9

Site FORT SMITH AR Elevation Ground 479.50 Top of PVC Casing 481.90 Sheet 1 of 1

Total Depth 34.5 FEET Casing Size & Type: 4-INCH SCH 40 PVC Screen Size 0.010 SLOT

Comments 8-INCH HOLLOW STEM AUGER

SPLIT-SPOON 5' CONTINUOUS SAMPLE

Depth in Feet	PID (ppm)	Symbol	Stratigraphy	Sample Description
		ML		SANDY SILT, brown, silt with very fine to fine sand, moist
5	30.0	ML		CLAYEY SILT, yellowish brown/light gray, silt with clay (10–30%), low plasticity, moist, crumbly rock fragments, black staining, slight odor, roots
	50.0			CLAYEY SILT, yellowish brown/light gray, silt with clay (10–30%), low plasticity, becoming more rigid, weathered rock fragments, black staining, moist, slight odor
10				
	0.0	ML		SANDY CLAYEY SILT, yellowish brown, silt with clay (10–20%), low plasticity, moderately firm with medium to coarse sand (10–30%), moist
15				
				SANDY CLAYEY SILT, yellowish brown, same as above
				SILTY SANDY GRAVEL, yellowish brown, gravel with up to 1", angular, with medium to very coarse sand, 30–40% silt, moist to wet
20		GW		SILTY SANDY GRAVEL, yellowish brown
	0.0	SW		SAND, yellowish brown, well graded, medium to coarse sand with trace silt, wet to saturated
		SW		SILTY SAND, yellowish brown, medium to coarse sand with silt (30–40%), moderately firm, cohesive, moist to wet
25		GW		SILTY SANDY GRAVEL, yellowish brown, gravel up to 1", angular, with medium to coarse sand and silt, cohesive, moist to wet
	0.0			SILTY SANDY GRAVEL, yellowish brown, gravel with medium to coarse sand and silt, saturated, beginning at 26.5' BGL
30				
	0.0			SILTY SANDY GRAVEL, yellowish brown, same as above
		ML		CLAYEY SILT, yellowish brown, silt with clay (10–30%), firm, moist
		ML		SHALE, gray, shale, fissile, dry to moist

TOTAL DEPTH = 34.16 FEET

Material Setting

Completion Data
Material Description

Locking Cap
Elev. Top of Casing
Concrete Pad
6" Protective Steel Casing
cement bentonite slurry
10-inch borehole
4-inch I.D. SCH 40 PVC well casing (flush-threaded)
15.0
bentonite pellets (size: 1/2")
18.0
19.95
4-inch I.D. SCH 40 PVC well screen (flush-threaded, with 0.010" machined slots)
filter pack #2 silica sand
33.45
34.0
PVC cap
34.5

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INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

ITMW10

Well No [illegible]

Client WHIRLPOOL Job No 446498 Date Drilled 12/20/89 Sheet 1 of 1

Site: FORT SMITH, AR Elevation: Ground 478.60 Top of PVC Casing 480.84

Total Depth 35.5 FEET Casing Size & Type: 4-INCH SCH 40 PVC Screen Size 0.010 INCH

Comments 8-INCH HOLLOW STEM AUGER

2' SPLIT-SPOON 5' CONTINUOUS SAMPLE

Depth in Feet	PID (ppm)	Symbol	Stratigraphy	Sample Description
5	0.4	ML		CLAYEY SILT, yellowish brown/light gray, silt with clay (10-30%), low plasticity, moderately firm, moist, mottled in color, weathered rock fragments, intermitant, roots
	0.4			CLAYEY SILT, yellowish brown/light gray, silt with clay (10-30%), trace very fine sand, weathered rock fragments, intermitant, roots, moist, mottled in color, moderately firm
10	0.2			CLAYEY SILT, yellowish brown/light gray, silt with clay (10-30%), trace very fine sand, weathered rock fragments, intermitant, black staining from weathering, becoming more firm with depth, moist
15	0.0			CLAYEY SILT, yellowish brown/light gray, silt with clay (10-30%), trace very fine sand, weathered rock fragments, intermitant, black staining, dry to moist, firm
20	0.2			CLAYEY SILT, yellowish brown/light gray, silt with clay (10-30%), trace very fine sand, increasing with depth, moist, black staining, moderately firm
25		ML		CLAYEY SANDY SILT, yellowish brown/light gray, silt with clay (10-20%), very fine sand (10-30%), moist, low to moderately firm, black staining
	0.2	GW		SILTY SANDY GRAVEL, yellowish brown, gravel up to 1" diameter, angular, with sand medium to coarse, and silt, cohesive, moist
30				SILTY SANDY GRAVEL, yellowish brown, gravel up to 1", angular, with sand medium to coarse, and silt, saturated at 31.5'BGL
	0.2	ML		CLAYEY SILT, yellowish brown, silt with clay (20-40%), moderately firm, moist to dry
35		ML		SHALE, gray, shale, fissile, dry
				TOTAL DEPTH = 35.5 FEET

Material Setting

Completion Data
Material Description

Locking Cap
Elev. Top of Casing
Concrete Pad
6" Protective Steel Casing
cement, bentonite slurry
10-inch borehole
4-inch I.D. SCH 40 PVC well casing (flush-threaded)
17.5
bentonite pellets (size: 1/2")
20.0
22.65
4-inch I.D. SCH 40 PVC well screen (flush-threaded, with 0.010" machined slots)
filter pack, #2 blast sand
33.60
34.15
34.25
PVC cap

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DRAFT

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

ITMW 11

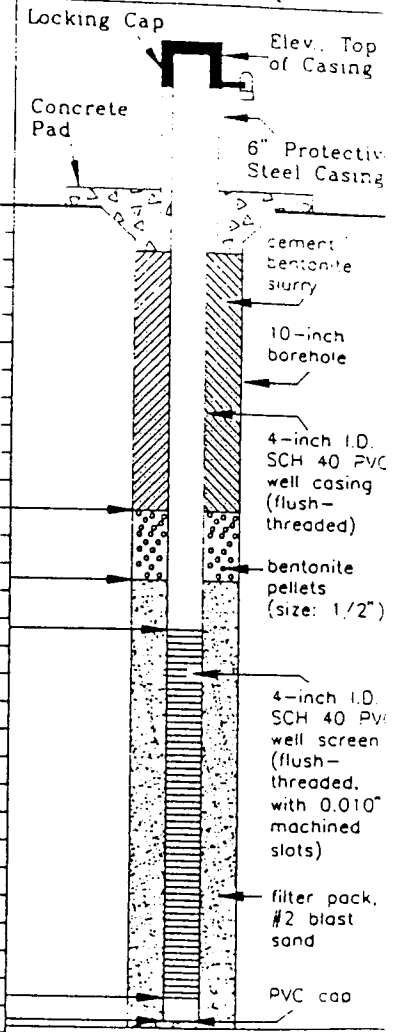
Client WHIRLPOOL Job No 446498 Date Drilled 12-20-89 Well No MW-
Site FORT SMITH, AR. Elevation Ground 474.00 Top of PVC Casing 476.50
Total Depth 30.5 FEET Casing Size & Type 4-INCH SCH 40 PVC Screen Size 0.010 INCH
Comments 8-INCH HOLLOW STEM AUGER
2" SPLIT-SPOON 5' CONTINUOUS SAMPLE

Depth in Feet	PID (ppm)	Symbol	Stratigraphy	Sample Description
5	700.0	ML		SANDY CLAYEY SILT, yellowish brown/light gray
	450.0			SANDY CLAYEY SILT, yellowish brown/light gray, silt with clay (10-30%), moderately firm, and sand very fine grained (10-30%), weathered rock fragments, moist, odorous
10	400.0	ML		SANDY CLAYEY SILT, yellowish brown/light gray, same as above, but less firm
	400.0	ML		CLAYEY SILT, yelowish brown/light gray, silt with clay (10-30%), low plasticity, moderately firm, moist, trace very fine sand, odorous
15	310.0			SANDY CLAYEY SILT, yelowish brown/light gray, silt with clay (10-20%), angular, very fine to fine sand (20-40%), moist, odorous, black staining
	75.0	SW		SILTY SAND, yellowish brown/light gray, fine to medium sand with silt, black staining, slight odor, wet to saturated
20	65.0			
	2.6	GW		SILTY SANDY GRAVEL, yellowish brown, gravel, angular up to 1", with fine to very coarse sand, and silt (10-20%), saturated
25	0.0			
	0.0			SILTY SANDY GRAVEL, yellowish brown, same as above
30		ML		SHALE, gray, shale fossile, slickenslide

TOTAL DEPTH = 30.5 FEET

Material Setting: 11.0, 13.5, 15.25, 28.7, 29.45, 29.7

Completion Data
Material Description



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DRAFT

Client: WHIRLPOOL
Project Name: WHIRLPOOL
Project Location: FORT SMITH, ARK.
Project Number: 446498

MONITOR WELL ITMW12

DRILLING AND SAMPLING INFORMATION

Boring Location: ITMW12
SURFACE ELEV.(FT): 474.72
TOTAL DEPTH(FT.): 30.5
Logged By: L. JOHNSON
Date Started: 10/30/90
Drilled By: J. LANDEROS
Date Completed: 10/30/90

Drill Rig Type: B-53 MOBILE DRILL
Drilling Method: 8-INCH HOLLOW STEM AUGER, 10-INCH HOLLOW STEM AUGER
Sampling Method: 5-FOOT CONTINUOUS SAMPLE

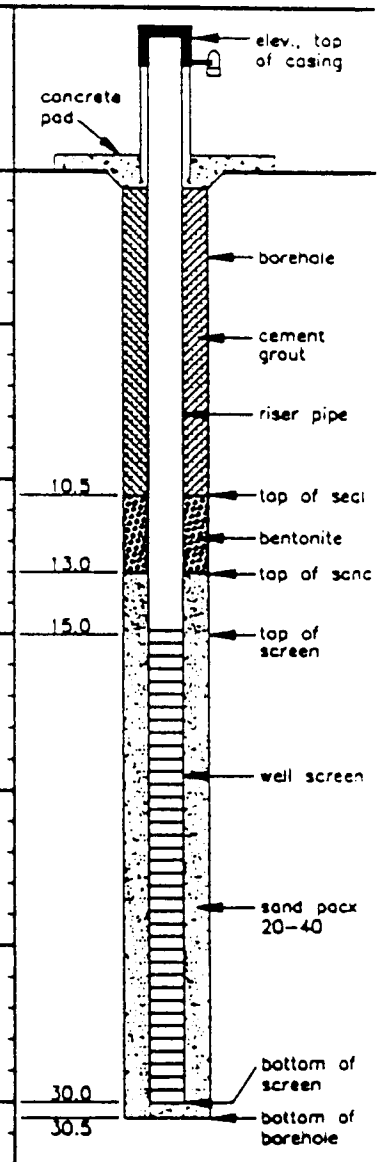
Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 476.67 Ref. Datum: MSL
1. Riser Pipe-Dia(in.): 4 Depth(ft.): 15 Type: Sch 40 PVC
Centralizers-Type: NA Depths(ft.): NA
2. Screen Dia.(in.): 4 Type: Sch 40 PVC FJT
Depth Interval(ft.): 15-30 Slot Size(in.): .010
Centralizers-Type: NA Depths(ft.): NA
3. Filter Pack Type: 20-40 Silica Depth Interval(ft.): 13-30.5
Conc. Pad Size: 3'x3'x6"

NOTE: All depths are for base of pipe from ground surface.

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
CONCRETE - 4-inches thick with 2-inch fill sand						
SILTY CLAY - reddish orange, some roots	CS	60/24	2.5	cl		
CLAY - orange, some light gray 1cm thick silt stringers, black iron nodules	CS	60/60	2.5	cl		5
- orange to light gray, disseminated black spots, light gray - 1-2cm thick silt stringers, iron nodules	CS	60/60	3.0			
- orange, black iron nodules, 1-3cm thick gray silt stringers, some cobbles/gravel	CS	60/31	3.0			10
SILT - light gray, medium dense, slight clay content - wet	CS	60/48	2.5	ml		15
SAND - brown to orange, fine to medium grained, wet	CS	60/48	2.5	sp		
SANDY CLAY - alternating silty sand and clay (15-30cm) layers	CS	60/48	1.9	cl		20
GRAVEL - gray to white, 4-8mm	CS	60/60	1.9	gp		25
SAND - orange brown, coarse grained, some 2-6mm gravel	CS	60/60	1.9	sw		30
CLAY - gray/orange, 1-inch layer of 2-5mm gravel				cl		35
						40



TOTAL DEPTH = 30.5 FEET

INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	STF 12/19/90	DRAFT CHK	6-7-91	PROJ. CHK	6-7-91	APPRV. BY	6-7-91	DWG. NO.	446498-A47 Sheet 1 of 1

DRAFT

Client: WHIRLPOOL | Project Location: FORT SMITH, ARK.
Project Name: WHIRLPOOL | Project Number: 446438

MONITOR WELL ITMW13

DRILLING AND SAMPLING INFORMATION

Boring Location: ITMW13 | SURFACE ELEV.(FT): 475.39 | TOTAL DEPTH(FT.): 29.5
Logged By: L. JOHNSON | Date Started: 11/6/90
Drilled By: J. LANDEROS | Date Completed: 11/7/90

Drill Rig Type: DEEP ROCK
Drilling Method: 8-INCH HOLLOW STEM AUGER, 10-INCH HOLLOW STEM AUGER
Sampling Method: 5-FOOT CONTINUOUS SAMPLE

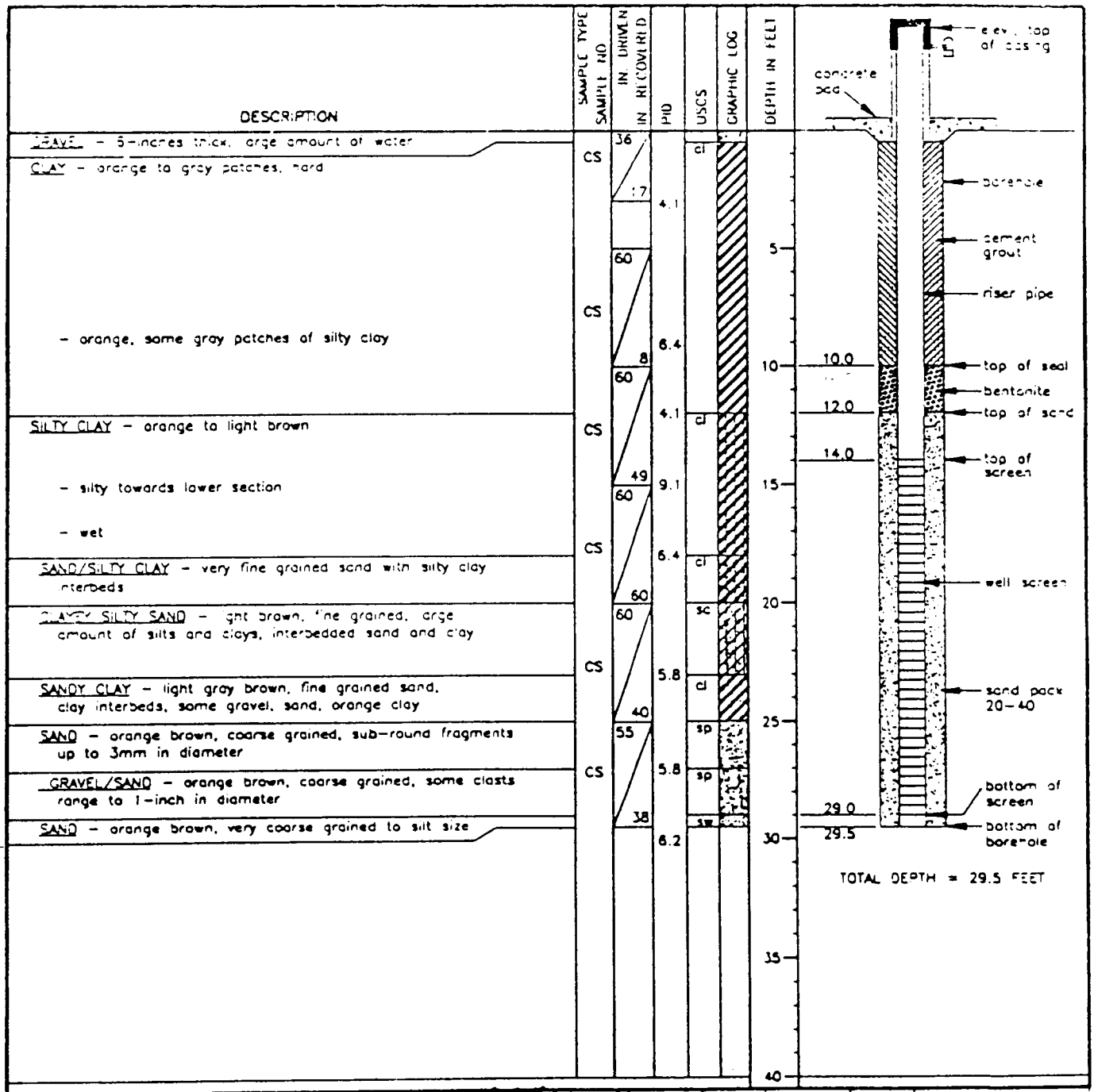
WELL COMPLETION DATA

Elev-Top of Casing(ft.): 477.79 | Ref. Datum: MSL
1. Riser Pipe-Dia(in.): 4 | Depth(ft.): 14 | Type: Sch 40 PVC
   Centralizers-Type: NA | Depths(ft.): NA
2. Screen Dia.(in.): 4 | Type: Sch 40 PVC FJT
   Depth Interval(ft.): 14-29 | Slot Size(in.): 0.10
   Centralizers-Type: NA | Depths(ft.): NA
3. Filter Pack Type: 20-40 Silica | Depth Interval (ft.): 12-29.5
   Conc. Pad Size: 3'x3'x6"

Notes:

NOTE: All depths are for base of pipe from ground surface.

DESCRIPTION	SAMPLE TYPE	SAMPLE NO	IN. DRIVEN IN RECOVERED	PID	USCS	GRAPHIC LOG
GRAVEL - 6-inches thick, large amount of water	CS	1	36 / 17	4.1	cl	
CLAY - orange to gray patches, hard						
- orange, some gray patches of silty clay	CS	2	60 / 8	6.4		
SILTY CLAY - orange to light brown	CS	3	60 / 49	4.1	cl	
- silty towards lower section				9.1		
- wet						
SAND/SILTY CLAY - very fine grained sand with silty clay interbeds	CS	4	60 / 60	6.4	cl	
CLAYEY SILTY SAND - light brown, fine grained, large amount of silts and clays, interbedded sand and clay			60 / 40	5.8	sc	
SANDY CLAY - light gray brown, fine grained sand, clay interbeds, some gravel, sand, orange clay	CS	5	55 / 38	5.8	cl	
SAND - orange brown, coarse grained, sub-round fragments up to 3mm in diameter					sp	
GRAVEL/SAND - orange brown, coarse grained, some clasts range to 1-inch in diameter	CS				sp	
SAND - orange brown, very coarse grained to silt size				6.2	sw	



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	STF 12/20/90	DRAFT CHK	6/7/91	PROJ. CHK	6-7-91	APPRV BY	6-7-91	DWG. NO.	446498-A48 Sheet 1 of 1

DRAFT

Client: WHIRLPOOL
Project Name: WHIRLPOOL
Project Location: FORT SMITH, ARK.
Project Number: 446498

MONITOR WELL ITMW14

DRILLING AND SAMPLING INFORMATION

Boring Location: ITMW14
SURFACE ELEV.(FT): 475.68
TOTAL DEPTH(FT.): 30
Logged By: L. JOHNSON
Drilled By: J. LANDEROS
Date Started: 10/30/90
Date Completed: 10/31/90

Drill Rig Type: B-53 MOBILE DRILL
Drilling Method: 8-INCH HOLLOW STEM AUGER, 10-INCH HOLLOW STEM AUGER
Sampling Method: 5-FOOT CONTINUOUS SAMPLE

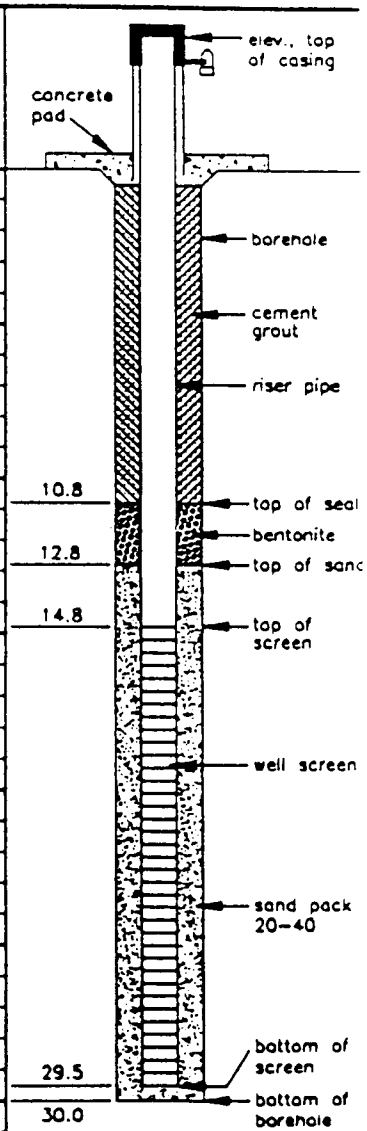
Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 477.30 Ref. Datum: MSL
1. Riser Pipe-Dia(in.): 4 Depth(ft.): 14.8 Type: Sch 40 PV
   Centralizers-Type: NA Depths(ft.): NA
2. Screen Dia.(in.): 4 Type: Sch 40 PVC FJT
   Depth Interval(ft.): 14.8-29.5 Slot Size(in.): .010
   Centralizers-Type: NA Depths(ft.): NA
3. Filter Pack Type: 20-40 Silica Depth Interval(ft.): 12.8-30
   Conc. Pad Size: 3'x3'x6"

NOTE: All depths are for base of pipe from ground surface.

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
GRAVEL - gravel pack surface, oil stained soil	CS	60				
CLAY - orange gray, roots and other organics, some iron nodules, hard, 1cm thick layers of silty clay		48	3.6	ch		
- alternating orange and gray clay, orange portion well oxidized and not as stiff as gray clay, 4-8mm gravels	CS	60 / 60	5.2 / 4.2			5
CLAY/SILT - orange gray, more silty with depth, some 4-8mm gravels	CS	60 / 60	6.4	cl		10
SILT - gray, wet		60	8.0	ml		12.8 / 14.8
- firm	CS	60	4.1			15
SILTY SAND - orange brown, saturated, some 3-6mm gravels		60		sm		20
SAND/GRAVEL - orange brown, top is very fine grained, middle is medium to coarse gravel at bottom (3-5cm grains)	CS	18 / 60	3.0	sp		25
		12	4.7			29.5 / 30
						30.0
						35
						40



TOTAL DEPTH = 30.0 FEET

INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	STF 12/20/90	DRAFT CHK	6-7-91	PROJ. CHK	6-7-91	APPRV. BY	6-7-91	DWG. NO.	446498-A49 Sheet 1 of 1

Client: WHIRLPOOL
Project Name: WHIRLPOOL
Project Location: FORT SMITH, ARK.
Project Number: 446498

DRAFT

MONITOR WELL ITMW15

DRILLING AND SAMPLING INFORMATION

Boring Location: ITMW15
SURFACE ELEV.(FT): 474.79
TOTAL DEPTH(FT.): 30
Logged By: L. JOHNSON
Drilled By: J. LANDEROS
Date Started: 10/31/90
Date Completed: 10/31/90

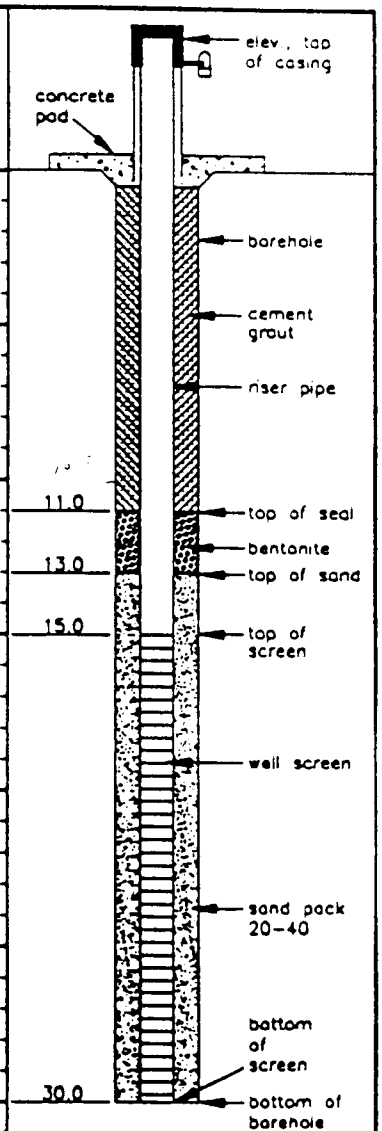
Drill Rig Type: B-53 MOBILE DRILL
Drilling Method: 8-INCH HOLLOW STEM AUGER, 10-INCH HOLLOW STEM AUGER
Sampling Method: 5-FOOT CONTINUOS SAMPLE - CS
2-FOOT SHELBY TUBE - ST
Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 476.49 Ref. Datum: MSL
1. Riser Pipe-Dia(in.): 4 Depth(ft.): 15 Type: Sch 40 PVC
Centralizers-Type: NA Depths(ft.): NA
2. Screen Dia.(in.): 4 Type: Sch 40 PVC FJT
Depth Interval(ft.): 15-30 Slot Size(in.): .010
Centralizers-Type: NA Depths(ft.): NA
3. Filter Pack Type: 20-40 Silica Depth Interval(ft.): 13-30
Conc. Pad Size: 3'x3'x6"

NOTE: All depths are for base of pipe from ground surface.

DESCRIPTION	SAMPLE TYPE SAMPLE NO.	IN. DRIVEN IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
GRAVEL - fill material and soil	CS	60 / 14	8.6	cl		0
CLAY - orange, roots and other organics, some iron nodules, some silt	ST					5
- orange and gray, alternating, orange portion well oxidized and not as stiff as gray, 4-8mm gravels	ST		5.2			10
SILTY CLAY - orange gray silty clay turning more silty with depth, some 4-8mm gravels			6.2	cl		11.0
- interbeds of clay and silt, soft	ST	60 / 30	10.3			13.0
- wet	CS					15.0
SILT - orange brown, some gravel and iron nodules			8.0	ml		15
SAND - white gray, fine grained, well sorted				sp		20
- orange brown, medium to coarse grained			12.5			25
GRAVEL - orange to black, with matrix, 10-20mm fragments			5.8	gm		30.0
						30
						35
						40



TOTAL DEPTH = 30.0 FEET

INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	STF 12/20/90	DRAFT CHK	CMR 6-7-91	PROJ. CHK	JDm 6-7-91	APPRV. BY	JDm 6-7-91	DWG. NO.	446498-A50 Sheet 1 of 1

DRAFT

MONITOR WELL ITMW16

Client: WHIRLPOOL
Project Name: WHIRLPOOL
Project Location: FORT SMITH, ARK.
Project Number: 446498

DRILLING AND SAMPLING INFORMATION

Boring Location: ITMW16
SURFACE ELEV.(FT): 476.47
TOTAL DEPTH(FT.): 32.0
Logged By: B. HUEY
Drilled By: B. HOUSTON
Date Started: 2/25/91
Date Completed: 2/25/91

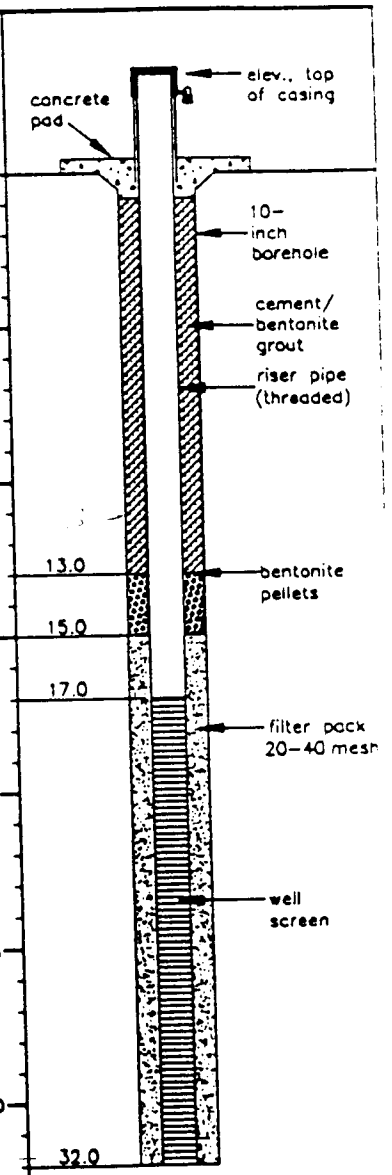
Drill Rig Type: B-61 HD TRUCK MOUNTED MOBILE RIG
Drilling Method: 8-INCH HOLLOW STEM AUGERS, 10-INCH HOLLOW STEM AUGERS
Sampling Method: 2 FOOT SPLIT SPOON (SS)

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 478.79 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 17 Type: Sch 40 PVC
Centralizers-Type: NA Depths(ft.): NA
2. Screen Dia.(in.): 4 Type: Sch 40 PVC FJT
Depth Interval(ft.): 17-32 Slot Size(in.): .010
Centralizers-Type: NA Depths(ft.): NA
3. Filter Pack Type: 20-40 Silica Depth Interval(ft.): 15-32
Conc. Pad Size: 3'x3'x6"

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
GRAVEL - coarse, 5 inches thick	SS		19/19		gp		
SILTY CLAY - medium plasticity; firm; 10-20% silt; light brown, mottled with red; no odor; no stain; moist	SS		24/24		cl		
	SS		24/24	0.0			5
CLAY - high plasticity; soft; brown; saturated; no odor; no stain	SS		18/24		ch		
SILTY CLAY - medium plasticity; 10-30% silt; hard; reddish brown; no odor; no stain; moist	SS		24/24		cl		
CLAY - medium plasticity; firm; light brown with 10-20% black mottling; no odor; no stain; moist	SS		24/24	0.0	ch		10
SANDY CLAY - medium plasticity; 10-20% fine grained; hard; reddish brown; moist; no odor; no stain - reddish brown with gray mottling	SS		15/24		cl		
	SS		24/24	0.0			15
CLAYEY SAND - low plasticity; fine grained sand with 20-40% clay; reddish brown and gray; moist; no odor; no stain. Unit alternates between very soft; light brown; saturated layers and layers that are hard, reddish brown and moist	SS		23/24		sc		
	SS		24/24	0.0			20
	SS		24/24	9.4			
	SS		24/24	2.7			
	SS		24/24	2.2			
	SS		18/24	0.5	sp		25
GRAVELLY SAND - uniform; fine grained with 10-30% 1/2 inch gravel; dense; brown; saturated; no odor; no stain. Contains thin layers of uniform; fine grained sand light brown; dense; saturated; no odor; no stain	SS		24/24	1.1			
	SS		24/24	1.1			
	SS		24/24	1.6			
				5.0			30
				0.0	ch		
CLAY - low plasticity; hard; brown ; dry; no odor; no stain					cl		32.0
SHALE - non plastic; very hard; gray; dry; no odor; no stain							35
							40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	DED 4/2/91	DRAFT CHK	6-7-91	PROJ. CHK	6-7-91	APPRV. BY	6-7-91	DWG. NO.	446498-A52 Sheet 1 of 1

Client: WHIRLPOOL
Project Name: WHIRLPOOL
Project Location: FORT SMITH, ARK
Project Number: 446498

DRAFT
MONITOR WELL ITMW17

DRILLING AND SAMPLING INFORMATION

Boring Location: ITMW-17
SURFACE ELEV.(FT): 476.14
TOTAL DEPTH(FT.): 31.0
Logged By: B. HUEY
Drilled By: B. HOUSTON
Date Started: 2/27/91
Date Completed: 2/27/91

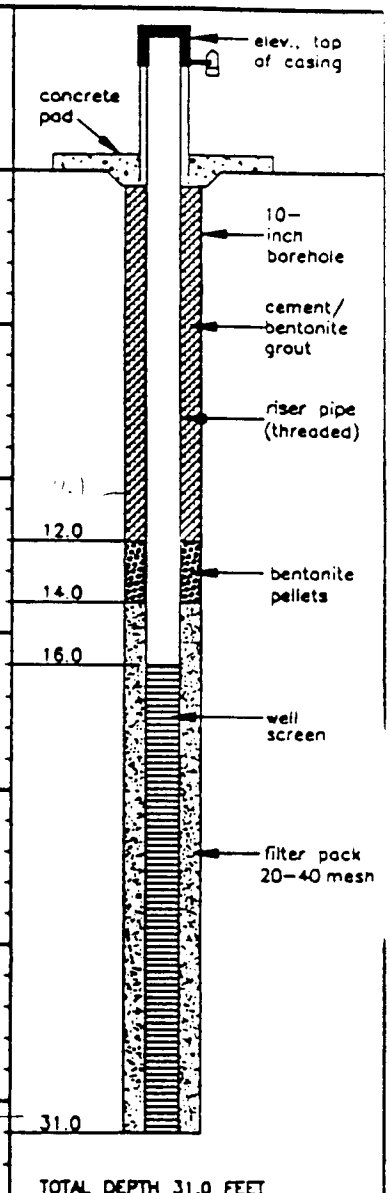
Drill Rig Type: B-61 HD TRUCK MOUNTED RIG
Drilling Method: 8-INCH HOLLOW STEM AUGER, 10-INCH HOLLOW STEM AUGER
Sampling Method: 2 FOOT SPLIT SPOON (SS)

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 477.90 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 18 Type: Sch 40 PVC
Centralizers-Type: NA Depths(ft.): NA
2. Screen Dia.(in.): 4 Type: Sch 40 PVC FJT
Depth Interval(ft.): 16-31 Slot Size(in.): .010
Centralizers-Type: NA Depths(ft.): NA
3. Filter Pack Type: 20-40 Silica Depth Interval(ft.): 14-31
Conc. Pad Size: 3'x3'x6"

DESCRIPTION	SAMPLE TYPE SAMPLE NO.	IN. DRIVEN IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
GRAVEL				gp		
CLAY - medium plasticity; hard; reddish brown and gray mottled; moist; no odor ; no stain	SS	18/18	0.0			
	SS	24/24	0.0			
	SS	24/24	0.0			
- clay with 10-30% silt	SS	24/24	1.7			5
	SS	24/24	0.7			
- clay with 10-20% fine grained sand	SS	24/24	0.0			
	SS	24/24	0.0			10
	SS	24/24	0.0			
	SS	24/24	0.0			
	SS	24/24	0.0			
	SS	24/24	0.0			
SILTY SAND - uniform; fine grained sand with 20-40% silt; dense light gray; moist, saturated in bottom 2 inches; no odor; no stain	SS	24/24	0.6	sm		15
- gray and brown; saturated to 18.2 feet then moist	SS	18/24	0.0			
	SS	24/24	1.8			
	SS	24/24	1.3			
	SS	24/24	2.3			
SAND - uniform; medium grained sand; loose; brown; saturated	SS	24/24	5.5	sp		20
SILTY CLAY - uniform; clay with 10-30% silt; firm; brown; moist; no odor	SS	24/24	3.9	cl		
SAND - uniform; medium grained sand; loose; brown; saturated	SS	24/24	18.9	sp		
SANDY GRAVEL - uniform; 1/2 inch rounded gravel with fine grained sand; loose; brown; saturated; no odor; no stain	SS	24/24	81.9	gp		
	SS	12/12	5.1			25
	SS	24/24	11.7			
	SS	12/12	5.8			
	SS	24/24	84.9			
SILTY CLAY - medium plasticity; clay with 20-40% silt; firm; brown; moist no odor; no stain	SS	24/24	24.9	cl		
	SS	18/12	5.0			30
SHALE - dark gray; moist	SS	12/12	0.0	cl		
						35
						40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	DED 4/2/91	DRAFT CHK	6-7-91	PROJ. CHK	6-7-91	APPRV. BY	6-7-91	DWG. NO.	446498-A53 Sheet 1 of 1

Client: WHIRLPOOL
Project Name: WHIRLPOOL
Project Location: FORT SMITH, ARK.
Project Number: 446498

DRAFT
MONITOR WELL ITMW18

DRILLING AND SAMPLING INFORMATION

Boring Location: ITMW18
SURFACE ELEV.(FT): 473.90
TOTAL DEPTH(FT.): 30.0
Logged By: B. HUEY
Drilled By: B. HOUSTON
Date Started: 2/28/91
Date Completed: 2/28/91

Drill Rig Type: B-61 HD TRUCK MOUNTED RIG
Drilling Method: 8-INCH HOLLOW STEM AUGER, 10-INCH HOLLOW STEM AUGER
Sampling Method: 2 FOOT SPLIT SPOON (SS)

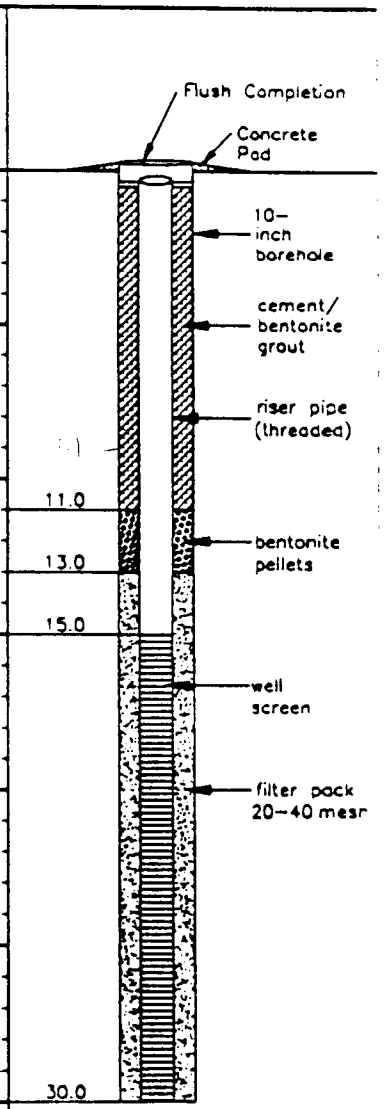
Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 473.55 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 15 Type: Sch 40 PVC
   Centralizers-Type: NA Depths(ft.): NA
2. Screen Dia.(in.): 4 Type: Sch 40 PVC FJT
   Depth Interval(ft.): 15-30 Slot Size(in.): .010
   Centralizers-Type: NA Depths(ft.): NA
3. Filter Pack Type: 20-40 Silica Depth Interval(ft.): 13-30
   Conc. Pad Size: 3'x3'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG
CONCRETE - light gray					
CLAYEY SAND - medium plasticity; fine grained sand with 20-40% clay; orange; no odor; no stain	SS	12/12	10.4	sc	
CLAY - medium plasticity; trace gravel; hard; reddish brown; moist; no odor; no stain	SS	20/12	33.5	cl	
- tan/brown	SS	24/24	36.8		
- minor gravel; reddish brown	SS	24/24	30.7		
- increase in gravel; red/brown/tan; black stain	SS	24/24	13.2		
- minor gravel	SS	24/24	9.8		
- firm; no stain	SS	24/24	1.4		
	SS	24/24	0.0		
	SS	24/24	0.2		
	SS	24/24	0.0		
	SS	24/24	0.2		
	SS	24/24	2.5		
SILTY CLAY - medium plasticity; clay with 10-30% silt; firm; red/brown/gray; moist; no odor; no stain	SS	24/24	0.8		
	SS	24/24	0.8	cl	
SILTY SAND - low plasticity; fine grained; firm to soft; red/brown; saturated; no odor; no stain	SS	24/24	3.1		
- very soft	SS	20/24	3.1	sm	
- very fine grained sand with 10-30% silt; soft to firm	SS	24/24	0.0		
	SS	24/24	1.4		
	SS	24/24	0.2		
	SS	24/24	3.1		
	SS	24/24	0.8		
SAND - nonplastic; fine to medium grained; firm to soft; red/brown/black; saturated; no odor; no stain	SS	24/24	4.7		
	SS	24/24	18.8	sw	
	SS	12/12	5.3		
	SS	12/12	8.7		
	SS	12/12	2.5		
SANDY CLAY - medium to high plasticity; hard; red/brown; moist no odor; no stain	SS	12/12	0.2	cl	
	SS	18/18	0.0		
SAND - non plastic; fine grained with trace of large gravel-sized particles firm; red/brown; saturated; no odor; no stain	SS	18/18	0.0	sp	
				cl	
SHALE - medium plasticity; grades to shale; red/brown/black/gray					

DEPTH IN FEET: 5, 10, 15, 20, 25, 30, 35, 40



TOTAL DEPTH 29.5 FEET

INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	DED 4/2/91	DRAFT CHK	6-7-91	PROJ. CHK	6-7-91	APPRV. BY	6-7-91	DWG. NO.	446498-A54 Sheet 1 of 1

DRAFT

Client: WHIRLPOOL
Project Name: WHIRLPOOL
Project Location: FORT SMITH, ARK.
Project Number: 446498

MONITOR WELL ITMW19

DRILLING AND SAMPLING INFORMATION

Boring Location: ITMW19
SURFACE ELEV.(FT): 474.30
TOTAL DEPTH(FT.): 31.0
Logged By: B. HUEY
Drilled By: B. HOUSTON
Date Started: 2/26/91
Date Completed: 2/26/91

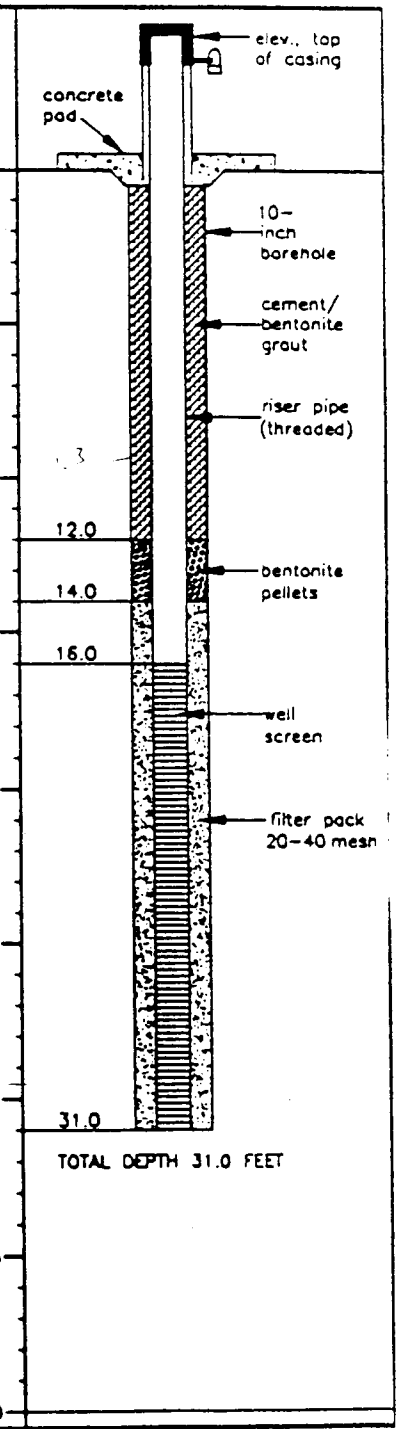
Drill Rig Type: B-61 HD TRUCK MOUNTED RIG
Drilling Method: 8-INCH HOLLOW STEM AUGERS, 10-INCH HOLLOW STEM AUGERS
Sampling Method: 2 FOOT SPLIT SPOON (SS)

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 476.25 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 16 Type: Sch 40 PVC
   Centralizers-Type: NA Depths(ft.): NA
2. Screen Dia.(in.): 4 Type: Sch 40 PVC FJT
   Depth Interval(ft.): 16-31 Slot Size(in.): .010
   Centralizers-Type: NA Depths(ft.): NA
3. Filter Pack Type: 20-40 Silica Depth Interval(ft.): 14-31
   Conc. Pad Size: 3'x3'x6"

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
GRAVEL - coarse gravel	SS		18/7	0.0	gp		
GRAVELLY CLAY - medium plasticity; clay with 20-40% 1/2-inch angular gravel; brown; moist; no odor; no stain	SS		24/24	0.0	cl		
CLAY - medium plasticity; hard; reddish brown and gray mottled; moist; no odor; no stain	SS		24/24	0.0			
	SS		24/24	0.0			
	SS		24/24	0.0			
	SS		24/24	0.0			
	SS		24/24	0.0			
	SS		24/24	0.0			
	SS		24/24	0.0	gp		
GRAVEL - 1/2 inch angular gravel; brown; saturated	SS		24/24	0.0	cl		
CLAY - medium plasticity; hard; reddish brown and gray mottled; moist; no odor; no stain	SS		24/24	0.0			
CLAYEY SILT - low plasticity; silt with 20-40% clay; firm; reddish brown; moist; no odor; no stain			24/24	2.2	ml		
SILTY SAND - uniform; fine grained sand with 30-50% silt; medium dense; reddish brown; moist with 2 inch saturated layers at 17.0, 17.5, 18.5, 19.7 feet; no odor; no stain - 10-20% silt; saturated				6.7 12.2 18.9 10.1	sm		
SANDY GRAVEL - uniform; 1/2 inch angular gravel with 20-40% fine grained sand; medium dense; brown; no odor; no stain	SS		24/24	23.4 9.2	gp sp		
SAND - uniform; fine grained; medium dense; brown; saturated; no odor; no stain - medium grained; dense	SS		24/24 12/12	35.9 11.5 18.8 15.0	gp		
SANDY GRAVEL - uniform; 1/2 inch angular gravel with 40-50% fine grained sand; dense; saturated; brown; no odor; no stain	SS SS		18/18 12/12	15.0 10.9 5.7			
CLAY - medium plasticity; stiff; brown; moist; no odor; no stain	SS		24/24	0.0	cl		
SHALE - dark gray				0.0			



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	DED 4/2/91	DRAFT CHK 6-7-91	PROJ. CHK 6-7-91	APPRV. BY 6-7-91	DWG. NO.	446498-A55 Sheet 1 of 1

Client: WHIRLPOOL
Project Name: WHIRLPOOL
Project Location: FORT SMITH, ARK.
Project Number: 446498

DRAFT
MONITOR WELL ITMW20

DRILLING AND SAMPLING INFORMATION

Boring Location: ITMW20
SURFACE ELEV.(FT): 475.73
TOTAL DEPTH(FT.): 29.0
Logged By: B. HUEY
Date Started: 3/5/91
Drilled By: B. HOUSTON
Date Completed: 3/6/91

Drill Rig Type: B-61 HD TRUCK MOUNTED RIG
Drilling Method: 10 INCH O.D. HOLLOW STEM AUGER

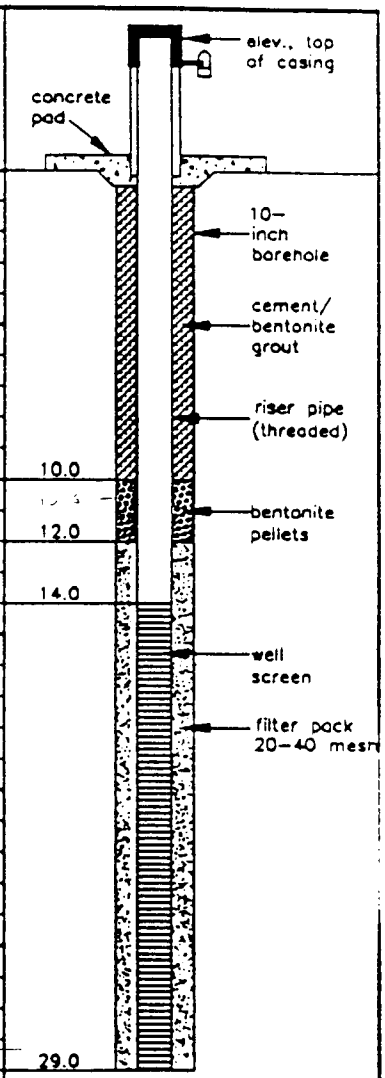
Sampling Method: 2 FOOT SPLIT SPOON (SS)

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 477.87 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 14 Type: Sch 40 PVC
   Centralizers-Type: NA Depths(ft.): NA
2. Screen Dia.(in.): 4 Type: Sch 40 PVC FJT
   Depth Interval(ft.): 14-29 Slot Size(in.): .010
   Centralizers-Type: NA Depths(ft.): NA
3. Filter Pack Type: 20-40 Silica Depth Interval(ft.): 12-29
   Conc. Pad Size: 3'x3'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
CLAY - medium plasticity; firm; light brown; moist; no odor; no stain	SS	24 / 21	0.0	cl		
SILTY CLAY - low plasticity; clay with 20-40% silt; hard; light brown; moist; no odor; no stain	SS	24 / 24	0.0	cl		5
CLAY - medium plasticity; hard; light brown with light gray mottling; moist; no odor; no stain	SS	24 / 24	0.0	cl		10
SILTY CLAY - low plasticity; clay with 10-30% silt; hard; light brown, light gray and black; moist; no odor; no stain	SS	24 / 24	0.0	cl		15
- moderately plastic; clay with 20-40% silt; light brown and gray	SS	24 / 24	0.0			20
SANDY SILT - non-plastic; silt with 20-40% fine grained sand; hard; light gray; moist				sm		
SANDY GRAVEL - uniform; 1/2 inch angular gravel with 20-40% fine grained sand; firm; light brown; saturated; no odor; no stain	SS	24 / 24		gp		25
SHALE - light gray; moist; weathered	SS	12 / 12		cl		30
						35
						40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	DED 4/2/91	DRAFT CHK	6-7-91	PROJ. CHK	6-7-91	APPRV. BY	6-7-91	DWG. NO.	446498-A56 Sheet 1 of 1

Client: WHIRLPOOL
Project Name: WHIRLPOOL
Project Location: FORT SMITH, ARK.
Project Number: 446498

DRAFT
MONITOR WELL ITMW21

DRILLING AND SAMPLING INFORMATION

Boring Location: ITMW21
SURFACE ELEV.(FT): 474.37
TOTAL DEPTH(FT.): 31.0
Logged By: B. HUEY
Drilled By: B. HOUSTON
Date Started: 3/7/91
Date Completed: 3/7/91

Drill Rig Type: B-61 HD MOBILE TRUCK MOUNTED RIG
Drilling Method: 10 INCH O.D. HOLLOW STEM AUGERS

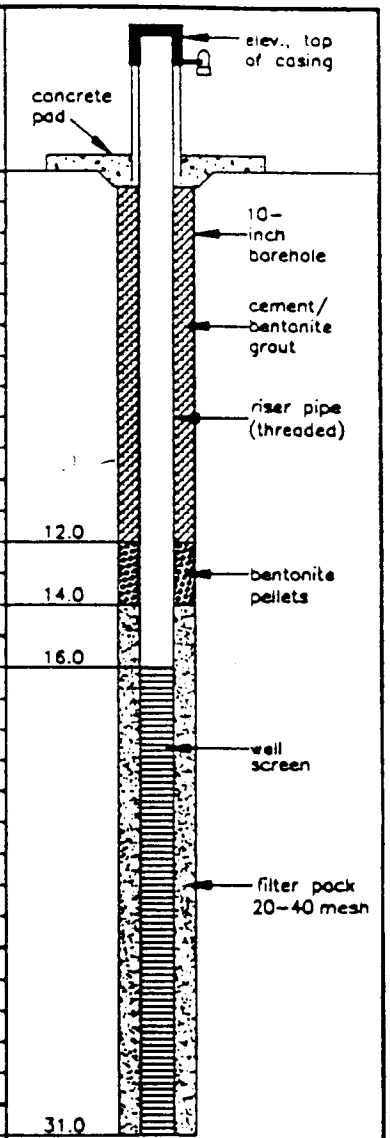
Sampling Method: 2 FOOT SPLIT SPOONS

Notes: –

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 476.52 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 14 Type: Sch 40 PVC
   Centralizers-Type: NA Depths(ft.): NA
2. Screen Dia.(in.): 4 Type: Sch 40 PVC FJT
   Depth Interval(ft.): 16-31 Slot Size(in.): .010
   Centralizers-Type: NA Depths(ft.): NA
3. Filter Pack Type: 20-40 Silica Depth Interval(ft.): 14-31
   Conc. Pad Size: 3'x3'x6"

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
SILTY CLAY – low plasticity; clay with 20–40% silt; hard; light gray with light brown; moist; no odor; no stain	SS		24/24		cl		0
CLAY – medium plasticity; clay with 10–20% silt; hard; light brown with light gray; moist; no odor; no stain	SS		24/20	0.0	cl		5
– clay with no silt	SS		24/24	0.0			10
– light brown and light gray with 5% black	SS		24/24	0.0			15
– low plastic; light gray, red, brown, and black	SS		24/24	0.0			20
SILTY GRAVEL – low plasticity; gravel with 20–30% clay, 10–20% silt; very hard; reddish brown; moist; no odor; no stain	SS		12/11	0.0	gc		25
CLAY – medium plasticity; hard; light brown and gray; moist; no detectable odor; no stain	SS		24/24	4800 5441 1177	cl		30
SHALE – dark gray					cl		31.0
							35
							40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	DED 4/2/91	DRAFT CHK	6-7-91	PROJ. CHK	6-7-91	APPRV. BY	6-7-91	DWG. NO.	446498-A57 Sheet 1 of 1

MALCOLM PIRNIE, INC.

Boring MW - 22

BORING LOG

CLIENT	Whirlpool	PROJECT #	2172-047-100
PROJECT	Remedial Investigation	CONTRACTOR	MHC
LOCATION	Ft. Smith, Ark	DRILLER	Todd Wages
START DATE	12/05/96	DRILLING METHOD	6" I.D. H.S. A.
FINISH DATE	12/05/96	HYDROGEOLOGIST	R.B. Hernandez

DEPTH	SAMPLE DESCRIPTION	USCS	PID	Notes
	(0' - 2') Very Dark Brown (10 YR, 2/2) Silty Gravel, Very Stiff to Hard, Damp to Very Damp	Fill	2.7	
5	(2' - 5') Dark Yellowish Brown (10YR, 3/6) Silty Slightly Sandy CLAY with some Iron ("Fe") Staining, Very Stiff, Dry to Damp	CH CL	2.7	
10	(5' - 10') Brownish Yellow (10 YR, 6/8) CLAY with Fe Nodules, Very Stiff, Damp	CL	2.7	Silty from (10' - 12')
	(10' - 12') Light Grey (7.5 YR, 7/1) to Brownish Yellow (10 YR, 6/8) Silty CLAY, Stiff, Dry to Damp	CL	2.7	
15	(12' - 18') Light Grey (7.5 YR, 7/1) to Brownish Yellow (10 YR, 6/8) Slightly Sandy Silty CLAY, Stiff to Very Stiff, Damp	CH CL	2.7	
20	(18' - 23') Light Grey (7.5 YR, 7/1) to Brownish Yellow (10 YR, 6/8) Sandy SILT, Stiff, Damp to Moist	ML	2.7	H2O @ 18' (20' - 23') Sticky Clays
25	(23' - 24') Dark Reddish Brown (5 YR, 3/4) Clayey Gravel, Very Dense, Wet	GC		
	(24' - 28') Brownish Yellow (10 YR, 6/8) Gravelly CLAY, Very Stiff to Hard, Moist	CL GC	2.7	
30	(28' - 29') Brownish Yellow (10 YR, 6/8) Very Silty CLAY, Very Hard, Dry	CL ML	2.7	
35	(29' - 30') Very Dark Grey (7.5 YR, 3/10) to Black (10 YR, 2/1) SILT (McAlester Shale) Very Hard, Dry	ML	2.7	

Notes:

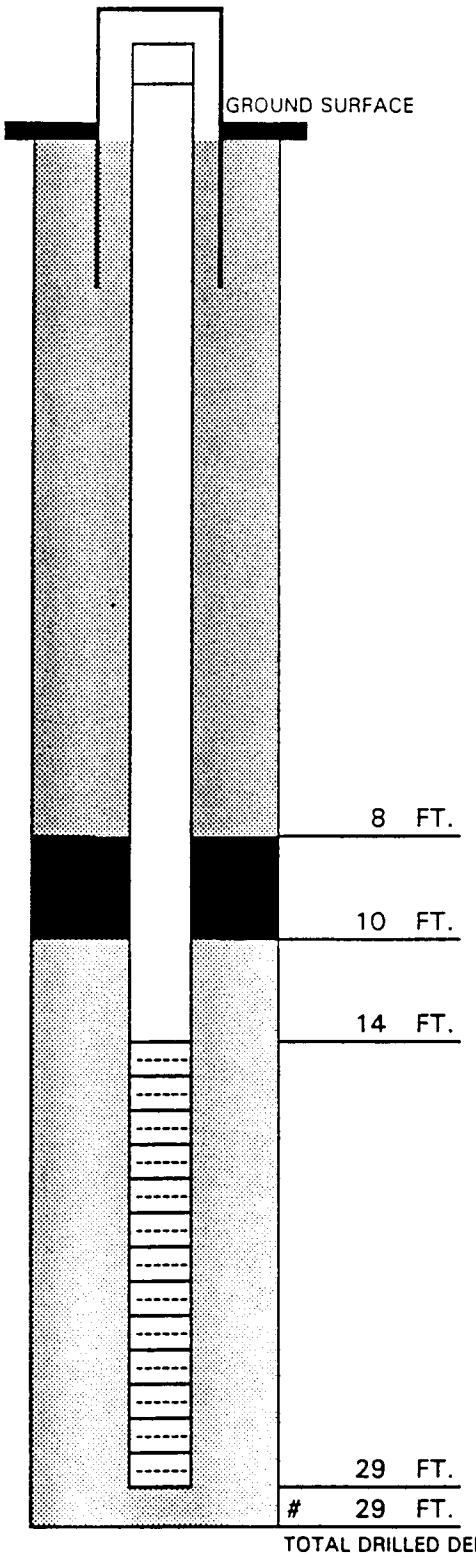
Set up on MW-22 at 1515 hrs.

TD boring at 29' below grade at 1835 hrs. construct MW-22

MALCOLM
PIRNIE, INC.

Well ID MW-22

Monitoring Well Construction Log



CLIENT NAME	Whirlpool
PROJECT NAME	Remedial Investigation
PROJECT #	2172-047-100
PROJECT LOCATION	Ft. Smith, Arkansas
WELL LOCATION	5' North and 12' East of Hydrant # 7
DRILLING DATE	12-5-96
COMPLETION DATE	12-5-96
DRILLING CONT.	MHC
DRILLER	Todd Wages
BOREHOLE DIA.	12"
DRILLING METHOD	6" I.D., HSA's
DEPTH TO WATER	approximately 18'
DEVELOPMENT (date/vol.)	12-7-96, 110 gallons
WELL MATERIALS:	
SURFACE CASING	Flush Mount cover
RISER	
LENGTH	14'
DIAMETER	4"
MATERIAL	Sch 40, PVC
WELL SEAL	2' bentonite pellets
SCREEN:	
LENGTH	15'
DIAMETER	4"
MATERIAL	PVC
SLOT SIZE	0.010"
SAND PACK	10 bags , (20-40)
REMARKS	
HYDROGEOLOGIST	R.B. Hernandez

All measurments are from TOC
Unless noted otherwise noted

MALCOLM PIRNIE, INC.

Boring MW - 23

BORING LOG

CLIENT	Whirlpool	PROJECT #	2172-047-100
PROJECT	Remedial Investigation	CONTRACTOR	MHC
LOCATION	Ft. Smith, Ark	DRILLER	Todd Wages
START DATE	12/06/96	DRILLING METHOD	6" I.D. H.S. A.
FINISH DATE	12/06/96	HYDROGEOLOGIST	R.B. Hernandez

DEPTH	SAMPLE DESCRIPTION	USCS	PID	Notes
	(0 - 3") Asphaltic Concrete			
	(3" - 5') Brownish Yellow (10YR, 6/8), Very Silty CLAY, Firm to Stiff, Dry to Damp	CL	2.7	
5				
				Shelby Tube
	(8' - 10') Light Grey (7.5 YR, 7/1) to Brownish Yellow (10 YR,	CL		is wet
10	6/8) Sandy silty CLAY, Stiff to V. Stiff, Moist			
	(10' - 11') Brownish Yellow (10 YR, 6/8) Sandy CLAY with abundant Iron nodules, Very Stiff, Damp	CL	2.7	Wet seam at 10.2 ft.
	(11' - 12') Brownish Yellow (10 YR, 6/8) Slightly Sandy CLAY	CH		associated w/
	Very Stiff, Damp	CL		drainage ditch
15				north of fence
	(15' - 17') Brownish Yellow (10 YR, 6/8) CLAY, Very stiff, Dry to Damp	CH	2.7	
				H2O @ 19'
20				
	(22' - 23.5') Dark Brown (10 YR, 3/3) Sand with Gravel,	GW		Chert & FeO2
	Very Dense, Wet	GC	2.7	gravels @ 22'
	(23.5' - 28') Dark Reddish Brown (5 YR, 3/4) Clayey Gravel,	GC		
25	Very Dense, Wet		2.7	
	(28' - 29.4') Brownish Yellow (10 YR, 6/8) SILT, Very Hard,	ML		
30	Dry			
	(29.4 - 30.5') Very Dark Grey (7.5 YR, 3/10) to Black (10 YR, 2/1) SILT (McAlester Shale) Very Hard, Dry	ML	2.7	
35				

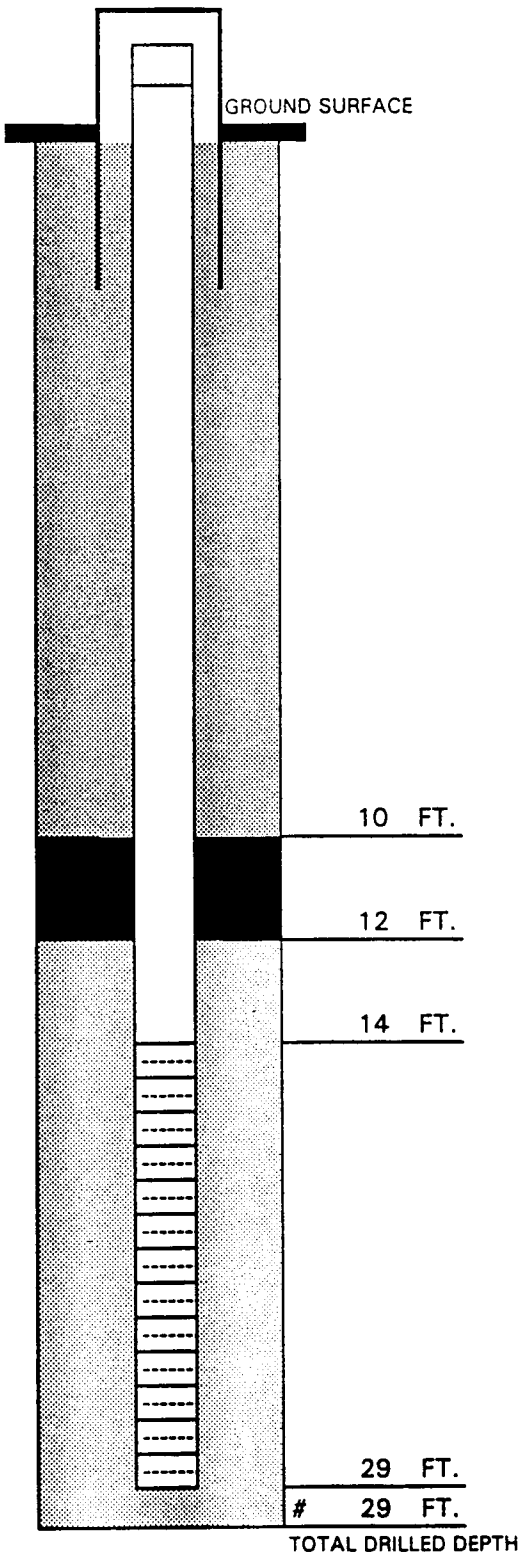
Notes: Set up on MW-23 at 0650 hrs.

TD boring at 30.5 below grade at 0955 hrs. construct MW-23

MALCOLM
PIRNIE, INC.

Well ID MW-23

Monitoring Well Construction Log



CLIENT NAME	Whirlpool
PROJECT NAME	Remedial Investigation
PROJECT #	2172-047-100
PROJECT LOCATION	Ft. Smith, Arkansas
WELL LOCATION	5' East and 11' South of Gate # 12
DRILLING DATE	12-6-96
COMPLETION DATE	12-6-96
DRILLING CONT.	MHC
DRILLER	Todd Wages
BOREHOLE DIA.	12"
DRILLING METHOD	6" I.D., HSA's
DEPTH TO WATER	approximately 19'
DEVELOPMENT (date/vol.)	12-7-96, 110 gallons

WELL MATERIALS:

SURFACE CASING	Flush Mount cover

RISER

LENGTH	14'
DIAMETER	4"
MATERIAL	Sch 40, PVC
WELL SEAL	2' bentonite slurry

SCREEN:

LENGTH	15'
DIAMETER	4"
MATERIAL	PVC
SLOT SIZE	0.010"
SAND PACK	10 bags , (20-40)
REMARKS	
HYDROGEOLOGIST	R.B. Hernandez

All measurments are from TOC
Unless noted otherwise noted

Project No: 9808.183

Project: Fort Smith Groundwater Investigation

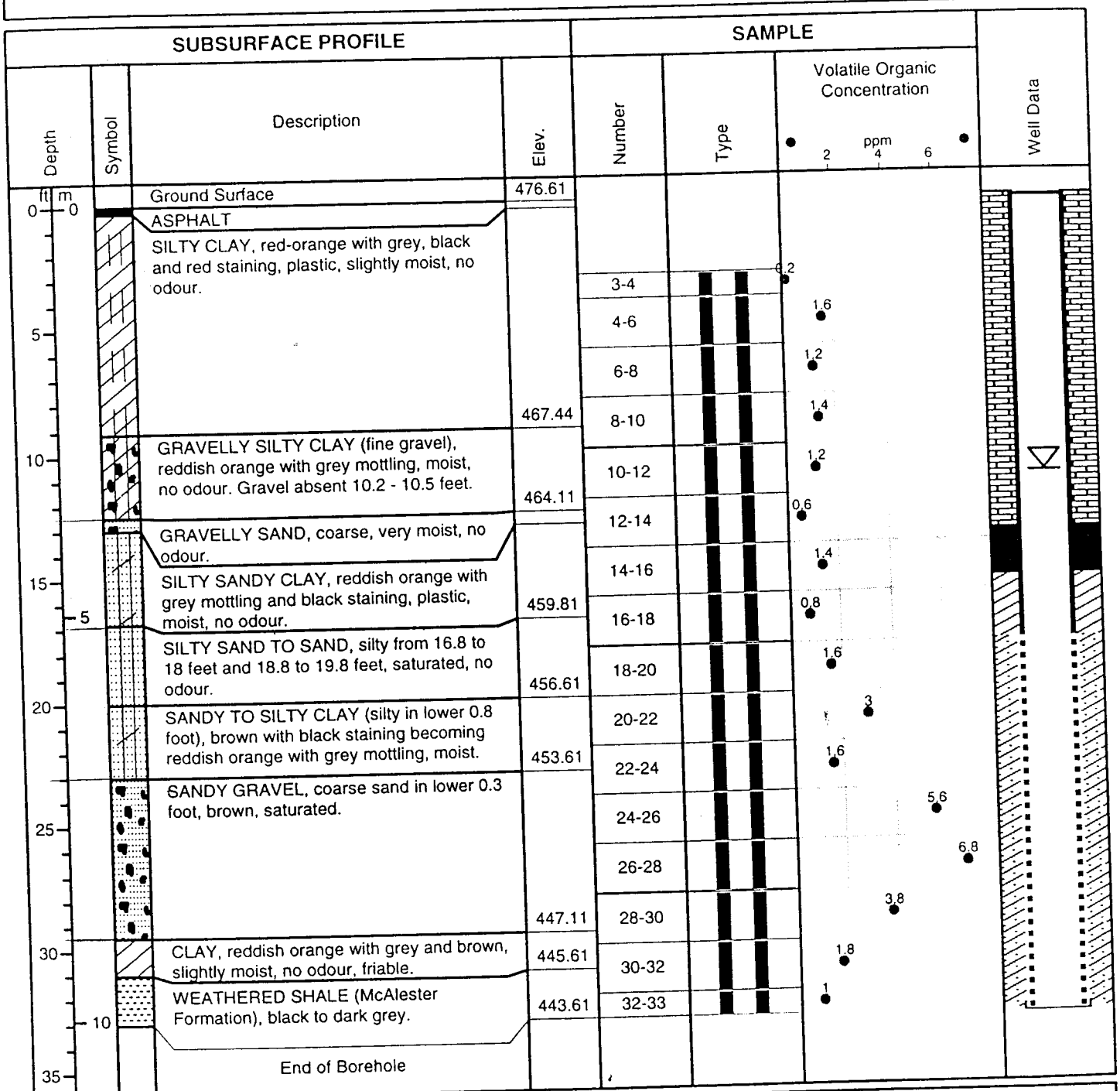
Client: Whirlpool Corporation

Location: Fort Smith, Ar

Log of Borehole: MW24

Enclosure:

Engineer: LP



Drill Method: Hollow Stem Augers

Drill Date: 23 February 1999

Hole Size: 10 in.

ERM
Suite 201
50 Queen Street West
Brampton, Ontario

Datum: Mean Sea Level

Checked by: SJH

Sheet: 1 of 1

Project No: 9808.183

Project: Fort Smith Groundwater Investigation

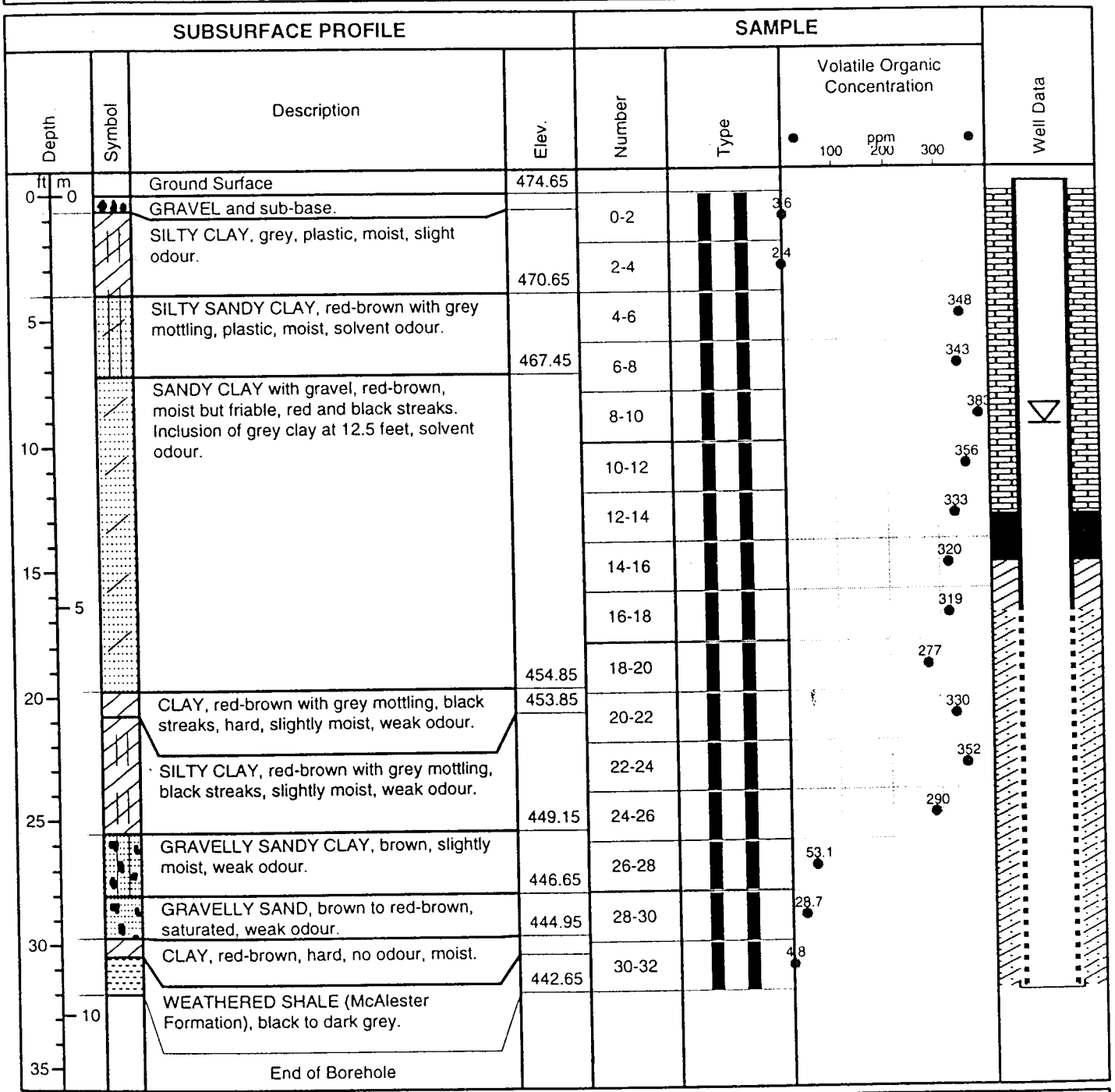
Client: Whirlpool Corporation

Location: Fort Smith, Ar

Log of Borehole: MW25

Enclosure:

Engineer: LP



Drill Method: Hollow Stem Augers

Drill Date: 23 February 1999

Hole Size: 10 in.

ERM
Suite 201
50 Queen Street West
Brampton, Ontario

Datum: Mean Sea Level

Checked by: SJH

Sheet: 1 of 1

Project No: 9808.183

Project: Fort Smith Groundwater Investigation

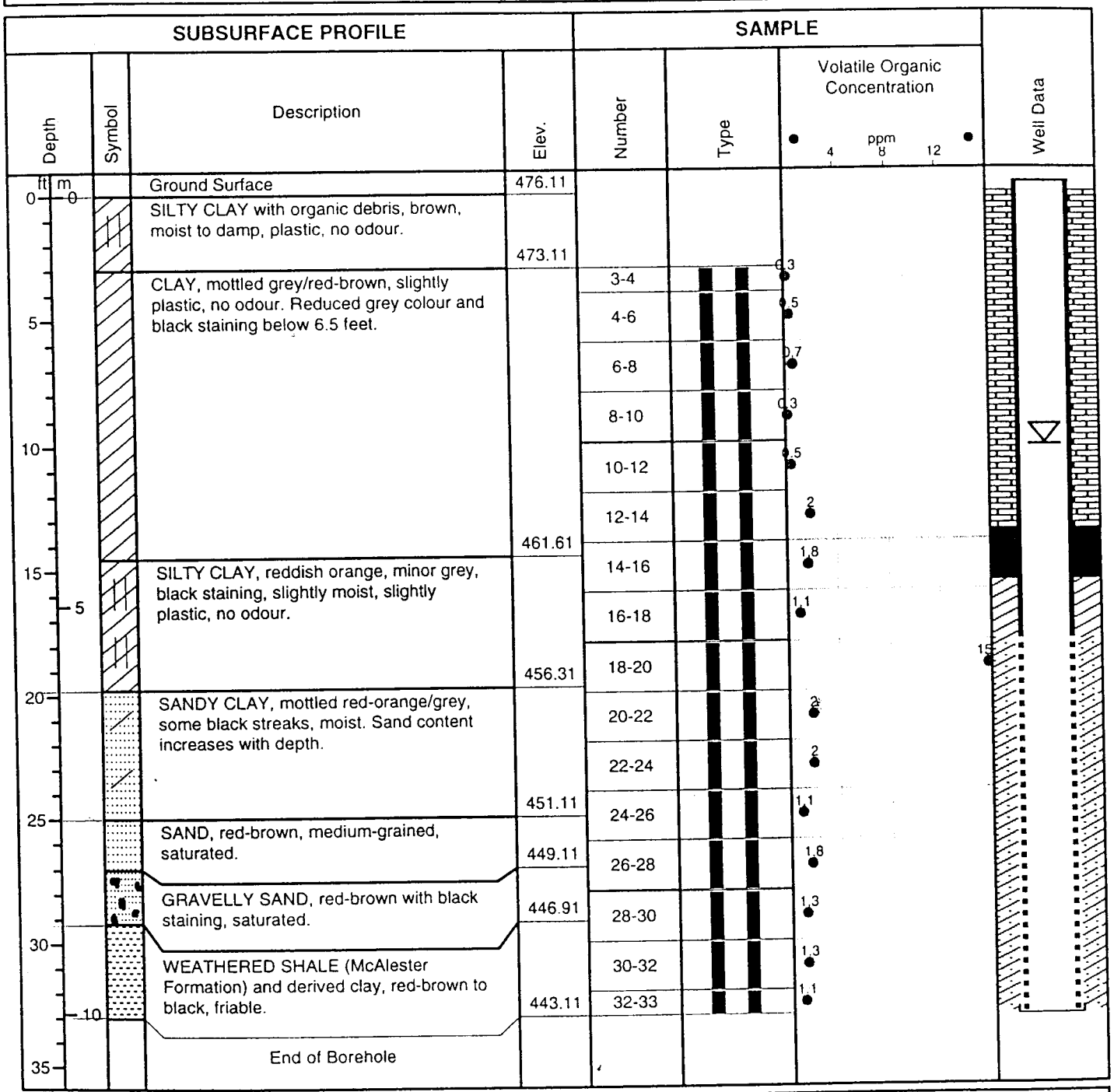
Client: Whirlpool Corporation

Location: Fort Smith, Ar

Log of Borehole: MW26

Enclosure:

Engineer: LP



Drill Method: Hollow Stem Augers

Drill Date: 22 February 1999

Hole Size: 10 in.

ERM
Suite 201
50 Queen Street West
Brampton, Ontario

Datum: Mean Sea Level

Checked by: SJH

Sheet: 1 of 1

Project No: 9908.189

Project: Additional Groundwater Investigation

Client: Whirlpool Corporation

Location: Fort Smith, Ar

Log of Borehole: MW-27

Enclosure:

Geologist: LP

SUBSURFACE PROFILE				SAMPLE			
Depth (ft / m)	Symbol	Description	Elev.	Number	Type	PID Reading (ppm: 0, 2.5, 5, 7.5, 10)	Well Data
0 / 0		Ground Surface	475.42				
		ASPHALT (2") over aggregates.					
		SILTY CLAY, reddish brown with frequent red streaks, occasional black nodules, friable.	473.42	0-2		2	
		SANDY SILTY CLAY, reddish orange-brown, red streaks, friable, soft, damp.		2-4		2.5	
5			469.92	4-6		1.6	
		CLAY, mottled reddish orange and light gray, frequent red and black streaks, black nodules, hard.		6-8		1.5	
			466.02	8-10		3.1	
10		SILTY SANDY CLAY, inclusions of gravel, reddish orange-brown with black streaks, friable, dry to moist.		10-12		1.8	
			462.42	12-14		2.2	
		SILTY CLAY with variable sand content (increases with depth), reddish orange-brown with black streaks, moist.		14-16		1.5	
15 / 5				16-18		0.7	
				18-20		0.8	
20			455.62				

Drill Method: Hollow Stem Augers

Drill Date: 07 December 1999

Hole Size: 8.25 inch

ERM
Suite 201
50 Queen Street West
Brampton, Ontario

Datum: Mean Sea Level

Checked by: SJH

Sheet: 1 of 2

Project No: 9908.189

Project: Additional Groundwater Investigation

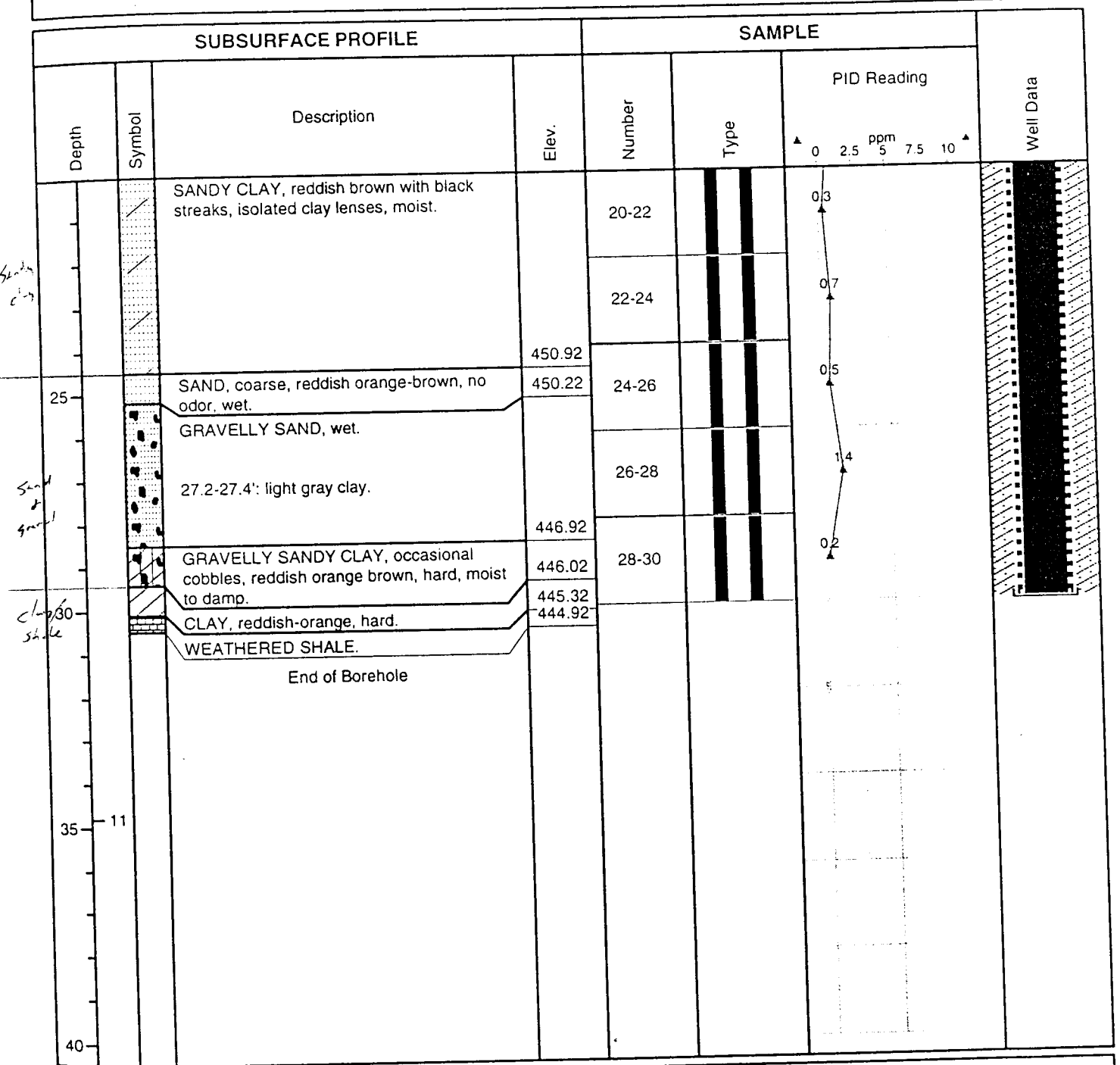
Client: Whirlpool Corporation

Location: Fort Smith, Ar

Log of Borehole: MW-27

Enclosure:

Geologist: LP



Drill Method: Hollow Stem Augers

Drill Date: 07 December 1999

Hole Size: 8.25 inch

ERM
Suite 201
50 Queen Street West
Brampton, Ontario

Datum: Mean Sea Level

Checked by: SJH

Sheet: 2 of 2

Project No: 9908.189

Project: Additional Groundwater Investigation

Client: Whirlpool Corporation

Location: Fort Smith, Ar

Log of Borehole: MW-28

Enclosure:

Geologist: LP

SUBSURFACE PROFILE				SAMPLE			
Depth (ft / m)	Symbol	Description	Elev.	Number	Type	PID Reading (ppm: 0, 2.5, 5, 7.5, 10)	Well Data
0 / 0		Ground Surface	476.2				
		ASPHALT (2") over aggregates.					
		SILTY CLAY, trace gravel, dark brown, damp, no odor.		0-2		0	
		CLAY, brown with red and black streaks, plastic.	473.7				
		SILTY CLAY, reddish orange with red streaks, soft, no odor.	472.7	2-4			
		CLAY, mottled reddish orange and gray, black streaks, hard, damp, no odor.		4-6			
5		SANDY SILTY CLAY, dark reddish orange with frequent black streaks, friable. Sandier zone 6.4-7.0 ft.		6-8			
			467.7				
		SILTY CLAY, mottled reddish orange and gray, friable, hard, damp.		8-10			
10			465	10-12			
		SILTY SANDY CLAY, dark reddish orange with some light gray sandy areas, soft.		12-14			
		14.0-17.0': hard.		14-16			
15							
5				16-18			
			458.2				
		SANDY CLAY, light gray with minor reddish orange, damp. CLAYEY SAND, reddish orange to brown, in lower 0.2 ft.		18-20			
20							

Drill Method: Hollow Stem Augers

Drill Date: 07 December 1999

Hole Size: 8.25 inch

ERM
Suite 201
50 Queen Street West
Brampton, Ontario

Datum: Mean Sea Level

Checked by: SJH

Sheet: 1 of 2

Project No: 9908.189

Project: Additional Groundwater Investigation

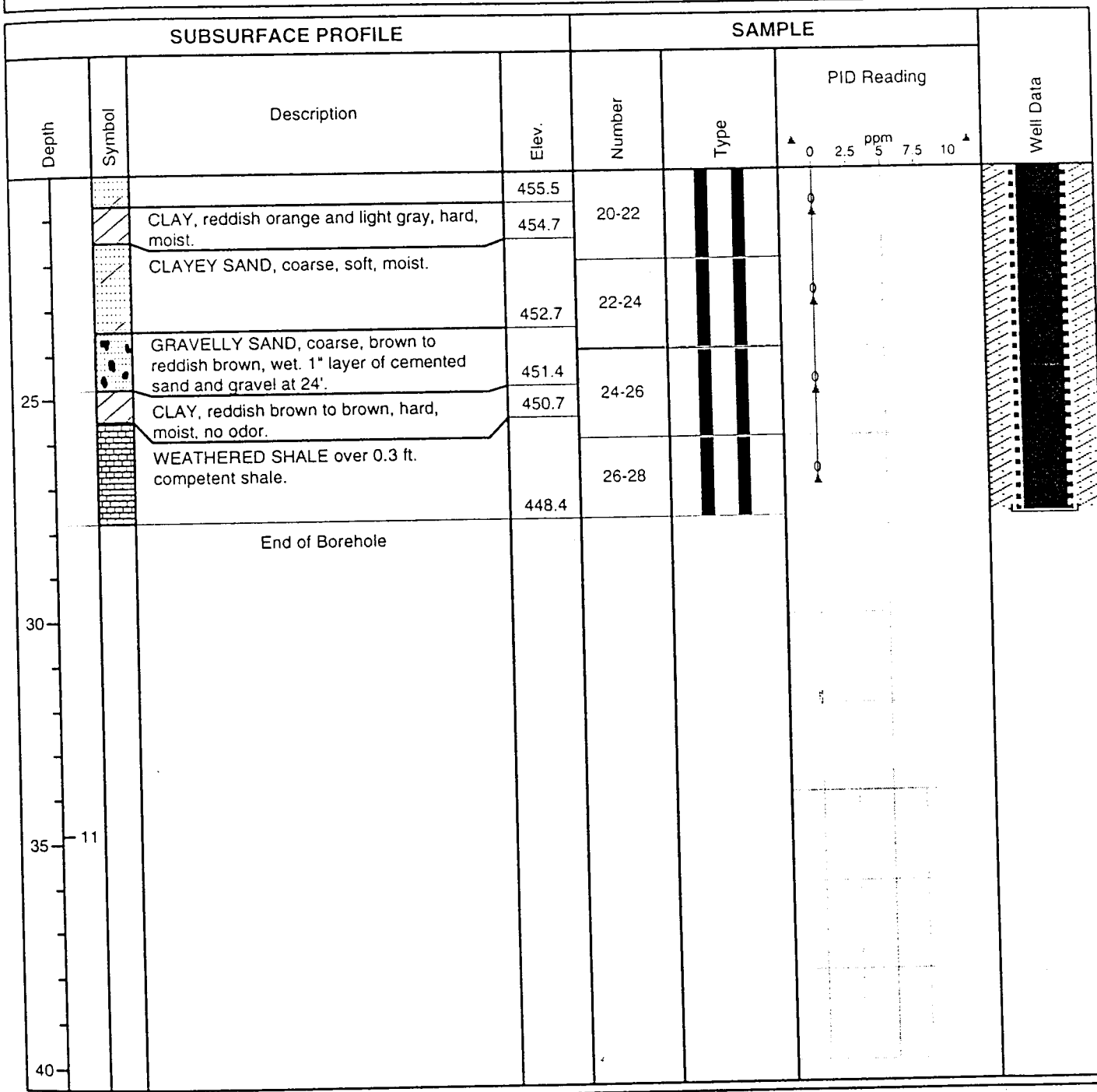
Client: Whirlpool Corporation

Location: Fort Smith, Ar

Log of Borehole: MW-28

Enclosure:

Geologist: LP



Drill Method: Hollow Stem Augers

Drill Date: 07 December 1999

Hole Size: 8.25 inch

ERM
Suite 201
50 Queen Street West
Brampton, Ontario

Datum: Mean Sea Level

Checked by: SJH

Sheet: 2 of 2

Project No: 9908.189

Project: Additional Groundwater Investigation

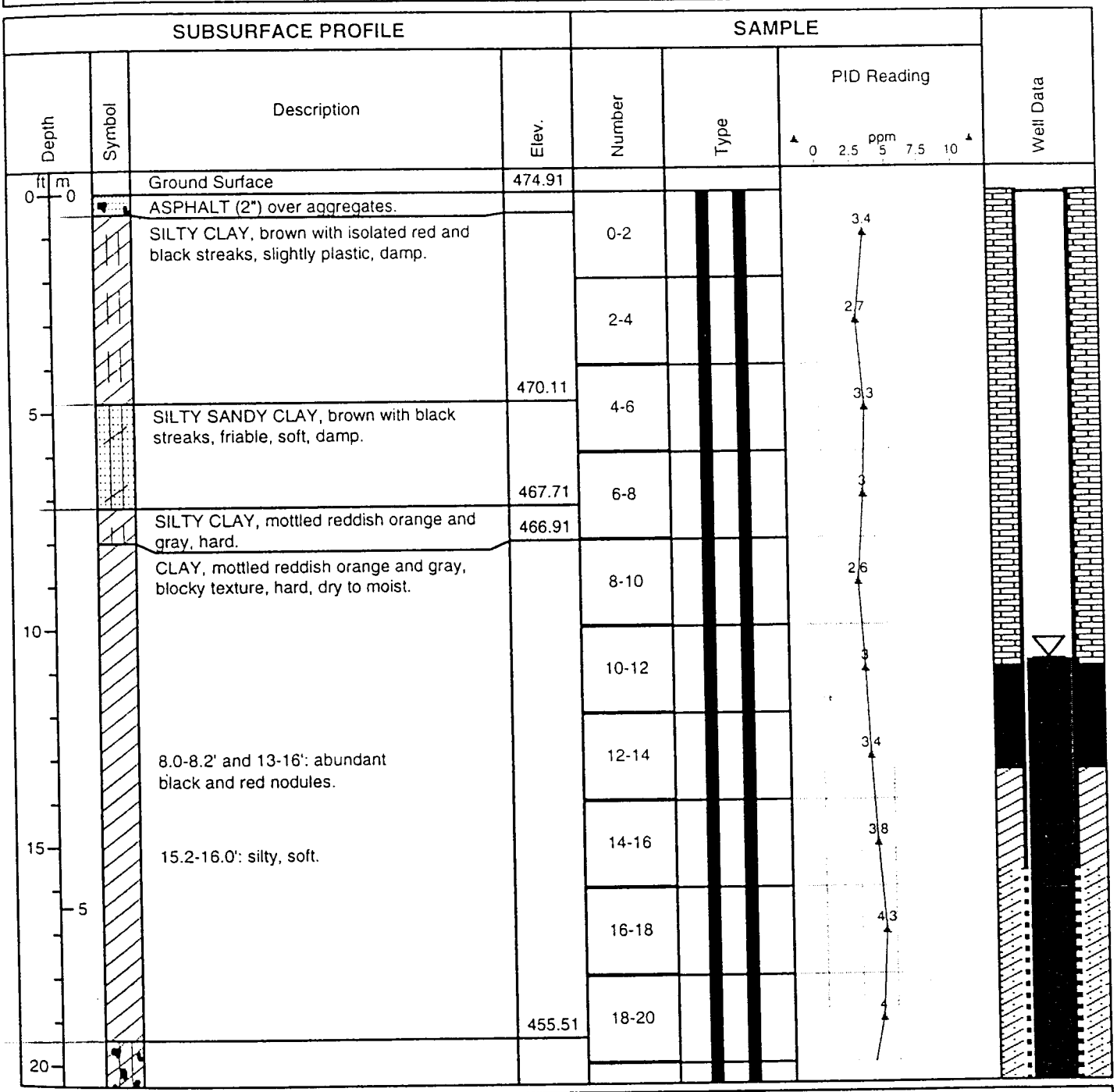
Client: Whirlpool Corporation

Location: Fort Smith, Ar

Log of Borehole: MW-29

Enclosure:

Geologist: LP



Drill Method: Hollow Stem Augers

Drill Date: 06 December 1999

Hole Size: 8.25 inch

ERM
Suite 201
50 Queen Street West
Brampton, Ontario

Datum: Mean Sea Level

Checked by: SJH

Sheet: 1 of 2

Project No: 9908.189

Project: Additional Groundwater Investigation

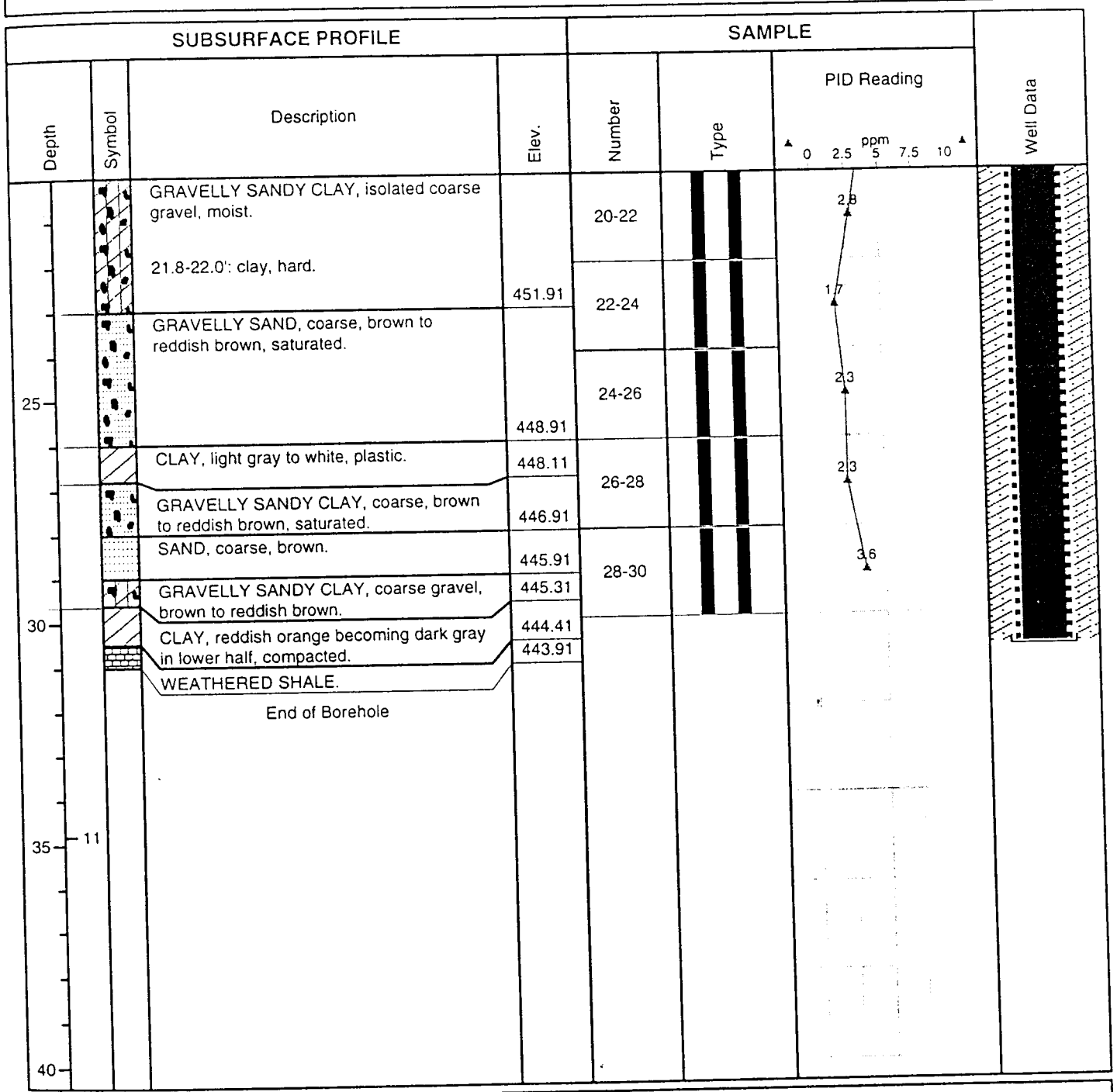
Client: Whirlpool Corporation

Location: Fort Smith, Ar

Log of Borehole: MW-29

Enclosure:

Geologist: LP



Drill Method: Hollow Stem Augers

Drill Date: 06 December 1999

Hole Size: 8.25 inch

ERM
Suite 201
50 Queen Street West
Brampton, Ontario

Datum: Mean Sea Level

Checked by: SJH

Sheet: 2 of 2

Project No: 9908.189

Project: Additional Groundwater Investigation

Client: Whirlpool Corporation

Location: Fort Smith, Ar

Log of Borehole: MW-30

Enclosure:

Geologist: LP

Depth (ft / m)	Symbol	Description	Elev.	Number	Type	PID Reading (ppm)	Well Data
0 / 0		Ground Surface	478.99				
		ASPHALT (2") over aggregates.					
		SILTY CLAY, light brown with red staining and black streaks, moist.	475.79	0-2		3.2	
				2-4		57.1	
		CLAY, isolated coarse gravel, mottled reddish brown and gray with large black nodules, friable.	471.39	4-6		51.7	
5				6-8		65.4	
		SILTY CLAY, mottled reddish brown and gray with black streaks, slightly plastic.	469.19	8-10		78.8	
10		SILTY SANDY CLAY, trace fine gravel, friable, weak odor.	466.59	10-12		79.9	
		CLAY, mottled reddish orange and gray, isolated black streaks, stiff, weak odor.	462.49	12-14		54.7	
15 / 5				14-16		49.6	
		SILTY CLAY, mottled reddish orange and gray, frequent small black accretions, friable.	459.49	16-18		47.7	
				18-20		42.8	
20		SANDY CLAY, light brown and orange, black zones, hard.					

Drill Method: Hollow Stem Augers

Drill Date: 06 December 1999

Hole Size: 8.25 inch

ERM
Suite 201
50 Queen Street West
Brampton, Ontario

Datum: Mean Sea Level

Checked by: SJH

Sheet: 1 of 2

Project No: 9908.189

Project: Additional Groundwater Investigation

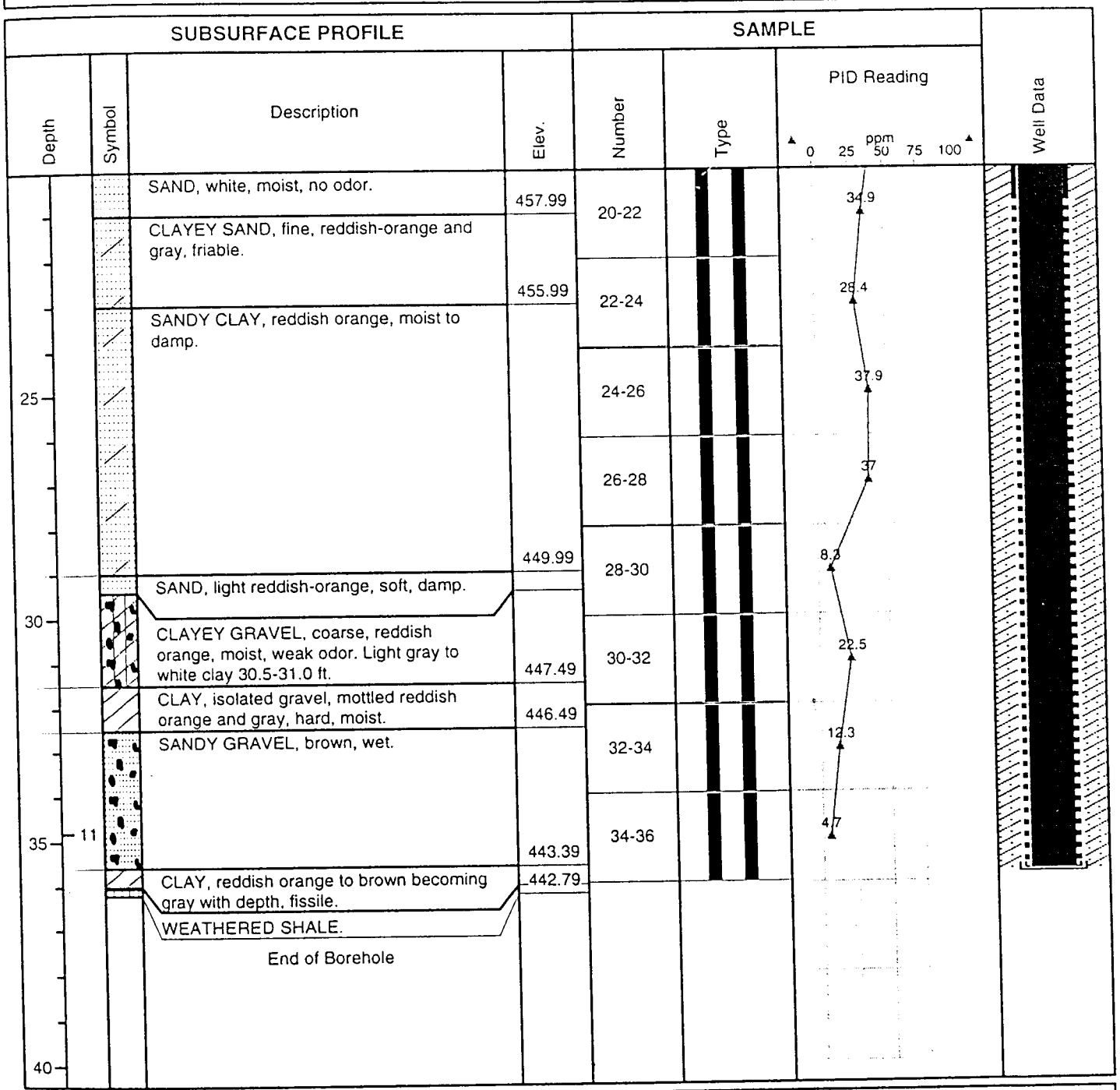
Client: Whirlpool Corporation

Location: Fort Smith, Ar

Log of Borehole: MW-30

Enclosure:

Geologist: LP



Drill Method: Hollow Stem Augers

Drill Date: 06 December 1999

Hole Size: 8.25 inch

ERM
Suite 201
50 Queen Street West
Brampton, Ontario

Datum: Mean Sea Level

Checked by: SJH

Sheet: 2 of 2

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ERM.

MW-31
DRILLING LOG

W.O. NO. 58102 Boring/Well ID MW-31 Date Drilled 1/4/01

Project Whirlpool, Ft. Smith Owner Whirlpool Corporation

Location Fort Smith, Arkansas Boring T.D. 30 ' Boring Diam. 2.125 "

N. Coord. 9348.48 ' E. Coord. 7675.35 ' Surface Elevation 476.03 ' MSL Datum

Screen: Type Slotted Schedule 40 PVC Diam. 0.81 " Length 10 ' Slot Size 0.010 "

Casing: Type Schedule 40 PVC Diam. 0.75 " Length 17.6 ' Sump Length 0.1 '

Top of Casing Elevation 476.03 ' Stickup 0.2 '

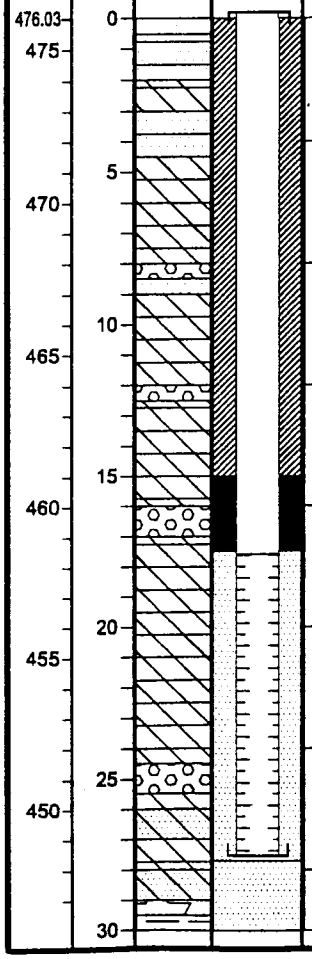
Depth to Water: 1. Ft. 10 (Boring) 2. Ft. 3.7 (Well)

Drilling Company Tri-State Testing Srvcs., Inc. Driller Ken Smith

Drilling Method GeoProbe Log By Roberta Smith

SKETCH MAP

NOTES



Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
0-4	0-0.5	SILTY SAND: dark brown, slightly moist, soft, organic rich with grass and rootlets
	0.5-2	SILTY SAND: medium brown, moist, soft, rocks up to 0.75 inches in diameter present
	2-3	SILTY CLAY: grayish brown, slightly moist, firm, some iron nodules and orange streaking present
4-8	3-4.5	SILTY SAND: black, dry, gravel and rock inclusions up to 1 inch in diameter are present
	4.5-8	SILTY CLAY: silty clay grading to clay, medium brown, moist, firm, massive
8-12	8-8.5	GRAVEL: medium brown, moist, loose, soft, mixture with rocks up to 1 inch in diameter
	8.5-9	SILTY SAND: medium brown, moist, loose, soft, rock inclusions up to 1 inch in diameter
	9-12	SILTY CLAY: medium brown grading to reddish brown at 11 feet, moist, firm, gray and red inclusions present beginning at 11 feet
12-16	12-12.5	GRAVEL: medium brown, loose, wet, with rocks up to 0.5 inches in diameter
	12.5-13.5	SILTY CLAY: medium brown, wet, fluffy, with rock inclusions up to 0.5 inches in diameter
	13.5-16	SILTY CLAY: reddish brown with gray and orange streaking, moist, firm, massive
16-20	16-17	GRAVEL: medium brown, loose
	17-24	SILTY CLAY: medium brown grading to reddish brown and gray, very moist grading to slightly moist, soft from 17 - 18 feet, firm from 18-24 feet
20-24		
24-28	24-24.5	SILTY CLAY: medium reddish brown, moist, loose
	24.5-25.5	GRAVEL: medium brown, moist, loose
	25.5-26	SILTY CLAY: medium reddish brown, moist, soft, loose
	26-27	SANDY CLAY: light brown, moist, soft
	27-28	SILTY CLAY: reddish light brown, firm, with rock inclusions up to 0.5 inches in diameter
28-30	28-29	SANDY CLAY: light brown, wet, soft, some gravel present
	29-29.5	Other: reddish, dry, brittle, iron-rich material
	29.5-30	SHALE: gray, slightly moist, firm, weathered
		T.D. = 30 '

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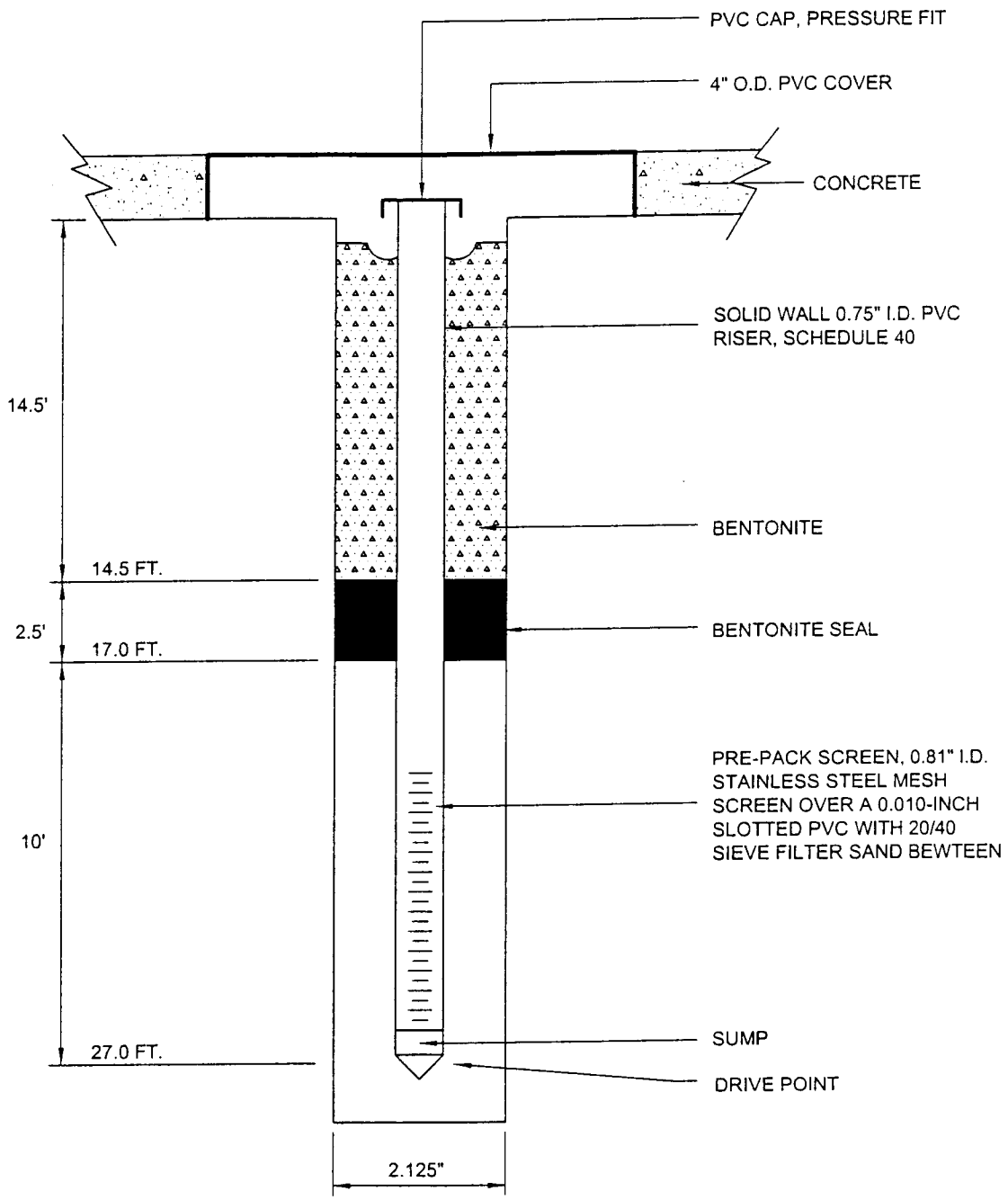
MW-32



ERM-Southwest, Inc.
HOUSTON · NEW ORLEANS · AUSTIN · DALLAS · BEAUMONT

FIGURE 2
MW-32 CONSTRUCTION DETAIL
OFFSITE INVESTIGATION
Whirlpool Corporation
Fort Smith, Arkansas

ERM

DESIGN: RS	CHKD.:	DATE: 01/23/01	REV.:
DRAWN: LMc	SCALE: N.T.S.	W.O.NO.: 581002A020 A01	

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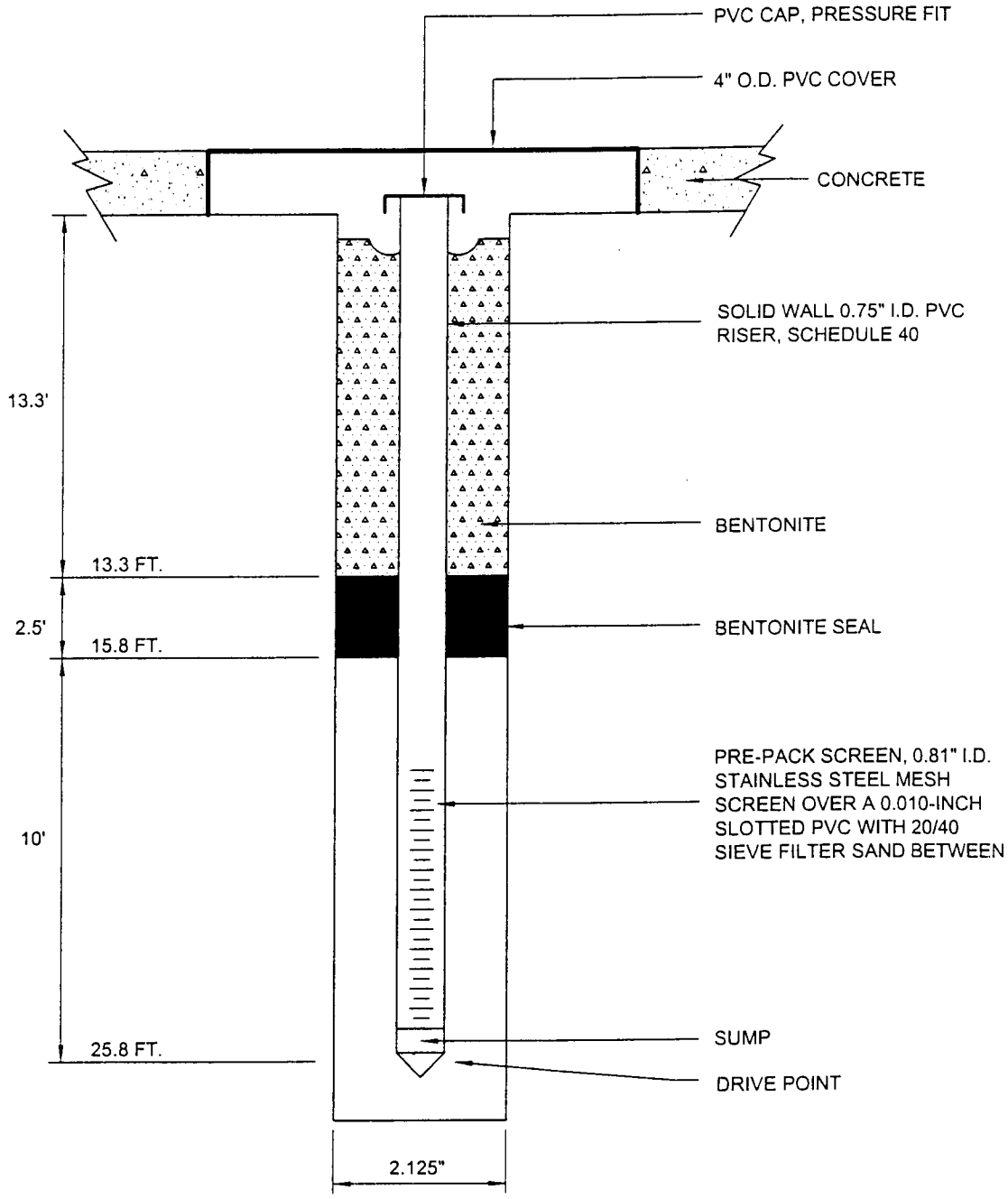
MW-33



ERM-Southwest, Inc.
HOUSTON · NEW ORLEANS · AUSTIN · DALLAS · BEAUMONT

FIGURE 3
MW-33 CONSTRUCTION DETAIL
OFFSITE INVESTIGATION
Whirlpool Corporation
Fort Smith, Arkansas

ERM

DESIGN: RS	CHKD.:	DATE: 01/23/01	REV.:
DRAWN: LMc	SCALE: N.T.S.	W.O.NO.: 581002A021 A01	

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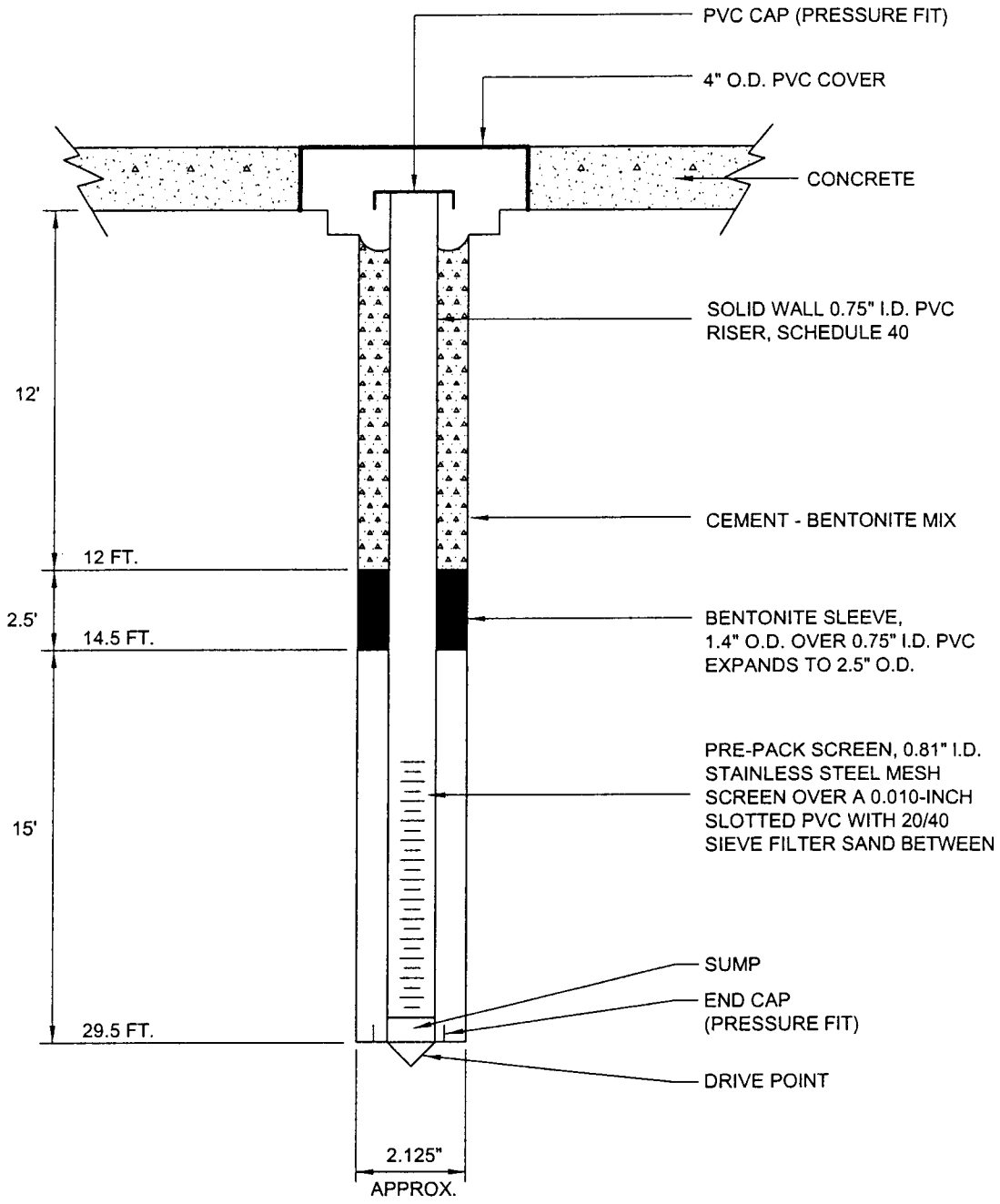
MW-34



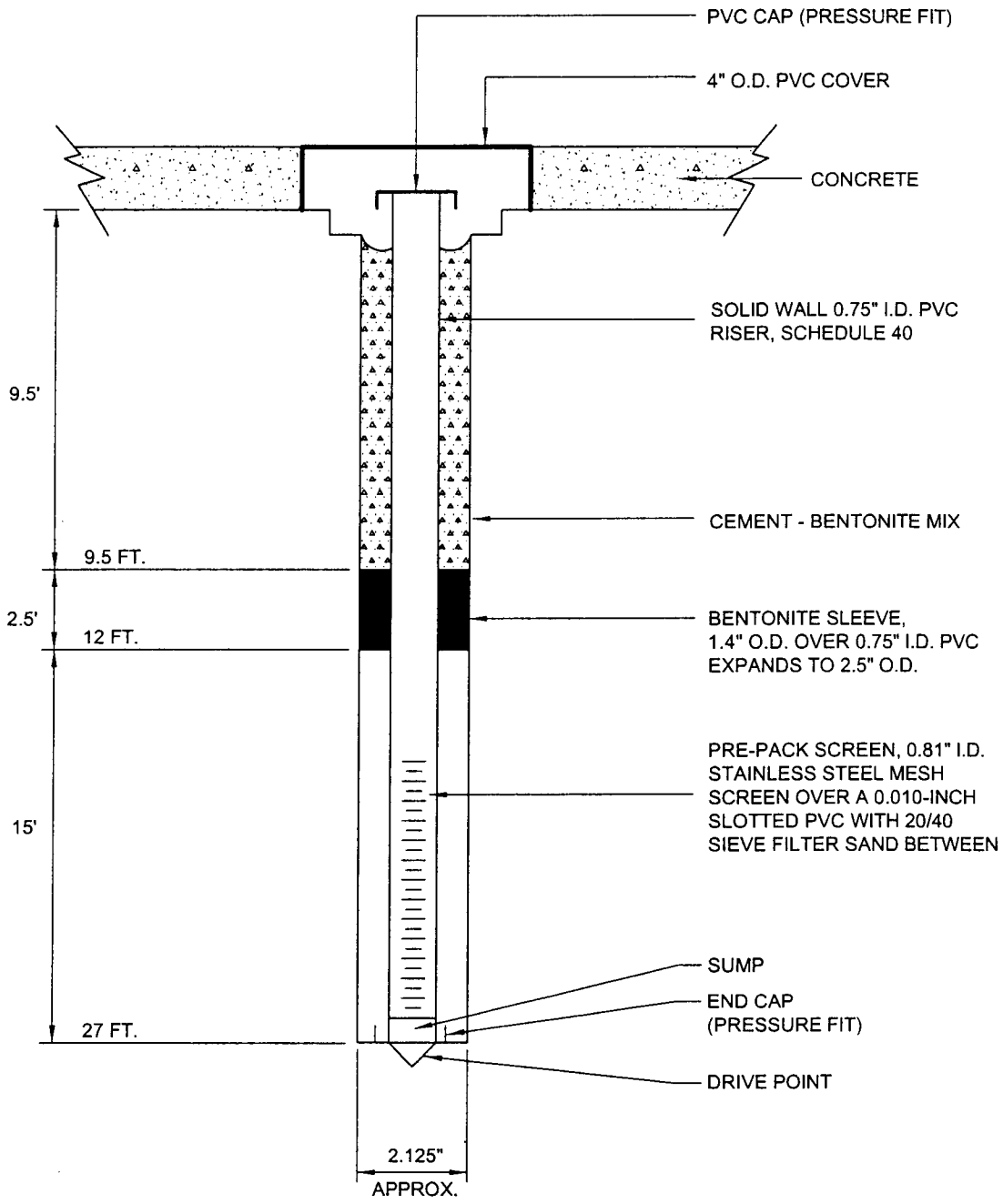
ERM-Southwest, Inc.
HOUSTON · NEW ORLEANS · AUSTIN · DALLAS · BEAUMONT

FIGURE 1
MW-34 CONSTRUCTION DETAIL
OFFSITE INVESTIGATION
Whirlpool Corporation
Fort Smith, Arkansas

DESIGN: RS	CHKD.:	DATE: 04/02/01	REV.:
DRAWN: LMc	SCALE: N.T.S.	W.O.NO.: 581005A203 D01	

ERM

MW-35



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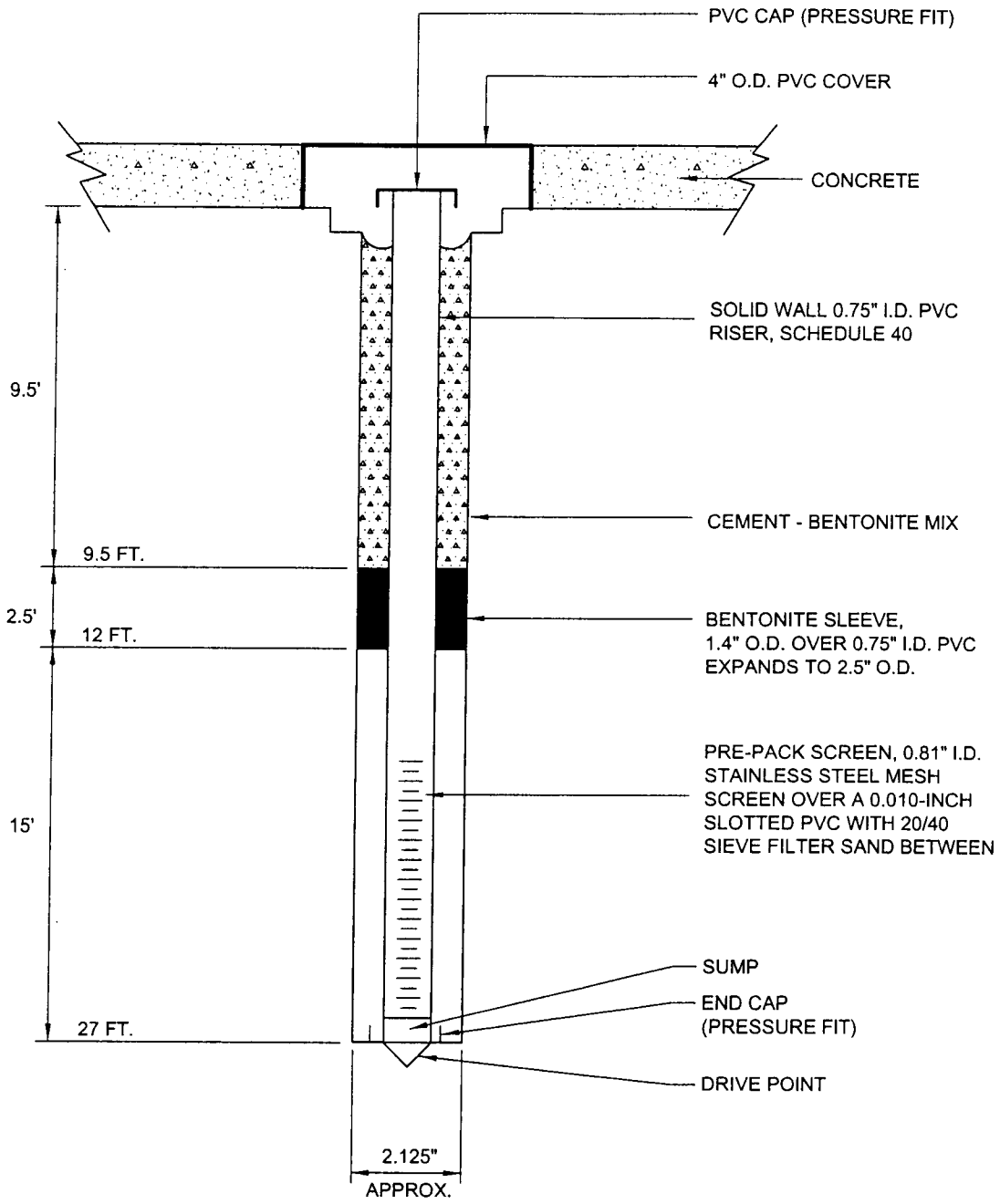
DESIGN: RS	CHKD.:	DATE: 03/02/01	REV.:
DRAWN: LMc	SCALE: N.T.S.	W.O.NO.: 581005A201 D01	

FIGURE 2
MW-35 CONSTRUCTION DETAIL
OFFSITE INVESTIGATION
Whirlpool Corporation
Fort Smith, Arkansas

ERM

MW-36



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DESIGN: RS	CHKD.:	DATE: 04/02/01	REV.:
DRAWN: LMc	SCALE: N.T.S.	W.O.NO.: 581005A202 D01	

FIGURE 3
MW-36 CONSTRUCTION DETAIL
OFFSITE INVESTIGATION
Whirlpool Corporation
Fort Smith, Arkansas

ERM

ERM-Southwest, Inc.

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ERM

MW-37 DRILLING LOG

W.O. NO. 581007 Boring/Well ID MW-37 Date Drilled 09/13/01

Project CAS Support Owner Whirlpool

Location Ft. Smith, Arkansas Boring T.D. 30 ' Boring Diam. 5 "

N. Coord. _____ E. Coord. _____ Surface Elevation _____ MSL Datum

Screen: Type Schedule 40 PVC Diam. 2 " Length 15 ' Slot Size 0.010 "

Casing: Type Schedule 40 PVC Diam. 2 " Length 15 ' Sump Length 0 '

Top of Casing Elevation _____ Stickup 0 '

Depth to Water: 1. Ft. _____ (_____) 2. Ft. _____ (_____)

Drilling Company MHC Driller Ken Wages

Drilling Method Split spoon Log By Troy Meinen

SKETCH MAP

NOTES

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	PID HEADSPACE READINGS (PPM)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
	0					0-5	0-0.33	GRAVEL: Sandy silty gravel, 1" diameter quartzite gravel
							0.33-0.63	GRAVEL: Sandy silty gravel, reddish-brown to red, 1" diameter quartzite gravel
							0.63-1.21	CLAYEY SILT: Strong brown and gray, firm to hard, plastic, moist, occasional rootlets
							1.21-1.33	CLAYEY SILT: Gray, soft, crumbly, moist; with plastic and rubber fragments
							2.5-5	SILTY CLAY: Pale gray and strong brown, firm to hard, moist occasional calcareous nodules up to .25" in diameter
	5				142	5-10	5-9	SILTY CLAY: Strong brown with occasional gray mottling, stiff to hard, moist, occasional clacareous nodules up to 0.5" diameter
					7.0			SILTY CLAY: Strong brown, slightly crumbly, moist to dry, stiff, occasional pale gray mottling; pale gray silt pocket at 6' (1" diameter), occasional calcareous and iron nodules up to 0.25" diameters, moderate chemical-like odor
							9-15	SILTY CLAY TO CLAY: strong brown to reddish-brown, very plastic, occasional pale gray mottling, moist, hard, moderate chemical-like odor
	10				24.2	10-15		
					24.2			
	15				1.4	15-20	15-16.3	SILTY SANDY CLAY: Strong brown and pale gray, soft to firm, occasional dark gray speckles and streaks, mottling appears bedded in 0.5" thick beds
					4.2		16.3-16.5	SILTY CLAY: Strong brown and pale gray mottled, moist to dry, stiff
							16.5-17	CLAYEY SILT: Sandy clayey silt to sandy silty clay, soft to firm, occasional dark gray and pale gray mottling, moist to wet
							17-17.7	CLAYEY SILTY SAND to clayey sandy silt: strong brown to brown, slightly plastic, wet to water saturated, soft, occasionl calcareous nodules to 0.25" diameter
	20				4.2	20-25	17.7-21	NO RECOVERY: No recovery
							21-23	SILTY SAND: Brown, fine to medium grained sand, loose to dense, mostly quartz, some reddish-brown grains
					1.4		23-24	SILTY SAND AND SILT: Brown, loose to dense, moist to wet; with pale gray and strong brown silty clay interclasts up to 0.5" diameter, occasional pale gray sandy clay pockets, stiff crumbly
	25						24-25	

ERM-Southwest, Inc.

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ERM

MW-37 DRILLING LOG

W.O. NO. 581007 Boring/Well ID MW-37 Date Drilled 09/13/01

Project CAS Support Owner Whirlpool

Location Ft. Smith, Arkansas Boring T.D. 30 ' Boring Diam. 5 "

N. Coord. _____ E. Coord. _____ Surface Elevation _____ MSL Datum

Screen: Type Schedule 40 PVC Diam. 2 " Length 15 ' Slot Size 0.010 "

Casing: Type Schedule 40 PVC Diam. 2 " Length 15 ' Sump Length 0 '

Top of Casing Elevation _____ Stickup 0 '

Depth to Water: 1. Ft. _____ (_____) 2. Ft. _____ (_____)

Drilling Company MHC Driller Ken Wages

Drilling Method Split spoon Log By Troy Meinen

SKETCH MAP

NOTES

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	PID HEADSPACE READINGS (PPM)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
	25				0.0	25-30	25-28.5	GRAVEL: Dark brown, water saturated; gravel is rounded to sub-angular quartzite < 0.25", coarsens downward to 1" diameter gravel at base.
					0.0			SILTY SANDY GRAVEL: Dark brown, water saturated; with increasing silt and clay content with depth, gravel up to 2-3" diameter at 27.5', 28' and 28.5'
							28.5-29.5	SILTY CLAY: Abundant gravel up to 3" diameter, yellowish-brown, stiff to plastic, wet; finely bedded 29.3 to 29.5
	30				0.0		29.5-30	SHALE: Shale fissile, crumbly, very dark gray, moist to dry, weathered zone from 29.5 to 29.7
								T.D. = 30 '
	35							
	40							
	45							
	50							

Environmental
Resources
Management

16300 Katy Freeway
Suite 300
Houston, Texas 77094-1611
(281) 600-1000
(281) 600-1001 (fax)

August 30, 2002

Mr. Daniel Clanton
Whirlpool Corporation
8001 National Drive
Post Office Box 8913
Little Rock, Arkansas 72219-8913

W.O. #581-007

Subject: February 2002 Semi-Annual Ground Water Monitoring Report

Dear Mr. Clanton:

Environmental Resources Management (ERM) is pleased to provide the historical ground water monitoring data you requested during the Whirlpool Fort Smith facility scoping meeting held on August 13, 2002.

Semi-annual ground water monitoring was initiated at the facility during 1999 with the most recent event occurring in February of 2002. The following documents providing the requested available historical ground water data are attached:

Attachment 1:	February 2002 Semi-Annual Ground Water Sampling Report
Attachment 2:	TCE Isoconcentration Maps and Potentiometric Surface Maps for Sampling Events in 1999, 2000, and 2001
Attachment 3:	Summary of CPT Grab Ground Water Sample Data conducted October 1999.

In reviewing the Conceptual Site Model (CSM) in the meeting, we noticed that Figure 5-1 of the CSM was incorrect. Therefore, we are also providing you with a replacement for Figure 5-1 as Attachment 4.

If you have any questions concerning the attached data or other information provided in the conceptual site model, please do not hesitate to call.

Sincerely,

Environmental Resources Management

Troy W. Meinen

TWM/mnt
Attachments

cc: Mr. Michael Hill, Arkansas Department of Environmental Quality
Ms. Linda Hanson, MsC, P.G., Arkansas Department of Environmental Quality
Mr. Benjamin May, Arkansas Department of Environmental Quality
Mr. Scott Horton, Whirlpool Corporation
Mr. Bob Karwowski, Whirlpool Corporation
Mr. Steven P. Willis, Whirlpool Corporation
Mr. Larry Yinger, Whirlpool Corporation
Mr. Andy Huggins, Environmental Resources Management (Exton)
Mr. H. Reiffert Hedgcoxe, P.G., Environmental Resources Management (Houston)

February 2002 Semi-Annual Ground Water Sampling Report

Attachment 1

August 30, 2002
W.O. #481-007

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

Environmental
Resources
Management

3204 Long Prairie Road
Suite C
Flower Mound, TX 75022
(972) 353-2100
(972) 353-7201 (FAX)

April 12, 2002

Mr. Scott Horton
Senior Environmental Engineer
Whirlpool Corporation
6400 Jenny Lind Road
P.O. Box 17001
Fort Smith, AR 72917-7001

W.O. #581-009

ERM

Subject: February 2002 Semi-Annual Ground Water Monitoring
Whirlpool Corporation, Fort Smith, Arkansas

Dear Mr. Horton:

Environmental Resources Management (ERM) is pleased to provide this letter report summarizing the subject monitoring event. This work was conducted in accordance with the scope of work authorized under Whirlpool's PAF FTS-109. The purpose of this letter is to document the sampling activities and to present the data. An evaluation of the results from this monitoring event will be conducted with the data analysis after the second semi-annual event is completed.

Scope of Work

The first round of semi-annual ground water monitoring at the Whirlpool Fort Smith facility for 2002 was performed on February 18 through February 22, 2002. All wells were sampled for volatile organic compounds (VOCs). Monitoring wells MW-1 through MW-37 were purged and sampled using traditional pump and bail methods. In addition, 17 of those wells were also sampled using low-flow methodology (MW-1, MW-5, MW-7, MW-10, MW-11, MW-12, MW-13, MW-15, MW-16, MW-17, MW-19, MW-20, MW-23, MW-25, MW-26, MW-28 and MW-37). Wells sampled using the traditional method were gauged for pH, specific conductivity (SC) and temperature. Wells sampled using the low-flow method were gauged for pH, SC, temperature, dissolved oxygen (DO) and redox potential (ORP). Samples from the low-flow wells were also sampled for nitrate and sulfate at a local Fort Smith laboratory, and for iron using a field test kit.

Well Purging

Following mobilization to the Site on February 18, 2002, water levels were measured in each well. A summary of the recorded water level measurements is provided as Table 1, Attachment 1. The measurements were then used to calculate the appropriate purge volume for each location. The volume of standing water in each well casing and annular sand pack was calculated based on the static water level and the known depth of the well.

At wells scheduled to be sampled using both traditional and low-flow methods, low-flow sampling was performed first using a peristaltic pump and dedicated polyethylene tubing. The tubing was placed in the middle of the screened interval, or water column depending on depth to water. During low-flow purging, the wells were pumped at a sufficiently low rate (generally less than 0.5 L/min) so that drawdown during purging did not exceed 0.3 ft. The drawdown and flow rate were monitored continuously. The flow rate was checked using a stop-watch and a graduated Pyrex measuring cup. Water quality parameters were monitored using a YSI 650XL multiprobe and flow-thru cell. Readings were recorded approximately every 5 minutes until parameters stabilized. Stabilization parameters include: pH within 0.1 units; SC ± 3%; turbidity ±10%; DO ±10%; ORP ±10 mV; all for three successive readings. In the event all parameters did not stabilize within approximately 45 minutes, low-flow purging was terminated and samples were collected. In general, turbidity and DO were the only parameters that did not reach stabilization in some wells.

For traditional purging methods, three borehole volumes were purged using dedicated inline 12-volt submersible electrical pumps and dedicated polyethylene tubing. Purge water generated during development was placed in drums, provided by Whirlpool, and labeled according to the date and drum contents.

Upon completion of the purging, the pump and associated tubing from each well was individually double-bagged, labeled and stored on-site for use during future semiannual sampling events.

Sampling and Analyses

When using low-flow techniques, wells were sampled using the same flow rate maintained during the purging activities. These samples were labeled with the well ID and "L", indicating they were sampled using the low flow method. Low-flow ground water samples were collected directly from the tubing into laboratory supplied

sample jars. Samples for volatile analysis were collected in three 40-ml vials preserved with hydrochloric acid (HCl). Samples collected for nitrate, sulfate, and chloride analysis were collected in a neat 500 ml plastic jar. Samples for potassium analysis were collected in a 250 ml neat plastic jar. Samples for iron analysis were collected in a pyrex beaker and tested in the field.

Wells purged using traditional purge methods were sampled using dedicated, 2-inch disposable polyethylene bailers following removal of the dedicated pump and tubing. A total of three preserved 40-ml vials were filled at each location. These samples were labeled with the well ID and "T", indicating they were sampled using the traditional purging and sampling method.

Four blind duplicate samples, one field blank sample and one trip blank sample were collected during this event. Additional duplicate samples were collected during this event to provide quality assurance data on the samples collected by both traditional and low-flow methods. VOC samples were labeled, stored on ice, and shipped to Severn Trent Laboratory (STL) in Houston, Texas for analyses by SW-846 Method 8260 for trichloroethylene and related chlorinated solvents and degradation products that have been identified in previous sampling events. Potassium, chloride, nitrate and sulfate samples were labeled, stored on ice, and delivered to Data Testing, Inc. in Fort Smith, Arkansas for analyses by EPA water/wastewater methods. Samples for Ferrous iron analysis were analyzed in the field by Hach DR820 colorimeter glass ampule method 8146. Chain of custody procedures were established and followed from the time of sample collection until the analyses were complete.

Upon completion of sampling activities, the 2-inch bailers from each well were individually double-bagged, labeled and stored on-site for use during the next semi-annual sampling event.

All samples were submitted for volatile analysis by GCMS, method SW-846 8260.

Comparison of Low-Flow vs Traditional Purging/Sampling Methods

A review of the February 2002 data indicate that, in general, the data obtained via the low-flow metholodgy correlates well with the "traditional" data for most of the wells across the Site (Figures 1 and 2, Attachment 2). The primary exception is that data from wells in the vicinity of the in situ chemical oxidation pilot study area (MW-11, MW-12, MW-15, etc.) are not well correlated. This is not unexpected since ground water in the pilot study area is not in chemical equilibrium with the surrounding ground water. Compared to low-flow, traditional purging method ground water pulls a relatively large volume of water from a larger portion of the aquifer. As a result, the

low-flow data are likely to be more representative of the ground water concentrations in the immediate vicinity of each well. Based on this comparison, it appears that switching to low-flow sampling will not prohibit comparison of such data to the substantial historical ground water data set that exists for the Fort Smith Facility.

With a few exceptions, the February 2002 semi-annual sampling data appears similar to historical data.. Concentrations at off-site wells (MW-31 through MW-36) have decreased. The maximum off-site TCE concentration reported is 0.325 mg/L; down from 1.03 mg/L in September 2001. Other results are consistent with previously observed changes related to the seasonal shift in ground water flow direction between the spring and fall sampling events. The TCE concentration reported this period at MW-25 (29.9 mg/L (L) and 24.3 mg/L (T)), is the lowest concentration reported since February 1999. Other notable changes in concentrations observed during this event include the decrease in TCE concentration at MW-20. In September 2001, TCE was reported at MW-20, near the propane tanks on the west side of the property, for the first time since 1996; however, the February 2002 data indicate that MW-20 has no detectable concentrations, suggesting that the September 2001 data may be anomalous.

A summary of the data is provided in Table 2, Attachment 1. A TCE Concentration vs. Time plot is presented as Figure 3, Attachment 2, and demonstrates concentration trends over time in a south-north transect from MW-19 to MW-34. Since not all wells were sampled using low-flow methods, data collected using traditional sampling methods is used in the development of this figure.

Ground Water Flow Evaluation

Ground water elevations for the February 2002 (Figure 4, Attachment 2) event appear similar to previous March sampling events (Table 1, Attachment 1). The data continue to suggest that, during the fall time frame, the predominate flow direction in the vicinity of the apparent source area is toward the south-southwest and then predominately to the south-southeast during the spring time frame.

Evaluation of the water level data also continues to show the presence of a ground water divide oriented northwest to southeast in the general area of well MW-26. Flow directions northeast of the apparent divide are toward the east While flow in the vicinity of MW-20 and MW-21 is more toward the southeast. As was apparent in the September 2001 data, February 2002 data shows that there appears to be a flattening of the ground water gradient in the vicinity of MW-33, MW-35 and MW-36. The February data, however, indicates that this area of flattened gradient extends into the area of wells MW-23 and MW-24. As has been indicated previously, this may indicate the presence of a more permeable zone that would trend to the north across Ingersoll

Avenue. However, additional data is needed before reaching any conclusions about flow in this area.

Natural attenuation data (nitrate, sulfate and ferrous iron) will be discussed in the September semi-annual monitoring report after another round of data has been collected using the low-flow sampling method.

We appreciate the opportunity to continue to assist Whirlpool with this important project. If you have any questions concerning the scope of work or need additional information, please do not hesitate to call.

Sincerely,

ENVIRONMENTAL RESOURCES MANAGEMENT

Troy Meinen

Lori D. Pfeil

LDP:vjm

cc: Mr. Bob Karwowski, Whirlpool Corporation
Mr. Steven P. Willis, Whirlpool Corporation
Mr. Larry Yinger, Whirlpool Corporation
Mr. Andy Huggins, ERM, Exton
Mr. H. Reiffert Hedgcoxe, P.G., ERM, Houston

Tables

Attachment 1

April 12, 2002
W.O. #581-009

Environmental Resources Management
3204 Long Prairie Road, Suite C
Flower Mound, TX 75022
(972) 355-2100

TABLE 1

Water Level Elevations, Conventional Monitoring Wells

Whirlpool Corporation
Fort Smith, Arkansas

Well ID	Easting (ft)	Northing (ft)	Top of Pipe (ftAMSL)	Depth to Water (ftBTOP) 22 Feb. 1999*	Water Level (ftAMSL) 28 Oct. 1999	Water Level (ftAMSL) 10 Dec. 1999	Water Level (ftAMSL) 27 Mar. 2000	Water Level (ftAMSL) 18 Sept. 2000	Depth to Water (ftBTOP) 26 Mar. 2001	Water Level (ftAMSL) 26 Mar. 2001	Depth to Water (ftBTOP) 10 Sep. 2001	Water Level (ftAMSL0 10 Sep. 2001	Depth to Water (ftBTOP) 18 Feb. 2002	Water Level (ftAMSL) 18 Feb. 2002
ITMW-1	8259.51	9007.54	476.93	12.86	469.03	464.39	463.79	464.70	14.09	462.84	12.61	464.32	14.15	462.78
ITMW-2	8058.55	9103.07	477.58	12.82	465.21	464.57	464.41	464.91	13.72	463.86	13.03	464.55	14.03	463.55
ITMW-3	8169.81	9165.86	474.72	10.32	465.19	464.47	464.08	464.83	11.32	463.40	10.22	464.50	11.54	463.18
ITMW-4	8170.16	8296.26	478.19	13.91	465.25	464.53	463.82	464.58	15.30	462.89	13.99	464.20	15.29	462.90
ITMW-5	7902.33	8278.92	478.93	14.84	465.05	464.33	463.68	464.38	16.07	462.86	14.95	463.98	16.16	462.77
ITMW-6	7858.85	8042.21	483.04	19.05	464.79	464.18	463.54	464.14	20.37	462.67	19.30	463.74	20.35	462.69
ITMW-7	7461.02	8370.89	481.95	17.87	464.21	463.83	463.83	463.85	18.43	463.52	18.43	463.52	18.52	463.43
ITMW-9	8179.81	8237.69	481.90	17.74	465.16	464.44	463.73	464.47	19.10	462.80	17.81	464.09	19.09	462.81
ITMW-10	7901.42	8230.16	480.84	16.78	465.01	464.33	463.64	464.46	18.04	462.80	16.82	464.02	18.29	462.55
ITMW-11	7846.97	9109.44	476.50	11.52	465.15	465.10	464.60	464.85	12.31	464.19	11.84	464.66	12.68	463.82
ITMW-12	7869.05	9077.56	476.67	11.76	465.19	464.60	464.59	464.85	12.51	464.16	12.05	464.62	12.76	463.91
ITMW-13	7915.02	9124.81	477.79	12.82	465.19	464.60	464.58	464.92	13.64	464.15	13.19	464.60	13.99	463.80
ITMW-14	7966.02	9131.80	477.30	12.38	465.19	464.67	464.54	464.93	13.22	464.08	12.70	464.60	13.57	463.73
ITMW-15	7812.25	9109.60	476.49	11.47	465.15	464.58	464.63	464.88	12.28	464.21	11.91	464.58	12.65	463.84
ITMW-16	7831.59	9168.78	478.79	13.57	465.34	464.77	464.68	465.09	14.36	464.43	14.02	464.77	14.70	464.09
ITMW-17	7732.61	9112.96	477.90	12.54	465.12	464.54	464.63	464.92	14.66	463.24	13.32	464.58	13.91	463.99
ITMW-18	7849.92	9023.55	473.55	8.64	465.16	464.55	464.55	464.89	9.42	464.13	8.99	464.56	9.77	463.78
ITMW-19	7763.78	9024.94	476.25	11.28	465.15	464.52	464.61	464.95	11.51	464.74	11.40	464.85	12.47	463.78
ITMW-20	7238.94	9074.08	477.87	12.55	464.93	464.55	464.82	464.73	13.12	464.75	13.45	464.42	13.33	464.54
ITMW-21	7506.54	8945.65	476.52	11.21	464.93	464.59	464.90	464.68	11.69	464.83	11.90	464.62	12.26	464.26
MW-22	8726.94	9038.96	473.93	9.64	465.64	464.91	464.23	465.20	10.71	463.22	9.11	464.82	10.82	463.11
MW-23	7747.16	9303.10	475.80	10.95	465.27	464.70	464.65	464.04	11.39	464.41	11.10	464.70	11.73	464.07
MW-24	7738.13	9198.53	476.39	11.25	465.27	464.69	464.82	465.04	12.01	464.38	11.70	464.69	12.31	464.08
MW-25	7614.43	9060.33	476.89	11.68	465.28	464.77	464.86	465.09	12.41	464.48	12.16	464.73	12.74	464.15
MW-26	7421.64	9273.87	478.05	12.36	465.32	464.89	465.10	465.09	13.07	464.98	13.27	464.78	12.33	465.72
MW-27	7932.29	9302.59	475.42	--	--	464.70	464.61	465.02	11.04	464.38	10.71	464.71	11.43	463.99
MW-28	8180.18	9301.14	470.49	--	--	464.39	464.41	464.92	6.25	464.24	5.66	464.83	6.76	463.73
MW-29	7092.87	8392.87	474.91	--	--	464.07	464.59	463.91	10.47	464.44	11.32	463.59	10.62	464.29
MW-30	7485.76	8480.10	478.99	--	--	464.22	464.35	464.24	14.95	464.04	15.07	463.92	15.30	463.69
MW-31	7675.36	9348.43	476.03	--	--	--	--	--	11.25	464.78	10.68	465.35	12.02	464.01
MW-32	7760.17	9347.50	475.68	--	--	--	--	--	11.36	464.32	10.97	464.71	11.62	464.06
MW-33	7845.31	9348.62	474.88	--	--	--	--	--	10.50	464.38	10.18	464.70	10.84	464.04
MW-34	7760.24	9404.60	474.29	--	--	--	--	--	11.90	462.39	9.56	464.73	10.15	464.14
MW-35	7841.74	9406.36	473.90	--	--	--	--	--	9.24	464.66	9.20	464.70	9.83	464.07
MW-36	7927.38	9405.11	473.30	--	--	--	--	--	8.61	464.69	8.60	464.70	9.11	464.19
MW-37	7839.60	9101.64	473.57	--	--	--	--	--	--	--	--	--	9.46	464.11
MW-38	7840.94	9115.29	474.60	--	--	--	--	--	--	--	--	--	10.62	463.98

NOTES:

ft = feet
AMSL = above mean sea level
BTOP = below top of pipe
Co-ordinates provided by EDM Consultants, Inc.
Elevations are taken from Table 3-1, "Draft Report, Remedial Investigation, North Side Ground Water", Malcolm Pirnie, Inc., with the exceptions of ITMW-4 and MW-22 through MW-26 (EDM Consultants, Inc.) and MW-27 through MW-30 (Philip J. Leraris, P.E., L.S.).
* = Depth to water measurements for MW-24 through MW-26 were taken on 25 February 1999.

TABLE 2

Historic Analytical Data, Selected VOCs in Ground Water

Whirlpool Corporation
Fort Smith, Arkansas

Well	Date	Sampler	PCE	TCE	c-1,2-DCE	t-1,2-DCE	1,1-DCE	VC
ITMW-1	Nov-89	IT	ND	ND	NT	ND	ND	ND
	Jan-90	IT	ND	ND	NT	ND	ND	ND
	Nov-93	MP	ND	0.01	NT	ND	ND	ND
	Dec-96	MP	ND	0.021	NT	ND	ND	ND
	Feb-99	ERM	ND	0.037	ND	ND	ND	ND
	Mar-00	ERM	ND	0.125	0.008	ND	ND	ND
	Sep-00	ERM	ND	0.031	0.007	ND	ND	ND
	Mar-01	ERM	ND	0.03	0.006	ND	ND	ND
	Sep-01	ERM	ND	0.027	0.009	ND	ND	ND
	Feb-02	ERM (T)	ND	0.026	0.006	ND	ND	ND
	Feb-02	ERM (L)	ND	0.025	0.007	ND	ND	ND
ITMW-2	Oct-89	IT	ND	ND	NT	ND	ND	ND
	Nov-89	IT	ND	ND	NT	ND	ND	ND
	Jan-90	IT	ND	ND	NT	ND	ND	ND
	Nov-90	IT	ND	ND	NT	ND	ND	ND
	Nov-90 (dupl.)	IT	ND	ND	NT	ND	ND	ND
	Mar-91	IT	ND	ND	NT	ND	ND	ND
	Nov-93	MP	ND	0.004	NT	ND	ND	ND
	Dec-96	MP	ND	0.0034	NT	ND	ND	ND
	Mar-00	ERM	ND	ND	ND	ND	ND	ND
	Sep-00	ERM	ND	ND	ND	ND	ND	ND
	Mar-01	ERM	ND	ND	ND	ND	ND	ND
	Sep-01	ERM	ND	ND	ND	ND	ND	ND
	Feb-02	ERM (T)	ND	ND	0.006	ND	ND	ND
ITMW-3	Oct-89	IT	ND	ND	NT	ND	ND	ND
	Jan-90	IT	ND	ND	NT	ND	ND	ND
	Nov-93	MP	ND	0.003	NT	ND	ND	ND
	Dec-96	MP	ND	0.0017	NT	ND	ND	ND
	Feb-99	ERM	ND	ND	ND	ND	ND	ND
	Mar-00	ERM	ND	ND	ND	ND	ND	ND
	Mar-00 (Dup)	ERM	ND	ND *	ND	ND	ND	ND
	Sep-00	ERM	ND	ND	ND	ND	ND	ND
	Mar-01	ERM	ND	ND	ND	ND	ND	ND
	Sep-01	ERM	ND	ND	ND	ND	ND	ND
	Feb-02	ERM (T)	ND	ND	ND	ND	ND	ND
ITMW-4	Oct-89	IT	ND	ND	NT	ND	ND	ND
	Nov-89	IT	ND	ND	NT	ND	ND	ND
	Jan-90	IT	ND	ND	NT	ND	ND	ND
	Nov-93	MP	ND	ND	NT	ND	ND	ND
	Dec-96	MP	ND	0.075	NT	ND	ND	ND
	Feb-99	ERM	ND	0.093	0.054	ND	ND	ND
	Mar-00	ERM	ND	0.022	0.016	ND	ND	ND
	Sep-00	ERM	ND	0.014	0.011	ND	ND	ND
	Mar-01	ERM	ND	0.009	ND	ND	ND	ND
	Sep-01	ERM	ND	0.006	0.008	ND	ND	ND
	Feb-02	ERM (T)	ND	0.034	0.005	ND	ND	ND
ITMW-5	Oct-89	IT	ND	ND	NT	ND	ND	ND
	Jan-90	IT	ND	ND	NT	ND	ND	ND
	Dec-96	MP	ND	0.021	NT	ND	ND	ND
	Feb-99	ERM	ND	0.086	0.039	ND	0.007	ND
	Mar-00	ERM	ND	0.073	0.059	ND	ND	ND
	Sep-00	ERM	ND	0.085	0.064	ND	0.006	ND
	Mar-01	ERM	ND	0.1	0.046	ND	ND	ND
	Sep-01	ERM	ND	0.072	0.064	ND	ND	ND
	Feb-02	ERM (T)	ND	0.093	0.066	ND	ND	ND
	Feb-02	ERM (L)	ND	0.081	0.068	ND	ND	ND

NOTE:

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TABLE 2 (Cont'd)

Historic Analytical Data, Selected VOCs in Ground Water

Whirlpool Corporation
Fort Smith, Arkansas

Well	Date	Sampler	PCE	TCE	c-1,2-DCE	t-1,2-DCE	1,1-DCE	VC
ITMW-6	Oct-89	IT	ND	ND	NT	ND	ND	ND
	Jan-90	IT	ND	ND	NT	ND	ND	ND
	Dec-96	MP	ND	0.0068	NT	ND	ND	ND
	May-97	MP	ND	0.007	ND	ND	ND	ND
	Feb-99	ERM	ND	ND	ND	ND	ND	ND
	Feb-99	ERM (CoreLab)	ND	0.025	ND	NT	ND	ND
	Feb-99	ERM (CoreLab Dupl.)	ND	0.006	ND	NT	ND	ND
	Mar-00	ERM	ND	ND	ND	ND	ND	ND
	Sep-00	ERM	ND	ND	ND	ND	ND	ND
	Mar-01	ERM	ND	ND	ND	ND	ND	ND
	Sep-01	ERM	ND	ND	ND	ND	ND	ND
	Feb-02	ERM (L)	ND	ND	ND	ND	ND	ND
ITMW-7	Nov-89	IT	ND	ND	NT	ND	ND	ND
	Jan-90	IT	ND	ND	NT	ND	ND	ND
	Dec-96	MP	ND	0.29	NT	ND	ND	0.003
	May-97	MP	ND	0.38	0.18	ND	ND	ND
	Feb-99	ERM (SPL)	ND	ND	ND	ND	ND	ND
	Jun-99	ERM (SPL)	ND	0.32	0.14	ND	ND	ND
	Jun-99	ERM (SPL Dupl.)	ND	0.3	0.14	ND	ND	ND
	Jun-99	ERM (CoreLab)	ND	0.306	0.144	ND	ND	ND
	Mar-00	ERM	ND	0.262	0.1	ND	ND	ND
	Mar-00 (dup)	ERM	ND	0.207	0.092	ND	ND	ND
	Sep-00	ERM	ND	0.207	0.1	ND	ND	ND
	Sep-00 (dup)	ERM	ND	0.109	ND	ND	ND	ND
	Mar-01	ERM	ND	0.161	0.066	ND	ND	ND
	Sep-01	ERM	ND	0.139	0.068	ND	ND	ND
	Feb-02	ERM (T)	ND	0.261	0.107	ND	ND	ND
	Feb-02	ERM (L)	ND	0.119	0.070	ND	ND	ND
ITMW-8	Jan-90	IT	ND	ND	NT	ND	ND	ND
ITMW-9	Jan-90	IT	ND	ND	NT	ND	ND	ND
	Dec-96	MP	ND	0.23	NT	ND	0.015	ND
	May-97	MP	ND	0.007	ND	ND	ND	ND
	Feb-99	ERM	ND	0.04	0.024	ND	ND	ND
	Mar-00	ERM	ND	0.069	0.045	ND	ND	ND
	Sep-00	ERM	ND	0.057	0.014	ND	ND	ND
	Sep-00 (dup)	ERM	ND	0.055	0.014	ND	ND	ND
	Mar-01	ERM	ND	0.04	0.012	ND	ND	ND
	Sep-01	ERM	ND	0.04	0.012	ND	ND	ND
	Feb-02	ERM (T)	ND	0.046	0.023	ND	ND	ND
ITMW-10	Jan-90	IT	ND	ND	NT	ND	ND	ND
	Dec-96	MP	ND	0.004	NT	ND	0.002	ND
	Feb-99	ERM	ND	0.025	0.013	ND	ND	ND
	Mar-00	ERM	ND	0.023	0.017	ND	ND	ND
	Sep-00	ERM	ND	0.018	0.016	ND	ND	ND
	Mar-01	ERM	ND	0.04	0.021	ND	ND	ND
	Sep-01	ERM	ND	0.029	0.028	ND	ND	ND
	Sep-01 (dup)	ERM	ND	0.027	0.03	ND	ND	ND
	Feb-02	ERM (T)	ND	0.056	0.048	ND	ND	ND
	Feb-02	ERM (L)	ND	0.044	0.038	ND	ND	ND

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TABLE 2 (Cont'd)

Historic Analytical Data, Selected VOCs in Ground Water

Whirlpool Corporation
Fort Smith, Arkansas

Well	Date	Sampler	PCE	TCE	c-1,2-DCE	t-1,2-DCE	1,1-DCE	VC
ITMW-11	Jan-90	IT	0.015	19	NT	3.6	ND	0.18
	Nov-90	IT	ND	4.7	NT	1.5	0.009	0.093
	Feb-91	IT	0.0089	3.4	NT	1	ND	ND
	Nov-93	MP	0.001	2.3	NT	ND	ND	0.043
	Dec-96	MP	ND	0.51	NT	0.011	ND	ND
	Feb-99	ERM	ND	0.65	0.01	ND	ND	ND
	Mar-00	ERM	ND	3.37	0.206	ND	ND	ND
	Sep-00	ERM	0.006	8	0.330	ND	ND	0.01
	Mar-01	ERM	ND	7	0.200	ND	ND	ND
	Sep-01	ERM	ND	6	0.183	ND	ND	ND
	Feb-02	ERM (T)	ND	6.8	ND	ND	0.010	ND
	Feb-02	ERM (L)	ND	2.48	0.123	ND	ND	ND
ITMW-12	Nov-90	IT	ND	2.4	NT	1.3	0.0099	0.14
	Feb-91	IT	ND	2.1	NT	1	ND	ND
	Nov-93	MP	ND	2.5	NT	0.002	0.004	0.035
	Dec-96	MP	ND	1.2	NT	ND	ND	ND
	Feb-99	ERM	ND	3.1	0.48	ND	ND	0.034
	Mar-00	ERM	ND	3.11	0.32	ND	ND	0.019
	Sep-00	ERM	ND	3.3	0.18	ND	ND	0.01
	Mar-01	ERM	ND	3.9	0.2	ND	ND	0.02
	Sep-01	ERM	ND	3.1	0.159	ND	ND	ND
	Feb-02	ERM (T)	ND	3.51	0.275	ND	0.007	0.023
	Feb-02	ERM (L)	ND	3.6	ND	ND	0.008	0.019
ITMW-13	Nov-90	IT	ND	0.034	NT	0.19	ND	0.018
	Feb-91	IT	ND	0.032	NT	0.17	ND	0.035
	Nov-93	MP	ND	NA	NT	NA	NA	0.029
	Dec-96	MP	ND	0.036	NT	0.0013	0.0016	0.036
	Feb-99	ERM	ND	0.036	0.14	ND	ND	0.048
	Mar-00	ERM	ND	0.037	0.121	ND	ND	0.053
	Sep-00	ERM	ND	0.022	0.112	ND	ND	0.05
	Mar-01	ERM	ND	0.044	0.092	ND	ND	0.04
	Sep-01	ERM	ND	0.035	0.111	ND	ND	ND
	Feb-02	ERM (T)	ND	0.129	0.195	ND	ND	0.035
	Feb-02	ERM (L)	ND	0.048	0.080	ND	ND	ND
ITMW-14	Nov-90	IT	ND	ND	NT	0.03	ND	0.013
	Feb-91	IT	ND	ND	NT	ND	ND	ND
	Nov-93	MP	ND	0.006	NT	ND	ND	ND
	Dec-96	MP	ND	ND	NT	ND	ND	ND
	Feb-99	ERM	ND	ND	0.029	ND	ND	0.02
	Mar-00	ERM	ND	ND	0.024	ND	ND	0.012
	Sep-00	ERM	ND	ND	0.014	ND	ND	ND
	Mar-01	ERM	ND	ND	0.024	ND	ND	0.01
	Sep-01	ERM	ND	ND	0.005	ND	ND	ND
	Feb-02	ERM (T)	ND	ND	0.023	ND	ND	ND
ITMW-15	Nov-90	IT	ND	2.5	NT	1.5	0.0081	0.055
	Feb-91	IT	ND	1.7	NT	0.87	ND	ND
	15-Apr-91	IT	ND	2	NT	0.6	ND	ND
	19-Apr-91	IT	ND	2.1	NT	1	ND	ND
	20-Apr-91	IT	ND	2.4	NT	1.1	ND	ND
	Nov-93	MP	ND	4.3	NT	0.001	ND	0.01
	Dec-96	MP	ND	0.24	NT	ND	ND	ND
	Feb-99	ERM	ND	0.4	0.12	ND	ND	ND
	Mar-00	ERM	ND	0.339	0.097	ND	ND	ND
	Sep-00	ERM	ND	0.36	0.093	ND	ND	ND
	Sep-00 (dup)	ERM	ND	0.38	0.091	ND	ND	ND
	Mar-01	ERM	ND	0.29	0.057	ND	ND	ND
	Sep-01	ERM	ND	0.38	0.087	ND	ND	ND
	Sep-01 (dup)	ERM	ND	0.37	0.08	ND	ND	ND
	Feb-02	ERM (T)	ND	0.186	0.064	ND	ND	ND
	Feb-02	ERM (L)	ND	0.311	0.108	ND	ND	ND

NOTE:

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TABLE 2 (Cont'd)

Historic Analytical Data, Selected VOCs in Ground Water

Whirlpool Corporation
Fort Smith, Arkansas

Well	Date	Sampler	PCE	TCE	c-1,2-DCE	t-1,2-DCE	1,1-DCE	VC
ITMW-16	Feb-91	IT	ND	0.031	NT	0.06	ND	ND
	Nov-93	MP	ND	0.041	NT	ND	ND	0.007
	Dec-96	MP	ND	ND	NT	ND	ND	ND
	Feb-99	ERM	ND	ND	ND	ND	ND	ND
	Mar-00	ERM	ND	0.007	ND	ND	ND	ND
	Sep-00	ERM	ND	ND	ND	ND	ND	ND
	Mar-01	ERM	ND	ND	ND	ND	ND	ND
	Sep-01	ERM	ND	ND	ND	ND	ND	ND
	Feb-02	ERM (T)	ND	ND	ND	ND	ND	ND
	Feb-02	ERM (L)	ND	ND	ND	ND	ND	ND
ITMW-17	Feb-91	IT	ND	21	NT	ND	ND	ND
	15-Apr-91	IT	ND	18	NT	0.76	ND	ND
	24-Apr-91	IT	ND	21	NT	0.58	ND	ND
	Nov-93	MP	0.004	18	NT	0.003	ND	0.015
	Dec-96	MP	ND	9.3	NT	ND	ND	ND
	Feb-99	ERM	ND	11	0.24	ND	0.013	ND
	Mar-00	ERM	ND	6.78	0.171	ND	ND	ND
	Sep-00	ERM	ND	5.5	0.18	ND	0.009	ND
	Jan-01	ERM	ND	8.3	0.179	ND	ND	ND
	Mar-01	ERM	ND	6.7	0.134	ND	0.007	ND
	Sep-01	ERM	ND	6.3	0.158	ND	0.007	ND
	Feb-02	ERM (T)	ND	6.07	0.149	ND	ND	ND
	Feb-02	ERM (L)	ND	6.29	0.174	ND	0.011	ND
ITMW-18	Feb-91	IT	ND	3.7	NT	0.33	ND	ND
	Nov-93	MP	ND	4.5	NT	ND	0.009	0.006
	Dec-96	MP	ND	1.6	NT	ND	ND	ND
	Feb-99	ERM	ND	6.3	0.48	ND	ND	ND
	Mar-00	ERM	ND	3.56	0.401	ND	ND	ND
	Sep-00	ERM	ND	4.1	0.4	ND	0.007	ND
	Mar-01	ERM	ND	4	0.4	ND	0.006	ND
	Sep-01	ERM	ND	4.1	0.3	ND	ND	ND
	Feb-02	ERM (T)	ND	5.26	0.426	ND	ND	ND
ITMW-19	Feb-91	IT	ND	9.9	NT	ND	ND	ND
	Nov-93	MP	0.005	27	NT	ND	NA	0.007
	Dec-96	MP	ND	25	NT	ND	ND	ND
	Feb-99	ERM	0.008	33	0.15	ND	0.04	ND
	Mar-00	ERM	0.007	33.1	0.128	ND	0.029	ND
	Sep-00	ERM	0.01	36	0.197	ND	0.056	ND
	Jan-01	ERM	0.01	34	0.166	ND	0.04	ND
	Mar-01	ERM	0.01	38	0.119	ND	0.037	ND
	Sep-01	ERM	ND	19	0.132	ND	0.034	ND
	Feb-02	ERM (T)	0.0062	26.1	ND	0.006	0.047	ND
	Feb-02	ERM (L)	0.0051	24.6	0.192	ND	0.065	ND
ITMW-20	Mar-91	IT	ND	ND	NT	ND	ND	ND
	Nov-93	MP	ND	ND	NT	ND	ND	ND
	Dec-96	MP	ND	0.29	NT	ND	ND	ND
	May-97	MP	ND	ND	ND	ND	ND	ND
	Feb-99	ERM	ND	ND	ND	ND	ND	ND
	Mar-00	ERM	ND	ND	ND	ND	ND	ND
	Sep-00	ERM	ND	ND	ND	ND	ND	ND
	Mar-01	ERM	ND	ND	ND	ND	ND	ND
	Sep-01	ERM	ND	0.021	ND	ND	ND	ND
	Feb-02	ERM (T)	ND	ND	ND	ND	ND	ND
	Feb-02	ERM (L)	ND	ND	ND	ND	ND	ND

NOTE:

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TABLE 2 (Cont'd)

Historic Analytical Data, Selected VOCs in Ground Water

Whirlpool Corporation
Fort Smith, Arkansas

Well	Date	Sampler	PCE	TCE	c-1,2-DCE	t-1,2-DCE	1,1-DCE	VC
ITMW-21	Mar-91	IT	ND	0.021	NT	ND	ND	ND
	Nov-93	MP	ND	0.037	NT	ND	ND	ND
	Dec-96	MP	ND	0.15	NT	ND	ND	ND
	Feb-99	ERM	ND	0.19	ND	ND	ND	ND
	Mar-00	ERM	ND	0.196	ND	ND	ND	ND
	Sep-00	ERM	ND	0.192	ND	ND	ND	ND
	Mar-01	ERM	ND	0.123	ND	ND	ND	ND
	Sep-01	ERM	ND	0.116	ND	ND	ND	ND
	Feb-02	ERM (T)	ND	0.152	ND	ND	ND	ND
MW-22	Dec-96	MP	ND	ND	NT	ND	ND	ND
	May-97	MP	ND	ND	0.005	ND	ND	ND
	Feb-99	ERM	ND	ND	0.005	ND	ND	ND
	Mar-00	ERM	ND	ND	ND	ND	ND	ND
	Sep-00	ERM	ND	ND	ND	ND	ND	ND
	Mar-01	ERM	ND	ND	ND	ND	ND	ND
	Sep-01	ERM	ND	ND	ND	ND	ND	ND
	Feb-02	ERM (T)	ND	ND	ND	ND	ND	ND
MW-23	Dec-96	MP	ND	0.21	NT	ND	ND	ND
	May-97	MP	ND	2.4	NT	ND	ND	ND
	Feb-99	ERM	ND	0.35	0.01	ND	ND	ND
	Feb-99 (dup)	ERM	ND	0.44	0.01	ND	ND	ND
	Mar-00	ERM	ND	0.147	ND	ND	ND	ND
	Sep-00	ERM	ND	0.067	ND	ND	ND	ND
	Jan-01	ERM	ND	0.137	ND	ND	ND	ND
	Mar-01	ERM	ND	0.087	ND	ND	ND	ND
	Sep-01	ERM	ND	0.023	ND	ND	ND	ND
	Feb-02	ERM (T)	ND	0.063	ND	ND	ND	ND
	Feb-02	ERM (L)	ND	0.098	ND	ND	ND	ND
MW-24	Feb-99	ERM	ND	1.4	0.049	ND	ND	ND
	Mar-00	ERM	ND	**0.403***	**0.025***	ND	ND	ND
	Mar-00 (dup)	ERM	ND	**0.595***	**0.024***	ND	ND	ND
	Sep-00	ERM	ND	0.128	0.011	ND	ND	ND
	Jan-01	ERM	ND	0.25	0.012	ND	ND	ND
	Mar-01	ERM	ND	0.33	0.011	ND	ND	ND
	Sep-01	ERM	ND	0.124	0.006	ND	ND	ND
	Feb-02	ERM (T)	ND	0.204	0.006	ND	ND	ND
MW-25	Feb-99	ERM	0.011	29	0.17	ND	0.069	0.1
	Feb-99 (dupl.)	ERM	0.012	27	0.18	ND	0.074	0.11
	Feb-99	ERM (CoreLab)	0.009	24.8	0.149	ND	0.057	0.074
	Dec-99	ERM (ERM)	ND	94.5	ND	ND	ND	ND
	Mar-00	ERM	0.011	35.9	0.245	ND	0.066	0.063
	Sep-00	ERM	0.014	59	0.3	ND	0.092	0.05
	Mar-01	ERM	0.012	34	0.117	ND	0.047	0.06
	Sep-01	ERM	0.011	60	0.3	ND	0.101	ND
	Feb-02	ERM (T)	ND	24.3	0.326	ND	ND	ND
	Feb-02	ERM (L)	0.007	29.9	0.369	0.005	0.052	0.052
MW-26	Feb-99	ERM (SPL)	ND	0.36	0.15	ND	ND	ND
	Jun-99	ERM (SPL)	ND	ND	ND	ND	ND	ND
	Mar-00	ERM	ND	ND	ND	ND	ND	ND
	Sep-00	ERM	ND	ND	ND	ND	ND	ND
	Mar-01	ERM	ND	ND	ND	ND	ND	ND
	Sep-01	ERM	ND	ND	ND	ND	ND	ND
	Sep-01 (dup)	ERM	ND	ND	ND	ND	ND	ND
	Feb-02	ERM (T)	ND	ND	ND	ND	ND	ND
	Feb-02	ERM (L)	ND	ND	ND	ND	ND	ND

NOTE:

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TABLE 2 (Cont'd)

Historic Analytical Data, Selected VOCs in Ground Water

Whirlpool Corporation
Fort Smith, Arkansas

Well	Date	Sampler	PCE	TCE	c-1,2-DCE	t-1,2-DCE	1,1-DCE	VC
MW-27	Dec-99	ERM	ND	ND	ND	ND	ND	ND
	Mar-00	ERM	ND	ND	ND	ND	ND	ND
	Sep-00	ERM	ND	ND	ND	ND	ND	ND
	Jan-01	ERM	ND	ND	ND	ND	ND	ND
	Mar-01	ERM	ND	ND	ND	ND	ND	ND
	Sep-01	ERM	ND	ND	ND	ND	ND	ND
	Feb-02	ERM (T)	ND	ND	ND	ND	ND	ND
MW-28	Dec-99	ERM	ND	ND	ND	ND	ND	ND
	Mar-00	ERM	ND	ND	ND	ND	ND	ND
	Sep-00	ERM	ND	ND	ND	ND	ND	ND
	Mar-01	ERM	ND	ND	ND	ND	ND	ND
	Sep-01	ERM	ND	ND	ND	ND	ND	ND
	Feb-02	ERM (T)	ND	ND	ND	ND	ND	ND
	Feb-02	ERM (L)	ND	ND	ND	ND	ND	ND
MW-29	Dec-99	ERM	ND	ND	ND	ND	ND	ND
	Mar-00	ERM	ND	ND	ND	ND	ND	ND
	Sep-00	ERM	ND	ND	ND	ND	ND	ND
	Mar-01	ERM	ND	ND	ND	ND	ND	ND
	Sep-01	ERM	ND	ND	ND	ND	ND	ND
	Feb-02	ERM (T)	ND	ND	ND	ND	ND	ND
MW-30	Dec-99	ERM	ND	0.115	0.034	ND	ND	ND
	Mar-00	ERM	ND	0.086	0.025	ND	ND	ND
	Sep-00	ERM	ND	0.102	0.025	ND	ND	ND
	Mar-01	ERM	ND	0.043	0.011	ND	ND	ND
	Sep-01	ERM	ND	0.063	0.018	ND	ND	ND
	Feb-02	ERM (T)	ND	0.067	0.021	ND	ND	ND
MW-31	Jan-01	ERM	ND	ND	ND	ND	ND	ND
	Mar-01	ERM	ND	ND	ND	ND	ND	ND
	Sep-01	ERM	ND	ND	ND	ND	ND	ND
	Feb-02	ERM (L)	ND	ND	ND	ND	ND	ND
MW-32	Jan-01	ERM	ND	0.108	ND	ND	ND	ND
	Mar-01	ERM	ND	0.174	ND	ND	ND	ND
	Sep-01	ERM	ND	0.095	ND	ND	ND	ND
	Feb-02	ERM (L)	ND	0.0536	ND	ND	ND	ND

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TABLE 2 (Cont'd)

Historic Analytical Data, Selected VOCs in Ground Water

Whirlpool Corporation
Fort Smith, Arkansas

Well	Date	Sampler	PCE	TCE	c-1,2-DCE	t-1,2-DCE	1,1-DCE	VC
MW-33	Jan-01	ERM	ND	0.12	0.034	ND	ND	ND
	Mar-01	ERM	ND	0.26	0.007	ND	ND	ND
	Sep-01	ERM	ND	0.31	0.008	ND	ND	ND
	Feb-02	ERM (L)	ND	0.115	ND	ND	ND	ND
MW-34	Mar-01	ERM	ND	0.083	ND	ND	ND	ND
	Sep-01	ERM	ND	0.061	ND	ND	ND	ND
	Feb-02	ERM (L)	ND	0.0214	ND	ND	ND	ND
MW-35	Mar-01	ERM	ND	0.91	0.034	ND	ND	ND
	May-01	ERM	ND	0.86	0.036	ND	ND	ND
	Sep-01	ERM	ND	1.03	0.04	ND	ND	ND
	Feb-02	ERM (L)	ND	0.325	0.0133	ND	ND	ND
MW-36	Mar-01	ERM	ND	ND	ND	ND	ND	ND
	Sep-01	ERM	ND	ND	ND	ND	ND	ND
	Feb-02	ERM (L)	ND	ND	ND	ND	ND	ND
MW-37	Sep-01	ERM	ND	5	0.34	ND	ND	ND
	Feb-02	ERM (T)	ND	ND	ND	ND	ND	ND
	Feb-02	ERM (L)	ND	0.773	3.25	0.052	0.01	ND
MW-38	Sep-01	ERM	ND	0.62	0.09	ND	ND	ND
	MW-38 was used as an injection well for the pilot study and was not sampled in February 2002.							

NOTES:

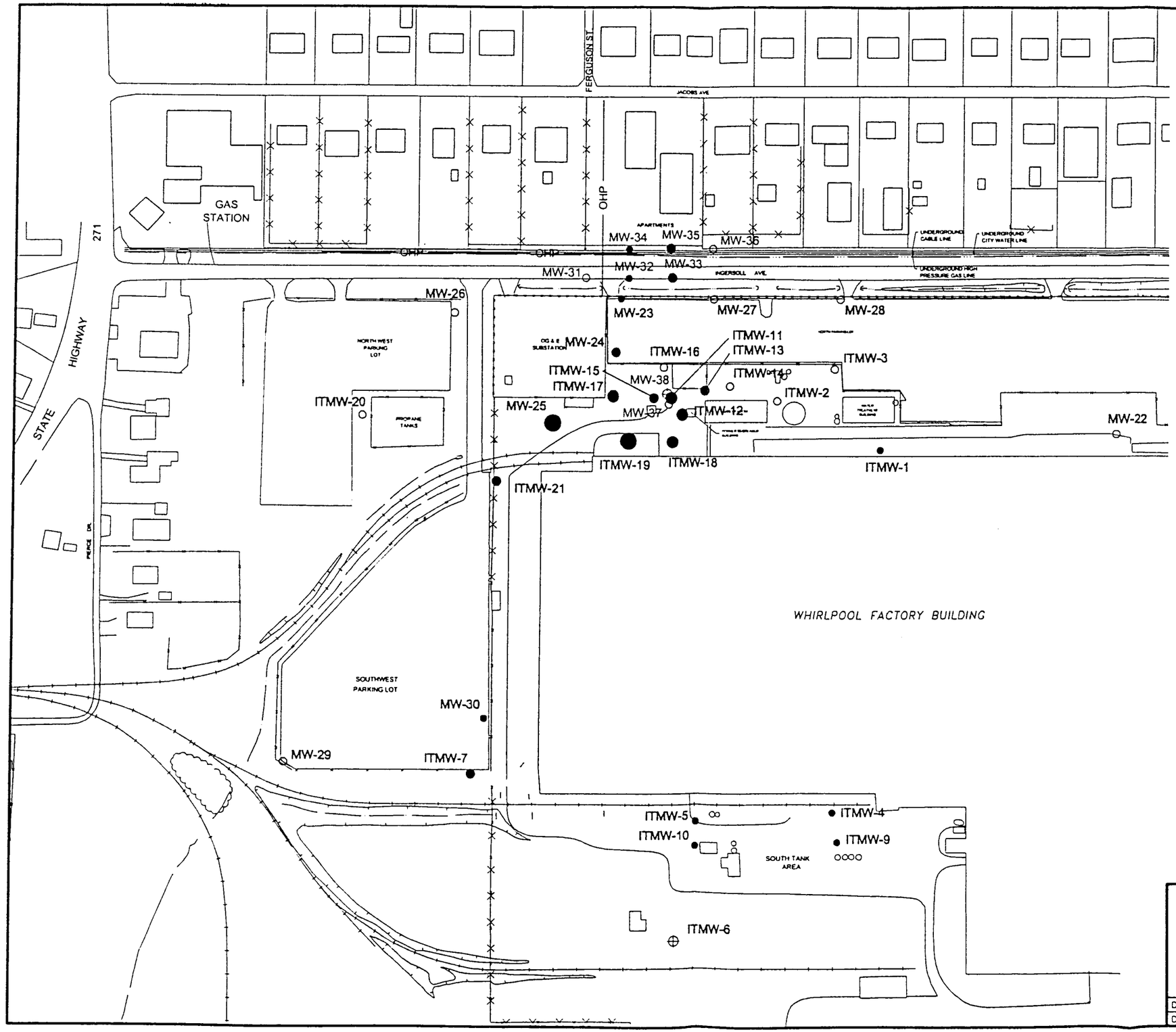
Units used are mg/L. ND = not detected NT = not tested NA = not available
(L) = Sample collected using low-flow sampling methods.
(T) = Sample collected using traditional purge and sample methods.
IT = International Technology Corporation, Inc.
ERM = Environmental Resources Management
MP = Malcolm Pirnie, Inc.
PCE = perchloroethylene (tetrachloroethene) TCE = trichloroethylene
c-1,2-DCE = cis-1,2-dichloroethylene (not an analytical parameter until May 1997)
t-1,2-DCE = trans-1,2-dichloroethylene
1,1-DCE = 1,1-dichloroethylene VC = vinyl chloride
* = Analysis was re-run due to QA/QC concerns. Data reported is for the second run.
SPL was used as the subcontract laboratory from 1996 to June 1999. ChemLab was used for earlier MP sampling events. The current laboratory is STL in Houston, Texas.
Pre-1999 data reproduced from "Remedial Investigation, North Side Ground Water, Whirlpool Corporation", Malcolm Pirnie, Inc., January 1997, (revised entry for MW-11, Jan-90) and SPL Certificates of Analysis, May 1997, supplied by Whirlpool Corporation.

Figures

Attachment 2

April 12, 2002
W.O. # 581-009

Environmental Resources Management
3204 Long Prairie Road, Suite C
Flower Mound, TX 75022
(972) 355-2100



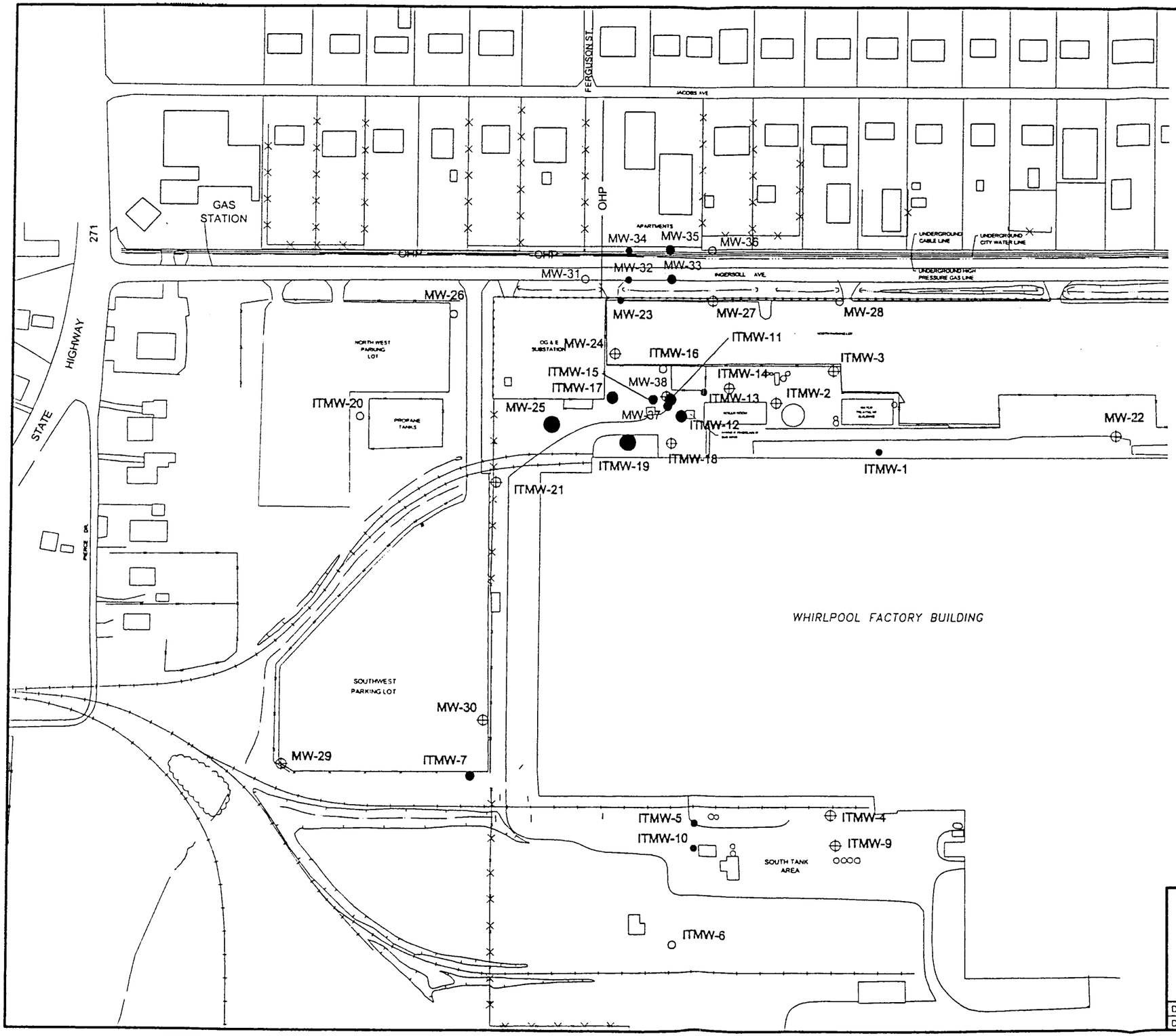
ERM-Southwest, Inc.

HOUSTON · NEW ORLEANS · AUSTIN · DALLAS · BEAUMONT · BATON ROUGE

FIGURE 1
TCE ISOCONCENTRATION MAP
FEBRUARY 2002
TRADITIONAL SAMPLE METHOD
Whirlpool Corporation
Fort Smith, Arkansas

DESIGN: JT	CHKD.:	DATE: 04/10/02	REV.:
DRAWN: LMc	SCALE: AS SHOWN	W.O.NO.: 581009B202 D02	

ERM



LEGEND

MW-26 ● EXISTING MONITORING WELL SAMPLED USING LOW-FLOW METHOD

⊕ EXISTING MONITORING WELL NOT SAMPLED USING LOW-FLOW METHOD

TCE CONCENTRATION (mg/l)
FEBRUARY 2002

- ○ < 0.005
- • 0.005 to 0.10
- ● 0.10 to 1.00
- ● 1.00 to 10.0
- ● > 10.0

NOTE:

1) MW-38 WAS USED AS AN INJECTION WELL FOR THE PILOT STUDY AND WAS NOT SAMPLED IN FEBRUARY 2002.

2) MW-31 THROUGH MW-36 ARE LOW YIELD WELLS AND PURGED DRY WHILE ATTEMPTING LOW-FLOW TECHNIQUES. CONSEQUENTLY, DATA FOR THESE WELLS ARE INDICATED ON BOTH TRADITIONAL AND LOW-FLOW TECHNIQUE MAPS.

0 200 400
SCALE FEET

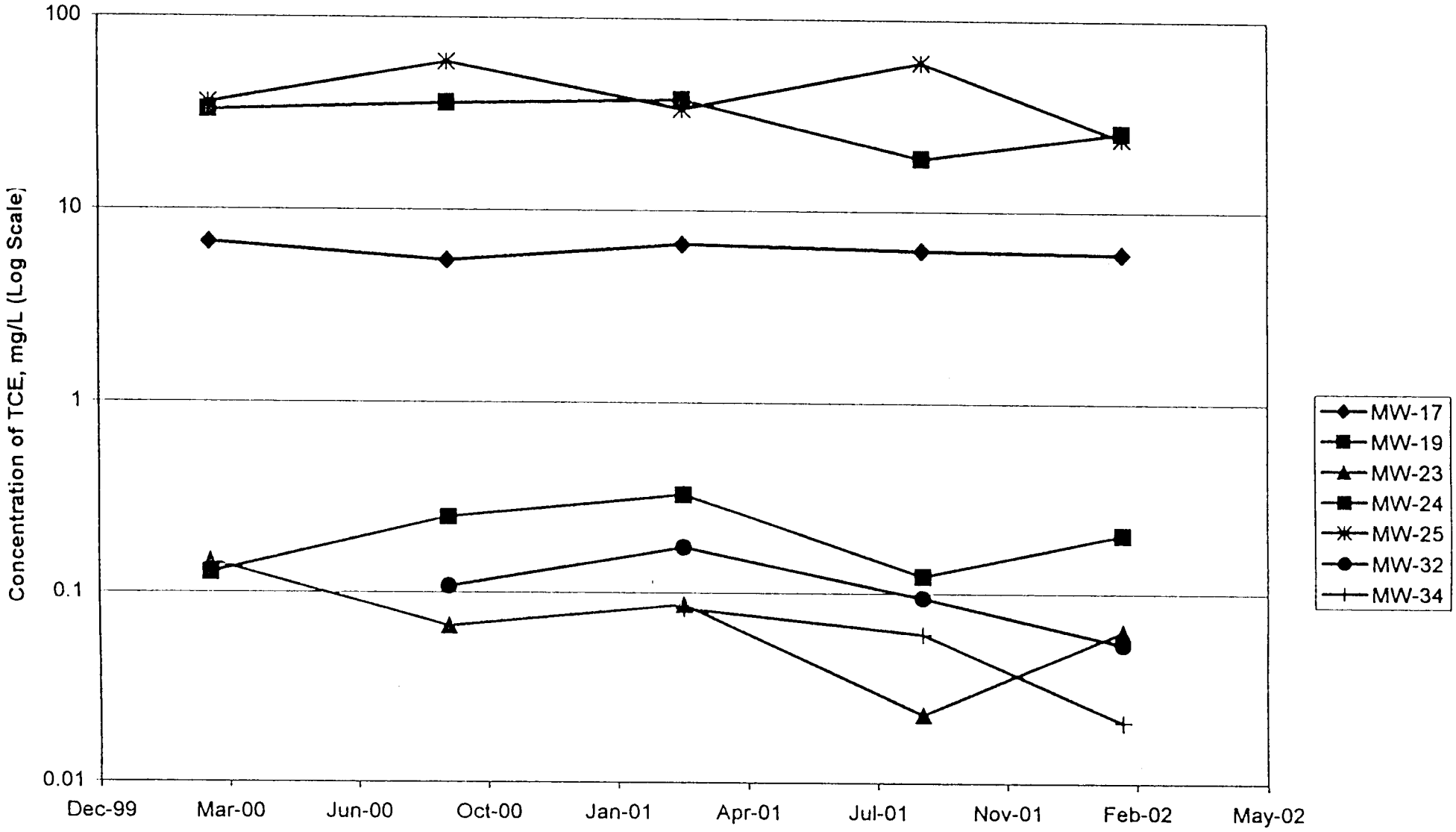
ERM-Southwest, Inc.
HOUSTON · NEW ORLEANS · AUSTIN · DALLAS · BEAUMONT · BATON ROUGE

FIGURE 2
TCE ISOCONCENTRATION MAP
FEBRUARY 2002
LOW-FLOW SAMPLE METHOD
Whirlpool Corporation
Fort Smith, Arkansas

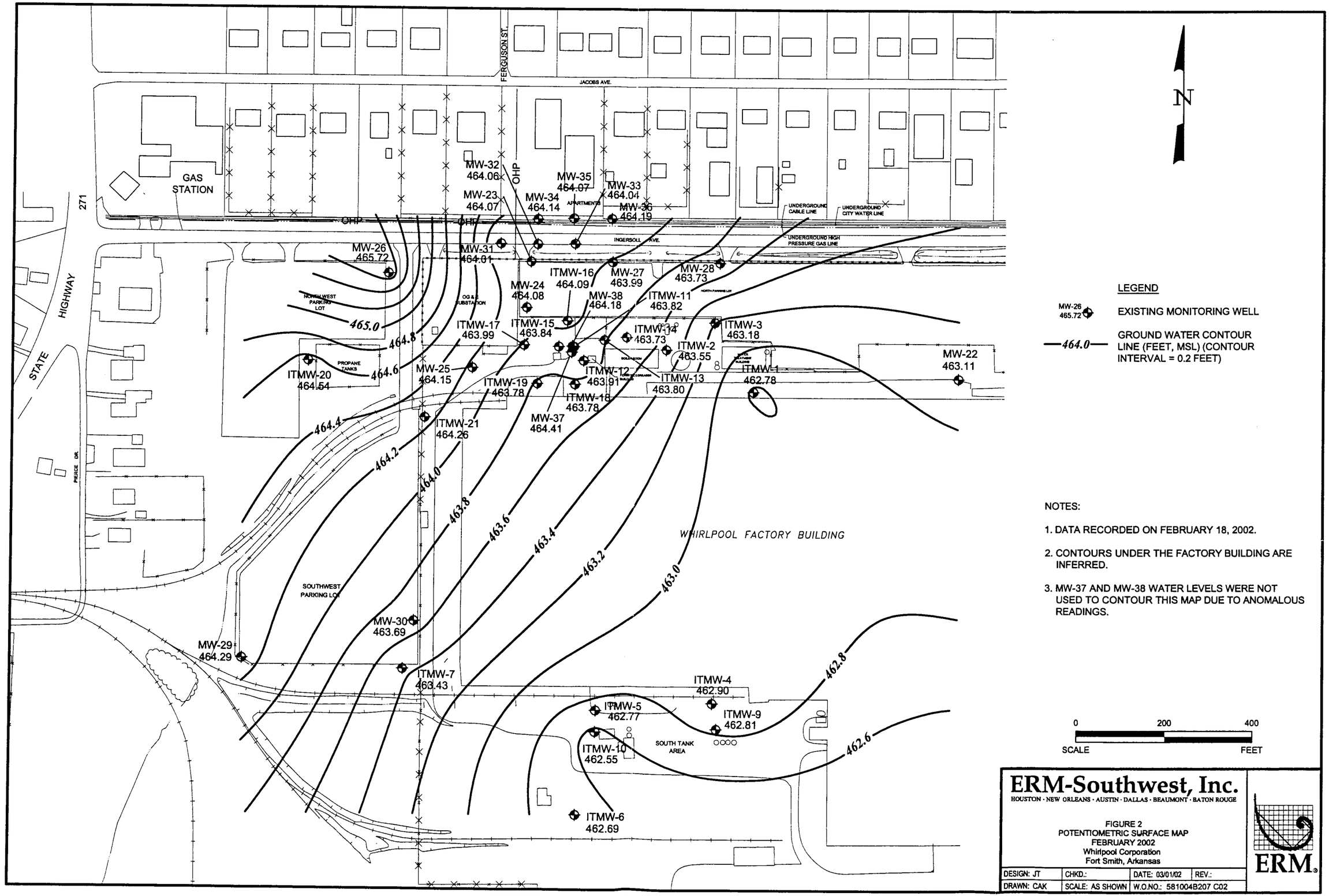
DESIGN: JT	CHKD.:	DATE: 04/10/02	REV.:
DRAWN: LMc	SCALE: AS SHOWN	W.O.NO.: 581009B203.D02	

ERM

Figure 3
TCE Concentrations vs. Time of MW-19 to MW-34 Transect
Whirlpool Corporation
Fort Smith, Arkansas



581-009/D0906grph.xls



ERM-Southwest, Inc.
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FIGURE 2
POTENTIOMETRIC SURFACE MAP
FEBRUARY 2002
Whirlpool Corporation
Fort Smith, Arkansas

DESIGN: JT	CHKD.:	DATE: 03/01/02	REV.:
DRAWN: CAK	SCALE: AS SHOWN	W.O.NO.: 581004B207 C02	

ERM

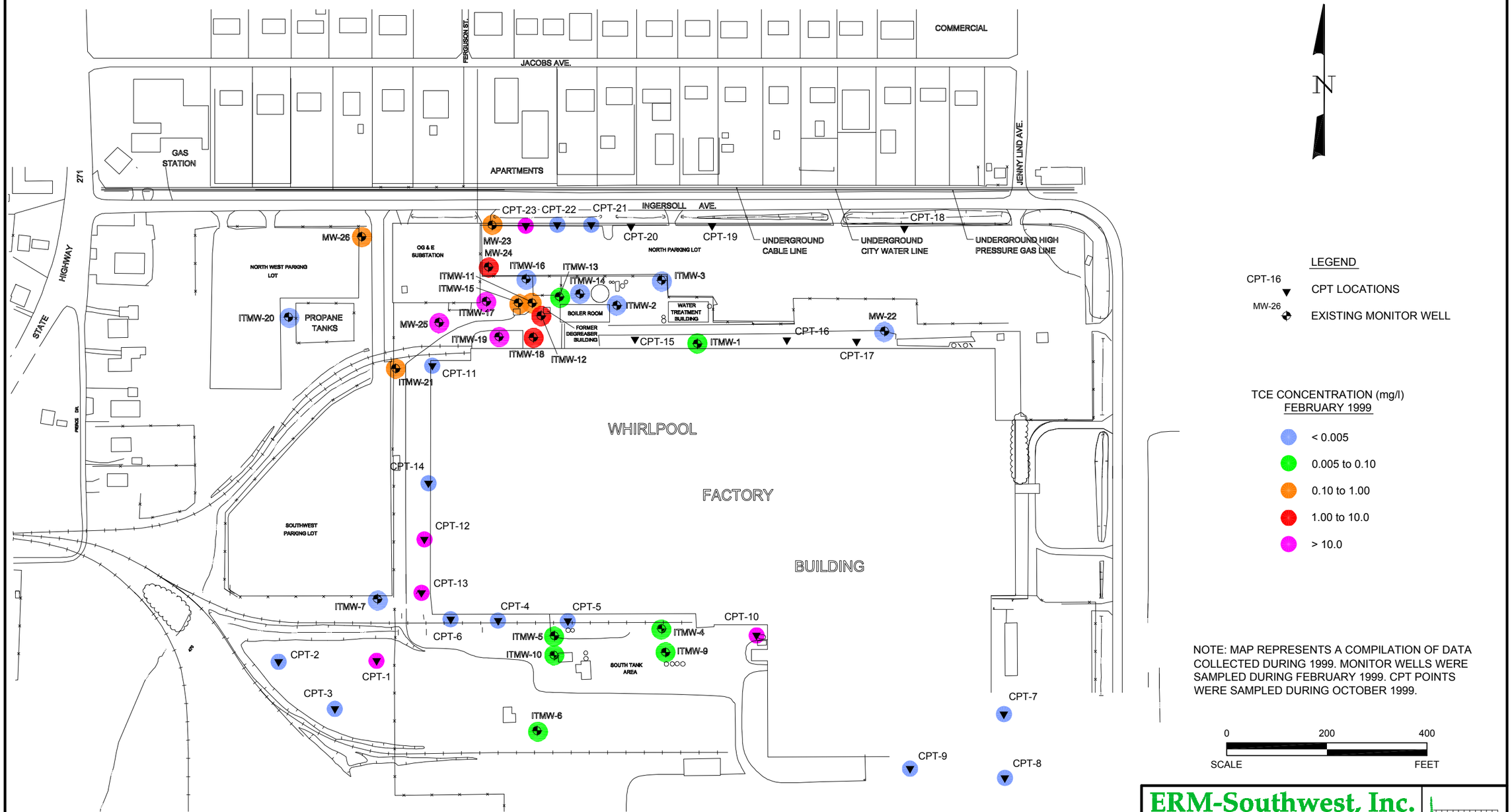
H:\DWG\C02\581004B207.dwg, 03/01/2002 02:01:45 PM, 1:1

TCE Isoconcentration Maps and Potentiometric Surface Maps from 1999, 2000, and 2001 Semi-Annual Ground Water Sampling Reports

Attachment 2

August 30, 2002
W.O. #481-007

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

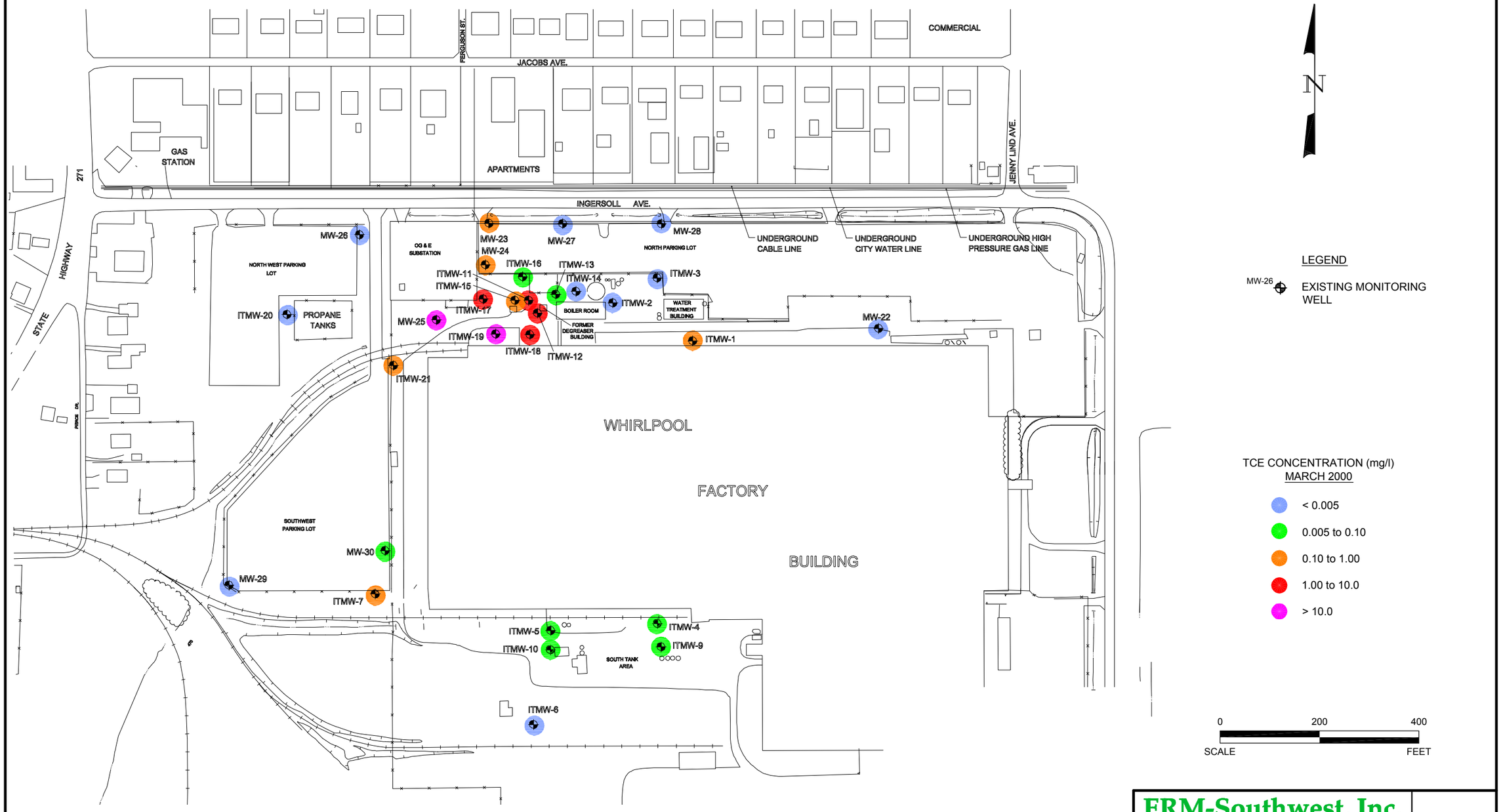


ERM-Southwest, Inc.

HOUSTON · NEW ORLEANS · AUSTIN · MOBILE · BEAUMONT · BATON ROUGE · CORPUS CHRISTI

FIGURE 3
TCE ISOCONCENTRATION MAP
1999
Whirlpool Corporation
Fort Smith, Arkansas

DESIGN: L.PFEIL	DRAWN: EFC	CHKD.:
DATE: 08/23/02	SCALE: AS SHOWN	REV.:
W.O.NO.: H:\DWG\H02\581007B220.dwg, 8/30/2002 10:16:24 AM		



ERM-Southwest, Inc.
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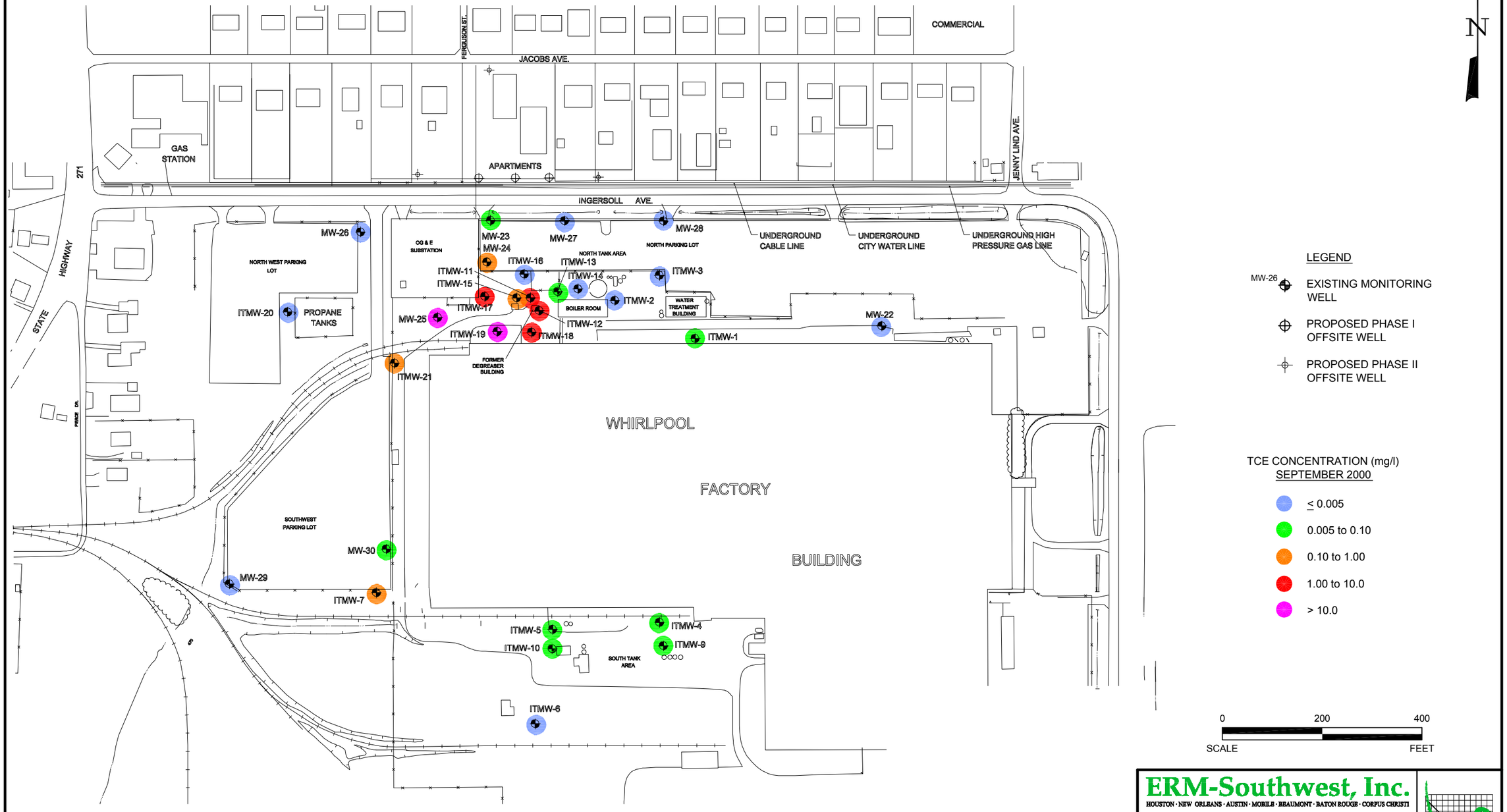
FIGURE 3
TCE ISOCONCENTRATION MAP
MARCH 2000
Whirlpool Corporation
Fort Smith, Arkansas

DESIGN: L.PFEIL	**CHKD.:**	**DATE:** 08/15/02	**REV.:**
DRAWN: EFC	**SCALE:** AS SHOWN	**W.O.NO.:** 581002B018 H02	

ERM®

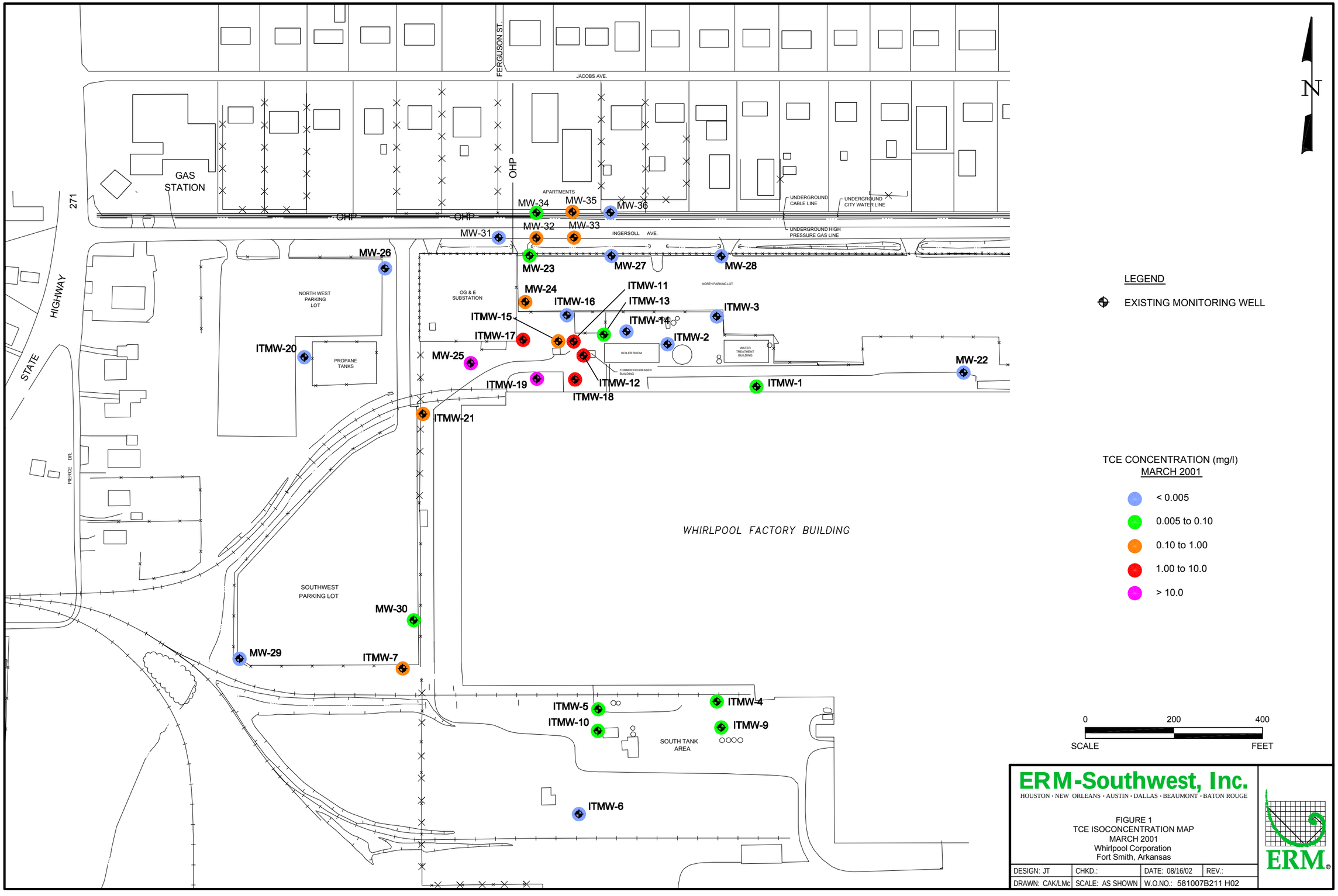


ERM-Southwest, Inc.

HOUSTON · NEW ORLEANS · AUSTIN · MOBILE · BEAUMONT · BATON ROUGE · CORPUS CHRISTI

FIGURE 4
TCE ISOCONCENTRATION MAP
SEPTEMBER 2000
Whirlpool Corporation
Fort Smith, Arkansas

DESIGN: L.PFEIL	DRAWN: EFC	CHKD.:
DATE: 08/21/02	SCALE: AS SHOWN	REV.:
W.O.NO.: H:\DWG\H02\581007B218.dwg, 8/30/2002 10:18:38 AM		



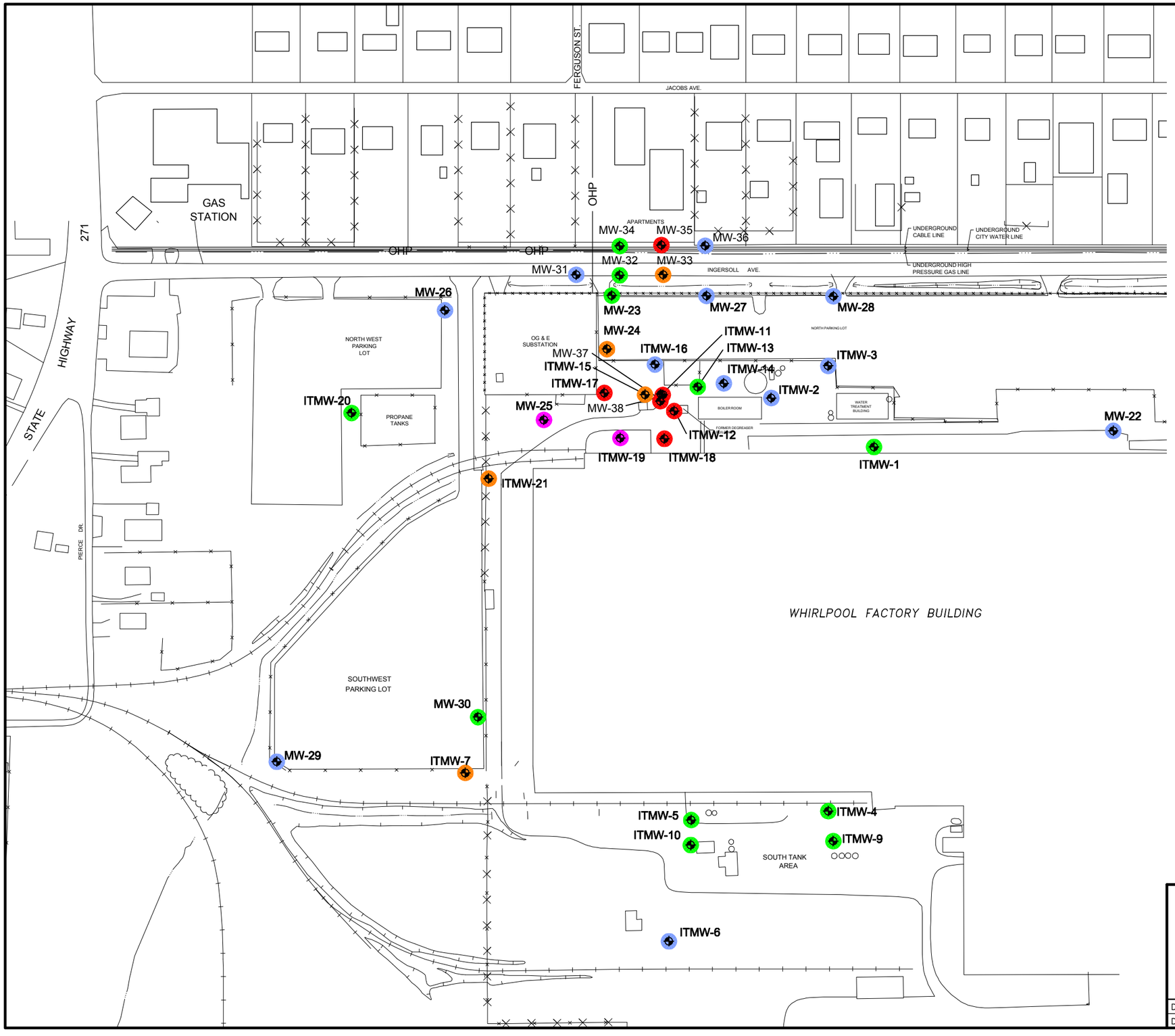
ERM-Southwest, Inc.

HOUSTON · NEW ORLEANS · AUSTIN · DALLAS · BEAUMONT · BATON ROUGE

FIGURE 1
TCE ISOCONCENTRATION MAP
MARCH 2001
Whirlpool Corporation
Fort Smith, Arkansas

DESIGN: JT	CHKD.:	DATE: 08/16/02	REV.:
DRAWN: CAK/LMc	SCALE: AS SHOWN	W.O.NO.: 581007B211 H02	

ERM



ERM-Southwest, Inc.

HOUSTON · NEW ORLEANS · AUSTIN · DALLAS · BEAUMONT · BATON ROUGE

FIGURE 1
TCE ISOCONCENTRATION MAP
SEPTEMBER 2001
Whirlpool Corporation
Fort Smith, Arkansas

DESIGN: JT	CHKD.:	DATE: 08/21/02	REV.:
DRAWN: CAK/LMc	SCALE: AS SHOWN	W.O.NO.: 581007B212 H02	

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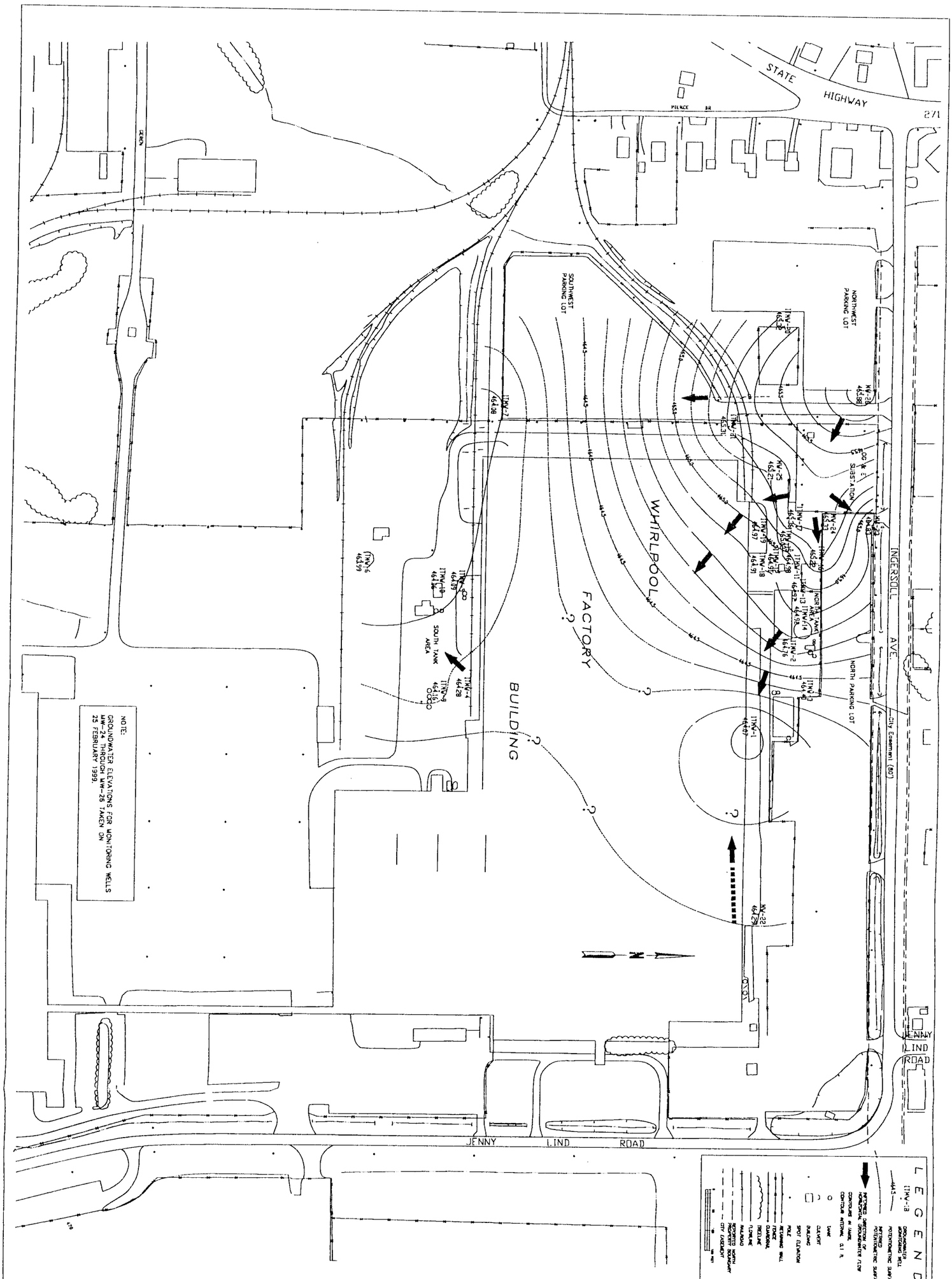


DATE:	REVISION DESCRIPTION:	BY:	APP'D. BY:

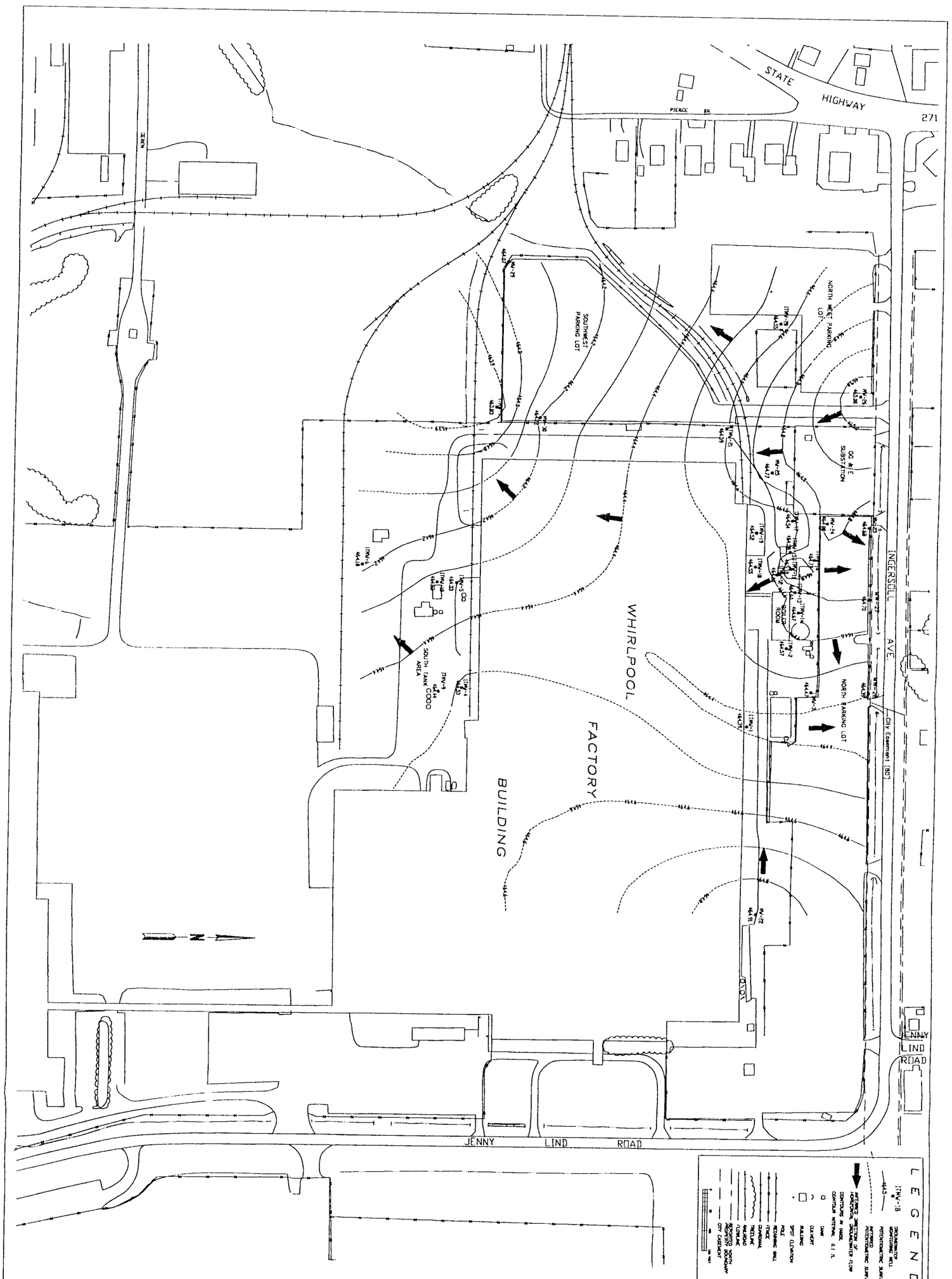
ADAPTED FROM
E-D-M CONSULTANTS, INC.
Engineering • Design • Management
P.O. BOX 8482
5151 FELT FERRY RD.
FT. SMITH, AR. 72918
JOB NO. 98-140

Environmental Resources Management
ERM

CLIENT: GROUNDWATER INVESTIGATION, WHIRLPOOL CORPORATION – FT. SMITH DIVISION

TITLE: INFERRED CONFIGURATION OF POTENTIOMETRIC SURFACE
22 FEBRUARY 1999

ERM PROJECT NO.	FILE NO.	DATE:	SCALE:	DRAWN BY:	DRAWING NO.
9906.189	9906.189FIG5	30 JUNE 1999	1" = 100'	P.A.I.	5
				CHECKED BY: R.A.N.	



DATE:	REVISION DESCRIPTION:	BY:	APP'D. BY:

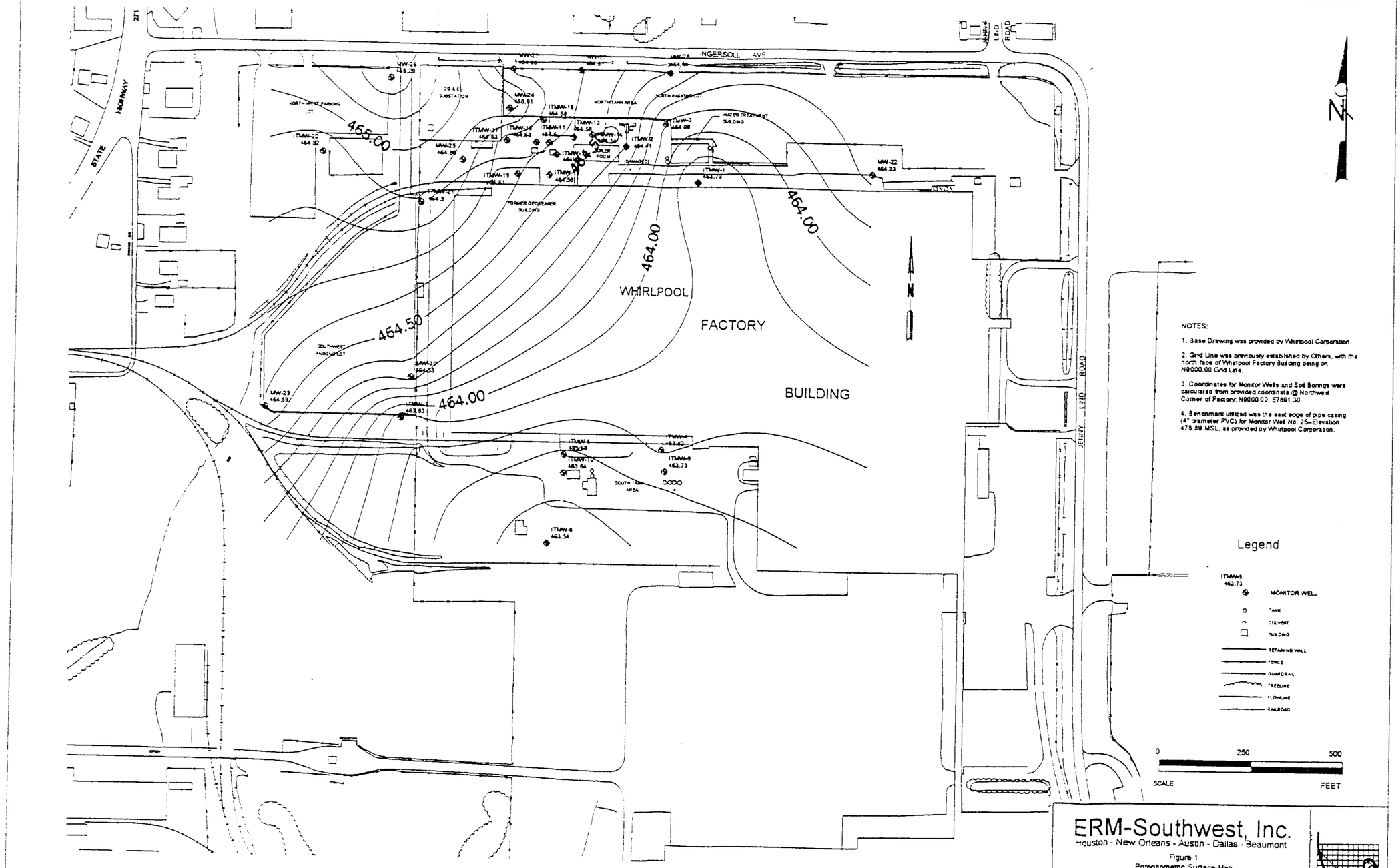
ADAPTED FROM
E-D-M CONSULTANTS, INC.
Engineering/Project Management
P.O. BOX 9488
5151 VILLA PEAKY RD.
FT. SMITH, AR. 72917
JOB NO. 98-140

Environmental Resources Management
ERM

CLIENT: ADDITIONAL GROUNDWATER INVESTIGATION, WHIRLPOOL CORPORATION – FT. SMITH DIVISION

TITLE: INFERRED CONFIGURATION OF POTENTIOMETRIC SURFACE
10 DECEMBER 1999

ERM PROJECT NO.	FILE NO.	DATE:	SCALE:	DRAWN BY:	DRAWING NO.
9906.189	9906.189F1648	03 FEB. 2000	1" = 100'	P.A.L.	4B
				CHKD BY: S.A.K.	



NOTES:

1. Base Drawing was provided by Whirlpool Corporation.

2. Grid Line was previously established by Others, with the north face of Whirlpool Factory Building being on N9000.00 Grid Line.

3. Coordinates for Monitor Wells and Soil Borings were calculated from provided coordinate @ Northwest Corner of Factory: N9000.00, E7691.30.

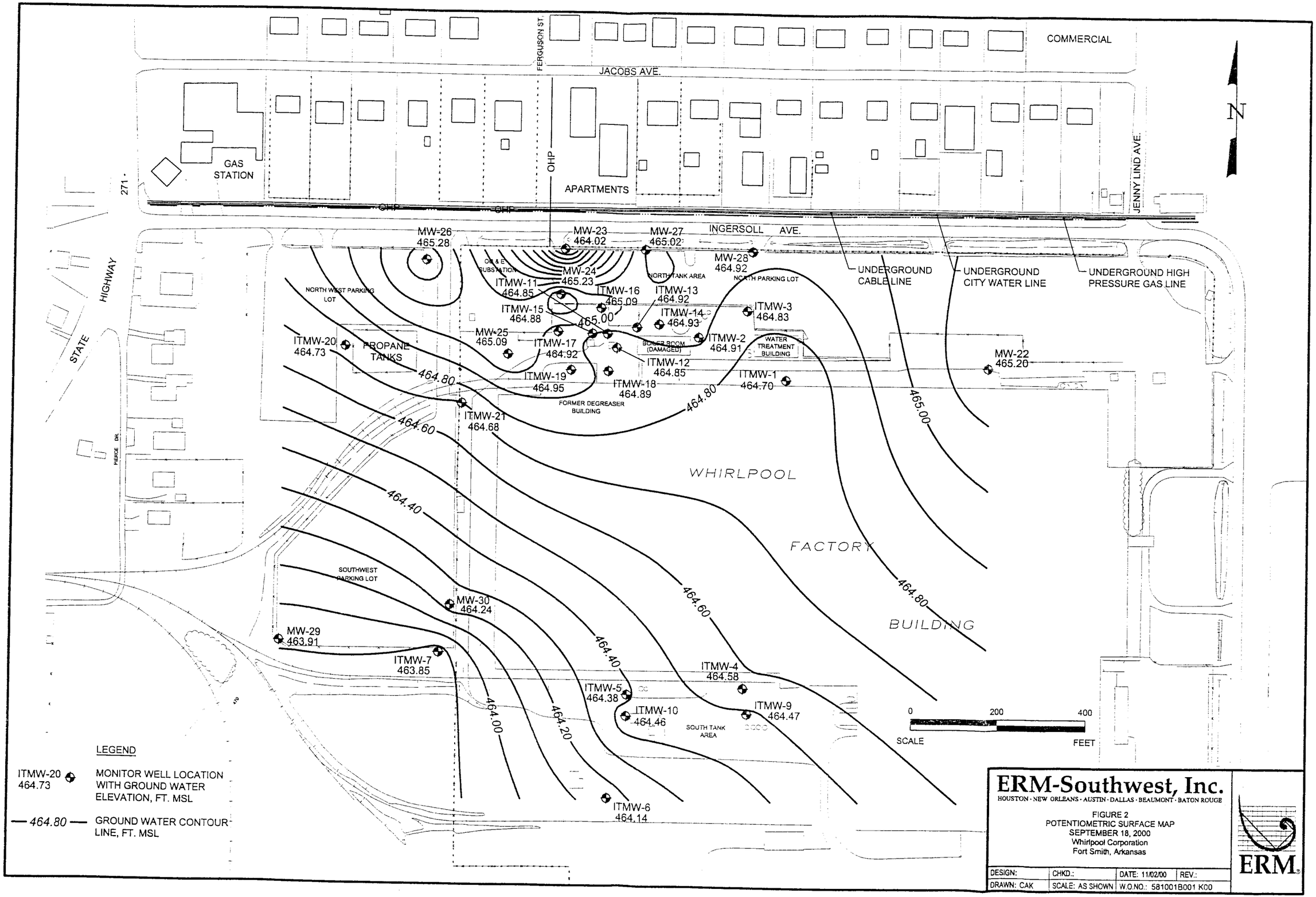
4. Benchmark utilized was the east edge of pipe casing (4" diameter PVC) for Monitor Well No. 25–Elevation 479.89 MSL, as provided by Whirlpool Corporation.

ERM-Southwest, Inc.
Houston - New Orleans - Austin - Dallas - Beaumont

Figure 1
Potentiometric Surface Map
March 2000
Whirlpool Corporation
Fort Smith Arkansas

DESIGN: TM CHKD.: TM DATE: 06/18/00 REV.:
DRAWN: R.M SCALE: AS SHOWN W.O.NO. 58100180IF00

ERM



ERM-Southwest, Inc.

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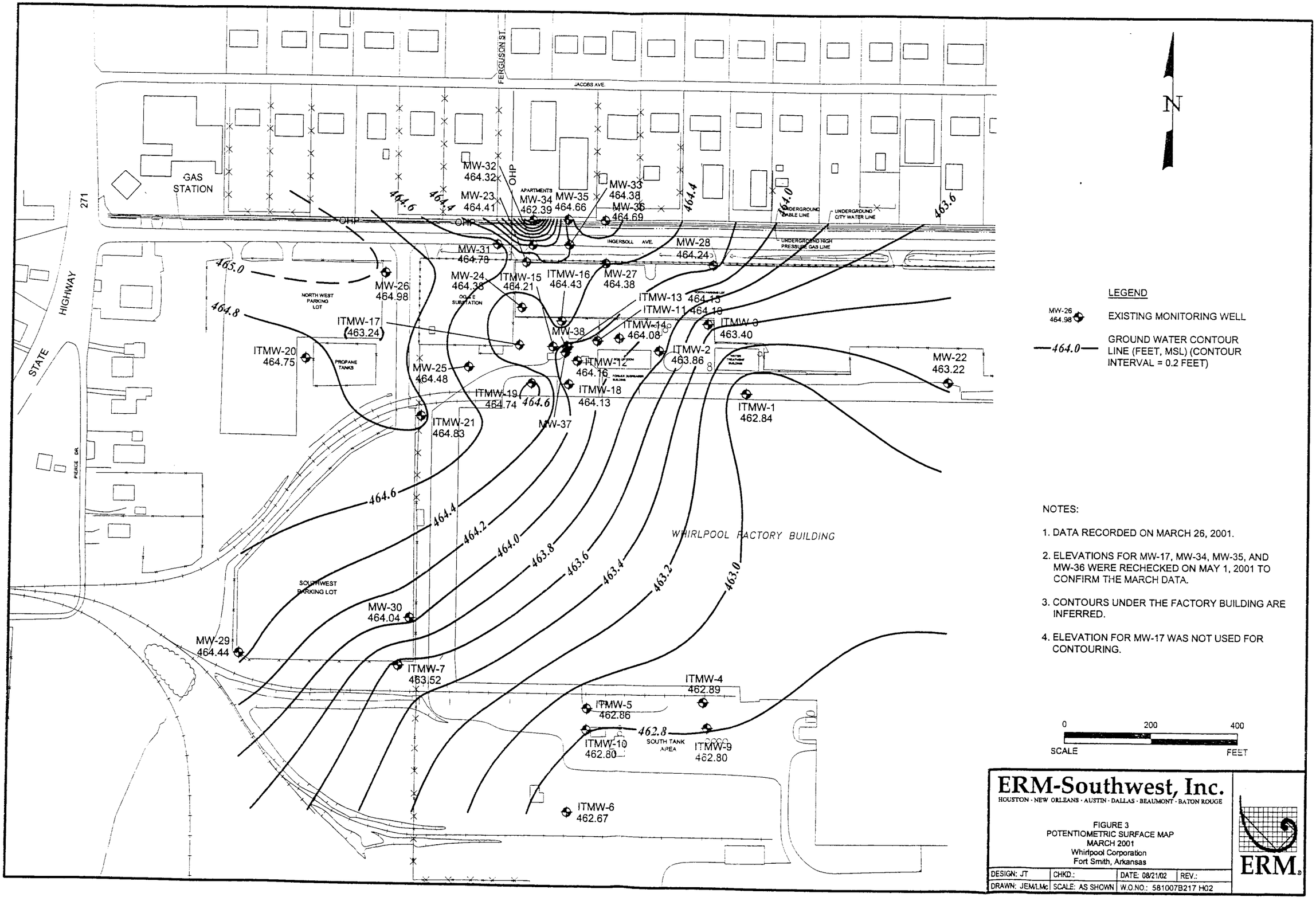
FIGURE 2
POTENTIOMETRIC SURFACE MAP
SEPTEMBER 18, 2000
Whirlpool Corporation
Fort Smith, Arkansas

DESIGN:	CHKD.:	DATE: 11/02/00	REV.:
DRAWN: CAK	SCALE: AS SHOWN	W.O.NO.: 581001B001 K00	

ERM

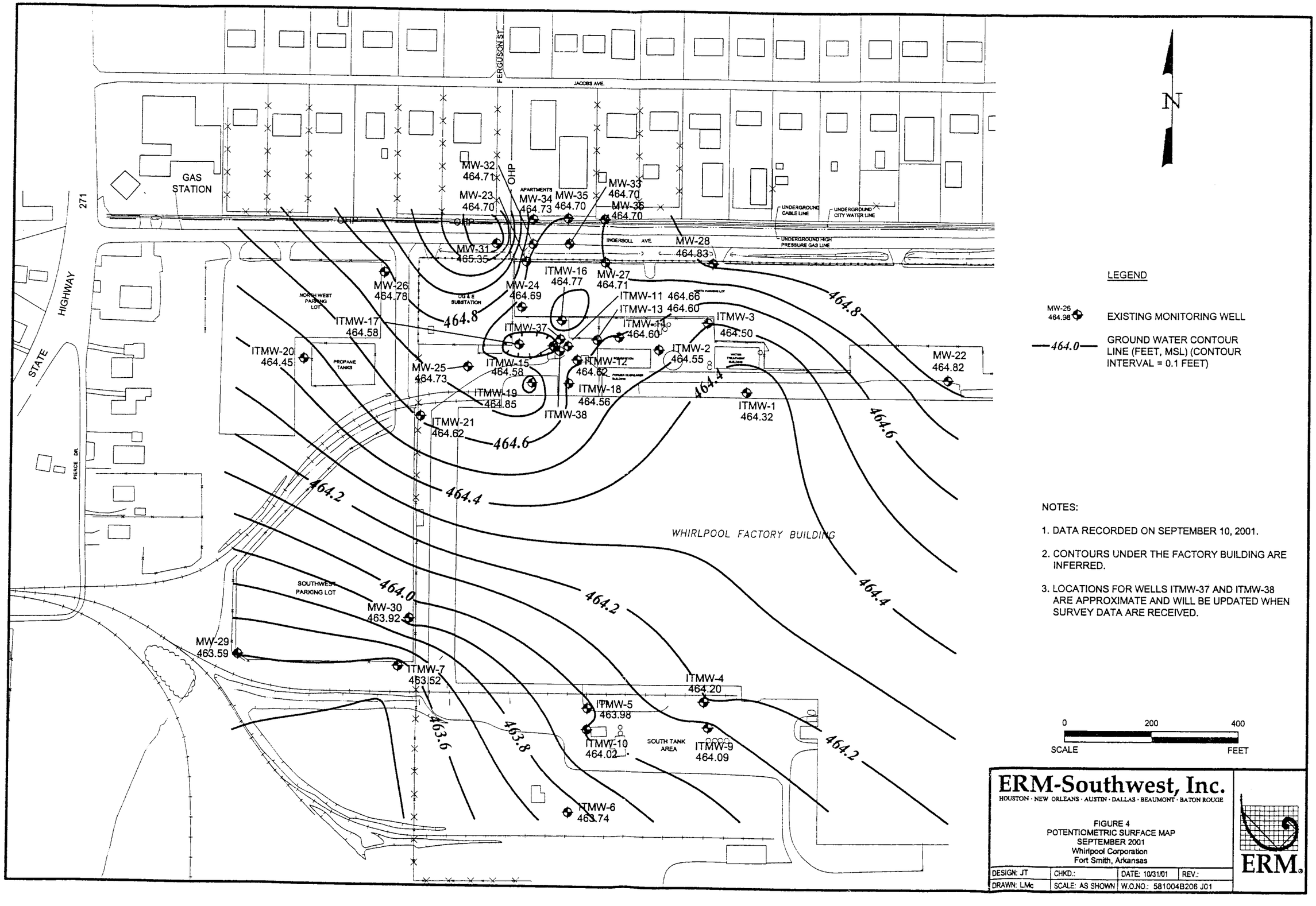


ERM-Southwest, Inc.
HOUSTON · NEW ORLEANS · AUSTIN · DALLAS · BEAUMONT · BATON ROUGE

FIGURE 3
POTENTIOMETRIC SURFACE MAP
MARCH 2001
Whirlpool Corporation
Fort Smith, Arkansas

DESIGN: JT	CHKD.:	DATE: 08/21/02	REV.:
DRAWN: JEM/LMc	SCALE: AS SHOWN	W.O.NO.: 581007B217 H02	

ERM



ERM-Southwest, Inc.
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FIGURE 4
POTENTIOMETRIC SURFACE MAP
SEPTEMBER 2001
Whirlpool Corporation
Fort Smith, Arkansas

DESIGN: JT	CHKD.:	DATE: 10/31/01	REV.:
DRAWN: LMc	SCALE: AS SHOWN	W.O.NO.: 581004B206 J01	

ERM

Summary of CPT Grab Ground Water Sample Data

Attachment 3

August 30, 2002
W.O. #481-007

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000

TABLE 4

ANALYTICAL RESULTS, VOCs DETECTED IN GROUNDWATER SAMPLES

Parameter	LOQ	CPT-1	CPT-2	CPT-3	CPT-4	CPT-5	CPT-6	CPT-7	CPT-8	CPT-9
Tetrachloroethene	5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethene	5	66	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	5	10	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total 1,2-Dichloroethene	10	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl Chloride	10	<10	<10	<10	<10	<10	<10	<10	<10	<10

Parameter	LOQ	CPT-10	CPT-11	Dup-1 (Dupl. of CPT-11)	Dup-1A (Chemron CPT-11)	CPT-12	CPT-13	CPT-14	CPT-21	CPT-22
Tetrachloroethene	5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethene	5	32	<5	<5	<5	41	5,900	<5	<5	<5
cis-1,2-Dichloroethene	5	<5	<5	<5	<5	16	<5	<5	<5	<5
trans-1,2-Dichloroethene	5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total 1,2-Dichloroethene	10	<10	<10	<10	<10	20	<10	<10	<10	<10
1,1-Dichloroethene	5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl Chloride	10	<10	<10	<10	<10	<10	<10	<10	<10	<10

Parameter	LOQ	CPT-23	"FB" (Field Blank)	Travel Blank	MW-27	MW28	Duplicate (Dupl. MW-28)	Duplicate (Chemron, MW-28)	MW-29	MW-30
Tetrachloroethene	5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethene	5	340	<5	<5	<5	<5	<5	<5	<5	115
cis-1,2-Dichloroethene	5	16	<5	<5	<5	<5	<5	<5	<5	34
trans-1,2-Dichloroethene	5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total 1,2-Dichloroethene	10	20	<10	<10	<10	<10	<10	<10	<10	30
1,1-Dichloroethene	5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl Chloride	10	<10	<10	<10	<10	<10	<10	<10	<10	<10

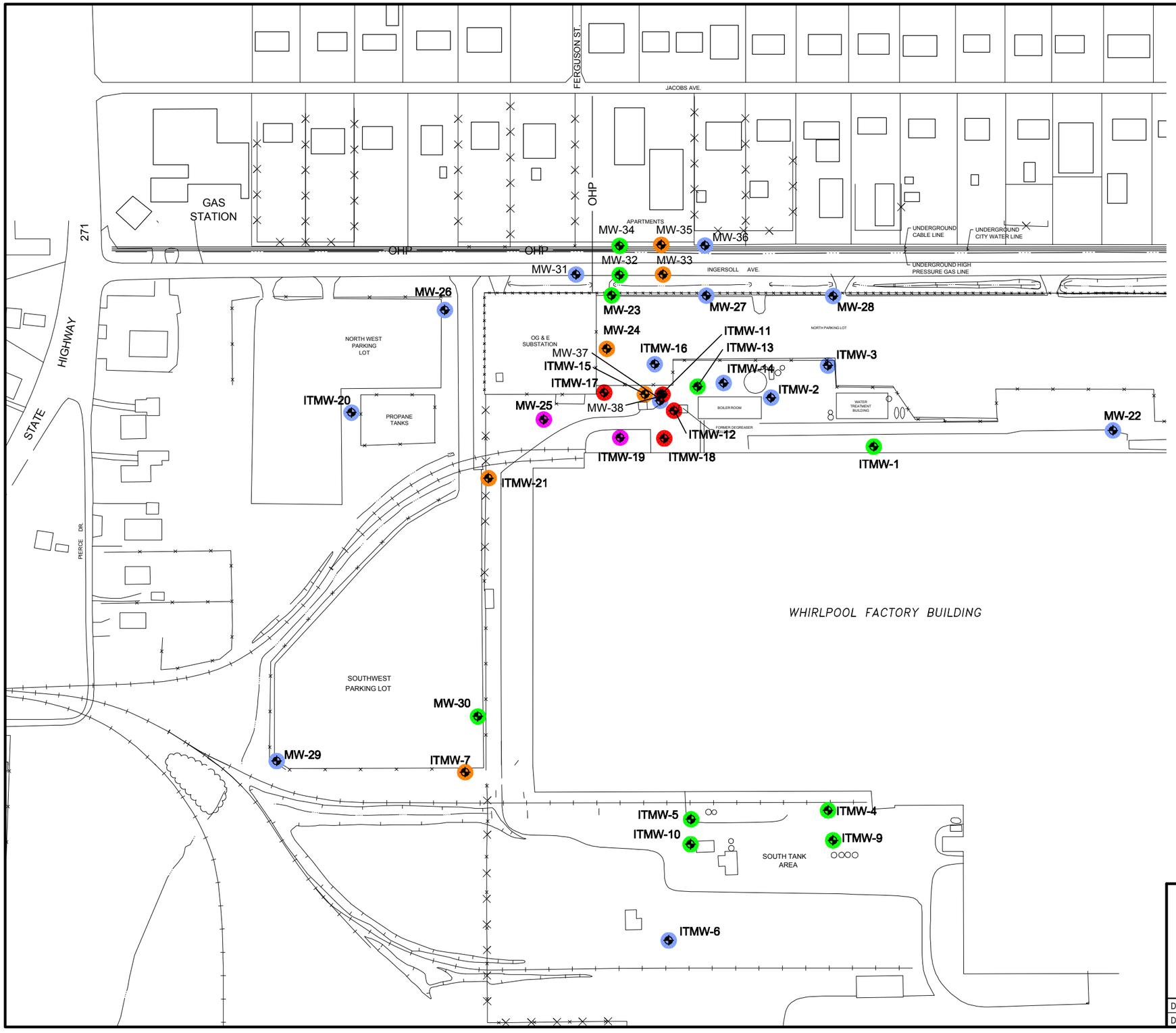
Analysis by US EPA Method SW-846 8260B.
Units used are mg/L.
LOQ = laboratory Limit of Quantitation
Samples from CPT wells collected 27 October 1999. Samples from MW-series wells collected 09 December 1999.
Chemron = Chemron Incorporated (secondary subcontract laboratory).

Replacement Figure 5-1 for Conceptual Site Model

Attachment 4

August 30, 2002
W.O. #481-007

Environmental Resources Management
16300 Katy Freeway, Suite 300
Houston, Texas 77094-1611
(281) 600-1000



LEGEND

MW-26 ⊕ EXISTING MONITORING WELL

TCE CONCENTRATION (mg/l)
FEBRUARY 2002

- < 0.005
- 0.005 to 0.10
- 0.10 to 1.00
- 1.00 to 10.0
- > 10.0

NOTES:

1. LOCATIONS FOR WELLS ITMW-37 AND ITMW-38 ARE APPROXIMATE AND WILL BE UPDATED WHEN SURVEY DATA ARE RECEIVED.

0 200 400
SCALE FEET

ERM-Southwest, Inc.
HOUSTON · NEW ORLEANS · AUSTIN · DALLAS · BEAUMONT · BATON ROUGE

FIGURE 5-1
TCE ISOCONCENTRATION MAP
FEBRUARY 2002
Whirlpool Corporation
Fort Smith, Arkansas

DESIGN: JT	CHKD.:	DATE: 08/27/02	REV.:
DRAWN: CAK/LMc	SCALE: AS SHOWN	W.O.NO.: 581007B215 H02	

ERM®

Boring Logs and Well Completion Details

Appendix C

June 25, 2004
Project No. 0014507

Environmental Resources Management
15810 Park Ten Place, Suite 300
Houston, Texas 77084-5140
(281) 600-1000

ERM

MW-39
DRILLING LOG

W.O. NO. 58113 Boring/Well ID MW-39 Date Drilled 7/14/03

Project Off-site delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 29.5' Boring Diam. 3"

N. Coord. _____ E. Coord. _____ Surface Elevation 0' MSL Datum

Screen: Type Stainless prepak Diam. 0.75" Length 10' Slot Size 0.01"

Casing: Type Schedule 40 PVC Diam. 0.75" Length 19.5' Sump Length 0'

Top of Casing Elevation 0' Stickup 0'

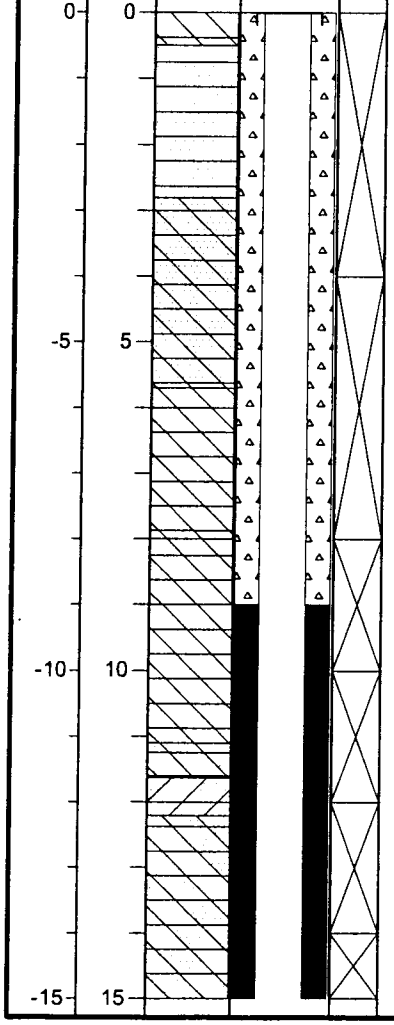
Depth to Water: 1. Ft. _____ (_____) 2. Ft. _____ (_____)

Drilling Company TWF Drilling Driller Sammy Smith

Drilling Method Geoprobe Log By Troy Meinen

SKETCH MAP

NOTES



Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	OVM HEADSPACE (PPM)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
0	0					0-4	0-0.5	SILTY CLAY: Grayish-brown, dry, hard, occasional rootlets, occuring 1/2" diameter pieces of black shale.
					0.0		0.5-2.8	SILTY SAND to SANDY SILT: pale brown, moist to dry, crumbly, stiff, abundant rootlets.
					0.0		2.8-4.5	SILTY SANDY CLAY: Pale brown with reddish-brown mottling, moist, slightly plastic to crumbly, occasional rootlets, occuring 1/4" diameter iron nodules.
						4-8		
-5	5				0.0		4.5-5.7	SILTY SANDY CLAY: Strong brown to orange with dark brown mottling, moist to dry, firm, abundant iron nodules and dark brown mottling large occasional pockets of pale brown, soft, silty clay.
							5.7-7.5	SILTY CLAY: Strong brown, dark brown, and orange mottled, moist, stiff to firm, occasional 1/2" diameter iron nodules, occasional 1/2" diameter to 1" diameter calcareous nodules.
					0.0		7.5-8	SILTY CLAY: Pale brown, dark brown, and orange mottled, moist, stiff to soft,occasional 1/2" to 1" diameter calcareous nodules.
						8-10	8-9	SILTY CLAY: Strong brown with pale brown and minor dark brown mottling, moist, firm to hard, crumbly to plastic.
					0.0		9-11.1	SILTY CLAY: Strong brown with minor pale gray and abundant dark brown mottling, moist, hard, crumbly, abundant 1/4" diameter calcareous nodules and iron nodules.
-10	10					10-12		
					0.0		11.1-11.6	SILTY SANDY CLAY: Strong brown with pale brown mottling and minor dark brown mottling, moist, stiff to firm, plastic.
							11.6-12.2	CLAYEY SILTY SAND: Strong brown with abundant dark brown mottling, moist, stiff, crumbly, abundant 1/4"-1/2" calcareous and iron nodules.
						12-14	12.2-15.5	SILTY SANDY CLAY: Strong brown with pale brown and minor dark brown mottling, moist, stiff, slightly plastic.
					0.0			
						14-16		
-15	15							

ERM

MW-39
DRILLING LOG

W.O. NO. 58113 Boring/Well ID MW-39 Date Drilled 7/14/03

Project Off-site delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 29.5' Boring Diam. 3"

N. Coord. _____ E. Coord. _____ Surface Elevation 0' MSL Datum

Screen: Type Stainless prepak Diam. 0.75" Length 10' Slot Size 0.01"

Casing: Type Schedule 40 PVC Diam. 0.75" Length 19.5' Sump Length 0'

Top of Casing Elevation 0' Stickup 0'

Depth to Water: 1. Ft. _____ (_____) 2. Ft. _____ (_____)

Drilling Company TWF Drilling Driller Sammy Smith

Drilling Method Geoprobe Log By Troy Meinen

SKETCH MAP

NOTES

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	OVM HEADSPACE (PPM)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
-15	15				0.0		15.5-16	SILTY CLAYEY SAND: Brown to strong brown with minor dark brown mottling, moist to wet, soft to firm, slightly crumbly.
						16-20	16-18.7	SILTY CLAYEY SAND TO SILTY SANDY CLAY: strong brown to brown with occasional dark brown mottling, moist to wet, soft to firm, slightly crumbly to slightly plastic (clay content high but varies).
					0.0			
					0.0		18.7-19	SILTY CLAY: Reddish-brown with occasional dark brown mottling, moist, hard, plastic.
							19-20	SILTY CLAYEY SAND TO SILTY SANDY CLAY: strong brown to brown with occasional dark brown mottling, moist to wet, soft to firm, slightly crumbly to slightly plastic (clay content high but varies), with silty sand pocket with medium-grained sand at base, bro
-20	20					20-24	20-24	SILTY SANDY CLAY: Strong brown, moist, stiff to firm, plastic.
					0.0			
					0.0			
						24-25.5	24-24.5	CLAYEY SILTY SAND: Strong brown with dark brown mottling, moist to wet, stiff, occasional 1/4" quartzite gravel, sand grain size increases with depth to medium-grained at 24.5'.
-25	25				0.0		24.5-25.5	GRAVELLY SANDY CLAY to CLAYEY SAND: strong brown with pale gray mottling, moist, hard, crumbly 1/4" to 1/2" diameter quartzite gravel.
						25.5-27	25.5-26	SILTY GRAVELLY CLAYEY SAND: brown, water-saturated, 1/4" to 1/2" diameter quartzite gravel.
					0.0		26-27.5	GRAVELLY SANDY CLAY to CLAYEY SAND: strong brown with pale gray mottling, wet to water-saturated, hard, crumbly 1/4" to 1/2" diameter quartzite gravel.
						27-28	27.5-28	GRAVELLY SAND: Strong brown, water-saturated, dense, medium to coarse-grained with 1/2" to 1" diameter quartzite gravel.
					0.0		28-29	SILTY CLAY: Brown to brownish-gray, moist to wet, stiff to hard, plastic, grades to fissil gray shale at base.
						28-29.5	29-29.5	SHALE: Gray with occasional brown mottling along fractures, fissil, weathered.
					0.0			
-30	30							

ERM

MW-39
DRILLING LOG

W.O. NO. 58113 Boring/Well ID MW-39 Date Drilled 7/14/03

Project Off-site delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 29.5' Boring Diam. 3"

N. Coord. _____ E. Coord. _____ Surface Elevation 0' MSL Datum

Screen: Type Stainless prepak Diam. 0.75" Length 10' Slot Size 0.01"

Casing: Type Schedule 40 PVC Diam. 0.75" Length 19.5' Sump Length 0'

Top of Casing Elevation 0' Stickup 0'

Depth to Water: 1. Ft. _____ (_____) 2. Ft. _____ (_____)

Drilling Company TWF Drilling Driller Sammy Smith

Drilling Method Geoprobe Log By Troy Meinen

SKETCH MAP

NOTES

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	OVM HEADSPACE (PPM)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
-30	30							T.D. = 29.5'
-35	35							
-40	40							
-45	45							

ERM.

MW-40
DRILLING LOG

W.O. NO. 58113 Boring/Well ID MW-40 Date Drilled 7/14/03

Project Off-site delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 28.5' Boring Diam. 3"

N. Coord. _____ E. Coord. _____ Surface Elevation 0' MSL Datum

Screen: Type Stainless prepak Diam. 0.75" Length 10' Slot Size 0.01"

Casing: Type Schedule 40 PVC Diam. 0.75" Length 17.8' Sump Length 0'

Top of Casing Elevation 0' Stickup 0'

Depth to Water: 1. Ft. _____ (_____) 2. Ft. _____ (_____)

Drilling Company TWF Drilling Driller Sammy Smith

Drilling Method Geoprobe Log By Troy Meinen

SKETCH MAP

NOTES

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	OVM Headspace (ppm)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
0	0					0-4	0-0.3	SILTY SANDY CLAY: Gray, dry to damp, soft, crumbly, abundant rootlets.
							0.3-0.8	WEATHERED SHALE MIXED WITH SILT: black to dark gray, soft, crumbly, fissil (fill material).
					0.0		0.8-2	SILTY SANDY CLAY: Strong brown, black, and gray mottled, moist to wet, firm, plastic, abundant rootlets.
					0.0		2-3.5	SANDY SILT: Brown with occasional dark brown mottling, water-saturated, soft, crumbly. (Boring is at edge of a 2 ft deep wet drainage ditch).
							3.5-4	SILTY CLAY: Brown with occasional dark brown mottling, water-saturated, soft, crumbly.
						4-8	4-6.2	SANDY CLAYEY SILT: Brown and strong brown with occasional dark brown mottling, wet to water-saturated, soft.
-5	5				0.0			
							6.2-8.5	SILTY SANDY CLAY: Strong brown with gray mottling, moist, stiff to hard, plastic.
					0.0			
						8-10		
							8.5-9.5	SILTY SANDY CLAY: Strong brown with occasional pale gray mottling, moist, stiff to hard.
					0.0		9.5-10.8	SILTY SANDY CLAY: Strong brown with gray mottling, moist, stiff to hard, plastic.
-10	10					10-12		
							10.8-11	SILTY CLAY: Pale brown, wet, soft, fine-grained.
					0.0		11-11.5	SILTY CLAY: Gray with occasional strong brown mottling, moist, stiff, plastic.
							11.5-14	SILTY CLAY: Strong brown with occasional gray to pale gray mottling, moist, stiff, plastic.
						12-14		At 12.5ft dark brown to very dark gray mottling
					0.0			
						14-16	14-14.5	SILTY SANDY CLAY: Strong brown with occasional dark brown mottling, moist, firm, plastic.
							14.5-15.5	CLAYEY SANDY SILT: Strong brown, wet to water-saturated, soft, loose, with coarse-grained sand to small gravel.
-15	15							

ERM

MW-40
DRILLING LOG

W.O. NO. 58113 Boring/Well ID MW-40 Date Drilled 7/14/03

Project Off-site delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 28.5' Boring Diam. 3"

N. Coord. _____ E. Coord. _____ Surface Elevation 0' MSL Datum

Screen: Type Stainless prepak Diam. 0.75" Length 10' Slot Size 0.01"

Casing: Type Schedule 40 PVC Diam. 0.75" Length 17.8' Sump Length 0'

Top of Casing Elevation 0' Stickup 0'

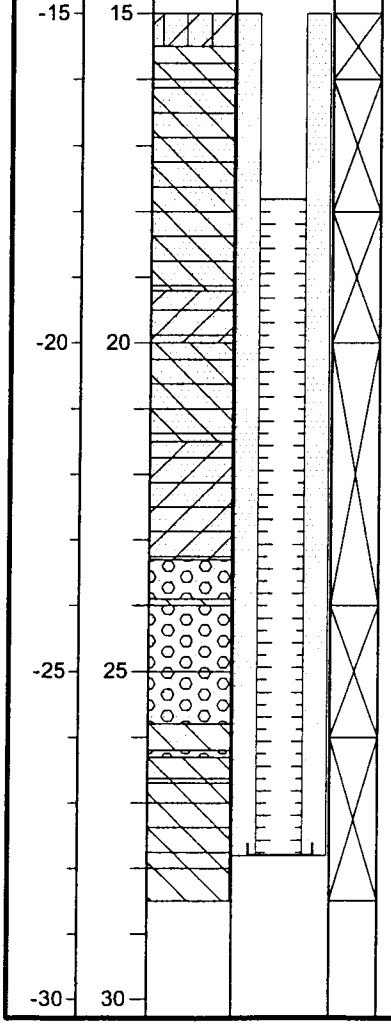
Depth to Water: 1. Ft. _____ (_____) 2. Ft. _____ (_____)

Drilling Company TWF Drilling Driller Sammy Smith

Drilling Method Geoprobe Log By Troy Meinen

SKETCH MAP

NOTES



Elevation (Feet)	Depth (Feet)	OVM Headspace (ppm)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
-15	15	0.0		15.5-16	SILTY CLAY: Strong brown and pale gray, stiff to hard.
			16-18	16-18	SILTY SANDY CLAY: Strong brown with occasional pale gray mottling, moist, stiff, slightly crumbly to plastic. At 15.6ft occasional 1/2" diameter iron nodules.
		0.0			
			18-20	18-19.2	SILTY SANDY CLAY: Strong brown with occasional pale gray mottling, moist, stiff, slightly crumbly to plastic, with occasional dark brown 1/4" to 1/2" diameter nodules, grades to sand at base.
		0.0		19.2-20	SILTY CLAYEY SAND WITH GRAVEL: strong brown to brown, wet to water-saturated, dense, gravel is 1/8" to 1/4" diameter quartzite.
-20	20		20-24	20-21.5	SILTY SANDY CLAY: Strong brown with gray mottling, wet, stiff, plastic.
		0.0		21.5-23.3	SILTY SANDY GRAVEL: water-saturated, loose to flowing, 1/8"-1/4" diameter quartzite gravel, grades to clayey gravel.
		0.0		23.3-23.9	CLAYEY GRAVEL: wet to water-saturated, stiff, crumbly.
			24-26	23.9-24	GRAVELLY CLAY: Strong brown, wet to moist, hard, plastic, gravel is 1/4" to 1/2" diameter quartzite.
				24-25	SILTY SANDY GRAVEL: strong brown to brown, water-saturated, dense, 1/8" to 1/4" quartzite gravel.
-25	25	0.0		25-25.8	GRAVELY SILTY SAND: strong brown, water-saturated, dense, crumbly, 1/4" to 1/2" diameter quartzite gravel.
			26-28.5	25.8-26.2	SANDY CLAY: Strong brown with very pale grey mottling, moist to wet, hard, crumbly, occasional quartzite gravel (1/2" to 1" diameter).
				26.2-26.3	SANDY GRAVEL: brown to strong brown, wet, hard, dense, gravel is 1/2" diameter quartzite.
				26.3-26.7	SANDY SILTY CLAY: Pale gray with strong brown mottling, moist, stiff to hard, plastic.
		0.0		26.7-28	SILTY CLAY: Strong brown to orange with occasional gray mottling, fissil to slightly blocky texture, (weathered shale).
				28-28.5	SHALE: Gray, moist, hard, slightly crumbly, fissil.
-30	30				

ERM

MW-40
DRILLING LOG

W.O. NO. 58113 Boring/Well ID MW-40 Date Drilled 7/14/03

Project Off-site delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 28.5' Boring Diam. 3"

N. Coord. _____ E. Coord. _____ Surface Elevation 0' MSL Datum

Screen: Type Stainless prepak Diam. 0.75" Length 10' Slot Size 0.01"

Casing: Type Schedule 40 PVC Diam. 0.75" Length 17.8' Sump Length 0'

Top of Casing Elevation 0' Stickup 0'

Depth to Water: 1. Ft. _____ (_____) 2. Ft. _____ (_____)

Drilling Company TWF Drilling Driller Sammy Smith

Drilling Method Geoprobe Log By Troy Meinen

SKETCH MAP

NOTES

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	OVM Headspace (ppm)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
-30	30							T.D. = 28.5'
-35	35							
-40	40							
-45	45							

ERM

MW-41
DRILLING LOG

W.O. NO. 58113 Boring/Well ID MW-41 Date Drilled 7/15/03

Project Off-site delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 29' Boring Diam. 8"

N. Coord. _____ E. Coord. _____ Surface Elevation 0' MSL Datum

Screen: Type Stainless prepak Diam. 0.75" Length 10' Slot Size 0.01"

Casing: Type Schedule 40 PVC Diam. 0.75" Length 18.7' Sump Length 0'

Top of Casing Elevation 0' Stickup 0'

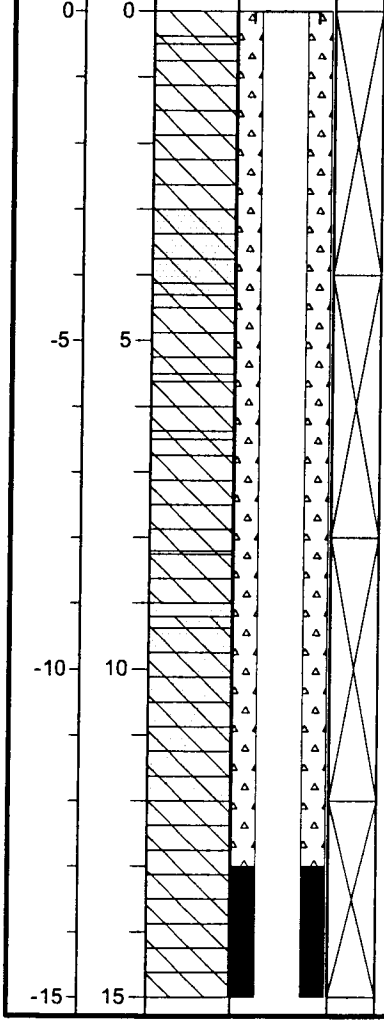
Depth to Water: 1. Ft. _____ (_____) 2. Ft. _____ (_____)

Drilling Company TWF Drilling Driller Sammy Smith

Drilling Method Geoprobe Log By Troy Meinen

SKETCH MAP

NOTES



Elevation (Feet)	Depth (Feet)	OVM HEADSPACE (PPM)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
0	0		0-4	0-0.5	SILTY CLAY: Gray, moist, firm, plastic to slightly crumbly, abundant rootlets, occasional iron nodules.
		0.0		0.5-3	SILTY CLAY: Gray with orange mottling, moist, firm to stiff, plastic, abundant rootlets, occasional iron nodules to 1/4" diameter. At 2.6' to 3' no orange mottling.
		0.0		3-4.3	SILTY SANDY CLAY: Brown with gray mottling, moist, slightly plastic to slightly crumbly.
			4-8	4.3-5.5	SILTY CLAY: Brown to pale brown with minor dark brown and orange mottling, moist, hard, crumbly, blocky, abundant 1/4" to 1/2" calcareous nodules and occasional 1/4" diameter iron nodules.
-5	5	0.0		5.5-6.5	SILTY CLAY: Strong brown and pale gray mottled, moist, stiff to hard, plastic, occasional calcareous nodules to 1" diameter, occasional iron nodules to 1/2" diameter.
		0.0		6.5-8.2	SILTY CLAY: Pale brown with minor strong brown and gray mottling, moist, hard, plastic. At 7' sandy and softer.
			8-12	8.2-9	SILTY CLAY: Gray and strong brown mottled, wet, soft, plastic.
		0.0		9-9.2	SILTY SAND: Brown, water-saturated, loose to flowing, medium-grained, abundant dark gray grains.
-10	10			9.2-12	SILTY SANDY CLAY: Strong brown to orange with pale gray mottling and minor dark brown mottling, moist, hard, plastic, occasional iron nodules to 1/2" diameter.
		0.0			
			12-16	12-19	SILTY CLAY: Pale gray with occasional orange to strong brown mottling, moist, hard, plastic. At 16' to 18' ornage to strong brown with occasional iron nodules to 1/8" diameter. At 18' to 19' pale gray and sandy.
		0.0			
-15	15				

ERM

MW-41
DRILLING LOG

W.O. NO. 58113 Boring/Well ID MW-41 Date Drilled 7/15/03

Project Off-site delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 29' Boring Diam. 8"

N. Coord. _____ E. Coord. _____ Surface Elevation 0' MSL Datum

Screen: Type Stainless prepak Diam. 0.75" Length 10' Slot Size 0.01"

Casing: Type Schedule 40 PVC Diam. 0.75" Length 18.7' Sump Length 0'

Top of Casing Elevation 0' Stickup 0'

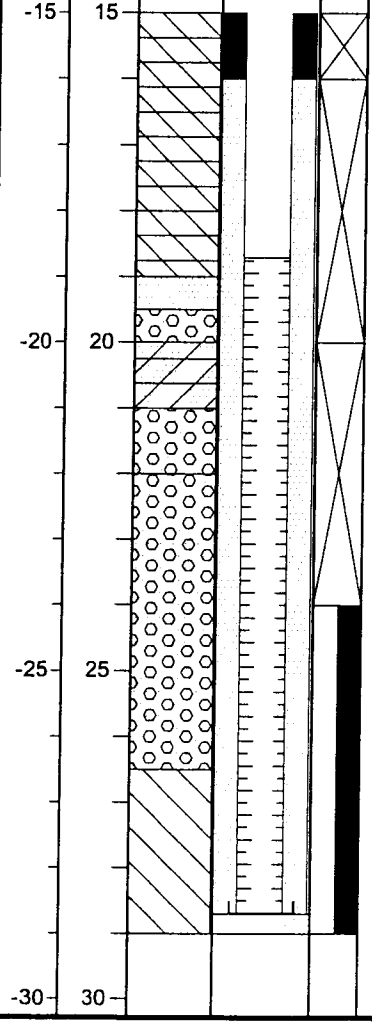
Depth to Water: 1. Ft. _____ (_____) 2. Ft. _____ (_____)

Drilling Company TWF Drilling Driller Sammy Smith

Drilling Method Geoprobe Log By Troy Meinen

SKETCH MAP

NOTES



Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	OVM HEADSPACE (PPM)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
					0.0	16-20		
					0.0			
					0.0		19-19.5	SAND TO SILTY SAND: strong brown with minor pale brown mottling, water-saturated, dense, medium-grained quartz.
							19.5-20	GRAVELY SILTY SANDY CLAY: strong brown, moist to wet, hard, crumbly, 1/2"-1" diameter quartzite gravel.
						20-24	20-21	SILTY SANDY CLAYEY GRAVEL: strong brown, water-saturated, dense, crumbly, 1/2"-1" diameter quartzite gravel, 1/8" gravel and medium and coarse-grained sand.
					0.0		21-22	SILTY SANDY GRAVEL, strong brown, water-saturated, dense, crumbly, 1/2"-1" diameter quartzite gravel, 1/8" diameter quartzite gravel and medium and coarse-grained quartz sand.
							22-26.5	SILTY SANDY GRAVEL: strong brown, water-saturated, dense, 1/4"-1/8" diameter quartzite gravel.
					0.0			
						24-29		
							26.5-29	SILTY CLAY AND SHALE: strong brown to orange grading to dark gray to black, moist, fissil (zone describes cuttings).
								T.D. = 29'

ERM

MW-42B DRILLING LOG

W.O. NO. 581-013 Boring/Well ID MW-42B Date Drilled 11/10/2003

Project Off-Site Delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 27 ' Boring Diam. 3 "

N. Coord. _____ E. Coord. _____ Surface Elevation 0 ' Ft. MSL Datum

Screen: Type 65 Mesh stainless steel Diam. 0.75 " Length 5 ' Slot Size 0.01 "

Casing: Type Schedule 40 PVC Diam. 0.75 " Length 22 ' Sump Length 0 '

Top of Casing Elevation 0 ' Stickup 0 '

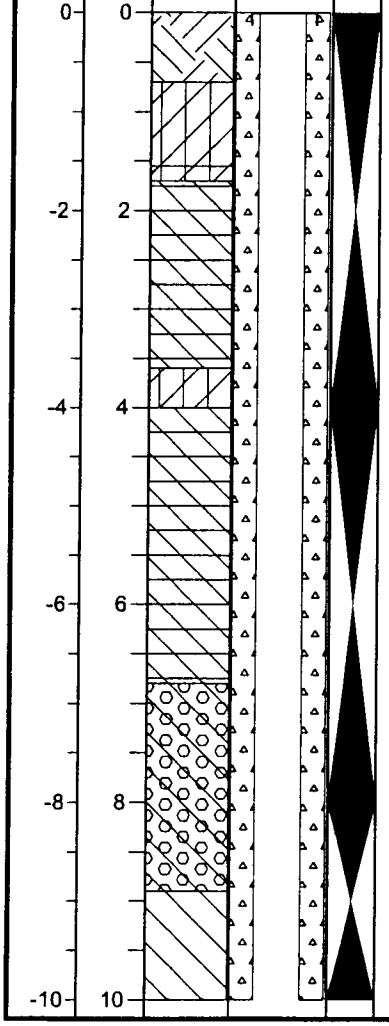
Depth to Water: 1. Ft. 0 (_____) 2. Ft. 0 (_____)

Drilling Company TWF Drilling Driller Ed Wilson

Drilling Method Geoprobe/Hollow Stem Auger Log By Karin Shultz

SKETCH MAP

NOTES



Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
0-4	0-0.7	FILL: Clayey Asphalt, dark gray and black mottled, dry, coarse-grained, gravel (up to 1/2"-diameter), brittle.
	0.7-1.55	CLAYEY SILT: Medium brown, dry, nonplastic, very loose, very fine-grained, trace of rootlets. From 1'-1.55' medium and pale brown mottled.
	1.55-1.7	CLAYEY SILT: Reddish-yellow, dry, nonplastic, medium dense, very fine-grained, crumbly, pockets of silty clay, dark brown.
	1.7-3.6	SILTY CLAY: Yellowish-red with some red, wet, slightly plastic, soft, with trace of up to 1/16"-diameter hard black nodules, trace of black burrowing.
	3.6-4	CLAYEY SILT: Red and yellowish-red mottled, dry to moist, nonplastic, medium dense, crumbly, with some black nodules.
4-8	4-6.8	SILTY CLAY: Yellowish-red and red mottled, dry, nonplastic, soft, very fine-grained, pockets of clayey silt, dark brown and gray mottled, very fine-grained, loose to medium dense, crumbly. From 4.3'-4.6' trace of black silty clay material, hard, with slight luster. From 4.6'-5.4' slightly plastic, stiff, slightly crumbly, layer of yellowish-red throughout. From 5.4'-6.8' becomes hard, crumbly, with clay seam, gray, hard, traces of black nodules.
	6.8-8.9	GRAVELLY CLAY INTERMIXED WITH SANDY CLAY, reddish-brown, with trace of red, light gray, black mottled, dry, plastic, hard coarse-grained, intermixed with silty sand with black calcareous nodules.
8-12	8.9-14.8	CLAY: Yellowish-brown and light gray mottled, moist, hard, plastic, trace of black burrowing at 8.9'-9.1', 11.3'-11.4', and 9.8'-10.4'. From 12'-12.7' trace of dark brown mottled From 12'-12.5' trace of light gray From 12.5'-12.7', moist, stiff. From 12.7'-12.9' layer of silty clay, yellowish-brown and dark gray, moist, nonplastic, soft, loose, with trace of hard nodules (1/16"-1/8" diameter). From 12.9'-14.8' yellowish-brown with some light gray and black burrowing throughout, moist, very stiff, plastic.

ERM

MW-42B
DRILLING LOG

W.O. NO. 581-013 Boring/Well ID MW-42B Date Drilled 11/10/2003

Project Off-Site Delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 27 ' Boring Diam. 3 "

N. Coord. _____ E. Coord. _____ Surface Elevation 0 ' Ft. MSL Datum

Screen: Type 65 Mesh stainless steel Diam. 0.75 " Length 5 ' Slot Size 0.01 "

Casing: Type Schedule 40 PVC Diam. 0.75 " Length 22 ' Sump Length 0 '

Top of Casing Elevation 0 ' Stickup 0 '

Depth to Water: 1. Ft. 0 (_____) 2. Ft. 0 (_____)

Drilling Company TWF Drilling Driller Ed Wilson

Drilling Method Geoprobe/Hollow Stem Auger Log By Karin Shultz

SKETCH MAP

NOTES

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	OVM Headspace (ppm)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
-10	10				0.0			
-12	12					12-16		
-14	14				0.0			
							14.8-16	CLAY WITH SILT, yellowish-brown with some light gray, moist, plastic, very stiff, black burrowing throughout.
-16	16					16-20	16-18	NO RECOVERY: Cuttings indicate sandy clay.
-18	18				0.0		18-20	NO RECOVERY: Cuttings incated clayey sand.
-20	20							

ERM

MW-42B
DRILLING LOG

W.O. NO. 581-013 Boring/Well ID MW-42B Date Drilled 11/10/2003

Project Off-Site Delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 27 ' Boring Diam. 3 "

N. Coord. _____ E. Coord. _____ Surface Elevation 0 ' Ft. MSL Datum

Screen: Type 65 Mesh stainless steel Diam. 0.75 " Length 5 ' Slot Size 0.01 "

Casing: Type Schedule 40 PVC Diam. 0.75 " Length 22 ' Sump Length 0 '

Top of Casing Elevation 0 ' Stickup 0 '

Depth to Water: 1. Ft. 0 (_____) 2. Ft. 0 (_____)

Drilling Company TWF Drilling Driller Ed Wilson

Drilling Method Geoprobe/Hollow Stem Auger Log By Karin Shultz

SKETCH MAP

NOTES

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	OVM Headspace (ppm)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
-20	20					20-22	20-20.4	CLAYEY SAND: Pale brown with some light gray mottled, very wet, very loose to loose, medium-grained, with seam of sandy clay throughout, slightly plastic, firm to very soft.
							20.4-20.8	SANDY CLAY: Yellowish-brown and reddish-brown, wet to moist, slightly plastic, stiff, laminations of clayey sand, loose, fine-grained.
					0.0		20.8-21	
							21-22	SANDY CLAY: Gray with some yellowish-brown, moist to damp, very stiff, trace of greenish-gray calcareous nodules (up to 1/4"-diameter).
-22	22					22-24	22-23.3	GRAVELLY CLAY: Reddish-brown with a trace of dark brown and red., dry, nonplastic, coarse-grained, very crumbly, gravel (up to 1/2"-diameter) increases towards base.
					0.0			GRAVEL: CLAYEY GRAVEL, yellow, brown, and reddish-brown mottled, water-saturated, gravel nodules (up to 1/8"-diameter), very coarse-grained.
							23.3-24	GRAVELLY CLAY: Yellowish-brown and reddish-brown mottled, very wet, slightly plastic, hard, abundant gravel nodules.
-24	24					24-26	24-25.5	CLAYEY SAND: dark brown and dark gray mottled with some loose gravel, water-saturated, gravel nodules (up to 1/8"-diameter), very coarse-grained.
					0.0			
							25.5-26	GRAVELLY SANDY CLAY: dark brown and yellowish-brown mottled, wet to moist, slightly plastic, soft, loose, coarse-grained.
-26	26					26-27	26-27	CLAY: Dark brownish-gray, damp, plastic, hard, blocky towards base with layers of light gray with fractures throughout.
								T.D. = 27 '
-28	28							
-30	30							

MW-43
DRILLING LOG

W.O. NO. 581-013 Boring/Well ID MW-43 Date Drilled 11/11/2003

Project Off-Site Delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 26.2 ' Boring Diam. 3 "

N. Coord. _____ E. Coord. _____ Surface Elevation 0 ' Ft. MSL Datum

Screen: Type 65 Mesh stainless steel Diam. 0.75 " Length 5 ' Slot Size 0.01 "

Casing: Type Schedule 40 PVC Diam. 0.75 " Length 21 ' Sump Length 0 '

Top of Casing Elevation 0 ' Stickup 0 '

Depth to Water: 1. Ft. 0 (_____) 2. Ft. 0 (_____)

Drilling Company TWF Drilling Driller Ed Wilson

Drilling Method Geoprobe/Hollow Stem Auger Log By Karin Shultz

SKETCH MAP

NOTES

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	OVM Headspace (ppm)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
0	0					0-4	0-1.5	NO RECOVERY, sediment too soft.
							1.5-2.1	CONCRETE
-2	2				0.0		2.1-3.2	CLAYEY SANDY SILT: Medium brown with a trace of yellowish-red, and dark gray, damp, nonplastic, medium dense, fine-grained with occasional black asphalt nodules (1/8"-diameter). From 3.0'-3.2' pocket of asphalt, black, luster, hard coarse-grained nodules (up to 1/2"-diameter), intermixed with coarse-grained sand, loose.
							3.2-3.8	SILTY CLAY: Medium brown with some dark gray mottled, wet, slightly plastic, soft, with occasional calcareous nodules (up to 1/8"-diameter). At 3.5' trace of reddish-yellow.
-4	4					4-8	3.8-4.5	SILTY CLAY AND CLAYEY SILT INTERMIXED, medium brown and yellowish-red mottled, damp, nonplastic, stiff to firm.
							4.5-5.3	SILTY CLAY: Medium brown with some yellowish-brown and gray mottled, moist, firm, slightly plastic. From 4.5'-4.7' trace of black and brownish-gray mottled, wet, very soft. From 4.85'-5.10' clayey silt parting, gray.
-6	6				0.0		5.3-6.1	SANDY CLAYEY SILT: Yellowish-brown with some reddish-yellow mottled, dry, medium dense to loose, very crumbly, fine-grained, well-sorted, with occasional black calcareous nodules (up to 1/4" diameter), very crumbly.
							6.1-7.4	CLAYEY SILT: Yellowish-brown and reddish-yellow mottled, dry, medium dense to loose, fine-grained, crumbly, with occasional dark gray and black burrowing.
-8	8					8-12	7.4-8	SILTY CLAY: Yellowish-brown with trace of gray and red, damp, slightly plastic, stiff to very stiff, with trace of black nodules (up to 1/16"-diameter), caliche.
							8-9	NO RECOVERY
-10	10						9-11.3	SILTY SANDY CLAY: Yellowish-brown and gray with occasional reddish-yellow mottling, dry, plastic, hard, slightly crumbly.

ERM

MW-43
DRILLING LOG

W.O. NO. 581-013 Boring/Well ID MW-43 Date Drilled 11/11/2003

Project Off-Site Delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 26.2' Boring Diam. 3"

N. Coord. _____ E. Coord. _____ Surface Elevation 0' Ft. MSL Datum

Screen: Type 65 Mesh stainless steel Diam. 0.75" Length 5' Slot Size 0.01"

Casing: Type Schedule 40 PVC Diam. 0.75" Length 21' Sump Length 0'

Top of Casing Elevation 0' Stickup 0'

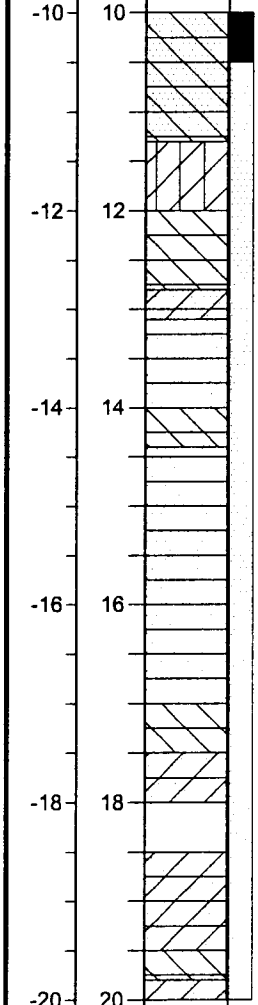
Depth to Water: 1. Ft. 0 ( ) 2. Ft. 0 ( )

Drilling Company TWF Drilling Driller Ed Wilson

Drilling Method Geoprobe/Hollow Stem Auger Log By Karin Shultz

SKETCH MAP

NOTES



Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	OVM Headspace (ppm)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
					0.0			
							11.3-12	CLAYEY SILT: Gray with some yellowish-brown mottled, dry, medium dense to dense, very fine-grained, well-sorted.
						12-14	12-12.8	SILTY CLAY: Yellowish-brown and medium brown mottled with some gray, very wet, nonplastic to slightly plastic, very soft, slightly flowing, with parting of clayey silt, gray.
					0.0		12.8-13.1	CLAYEY SILTY SAND: Gray, dry, hard, nonplastic, fine-grained, black burrowing.
							13.1-14	SILTY SAND: Yellowish-brown, dark gray, and black mottled, moist, loose, with occassional black calcareous nodules. At 13.6' dense.
						14-16	14-14.4	SILTY CLAY: Yellowish-brown and gray mottled, wet, very soft, nonplastic, very fine-grained, well-sorted.From 14.3'-14.4' pocket of black, brownish-gray, and yellowish-brown mottling.
					0.0		14.4-17	SILTY SAND: Yellowish-brown, wet, medium-grained, moderately sorted, quartz grains visibile of various colors, loose to medium dense. From 15.6'-16' fining downward.
						16-18		SILTY CLAY: Gray with trace of yellowish-brown, moist to damp, slightly plastic, stiff.
								SILTY CLAYEY SAND: Reddish-brown, moist, medium to fine-grained, loose to medium dense, well-sorted.
					0.0		17-17.5	GRAVELLY CLAYEY SAND: reddish-brown, very wet, loose, medium to coarse-grained, poorly sorted, abundant gravel (up to 3/4"-diameter).
							17.5-18	
						18-20	18-18.5	CLAYEY SILTY SAND: Reddish-brown, moist to wet, medium dense, medium-grained, poorly sorted, with occassional gravel (up to 1/4"-diameter).
							18.5-19.5	SILTY CLAY: Bluish-gray with trace of yellowish-brown mottling, damp to dry, slightly plastic, hard.
					0.0		19.5-19.8	CLAYEY SILTY SAND: Pale brown, yellowish-red, and gray mottled, damp to dry, medium dense, very fine-grained, well sorted to medium sorted, with trace of iron staining throughout.
							19.8-20	

ERM

MW-43
DRILLING LOG

W.O. NO. 581-013 Boring/Well ID MW-43 Date Drilled 11/11/2003

Project Off-Site Delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 26.2' Boring Diam. 3"

N. Coord. _____ E. Coord. _____ Surface Elevation 0' Ft. MSL Datum

Screen: Type 65 Mesh stainless steel Diam. 0.75" Length 5' Slot Size 0.01"

Casing: Type Schedule 40 PVC Diam. 0.75" Length 21' Sump Length 0'

Top of Casing Elevation 0' Stickup 0'

Depth to Water: 1. Ft. 0 (_____) 2. Ft. 0 (_____)

Drilling Company TWF Drilling Driller Ed Wilson

Drilling Method Geoprobe/Hollow Stem Auger Log By Karin Shultz

SKETCH MAP

NOTES

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	OVM Headspace (ppm)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
-20	20					20-22	20-20.1	SILTY CLAYEY GRAVEL, reddish and reddish-brown mottling, wet, poorly graded, abundant gravels (up to 3/4"-diameter), semi-angular, coarse, sand and clay mixtures, hard, nonplastic, stiff. From 20.6'-20.10' some pink mottling.
					0.0		20.1-22	CLAYEY SILTY SANDY GRAVEL: abundant gravels (up to 1"-diameter), wet, hard, nonplastic, semi-rounded, coarse-grained, with clayey silty sandy mixtures that are dark gray and black mottled.
-22	22					22-24	22-23.3	CLAYEY SANDY GRAVEL: water, saturated, well graded, gravel makes up 95% of matrix (up to 1"-diameter), with traces of gravel-clayey and mixtures.
					0.0		23.3-23.9	CLAYEY GRAVELLY SAND, yellowish-brown, dry to damp, nonplastic, fine-grained, occasional gravels (up to 1/4"-diameter) semi-rounded .
-24	24					24-26.2	23.9-24	SANDY GRAVELLY CLAY, medium brown, brownish-gray, and yellowish-brown mottled, dry, occasional gravel (up to 1"-diameter).
					0.0		24-24.11	
							24.11-24.7	SILTY SAND WITH GRAVEL: light brown, pale brown, dark gray, and black mottled, dry to moist, medium dense, fine-grained, angular gravel nodules (up to 1/2"-diameter).
							24.7-25.11	CLAYEY SILTY GRAVEL, wet, well graded, (up to 1/2"-diameter), angular, yellowish-brown clayey silt, nonplastic, fine-grained.
							25.11-26.2	CLAY: Brownish with some black, dark gray and gray mottling, moist, hard, plastic, becomining dominantly dark gray and brownish-gray mottling at 25.6', grades to a fissile shale. SHALE: Dark gray, hard, weathered, fissiles, occassional brown mottling along fractures. T.D. = 26.2'
-26	26							
-28	28							
-30	30							

ERM

SB-45
DRILLING LOG

W.O. NO. 581-013 Boring/Well ID SB-45 Date Drilled 11/12/2003

Project Off-Site Delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 24' Boring Diam. 3"

N. Coord. _____ E. Coord. _____ Surface Elevation 0' Ft. MSL Datum

Screen: Type _____ Diam. 2" Length 0' Slot Size 0"

Casing: Type _____ Diam. 0" Length 0' Sump Length 0'

Top of Casing Elevation 0' Stickup 0'

Depth to Water: 1. Ft. 0 (_____) 2. Ft. 0 (_____)

Drilling Company TWF Drilling Driller Ed Wilson

Drilling Method Geoprobe/Hollow Stem Auger Log By Karin Shultz

SKETCH MAP

NOTES

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	OVM Headspace (ppm)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
0	0					0-4	0-3.5	SANDY CLAY: Dark brown and brown mottled, damp, slightly plastic, soft, trace of asphalt nodules (1/8"-diameter). From 0.8'-3.5' becomes medium and pale brown mottled, damp to dry, higher sand content.
-2	2				0.0			
							3.5-4	SILTY CLAY: Yellowish-brown and brown mottled, damp, slightly plastic, firm, pockets of gray clayey silt, very fine-grained, nonplastic, medium dense to dense.
-4	4					4-6	4-4.3	SANDY CLAY: Reddish-yellow with traces of brown, pale brown and light gray, slightly plastic, damp, firm to soft.
							4.3-6	SILTY CLAY: Brown and yellowish-brown mottled, damp, slightly plastic, firm, trace of roolets at 4.11', seam of sandy clay, gray, nonplastic, loose to medium dense, fine-grained. From 5.2'-5.6' silty clay becomes reddish-yellow with pockets of clayey silt, loose to medium dense, crumbly.
					0.0			
-6	6					6-8	6-7.1	SILTY CLAY: Brown, yellowish-brown, and gray mottled, moist, slightly plastic, firm to stiff, pockets of sandy clay, reddish-yellow, slightly plastic.
							7.1-8.1	SILTY CLAY: Gray and brown mottled with some reddish-yellow that are pockets of sandy clay, damp, slightly plastic. From 7.7'-8' seam of reddish-yellow silty clay, stiff.
					0.0			
-8	8					8-12	8.1-9.8	CLAY WITH SILT, gray with trace of reddish-yellow, dry, hard, plastic. From 9.0'-9.8' becomes gray and reddish-yellow mottled, no silt.
							9.8-14	SILTY CLAY: Reddish-yellow with some gray mottled, dry, plastic, hard, trace of black burrowing throughout and iron staining, becoming harder towards base. From 10.9'-12.10' becomes brown with trace of gray and yellowish-brown mottling, damp to moist, plastic to slightly plastic, soft. From 12.10'-14' becomes firm intermixed with plastic and slightly plastic. From 13.6'-14' pockets of silty clay, gray and sandy clay, red, slightly plastic to nonplastic, medium dense, very fine-grained.
-10	10							

ERM

SB-45
DRILLING LOG

W.O. NO. 581-013 Boring/Well ID SB-45 Date Drilled 11/12/2003

Project Off-Site Delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 24' Boring Diam. 3"

N. Coord. _____ E. Coord. _____ Surface Elevation 0' Ft. MSL Datum

Screen: Type _____ Diam. 2" Length 0' Slot Size 0"

Casing: Type _____ Diam. 0" Length 0' Sump Length 0'

Top of Casing Elevation 0' Stickup 0'

Depth to Water: 1. Ft. 0 (_____) 2. Ft. 0 (_____)

Drilling Company TWF Drilling Driller Ed Wilson

Drilling Method Geoprobe/Hollow Stem Auger Log By Karin Shultz

SKETCH MAP

NOTES

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	OVM Headspace (ppm)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
-10	10				0.0			SANDY CLAY: Red with trace of gray, damp to dry, soft, crumbly, equal amounts of sand and clay. At 14.2' and 14.5' pocket of silty clay, gray, loose to medium dense, very soft.
-12	12				0.0	12-14		CLAY: Light greenish-gray with trace of red mottled, damp to dry, plastic, hard. CLAYEY SILT: Gray, damp, soft, loose, nonplastic, very fine-grained. CLAYEY SAND: Yellowish-red and red mottled, wet, well sorted, rounded, fine-grained, pockets of clayey silt, pale brown, throughout. From 14.10'-15' black burrowing.
-14	14				0.0	14-16	14.0-14.7	SILTY SAND: Red, wet to very wet, medium dense, fine-grained, abundant iron staining, black burrowing.
							14.7-14.9	SILTY GRAVELLY SAND: red and yellowish-red mottled, very wet, poorly to medium sorted, gravel (up to 1/8"-diameter), semi-rounded, increase gravel towards base. At 16' water-saturated.
							14.9-14.10	At 16.7' pocket of silty sand, greenish-gray and bluish-gray, very wet, loose, with some calcareous nodules (up to 1/16"-diameter).
							14.10-15.8	From 16.9'-17' trace of clay content in mixture so clayey silty sand.
							15.8-15.10	Decrease in gravel content to trace.
-16	16				0.0	16-18	15.10-17	CLAYEY GRAVELLY SAND: red and reddish-brown mottled, water-saturated, abundant gravel (up to 3/4"-diameter), semi-rounded, fine-grained to medium-grained, loose to very loose.
							17-18	SILTY GRAVEL: water-saturated, abundant gravels (up to 3/4"-diameter), rounded to semi-angular, medium-graded to well graded, with silt and sand mixtures, yellowish-red and yellowish-brown mottled.
-18	18				0.0	18-20	18-18.9	GRAVELLY SILTY SAND: moist, medium-grained, very loose, trace of gravel (up to 1/16"-diameter), abundant iron staining.
							18.9-19.9	SILTY GRAVELLY SAND: wet to moist, medium-grained, poorly sorted, very loose, abundant gravel (up to 1/8"-diameter).
							19.9-19.11	
-20	20						19.11-20	SILTY CLAYEY SAND: Yellowish-brown, damp, fine-grained, medium dense to dense, slightly plastic to nonplastic.

ERM

SB-45
DRILLING LOG

W.O. NO. 581-013 Boring/Well ID SB-45 Date Drilled 11/12/2003

Project Off-Site Delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 24 ' Boring Diam. 3 "

N. Coord. _____ E. Coord. _____ Surface Elevation 0 ' Ft. MSL Datum

Screen: Type _____ Diam. 2 " Length 0 ' Slot Size 0 "

Casing: Type _____ Diam. 0 " Length 0 ' Sump Length 0 '

Top of Casing Elevation 0 ' Stickup 0 '

Depth to Water: 1. Ft. 0 (_____) 2. Ft. 0 (_____)

Drilling Company TWF Drilling Driller Ed Wilson

Drilling Method Geoprobe/Hollow Stem Auger Log By Karin Shultz

SKETCH MAP

NOTES

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	OVM Headspace (ppm)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
-20	20					20-22	20-21.6	CLAYEY GRAVELLY SAND: yellowish-brown, very wet, rounded gravel (up to 1/16"-diameter), clayey sand mixture, increases clay content towards base. From 20.9'-21.6' abundant gravel.
					0.0		21.6-22	CLAYEY SAND: Dark brown and yellowish-brown mottled, moist, nonplastic, fine-grained, medium dense, with some gravel (up to 3/4"-diameter), becoming dense towards base.
-22	22					22-24	22-23.9	SILTY SAND: Yellowish-brown and medium brown mottled with some black and dark gray mottling, damp, very loose.
					0.0			
-24	24						23.9-24	CLAY: Dark brown with some black, dark gray, and red mottling, damp, plastic, hard, weathered, fissles towards base with iron staining along fractures. T.D. = 24 '
-26	26							
-28	28							
-30	30							

ERM

MW-46
DRILLING LOG

W.O. NO. 581-013 Boring/Well ID MW-46 Date Drilled 11/13/2003

Project Off-Site Delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 22 ' Boring Diam. 3 "

N. Coord. _____ E. Coord. _____ Surface Elevation 0 ' Ft. MSL Datum

Screen: Type 65 Mesh stainless steel Diam. 0.75 " Length 5 ' Slot Size 0.01 "

Casing: Type Schedule 40 PVC Diam. 0.75 " Length 21 ' Sump Length 0 '

Top of Casing Elevation 0 ' Stickup 0 '

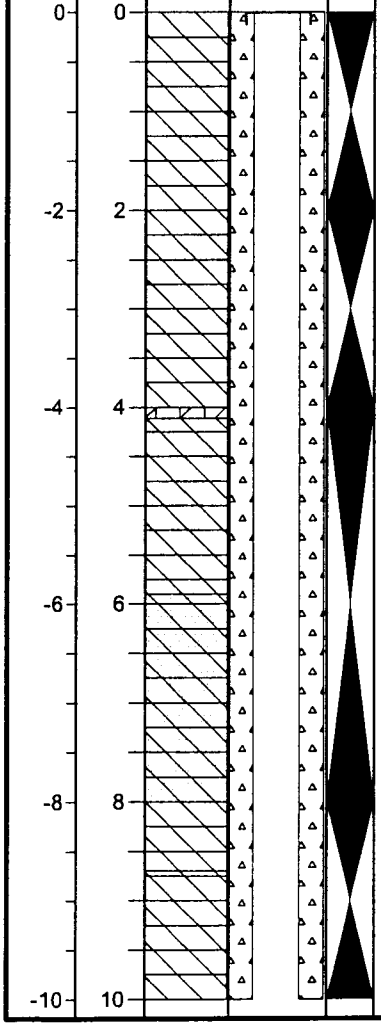
Depth to Water: 1. Ft. 0 (_____) 2. Ft. 0 (_____)

Drilling Company TWF Drilling Driller Ed Wilson

Drilling Method Geoprobe/Hollow Stem Auger Log By Karin Shultz

SKETCH MAP

NOTES



Elevation (Feet)	Depth (Feet)	OVM Headspace (ppm)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
0	0		0-2	0-4	SILTY CLAY: Gray and dark gray mottled, moist, nonplastic, soft, with some iron nodules (1/8"-diameter). From 0.8'-1.1' with some black hard clay nodules (1/8"-diameter). From 1.1'-1.10' slightly plastic, with pockets of sandy silty clay, brown.At 0.7'-1.1' firm, plastic. From 1.10'-2' brownish-gray, plastic to slightly plastic, with seam of clayey sand, reddish-yellow, medium dense, very fine-grained. From 2'-2.3' gray and dark gray with trace of brown mottled, moist, soft, slightly plastic. At 2.2' pocket of black silty clay, plastic. From 2.3'-2.11' brown with gray mottled, damp to dry, stiff, plastic. From 2.11'-3.4' moist, soft,slightly plastic. From 3.4'-3.7' red, yellowish-brown, gray, and light gray mottled, moist, very stiff, plastic. From 3.7'-4' Gray with some yellowish-red mottled, damp, plastic, very stiff to stiff, with iron concretions mottled (1/8"-diameter).
-2	2	0.0	2-4		
-4	4	0.0	4-8	4-4.11	CLAYEY SILT: Gray, damp, nonplastic, loose to medium dense, very fine-grained.
				4.11-5.9	SILTY CLAY: Brownish-gray with trace of pale yellow mottled, damp, plastic, soft. From 5.4'-5.5' pocket of sandy clayey silt mottling, brownish-gray with some dark gray, loose to medium dense, nonplastic. From 5.6'-5.7' pocket of reddish-yellow clayey sand, loose to medium dense, very fine-grained.
-6	6	0.0		5.9-6.5	SANDY SILTY CLAY: Brown with some yellowish-red mottled, dry to damp, slightly plastic, stiff, very fine-grained.
				6.5-8	SILTY SANDY CLAY: Pale brown and medium brown mottled, dry to damp, nonplastic, soft. At 6.8' pocket of very fine silty clay, gray, plastic, very soft. From 7.6'-8' gray and pale brown with some yellowish-red and black mottling, nonplastic, firm.
-8	8		8-12	8-8.7	SILTY CLAY: Gray and medium brown mottled, moist, plastic, soft to firm, becomes softer towards base. At 8.5' pocket of clay, gray, with trace of silt, stiff, plastic.
				8.7-10.11	SILTY CLAY: Gray, damp to dry, firm to stiff, slightly plastic. From 8.10'-8.11' red burrowing, rootlets, seam of sandy silty clay, yellowish-red, nonplastic, firm. From 10'-10.1' and 10.4' pocket of red and black iron resude and concretions, clayey silt, loose. At 10.6'-10.8' caliche.
-10	10				

ERM

MW-46
DRILLING LOG

W.O. NO. 581-013 Boring/Well ID MW-46 Date Drilled 11/13/2003

Project Off-Site Delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 22' Boring Diam. 3"

N. Coord. _____ E. Coord. _____ Surface Elevation 0' Ft. MSL Datum

Screen: Type 65 Mesh stainless steel Diam. 0.75" Length 5' Slot Size 0.01"

Casing: Type Schedule 40 PVC Diam. 0.75" Length 21' Sump Length 0'

Top of Casing Elevation 0' Stickup 0'

Depth to Water: 1. Ft. 0 (_____) 2. Ft. 0 (_____)

Drilling Company TWF Drilling Driller Ed Wilson

Drilling Method Geoprobe/Hollow Stem Auger Log By Karin Shultz

SKETCH MAP

NOTES

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	OVM Headspace (ppm)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
-10	10				0.0		10.11-12	SANDY CLAY: Yellowish-red, damp to dry, hard, slightly plastic. From 10.11'-11' trace of black burrowing, rootlets. From 11.5'-12' seam of clay, gray, plastic, hard.
-12	12				0.0	12-14	12-12.11 12.11-13.8	SILTY CLAY: Gray and light gray, damp to dry, slightly plastic, very stiff, high clay content, with some black burrowing throughout, with sandy silty clay parting, yellowish-red, slightly plastic, stiff. From 12.8'-12.11' increase in black clayey silt. CLAYEY SILTY SAND: Yellowish-red, damp, loose, very fine-grained, with black mottling. From 13.5'-13.8, black iron-stained concretions abundant.
-14	14				0.0	14-16	13.8-14.8	SILTY CLAYEY SAND: Yellowish-red, dense, abundant black nodules, silty clay pocket, gray, trace of gravel towards base.
-16	16				0.0	16-18	14.8-15 15-15.8 15.8-16 16-20	GRAVELLY SAND: CLAYEY GRAVELLY SAND, brown and yellowish-red mottled, wet to moist, nonplastic, dense, medium sorted, rounded grains, abundant gravel (up to 1/8"-diameter) increase towards base. CLAYEY SILTY SAND: Yellowish-red with trace of brown and pale brown mottled, moist, medium dense, fine-grained, pocket of clayey silty sand, gray, loose at 15.3'. CLAYEY SAND: GRAVELLY CLAYEY SAND, yellowish-red, dry, dense, abundant gravel towards base (up to 1/16"-diameter), semi-rounded, fine-grained, with trace of black concretions towards base. CLAYEY SILTY SAND: CLAYEY SILTY GRAVELLY SAND, yellowish-red, water-saturated, loose, with abundant gravel (up to 3/4"-diameter), poorly sorted, angular grains, medium to fine-grained clayey silty sand matrix with gravels that are well graded. At 18' changes to clayey gravelly silty sand, medium to coarse grained matrix silty sandy material.
-18	18				0.0	18-20		
-20	20							

ERM

MW-46
DRILLING LOG

W.O. NO. 581-013 Boring/Well ID MW-46 Date Drilled 11/13/2003

Project Off-Site Delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 22 ' Boring Diam. 3 "

N. Coord. _____ E. Coord. _____ Surface Elevation 0 ' Ft. MSL Datum

Screen: Type 65 Mesh stainless steel Diam. 0.75 " Length 5 ' Slot Size 0.01 "

Casing: Type Schedule 40 PVC Diam. 0.75 " Length 21 ' Sump Length 0 '

Top of Casing Elevation 0 ' Stickup 0 '

Depth to Water: 1. Ft. 0 ( ) 2. Ft. 0 ( )

Drilling Company TWF Drilling Driller Ed Wilson

Drilling Method Geoprobe/Hollow Stem Auger Log By Karin Shultz

SKETCH MAP

NOTES

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	OVM Headspace (ppm)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
-20	20					20-22	20-20.7	SILTY SANDY CLAY: Yellowish-red, very wet, slightly plastic, firm.
							20.7-21.10	SANDY SILTY CLAY: Yellowish-brown, damp, slightly plastic, with some black burrowing. At 21.6' plasticity and hardness increase towards base.
					0.0		21.10-22	CLAY: Brown with some gray layers, plastic, hard, fissiles towards base to shale.
-22	22							T.D. = 22 '
-24	24							
-26	26							
-28	28							
-30	30							

ERM

SB-49
DRILLING LOG

W.O. NO. 581-013 Boring/Well ID SB-49 Date Drilled 11/13/2003

Project Off-Site Delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 20.6' Boring Diam. 3"

N. Coord. _____ E. Coord. _____ Surface Elevation 0' Ft. MSL Datum

Screen: Type _____ Diam. 0" Length 0' Slot Size 0"

Casing: Type _____ Diam. 0" Length 0' Sump Length 0'

Top of Casing Elevation 0' Stickup 0'

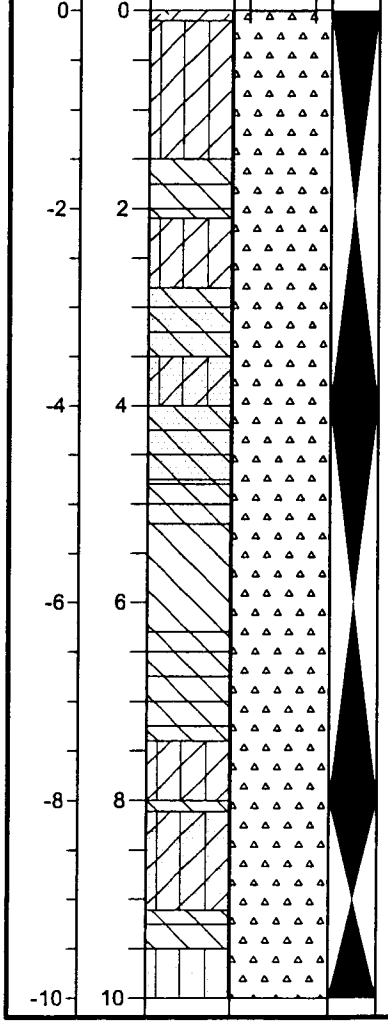
Depth to Water: 1. Ft. 0 (_____) 2. Ft. 0 (_____)

Drilling Company TWF Drilling Driller Ed Wilson

Drilling Method Geoprobe/Hollow Stem Auger Log By Karin Shultz

SKETCH MAP

NOTES



Description/Soil Classification (Color, Texture, Structure)

0-0.10 FILL: CLAYEY SILT with trace of gravel, dark brown, dry, very fine-grained, very loose, rootlets.

0.10-1.5 CLAYEY SILT: Medium brown, dry to damp, very fine-grained, loose, trace of rootlets.
SILTY CLAY: Pale brown, dry, nonplastic, loose to medium dense, firm to soft, crumbly, with occasional gravel pieces, angular (up to 1/2"-diameter), with trace of yellowish-red iron concretions.

1.5-2.1 CLAYEY SILT: Pale brown and light brown, dry, crumbly, very loose, very fine-grained, blocky with trace of yellowish-red clayey sand.

2.1-2.8 SILTY SANDY CLAY: Yellowish-red and pale brown mottled, dry, nonplastic, loose to medium dense, very fine-grained. With a parting of silty clay, gray, slightly plastic, soft.

2.8-3.5 INTERMIXED SANDY CLAYEY SILT AND SILTY CLAY, yellowish-red, dry, loose to medium dense, fine-grained, silty clay is brown and reddish-brown mottled, stiff, slightly plastic, with some black clayey silt pockets throughout, nonplastic, stiff, increasing towards base.

3.5-4 SILTY SANDY CLAY: Medium brown, pale brown, and gray mottled with some yellowish-brown, dry, slightly plastic, very loose, crumbly, trace of rootlets, trace of black clayey silt layering.

4-4.8 From 4.6'-4.8' pocket of black layering and yellowish-red clayey silt, medium dense.

4.8-5.2 SILTY CLAY: Brown, moist, slightly plastic to plastic, very soft.

5.2-6.3 CLAY: Gray and yellowish-red mottled, damp, plastic, very stiff, with a parting of silty clay, yellowish-red, plastic, very stiff.
From 6.9'-6.12' some black and iron staining pockets, loose, nodules (up to 1/16"-diameter).

6.3-7.4 SILTY CLAY: Yellowish-red, dry, slightly plastic, very stiff, with black nodules and staining at 6.9'.

7.4-8 CLAYEY SILT: Yellowish-red, dry, nonplastic, medium dense to loose, nonplastic, with trace of black and red (iron) nodules and stain at 7.10'.
SILTY CLAY: Yellowish-brown and dark brown mottled, moist, plastic to slightly plastic, very soft.

8-8.11 From 8.7'-8.11' becomes yellowish-brown, dry to damp, very stiff, with seam of clayey silt, deep brown, loose to medium dense, rootlets, with some black and iron staining.

8.11-9.5 SANDY SILTY CLAY: Gray, brown, and yellowish-red mottled, dry to damp, slightly plastic to nonplastic, very stiff, slightly crumbly.

9.5-9.10 SANDY CLAYEY SILT: Yellow and gray mottled, dry to damp, very loose to loose, very fine-grained.
From 9.9'-9.10' pocket of clay, brown, plastic, soft to firm.

9.10-10.4 SANDY SILT: Yellowish-red, dry, nonplastic, soft, very loose, very fine-grained.

ERM

SB-49
DRILLING LOG

W.O. NO. 581-013 Boring/Well ID SB-49 Date Drilled 11/13/2003

Project Off-Site Delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 20.6' Boring Diam. 3"

N. Coord. _____ E. Coord. _____ Surface Elevation 0' Ft. MSL Datum

Screen: Type _____ Diam. 0" Length 0' Slot Size 0"

Casing: Type _____ Diam. 0" Length 0' Sump Length 0'

Top of Casing Elevation 0' Stickup 0'

Depth to Water: 1. Ft. 0 (_____) 2. Ft. 0 (_____)

Drilling Company TWF Drilling Driller Ed Wilson

Drilling Method Geoprobe/Hollow Stem Auger Log By Karin Shultz

SKETCH MAP

NOTES

Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	OVM Headspace (ppm)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
-10	10			0.0		10.4-11.5	SANDY SILTY CLAY: Yellowish-red with some pale brown and gray, dry to damp, nonplastic, soft to firm, very fine-grained. From 11'-11.2' pockets of clay, gray and yellowish-red mottled, plastic, firm to soft.
						11.5-12	From 11.2'-1..5' yellowish-red silty clay with loose sandy silt, slightly plastic, firm.
-12	12				12-14	12-12.3	SILTY CLAY: Gray and yellowish-red and red, dry to damp, slightly plastic, stiff, with black burrowing and iron staining.
						12.3-12.8	SILTY SANDY CLAY: Yellowish-brown, brown, and gray mottled, dry, slightly plastic, stiff, with dark gray laminations, slightly loose sediment.
				0.0		12.8-13.10	SILTY CLAY: Brown with some yellowish-red, moist, slightly plastic, soft.
						13.10-14.5	SANDY CLAYEY SILT: Yellowish-brown and pale brown mottled, dry, nonplastic, loose, blocky, crumbly.
-14	14				14-16	14.5-14.11	CLAYEY SILT: Gray with some yellowish-red, dry, dense to loose, very fine-grained.
						14.5-16	SILTY SAND: Red and yellowish-red mottled, dry, loose, fine-grained, with some hard iron nodules (up to 1/4"-diameter). CLAYEY SILTY SAND INTERLAYERED WITH CLAYEY SILT, clayey silty sand is red and yellowish-red, damp, loose to medium dense, fine-grained, clayey silt is gray, medium dense to loose, very fine-grained.
-16	16				16-20	16-17.3	SILTY CLAY AND CLAYEY SILT, medium brown, damp to dry, very loose to medium dense, very crumbly, fine-grained, blocky.
						17.3-19.8	SILTY CLAY TO CLAYEY SILT, brown and dark brown mottled, dry, medium dense to loose, blocky, very fine-grained, nonplastic, very crumbly.
-18	18			0.0			
						19.8-20.6	CLAY: Brown and gray mottled, dry, plastic, very stiff, crumbly. From 19.10'-20.6' hard, turns dark gray, fissiles down to weathered shale. T.D. = 20.6'
-20	20						

MW-50
DRILLING LOG

W.O. NO. 581-013 Boring/Well ID MW-50 Date Drilled 11/13/2003

Project Off-Site Delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 18.6 ' Boring Diam. 3 "

N. Coord. _____ E. Coord. _____ Surface Elevation 0 ' Ft. MSL Datum

Screen: Type 65 Mesh stainless steel Diam. 0.75 " Length 10 ' Slot Size 0.01 "

Casing: Type Schedule 40 PVC Diam. 0.75 " Length 8 ' Sump Length 0 '

Top of Casing Elevation 0 ' Stickup 0 '

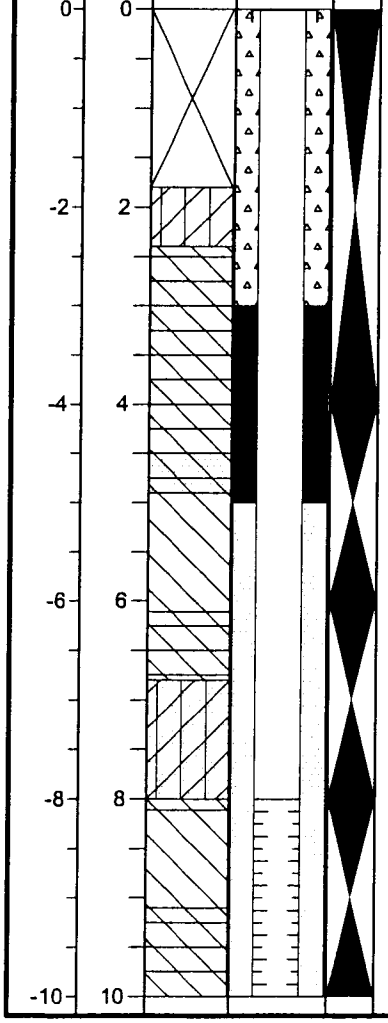
Depth to Water: 1. Ft. 0 (_____) 2. Ft. 0 (_____)

Drilling Company TWF Drilling Driller Ed Wilson

Drilling Method Geoprobe/Hollow Stem Auger Log By Karin Shultz

SKETCH MAP

NOTES



Elevation (Feet)	Depth (Feet)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
0	0	0-4	0-1.8	NO RECOVERY: Sediment too soft.
-2	2		1.8-2.4	CLAYEY SILT: Dark brown, damp, nonplastic, very fine-grained, abundant rootlets, trace of gravel (up to 1/4"-diameter).
			2.4-4.5	SILTY CLAY: Brown, red, and pale brown mottled with some yelloiwsh-red, damp, stiff, slightly plastic, rootlets. From 4'-4.3' becomes brown with trace of gray and dark brown mottling, moist, plastic to slightly plastic, soft. From 4.3'-4.5' damp, plastic, firm.
-4	4	4-6		
			4.5-4.9	SANDY SILTY CLAY INTERMIXED WITH CLAYEY SAND, dark brown with some pale brown and yellowish-red mottled, damp, slightly plastic, stiff, with a parting of silty clay, gray, slightly plastic, soft, with some loose silt.
			4.9-6.8	SILTY CLAY: Brown and pale brown mottled, dry to damp, plastic, soft to firm, with a parting of clayey silt, yellowish-red, loose. From 5.8'-6' becomes slightly plastic to nonplastic, firm, moist. From 6'-6.8' becomes pale brown, damp, slightly plastic, stiff, with a seam of clayey silt, gray, nonplastic, medium dense, with trace of yellowish-red mottled.
-6	6	6-8	6.8-6.10	
			6.8-8	CLAY: Light gray with trace of yellowish-red mottled, damp, plastic, soft to firm, with trace of silt.
-8	8	8-12	8-8.11	SANDY CLAYEY SILT: Yellowish-red with some gray mottling, dry, dense to medium dense, nonplastic, crumbly, very fine-grained, black clayey burrowing, luster, nodules (up to 1/4"-diameter), becomes looser towards base.
			8.11-9.1	SILTY CLAY: Brown with trace of yellowish-red mottled, wet, plastic.
			9.1-11.2	CLAY: Reddish-brown, damp, stiff, plastic. SILTY CLAY: Gray, damp, slightly plastic, stiff to firm, with lamination of silty clayey sand, yellowish-red, nonplastic, trace of iron concretions.
-10	10			

OVM Headspace (ppm): 0.0 (0-4), 0.0 (4-6), 0.0 (6-8)

Well Construction: 4

ERM

MW-50
DRILLING LOG

W.O. NO. 581-013 Boring/Well ID MW-50 Date Drilled 11/13/2003

Project Off-Site Delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 18.6' Boring Diam. 3"

N. Coord. _____ E. Coord. _____ Surface Elevation 0' Ft. MSL Datum

Screen: Type 65 Mesh stainless steel Diam. 0.75" Length 10' Slot Size 0.01"

Casing: Type Schedule 40 PVC Diam. 0.75" Length 8' Sump Length 0'

Top of Casing Elevation 0' Stickup 0'

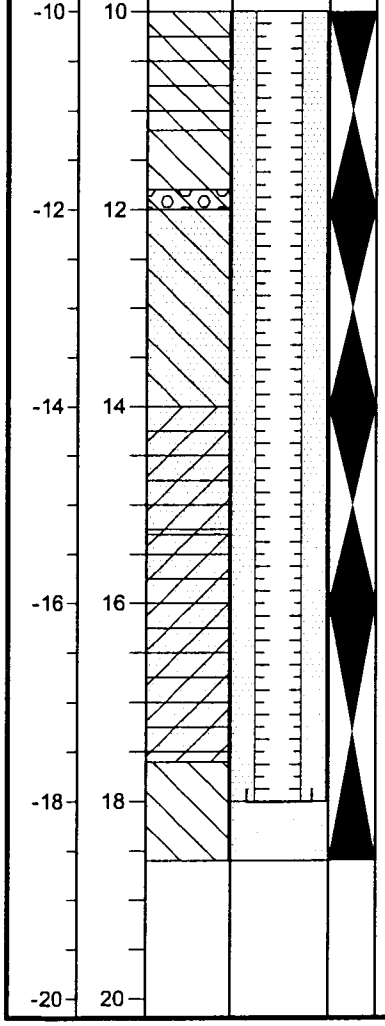
Depth to Water: 1. Ft. 0 (_____) 2. Ft. 0 (_____)

Drilling Company TWF Drilling Driller Ed Wilson

Drilling Method Geoprobe/Hollow Stem Auger Log By Karin Shultz

SKETCH MAP

NOTES



Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	OVM Headspace (ppm)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
-10	10				0.0			
							11.2-11.8	CLAY: Yellowish-red, damp to moist, plastic, very stiff, becoming hard towards base, decreasing moisture towards base.
-12	12					12-14	11.8-12 12-14	GRAVELLY CLAY: Red and dark brown mottled, damp to moist, with abundant gravel (up to 1/2"-diameter), very dense, hard, with abundant iron and black staining. SANDY CLAY: GRAVELLY SANDY CLAY, red and yellowish-brown mottled, wet, abundant gravel (poorly sorted, up to 1"-diameter), in a sandy clayey matrix, dense, nonplastic, hard. Increasing gravelly clayey sand towards base.
					0.0			
-14	14					14-16	14-15.3	CLAYEY SILTY SAND: GRAVELLY CLAYEY SILTY SAND, wet, abundant gravels (up to 1"-diameter), dense to loose, semirounded and angular.
					0.0		15.3-17.6	CLAYEY SILTY SAND: Gray and yellowish-brown, wet, medium dense to very loose, fine-grained.
-16	16					16-18.6		
					0.0			
							17.6-18.6	CLAY: Dark gray, plastic, hard, weathered, fissile to shale at 17.8'.
-18	18							T.D. = 18.6'
-20	20							

ERM

SB-51
DRILLING LOG

W.O. NO. 581-013 Boring/Well ID SB-51 Date Drilled 11/14/2003

Project Off-Site Delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 16 ' Boring Diam. 3 "

N. Coord. _____ E. Coord. _____ Surface Elevation 0 ' Ft. MSL Datum

Screen: Type _____ Diam. 0 " Length 0 ' Slot Size 0 "

Casing: Type _____ Diam. 0 " Length 0 ' Sump Length 0 '

Top of Casing Elevation 0 ' Stickup 0 '

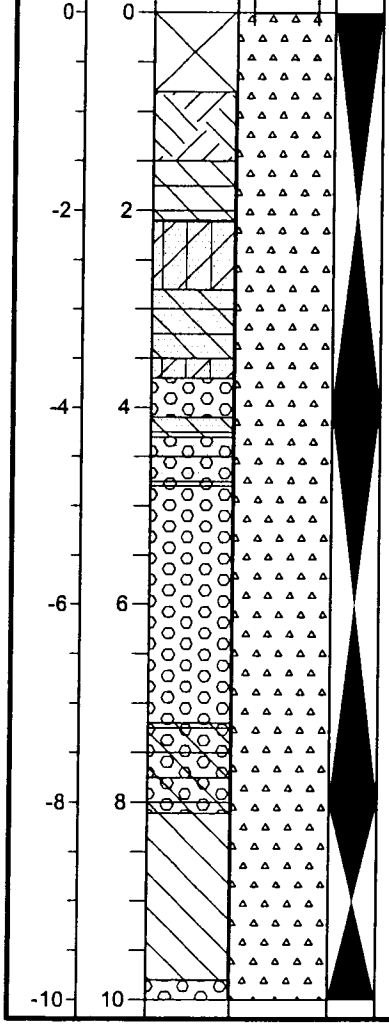
Depth to Water: 1. Ft. 0 (_____) 2. Ft. 0 (_____)

Drilling Company TWF Drilling Driller Ed Wilson

Drilling Method Geoprobe/Hollow Stem Auger Log By Karin Shultz

SKETCH MAP

NOTES



Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	OVM Headspace (ppm)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
0	0					0-4	0-0.8	NO RECOVERY: Sediment too soft. FILL: CLAYEY SILT, dark brown and brown, damp, very loose, nonplastic, abundant rootlets. From 1.2'-1.5' becomes dark brown and gray mottling, slightly plastic, soft, loose, with large pieces of bark.
							0.8-1.5	SILTY CLAY: Medium brown, moist, slightly plastic to plastic, with trace of yellowish-red nodules, trace of rootlets, coarsening down to a silty clay with equal silt and clay amounts at 1.9'.
							1.5-2.1	SANDY CLAYEY SILT: Reddish-yellow, brown, and pale brown mottled, dry, nonplastic, very loose, crumbly, with occassional gravel (up to 1/8"-diameter), trace of dark brown and black mottled towards base.
-2	2				0.0		2.1-2.8	SANDY SILTY CLAY: Gray, light gray, reddish-yellow, brown, and pale brown mottled, dry, slightly plastic, stiff, with some black burrowing towards base.
							2.8-2.11	
							2.11-3.5	SILTY SANDY CLAY: Yellowish-red and black with trace of light gray mottled, dry, very stiff, very crumbly, loose to dense, with abundant black mottling throughout.
							3.5-3.7	SANDY CLAYEY SILT: Gray, yellowish-red, and black mottled, dry, nonplastic, loose to very loose, very fine-grained.
-4	4					4-8	3.7-4.3	
							4.8-4.10	SILTY SANDY CLAY: Deep yellowish-red and some black mottled, dry, hard, nonplastic, with some pockets of iron staining with some gravel (up to 1/4"-diameter).
							4.3-4.8	
							4.10-7.2	GRAVEL: with clayey sandy silt mixture, dry, gravels up to 1/4"-diameter, loose, poorly sorted, well graded, angular, clayey sand crumbles easily.
-6	6				0.0			GRAVELLY SILTY SAND, with clay parting, silty clay parting is gray, hard, plastic, gravelly silty sand is red and deep orange yellowish-red and black mottled, silty sand is matrix with abundant gravel (up to 1/8"-diameter), nonplastic, loose, angular to semi-rounded.
								SANDY CLAYEY GRAVELS INTERMIXES WITH CLAYEY SANDY GRAVELS, abundant gravels (up to 3/4"-diameter), angular to semi-angular, dry, well graded gravels, with a sandy clay matrix, dense, dry.
							7.2-8.11	
-8	8					8-10		GRAVELLY SILTY CLAY, yellowish-red, dry, with gravels (up to 3/4"-diameter), very hard, plastic, with trace of iron staining and black mottling.
							8.11-9.8	
					0.0			CLAY: Yellowish-red, moist, plastic, stiff, with seam of silty clay, slightly plastic, yellowish-red. From 9.3'-9.5' pocket of silty sand intermixed with gravelly clay, very loose, nonplastic, gravel and nodules up to 1/4"-diameter, poorly sorted. From 9.5'-9.8' clay becomes gray, hard, plastic.
-10	10						9.8-11.5	SEE PAGE 2

ERM

SB-51
DRILLING LOG

W.O. NO. 581-013 Boring/Well ID SB-51 Date Drilled 11/14/2003

Project Off-Site Delineation Owner Whirlpool Corporation

Location Fort Smith, AR Boring T.D. 16' Boring Diam. 3"

N. Coord. _____ E. Coord. _____ Surface Elevation 0' Ft. MSL Datum

Screen: Type _____ Diam. 0" Length 0' Slot Size 0"

Casing: Type _____ Diam. 0" Length 0' Sump Length 0'

Top of Casing Elevation 0' Stickup 0'

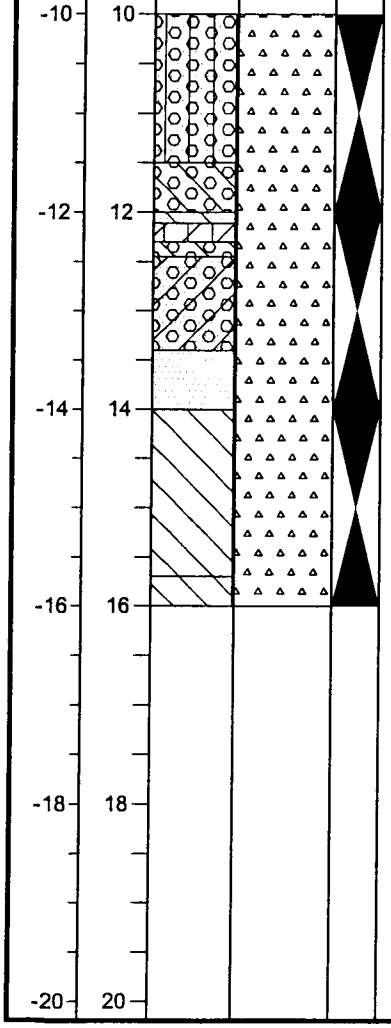
Depth to Water: 1. Ft. 0 (_____) 2. Ft. 0 (_____)

Drilling Company TWF Drilling Driller Ed Wilson

Drilling Method Geoprobe/Hollow Stem Auger Log By Karin Shultz

SKETCH MAP

NOTES



Elevation (Feet)	Depth (Feet)	Graphic Log	Well Construction	Sample Type	OVM Headspace (ppm)	Sample Interval (Feet)	Description Interval (Feet)	Description/Soil Classification (Color, Texture, Structure)
							9.8-11.5	SILTY GRAVELLY SAND, dry, red and yellowish-red mottled, nonplastic, fine-grained, poorly sorted, gravel is up to 3/4"-diameter) in a silty sand matrix.From 10'-11.5' matrix changes to a silty sandy clay, dense, slightly plastic, with some loose silty sand throughout, deeper red and yellowish-red mottled, gravel up to 1"-diameter.
					0.0	10-12		
							11.5-12	CLAYEY GRAVEL, abundant gravel (gray and light gray, angular, well sorted gravel) in a clay matrix (yellowish-red, slightly plastic, hard).
						12-14	12-12.11	
							12.11-12.3	SILTY SANDY CLAY: Yellowish-red and gray mottled, damp, slightly plastic, soft.
							12.3-12.45	CLAYEY SILT: Yellowish-red, loose, very fine-grained, with some occasional gravel up to 1/2"-diameter, angular.
					0.0		12.45-13.4	GRAVELLY CLAY: Dark brown, fractures, breaks easily, weathered, gravel up to 1/4"-diameter with some loose silt.
							13.4-14	GRAVELLY CLAYEY SAND, yellowish-red, moist, abundant gravel from 12.10'-13.2' up to 1"-diameter, with clayey sand mixture, medium-grained, nonplastic.
						14-16	14-15.7	SAND: Yellowish-red, moist, medium-grained, loose with occasional gravel (up to 1/4"-diameter).
					0.0			CLAY: Yellowish-red, damp to dry, very stiff to stiff, plastic, with occasional pockets of sandy clay throughout, hardening towards base.
							15.7-16	CLAY: Dark gray, weathered into shale, very hard, plastic, fractures throughout.
								T.D. = 16'

Well Development Records

Appendix D

June 25, 2004
Project No. 0014507

Environmental Resources Management
15810 Park Ten Place, Suite 300
Houston, Texas 77084-5140
(281) 600-1000

Environmental Resources Management
MONITOR WELL DEVELOPMENT RECORD

Area: Whirlpool
Well No.: MW-39

Client: Whirlpool
Location: Fort Smith
W.O. # 581-013
Developer(s):Lance Harbinson

Date: 7/14/2003
Well Casing Diameter (d_{wc}): 0.75 in.
Borehole Diameter (d_b): 3 in.
Measuring Point: GND
Measuring Point Elevation: ft.

Total Well Depth **TD**: 29.5 ft.
Depth to Water **DTW**: 10.9 ft.
Height of Water Column h_{wc}=TD - DTW 18.6 ft.
Depth to Product, if present, **DTP** --- ft. Use DTP=DTW to calculate h_{wc}, if product is present.
Height of Filter Sand Above Sump h_{fs} 14.5 ft.

Well Volume V_w=3.14 x $(d_{wc}/24)^2$ x h_{wc} x 7.5 gal/ft^3
V_w = 0.42 gal.

Volume of Water in Filter Sand V_{fs} = 3.14 x $((d_b/24)^2 - (d_{wc}/24)^2)$ x 0.3 x h_{fs} x 7.5 gal/ft^3 = 1.54 gal.
Assumed 30% porosity for filter sand.

Borehole Volume $V_b = V_{wc} + V_{fs}$ = 1.96 gal.

Minimum volume to be purged for well development:
Eight borehole volumes 8 x V_b = 15.68 gal.
Volume of water added during well installation + 0 gal.
Minimum volume to be removed 16 gal.

Maximum volume not to exceed if water parameters do not stabilize. Check with **ERM** project manager.
Ten borehole volume: 10 x V_b = 19.6 gal.
Volume of water added during well installation + 0 gal.
Maximum volume to be removed 20 gal.

MONITOR WELL DEVELOPMENT RECORD Date: 7/15/2003 Page 1 of 1

Method: watera pump/peristaltic
Field Instruments:

Area: Whirlpool
Well No.: MW-41

Time	Depth (ft)	Volume Removed (gal)	Volume Cumulative (gal)	pH (std units)	temp. (°C)	SC (µS/cm)	turbidity (NTU / FTU)	Color	Comments	Date
1641	10.9						Turbid/silty	Brown	Watera	7/14/03
1810		5	5				Turbid/silty	Brown	Watera	7/14/03
825	10.9						Turbid/silty	Brown	Peristaltic	7/15/03
845							Turbid/silty	Brown	Watera	7/15/03
905							Turbid/silty	Brown	Watera	7/15/03
922		6	6				Turbid/silty	Brown	Watera	7/15/03
1008	10.88	5	11	5.95	23.06	0.995	Turbid/silty	Brown	Watera	7/16/03
1058				7.10	28.86	0.008	Turbid/silty	Brown	Peristaltic	7/16/03
1103				7.10	28.86	0.008	Milky/silty	Clear	Peristaltic	7/16/03
1108				7.10	28.86	0.008	Milky/silty	Clear	Peristaltic	7/16/03
1120				7.10	28.86	0.008	---	Clear	Peristaltic	7/16/03
1130				7.10	28.86	0.008	---	Clear	Peristaltic	7/16/03
1140				7.10	28.86	0.008	---	Clear	Peristaltic	7/16/03
1150		5	16	7.10	28.86	0.008	---	Clear	Peristaltic	7/16/03

Environmental Resources Management
MONITOR WELL DEVELOPMENT RECORD

Area: Whirlpool
Well No.: MW-40

Client: Whirlpool
Location: Fort Smith
W.O. # 581-013
Developer(s):Lance Harbinson

Date: 7/15/2003
Well Casing Diameter (d_{wc}): 0.75 in.
Borehole Diameter (d_b): 3 in.
Measuring Point: GND
Measuring Point Elevation: ft.

Total Well Depth **TD**: 27.8 ft.
Depth to Water **DTW**: 9.11 ft.
Height of Water Column h_{wc}=TD - DTW: 18.6 ft.
Depth to Product, if present, **DTP**: --- ft. Use DTP=DTW to calculate h_{wc}, if product is present.
Height of Filter Sand Above Sump h_{fs}: 14.5 ft.

Well Volume V_w=3.14 x $(d_{wc}/24)^2$ x h_{wc} x 7.5 gal/ft^3
V_w = 0.43 gal.

Volume of Water in Filter Sand V_{fs} = 3.14 x ($(d_b/24)^2$ - $(d_{wc}/24)^2$) x 0.3 x h_{fs} x 7.5 gal/ft^3 = 1.56 gal.
Assumed 30% porosity for filter sand.

Borehole Volume V_b = V_{wc} + V_{fs} = 2 gal.

Minimum volume to be purged for well development:
Eight borehole volumes 8 x V_b = 16 gal.
Volume of water added during well installation + 0 gal.
Minimum volume to be removed 16 gal.

Maximum volume not to exceed if water parameters do not stabilize. Check with **ERM** project manager.
Ten borehole volumes 10 x V_b = 20 gal.
Volume of water added during well installation + 0 gal.
Maximum volume to be removed 20 gal.

MONITOR WELL DEVELOPMENT RECORD Date: 7/15/2003 Page 1 of 1

Method: Watera/peristaltic pump
Field Instruments:

Area: Whirlpool
Well No.: MW-40

Time	Depth (ft)	Volume Removed (gal)	Volume Cumulative (gal)	pH (std units)	temp. (°C)	SC (µS/cm)	turbidity (NTU / FTU)	Color	Comments	Date
1000	9.11						Turbid/silty	Brown	Watera	7/15/03
1015							Turbid/silty	Brown	Watera	7/15/03
1045							Turbid/silty	Brown	Watera	7/15/03
1115		2.5	2.5	5.55	24	0.621	Turbid/silty	Light brown	Peristaltic	7/15/03
1305	9.81						Turbid/silty	Brown	Watera	7/16/03
1450		5	7.5				Turbid/silty	Brown	Peristaltic	7/16/03
1505				5.15	24.19	0.632	---	Clear	Peristaltic	7/16/03
1515				5.35	24.70	0.631	---	Clear	Peristaltic	7/16/03
1525				5.40	24.41	0.631	---	Clear	Peristaltic	7/16/03
1535				5.44	24.42	0.63	---	Clear	Peristaltic	7/16/03
1545				5.43	29.39	0.629	---	Clear	Peristaltic	7/16/03
1555				5.41	24.20	0.629	---	Clear	Peristaltic	7/16/03
1605				5.40	24.10	0.629	---	Clear	Peristaltic	7/16/03
1615				5.39	24.21	0.629	---	Clear	Peristaltic	7/16/03
1625				5.35	24.10	0.629	---	Clear	Peristaltic	7/16/03
1635				5.33	23.99	0.629	---	Clear	Peristaltic	7/16/03
1645				5.30	23.94	0.628	---	Clear	Peristaltic	7/16/03
1655		10	17.5	5.28	23.92	0.629	---	Clear	Peristaltic	7/16/03

Environmental Resources Management
MONITOR WELL DEVELOPMENT RECORD

Area: Whirlpool
Well No.: MW-41

Client: Whirlpool
Location: Fort Smith
W.O. # 581-013
Developer(s):Troy Meinen and Lance Harbinson

Date: 7/15/2003
Well Casing Diameter (d_{wc}): 0.75 in.
Borehole Diameter (d_b): 8 in.
Measuring Point: GND
Measuring Point Elevation: ft.

Total Well Depth **TD**: 28.7 ft.
Depth to Water **DTW**: 7.95 ft.

Well Volume $V_w = 3.14 \times (d_{wc}/24)^2 \times h_{wc} \times 7.5$ gal/ft^3
V_w = 0.47 gal.

Height of Water Column h_{wc}=TD - DTW: 20.75 ft.
Depth to Product, if present, **DTP**: --- ft. Use DTP=DTW to calculate h_{wc}, if product is present.
Height of Filter Sand Above Sump h_{fs}: 12.7 ft.
Volume of Water in Filter Sand $V_{fs} = 3.14 \times ((d_b/24)^2 - (d_{wc}/24)^2) \times 0.3 \times h_{fs} \times 7.5$ gal/ft^3 = 9.78 gal.
Assumed 30% porosity for filter sand.

Borehole Volume $V_b = V_{wc} + V_{fs}$ = 10.25 gal.

Minimum volume to be purged for well development:
Eight borehole volumes $8 \times V_b$ = 82 gal.
Volume of water added during well installatio + 0 gal.
Minimum volume to be removed 82 gal.

Maximum volume not to exceed if water parameters do not stabilize. Check with **ERM** project manager.
Ten borehole volume: $10 \times V_b$ = 102 gal.
Volume of water added during well installatio + 0 gal.
Maximum volume to be removed 102 gal.

MONITOR WELL DEVELOPMENT RECORD Date: 7/15/2003 Page 1 of 2

Method: Watera/peristaltic pump
Field Instruments:

Area: Whirlpool
Well No.: MW-41

Time	Depth (ft)	Volume Removed (gal)	Volume Cumulative (gal)	pH (std units)	temp. (°C)	SC (µS/cm)	turbidity (NTU / FTU)	Color	Comments	Date
815	7.5	2.5					Turbid	Brown	Watera	7/15/03
845	7.5		5				Turbid	Brown	Watera	7/16/03
845	28	2.5	5				Turbid	Brown	Watera	7/16/03
855	8.5						Turbid	Brown	Watera	7/16/03
905	22	1.5					Turbid	Brown	Watera	7/16/03
920	22	3	8	6.66	24.92	522	Turbid	Brown	Watera	7/16/03
945	22	2	10				Turbid	Brown	Watera	7/16/03
1715	7.65						Turbid	Brown	Watera	7/16/03
1755		5	15	5.55	26.23	0.757	Turbid	Brown	Watera	7/16/03
1810		5	20	5.21	22.61	0.749	Turbid	Brown	Watera	7/16/03
1822		5	25	5.07	20.69	0.741	Turbid	Brown	Watera	7/16/03
1253	7.62	5	30	4.89	19.67	0.717	---	Clear	Peristaltic	7/17/03
1300				4.96	19.74	0.705	---	Clear	Peristaltic	7/17/03
1310		5	35	4.99	19.80	0.698	---	Clear	Peristaltic	7/17/03
1320				4.91	19.80	0.691	---	Clear	Peristaltic	7/17/03
1330		5	40	4.92	20.04	0.690	---	Clear	Peristaltic	7/17/03
1400		5	45	4.8	19.25	0.685	---	Clear	Peristaltic	7/17/03
1410				4.76	19.57	0.682	---	Clear	Peristaltic	7/17/03
1420		5	50	4.79	19.26	0.682	---	Clear	Peristaltic	7/17/03

Date:7/15/2003

Area: Whirlpool
Well No.: MW-41

Time	Depth (ft)	Volume Removed (gal)	Volume Cumulative (gal)	pH (std units)	temp. (°C)	SC (µS/cm)	turbidity (NTU / FTU)	Color	Comments	Date
1440		5	55	4.75	19.37	0.680	---	Clear	Peristaltic	7/17/03
1500		5	60	4.70	19.26	0.679	---	Clear	Peristaltic	7/17/03
1520		5	65	4.80	19.77	0.679	---	Clear	Peristaltic	7/17/03
1525		5	70	4.73	19.52	0.678	---	Clear	Peristaltic	7/17/03
1545		5	75	4.53	19.41	0.680	Turbid	Brown	Watera	7/17/03
1615		5	80	4.70	20.55	0.678	Turbid	Brown	Watera	7/17/03
1640		5	85	4.59	19.79	0.680	---	Clear	Peristaltic	7/17/03

Environmental Resources Management
MONITOR WELL DEVELOPMENT RECORD

Area: Whirlpool- Fort Smith, AK
Well No.: MW-42B

Client: Whirlpool
Location: Fort Smith, AK
W.O. #581-013/ 0014507

Developer(s):

Date: 11/13/2004, 11/14/2004, 11/15/2004
Well Casing Diameter (d_{wc}): 3/4 in.
Borehole Diameter (d_b): 3 in.
Measuring Point: Ground Surface
Measuring Point Elevation: ft.

Total Well Depth **TD**: 27 ft.
Depth to Water **DTW**: 7.2 ft.

Well Volume $\mathbf{V_w}$=3.14 x $(d_{wc}/24)^2$ x h_{wc} x 7.5 gal/ft^3
V_w = 0.5 gal.

Height of Water Column $\mathbf{h_{wc}}$=TD - DTW 19.8 ft.
Depth to Product, if present, **DTP** ft. Use DTP=DTW to calculate h_{wc}, if product is present.
Height of Filter Sand Above Sump $\mathbf{h_{fs}}$ 4 ft.
Volume of Water in Filter Sand $\mathbf{V_{fs}}$ = 3.14 x $((d_b/24)^2 - (d_{wc}/24)^2)$ x 0.3 x h_{fs} x 7.5 gal/ft^3 = 0.4 gal.
Assumed 30% porosity for filter sand.

Borehole Volume $\mathbf{V_b}$ = V_{wc} + V_{fs} = 0.9 gal.

Minimum volume to be purged for well development:
Five borehole volume: 5 x V_b = 4 gal.
Volume of water added during well installatio + gal.
Minimum volume to be removed 4 gal.

Maximum volume not to exceed if water parameters do not stabilize. Check with **ERM** project manager.
Ten borehole volumes: 10 x V_b = 9 gal.
Volume of water added during well installatio + gal.
Maximum volume to be removed 9 gal.

MONITOR WELL DEVELOPMENT RECORD

Method:
Field Instruments: peristaltic pump, YSI

Area: Whirlpool- Fort Smith, AK
Well No.: MW-42B

Time	Depth (ft)	Volume Removed (gal)	Volume Cumulative (gal)	pH (std units)	temp. (°C)	SC (µS/cm)	turbidity (NTU / FTU)	Color	Comments
11/13/2003									
~1200									begin pumping
1205		0.67	0.67						pumped dry
~1420									still dry
~1535									insufficient head
11/14/2003									
855									collect sample, dry
11/15/2003									
~1328									begin pumping
~1328		0.125	0.795						pumped dry
4/15/2004									
1432									begin pumping
1436		0.5	1.295	5.41	19.9	1046	530		
1441		0.5	1.795	5.42	20.4	1036	1000		
1446		0.5	2.295	5.17	20.36	1059	1000		
1448									pumped dry
1615									collect sample

MONITOR WELL DEVELOPMENT RECORD Date:_____ Page _____ of _____

Environmental Resources Management
MONITOR WELL DEVELOPMENT RECORD

Area: Whirlpool- Fort Smith, AK
Well No.: MW-43

Client: Whirlpool
Location: Fort Smith, AK
W.O. #581-013/ 0014507

Developer(s): Tristram Dodds

Date: 11/13/2004, 11/14/2004, 11/15/2004
Well Casing Diameter (d_{wc}): 3/4 in.
Borehole Diameter (d_b): 3 in.
Measuring Point: Ground Surface
Measuring Point Elevation: ft.

Total Well Depth **TD**: 26 ft.
Depth to Water **DTW**: 10.68 ft.
Height of Water Column $\mathbf{h_{wc}}$=TD - DTW 15.32 ft.
Depth to Product, if present, **DTP** ft.
Height of Filter Sand Above Sump $\mathbf{h_{fs}}$ 11 ft.

Well Volume $\mathbf{V_w}$=3.14 x $(d_{wc}/24)^2$ x h_{wc} x 7.5 gal/ft^3
V_w = 0.4 gal.

Use DTP=DTW to calculate h_{wc}, if product is present.

Volume of Water in Filter Sand $\mathbf{V_{fs}}$ = 3.14 x $((d_b/24)^2 - (d_{wc}/24)^2)$ x 0.3 x h_{fs} x 7.5 gal/ft^3 = 1.1 gal.
Assumed 30% porosity for filter sand.

Borehole Volume $\mathbf{V_b}$ = V_{wc} + V_{fs} = 1.5 gal.

Minimum volume to be purged for well development:
Five borehole volume: 5 x V_b = 7 gal.
Volume of water added during well installatio + gal.
Minimum volume to be removed 7 gal.

Maximum volume not to exceed if water parameters do not stabilize. Check with **ERM** project manager.
Ten borehole volumes: 10 x V_b = 15 gal.
Volume of water added during well installatio + gal.
Maximum volume to be removed 15 gal.

MONITOR WELL DEVELOPMENT RECORD

Method:
Field Instruments: peristaltic pump, YSI

Area: Whirlpool- Fort Smith, AK
Well No.: MW-43

Time	Depth (ft)	Volume Removed (gal)	Volume Cumulative (gal)	pH (std units)	temp. (°C)	SC (µS/cm)	turbidity (NTU / FTU)	Color	Comments
11/13/2003									
~1300									begin pumping
1306		0.5	0.5						pumped dry
1429									still dry
1535									insufficient head
11/14/2003									
915									collect sample, dry
11/15/2003									
~1331									begin pumping
~1340		0.125	0.625						pumped dry
4/15/2004									
1507									begin pumping
1512		0.5	1.125	9.48	19.53	381	234		
1517		0.5	1.625	7.13	19.28	388	1000		
1522		0.5	2.125	6.97	19.41	414	1000		
1526									pumped dry
1625									collect sample

Environmental Resources Management
MONITOR WELL DEVELOPMENT RECORD

Area: Whirlpool- Fort Smith, AK
Well No.: MW-46

Client: Whirlpool
Location: Fort Smith, AK
W.O. #581-013/ 0014507

Developer(s):

Date: 11/13/2004, 11/14/2004, 11/15/2004
Well Casing Diameter (d_{wc}): 3/4 in.
Borehole Diameter (d_b): 3 in.
Measuring Point: Ground Surface
Measuring Point Elevation: ft.

Total Well Depth **TD**: 22 ft.
Depth to Water **DTW**: 8.55 ft.
Height of Water Column $\mathbf{h_{wc}}$=TD - DTW 13.45 ft.
Depth to Product, if present, **DTP** ft. Use DTP=DTW to calculate h_{wc}, if product is present.
Height of Filter Sand Above Sump $\mathbf{h_{fs}}$ 7 ft.

Well Volume $\mathbf{V_w}$=3.14 x $(d_{wc}/24)^2$ x h_{wc} x 7.5 gal/ft^3
V_w = 0.3 gal.

Volume of Water in Filter Sand $\mathbf{V_{fs}}$ = 3.14 x $((d_b/24)^2 - (d_{wc}/24)^2)$ x 0.3 x h_{fs} x 7.5 gal/ft^3 = 0.7 gal.
Assumed 30% porosity for filter sand.

Borehole Volume $\mathbf{V_b}$ = V_{wc} + V_{fs} = 1.0 gal.

Minimum volume to be purged for well development:
Five borehole volume: 5 x V_b = 5 gal.
Volume of water added during well installatio + gal.
Minimum volume to be removed 5 gal.

Maximum volume not to exceed if water parameters do not stabilize. Check with **ERM** project manager.
Ten borehole volumes 10 x V_b = 10 gal.
Volume of water added during well installatio + gal.
Maximum volume to be removed 10 gal.

MONITOR WELL DEVELOPMENT RECORD

Method:
Field Instruments: peristaltic pump, YSI

Area: Whirlpool- Fort Smith, AK
Well No.: MW-46

Time	Depth (ft)	Volume Removed (gal)	Volume Cumulative (gal)	pH (std units)	temp. (°C)	SC (µS/cm)	turbidity (NTU / FTU)	Color	Comments
11/13/2003									
~1400									begin pumping
1412		0.5	0.5						pumped dry
1550									insufficient head
11/14/2003									
950									collect sample, dry
11/15/2003									
~1342									begin pumping
~1347		0.25	0.75						pumped dry
4/15/2004									
1537									begin pumping
1541		0.5	1.25	7.29	19.5	4.2	424		
1546		0.5	1.75	7.01	19.59	421	929		
1551		0.5	2.25	6.92	19.63	425	1000		pumped dry
1635									collect sample

Environmental Resources Management
MONITOR WELL DEVELOPMENT RECORD

Area: Whirlpool- Fort Smith, AK
Well No.: MW-50

Client: Whirlpool
Location: Fort Smith, AK
W.O. #581-013/ 0014507

Developer(s):

Date: 11/15/2004
Well Casing Diameter (d_{wc}): 3/4 in.
Borehole Diameter (d_b): 3 in.
Measuring Point: Ground Surface
Measuring Point Elevation: ft.

Total Well Depth **TD**: 18.6 ft.
Depth to Water **DTW**: 11.75 ft.
Height of Water Column $\mathbf{h_{wc}}$=TD - DTW 6.85 ft.
Depth to Product, if present, **DTP** ft. Use DTP=DTW to calculate h_{wc}, if product is present.
Height of Filter Sand Above Sump $\mathbf{h_{fs}}$ 13.6 ft.

Well Volume $\mathbf{V_w}$=3.14 x $(d_{wc}/24)^2$ x h_{wc} x 7.5 gal/ft^3
V_w = 0.2 gal.

Volume of Water in Filter Sand $\mathbf{V_{fs}}$ = 3.14 x $((d_b/24)^2 - (d_{wc}/24)^2)$ x 0.3 x h_{fs} x 7.5 gal/ft^3 = 1.4 gal.
Assumed 30% porosity for filter sand.

Borehole Volume $\mathbf{V_b}$ = V_{wc} + V_{fs} = 1.6 gal.

Minimum volume to be purged for well development:
Five borehole volume: 5 x V_b = 8 gal.
Volume of water added during well installatio + gal.
Minimum volume to be removed 8 gal.

Maximum volume not to exceed if water parameters do not stabilize. Check with **ERM** project manager.
Ten borehole volumes 10 x V_b = 16 gal.
Volume of water added during well installatio + gal.
Maximum volume to be removed 16 gal.

Method:
Field Instruments: peristaltic pump, YSI

Area: Whirlpool- Fort Smith, AK
Well No.: MW-50

Time	Depth (ft)	Volume Removed (gal)	Volume Cumulative (gal)	pH (std units)	temp. (°C)	SC (µS/cm)	turbidity (NTU / FTU)	Color	Comments
4/15/2004									
1603									begin pumping
1606				6.33	19.51	426	510		
1609									pumped dry