SRSNE Site Group

Remedial Design Work Plan Attachment B

Thermal Treatment Monitoring Plan

Solvents Recovery Service of New England, Inc.
(SRSNE) Superfund Site
Southington, Connecticut

November 2010

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Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

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SRSNE Site Group

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Executive Summary

The Thermal Treatment Monitoring Plan has been prepared to describe the scope and approach for monitoring air quality within and around the perimeter of the In-Situ Thermal Desorption (ISTD) treatment area during implementation of the thermal treatment to minimize potential impacts to onsite workers and the community. This plan also includes an action level exceedance plan that provides neighboring residents and businesses with the information they need to recognize and respond to a potential release.

Volatile organic compounds (VOCs) will be monitored along the perimeter of the Site continuously using a photoionization detector (PID) for the duration of In-Situ Thermal Remediation (ISTR). PIDs will be calibrated daily following manufacturer's specifications. Since moisture is known to interfere with PIDs, relative humidity will also be monitored daily.

Time weighted average data will be evaluated against 600 parts per billion (ppb), the calculated Connecticut Department of Environmental Protection (CTDEP) Hazard Limiting Values (HLVs) for trichloroethene (TCE), the most prevalent compound on Site. Project personnel will be notified immediately of a total VOC value exceedance. Data will be evaluated in accordance with the action level exceedance plan (ALEP).

To monitor the breathing zone of field personnel, ambient air monitoring will be conducted hourly, or when odors are observed, with a hand-held PID during subsurface field activities. If readings exceed 25 ppb for 15 minutes, field personnel will don Level C personal protective equipment (PPE). Field activities will immediately cease if readings exceed 50 ppb.

1. Introduction

This document has been prepared on behalf of the SRSNE Site Group, an unincorporated association of Settling Defendants to a Consent Decree (CD) and Statement of Work (SOW) for the Remedial Design/Remedial Action (RD/RA) at the Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site in Southington, Connecticut (Site). The CD was lodged on October 30, 2008 with the United States District Court for the District of Connecticut in connection with Civil Actions No. 3:08cv1509 (SRU) and No. 3:08cv1504 (WWE). The CD was entered by the Court on March 26, 2009.

Section V.C.1 of the SOW states that the Remedial Design Work Plan describe certain pre-design activities to be undertaken during the design of the thermal treatment remedy for the Site. Specifically, Section V.C.1.b of the SOW specifies that a monitoring plan be prepared for implementation during thermal treatment that includes safeguards to minimize potential impacts to on-site workers and the neighboring community from unacceptable air emissions during thermal treatment.

This *Thermal Treatment Monitoring Plan* has been prepared to describe the scope and approach for monitoring air quality within and around the perimeter of the In-Situ Thermal Desorption (ISTD) treatment area during implementation of the thermal treatment to minimize potential impacts to onsite workers and the community. This plan also includes an action level exceedance plan that provides neighboring residents and businesses with the information they need to recognize and respond to a release.

1.1 Objectives and Nearest Community Receptors

The objective of this work plan are to provide a monitoring program to identify, verify, and alert workers and the community to the presence/existence of any air quality impacts due to the operation of ISTD remediation project, and to assure offsite Volatile Organic Compound (VOC) levels are within CTDEP Hazard Limiting Values (HLVs) as presented in CTDEP air pollution control regulations for hazardous air pollutants (RCSA § 22a-174-29). To accomplish this objective, continuous real-time total VOC concentrations will be measured at the Site perimeter and compared with action limits based on CTDEP HLV criteria.

The nearest community potential receptors consist of private residences ~400 to 700 feet to the northwest and southwest of the site and a commercial business (warehouse) ~200 feet to the north. Additional businesses exist ~700 feet to the east along Route 10. Local wind data from a NOAA meteorological station (MC7403, Southington, Connecticut) located approximately 1.5 miles to the south of the Site at the corner of Rte. 10 (North Main St.) and Berlin Ave. indicate that the prevailing wind directions range from north to south over the year with the predominant directions being southwest and northwest.).

1.2 Real-time VOC Monitoring

Real-time VOC monitoring will be conducted using a Continuous Emissions Monitoring System (CEMS) Photo Ionization Detector (PID) VOC analyzer such as Rae System's RAEGuard PID (or equivalent) placed at three stationary locations. The three CEM PIDs will be operated simultaneously, on a continuous schedule of 24 hours per day, 7 days per week, for the duration of the ISTR program, which is estimated to be approximately 5 months of construction, 5 months of operation, and 2 months of demobilization. The upwind CEM PID will be located along the western edge of the ISTR treatment area (see Figure B-1). The two downwind CEMS PIDs will be positioned and operated in locations to the southeast and northeast of the ISTR treatment area and the off-gas treatment equipment (Figure B-1). A fourth CEMS PID will be kept at the Site as a backup instrument in the event of a failure of either of the upwind or downwind primary PIDs.

During most of the thermal treatment implementation phase of the project, the Site will be manned by a full-time operator, but during nighttime and some weekends, the Site will not be constantly manned and the CEMS PIDs will operate unattended for periods up to 48 hours. In order to operate on a continuous basis over extended periods of varied weather conditions, the CEMS PIDs will require AC-power, protective shelter housings, and secure/locked mounting.

Perimeter measurements will be taken continuously, except during periodic calibrations. The CEMS PIDs will continuously sample total VOCs at a rate of at least once every ten seconds, and automatically store the data onto an internal data logger as 15 minute time-averaged data. All CEMS PID data will be transmitted and stored each day either manually or via automated connection, to an on-site PC computer. Zero and span calibration of the PIDs

using carbon-filtered air and isobutylene will be conducted daily, and will follow manufacturer's calibration guidelines. Records of calibrations and established baselines will be documented on a CEMS PID Recordkeeping Form (example attached as Appendix B-1). Instantaneous PID readings, if any, used for decision purposes will also be recorded on the recordkeeping form.

On-site wind speed, wind direction, and sigma theta (standard deviation of wind direction), and relative humidity (RH) will be monitored concurrently with the VOC monitoring using a Davis Pro Weather Station (or equivalent), mounted on a support structure at a height of a minimum of eight feet above grade. RH will be measured so that moisture effects, such as high humidity and rain events, can be evaluated since the analyzer within these types of portable PID units may be affected by high humidity.

The weather station sample rate will be ten seconds or less, and data will be automatically stored in the internal memory and saved as one-hour time-averaged data. All wind data will be transmitted and stored each day, either manually or via automated connection to a PC computer. The weather station will be aligned and calibrated upon installation, and wind direction accuracy will be verified weekly by pointing the vane in a known direction and observing the response.

Data will be logged by an on-site computer and viewed daily during business hours for values exceeding the PID action limit. The PID action limit at the Site fence line is based on a one hour time-weighted average of 600 parts per billion (ppb) total VOCs above background. Background is determined by the upwind PID reading. The action limit is conservatively based on the CTDEP HLV for the most prevalent COC present at the Site, trichloroethene (TCE, 1,250 ppb), multiplied by the PID response factor for TCE (0.54 assuming a 10.6 eV lamp and standard isobutylene calibration), multiplied by 90 percent.

The PID selected for use on this project has a fixed rate to record data, which is based on a 15-minute or 8-hour time-weighted average. Since recording a 30-minute time-weighted average is not possible, the 15- minute time-weighted average will be used and responses will be based on the results of two consecutive 15-minute readings.

If the PID response at either of the fence line monitoring locations exceeds 600 ppb above baseline, the data will be flagged and project personnel notified

immediately by the on-site auto-dialer. The baseline is established during calibration, and background is defined by the upwind PID response. Notifications to project personnel are based on 600 ppb above baseline, and an action level exceedance is based on 600 ppb above background. When a notification occurs, the results will be viewed remotely, and if necessary manually investigated within a 12-hour period according to the following five-step action level exceedance plan (ALEP).

1.3 Action Level Exceedance Plan

1. Review the data from two consecutive 15-minute periods to determine if the PID response exceeded 600 ppb above background for a period of 30 minutes based on a time-weighted average. If the notification has been caused by baseline drift or other factors, recalibrate the PIDs and no further action is necessary. If the action level response is due to an exceedance of 600 ppb total VOCs above background then continue to step 2.

2. Review the RH and wind direction for the period of concern and identify if the action level response is due to a rain/humidity event or due to an issue upwind or downwind of the ISTR off-gas treatment equipment. If the action level response is RH related, then recalibrate the PID. If the action level response is upwind, then attempt to identify the potential offsite source or cause and record the findings in the project site log. No other corrective action is required. If the action level response is not upwind or RH related then continue to step 3.

3. If the action level response is downwind of the project AQC system, then recalibrate the PID. If the action level response is rectified and attributable to calibration drift, then record the action i-on the CEMS PID Recordkeeping Form and no further corrective action is required. If the action level response continues and is not corrected by re-calibrating the PID, then continue to step 4.

4. Verify the reading by taking readings with a portable PID at the downwind location. If the action level response is not confirmed and instrument malfunction is suspected, then replace and repair the malfunctioning PID, and record the action on the CEMS PID Recordkeeping Form.

5. If the upwind PID confirms the action level response, then use a portable PID to survey the area to identify the source of vapors, and take corrective actions to abate emissions. Corrective action may include replacing or augmenting process outlet vapor controls (carbon filtration). After corrective action is complete, verify effectiveness of the corrective measures by operating the perimeter CEMS PIDs for a one-hour period. All corrective actions will be documented on the CEMS PID Recordkeeping Form.

6. If the action level response is verified, TerraTherm will notify the Project Coordinator at ddms within one hour of verifying the exceedance. The Project Coordinator will then notify the EPA and local authorities. The Project Coordinator, in conjunction with the EPA and local authorities will develop and implement a community response plan specific to the nature and magnitude of the exceedance and the planned corrective measures.

2. Ambient Air Monitoring

2.1 Direct-Reading Instrumentation

A Photoionization Detector (PID), such as a MiniRAE PID, equipped with a 10.6eV lamp, will be used to screen the breathing zone of employees during ISTD wellfield installation and system influent and effluent monitoring. TCE is the most prevalent compound present ant the site and has been detected at a peak concentration of 780 mg/L. Therefore, TCE has been selected as the target compound for selection of the breathing zone action limit. A project-specific action limit is calculated based on the OSHA PEL of 100 ppm for TCE using the vendor's reported response correction factor to the selected compound with a 10.6eV lamp (0.57) divided by an applied safety factor of 2. For TCE, this level calculates to 28.5 PID units. Given this range and the mix of compounds that are likely to be present, a reading of 25 units above background has been selected as the action level for this project.

If breathing zone concentrations are sustained (for 15 minutes) at **25 unit above background** and administrative or engineering controls are not sufficient to eliminate the vapor concentrations, **Level C respiratory protection**, as described in the project Health and Safety Plan (Attachment D of the Project Operations Plan), will be donned.

If breathing zone concentrations exceed **50 units**, **work will be temporarily suspended** until the PM and Site Safety Officer (SSO) can determine the best control measures to implement to control VOC concentrations.

All sampling will be conducted by the SSO. Readings will be taken at regular intervals (i.e., at least once every hour) from the breathing zone of employees during subsurface activities, or more frequently when noticeable odors are present. Additional monitoring may be required if action levels are repeatedly exceeded during a certain activity.

A survey and readings will also be taken once per day during operations through and around the ISTR well field and off-gas treatment equipment area. If noticeable odors are present, the frequency of the surveys and readings will be increased. Additional monitoring may be required if action levels are repeatedly exceeded during a certain activity.

2.2 Calibration and Recordkeeping

The CEMS and portable PIDs will be calibrated to a 100 ppm isobutylene-in-air standard on a daily basis in accordance with manufacturer's instructions. All CEMS PID readings will be automatically taken and stored on a data logger for periodic downloading. These data will be uploaded to the Project Portal website following internal checks and review. Manual readings conducted with the portable PID will be recorded on the Portable PID Recordkeeping Form (see Attached). In addition, all calibrations will be recorded on the Portable PID Recordkeeping Form.

Portable PID Recordkeeping Form
ISTR Project - SRSNE Site
Southington, CT

Portable PID Inspection, Maintenance, and Calibration Log

Days of Operation	Day	Date	PID Inspections, Maintenance, Repair (if necessary)	Readings							
				0 Calibration Reading	100 ppm Calibration Reading	Off-Gas Treatment Euipment (Peak Reading)	Well Field (Peak Reading)	Well Field Perimeter			
								North (Peak Reading)	West (Peak Reading)	South (Peak Reading)	East (Peak Reading)
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CEMS PID Recordkeeping Form
ISTR Project - SRSNE Site
Southington, CT

CEMS PID Inspection and Maintenance Log

CEMS PID Calibration LOG

Days of Operation	Day	Date	CEMS Inspections, Maintenance, Repair (if necessary)	CEMS Shutdown Time (Duration), Nature, Reason (if applicable)	*Upwind*			*Downwind Location 1*			*Downwind Location 1*		
					0 Calibration Reading *	100 ppm Calibration Reading*	Ambient Reading with Portable PID	0 Calibration Reading *	100 ppm Calibration Reading*	Ambient Reading with Portable PID	0 Calibration Reading *	100 ppm Calibration Reading*	Ambient Reading with Portable PID
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