



January 31, 2013

Mr. Stephen Nightingale, P.E.  
Illinois Environmental Protection Agency  
Bureau of Land  
1021 North Grand Avenue East  
Springfield, Illinois 62794

**Subject: ROST Assessment Plan  
Equilon Enterprises LLC dba Shell Oil Product US  
Roxana, Illinois  
1191150002 -- Madison County  
ILD080012305  
Log No. B-43R**

Dear Mr. Nightingale:

URS Corporation (URS), on behalf of Shell Oil Products US (SOPUS), is submitting this ROST Assessment Plan for 146, 147 and 150 East 4<sup>th</sup> St., Roxana, IL. The Plan outlines a scope of work to collect additional subsurface information at the subject properties.

If you have any questions concerning this request, please contact Kevin Dyer, SOPUS Principal Program Manager at (618) 288-7237 or [Kevin.dyer@shell.com](mailto:Kevin.dyer@shell.com) or me at (314) 743-4108 or [bob.billman@urs.com](mailto:bob.billman@urs.com).

Sincerely,

A handwritten signature in blue ink that reads "Robert B. Billman".

Robert B. Billman  
Senior Project Manager

cc: Kevin Dyer, SOPUS  
Amy Boley, IEPA Springfield  
Jim Moore, IEPA - Springfield  
File

# ROST Assessment Plan 146, 147 and 150 E 4<sup>th</sup> Street Roxana, Illinois

## Introduction

This Plan outlines a scope of work to collect additional subsurface information at the subject properties. The scope of work includes Cone Penetration Testing (CPT) and Laser Induced Fluorescence (e.g., Rapid Optical Screening Tool (ROST<sup>TM</sup>)) to provide continuous vertical characterization of stratigraphy and petroleum hydrocarbon distribution. Information collected as part of this Plan will be integrated with previously collected data to refine the conceptual model and design for application of air sparge at these properties.

Groundwater samples were collected by URS at groundwater profile locations GWP-5, -6 and -7 as part of 2009 site assessment work near the subject properties (see **Figure 1**). Benzene concentrations in groundwater at a depth of 58 feet below ground surface (bgs) were 1.41 mg/L, 7.42 mg/L and 16.3 mg/L, respectively for GWP-5, -6 and -7. CPT/ROST probe locations ROST-5, -8 and -9 along the eastern side of the properties and ROST-7 and -20 to the west were also installed as part of 2009 site assessment work. These probes extended to depths ranging approximately 46 to 50 feet bgs (see **Attachment 1** for CPT/ROST logs). Based on this information, the completion depth of these CPT/ROST locations did not appear to fully characterize impact beyond 50 feet bgs.

## Data Collection

Work will be conducted on Shell-owned properties. The locations will be marked for clearance by the Joint Utility Locating Information for Excavators (JULIE) process. As subsurface utility information is known from house demolition activities, borehole-specific clearing techniques (e.g., air knife) are not planned for this work.

CPT/ROST (performed simultaneously) probes will be advanced at 12 locations as shown on **Figure 2**. Probe locations ROST-31, -38 and -42 were selected to be close to groundwater profiling locations GWP-5, -6 and -7, respectively. The location for ROST-32 was selected for evaluating subsurface conditions between existing ROST-20 and proposed ROST-31. The locations for ROST-33, -34 and -35 were selected for evaluating subsurface conditions between proposed ROST-31 and -32, and proposed ROST-36 and -37. The location for ROST-36 was selected for evaluating subsurface conditions between existing ROST-7 and -20 and proposed ROST-37 and -38. The location for ROST-37 is positioned at the approximate location of former subslab port C, since information from that port historically wasn't fully understood, and could have been affected by subsurface conditions in the area. The location for ROST-39 was selected for evaluating subsurface conditions between existing ROST-7 and proposed ROST-42. The locations for ROST-40 and -41 were selected for evaluating subsurface conditions between proposed ROST-39 and -42.

Each probe will extend to a depth sufficient to assess the lower extent of apparent impact. Groundwater analytical data for GWP-5, -6 and -7 indicates impacts at depths beyond 58 feet bgs. For this Plan, it is anticipated the probes will extend to depths ranging 60 to 70 feet bgs.

Upon completion, each probe hole will be backfilled with bentonite grout and the ground surface will be returned to its prior condition.

Field data collection work will be conducted in accordance with a Health and Safety Plan (HASP) for the work. Decontamination and investigation derived waste (IDW) will be managed in accordance with procedures in place for work in Roxana.

## **Data Assessment and Deliverable**

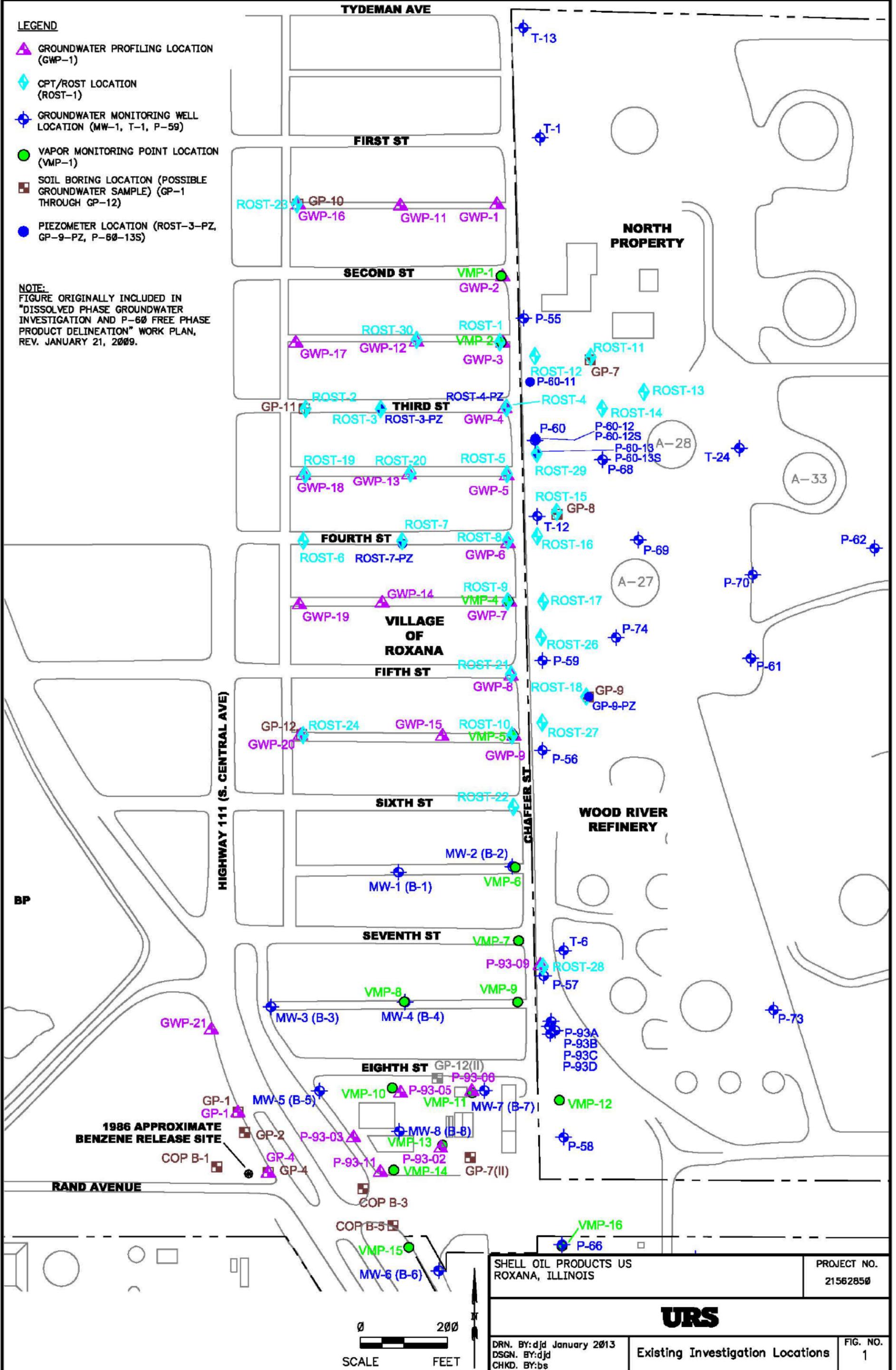
The following data assessment activities are planned:

- The CPT/ROST subcontractor will provide a data report, including a description of the investigative technologies, general data interpretation and the CPT and ROST logs.
- URS will integrate the results of this work with relevant existing data to refine our understanding of subsurface conditions and petroleum hydrocarbon distribution at the subject properties. One particular focus will be to refine the characterization of fine grained materials previously encountered in the area at depths approximately 20 to 25 feet bgs. URS will develop applicable maps and cross sections to depict the data. At present, we anticipate developing two east-west cross sections (one north and one south of 4<sup>th</sup> St.) and one north-south cross section which extends through 150 E 4<sup>th</sup> and 147 E 4<sup>th</sup> Street.
- Applicable data will be used by URS to refine the design for the air sparge pilot test at the subject properties.

The deliverable for this work will be a brief write-up along with the CPT/ROST report and supporting figures. We currently anticipate this information will be included in the air sparge pilot test plan.

### **Schedule**

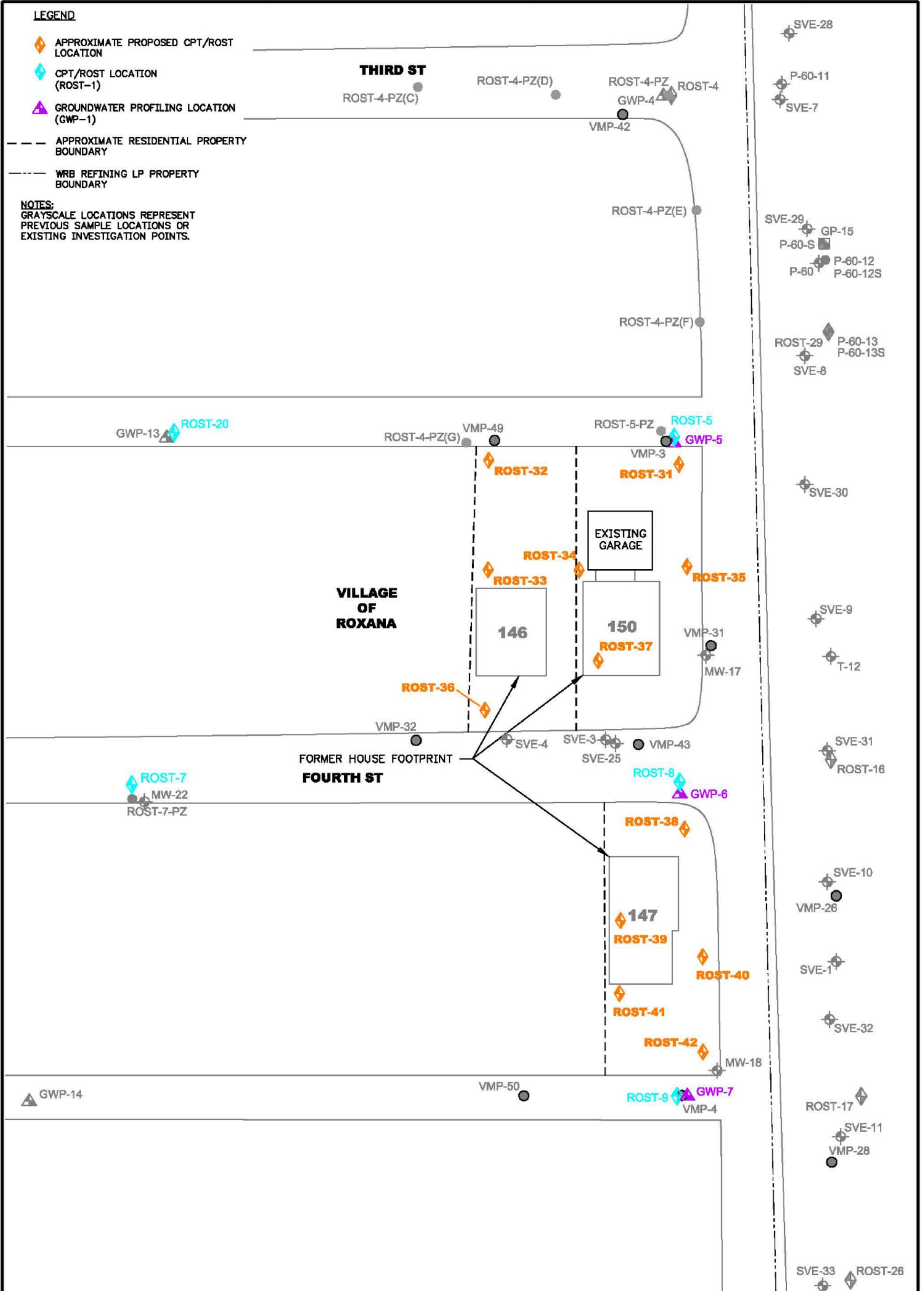
URS anticipates site work for CPT/ROST probe installation can be completed in approximately 4-5 days. A CPT/ROST contractor (Fugro) indicated they could provide their data report within one week of completing the work. We expect a total time of approximately four weeks from the start of field work to completion of the deliverable.



**LEGEND**

-  APPROXIMATE PROPOSED CPT/ROST LOCATION
-  CPT/ROST LOCATION (ROST-1)
-  GROUNDWATER PROFILING LOCATION (GWP-1)
-  APPROXIMATE RESIDENTIAL PROPERTY BOUNDARY
-  WRB REFINING LP PROPERTY BOUNDARY

**NOTES:**  
 GRAYSCALE LOCATIONS REPRESENT PREVIOUS SAMPLE LOCATIONS OR EXISTING INVESTIGATION POINTS.



SHELL OIL PRODUCTS US ROXANA, ILLINOIS		PROJECT NO. 21562850
URS		
DRN. BY: djd January 2013 DSGN. BY: djd CHKD. BY: bs	Proposed Probe Locations	FIG. NO. 2

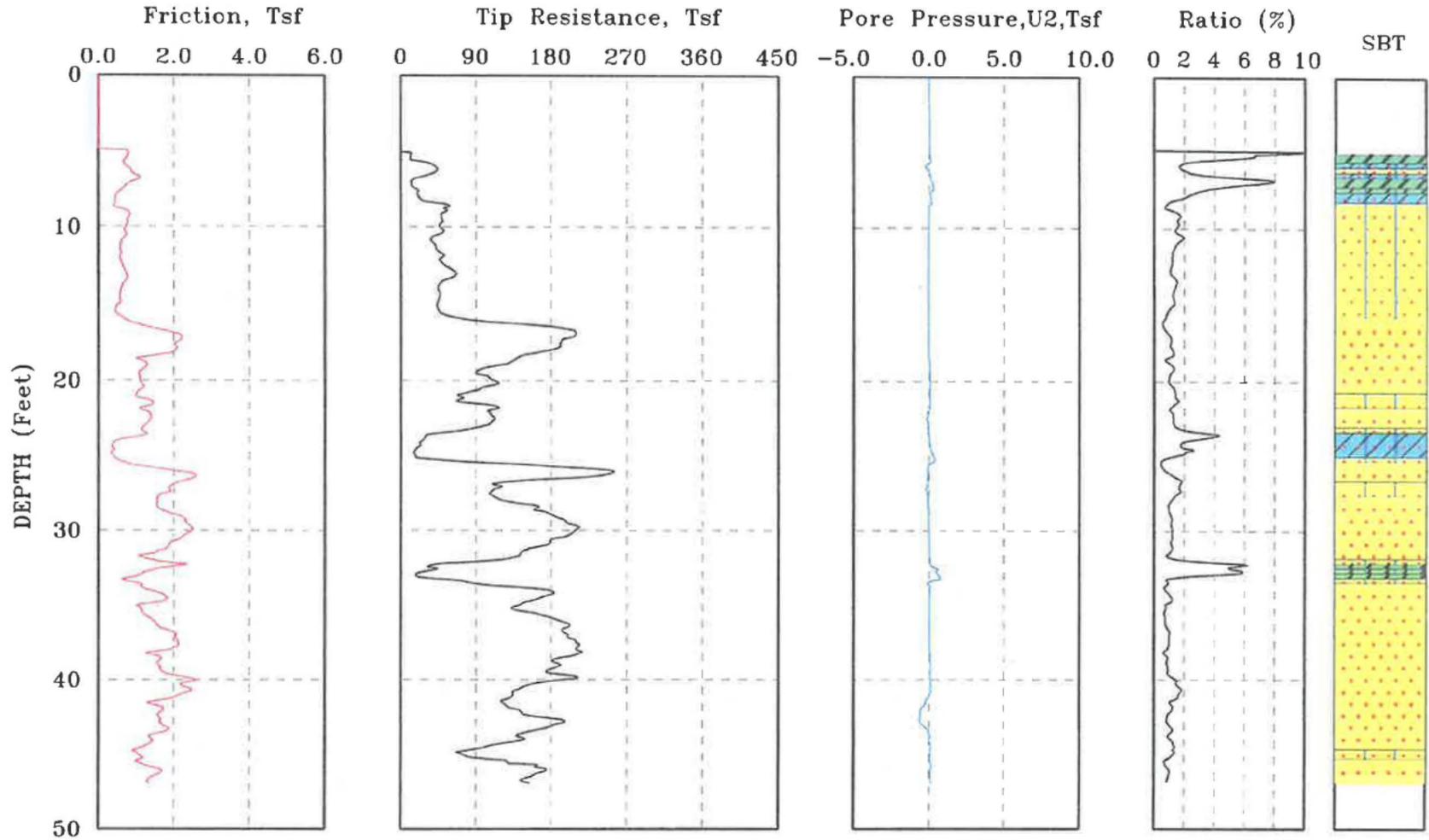


- Existing CPT/ROST Logs

FUGRO GEOSCIENCES, INC.

CPT No : ROST-05  
JOB No : 04.1909-0044  
CONE No : F7.5CKE2HAW21344

SITE : Roxana, IL  
CLIENT : URS Corporation  
OPERATOR : DANIEL GARZA  
DATE : 25-Aug-2009



### ROST Fluorescence Response Data

Site: Connoco-Roxana, IL

Client: URS

Date/Time: 8/25/2009 @ 5:29:23 PM

ROST Unit: Houston

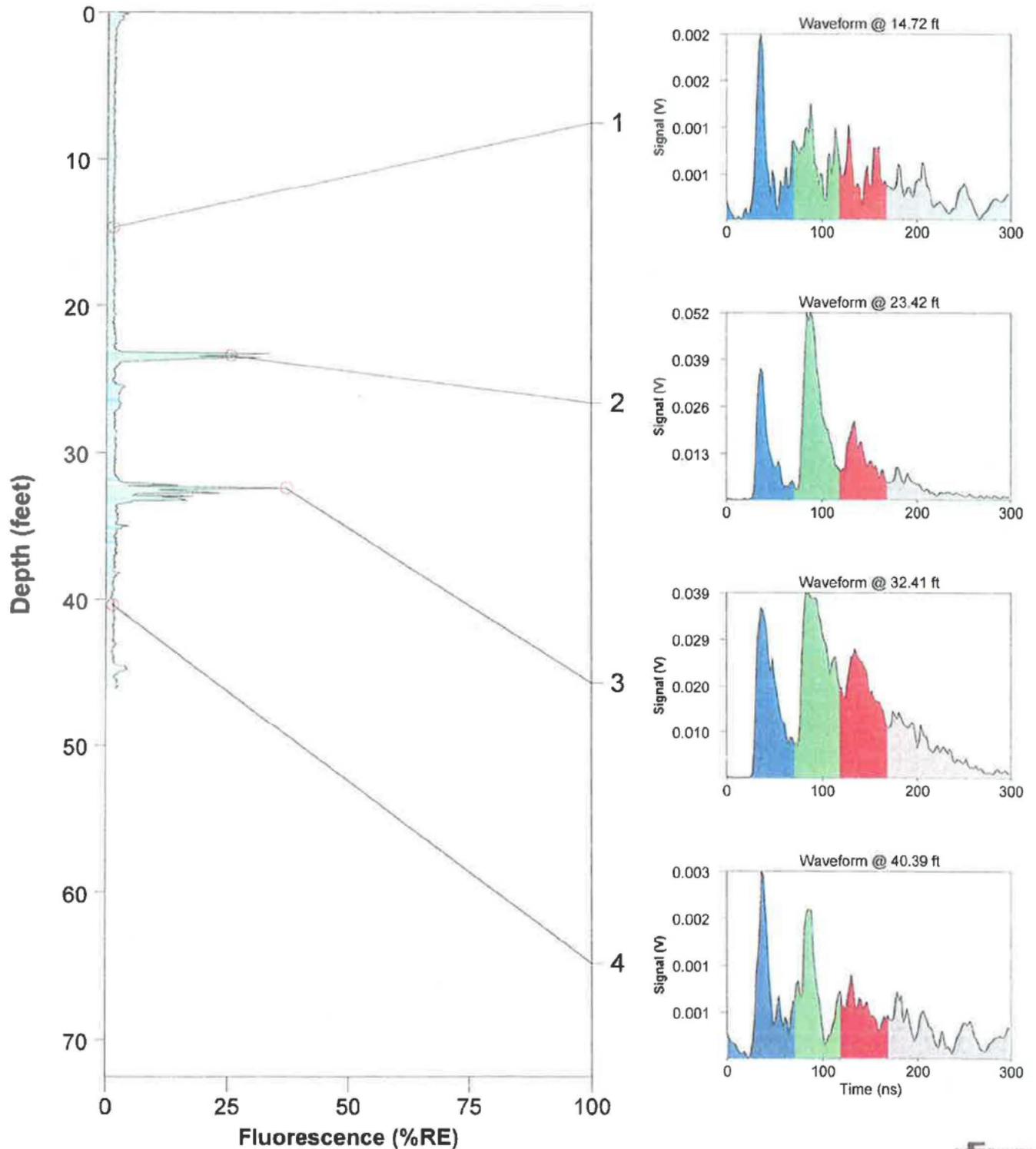
Operator: Robert Biehle

Fugro Job #: 04.1909-0044

Max fluorescence: 37.25% @ 32.41 ft

Final depth BGS: 46.12 ft

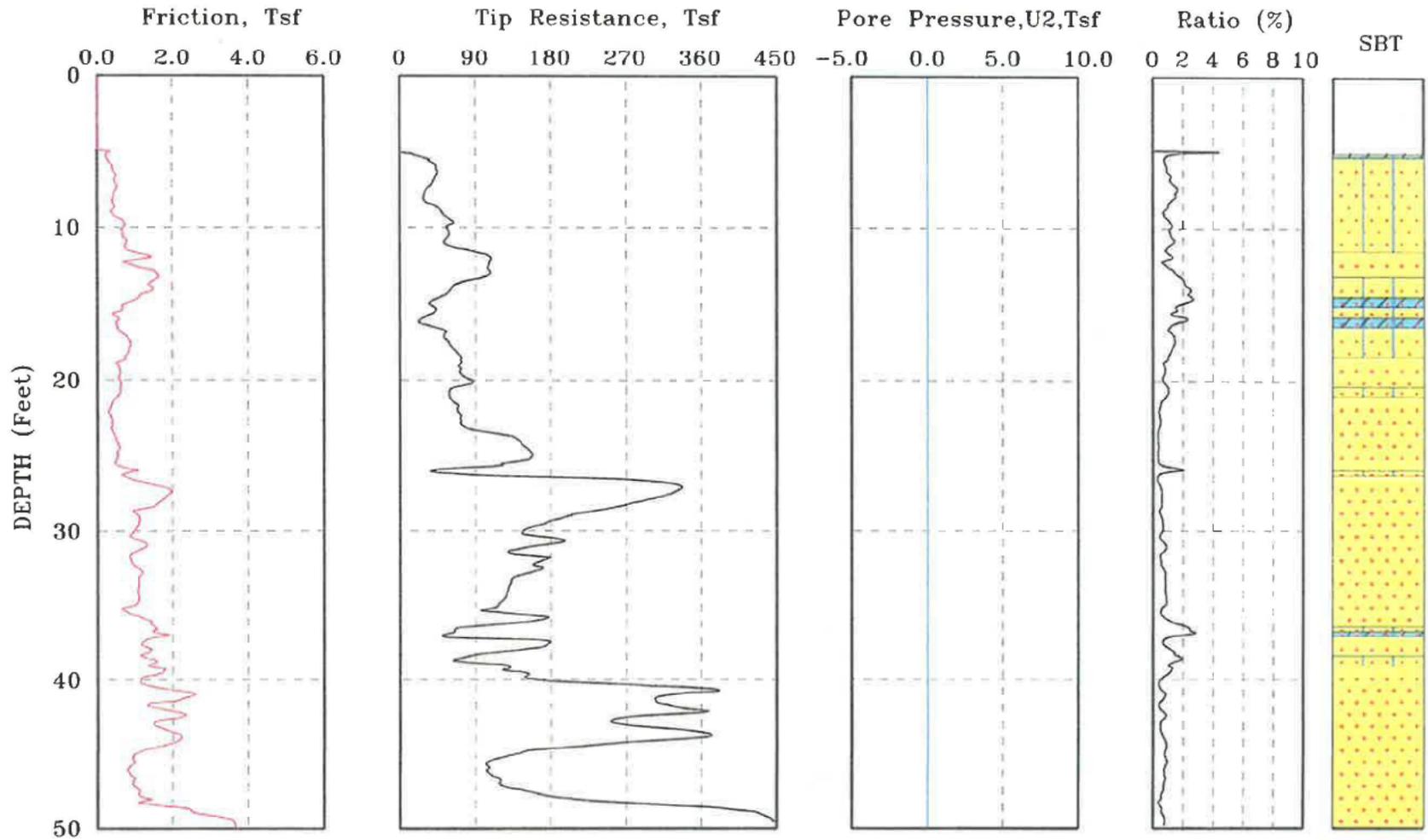
### ROST-05



fugro GEOSCIENCES, INC.

CPT No : ROST-07  
JOB No : 04.1909-0044  
CONE No : F7.5CKE2HAW21344

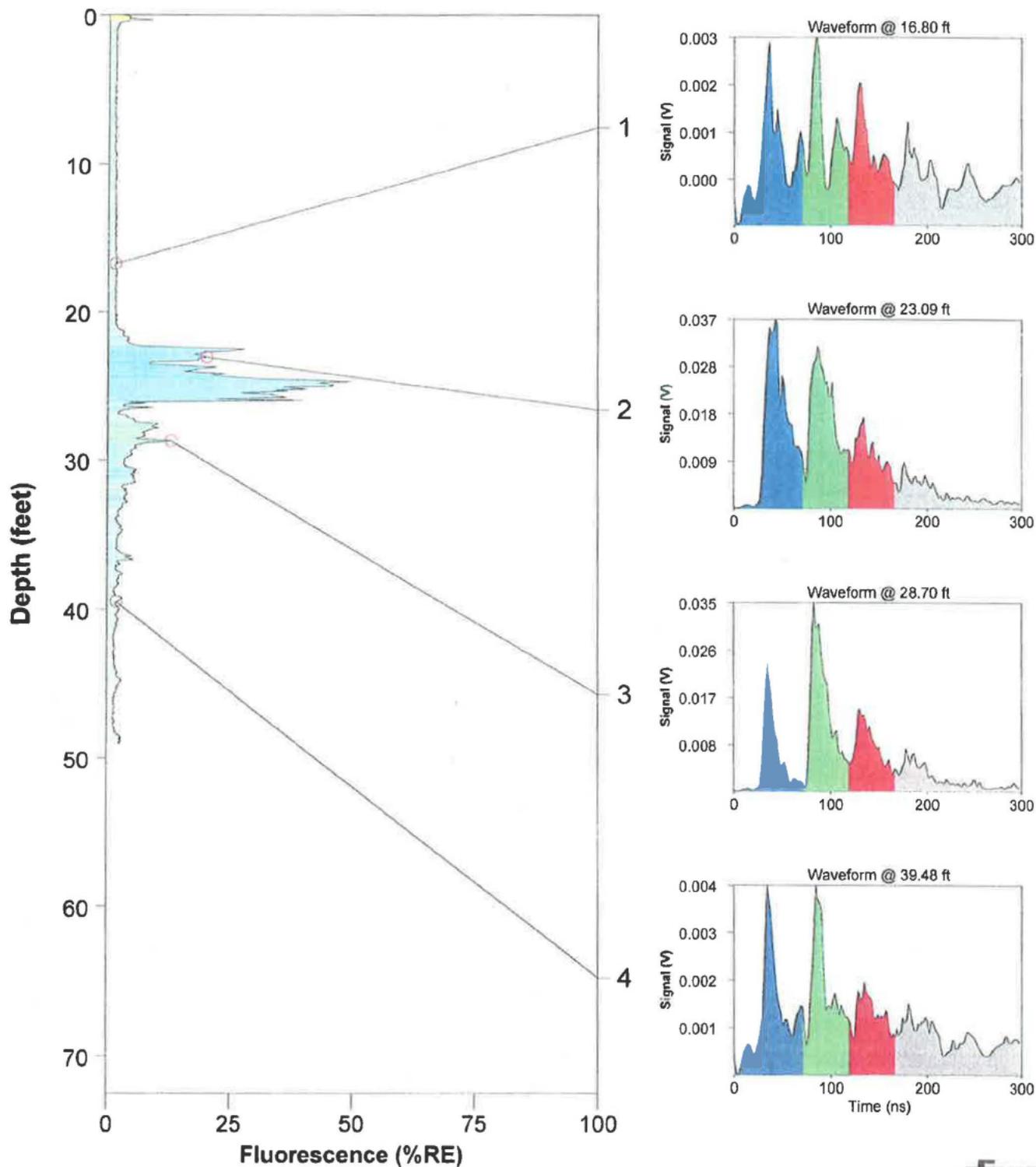
SITE : Roxana, IL  
CLIENT : URS Corporation  
OPERATOR : DANIEL GARZA  
DATE : 28-Aug-2009



### ROST Fluorescence Response Data

Site: Conoco-Roxana, IL Client: URS Date/Time: 8/28/2009 @ 8:59:51 AM ROST Unit: Houston	Operator: Robert Biehle Fugro Job #: 04.1909-0044 Max fluorescence: 49.79% @ 24.71 ft Final depth BGS: 49.05 ft
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### ROST-07



UGRO GEOSCIENCES, INC.

CPT No : ROST-08

JOB No : 04.1909-0044

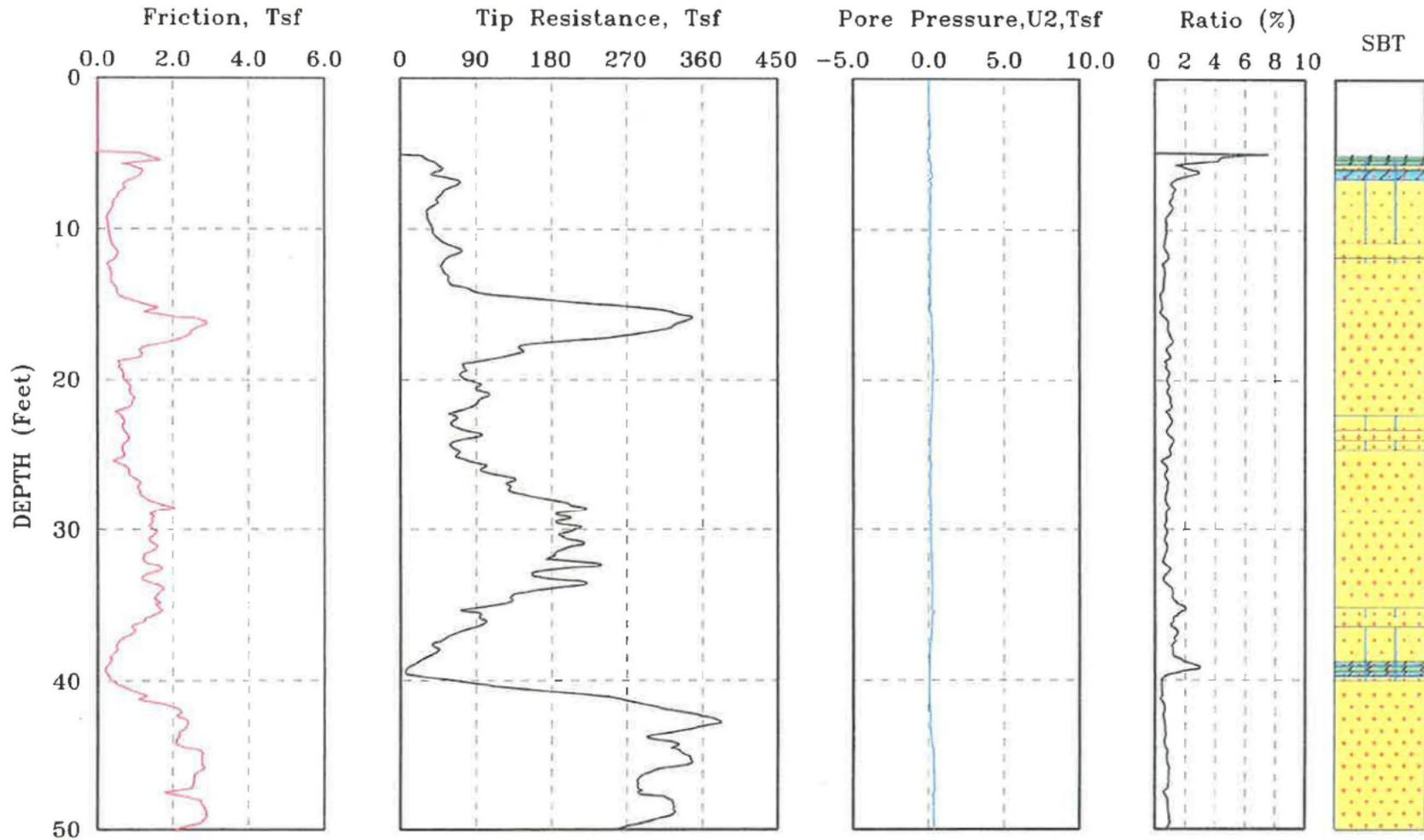
CONE No : F7.5CKE2HAW21344

SITE : Roxana, IL

CLIENT : URS Corporation

OPERATOR : DANIEL GARZA

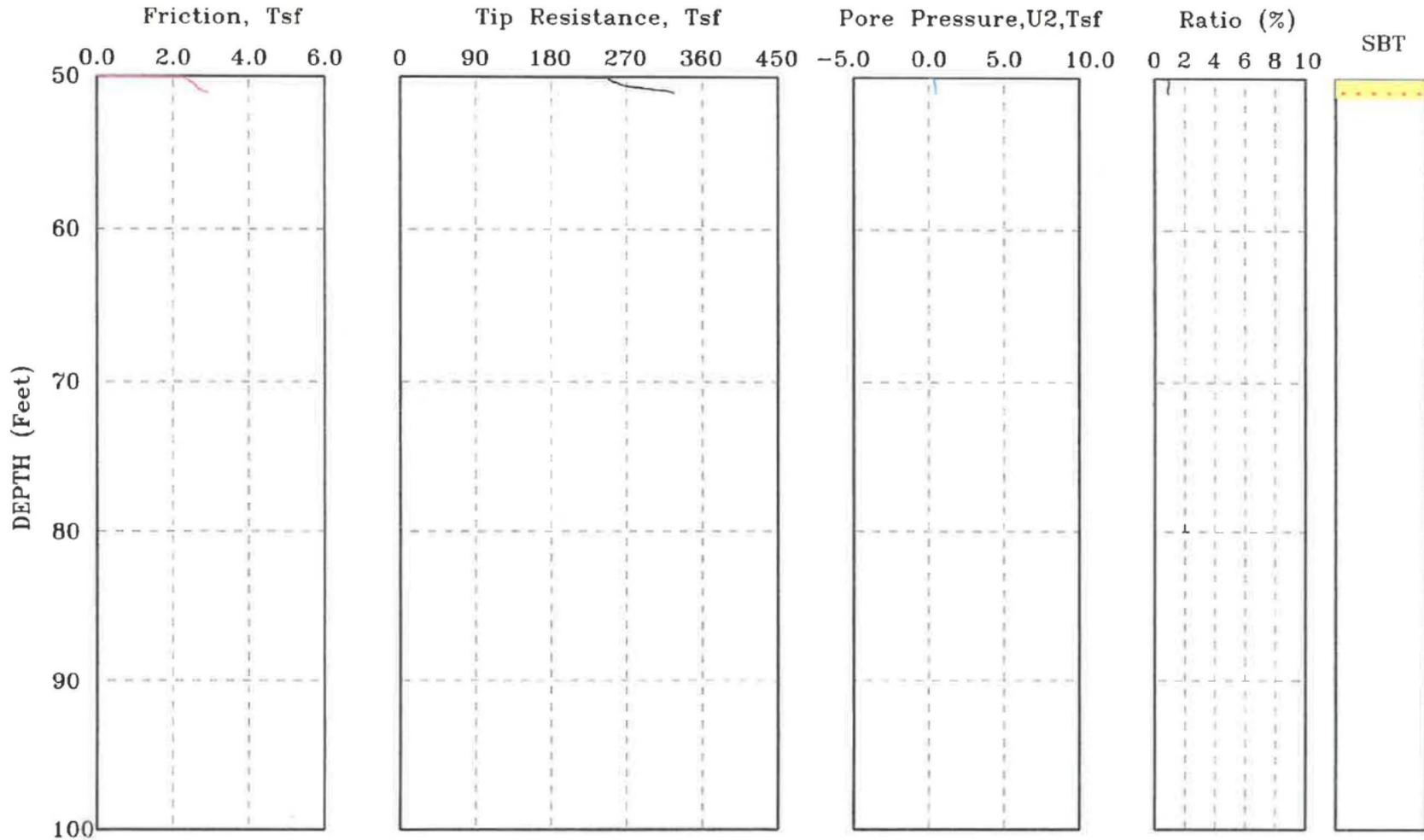
DATE : 26-Aug-2009



FUGRO GEOSCIENCES, INC.

CPT No : ROST-08  
JOB No : 04.1909-0044  
CONE No : F7.5CKE2HAW21344

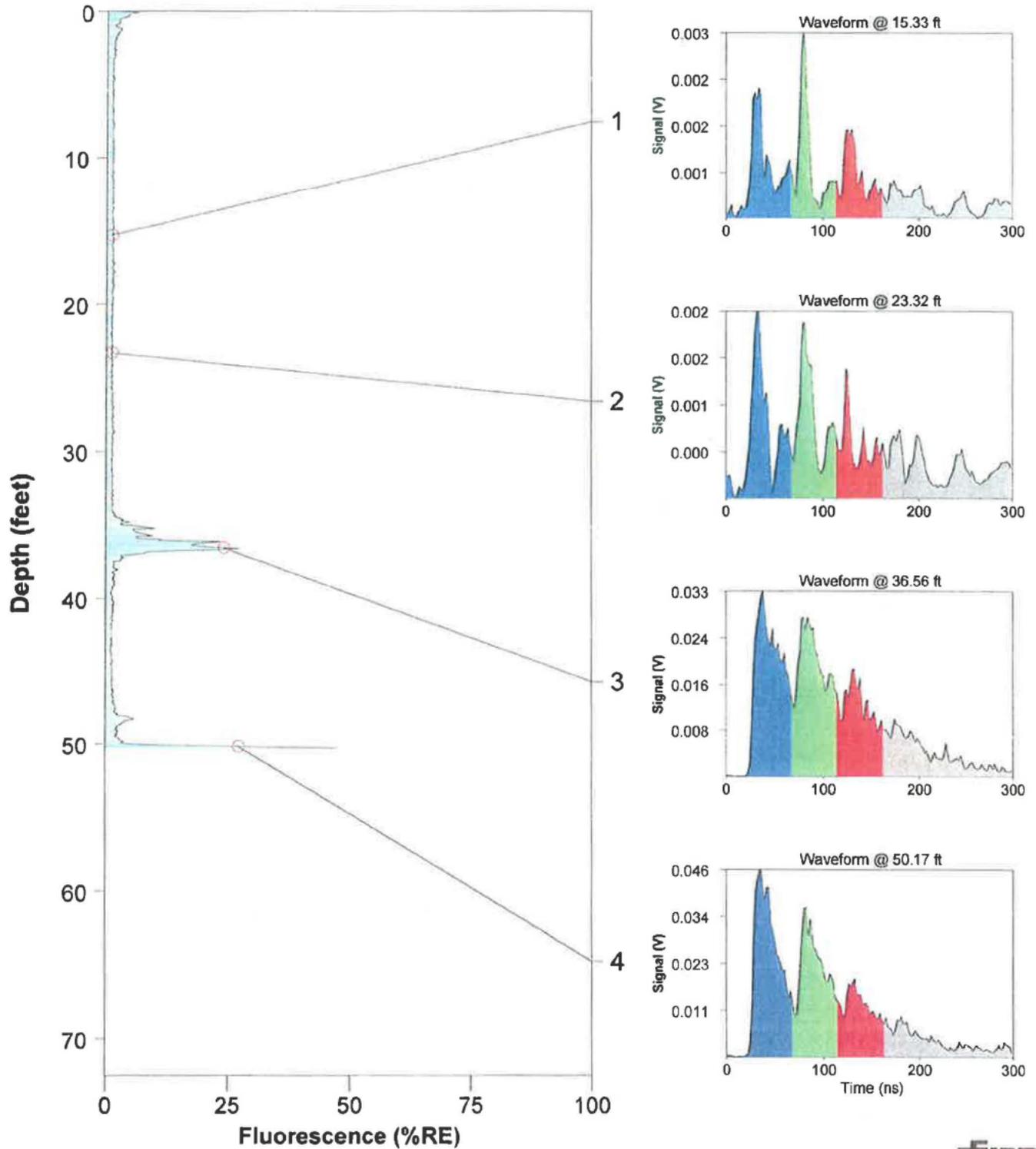
SITE : Roxana, IL  
CLIENT : URS Corporation  
OPERATOR : DANIEL GARZA  
DATE : 26-Aug-2009



### ROST Fluorescence Response Data

Site: Conoco-Roxanna, IL Client: URS Date/Time: 8/26/2009 @ 9:31:38 AM ROST Unit: Houston	Operator: Robert Biehle Fugro Job #: 04.1909-0044 Max fluorescence: 47.57% @ 50.27 ft Final depth BGS: 50.27 ft
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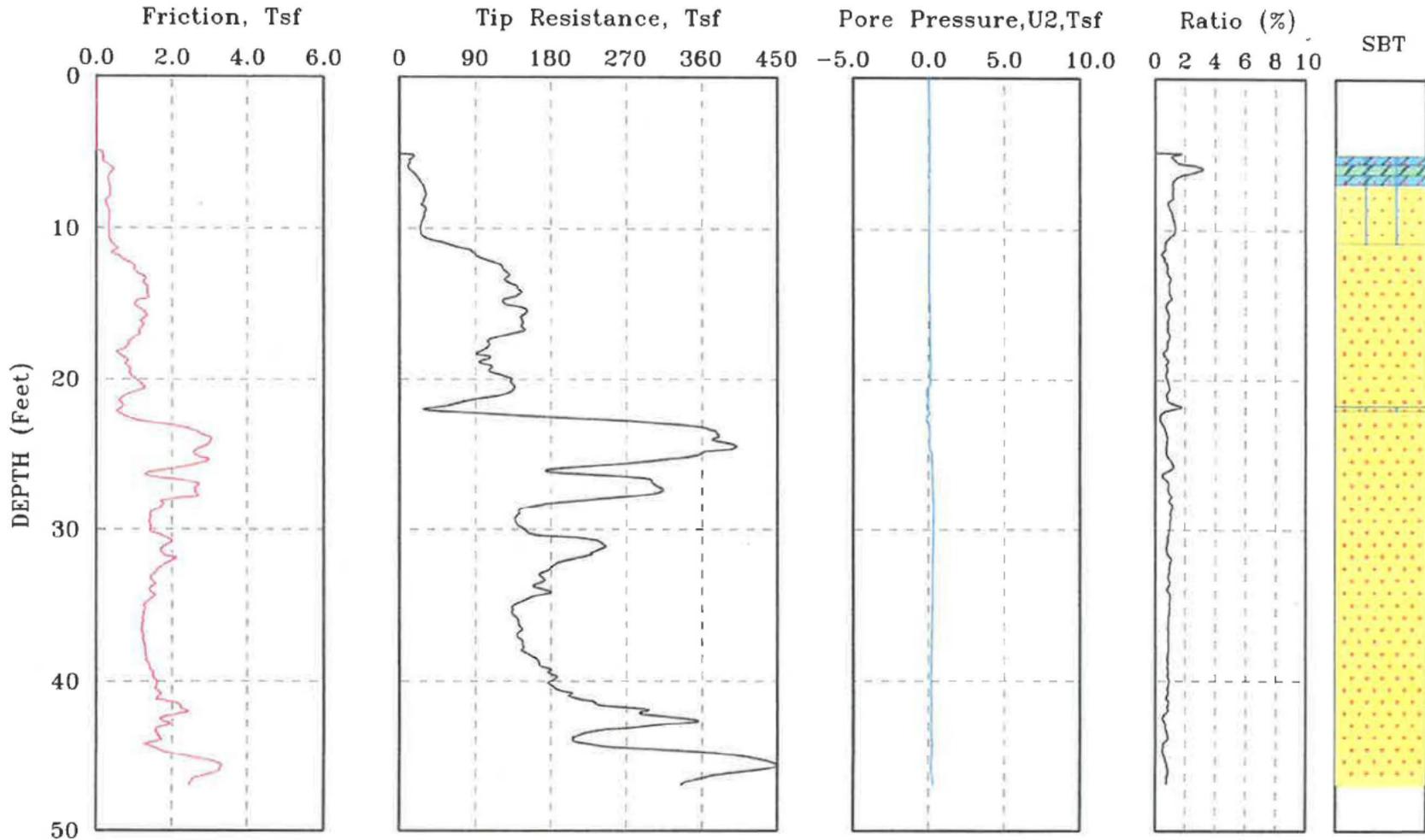
### ROST-08



FUGRO GEOSCIENCES, INC.

CPT No : ROST-09  
JOB No : 04.1909-0044  
CONE No : F7.5CKE2HAW21344

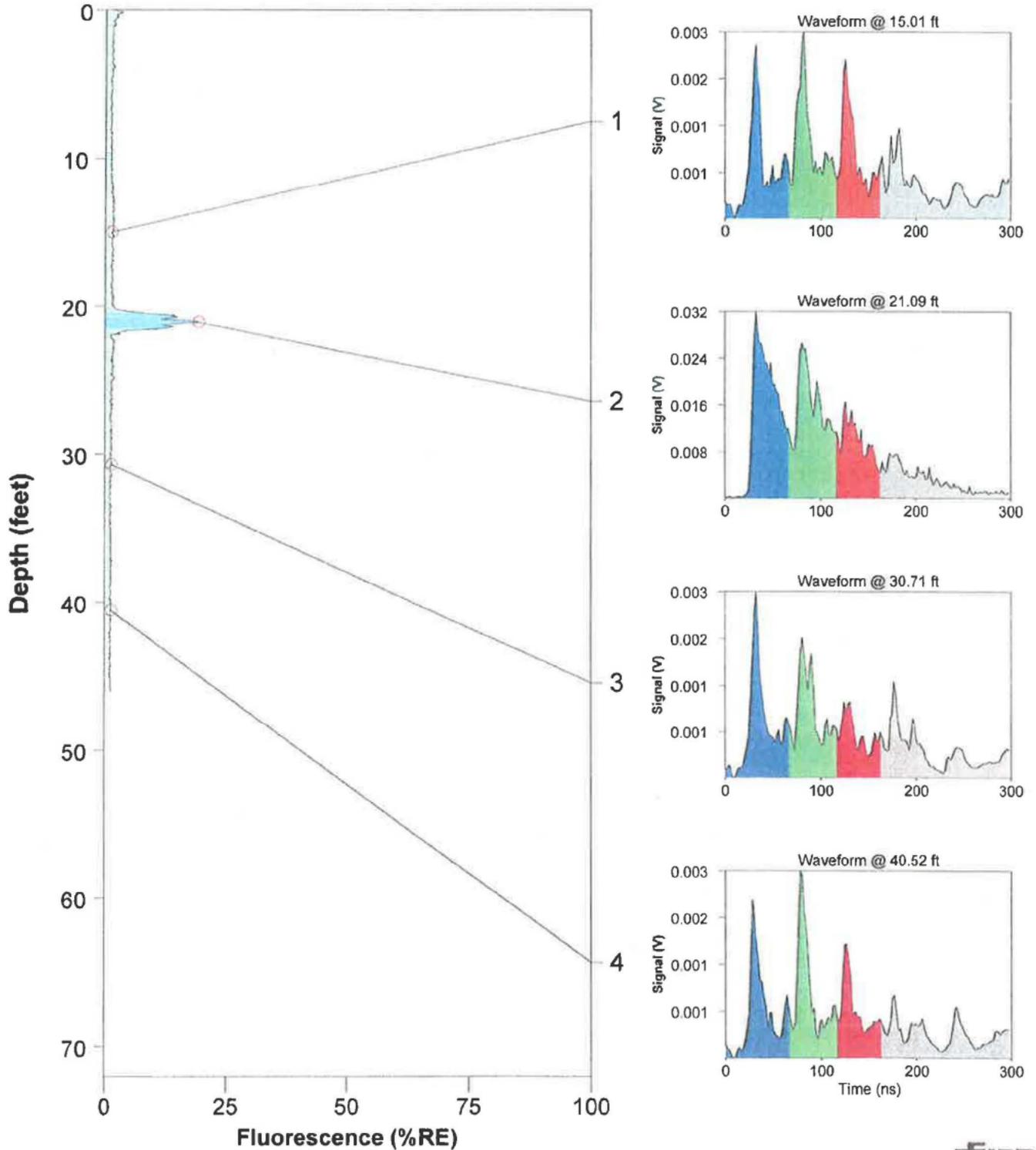
SITE : Roxana, IL  
CLIENT : URS Corporation  
OPERATOR : DANIEL GARZA  
DATE : 26-Aug-2009



ROST Fluorescence Response Data

Site: Conoco-Roxana,IL	Operator: Robert Biehle
Client: URS	Fugro Job #: 04.1909-0044
Date/Time: 8/26/2009 @ 10:29:41 AM	Max fluorescence: 19.34% @ 21.09 ft
ROST Unit: Houston	Final depth BGS: 46.05 ft

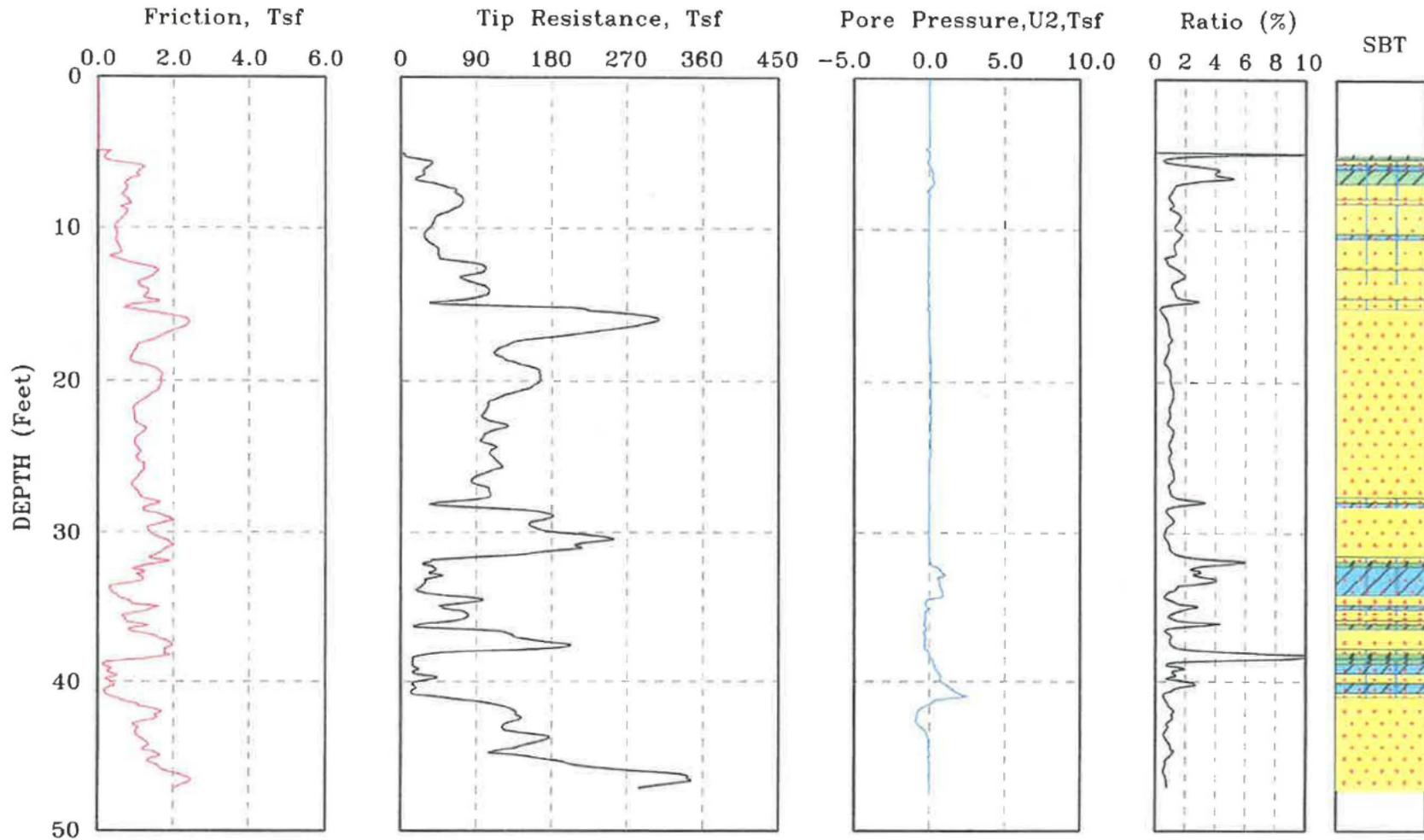
ROST-09



FUGRO GEOSCIENCES, INC.

CPT No : ROST-20  
JOB No : 04.1909-0044  
CONE No : F7.5CKE2HAW21344

SITE : Roxana, IL  
CLIENT : URS Corporation  
OPERATOR : DANIEL GARZA  
DATE : 26-Aug-2009



# ROST Fluorescence Response Data

Site: Conoco-Roxana, IL

Client: URS

Date/Time: 8/26/2009 @ 3:33:30 PM

ROST Unit: Houston

Operator: Robert Biehle

Fugro Job #: 04.1909-0044

Max fluorescence: 2.43% @ 0.16 ft

Final depth BGS: 46.31 ft

## ROST-20

