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ESQ Associates, Inc.

*ENVIRONMENTAL CONSULTING & MANAGEMENT*

# LONG-TERM
# GROUNDWATER MONITORING PLAN

**Fulton Terminals Site**
**Fulton, New York**

**February 16, 2000**

*Prepared for:*

**Fulton Terminals Site Management Committee**

*Prepared by:*

**ROUX ASSOCIATES, INC.**
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Burlington, Massachusetts 01803

CONTENTS



**FIGURES**

## 1.0 INTRODUCTION

This Long-Term Groundwater Monitoring Plan describes the groundwater monitoring program to be implemented at the Fulton Terminals Site (Site) to assess the long-term effectiveness of the groundwater remedy in achieving the cleanup objectives specified for Site groundwater in the 1989 Record of Decision (ROD) issued for the Site by the U.S. Environmental Protection Agency (USEPA). As indicated in the USEPA's September 1999 Superfund Preliminary Site Close-out Report, the USEPA has determined that the cleanup objectives for site groundwater have been substantially met.

The Long-Term Groundwater Monitoring Plan represents Addendum 5 to the Sampling, Analysis, Monitoring and Investigation Plan (SAMP) prepared in 1992 pursuant to Section VLC of the December 1991 Consent Decree for the Site. The groundwater monitoring program described herein is consistent with the requirements for post-remedy monitoring specified in Section VLB.10 and Vl.C.l.b.iii of the Consent Decree.

## 2.0 BACKGROUND

The Expedited Pumping Program, which consisted of groundwater pumping and treatment utilizing a mobile treatment system with components consistent with the approved Groundwater Remedial Design, was conducted at the Site between February and May 1997. During this 12-week period, 8.8 million gallons of groundwater were extracted and treated. Subsequently, a groundwater monitoring program was implemented to assess the effectiveness of the Expedited Pumping Program. Residual subsurface ice from the temporary ground-freezing system used to control groundwater infiltration during the Soil Remedy precluded an accurate evaluation of the groundwater remedy performance until the spring of 1999, when it was determined that the residual ice had thawed and natural groundwater flow conditions had been re-established. Based on the results of groundwater monitoring conducted since then, the USEPA has concluded that the ROD requirements for the groundwater remedy have been substantially met and no further action other than long-term groundwater monitoring is necessary. Accordingly, a Long-Term Groundwater Monitoring Program has been developed to monitor groundwater quality for the three-year period prescribed in the ROD to ensure continued effectiveness of the remedy approved by the USEPA in the Preliminary Site Close-out Report.

## 3.0 LONG-TERM GROUNDWATER MONITORING PROGRAM

During the Long-Term Groundwater Monitoring Program, groundwater sampling will be conducted at monitoring wells RX-l through RX-7 and at monitoring well FBW-3 (Figure 1). "Wells RX-3 through RX-7 and well FBW-3 will be sampled quarterly for one year and, if no increasing trends in the groundwater contamination are observed, semi-annually for two years thereafter. Wells RX-l and RX-2, upgradient wells which have never exhibited any volatile organic compound (VOC) contamination, will be sampled on an annual basis, or immediately following indications of a significant increase in the contamination of the downgradient monitoring wells, for a period of three years. A tentative schedule for the Long-Term Groundwater Monitoring Program is provided below.

| 2000 | 2001 | 2002 |
|---|---|---|
| March 6* | March 5* | March 4* |
| June 5 | September 3 | September 2 |
| September 4 | | |
| December 4 | | |
| * Indicates events during which wells RX-1 and RX-2 will be sampled. | | |

All groundwater sampling will be performed in accordance with the protocols specified in SAMP Appendices A (Methods for Performance) and C (Health and Safety Plan). The sampling protocols include gauging of groundwater piezometric levels to ensure the direction of groundwater flow, and sounding of well depths to determine whether any siltation has occurred. If siltation has occurred in any wells, then those wells will be redeveloped prior to sampling.

Groundwater samples collected during the Long-Term Groundwater Monitoring Program will be submitted to OBG Laboratories of Syracuse, New York for off-site analysis, in accordance with the SAMP. The samples will be analyzed for VOCs using USEPA Method 502.2, which USEPA designed to replace the methods specified in the SAMP (Methods 502.1 and 503.1). Method 502.2 is a drinking-water method with reporting

limits at or below the performance standards for the Site VOCs. Use of this method is consistent with the USEPA-approved scope of work for the Post-Soil Remedy Groundwater Investigation performed by Roux Associates in conjunction with the Expedited Pumping Program.

In accordance with the SAMP, all groundwater data developed during the Long-Term Groundwater Monitoring Program will be validated (in a manner consistent with USEPA Region II guidelines) by Trillium, Inc., which performed all data validation during the pre-remedial SAMP investigations and the Post-Soil Remedy Groundwater Investigation.

## 4.0 WELL ABANDONMENT

Upon completion of the Long-Term Groundwater Monitoring Program, following confirmation that the goals of the groundwater remedy have been met, all Site wells will be abandoned in accordance with New York State Department of Environmental Conservation (NYSDEC) guidelines (Decommissioning Procedures, New York State Superfund Standby Contract, NPL Site Monitoring Well Decommissioning). Specifically, the wells will be abandoned by injecting grout into the well casings from bottom to top using a tremie pipe. Well risers, curb boxes, and concrete pads will be disposed as construction debris, and all surfaces will be restored.

## 5.0 REPORTING

Following each quarterly or semi-annual monitoring event, the raw, unvalidated groundwater quality data will be forwarded to USEPA for informational purposes immediately upon Roux Associates' receipt of these data from the analytical laboratory. The raw data will be transmitted by the analytical laboratory three weeks after sample submission. Approximately one month later, following Roux Associates' receipt of the data validation package for each sampling round, Roux Associates will prepare a quarterly or semi-annual progress report (depending on the frequency of sampling at that time). Each progress report will describe the sampling activities performed, and will present the validated data in two Excel spreadsheets: one showing the data for the most recent sampling event, and one showing the results of all Long-Term Groundwater Monitoring Program sampling events. The progress reports will also include all field forms completed during the most recent sampling event.

At the end of three years, a Long-Term Groundwater Monitoring Report will be prepared. This report will present an overall analysis of the sampling program's results, and will recommend future actions, which may include ending the Long-Term Groundwater Monitoring Program or possibly continuing sampling pending the observed VOC trends over the three-year monitoring period.

Respectfully submitted,

ROUX ASSOCIATES, INC.

Lawrence McTiernan
Principal Hydrogeologist/
Project Manager

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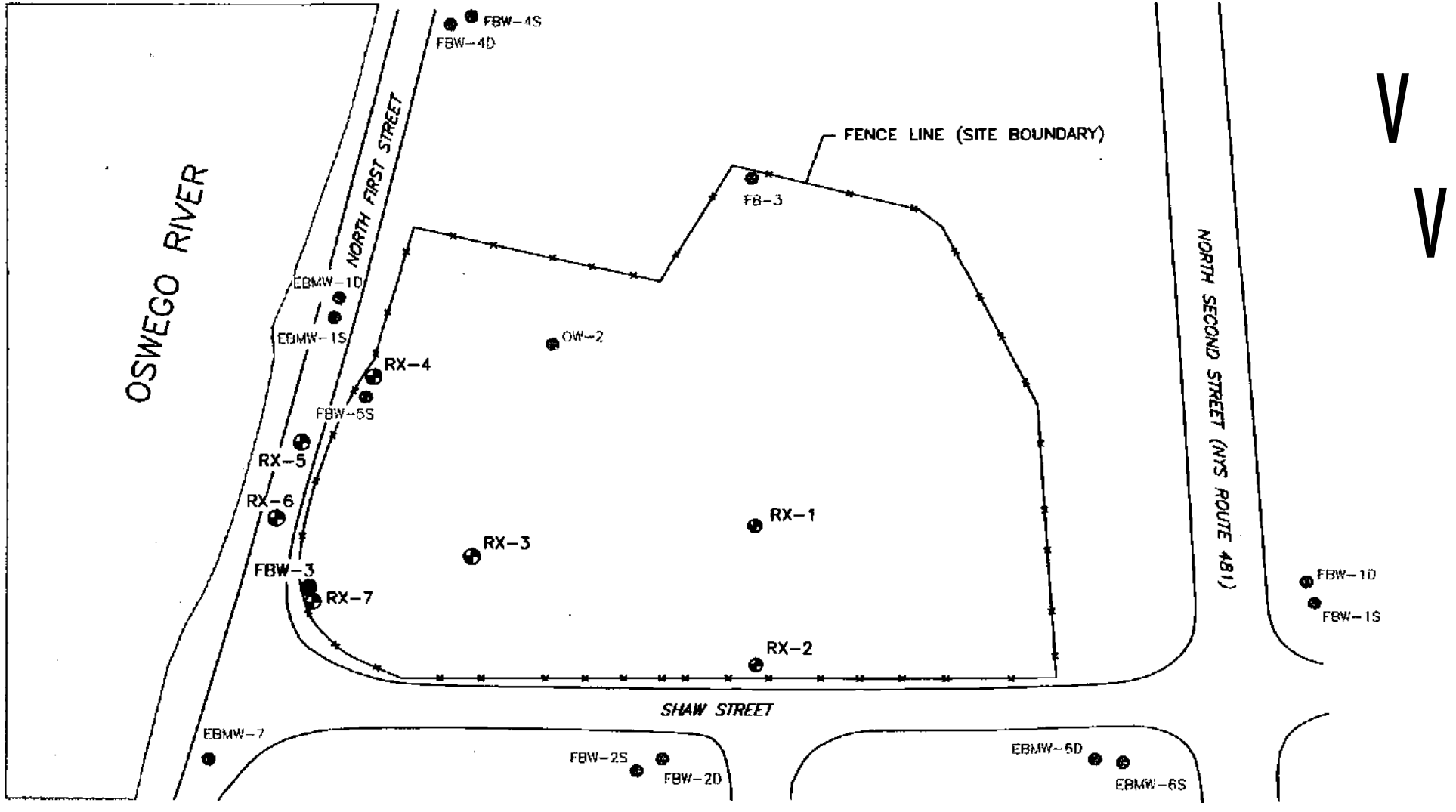


LEGEND

RX-3 fe — APPROXIMATE LOCATION AND DESIGNATION OF MONITORING WELL INSTALLED DURING EXPEDITED PUMPING PROGRAM

EBMW-7 — APPROXIMATE LOCATION AND DESIGNATION OF MONITORING WELL INSTALLED DURING PREVIOUS INVESTIGATION

BLACK TEXT INDICATES WELLS WHICH WILL BE SAMPLED

80' 80*

THJe:

# SITE PLAN

FULTON TERMINALS SITE
FULTON, N.Y.

Prepared For:

*de max/mis*

**ROUX**
ROUX ASSOCIATES. INC.
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