



November 22, 2013

Mr. Weiquan Dong, PE
Bureau of Corrective Actions, Special Projects Branch
Nevada Division of Environmental Protection
2030 E. Flamingo Rd., Suite 230
Las Vegas, Nevada 89119

Re: NERT Response to NDEP October 7, 2013 Comments on the Soil Gas Investigation Report and Health Risk Assessment for Parcels C, D, F, G, and H, Revision 0; Nevada Environmental Response Trust Site, Henderson, Nevada; dated July 25, 2013 (NDEP Facility ID #H-000539)

Dear Mr. Dong:

On behalf of the Nevada Environmental Response Trust ("NERT" or the "Trust"), ENVIRON International Corporation (ENVIRON) has prepared an annotated response to the Nevada Division of Environmental Protection's (NDEP's) comments on the Soil Gas Investigation Report and Health Risk Assessment for Parcels C, D, F, G, and H, Revision 0 for the NERT site. The comments were included as Attachment A in NDEP's letter to the Trust dated October 7, 2013. Our response to NDEP comments is provided in Attachment A to this letter. Revised text of the HRA, revised tables, and revised figures, pertaining to our responses to comments are provided in Attachment B.

Please contact John Pekala at (602) 734-7710 if you have any comments or questions concerning this response to comments.

Sincerely,

John M. Pekala, CEM #2347
Senior Manager

Allan J. DeLorme, PE
Principal

Attachment

cc: BMI Compliance Coordinator, NDEP, BCA, Las Vegas
Brian Rakvica, McGinley and Associates, Las Vegas
NDEP c/o McGinley and Associates, Reno

ec: James Dotchin, NDEP
Greg Lovato, NDEP
Stephen Tyahla, USEPA
Nevada Environmental Response Trust
Tanya O'Neill, Foley & Lardner LLP
Jeff Gibson, AMPAC
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Lee Farris, Landwell
Ranjit Sahu, BMI
Joe Kelly, Montrose
Paul Sundberg, Montrose

Curt Richards, Olin
Jay Gear, Olin
Davis Share, Olin
Chuck Elmendorf, Stauffer
Nick Pogoncheff, Stauffer
George Crouse, Syngenta
David Hadzinsky, TIMET
Richard Truax, GEI Consultants
Kirk Stowers, Broadbent & Associates
Victoria Tyson, Tyson Contracting
Enoe Marcum, WAPA

Attachment A

**Response to NDEP Comments on
*Soil Gas Investigation Report and Health Risk
Assessment for Parcels C, D, F, G, and H, Revision 0*
Nevada Environmental Response Trust Site, Henderson, Nevada
Dated July 25, 2013**

NDEP Comment	Response
<p>1. Section 1.3 Climate, Page 4. The Deliverable states that, "The mean annual evaporation rate from lake and reservoir surfaces ranges from 60 to 82 inches per year (summarized from Kleinfelder [1993])." This is a secondary source, the primary source would be: Shevenell, L., 1996, <i>Statewide Potential Evapotranspiration Maps for Nevada</i>, Nevada Bureau of Mines and Geology, Report 48, pp. 32.</p>	<p>The citation will be revised to "Shevenell L. 1996, <i>Statewide Potential Evapotranspiration Maps for Nevada</i>, Nevada Bureau of Mines and Geology, Report 48, pp. 32."</p>
<p>2. Section 1.4 Geologic and Hydrogeological Setting, page 5, 2nd paragraph on page. The reference to Figure 4 should be changed to Figure 5.</p>	<p>The reference to Figure 4 will be changed to Figure 5.</p>
<p>3. Section 3.1 Sampling Locations, page 12, 1st paragraph of the section. The Deliverable states that, "Although NDEP had suggested collecting four additional samples if the parcels were to be evaluated individually (NDEP 2013d), these additional samples were not collected given that the original nine sample locations were intentionally biased and had been placed in areas of higher predicted chloroform concentrations in shallow groundwater." The four locations were intended to cover areas where there were spatial soil gas data gaps. NERT's response herein assumes that the sole source of VOCs is groundwater sourced. Changes to the sampling plan should be approved by the NDEP in advance of changes in the field.</p>	<p>As outlined below, our review of the record indicates that the Nevada Division of Environmental Protection (NDEP) approved the field work and sampling portions of the <i>Draft Soil Gas Investigation Work Plan for Parcels C, D, F, G, and H</i> (ENVIRON 2012) on January 29, 2013 (NDEP 2013a). However, in Attachment A of the approval letter, NDEP requested one additional sample adjacent to well M-23. The planned field work was revised to include collection of this additional sample. The later NDEP request to include the additional four sampling locations noted in NDEP's comment was made after the soil gas sampling event had been completed. The following represents the chronology of submissions and NDEP comments pertinent to this issue.</p> <ul style="list-style-type: none"> • NDEP approved the field work and sampling portions of the October 2012 <i>Draft Soil Gas Investigation Work Plan</i> on January 29, 2013, but recommended collecting one additional soil gas sample adjacent to well M-23. • The proposed field work was discussed on February 21, 2013 during a teleconference between NDEP and ENVIRON. NDEP was informed that the requested soil gas sample adjacent to M-23 was being added to the sampling plan (for a total of 9 samples). • The approved field work (collection of soil gas samples) was conducted between March 7 and March 15, 2013. • An updated health risk assessment (HRA) work plan was submitted to NDEP on March 18, 2013. The work plan comprised the previously approved description of the field work (in which 9 samples were identified for sampling), revisions addressing NDEP's January

NDEP Comment	Response
	<p>29, 2013 comments, and a newly added section that described the risk assessment methodology.¹</p> <ul style="list-style-type: none"> In comments dated April 9, 2013 (after the field work had been completed), NDEP requested that NERT collect soil gas samples at four additional locations (one location each in Parcels C, F, G, and H) in case the soil gas investigation and HRA were to be completed on a parcel by parcel basis. <i>(We note that the option of conducting the HRA on a parcel by parcel basis was first noted on page 3, Section 1.1. of the NDEP–approved October 2012 Work Plan. We also note that following review of the analytical results, the HRA did not evaluate risk for individual parcels, with the exception of risks for chloroform. Instead, for all chemicals of potential concern (COPCs) except chloroform, the maximum detected concentration was used.</i> <p>Section 3.1 of the HRA report will be revised to clarify the basis for decision-making relevant to the sampling plan as described above.</p>
<p>4. Section 3.1 Sampling Locations, page 12, 3rd paragraph of the section. The Deliverable states that, "The purpose of locating soil gas samples near groundwater monitoring wells was to investigate the correlation between soil gas and underlying groundwater concentrations, as recommended by NDEP (NDEP 2012c, 2013b)." Point of clarification, the correlation was originally suggested by Northgate in their 2010 Site-Wide SVI HRA evaluation.</p>	<p>The text will be revised to attribute the suggestion to evaluate the correlation of co-located soil gas and groundwater samples to Northgate and Exponent (2010), as presented in the 2010 site-wide soil gas HRA.</p>
<p>5. Section 3.2 Sampling Methodology, page 13, 2nd paragraph, 5th line. Helium gas was detected in two soil gas probes (E-SG-1 and E-SG-3). Both of these samples collected this year are used to assess risks in Parcel C. Therefore, two of the three 2013 soil gas samples to fill in data gaps experienced sampling deficiencies. Please add the discussion presented about the effect of the helium gas detections and its effects on the results in the uncertainty analysis section. See also comment #6.</p>	<p>The primary advantage of using helium as a gaseous tracer is that leakage can be readily quantified by comparing laboratory results for helium with concentrations measured within the sampling shroud. Laboratory results are used because field results are less reliable at the low end of the concentration range. The field measurements are used to allow personnel to make corrective actions in the field in response to potential leaks. In the case of E-SG-1 and E-SG-3, helium field detections were reviewed in the field and potential impacts to sample integrity were considered prior to sampling. The following discussion describes the decision-making with respect to E-SG-1 and E-SG-3.</p>

¹ We note that the resubmission of sections describing the previously approved field work may have resulted in confusion because the report did not state that the field work had been implemented.

NDEP Comment	Response
	<ul style="list-style-type: none"> • E-SG-1: sampling proceeded without corrective action even though field data suggested that a leak of greater than 5% was potentially occurring (9.4-12% of shroud concentration). This decision was made because E-SG-1 was the last sample collected before postponing the March 8, 2013 sampling event due to rain. There was no time to perform a corrective action in the field, so the sample was submitted to the laboratory with the request to screen for helium prior to volatile organic compounds (VOCs) analysis. The laboratory helium result of 0.0067% (0.024% of the shroud concentration) confirmed that the sample was not materially compromised by ambient air. The field detections in the probe likely resulted from a leak within the field instrument tubing (which is not in-line with the sample stream) or were anomalous readings due to atmospheric moisture from the light rain that had begun during sampling. • E-SG-3: the field detection of 0.1% in the probe versus 30% in the shroud represents a potential leak of 0.3%, well below the accepted threshold of 5% at which corrective action to remedy the leak or relocate the probe is recommended (California Environmental Protection Agency 2012). Sampling therefore proceeded without corrective action. The laboratory detection of 0.0082% (0.027% of the shroud concentration) confirmed that the sample was not materially compromised by ambient air. <p>In both cases, the shut-in tests successfully demonstrated that the sampling trains were essentially leak free. Furthermore, the sampling proceeded in accordance with established protocols for performing quantitative helium leak-checks for soil gas sampling and is not considered deficient. The report will be revised to include this discussion in the Uncertainty Analysis.</p>
<p>6. Section 4.1.6.3 Representativeness, page 21, 4th paragraph, last sentence. The text states that seven locations in the 2013 soil gas investigation (shown in Table B-3 in Appendix B) were potentially impacted by surface air contamination/dilution. There were only nine soil gas sampling locations included in this field investigation. Therefore, 78% (7/9) of the soil gas samples may have been compromised. Further, sample E-SG-1 is used to represent both Parcels C and E but has been compromised by breakthrough. As such, the maximum detected concentrations</p>	<p>As discussed in the response to Comment #5, an advantage of using helium as a gaseous tracer is that leakage can be readily quantified. A second advantage is that helium, being a conservative gaseous tracer, does not affect analysis of VOCs nor does its detection require sample dilution, both of which are common when using volatile liquid tracers. Therefore, quantitative leak-tests using helium can identify potential leaks that would not be discovered using more common techniques. Trace levels of helium are commonly detected in soil gas samples due to the sensitivity of the method. However, the additional data provided</p>

NDEP Comment	Response
<p>reported in the 2013 soil gas investigation may be underestimated (or overestimated). NDEP should have been alerted to this discovery prior to the preparation of the soil gas HRA in order to determine whether the effect of the surface air contamination or dilution would compromise risk management decisions for the site. In addition, this should also be discussed in the uncertainty analysis section.</p>	<p>by the leak-tests allows for the quantitative evaluation of the significance of the leak. Furthermore, when a significant leak is identified, the VOC results can be adjusted to account for the leak.</p> <p>Concentrations of helium in 9 of the 10 samples were insignificant, as indicated by the laboratory results (0.019-0.25% of shroud concentration). Of these, E-SG-1 and E-SG-3 had helium field detections in the probe during sampling; however, helium field detections are not used to quantify leaks. Field data are used only for making corrective actions in the field (as discussed in the response to Comment #5). One sample, E-SG-6, had a laboratory detection of helium of 2.0% (6.7% of shroud concentration); however, a field duplicate was collected simultaneously with this sample. The field duplicate, which shared the same sampling train and shroud, contained helium at a concentration of only 0.076% (0.25% of shroud concentration). The reason for the difference between the primary and duplicate sample is not known. To evaluate the impact on the risk estimates, VOC results were adjusted assuming a 6.7% leak. The adjusted VOC results did not result in any material changes to the risk estimates in the HRA. The report will be revised to include this discussion in the Uncertainty Analysis.</p>
<p>7. Section 4.1.4 Criterion IV — Analytical Methods and Detection Limits. Please identify the source of the "RBCs". NDEP reserves the right to additional comments pending the source identification.</p>	<p>ENVIRON derived the risk-based concentrations (RBCs) using the inputs to the Johnson and Ettinger model and values for exposure assumptions and toxicity criteria presented in the NDEP-approved <i>Soil Gas Investigation and Human Health Risk Assessment Work Plan for Parcels C, D, F, G, and H</i> (ENVIRON 2013). (These are the same values as used in this HRA). Table 3 (combined 2008 and 2013 soil gas data set) and Table 5 (2013 soil gas data set) of the Soil Gas HRA list the RBCs and for each analyte, present the ratio of the maximum sample quantitation limit (SQL) to 10% of the RBC and the number of samples with SQLs greater than 10% of the RBC. For both the 2008 and 2013 sampling events, the maximum SQL was less than 10% of the RBC for all analytes. This information will be added to Section 4.1.4.</p>

NDEP Comment	Response
<p>8. Section 4.1.6.3 Representativeness, page 22, 1st complete paragraph, 7th line from the bottom of the paragraph. Fourteen soil gas results were qualified due to detections in the trip and equipment blanks. Please include in the main body of the text the identification of the soil gas results that were qualified (e.g., table format). Although these did not include chloroform, 1,2-DCA or TCE, the discussion in this section of the report should be included in the uncertainty section to provide a discussion of the impact on the risk results for the COPCs detected in the blanks.</p>	<p>The 2008 and 2013 soil gas results qualified due to detections in trip and equipment blanks were identified in Appendix C of the July 25, 2013 Soil Gas HRA (specifically, in Attachment D to Appendix C-1 and Table E-4 of Appendix C-2). As requested, a table showing both the 2008 and 2013 results qualified due to blank contamination will be included in the main body of the text.</p> <p>The text of the Uncertainty Analysis (Section 6.2, p37) will be revised to include a discussion of the impact of COPCs detected in blanks on the risk results. The revised text is included in Attachment B to these responses. As discussed in the revised text, blank contamination had no impact on the risk results.</p>
<p>9. Section 4.1.6.4 Precision, page 22, 2nd paragraph, 6th line from the bottom of the paragraph. Three of the four primary risk drivers (i.e., chloroform, carbon tetrachloride, and TCE) either showed RPD values below the established objective of less than or equal to 50% or differences within the acceptance criteria. In addition, 1,2-DCA had differences outside the acceptance criteria. The samples affected should be identified in the main body of the text (e.g., table format) and a discussion of the impact of this should be presented in the uncertainty section.</p>	<p>The specific sample/chemical combinations qualified due to field duplicate imprecision for the 2013 dataset were identified in Appendix C of the July 25, 2013 Soil Gas HRA (specifically, in Attachment B to Appendix C-1). (As noted in Section 4.1.6.4 of the HRA, none of the field duplicate samples were collected locations in or near the Study Area in the 2008 data set). As requested, a table showing the results qualified due to field duplicate imprecision will also be included in the main body of the text.</p> <p>A discussion of the impact of results outside the acceptance criteria was included in Section 6.1 of the July 25, 2013 Soil Gas HRA. This discussion has been revised for clarity and will be moved to Section 6.2. The revised text is included in Attachment B to these responses. As discussed in the revised text, results outside acceptance criteria had no impact on the risk results.</p>
<p>10. Section 4.2.2 Cross Plots for Co-located Soil Gas and Groundwater Samples, page 25, last paragraph of section. Data on Figure 9 when plotted in log space appears to fit the CSM, except for the sample location E-SG-9/M-23 which appears to be an outlier. Please clarify that the data fit the CSM tenet the groundwater is the source for soil gas.</p>	<p>ENVIRON reviewed co-located sample pair E-SG-9/M-23. The 2013 soil gas result of 98 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) is less than the predicted concentration of approximately $1,000 \mu\text{g}/\text{m}^3$, if it is assumed that groundwater is the source of VOCs. The BMI database was queried for additional sampling results for M-23 to determine if the groundwater result (130 micrograms per liter [$\mu\text{g}/\text{l}$]) was an anomaly; however, only one sampling result has been reported for M-23. Similarly, only one soil gas result has been reported at E-SG-9. The M-23 soil boring log was reviewed for consistency with other Parcel C and D boring logs, with no important differences noted. A possible explanation for the outlier is the elapsed time of 3.8 years between</p>

NDEP Comment	Response
	<p>collection of the groundwater (June 2008) and soil gas sample (March 2013). Moreover, it is possible that the relatively low concentrations detected in groundwater (130 µg/l) and soil gas (98 µg/m³) could have contributed to the lower observed correlation as results can be more variable than at the higher concentrations found in the other co-located samples. ENVIRON notes that the overall weight of available information (site history and field investigations) supports the conceptual site model (CSM) tenet that groundwater is the source of soil gas VOCs.</p> <p>In response to this comment (and considering Comments #11 and 12), ENVIRON examined all sample pairs shown on Figure 9 and revised Section 4.2.2 based on this review. The revised text is included in Attachment B to these responses.</p>
<p>11. Section 4.2.2 Cross Plots for Co-located Soil Gas and Groundwater Samples, page 25, last paragraph of section. Data on Figure 10 when plotted in linear and log space does not appear to fit the CSM as the R² is 0.6206. The collocated samples SG-33/M-124 and SG-47/TR-10 contain the same soil gas concentration, but the groundwater values vary by two orders of magnitude. Please clarify that the data fit the CSM tenet that groundwater is the source for soil gas.</p>	<p>ENVIRON reviewed co-located sample pairs SG33/M-124 and SG47/TR-10. SG33/M-124 is located in Letter of Understanding (LOU) 64 (Koch Materials Company), well to the north of Parcel F. SG47 (but not TR-10) is located in LOU 62 (State Industries), just to the north of Parcel H. Both pairs are in the "Facility Area," the Site excluding Parcels A, B, C, D, F, G, and H, and not within the parcels. (See Figure 6 for soil gas sample and well locations.) NDEP (2011) identified VOCs as possible contaminants at both LOUs. Because (1) LOUs 62 and 64 represent possible surface sources of VOCs and are located outside of the parcels and (2) the CSM presented in the soil gas HRA was developed for the parcels and not the Facility Area, these two samples will be deleted from the Figure 10 scatterplot. (See also additional discussion in the response to Comment #10.)</p> <p>In response to this comment (and considering Comments #10 and 12), ENVIRON examined the remaining sample pairs shown on Figure 10 and revised Section 4.2.2 based on the review. The revised text is included in Attachment B to these responses.</p>
<p>12. Section 4.2.2, page 25, last sentence of the section. The data in Figures 9 and 10 do not appear to support the conclusion drawn, please refer to the two previous comments.</p>	<p>See responses to Comments #10, 11, and the revised text included in Attachment B to these responses.</p>
<p>13. Section 4.2.3 Spatial Analysis of VOCs in Soil Gas, page 25, last paragraph on page. To date none of the BMI RPs have presented data to support the conclusion of reductive dechlorination.</p>	<p>The last paragraph on page 25 has been significantly revised, both to address NDEP's comment and to more clearly identify the criteria for selecting the COPCs plotted spatially. The revised text is presented in Attachment B to these responses.</p>

NDEP Comment	Response
<p>14. Section 4.2.4 Temporal Comparison of VOCs in Groundwater, page 26, footnote 11. The shallow zone is not defined by depth; but rather by the first occurrence of groundwater in either the Quaternary Alluvium (Qal); Transitional Muddy Creek formation (xMCf) or the Upper Muddy Creek formation (UMCf) where the xMCf is missing (NDEP, 2006).</p>	<p>Footnote 11 will be revised to state that the shallow zone is defined by the first occurrence of groundwater in either the Quaternary Alluvium (Qal); Transitional Muddy Creek formation (xMCf) or the Upper Muddy Creek formation (UMCf), where the xMCf is missing (NDEP 2006).</p>
<p>15. Section 5.4.4 Cancer Risk Comparisons, page 35, last paragraph. The Deliverable states that, "Parcel H risks in 2008 were far below significance. As a result, and because of its distance from the chloroform plume, it was not sampled in 2013." However, the NDEP requested a sample in the northeast section of Parcel H. As noted in comments #8, #9, and #10 the cross plot correlations were not conclusive in ruling out non-groundwater sources for soil gas.</p>	<p>As noted in our response to Comment #3, NDEP approved the field work and sampling locations of the October 2012 work plan on January 29, 2013. The soil gas sampling was completed March 15, 2013, whereas the NDEP request to sample in the northeast section of Parcel H was made April 9, 2013. ENVIRON understood that this request was made to provide data to support a "parcel-by-parcel" risk evaluation. Because the parcels were not evaluated individually, and the maximum detected concentrations across all parcels were used as the exposure concentrations for all chemicals except for chloroform, the four additional samples were not collected.</p> <p>Additionally, with regard to Parcel H, in January 2013 NDEP provided the following comment (Comment #15d, NDEP 2013a):</p> <p style="padding-left: 40px;">Parcel H has two soil gas samples within its boundary and three soil gas samples immediately adjacent to the north. There is one collocated soil gas sample and groundwater sample. Parcel H is in an area of low (10E-07 to 10E-09) interpreted soil gas and risk (Northgate, 2010). Parcel H contains no LOUs; thus, groundwater should be source for VOCs.</p> <p>Considering this NDEP comment and ENVIRON's understanding of Parcel H based on (1) a review of historical operations and the soil, soil gas, and groundwater analytical results and (2) the absence of an LOU within the Parcel H, the available Parcel H soil gas samples were considered adequate for the HRA.</p> <p>See also responses to Comments #10, 11, and 12.</p>
<p>16. Executive Summary, Cumulative Cancer Risk for Soil and VOC Inhalation Pathways, page ES-2. Please include a summary of the asbestos risks (see Section 5.43).</p>	<p>The Executive Summary will be revised to include a summary of the estimated asbestos risks, similar to the summary presented in Section 5.4.3. (ENVIRON notes that additional revisions to the Executive Summary and Section 5.4.3 may be required if asbestos risks</p>

NDEP Comment	Response
	<i>change significantly based on the ongoing review of the asbestos data as requested in NDEP 2013b.)</i>
<p>17. Executive Summary, Cumulative Cancer Risk for Soil and VOC Inhalation Pathways, page ES-2. This section incorrectly states that "cumulative cancer risks are at or below the lower end of the acceptable cancer risk range of 1×10^{-6} to 1×10^{-4} for both indoor and outdoor commercial/industrial workers." The cumulative risks are greater than 1×10^{-6} and thus should be correctly referred to as being "within" the risk range of 1×10^{-6} to 1×10^{-4}.</p>	<p>Page ES-2 of the Executive Summary will be revised to state that cumulative risks are "within" the risk range of 1×10^{-6} to 1×10^{-4}.</p>

References

California Environmental Protection Agency, 2012. Advisory Active Soil Gas Investigations. April.

ENVIRON, 2012. Draft Soil Gas Investigation Work Plan for Parcels C, D, F, G, and H. Nevada Environmental Response Trust, Henderson, Nevada. October (approved by NDEP January 29, 2013).

ENVIRON, 2013. Soil Gas Investigation and Human Health Risk Assessment Work Plan for Parcels C, D, F, G, and H. Nevada Environmental Response Trust, Henderson, Nevada. March 18, 2013 (approved by NDEP April 9, 2013).

Nevada Division Environmental Protection (NDEP), 2006. BMI Plant Sites and Common Areas Projects, Henderson, Nevada Hydrogeologic and Lithologic Nomenclature Unification. January 2006.

NDEP, 2011. Action Memorandum: Removal Actions, Nevada Environmental Response Trust Site, Clark County, Nevada. July 21.

NDEP, 2013a. NDEP Response to: Soil Gas Investigation Work Plan for Parcels C, D, F, G, and H, Nevada Environmental Response Trust Site, Henderson, Nevada, Dated: October 2012. January 29.

NDEP, 2013b. NDEP Response to: DVSR, Post-Remediation Screening Health Risk Assessment Report for Parcels C, D, F, G, and H, Revision 2, Dated: June 27, 2013.

Northgate Environmental Management, Inc. and Exponent, 2010. Site-Wide Soil Gas Human Health Risk Assessment, Tronox LLC, Henderson, Nevada, November 22 (not reviewed or approved by NDEP).

Shevenell, L., 1996. Statewide Potential Evapotranspiration Maps for Nevada, Nevada Bureau of Mines and Geology, Report 48, pp. 32.

Attachment B

**Revised Text, Tables, and Figures for the Soil Gas Investigation Report
and Health Risk Assessment
*Nevada Environmental Response Trust Site, Henderson, Nevada***

Attachment B: Revised HRA Sections

NDEP Comments #8 and 9

The following text replaces Section 6.2 (page 37) of the report.

6.2 Data Usability/Data Evaluation

The soil gas data were evaluated in two DVSRs (Appendix C). As discussed in Section 4.1.6.3, a small number of data points were qualified based on minor method blank, field duplicate, and quantitation issues, but were deemed acceptable and were not biased low. All 2008 and 2013 soil gas data were deemed usable for risk assessment. Discussions of the impact on the risk results of the findings for blank contamination and precision are provided below.

6.2.1 Impact of Analytes Detected in Blank Samples

The 2008 and 2013 analytical data qualified due to contamination in blanks are summarized below:

- **2008 Analytical Data:** The 2008 data set was validated consistent with USEPA (1999, 2001) and NDEP (2006) guidelines. Low levels of common laboratory contaminants were detected in some method blanks and six results (acetone, 2-butanone, carbon disulfide, ethanol, methylene chloride, and vinyl acetate) from SG16 and SG19 were qualified as not detected (U) as a result of blank contamination (Appendix C-2, Table E-4).
- **2013 Analytical Data:** Consistent with NDEP guidance (NDEP 2012), 2013 soil gas sample results associated with blank contamination were not censored or adjusted to account for the contribution of the blank contamination to the reported concentration. Instead, sample results were conservatively reported with a J-flag qualifier and the J-qualified results were included in the risk assessment data set. A total of 25 results were J-qualified due to contamination in trip and/or equipment blanks. No data were qualified due to contamination in method blanks.

The presence of contaminants in blanks and the approach for treating sample results associated with blanks in the risk assessment data set had no significant impact on the HRA results. For the 2008 data set, only common laboratory contaminants were detected, as noted above. The blank contamination was not associated with any of the samples used as an EC (noting that for each COPC, the EC was the maximum detected concentration) and the six censored results (censored due to the presence of common laboratory contaminants), would have had no impact on the risk estimates if these results had been included in the risk assessment data set.

For the 2013 data set, it is recognized that if levels of blank contamination are high, then risks could be overestimated because no adjustment is made for the contribution of the blank. However, as shown in Table B-1, blank contamination, where reported, was low in all samples. Further, blank contamination was not associated with any of the 2013 results that were used as an EC, with the exception of the EC for dichlorodifluoromethane (sample E-SG-3). However, the estimated hazard quotient for dichlorodifluoromethane was well below one (1). Finally, although one result for carbon tetrachloride (a primary contributor to the total risk estimate) was qualified (J) due to blank contamination, the J-qualified concentration in the sample was not the maximum detected concentration and therefore was not used as the EC for carbon tetrachloride.

6.2.2 Impact of Results Qualified Due to Lack of Precision

For the 2013 data set, the results for the primary sample (E-SG-6) and field duplicate (E-SG-6-D) were evaluated using the 50% RPD criteria established in the QAPP (ERM-West, Inc. 2009), for results greater than five times the reporting limit. For results less than five times the reporting limit, the acceptance criteria is the reporting limit (i.e., the absolute value of the difference between the primary result and duplicate result is less than the reporting limit). As shown in Table B-2, results for 20 analytes¹ were qualified as detected estimated (J) or non-detected estimated (UJ) based on these criteria; all but two results were detected at relatively low concentrations, i.e., the results were less than five times the reporting limit.

A review of the impact of the data qualifications on the risk results indicates that analytical results for three of the five primary contributors² to the total estimated risk (i.e., chloroform, TCE, and carbon tetrachloride) were within the acceptance criteria. For the remaining two primary contributors (1,2-dibromo-3-dichloropropane and 1,2-dichloroethane), reported concentrations were low in both E-SG-6 and E-SG-6-FD. Specifically, the concentration of 1,2-dibromo-3-dichloropropane was 0.6 and 0.41 $\mu\text{g}/\text{m}^3$ in the sample and duplicate, respectively; the concentration of 1,2-dichloroethane was 0.87 and 0.11 $\mu\text{g}/\text{m}^3$, respectively. Because the ECs in the HRA are the maximum detected concentrations (1.7 $\mu\text{g}/\text{m}^3$ for 1,2-dibromo-3-dichloropropane and 33 $\mu\text{g}/\text{m}^3$ for 1,2-dichloroethane), the qualifications did not impact the risk results for these COPCs.

For hexane, the reported concentration in the primary sample (6,100 $\mu\text{g}/\text{m}^3$) was over 900-fold higher than the concentration in the field duplicate (6.5 $\mu\text{g}/\text{m}^3$). A review of the hexane results for the 9 soil gas samples collected in 2013 (Table B-2) suggests that the result of 6,100 $\mu\text{g}/\text{m}^3$ is not representative of the hexane concentration at location E-SG-6. Specifically, hexane was detected at concentrations of less than 4 $\mu\text{g}/\text{m}^3$ in the remaining 8 samples collected in 2013. Because only primary samples were used in the risk assessment calculations, the HQ calculated for hexane (using the concentration of 6,100 $\mu\text{g}/\text{m}^3$) was likely overstated. However,

¹ The DVSR (Appendix C) states that 40 “results” were qualified as detected estimated (J) or non-detected estimated (UJ). That is, the analyte is qualified in the primary sample and in the duplicate sample such that the number of qualified “analytes” is 20.

² While the identified COPCs were the highest contributors to the cancer risk estimates, the cancer risks for these (and all other) COPCs are less than 1×10^{-7} , with the exception of chloroform.

because the hexane HQ was less than 0.001, the use of this high concentration as the EC had essentially no impact on the estimated HI or overall conclusions of the HRA.

Finally, for the ECs based on maximum detected concentrations from E-SG-6 (shown in Table 8) that were qualified because results were outside the acceptance criteria, the maximum detected concentration in the primary sample (E-SG-6) was in all cases higher than the concentration reported in the duplicate sample (E-SG-6-D). Therefore, the estimated indoor and outdoor air concentrations for these COPCs would be conservative.

References

ERM-West, Inc., 2009. BRC Quality Assurance Project Plan, BMI Common Areas, Clark County, Nevada. May

NDEP, 2006. NDEP Guidance on Data Validation, BMI Plant Sites and Common Areas Projects, Henderson, Nevada. May 3.

NDEP, 2012. BMI Plant Sites and Common Areas Projects, Henderson, Nevada, Revised Guidance on Qualifying Data due to Blank Contamination for the BMI Complex and Common Areas. January 5.

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USEPA, 2001. USEPA Draft Region 9 Superfund Data Evaluation/Validation Guidance.

NDEP Comments #10, 11, and 12

The following text replaces Section 4.2.2 (page 25) of the report.

4.2.2 Scatterplots for Co-located Soil Gas and Groundwater Samples

At the request of NDEP (2013 a,b), scatterplots of chloroform soil gas and groundwater results at co-located sampling locations were prepared to inform the CSM tenet that groundwater is the source of VOCs detected in soil gas. Given the wide range in reported concentrations, data were plotted on both arithmetic and logarithmic scales, with the logarithmic scale providing a better visualization of results reported at low concentrations. For the groundwater data, the sample collected most closely in time to the collection date of the co-located soil gas sample (2008 or 2013) was plotted. Analytical results were plotted separately for the northern (C and D) and southern (F, G, and H) parcels.

4.2.2.1 Parcels C and D

Figure 9 presents a scatterplot of the 2008 and 2013 Parcel C and D soil gas chloroform results and co-located groundwater results. The Pearson product-moment correlation coefficient, a measure of the strength of the linear association between two variables, was calculated for the data set. Although the correlation coefficient (r) of 0.94 indicates a statistically strong correlation between chloroform concentrations in groundwater and soil gas, limitations in the dataset must be considered in interpreting the data.

- Of the 12 sample pairs plotted, results for 5 sample pairs were generally clustered near the origin (on the linear scale), with the correlation defined primarily by the remaining 7 data pairs.
- For the sample pairs, the elapsed times between collection of the groundwater sample and collection of the soil gas sample ranged from approximately 1 month to 4.7 years, with an elapsed time of greater than 1 year for 6 of the 12 sample pairs. Ideally, the groundwater and soil gas samples used to examine the correlation would be within the same general timeframe.
- In reviewing the data plotted on Figure 9,³ NDEP (2013c) commented that the result for the co-located pair M-23 and E-SG-9 appears to be an outlier. The 2013 soil gas result of $98 \mu\text{g}/\text{m}^3$ is less than the predicted concentration of approximately $1,000 \mu\text{g}/\text{m}^3$. The database was queried for additional sampling results for M-23 to determine if the groundwater result ($130 \mu\text{g}/\text{l}$) was an anomaly; however, only one sampling result has been reported for M-23. Similarly, only one soil gas result has been reported at E-SG-9. The M-23 soil boring log was reviewed for consistency with other Parcel C and D boring logs, with no significant differences noted. Possible explanations for the outlier include

³ A revised Figure 9 (attached) will be included in the revised report. Specifically, groundwater concentrations are now plotted on the x axis and soil gas concentrations are plotted on the y axis.

the elapsed time of 4.7 years between collection of the groundwater (June 2008) and soil gas sample (March 2013) and/or the relatively low concentrations (where results tend to be more variable) in groundwater (130 µg/l) and soil gas (98 µg/m³).

ENVIRON notes that, although the co-located sample pair M-23 and E-SG-9 appears to be an outlier, the overall weight of available information (site history and field investigation results) supports the CSM tenet that groundwater is the source of soil gas VOC concentrations observed in Parcels C and D. Moreover, the outlier pair in which the soil gas concentration is less than the predicted concentration does not suggest a surface source (in which case, a higher than predicted concentration would be expected) and therefore is not inconsistent with the CSM.

4.2.2.2 Parcels F, G, and H

Figure 10 presents a scatterplot of the 2008 and 2013 Parcel F, G, and H soil gas and groundwater chloroform results at co-located sampling locations. Although the correlation coefficient (*r*) of 0.77 indicates a moderate, positive correlation between chloroform concentrations in groundwater and soil gas, as for Parcels C and D, limitations in the dataset must be considered in interpreting the data.

- Only 7 sample pairs are available for the analysis, with all but two pairs having relatively low concentrations reported in groundwater and/or soil gas, where the data tends to show higher variability. As a result, the strength of the correlation is defined primarily by these two sample pairs (E-SG-4/TR-6 and E-SG-6/TR-6). Further, for some sample “pairs” (and in particular the aforementioned E-SG-4/TR-6 and E-SG-6/TR-6) the soil gas sample is near, but not at the location of the groundwater well (see Figure 6).
- For the sample pairs, the elapsed times between collection of the groundwater sample and collection of the soil gas sample ranged from approximately 1 to 3.7 years. Ideally, the groundwater and soil gas samples used to examine the correlation would be within the same general timeframe.
- In reviewing the sample pair SG34/M-92, the chloroform concentration in soil gas (640 µg/m³) is higher than the concentration predicted by the Figure 10 regression, suggesting a possible surface source. SG34 is located along the southern-most boundary of Parcel F and within LOU 63 (J.B. Kelley Trucking). NDEP (2011) identified VOCs as a possible contaminant group associated with LOU 63. However, as described in Section 2.3, chloroform was not detected in the 0 and 10 ft soil samples collected within Parcel F (7 of which were located within LOU 63, although downgradient of SG34), but was detected at concentrations of 200 and 410 µg/kg in two of the 20 and 30 ft soil samples collected within Parcel F, suggesting a groundwater source.

Regarding Parcels F, G, and H, ENVIRON notes that the overall weight of available information (site history and field investigation results) supports the CSM tenet that groundwater is the source of VOCs observed in soil gas. Acknowledging the data limitations – and in particular, the very limited number of samples – the moderate correlation supports the CSM. For the outlier

pair, for which the soil gas concentration was higher than predicted, available shallow soil samples (at 0 and 10 ft bgs) did not provide evidence of a surface source, with chloroform detected only in deep soil samples at 20 and 30 ft bgs.

References

Nevada Division of Environmental Protection (NDEP), 2011. Action Memorandum: Removal Actions, Nevada Environmental Response Trust Site, Clark County, Nevada. July 21.

NDEP, 2013a. Meeting Minutes regarding NERT's Questions on the Parcels Soil Gas Issues. February 21.

NDEP, 2013b. NERT Parcel A/B Data Review. E-mail from Weiquan Dong, NDEP, to John Pekala, ENVIRON. March 6.

NDEP, 2013c. Response to: Soil Gas Investigation Report and Health Risk Assessment for Parcels C, D, F, G, and H, Revision 0, Nevada Environmental Response Trust Site, Henderson, Nevada. October 7.

NDEP Comment #13

The following text replaces Section 4.2.3 (page 25) of the report.

At the request of NDEP (2013 a,b), spatial plots were prepared for select COPCs. Carbon tetrachloride; chloroform; 1,1-dichloroethane; tetrachloroethene; and trichloroethene were plotted based on the following criteria:

- Contribution to total cancer risk: Chloroform, trichloroethene, and carbon tetrachloride were among the highest contributors to total risk. Although 1,2-dibromo-3-dichloropropane was the second highest contributor to total risk, it was not plotted because of its low detection frequency of 5 percent (1 of 21 samples).
- Detection frequency: The detection frequency was 100 percent for all plotted COPCs , with the exception of 1,1-dichloroethane (52 percent).
- Coefficient of variation: The high CVs (2 or greater) of 1,1-dichloroethane, tetrachloroethene, and trichloroethene were considered in the selection of these three COPCs (see Table 8). Hexane, with the highest CV of 3.0 was not selected because the high CV was due to an anomalous result reported for the field duplicate, as discussed in Section 6.1.
- Chemical class: 1,1-Dichloroethane; tetrachloroethene; and trichloroethene were selected to examine co-location of these similar compounds.

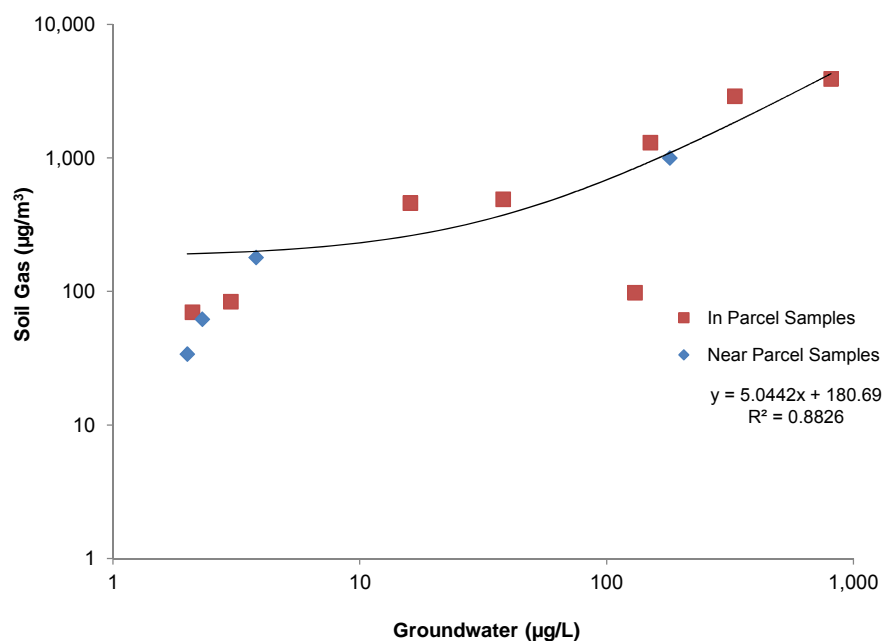
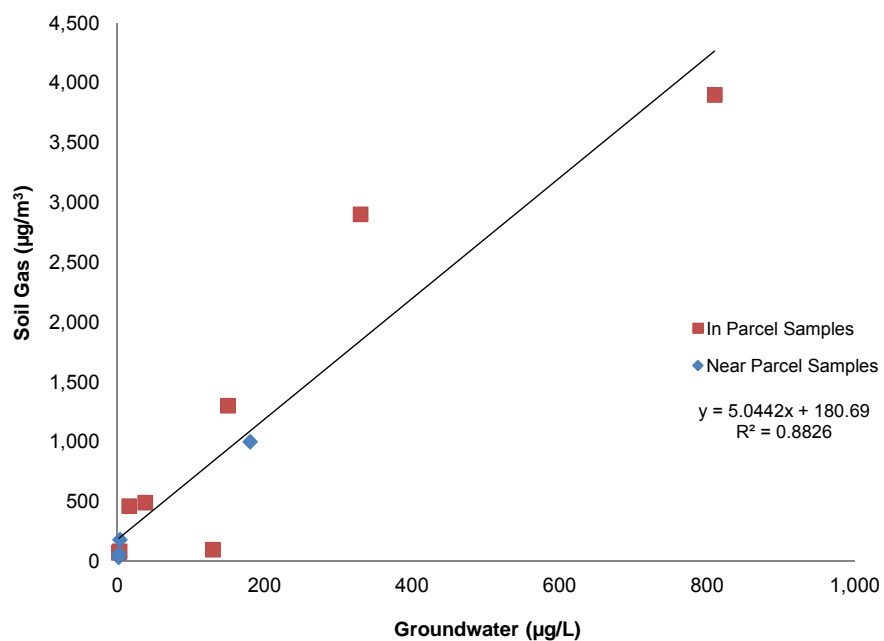
The spatial plots are presented on Figure 11.

References

- NDEP, 2013a. Meeting Minutes regarding NERT's Questions on the Parcels Soil Gas Issues. February 21.
- NDEP, 2013b. NERT Parcel A/B Data Review. E-mail from Weiquan Dong, NDEP, to John Pekala, ENVIRON. March 6.

FIGURE 9. Chloroform Concentrations in Soil Gas and Shallow Groundwater in Co-located Samples Within and Near Parcels C and D Nevada Environmental Response Trust Site, Henderson, Nevada

Location Group	Soil Gas			Groundwater		
	Boring ID	Sample Date	Chloroform ($\mu\text{g}/\text{m}^3$)	Well ID	Sample Date	Chloroform ($\mu\text{g}/\text{L}$)
Parcel C	E-SG-2	3/7/2013	460	MC-3	5/27/2009	16
	E-SG-3	3/7/2013	2,900	AA-BW-04A	10/20/2011	330
	SG19	5/28/2008	70	M-7B	6/26/2008	2.1
	SG24	5/28/2008	1,300	M-99	5/6/2010	150
	SG90	5/28/2008	3,900	M-98	11/30/2006	810
	SG91	5/21/2008	490	M-100	12/4/2006	38
Parcel D	E-SG-9	3/8/2013	98	M-23	6/25/2008	130
	SG16	5/18/2008	84	MC-45	6/25/2008	3
Relevant Nearby Locations for Parcels C and D	SG05	5/29/2008	62	MC-62	6/23/2008	2.3
	SG06	5/20/2008	34	PC-37	6/20/2008	2
	SG14	5/20/2008	1,000	M-48	7/9/2008	180
	SG17	5/18/2008	180	MC-97	6/25/2008	3.8



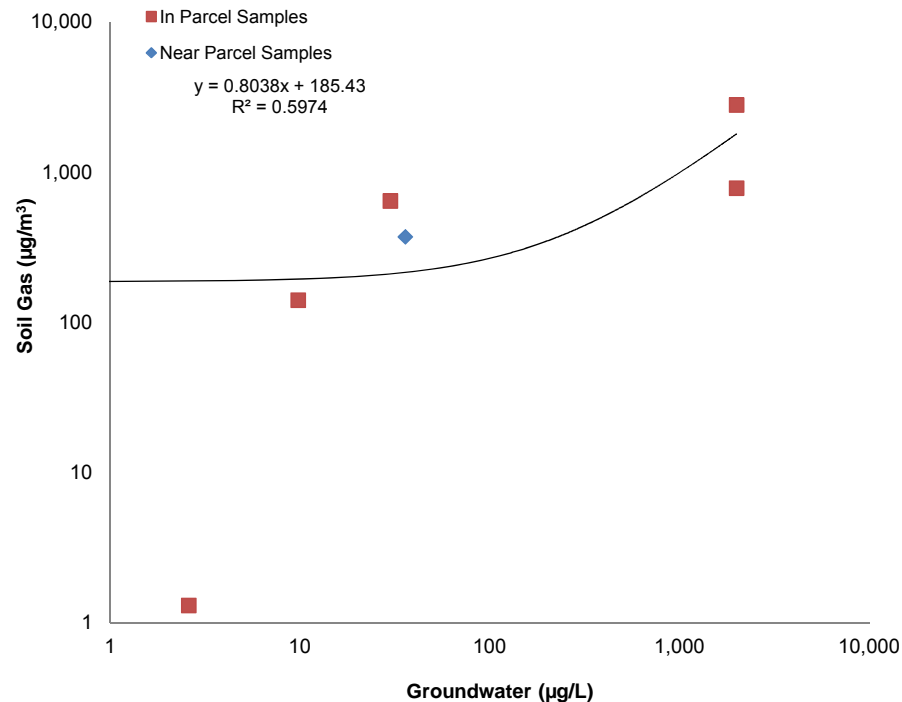
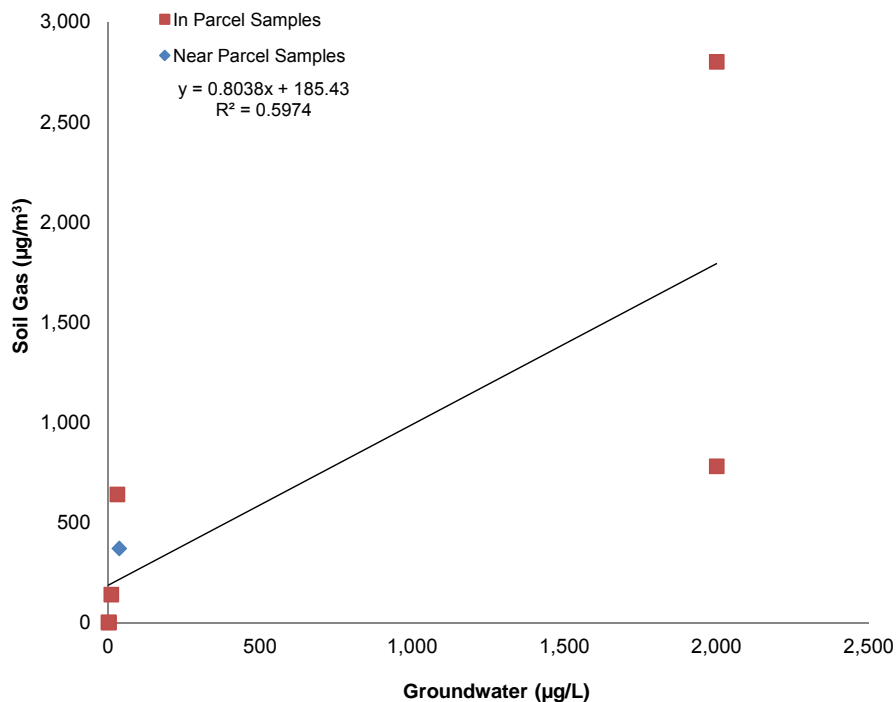
Notes:

$\mu\text{g}/\text{m}^3$ = microgram per cubic meter

$\mu\text{g}/\text{L}$ = microgram per liter

FIGURE 10. Chloroform Concentrations in Soil Gas and Shallow Groundwater in Co-located Samples Within and Near Parcels F, G, and H Nevada Environmental Response Trust Site, Henderson, Nevada

Location Group	Soil Gas			Groundwater		
	Boring ID	Sample Date	Chloroform ($\mu\text{g}/\text{m}^3$)	Well ID	Sample Date	Chloroform ($\mu\text{g}/\text{L}$)
Parcel F	E-SG-4	3/13/2013	2,800	TR-6	7/27/2010	2,000
	E-SG-6	3/8/2013	780	TR-6	7/27/2010	2,000
	SG34	5/28/2008	640	M-92	7/15/2009	30
Relevant Nearby Location for Parcel F	SG39	5/14/2008	370	M-13	6/25/2009	36
Parcel G	E-SG-8	3/13/2013	140	TR-8	7/14/2009	9.8
Parcel H	SG49	5/22/2008	1	M-121	7/10/2009	2.6
	SG50	5/22/2008	1	M-103	7/8/2009	0.54



Notes:

$\mu\text{g}/\text{m}^3$ = microgram per cubic meter

$\mu\text{g}/\text{L}$ = microgram per liter

TABLE B-1. Blank Qualifications
Nevada Environmental Response Trust Site, Henderson, Nevada

Sample ID	Analyte	Result	Units	Qualification Codes	Lab Qualifiers	Validation Qualifiers	Method Blank Result	Lab Blank Result	Trip Blank Result	Equipment Blank Result	Dilution Factor	Quantitation Limit	Data Source
SG16B-05	Acetone	11	ug/m ³	b	B	U	1.8	--	--	--	2	7.9	2008 Data Set
SG16B-05	2-Butanone (MEK)	4.4	ug/m ³	b	B	U	0.35	--	--	--	2	0.79	2008 Data Set
SG16B-05	Carbon disulfide	0.90	ug/m ³	b	B	U	0.29	--	--	--	2	0.79	2008 Data Set
SG16B-05	Ethanol	7.9	ug/m ³	b	J, B	U	1.0	--	--	--	2	7.9	2008 Data Set
SG16B-05	Vinyl acetate	7.9	ug/m ³	b	J, B	U	0.40	--	--	--	2	7.9	2008 Data Set
SG19B-05	Methylene chloride	1.7	ug/m ³	b	B	U	0.18	--	--	--	2	0.85	2008 Data Set
E-SG-1-030813	Hexane	2.3	ug/m ³	bt,t	J	J	--	--	79	--	1	0.72	2013 Data Set
E-SG-1-030813	Tetrachloroethene	1.2	ug/m ³	bt,t	--	J	--	--	1.8	--	1	0.34	2013 Data Set
E-SG-2-030713	Acetone	18	ug/m ³	be,t	J	J	--	--	--	13	1	0.5	2013 Data Set
E-SG-2-030713	2-Butanone (MEK)	6.3	ug/m ³	be,t	J	J	--	--	--	5.5	1	0.034	2013 Data Set
E-SG-2-030713	Carbon Tetrachloride	0.42	ug/m ³	be,t	--	J	--	--	--	0.34	1	0.071	2013 Data Set
E-SG-2-030713	Dichlorodifluoromethane	2.2	ug/m ³	be,t	--	J	--	--	--	1.8	1	0.1	2013 Data Set
E-SG-2-030713	Ethyl acetate	2.1	ug/m ³	be,t	--	J	--	--	--	5.1	1	0.1	2013 Data Set
E-SG-2-030713	Hexane	3.1	ug/m ³	be,bt,t	J	J	--	--	79	16	1	0.75	2013 Data Set
E-SG-2-030713	Vinyl Acetate	5.3	ug/m ³	be,t	J	J	--	--	--	4.8	1	0.1	2013 Data Set
E-SG-3-030713	Acetone	25	ug/m ³	be,t	--	J	--	--	--	13	1	0.48	2013 Data Set
E-SG-3-030713	2-Butanone (MEK)	8.6	ug/m ³	be,t	J	J	--	--	--	5.5	1	0.032	2013 Data Set
E-SG-3-030713	Dichlorodifluoromethane	2.6	ug/m ³	be,t	--	J	--	--	--	1.8	1	0.096	2013 Data Set
E-SG-3-030713	Ethyl acetate	2.7	ug/m ³	be,t	--	J	--	--	--	5.1	1	0.096	2013 Data Set
E-SG-3-030713	Hexane	3.4	ug/m ³	be,bt,t	J	J	--	--	79	16	1	0.72	2013 Data Set
E-SG-3-030713	2-Hexanone	1.2	ug/m ³	be,t	J	J	--	--	--	0.64	1	0.22	2013 Data Set
E-SG-3-030713	Vinyl Acetate	6.3	ug/m ³	be,t	J	J	--	--	--	4.8	1	0.1	2013 Data Set
E-SG-3-030713-EB	Hexane	16	ug/m ³	bt,t	J	J	--	--	79	--	1	0.72	2013 Data Set
E-SG-3-030713-EB	Tetrachloroethene	0.35	ug/m ³	bt,t	--	J	--	--	1.8	--	1	0.34	2013 Data Set
E-SG-4-031313	t-Butyl alcohol (TBA)	2.8	ug/m ³	bt,t	J	J	--	--	3.1	--	1	0.17	2013 Data Set
E-SG-5-031313	t-Butyl alcohol (TBA)	2.8	ug/m ³	bt,t	J	J	--	--	3.1	--	1	0.17	2013 Data Set
E-SG-6-030813-FD	Hexane	6.5	ug/m ³	bt,fd,t	J	J	--	--	79	--	1	0.72	2013 Data Set
E-SG-7-030813	Hexane	1.7	ug/m ³	bt	J	J	--	--	79	--	1	0.72	2013 Data Set
E-SG-7-030813	Tetrachloroethene	1.5	ug/m ³	bt	--	J	--	--	1.8	--	1	0.34	2013 Data Set
E-SG-8-031313	t-Butyl alcohol (TBA)	1.7	ug/m ³	bt,t	J	J	--	--	3.1	--	1	0.17	2013 Data Set
E-SG-9-030813	Hexane	1.1	ug/m ³	bt	J	J	--	--	79	--	1	0.72	2013 Data Set

Notes:

All samples analyzed using method TO-15. All results presented in ug/m³.

-- = No value

NA = Not calculated

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

M = Possible matrix interference

U = The analyte was analyzed for, but was not detected above the sample reporting limit.

b = Qualified due to blank contamination

ug/m³ = micrograms per cubic meter

be = Qualified due to equipment blank contamination

bt = Qualified due to trip blank contamination

fd = Qualified due to field duplicate imprecision

t = qualified due to elevated helium tracer concentrations

All qualification codes for the 2008 data set are defined in Table E-2 in Appendix C-2.

All data qualifiers for the 2008 data set are defined in Table E-1 in Appendix C-2.

All qualification codes for the 2013 data set are defined in Table II in Appendix C-1.

All data qualifiers for the 2013 data set are defined in Appendix C-1.

TABLE B-2. Field Duplicate Qualifications
Nevada Environmental Response Trust Site, Henderson, Nevada

Sample ID	Analyte	Result	Reporting Limit	Lab Qualifiers	Validation Qualifiers	Qualification Codes	RPD	RPD Limit	Difference ^a	Difference Limit ^a	Data Source
E-SG-6-030813	Acetone	67	29	--	J	fd,t	NA	NA	58	29	2013 Data Set
E-SG-6-030813-FD	Acetone	9.4	24	J	J	fd,t	NA	NA	58	29	2013 Data Set
E-SG-6-030813	Benzene	2.6	0.19	--	J	fd,t	54%	50%	NA	NA	2013 Data Set
E-SG-6-030813-FD	Benzene	1.5	0.16	--	J	fd,t	54%	50%	NA	NA	2013 Data Set
E-SG-6-030813	Bromodichloromethane	1.7	0.43	--	J	fd,t	NA	NA	1.20	0.43	2013 Data Set
E-SG-6-030813-FD	Bromodichloromethane	0.50	0.36	--	J	fd,t	NA	NA	1.20	0.43	2013 Data Set
E-SG-6-030813	1,2-Dibromo-3-chloropropane	1.7	0.6	--	J	fd,t	NA	NA	1.29	0.60	2013 Data Set
E-SG-6-030813-FD	1,2-Dibromo-3-chloropropane	0.41	0.5	J	J	fd,t	NA	NA	1.29	0.60	2013 Data Set
E-SG-6-030813	1,2-Dibromoethane (EDB)	1.4	0.48	--	J	fd,t	NA	NA	1.00	0.40	2013 Data Set
E-SG-6-030813-FD	1,2-Dibromoethane (EDB)	0.096	0.4	U	UJ	fd,t	NA	NA	1.00	0.40	2013 Data Set
E-SG-6-030813	1,2-Dichloroethane	0.87	0.24	--	J	fd,t	NA	NA	0.76	0.24	2013 Data Set
E-SG-6-030813-FD	1,2-Dichloroethane	0.11	0.2	J	J	fd,t	NA	NA	0.76	0.24	2013 Data Set
E-SG-6-030813	1,2-Dichloropropane	1.0	0.29	--	J	fd,t	NA	NA	0.88	0.29	2013 Data Set
E-SG-6-030813-FD	1,2-Dichloropropane	0.12	0.24	J	J	fd,t	NA	NA	0.88	0.29	2013 Data Set
E-SG-6-030813	cis-1,3-Dichloropropene	0.75	0.29	--	J	fd,t	NA	NA	0.51	0.29	2013 Data Set
E-SG-6-030813-FD	cis-1,3-Dichloropropene	0.08	0.24	U	UJ	fd,t	NA	NA	0.51	0.29	2013 Data Set
E-SG-6-030813	trans-1,3-Dichloropropene	0.68	0.29	--	J	fd,t	NA	NA	0.44	0.29	2013 Data Set
E-SG-6-030813-FD	trans-1,3-Dichloropropene	0.24	0.24	U	UJ	fd,t	NA	NA	0.44	0.29	2013 Data Set
E-SG-6-030813	Hexane	6100	3600	--	J	fd,t	NA	NA	6093.50	3600	2013 Data Set
E-SG-6-030813-FD	Hexane	6.5	72	J	J	bt,fd,t	NA	NA	6093.50	3600	2013 Data Set
E-SG-6-030813	Methylene chloride	2.9	0.84	--	J	c,fd,t	NA	NA	2.20	0.70	2013 Data Set
E-SG-6-030813-FD	Methylene chloride	0.7	0.7	U	UJ	c,fd,t	NA	NA	2.20	0.70	2013 Data Set
E-SG-6-030813	4-Methyl-2-pentanone	2.8	1	--	J	fd,t	NA	NA	1.30	1.0	2013 Data Set
E-SG-6-030813-FD	4-Methyl-2-pentanone	1.5	0.84	--	J	fd,t	NA	NA	1.30	1.0	2013 Data Set
E-SG-6-030813	Naphthalene	5.2	0.63	--	J	fd,t	NA	NA	3.90	0.63	2013 Data Set
E-SG-6-030813-FD	Naphthalene	1.3	0.52	--	J	fd,t	NA	NA	3.90	0.63	2013 Data Set
E-SG-6-030813	1,1,1,2-Tetrachloroethane	1.1	0.41	--	J	fd,t	NA	NA	0.76	0.41	2013 Data Set
E-SG-6-030813-FD	1,1,1,2-Tetrachloroethane	0.15	0.34	U	UJ	fd,t	NA	NA	0.76	0.41	2013 Data Set
E-SG-6-030813	1,1,2,2-Tetrachloroethane	1.1	0.41	--	J	fd,t	NA	NA	0.96	0.41	2013 Data Set
E-SG-6-030813-FD	1,1,2,2-Tetrachloroethane	0.14	0.34	J	J	fd,t	NA	NA	0.96	0.41	2013 Data Set
E-SG-6-030813	Toluene	4.2	0.92	--	J	fd,t	NA	NA	2.30	0.92	2013 Data Set
E-SG-6-030813-FD	Toluene	1.9	0.76	--	J	fd,t	NA	NA	2.30	0.92	2013 Data Set
E-SG-6-030813	1,1,2-Trichloroethane	1.1	0.34	--	J	fd,t	NA	NA	0.91	0.34	2013 Data Set
E-SG-6-030813-FD	1,1,2-Trichloroethane	0.19	0.28	J	J	fd,t	NA	NA	0.91	0.34	2013 Data Set

TABLE B-2. Field Duplicate Qualifications
Nevada Environmental Response Trust Site, Henderson, Nevada

Sample ID	Analyte	Result	Reporting Limit	Lab Qualifiers	Validation Qualifiers	Qualification Codes	RPD	RPD Limit	Difference ^a	Difference Limit ^a	Data Source
E-SG-6-030813	Trichlorofluoromethane	3.8	1.4	--	J	fd,t	NA	NA	1.80	1.4	2013 Data Set
E-SG-6-030813-FD	Trichlorofluoromethane	2.0	1.1	--	J	fd,t	NA	NA	1.80	1.4	2013 Data Set
E-SG-6-030813	Vinyl Chloride	0.40	0.14	--	J	fd,t	NA	NA	0.28	0.14	2013 Data Set
E-SG-6-030813-FD	Vinyl Chloride	0.12	0.12	U	UJ	fd,t	NA	NA	0.28	0.14	2013 Data Set
E-SG-6-030813	Xylenes, Total	6.2	3.1	--	J	fd,t	NA	NA	3.60	3.1	2013 Data Set
E-SG-6-030813-FD	Xylenes, Total	2.6	2.6	U	UJ	fd,t	NA	NA	3.60	3.1	2013 Data Set

Notes:

All samples analyzed using method TO-15. All results presented in µg/m³.

-- = No value

NA = Not calculated

RPD = Relative percent difference

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U = The analyte was analyzed for, but was not detected above the sample reporting limit.

UJ = The analyte was not detected above the sample reporting limit and the reporting limit is approximate.

c = Qualified due to calibration problems

bt = Qualified due to trip blank contamination

fd = Qualified due to field duplicate imprecision

t = Qualified due to elevated helium tracer concentrations

All qualification codes are defined in Table II in Appendix C-1.

All data qualifiers are defined in Appendix C-1.

µg/m³ = micrograms per cubic meter

^a The differences between results and reporting limits were evaluated for acceptable precision in for the 2013 data set. The difference was calculated in instances where results were less than five times the reporting limits.