LEHIGH VALLEY RAILROAD SUPERFUND SITE
RI/FS Work Plan Addendum

This Addendum hereby amends the document entitled, "Final Work Plan for Remedial Investigation/Feasibility Study, Lehigh Valley Superfund Site, Town of LeRoy, Genesee County, New York, February 2002" (the Work Plan), which is also included as a part of Appendix C to the Settlement Agreement and Administrative Order on Consent, Index No. CERCLA-02-2006-2006 (Settlement Agreement), as follows:

1. The Work Plan indicates that the various tasks will be performed by the United States Environmental Protection Agency's (EPA's) contractor. The tasks will instead be performed by the Lehigh Valley Railroad Company, Respondent to the Settlement Agreement, except where otherwise indicated below.

2. Task 1 (Project Planning & Support) does not apply to Respondent with the exception of Sections 3.1.6 (Evaluate Existing Data and Documents), 3.1.7 (Quality Assurance Project Plan (QAPP)), 3.1.8 (Health & Safety Plan (HASP)), and 3.1.14 (Pathway Analysis Report (PAR)).

3. Task 2 (Community Relations) will be performed by EPA. Respondent's obligations regarding community relations are specified in Section XIX of the Settlement Agreement.

4. Task 3 (Field Investigation) shall also include an assessment of the potential for vapor intrusion pathways at the Site. Respondent shall submit to EPA a Draft Indoor Air Monitoring Plan (DIAMP) for the Site. The DIAMP shall be prepared in accordance with EPA's *Draft Guidance for Evaluating Vapor Intrusion to Indoor Air Pathway from Ground Water and Soils - Subsurface Vapor Intrusion Guidance* (USEPA 2002). This guidance is available on EPA's website at: http://www.epa.gov/correctiveaction/eis/vapor.htm. This statement supersedes Section 3.1.14, last paragraph.

   Regarding Section 3.7.2, a direct comparison to Media-Specific Benchmarks is acceptable to the EPA. If samples continue to be within these benchmarks, there will not be a need to continue with the SLERA or the BERA.

   Regarding Section 3.3.7.1, Monitoring Well Development/Sampling IDW, the viability of alternative ground-water treatment including the use of Soil Vapor Extraction equipment present at the Site, will be considered prior to the discharge of any ground water.

   Regarding Section 3.3.7.3, Drill Cuttings IDW, the viability of alternative soil treatment/handling, including the use of the Soil Vapor Extraction equipment present at the Site, will be considered prior to disposing of any material off-Site.

4.5 Surface Geophysical Survey Reconnaissance (3.3.1.7)

   Depending on the results of the Work performed pursuant to the Statement of Work for the Source

Area, up to four (4) VLF (Very Low Frequency) transects may be performed at 45 degrees to each other with a common intersect within the Spill Area. Results of these transects may identify significant bedrock flow paths from the point of release and help determine the most likely direction(s) of DNAPL migration in the bedrock.

Also, approximately three (3) VLF survey lines may be conducted across the narrow portion of the plume that appears to be structurally controlled.

Finally, the north-south VLF survey line along Spring Street near the eastern edge of the plume may be surveyed to identify determine if fractures are controlling the spring/seep discharges to Spring Creek, but if surveyed, the VLF length will likely be adjusted.

5. Task 4 (Sample Analysis). The analyses of samples shall be performed by a laboratory(ies) retained by Respondent in accordance with the Settlement Agreement.

6. Task 5 (Analytical Support and Data Validation) contemplates that the EPA may conduct some data validation and requires submission of validated data packages to EPA upon request. Respondent shall conduct all sample analyses and data validation for the RI/FS. Respondent shall submit validated data packages to the EPA in accordance with paragraph 45 of the Settlement Agreement.

7. Task 7 (Assessment of Risk). Within sixty (60) days of Respondent's receipt of all validated analytical data generated by or on behalf of Respondent, Respondent shall submit the PAR to EPA.

8. Tasks 13 (Post-RI/FS Support) and 14 (Negotiation Support) do not apply to Respondent.

9. Task 15 (Administrative Record) does not apply to Respondent. Respondent's obligations regarding the administrative record are contained in Paragraph 63 of the Settlement Agreement.

10. Task 16 (Project Close-out) does not apply to Respondent.

11. Section 6.0 of the Work Plan contains Figure 4-2 (Project Baseline Schedule). The Project Schedule shall include all tasks contained in the Work Plan and this Addendum that Respondent is required to perform. Changes to Section 6.0 shall include, but are not limited to, following:

    a. The QAPP shall be due thirty (30) days following the effective date of the Settlement Agreement.

    b. The HASP shall be due thirty (30) days following the effective date of the Settlement Agreement.

    c. Field work for the RI shall begin within fifteen (15) days following EPA's approval of the QAPP and the HASP.

    d. The Technical Memorandum (Section 3.3.1.8) shall be due within thirty (30) days following the Site reconnaissance.

e. The Draft Data Evaluation Report (Section 3.6.4) shall be due thirty (30) days following completion of Respondent's submission of the last set of validated analytical results to EPA.

f. The draft RI Report shall be due sixty (60) days following EPA's approval of the Data Evaluation Report.

g. The Pathway Analysis Report (PAR) shall be due within ninety (90) days of Respondent's submission to EPA of the last set of validated analytical results.

h. The Memorandum of Exposure Scenarios and Assumptions shall be due within sixty (60) days after EPA's approval of the QAPP.

i. The draft BRA shall be due sixty (60) days following EPA's approval of the Data Evaluation Report or the PAR, whichever is later.

j. The Draft Remedial Alternatives Screening Memorandum (Section 3.10.1) shall be due forty-five (45) days following EPA's approval of the BRA.

k. The Draft Remedial Alternatives Evaluation Technical Memorandum (Section 3.11.1) is due forty-five (45) days following receipt of EPA's comments on the Draft Remedial Alternative Screening Memorandum .

l. The Draft Feasibility Study Report (Section 3.12.1) is due sixty (60) days following EPA's approval of the Remedial Alternatives Evaluation Technical Memorandum.

m. Within thirty (30) days of the effective date of the Settlement Agreement Respondent shall submit the DIAMP to EPA.

Within fifteen (15) days of the effective date of the Settlement Agreement, Respondent shall submit to EPA a revised Figure 4-2 (Project Baseline Schedule). The revised Figure 4-2 shall be consistent with this Addendum and incorporate the additional deliverables referenced herein; shall provide a schedule that begins with the effective date of the Settlement Agreement ; and shall contain the same "durations" as those provided in Figure 4-2, unless otherwise noted in this Addendum. The revised Figure 4-2 shall not include line items for EPA's review of Respondent's deliverables. The revised Figure 4-2 is subject to EPA's approval in accordance with Section X of the Settlement Agreement.

12. The following shall complement, and in case of a conflict, supersede, any existing material in the Work Plan regarding the QAPP and the HASP:

A. The QAPP shall be prepared consistent with "EPA Requirements for Quality Assurance Project Plans (QA/R-5)" (EPA/240/B-01/003, March 2001) and "EPA Guidance for Quality Assurance Project Plans (QA/G-5)" (EPA/600/R-98/018, February 1998), and shall include the following elements:

i. A detailed description of the sampling, analysis, and monitoring that shall be performed during the RI/FS phase, consistent with the Settlement Agreement . At a minimum, the QAPP shall provide the following:

a. A plan for the delineation of contamination in the ground water;

b. A contingency plan for the delineation of contamination in soil that is suspected or identified during the RI/FS;

c. A plan for the delineation of contamination in the surface water;

d. A plan for the delineation of contamination in sediments; and

e. A plan for the delineation of contamination in wetlands.

f. A plan for vapor intrusion pathway assessment, including soil-gas sampling.

ii. All sampling, analysis, data assessment, and monitoring shall be performed in accordance with the most recent edition of "*Test Methods for Evaluating Solid Waste*" (SW-846), "*EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations*" (EPA QA/QR-5, March 2001), and *Guidance on Conducting Quality Assurance Project Plans* (EPA QA/G-5 dated February 1998), and any updates thereto, or an alternate EPA-approved method, and the guidelines set forth in the Settlement Agreement . All testing methods and procedures shall be fully documented and referenced to established methods or standards.

iii. The QAPP shall also specifically include the following items:

a. An explanation of the way(s) the sampling, analysis, testing, and monitoring will produce data for the RI/FS phase;

b. A detailed description of the sampling, analysis, and testing to be performed, including sampling methods, analytical and testing methods, sampling locations and frequency of sampling;

c. Maps depicting sampling locations; and,

d. A schedule for performance of specific tasks.

iv. In the event that additional sampling locations, testing, and analyses are utilized or required, Respondent shall submit to EPA an addendum to the QAPP for approval by EPA.

v. The QAPP shall address the following elements:

Project Management

a. Title and Approval Sheet
b. Table of Contents and Document Control Format
c. Distribution List
d. Project/Task Organization and Schedule
e. Problem Definition/Background
f. Project/Task Description
g. Quality Objectives and Criteria for Measurement Data
h. Special Training Requirements/Certification
i. Documentation and Records

Measurement/Data Acquisition

j. Sampling Process Design
k. Sampling Methods Requirements
l. Sample Handling and Custody Requirements
m. Analytical Methods Requirements
n. Quality Control Requirements
o. Instrument/Equipment Testing, Inspection, and Maintenance Requirements
p. Instrument Calibration and Frequency
q. Inspection/Acceptance Requirements for Supplies and Consumables
r. Data Acquisition Requirements (Non-Direct Measurements)
s. Data Management

Assessment/Oversight

t. Assessments and Response Actions
u. Reports to Management

Data Validation and Usability

v. Data Review, Validation, and Verification Requirements
w. Validation and Verification Methods
x. Reconciliation with Data Quality Objectives

vi. In order to provide quality assurance and maintain quality control with respect to all samples to be collected, Respondent shall ensure the following:

a. Quality assurance and chain-of-custody procedures shall be performed in accordance with standard EPA protocol and guidance, including *EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations*, (EPA QA/R-5, March 2001), and *Guidance on Conducting Quality Assurance Project Plans* (EPA QA/G-5 dated February 1998), and subsequent amendments to such guidelines, and the

guidelines set forth in the Settlement Agreement .

b. The laboratory to be used must be specified. If the laboratory participates in the Contract Laboratory Program (CLP) for the analysis to be performed for this investigation, then project specific Performance Evaluation (PE) samples will not be required, as CLP laboratories run EPA PEs on a quarterly basis. If the proposed laboratory does not participate in the CLP for the analyses required, PE samples must be analyzed to demonstrate the capability to conduct the required analysis prior to being approved for use. Once a non-CLP laboratory has been selected, the laboratory should submit a copy of their Laboratory Quality Assurance Program Plan (LQAPP) to EPA for review and approval.

For any analytical work performed, including that done in a fixed laboratory, in a mobile laboratory, or in on-Site screening analyses, Respondent must submit to EPA a "Non-CLP Superfund Analytical Services Tracking System" form for each laboratory utilized during a sampling event, within thirty (30) days after acceptance of the analytical results. Upon completion, such documents shall be submitted to EPA Project Coordinator, with a copy of the form and transmittal letter to:

Regional Sample Control Center Coordinator
USEPA Region 2
Division of Environmental Science & Assessment
2890 Woodbridge Avenue, Bldg. 209, MS-215
Edison, NJ 08837

c. The laboratory utilized for analyses of samples must perform all analyses according to accepted EPA methods as documented in the "Contract Lab Program Statement of Work for Organic Analysis, Multi-Media, Multi-Concentration (revision OLM0-4.2)," dated May, 1999, the "Contract Lab Program Statement of Work for Organic Analysis, Low Concentration Water (revision OLC0- 2.1)," dated February, 1996, and the "Contract Lab Program Statement of Work for Inorganic Analysis, Multi-Media, Multi-Concentration (revision ILM0 4.0)," dated February, 1995, and any amendments made thereto during the course of the implementation of the Work, or other EPA-approved methods.

d. Unless indicated otherwise in the approved QAPP, upon receipt from the laboratory, all data will be validated.

e. Submission of the validation package (checklist, report and Form #1 containing the final data) to EPA, prepared in accordance with the provisions of Subparagraph g., below.

f. Assurance that all analytical data that are validated as required by the QAPP are validated according to the procedures stated in the "EPA Region II Contract Lab Program Organics Data Review and Preliminary Review (SOP #HW-6, Revision 11)," dated June 1996, or the latest

revision, and the "Evaluation of Metals Data for the Contract Laboratory Program (SOP #HW-2, Revision 11)," dated January 1992 or the latest revision, or EPA-approved equivalent procedures. Region 2 Standard Operating Procedures are available at: http://www.epa.gov/region02/smb/sops.htm

g. Unless indicated otherwise in the QAPP, Respondent shall require deliverables equivalent to CLP data packages from the laboratory for analytical data. Upon EPA's request, Respondent shall submit to EPA the full documentation (including raw data) for this analytical data. EPA reserves the right to perform an independent data validation, data validation check, or qualification check on generated data.

h. Respondent shall insert a provision in its contract(s) with the laboratory utilized for analyses of samples, which grants access to EPA personnel and authorized representatives of EPA for the purpose of ensuring the accuracy of laboratory results related to the Site.

i. Upon request by EPA, Respondent shall promptly provide EPA with any unvalidated results of all sampling and/or tests or other data generated by Respondent. EPA will provide Respondent with its split sampling results if requested to do so by Respondent.

B. The HASP shall conform to those requirements set forth in the Occupational Safety and Health Administration (OSHA) final rule entitled "Hazardous Waste Operations and Emergency Response", 29 CFR § 1910.120, and EPA guidance document, "Standard Operating Safety Guides" (OSWER, 1988).

The HASP must specify employee training, protective equipment and medical surveillance requirements, standard operating procedures, and a contingency plan. The HASP shall satisfy the requirements of the "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities" (October 1985, DHHS NIOSH Publication No. 85-115), and any update thereto, and the following requirements:

i. The HASP shall include, at a minimum, the following items:

a. Plans showing the location and layout of any temporary facilities to be constructed on or near the Site;

b. Description of the known hazards and evaluation of the risks associated with the Site and the potential health impacts related to the Site activities;

c. List of key personnel and alternates responsible for Site safety and response operations;

d. Description of levels of protection (based on specified standards) to be utilized by all personnel;

e. Delineation of work, decontamination, and safe zones, and definitions of

the movement of zones;

f. Description of decontamination procedures for personnel and equipment, and handling and removal of disposable clothing or equipment;

g. Procedures that address emergency care for personnel injuries and adverse health effects from exposure, and containment measures. These procedures shall include evacuation routes, internal and external communications procedures for response to fire, explosion, or other emergencies, the name of the nearest hospital and the route to that hospital. Local agencies with the capability to respond to emergencies shall be identified and their capabilities shall be described. A description of the procedures for informing the community of these measures shall be outlined;

h. Description of the personnel medical surveillance program in effect;

i. Description of monitoring for personnel safety; and,

j. Description of routine and special personnel training programs.

ii. Respondent shall comply with the final HASP.

13. The following shall complement and supersede, in the case of a conflict, the material in the Work Plan regarding risk assessments:

Baseline Risk Assessment (BRA)

The BRA shall include, but is not limited to, the following elements:

A. Actual and potential cancer risks and non-cancer hazards to human health shall be identified and characterized in accordance with CERCLA, the NCP, and EPA guidance including, but not limited to, the RI/FS Guidance, "Land Use in the CERCLA Remedy Selection Process" (OSWER Directive No. 9355.7-04) and the definitions and provisions of "Risk Assessment Guidance for Superfund ("RAGS")," Volume 1, "Human Health Evaluation Manual," (December 1989) (EPA/540/1-89/002). Other EPA guidance to be used in the development of risk assessments is provided in Appendix B.

B. Representative contaminants and associated concentrations in media including groundwater, soil, sediment, and surface water for the BRA shall be determined utilizing all currently available media-specific analytical data generated since the initiation of Site activities in June 2000.

C. Memorandum on Exposure Scenarios and Assumptions (ESA Memorandum). Within sixty (60) days after approval of the Work Plan, Respondent shall submit an ESA Memorandum describing the exposure scenarios and assumptions, taking into account for the BRA the present and reasonably anticipated future land use of the Site. The ESA Memorandum should include appropriate text describing the conceptual site model and exposure routes of concern for the Site in RAGS Part D Table 1 format. This table shall describe the pathways that will be evaluated in the BRA, the rationale for their selection, and a description of those pathways that will not be evaluated. In addition, the ESA

Memorandum shall include a completed RAGS Part D Table 4 describing the exposure pathway parameters with appropriate references to EPA's 1991 Standard Default Assumptions and updated guidance developed by EPA. If EPA disapproves of or requires revisions to the ESA Memorandum, in whole or in part, Respondent shall amend and submit to EPA a revised Memorandum which is responsive to the directions in all EPA comments, within thirty (30) days of receiving EPA's comments.

D. Pathway Analysis Report (PAR). Respondent shall prepare and submit a PAR within ninety (90) days of Respondent's submission to EPA of the last set of validated analytical results. The PAR shall be developed in accordance with Risk Assessment Guidance for Superfund (RAGS); Volume I Human Health Evaluation Manual Part A, OERR, EPA/540/1-89/002, dated December, 1989 and other appropriate guidance in ~~Appendix 1A of this~~ the SOW (Appendix B of the Settlement Agreement) and updates thereto. The PAR shall contain all the information necessary for a reviewer to understand how the risks at the Site will be assessed. The PAR will build on the Memorandum (see C. above) describing the risk assessment process and how the risk assessment will be prepared. The PAR shall include completed RAGS Part D Tables 2, 3, 5, and 6 as described below. The PAR must be reviewed and approved by EPA prior to the submission of the BRA.

i. Chemicals of Potential Concern and Exposure Point Concentrations. The PAR shall follow all appropriate risk assessment guidance for Superfund and other appropriate EPA guidelines. This report shall contain a description of the statistical treatment of the data, the methods to select the contaminants of potential concern (COPCs), the exposure pathways, receptors, and parameters to be used, and the current toxicological values.

a. Based on the results of the Site Characterization Summary Report (Task III above), Respondent shall list the hazardous substances present in all sampled media (*e.g.*, groundwater, soils, sediment, etc.) and the COPCs as described in the Risk Assessment Guidance for Superfund Part A.

b. Table 2- Selection of COPCs. Representative contaminants and associated concentrations in sample media for inclusion in the PAR shall be determined utilizing all currently available media-specific validated analytical data generated during the RI/FS. This report shall list the chemicals found in the various media tested at the Site based on the validated data. The selection of COPCs shall follow Risk Assessment Guidance for Superfund (Part A) and before chemicals are deleted as COPCs they shall be evaluated against the residential preliminary remediation goals (PRGs) from Region IX available at: www.epa.gov/region09/waste/sfund/prg/index.htm.
The COPCs shall be presented in completed RAGS Part D Table 2 format.

ii. Table 3 - Media Specific Exposure Point Concentrations. Using the chemicals selected in Table 2, this Table shall summarize the Exposure Point Concentrations (EPCs) for all COPCs for the various media. The calculation of EPCs shall follow the 1992 Guidance Document on the calculation of the 95% Upper Confidence Limit (UCL) on the mean. In those cases where the 95% UCL

exceeds the maximum concentration, the maximum concentration shall be used as the EPC.

iii. Tables 5 and 6 - Toxicological Information. This section of the PAR shall provide the toxicological data (*e.g.*, Cancer Slope Factors, Reference Doses, Reference Concentrations, Weight of Evidence for Carcinogens, and adjusted dermal toxicological factors where appropriate) for the chemicals of concern. The toxicological data shall be presented in completed RAGS Part D Tables 5 and 6 format. The sources of data in order of priority are: EPA's Integrated Risk Information System (IRIS), Health Effects Assessment Summary Tables (HEAST)-1997, and contact with EPA's National Center for Environmental Assessment (NCEA). To facilitate a timely completion of the PAR, Respondent shall submit a list of chemicals for which IRIS values are not available to EPA as soon as identified thus allowing EPA to facilitate obtaining this information from NCEA.

If EPA disapproves of or requires revisions to the PAR, in whole or in part, Respondent shall amend and submit to EPA a revised PAR which is responsive to the directions in all EPA comments within thirty (30) days of receipt of EPA's comments. Work on the baseline risk assessment shall not proceed until such time as EPA has reviewed, commented upon, and approved the PAR.

E. Baseline Risk Assessment Section of the RI Report. Within sixty (60) days of EPA's approval of the PAR, Respondent shall submit to EPA the BRA section for inclusion in the RI report. Respondent shall evaluate and assess the risk to human health and the environment posed by exposure to Site contaminants, in accordance with the following requirements:

Respondent shall perform the BRA in accordance with the approach and parameters described in the approved Memorandum and PAR described above. Text and tables from these previously approved reports shall be included in the appropriate sections of the BRA.

i. Draft Baseline Risk Assessment Section. The draft Baseline Human Health Risk Assessment section of the RI report shall cover the following requirements:

a. Hazard Identification. Respondent shall identify and describe the COPCs by providing RAGS Part D Table 2 from the PAR and appropriate descriptions of the selection process using the PAR.

b. Characterization of Site and Potential Receptors. Respondent shall identify and characterize human populations in the exposure pathways by providing RAGS Part D Tables 1 and 4 with the conceptual site model and the Memorandum (see Task V. C above). The details provided in the Memorandum shall be included.

c. Exposure Assessment. The exposure assessment will identify the magnitude of actual or potential human exposures, the frequency and duration of these exposures, and the routes by which receptors are

exposed. The exposure assessment shall include an evaluation of the likelihood of such exposures occurring and shall provide the basis for the development of acceptable exposure levels. In developing the exposure assessment, Respondent shall develop reasonable maximum estimates of exposure for both current land use conditions and potential land use conditions at the Site. The details submitted in the Memorandum shall be included in this section of the RI report.

d. Toxicity Assessment. Respondent shall list all toxicity values (slope factors and reference doses) for the COPCs and the sources of the toxicity values (IRIS, HEAST, NCEA) in this section of the RI report. The toxicological information presented in the PAR should be included with appropriate descriptions provided in the PAR.

e. Risk Characterization. Risk characterization shall include comparison of chemical-specific toxicity information, combined with quantitative and qualitative information from the exposure assessment, to measured levels of contaminant exposure levels and the levels predicted through environmental fate and transport modeling. These comparisons shall determine whether concentrations of contaminants at or near the Site are affecting or could potentially affect human health. Respondent shall complete RAGS-Part D Tables 7 through 10 and discuss the results of the risk assessment providing appropriate characterization of the significance of the cancer risks and non-cancer hazards.

f. Identification of Limitations/Uncertainties. Respondent shall identify critical assumptions (*e.g.*, background concentrations and conditions) and uncertainties including the estimated contribution of risk due to naturally occurring and non-site related contaminants in the RI report.

The BRA shall be formatted following the CERCLA risk assessment paradigm (*i.e.*, introduction, conceptual site model, summary of data collection and evaluation, exposure assessment, toxicological information and risk characterization including discussion of uncertainties, etc.). If EPA disapproves of or requires revisions to the section, in whole or in part, Respondent shall amend and submit to EPA a revised BRA section which is responsive to the directions in all EPA comments, within thirty (30) days of receiving EPA's comments. The approved BRA section shall be incorporated into the RI report.

14. PROJECT MANAGEMENT APPROACH (4.0)

The Project Organization (Section 4.1) will be included in the QAPP.

The Project Schedule (Section 4.2) will be submitted within fifteen (15) days of the effective date of the Settlement Agreement as specified in this addendum. This Project Schedule shall also be included in the Workplan.

The Cost Estimate (Section 4.3) to implement the Work Plan will not be provided.