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Unicorn Management Consultants, LLC

September 7, 2010
Refer to: OP-2586

Paul J. Olivo
United States Environmental Protection Agency, Region 2
Emergency and Remedial Response Division
290 Broadway, 20th Floor
New York, New York 10007-1866

Subject: Addendum 4, Remedial Investigation/Feasibility Study Work Plan
Lehigh Valley Railroad Derailment Superfund Site, Leroy, NY

Dear Mr. Olivo:

Unicorn Management Consultants, LLC (UMC) prepared the attached Addendum 4 to the Remedial Investigation/Feasibility Study (RI/FS) Work Plan addressing modifications to packer testing procedures and the addition of a down-hole camera at the Lehigh Valley Railroad Derailment Superfund Site, Leroy, NY (Site).

UMC is proposing modifying the Site packer testing procedures based on a technical review of the FLUTe profiling, geophysical data and rock core analytical data which took place at our Danbury, Ct offices on September 3, 2010. This information showed that packer testing over the proposed 20-foot intervals specified in the RI/FS Work Plan would not provide the data the packer testing is intended to produce. Therefore UMC proposes to change the packer testing procedures to acquire better data. Additionally, during the FLUTe profiling of several wells, cascading water was heard flowing into the well from the shallow zone above the water table. Therefore, UMC proposes to use a borehole camera to investigate some of the boreholes for these shallow fractures that are producing water.

Thank you for your attention to this matter. Please call me at 203-205-9000, ext. 11 with any questions or concerns.

Sincerely,

UNICORN MANAGEMENT CONSULTANTS, LLC

Francisco Trejo
Project Coordinator
Lehigh Valley Rail Road Derailment Superfund Site

Attachments

cc: D. Cutt (EPA) w/attach
J. Moras (NYSDEC) w/attach
E. Schwetz (HDR) w/attach

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ADDENDUM 4
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
WORK PLAN

Lehigh Valley Railroad Derailment Superfund Site
LeRoy, New York
Index Number CERCLA-02-2006-2006

LEHIGH VALLEY RAILROAD COMPANY
CINCINNATI, OHIO 45202

Prepared By:

Unicorn Management Consultants, LLC
52 Federal Road, Suite 2C
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September 7, 2010

DOCUMENT AUTHORIZATION FORM

ADDENDUM 4
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Danbury, CT 06810

September 7, 2010

AUTHORIZATIONS:

Francisco Trejo
Remedial Project Coordinator
Lehigh Valley Railroad Derailment Superfund Site

9/7/2010
Date

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1 INTRODUCTION

This document, "Addendum 4 Remedial Investigation/Feasibility Study Work Plan", was prepared by Unicorn Management Consultants, LLC (UMC) on behalf of the Lehigh Valley Railroad Company (LVRR). LVRR is the respondent of the Settlement Agreement and Order on Consent for Pre-Remedial Design Investigations, Remedial Design, and Remedial Investigation/Feasibility Study, Index Number CERCLA-02-2006-2006 (hereinafter, "SA") for the Lehigh Valley Railroad Derailment Superfund Site located in Genesee, Monroe and Livingston Counties, near the Town of LeRoy, New York (hereinafter, the "Site"), which was issued by the United States Environmental Protection Agency (hereinafter, "EPA"), effective date October 6, 2006. The SA requires LVRR to conduct a Remedial Investigation/Feasibility Study (RI/FS) in accordance with the RI/FS Work Plan[1] dated February 13, 2002 and addendum dated September 11, 2006, attached thereto as Appendix C. UMC prepared Addendum 2[2] to the RI/FS Work Plan dated October 30, 2009 which was approved by EPA and amends the RI/FS Work Plan. UMC also prepared Addendum 3[3] to the RI/FS Work Plan dated July 28, 2010 which was approved by EPA and amends the RI/FS Work Plan. This document outlines modifications to Site packer testing based on the results of geophysical tests and FLUTe profile data obtained during August 2010 and the addition of a down-hole camera to identify water-zones above the water table. These results are discussed in more detail below.

2 SUMMARY OF GEOPHYSICAL TESTING AND FLUTE DATA

Section 3.3.4.1 of the the RI/FS Work Plan, requires that packer testing be performed on the proposed monitoring wells in 20 foot sections with five (5) tests per well. Addendum 2 to the RI/FS stipulates that the packer testing will be performed on each proposed monitoring well, in which the FLUTe samplers are to be installed. Review of the geophysical and flute data revealed that a 20 foot interval would not achieve the desired results. The geology of the target formations prevents this type of testing over a 20 foot interval. Therefore, after review of the data, UMC proposes to change the packer testing interval to five (5) foot sections.

During the FLUTe profiling procedures for several monitoring wells cascading water could be heard in the well. This suggests that a transmissive zone is present at depths above those tested by geophysics or FLUTe.

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[1] Final Work Plan For Remedial Investigation/Feasibility Study, Lehigh Valley Superfund Site, Town of Leroy, Genesee County, New York, Foster Wheeler Environmental Corporation. February 2002.

[2] Addendum 2 Remedial Investigation/Feasibility Study Work Plan, Lehigh Valley Railroad Derailment Superfund Site, LeRoy, New York, Unicorn Management Consultants, LLC, October 2009.

[3] Addendum 3 Remedial Invetigation/Feasibility Study Work Plan, Lehigh Valley Railroad Derailment Superfund Site, LeRoy, New York, Unicorn Management Consultants, LLC, July 2010

3 REVISED PACKER TESTING INTERVALS

As discussed above, based on a review of the geophysical and flute data, changing the packer testing interval is necessary to obtain reliable data regarding contaminant migration, transport and for the construction of the FLUTe samplers for each well. These modifications are discussed in more detail below.

LVRR-18:
Perform packer testing on five (5) locations based on the following intervals:

- Above 58 feet
- between 58 and 63 feet
- between 63 and 68 feet
- between 78 and 83 feet
- below 140 feet

Groundwater samples will be collected from each interval and from above 58 feet to identify if contamination is entering the system from above the water table and from below 140 feet to determine if contamination has penetrated the aquifer to depth. Additionally, the pressure of the zones above the top packer, between the packers, and below the bottom packer will be measured to determine if the packers produced a good seal on the borehole.

LVRR-20:
Perform packer testing on nine (9) locations based on the following intervals:

- Above 30 feet
- between 30 and 35 feet
- between 35 and 40 feet
- between 40 and 45 feet
- between 48 and 53 feet
- between 59 and 64 feet
- between 76 and 81 feet
- between 87 and 92 feet
- below 128 feet

Groundwater samples will be collected from each interval and from above 30 feet to identify if contamination is entering the system from above the water table and from below 128 feet to determine if contamination has penetrated the aquifer to depth. Additionally, the pressure of the zones above the top packer, between the packers, and below the bottom packer will be measured to determine if the packers produced a good seal on the borehole.

LVRR-21:

Perform packer testing on six (6) locations based on the following intervals:

- Above 55 feet
- between 55 and 60 feet
- between 66 and 71 feet
- between 75 and 80 feet
- between 82 and 87 feet
- below 115 feet

Groundwater samples will be collected from each interval and from above 55 feet to identify if contamination is entering the system from above the water table and from below 115 feet to determine if contamination has penetrated the aquifer to depth. Additionally, the pressure of the zones above the top packer, between the packers, and below the bottom packer will be measured to determine if the packers produced a good seal on the borehole.

LVRR-26:

Perform packer testing on six (6) locations based on the following intervals:

- Above 58 feet
- between 61 and 66 feet
- between 70 and 75 feet
- between 116 and 121 feet
- between 128 and 133 feet
- below 145 feet

Groundwater samples will be collected from each interval and from above 58 feet to identify if contamination is entering the system from above the water table and from below 145 feet to determine if contamination has penetrated the aquifer to depth. Additionally, the pressure of the zones above the top packer, between the packers, and below the bottom packer will be measured to determine if the packers produced a good seal on the borehole.

LVRR-27:

Perform packer testing on six (6) locations based on the following intervals:

- Above 98 feet
- between 103 and 108 feet
- between 108 and 113 feet

- between 117 and 122 feet
- between 138 and 143 feet
- below 143 feet

Groundwater samples will be collected from each interval and from above 98 feet to identify if contamination is entering the system from above the water table and from below 143 feet to determine if contamination has penetrated the aquifer to depth. Additionally, the pressure of the zones above the top packer, between the packers, and below the bottom packer will be measured to determine if the packers produced a good seal on the borehole.

LVRR-28:
Perform packer testing on five (5) locations based on the following intervals:

- Above 66 feet
- between 81 and 86 feet
- between 87 and 92 feet
- between 97 and 102 feet
- below 151 feet

Groundwater samples will be collected from each interval and from above 66 feet to identify if contamination is entering the system from above the water table and from below 151 feet to determine if contamination has penetrated the aquifer to depth. Additionally, the pressure of the zones above the top packer, between the packers, and below the bottom packer will be measured to determine if the packers produced a good seal on the borehole.

LVRR-29:
Perform packer testing on eight (8) locations based on the following intervals:

- Above 72 feet
- between 72 and 77 feet
- between 77 and 82 feet
- between 82 and 87 feet
- between 87 and 92 feet
- between 100 and 105 feet
- between 105 and 110
- below 110 feet

Groundwater samples will be collected from each interval and from above 72 feet to identify if contamination is entering the system from above the water table and from below 110 feet to determine if contamination has penetrated the aquifer to depth. Additionally, the pressure of the zones above the top packer, between the packers, and

below the bottom packer will be measured to determine if the packers produced a good seal on the borehole.

LVRR-30:
Perform packer testing on five (5) locations based on the following intervals:

- Above 94 feet
- between 110 and 115 feet
- between 127 and 132 feet
- between 137 and 142 feet
- below 161 feet

Groundwater samples will be collected from each interval and from above 94 feet to identify if contamination is entering the system from above the water table and from below 161 feet to determine if contamination has penetrated the aquifer to depth. Additionally, the pressure of the zones above the top packer, between the packers, and below the bottom packer will be measured to determine if the packers produced a good seal on the borehole.

LVRR-31:
Perform packer testing on six (6) locations based on the following intervals:

- Above 55 feet
- between 70 and 75 feet
- between 75 and 80 feet
- between 80 and 85 feet
- between 104 and 109 feet
- below 125 feet

Groundwater samples will be collected from each interval and from above 55 feet to identify if contamination is entering the system from above the water table and from below 125 feet to determine if contamination has penetrated the aquifer to depth. Additionally, the pressure of the zones above the top packer, between the packers, and below the bottom packer will be measured to determine if the packers produced a good seal on the borehole.

LVRR-32:
Perform packer testing on six (6) locations based on the following intervals:

- Above 60 feet
- between 75 and 80 feet

- between 80 and 85 feet
- between 96 and 101 feet
- between 103 and 108 feet
- below 108 feet

Groundwater samples will be collected from each interval and from above 60 feet to identify if contamination is entering the system from above the water table and from below 108 feet to determine if contamination has penetrated the aquifer to depth. Additionally, the pressure of the zones above the top packer, between the packers, and below the bottom packer will be measured to determine if the packers produced a good seal on the borehole.

LVRR-33:
Perform packer testing on eight (8) locations based on the following intervals:

- Above 72 feet
- between 72 and 77 feet
- between 77 and 82 feet
- between 82 and 87 feet
- between 87 and 92 feet
- between 100 and 105 feet
- between 105 and 110 feet
- below 110 feet

Groundwater samples will be collected from each interval and from above 72 feet to identify if contamination is entering the system from above the water table and from below 110 feet to determine if contamination has penetrated the aquifer to depth. Additionally, the pressure of the zones above the top packer, between the packers, and below the bottom packer will be measured to determine if the packers produced a good seal on the borehole.

LVRR-34:
Perform packer testing on seven (7) locations based on the following intervals:

- Above 55 feet
- between 55 and 60 feet
- between 60 and 65 feet
- between 66 and 71 feet
- between 80 and 85 feet
- between 85 and 90 feet
- below 90 feet

Groundwater samples will be collected from each interval and from above 55 feet to identify if contamination is entering the system from above the water table and from below 90 feet to determine if contamination has penetrated the aquifer to depth.

Additionally, the pressure of the zones above the top packer, between the packers, and below the bottom packer will be measured to determine if the packers produced a good seal on the borehole.

LVRR-35:
Perform packer testing on eight (8) locations based on the following intervals:

- Above 45 feet
- between 45 and 50 feet
- between 55 and 60 feet
- between 69 and 74 feet
- between 76 and 81 feet
- between 85 and 90 feet
- between 91 and 96 feet
- below 106 feet

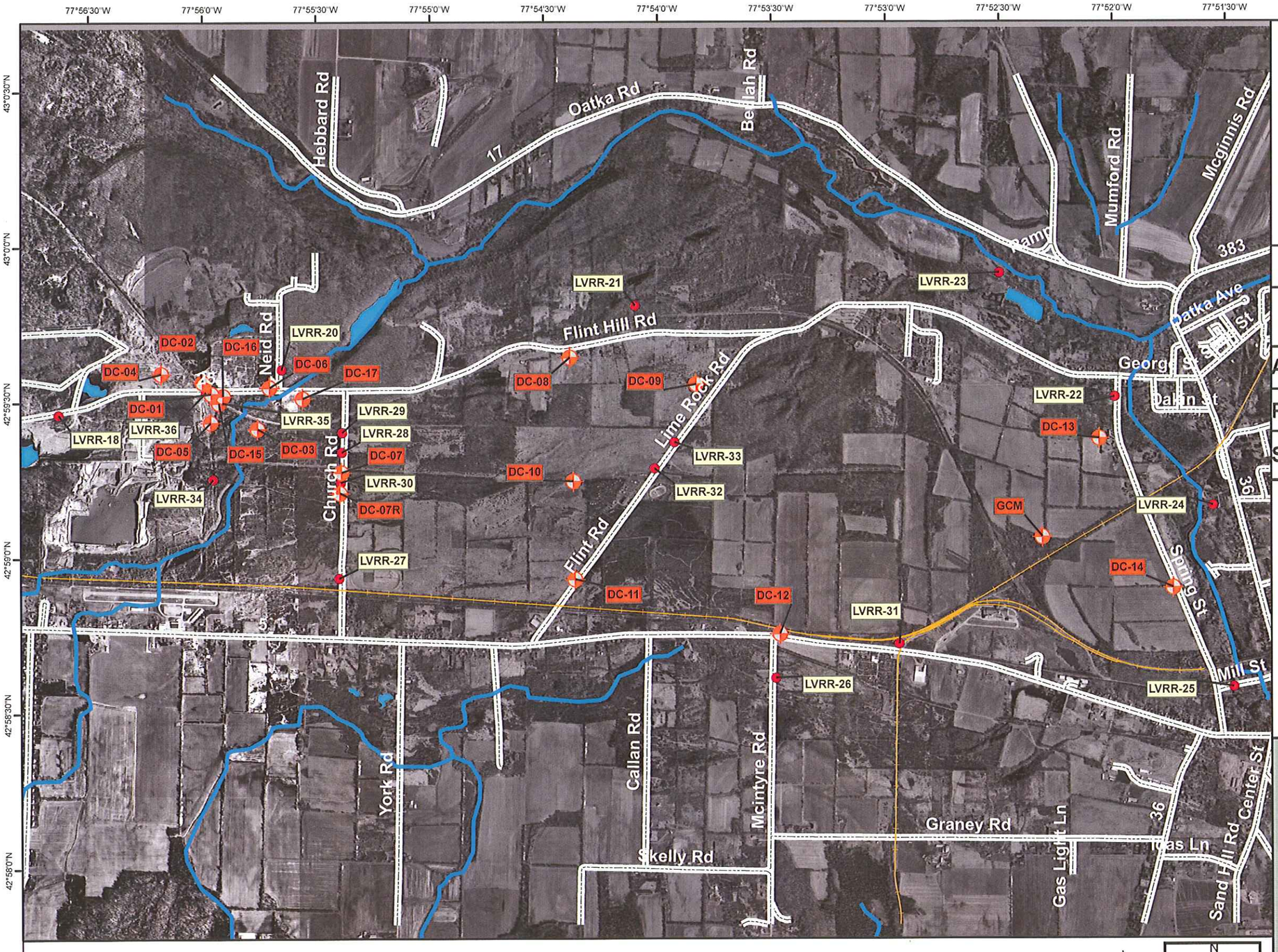
Groundwater samples will be collected from each interval and from above 45 feet to identify if contamination is entering the system from above the water table and from below 106 feet to determine if contamination has penetrated the aquifer to depth. Additionally, the pressure of the zones above the top packer, between the packers, and below the bottom packer will be measured to determine if the packers produced a good seal on the borehole.

These packer test zones have been identified from the geophysical and flute data. Actual field conditions may cause a change in the number of tests performed and the intervals over which they are conducted.

4 DOWN-HOLE CAMERA INVESTIGATION

To identify the shallow zones in several wells identified during FLUTe profiling by the sound of cascading water into the wells, a down-hole camera will be employed. The FLUTe liners will be removed and the camera inserted into the well to visually inspect the boring from the surface to the water table for fractures that produce water. The depths and sized of the fractures will be documented.

FIGURE



0 1,000 2,000 4,000 6,000 Feet

LVRR Monitoring Well Locations

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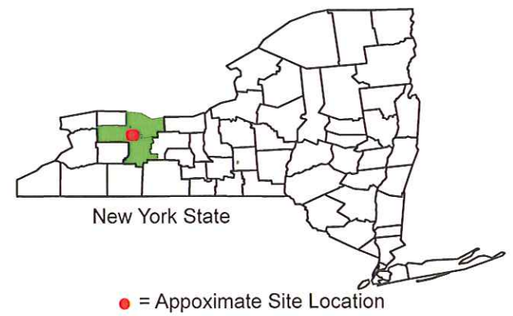
Project Name: Lehigh Valley Railroad Derailment Superfund Site

Figure 1

Author: GPK	**Checked By:** ----
Project #: 2032	**Created:** 7/11/10 **Revised:** 9/7/10
Scale: 1 in:2,000 ft	**File:** LVRRMWs



● = Appoximate Site Location

Legend

- Existing Monitoring Well Clusters (19)
- MWs Installed 2010 (18)
- Streams
- Active Railroad
- Roads