

## **NDEP Comments on the Soil Gas Sampling Plan for Maryland Square PCE Plume**

**Reviewer:** Mary A. Siders, Ph.D., Bureau of Corrective Actions, Nevada Division of Environmental Protection.

**Date:** January 17, 2007      **Facility ID:** H-000086

### **GENERAL COMMENTS**

#### General Comment 1

The NDEP requests that the northern-most location along Spencer Street be eliminated and replaced with a sampling location south of the southern-most proposed location along Spencer Street.

#### General Comment 2

The NDEP requires that the sampling procedure be thoroughly described. It is not clear how the boreholes will be sealed to prevent the influx of outdoor air. One foot of soil above the driven probe is an insufficient seal against the influx of outdoor air. The NDEP requires that the sampling plan specifically describe the procedure that will be used to seal the boring and to detect leaks during sampling.

#### General Comment 3

Tedlar bags have a holding time of no more than 48 hours. The NDEP requests that a holding time of 24 hours be specified for laboratory analysis. Analysis of samples beyond the 48-hour limit is not acceptable. (Nevada does not certify laboratories for the proposed analysis of soil vapor samples).

#### General Comment 4

Although the NDEP will use the site-specific data to evaluate potential risk related to vapor intrusion, the NDEP requests that URS perform a risk assessment using all relevant data, and include the results of the risk assessment in the report documenting the soil gas sampling.

### **SPECIFIC COMMENTS (red-line text summarizes agreements by NDEP)**

#### Specific Comment 1

Section 1.2, Prior Assessments, states that “The concentration of dissolved PCE in groundwater collected from the study area has ranged from 350 micrograms per liter (µg/L) to 1,300 µg/L.”

Actually, MW-20 contained 2,500 µg/L PCE in the sample collected in December 2006, and MW-18 contained 2,400 µg/L PCE in the sample collected in December 2005.

Scott will check numbers and will revise accordingly.

#### Specific Comment 2

Section 2.1, Utility Location. The report should include a map of the utilities, which should be available from the city. Utility corridors may provide preferential pathways for contaminant migration, so these locations should be identified with this in mind.

Existing information will be compiled to create a utility map of conduits; Scott will check with county to see if plan map of utility corridors is available. For national security reasons (possible terrorist attack), this information is not available on the web

#### Specific Comment 3

Section 2.2 states that groundwater is at 15 feet bgs at Boulevard Mall, but the 4<sup>th</sup> Quarter Monitoring Report for 2006 shows a depth to groundwater for well MW-20 at 24.85 feet bgs. Well MW-18 located in the westernmost portion of the residential area shows a depth to groundwater of 10.98 feet bgs for December 2006, not 6 feet bgs. Explain this inconsistency.

Scott will check numbers and will revise accordingly.

#### Specific Comment 4

Section 3.2.1. In addition to moisture content, soil bulk density, and grain density, a particle-size (grain-size) analysis should be performed on the soil samples.

Grain-size analysis (analysis of particle-size distribution) will be done on the soil samples

#### Specific Comment 5

Section 3.2.3 states that “boreholes will not be logged to characterize the subsurface lithology.” The NDEP requires that all boreholes be logged, to improve the understanding of the heterogeneity of the subsurface lithology.

Borehole cuttings will be logged; no continuous core will be logged.

#### Specific Comment 6

Section 3.2.4, Soil Vapor Analysis.

Samples should be analyzed for daughter products (TCE, DCE, and vinyl chloride), in addition to PCE.

The full 8260 suite will be analyzed, using vapor standards

Tedlar bags have a holding time of 24 to 48 hours. 72 hours is not acceptable. The NDEP requests that a holding time of 24 hours be requested, with any delay beyond 48 hours being unacceptable.

Method 8260 is acceptable for soil gas samples collected outside of buildings using Tedlar bags. If subslab or internal air samples are ever collected, then Summa canisters and methods TO-14 or TO-15 will be required.

Samples collected in Tedlar bags will be analyzed within 48 hours of collection.

#### Specific Comment 7

Section 3.2.6, Soil Analysis.

In addition to moisture content, soil bulk density, and grain density, a particle-size (grain-size) analysis should be performed on the soil samples.

See Specific Comment 4

#### Specific Comment 8

Section 3.3.3, Soil Vapor Sampling

It is unclear how the borehole will be sealed to prevent the influx of outside air. Please specify exactly how the borehole will be sealed and how leaks in the seal will be detected during sampling. Driving a point 1 foot beneath the bottom of the borehole is insufficient in itself to prevent the influx of outside air. As noted, nylon tubing is better than Teflon for soil gas sampling.

A one-foot layer of bentonite will be used as a seal to prevent influx of outdoor air as the soil gas sample is collected. The procedure for sampling and sealing the borehole will be detailed in the revised sampling plan.

Please select sample IDs that promote proper sorting of the data; that is, use a designation of SVB-01-06 through SVB-48-06 rather than SVB-1-6 through SVB-48-6). This will work fine for 1 to 99 sampling locations, for depths from 0 to 99 feet bgs. The data users will thank you for planning ahead.

#### Specific Comment 9

Section 3.3.4 Soil Sampling

The NDEP requests that six soil samples be collected and analyzed for moisture content, soil bulk density, grain density, and grain size distribution (particle-size analysis). A range of lithologies should be selected for testing, and locations of samples noted on the boring logs. Unique sample IDs should be selected so that soil samples and gas samples do not have the same IDs. For example, use SVB-

S1-06 instead of SVB-01-06. (Since only six soil sample will be collected, this scheme should work fine).

Agreed upon.

### Specific Comment 10

Section 3.6, Schedule

The NDEP requests that URS coordinate with the NDEP's consultant in the collection of a duplicate sample.

The NDEP looks forward to receiving the analytical data as specified; however, the NDEP requests that URS also provide a report within 30 days after the data are received from the laboratory. This report shall include the following:

1. Description of sampling procedures, deviations from planned sampling, difficulties encountered during sampling
2. Site plan map and sampling location map at an appropriate scale
3. Figure illustrating the sampling set-up
4. Site map showing utility corridors
5. Isoconcentration maps for contaminants of concern at the same scale as the site plan map - These will show the concentrations along each sampling transect (contours will not be drawn between the three transects)
6. Summary tables for 8260 analytical data as  $\mu\text{g}/\text{m}^3$  and ppbv
7. Legible copies of field and laboratory notes or logs
8. All analytical results and quality assurance/quality control (QA/QC) information including tables and explanations of procedures, results, corrective actions and effect on the data
9. Lithologic logs for all borings
10. Geotechnical data for soil samples
11. Results of a risk assessment, noting areas that exceed a  $1.0\text{E}-04$  risk

All points, excepting 11, agreed upon. The NDEP will not require a human health risk assessment at this point. However, depending on results of NDEP's modeling of the collected soil gas data, additional work may be required in the future. Modeling using groundwater data and default values for the Johnson & Ettinger model for vapor intrusion indicated indoor air concentrations exceeding a  $1.0\text{E}-4$  carcinogenic risk. The NDEP will use soil gas data and site-specific soils

data to refine the model. If results of the site-specific modeling show that indoor air poses a risk greater than  $1.0E-4$ , then follow-on work may be necessary.