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NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
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STATE OF NEVADA
Department of Conservation & Natural Resources
DIVISION OF ENVIRONMENTAL PROTECTION

Brian Sandoval, Governor
Leo M. Drozdoff, P.E., Director
Colleen Cripps, Ph.D., Administrator

January 29, 2013

Jay A. Steinberg
Nevada Environmental Response Trust
35 East Wacker Drive, Suite 1550
Chicago, IL 60601

Re: **Tronox LLC (TRX) Facility**
Nevada Environmental Response Trust (Trust) Property
NDEP Facility ID #H-000539
Nevada Division of Environmental Protection (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

Dear Mr. Steinberg,

The NDEP has received and reviewed the Trust's above-identified Deliverable and provides comments in Attachment A. NDEP approves the field work and sampling portions of this Work Plan; however, the comments provided in Attachment A should be addressed in the resulting proposed evaluation and summary report. The Trust should additionally provide an annotated response-to-comments letter as part of this resulting evaluation and summary Deliverable.

Please contact the undersigned with any questions at wdong@ndep.nv.gov or 702-486-2850 x252.

Sincerely,

Dong Wei

Weiquan Dong, P.E.
Special Projects Branch
Bureau of Corrective Actions
NDEP-Las Vegas City Office

SH:sh

Encl.

EC: Greg Lovato, Bureau of Corrective Actions, NDEP
Shannon Harbour, NDEP
Adam Baas, Edgcomb Law Group
Allan Delorme, ENVIRON
Andrew Barnes, Geosyntec

Andrew Steinberg, Nevada Environmental Response Trust
Ashley Katri, McGinley & Associates
Brenda Pohlmann, City of Henderson
Brian Rakvica, McGinley & Associates
Brian Spiller, Stauffer Management Company, LLC
Brian Waggle, Hargis + Associates
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Mark Paris, Landwell
Mark Travers, ENVIRON
Matt Paque, Tronox
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Peggy Roefer, Southern Nevada Water Authority
Ranajit Sahu, BRC
Rebecca Shirclif, Neptune and Company, Inc.
Rick Kellogg, BRC
Ron Zegers, Southern Nevada Water Authority
Stephen Tyahla, U.S. Environmental Protection Agency, Region 9
Tanya O'Neill, Foley & Lardner LLP
Teri Copeland
Victoria Tyson, TIMET

Attachment A

1. Section 1.3 Site Background, page 4, the Work Plan notes that there are no LOUs in Parcel F; however, the Work Plan should acknowledge that there are still sources of compounds that may represent a vapor intrusion problems (such as subsurface groundwater and NAPL contamination issues).
2. Section 1.4 Geologic and Hydrogeological Setting, penultimate paragraph and Figure 2, please identify the referenced paleochannels on Figure 2.
3. Section 2.0 Soil Gas Sampling and Analysis, page 7; Section 2.3 Sample Locations, page 8, first paragraph; Table 1 Proposed and Existing Soil Gas Sampling Locations; and Sections 2.3.1-2.3.5, pages 8-9; the Work Plan implies that the soil gas probes installed by ENSR in 2008 will be used in the health risk assessment (HRA). Given that these data are nearly five years old, NERT should consider comparing the new data to the 2008 data to ensure comparability. If a significant difference is observed, then the difference should be discussed as part of the Uncertainty Section in the resulting HRA.
4. Section 2.3 Sampling Locations, the Work Plan includes eight new soil gas samples. NDEP recommends one additional soil gas sample located adjacent to monitor well M-23 located in Parcel D (see attached marked up version of Figure 2). Figure 2 from the work plan shows that with the addition of one soil gas sample in Parcel D, there will be 12 locations that have collocated soil gas at five feet below ground surface (bgs) and shallow groundwater samples. Data from these collocated samples will allow further evaluation of the conclusion reached in the Site-Wide Soil Gas Human Health Risk Assessment, Section 6.1.1.1 (Northgate, 2010). Figure 2 with highlights and markups from the subject Deliverable is attached for reference to the comments herein.
5. Section 2.3 Sample Locations, page 8, last paragraph, please provide the locations of the soil property samples on Figure 2. In addition, please provide a table listing the soil types/classifications and associated properties and justification for the values to be used for the proposed samples.
6. Sections 2.3.1-2.3.5 Parcels, pages 8-9, please clarify whether the 'near-parcel' soil gas samples will be used to assess 'on-parcel' risk. If so, please include justification.
7. Section 2.4 Sampling Methodology, pages 9-10, NDEP provides the following comments:
   a. NDEP recommends that hand-augered probes ('inside locations') be allowed to equilibrate a minimum of 48 hours.
   b. Please clarify the manner in which the purge volume will be calculated. The work plan reads as if the tubing is the only item considered in the purge volume calculation. The dry bentonite volume and the filter pack volume should also be included in the purge volume calculation.
   c. NDEP recommends that helium not be used as a tracer. It is recommended that a liquid tracer (e.g., a mixture of n-propanol and n-pentane) be used.

d. Clarify whether the samples will be duplicate samples (collected simultaneously with a T-splitter) or replicate samples (collected sequentially). Depending on the final number of primary soil gas samples, duplicates/replicates should be collected at a rate of 5%.

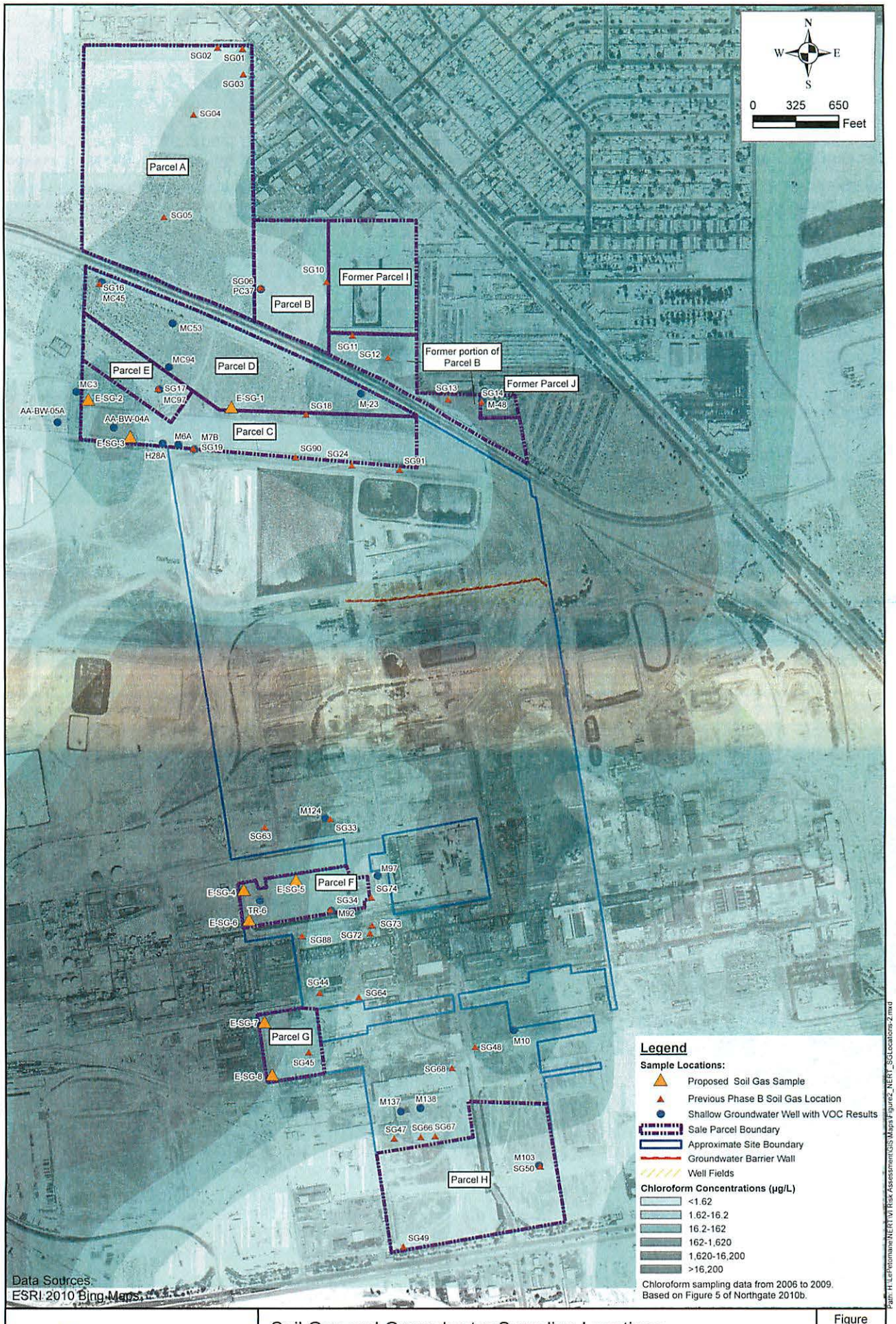
8. Sections 2.4 Sampling Methodology and 2.6 Analytical Testing, pages 9-12, NERT should confirm the laboratory's ability to achieve the practical quantitation limits (PQLs) that are at or below risk-based levels for use in the HRA.
9. Section 3.0 Evaluation, Interpretation, and Reporting of Results, NDEP recommends the following data analysis and risk evaluation:
   a. Cross plots (scatter plots) as done by Northgate (2010) should be done for the new and combined data sets;
   b. Compare groundwater VOC concentrations used for the Northgate (2010) Site-Wide Soil Gas Human Health Risk Assessment with most recent groundwater sample results for the same wells;
   c. Calculate risk for the new soil gas samples and compare with risk calculations for the earlier data set; and
   d. Calculate risk using the groundwater VOC concentrations and compare with risk associated with the soil gas.
   e. Alternative evaluations may be proposed but must be inclusive of data from both the earlier data set and most recent data set. If the analysis as mentioned herein indicates a problem with the comparability of the data sets then NDEP and NERT would need to determine path forward.
10. Section 5.0 References, page 15, this section should include NDEP approval status for all Deliverables related to the NERT site.
11. Tables, NERT should include a data table listing potential contaminants associated with the LOUs within and adjacent to the Parcels C/D/E/F/G/H to demonstrate that these LOUs did not contain volatile organic compounds (VOCs).
12. Figure 2 Soil Gas and Groundwater Sampling Locations, NERT should also review the available well locations from the Olin site to the west as it appears that a number of wells exist that are not displayed on this figure. Sampling data from the group of Companies at the Olin site would provide a much more robust data set. However, please note that justification for using "near-parcel" sample locations for "on-parcel" risk.
13. Figure 2, NERT should confirm that there are no groundwater monitor wells in or near Parcel G (please refer to annotated version of Figure 2 attached).
14. Figure 2, NDEP provides the following comment for NERT to consider when analyzing the data: The Site-Wide Soil Gas Human Health Risk Assessment (Northgate, 2010) indicates that 25 of the soil gas sampling locations were collocated with monitor wells. The deliverable (Northgate, 2010) states that "These data were plotted and a linear regression model was applied, which showed that the data were reasonable linearly correlated (R2 of 0.54). However, there are two pairs of samples (SG36/M11 and SG52/MW16) where the soil gas concentration is high but the shallow groundwater concentration is very low and these two

sets of data points appear to be outliers. When the data were re-analyzed without these samples, the linear correlation was significantly improved (R2 of 0.94). These data further support the conclusion that the source of chloroform in soil gas is shallow groundwater." The attached Figure 2 has two dashed circles (orange) at the approximate locations and are areas where soil gas and groundwater monitoring well data are identified as outliers (Northgate, 2010) in that the soil gas concentrations were much higher than would have been indicated by groundwater concentrations at these locations. The latter might be interpreted as potential soil source as opposed to groundwater. The latter would require more work to establish but is not viewed as relevant to the Parcels C/D/E/F/G/H soil gas investigation and evaluation.

15. NDEP provides the following statements and comments regarding each of the Parcel areas:
    a. Parcels C/D/E have five collocated soil gas and groundwater samples; and six collocated samples if the NDEP recommended soil gas sample at monitor well M-23 were included. Also there are four soil gas samples within and immediately adjacent to Parcels C/D/E; and one planned new soil gas sample. Also, there are five groundwater monitor wells within and immediately adjacent to Parcels C/D/E. Parcel C contains no LOUs. However, as similarly requested in above-comments, NERT should confirm via a data table listing potential contaminants associated with the LOU 68 located along the northeast corner of Parcel D to demonstrate that these LOUs did not contain VOCs.
    b. Parcel F has one existing collocated soil gas and groundwater sample; and with the proposed soil gas sampling there will be two collocated sample locations. Parcel F will have three new soil gas sample locations. Adjacent to and to both north and south, there are existing groundwater monitor wells and soil gas locations. Also as similarly requested in above-comments, NERT should confirm via a data table listing potential contaminants associated with LOUs 63 and 65c to demonstrate that the LOUs did not contain VOCs.
    c. Parcel G has two new soil gas sample locations and one previous soil gas sample. The proposed soil gas locations are consistent with the mapped groundwater chloroform concentrations; that is, maximum to lowest expected groundwater VOC concentration. NERT should confirm that there are no groundwater monitor wells in or near Parcel G and should confirm via a data table listing potential contaminants associated with LOU 65d to demonstrate that the LOU did not contain VOCs.
    d. 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.

Reference

Northgate Environmental Management, Inc. and Exponent, Inc., 2010. Site-Wide Soil Gas Human Health Risk Assessment. November 22.



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Soil Gas and Groundwater Sampling Locations

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **2**

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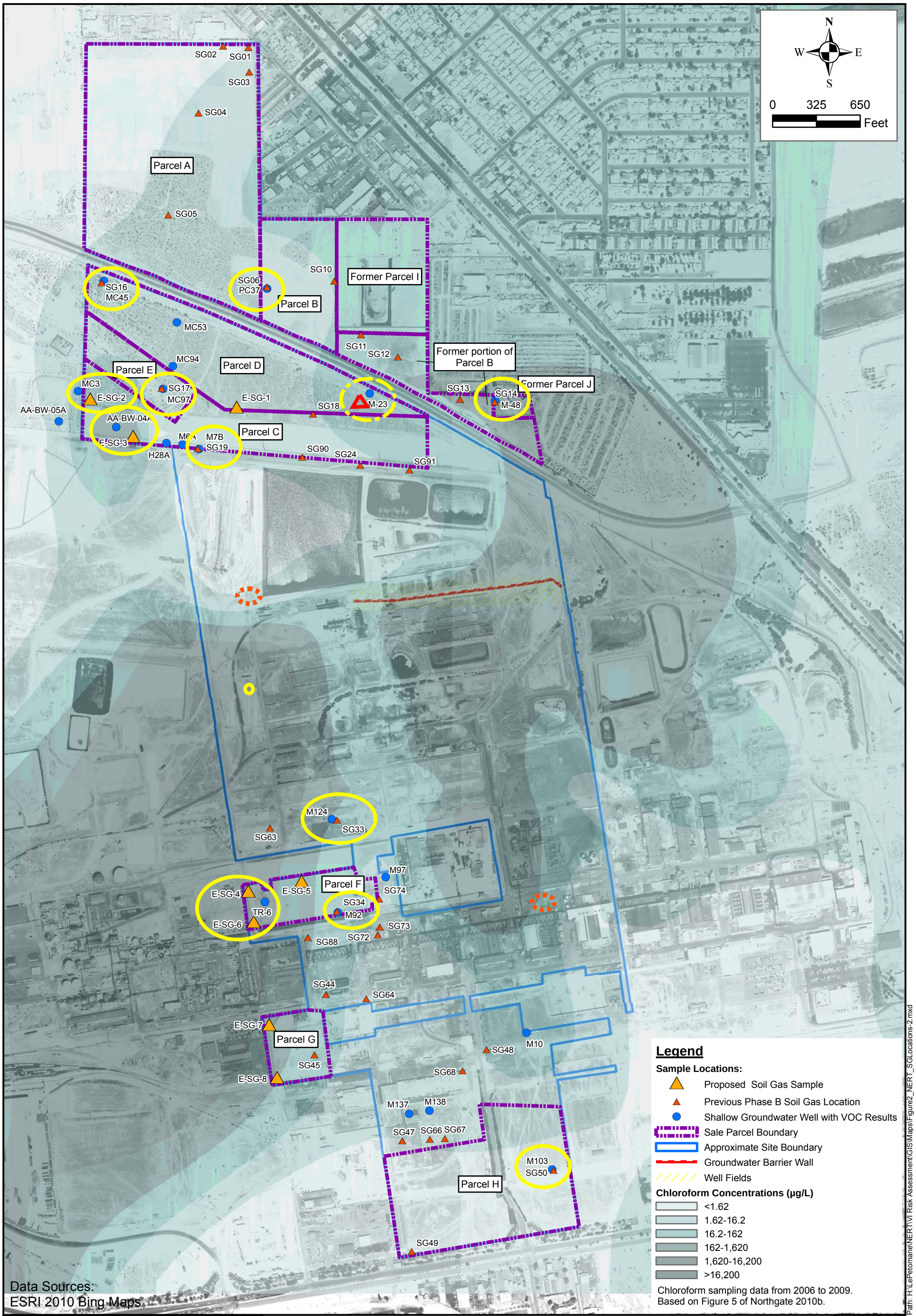

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Soil Gas and Groundwater Sampling Locations

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure 2

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