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SAMPLING AND ANALYSIS PLAN

Northwest Corner of West Victory Road and South Water Street
(APN 179-18-204-010)
Henderson
Clark County
Nevada
NDEP Contract #DEP14-008
Task M12-15

Prepared for:

State of Nevada
Department of Conservation and Natural Resources
Division of Environmental Protection
Bureau of Corrective Actions
901 S. Stewart Street, Suite 4001
Carson City, Nevada 89701-5249

On behalf of:

City of Henderson

June 2015

Sampling and Analysis Plan for:

Limited Phase II Environmental Site Assessment for
APN 179-18-204-010
Northwest Corner of West Victory Road and South Water Street
Henderson, Nevada

June 2015

MGA Principal: _____
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Quality Coordinator: _____
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Coordinator: _____
Dave Friedman

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1. INTRODUCTION

McGinley and Associates, Inc. (MGA) has prepared this Sampling and Analysis Plan (SAP) for assessment activities to be conducted at the northwest corner of West Victory Road and South Water Street in Henderson, Nevada. These assessment activities are being funded by a 128(a) Brownfields grant under United States Environmental Protection Agency (USEPA) Cooperative Agreement # RP-00T84901-3 to the Nevada Division of Environmental Protection (NDEP) and its associated State of Nevada Brownfields Program (NBP). This SAP was prepared in accordance with the NDEP Quality Assurance Program Plan (QA Program Plan) prepared for the NBP (NDEP, 2013).

This SAP addresses the field sampling, analytical procedures, quality control/quality assurance, and data review procedures for the collection and analysis of:

- Soil samples to evaluate contamination from possible substation equipment that may have been previously located on the site between the 1950s and 1990s.

1.1 Site Name

Site B

1.2 Site Location and Description

The subject property consists of vacant land located in Henderson, Clark County, Nevada. The subject property is located in the northwest corner of West Victory Road and South Water Street and is listed with Clark County, Nevada as Assessor's Parcel Number (APN) 179-18-204-010. Geographically, the subject property is located in the S ½ of the NW ¼ of Section 18, Township 22 South, Range 63 East of the Mount Diablo Base and Meridian (MDB&M). The subject property consists of a single parcel of land approximately 0.48 acre in size. The location of the site is indicated on Figure 1.

The subject property is currently undeveloped. It appears that the parcel has been cleared and graded. The layout of the subject property is illustrated on Figure 2.

1.3 Responsible Agency

This project is being conducted on behalf of the City of Henderson for the NDEP through the NBP and the investigation will conform to the requirements within the QA Program Plan (NDEP, 2013).

1.4 Project Organization

Title/Responsibility	Name	Phone
City of Henderson		
Site Contact	Maryanne Cruzado	(702) 267-1515
NDEP		
Program Coordinator for the NBP – Project coordination, liaison with City of Henderson, review SAP, Quality Assurance (QA)	Dave Friedman	(775) 687-9385
Quality Coordinator for the NBP – Review SAP, QA	Mary Siders	(775) 687-9496
USEPA		
USEPA Nevada Program Officer	Gail Morison	(415) 972-3807
McGinley and Associates, Inc.		
Principal – Senior review	Joe McGinley	(775) 829-2245
Project Manager – Project management, regulatory liaison, coordinate field activities, data review, report preparation.	Brett Bottenberg	(702) 260-4961
Quality Manager / Environmental Scientist – Oversee implementation of SAP, review QA and Quality Control (QC) procedures, conduct sampling activities, report preparation, data validation.	Sarah Hoffman	(702) 260-4961
GIS Services – Mapping support	Tim Dory	(775) 829-2245
Administrative Assistant – Administrative support	Linda Comstock	(702) 260-4961
Contractors/Vendors		
ESC Lab Sciences – Analytical laboratory	Jared Willis	(615) 773-9678
Logistical Solutions	Kris Everett	(702) 596-2021

1.5 Statement of the Specific Problem

The site is a parcel which is heavily encumbered with utility infrastructure that will most likely be costly to relocate. Therefore, the City of Henderson has proposed to redevelop the subject property with a pocket park, which would be dedicated to the City of Henderson. However, before the property can be redeveloped, recognized environmental conditions (REC) discovered for the property during a February 2015 Phase I Environmental Site Assessment (ESA) will need to be addressed. The following REC was found:

- Historical information indicates that the subject property was formerly used by Nevada Power and/or California Pacific Utilities for an electrical power related facility. It appears that the facility may have been in use sometime between 1950 and 1996. It is unknown what type of equipment was used.

This REC will need to be addressed prior to redevelopment of the property and the assessment should include soil sampling collected from trenches to determine extent, if any, of potential contamination.

Commented [DF1]: Not sure what this means. To me it means for sole use by residents of Henderson. I suggest to end the statement with pocket park.

2. BACKGROUND

According to the Clark County, Nevada Assessor's Office, the subject property is comprised of one parcel of land listed as Clark County APN 179-18-204-010. The area of the parcel is

approximately 0.48 acres. According to available assessor's information, the parcel is currently owned by City of Henderson Redevelopment. Information available on the website indicates that the current owner of APN 179-18-204-010 purchased the subject property in March of 1999. Previous owners of the subject property include James and Jean Hanily and Nevada Power Company.

2.1 Sampling Area Description

Four trenches approximately two feet wide by four feet long and from two to four feet deep are proposed to be excavated for this assessment. Within each trench, soil samples will be collected at one to two feet below ground surface (bgs) and at four feet bgs for a minimum of eight samples. If during trenching and sampling it is determined that impact to soil may be deeper or in a larger area than expected, additional soil samples will be collected to help delineate the impacts.

Commented [DF2]: Provide discussion on where these will be located on the property and why those locations have been determined to adequately characterize the site. I would locate the trenches primarily based on the location of the substation equipment seen in the historical aerial phots, any visual clues noted during the pre-investigation site survey and to cover areally the parcel, prior to any underground utility considerations.

2.2 Operational History

Historical information suggests that a Nevada Power or California Pacific Utilities facility existed on the subject property in the past. However, it is unknown what type of facility occupied the site. Therefore, it is unknown if PCB-containing equipment was utilized on the subject property in the past.

2.3 Previous Investigations/Regulatory Involvement

Commented [DF3]: It seems pretty clear that there was an off-site monitoring well installed on this parcel as part of NDEP case # H-000495 investigation. That LUST case should be mentioned here

In February of 2015, MGA conducted a Phase I ESA on the subject property for the NBP and funded by a 128(a) Brownfields grant under USEPA Cooperative Agreement # RP-00T84901-3 to the NDEP. The ESA was conducted in compliance with the American Society for Testing and Materials (ASTM) Standard E-1527-13 to identify any RECs at the site. The proposed sampling assessment is based on the findings of this Phase I ESA which are previously presented in Section 1.5 of this SAP.

2.4 Geological Information

The subject property is located within the Mojave Desert region of southeastern Nevada at an elevation of approximately 1,904 feet above mean sea level. The geology of the subject property has been mapped as ~~P~~pediment and fan deposits of Henderson (John W. Bell and Eugene I. Smith, 1980). This unit is described as silty, sandy pebble gravel composed dominantly of dacite clasts derived from the volcanic rocks of the McCullough Range. The majority of surficial soils found at the subject property have been mapped as Caliza very gravelly sandy loam with slopes ranging from 2-8 percent. The unit is classified as Hydrologic Unit A, which is characterized by low run-off potential when thoroughly wet, as water freely transmits through the soil (NRCS, 2013).

There are no surface water bo~~i~~dies that exist on the subject property. The nearest major surface water body to the subject property is the Las Vegas Wash, which is located approximately three and one-half miles to the north. Based upon a review of well logs for the area, as provided on-line by the Nevada Division of Water Resources (NDWR), MGA estimates that depth to groundwater at the subject property is approximately 70 feet below ground surface (bgs) or greater. Based on topographic grade, groundwater flow direction is estimated to be generally towards the north-northeast. However, according to 1998 and 1999 monitoring reports available for review regarding the former Shell Station located to the north, groundwater flows towards the south. A search of the NDWR database did not indicate any wells exist or have existed in the past on the subject property. However, the database noted several wells on parcels located adjacent to the north and west of the subject property. Further, a file review of the former Shell Station LUST site located on the adjacent property to the north indicates that a monitoring well (MW-7) may

Commented [DF4]:

have been located on the Subject Property in the past. This monitoring well appears to have been abandoned in February of 2002.

2.5 Environmental and/or Human Impact

Based on the review of readily accessible public information and interviews conducted for the Phase I ESA, it does not appear that adverse human health effects associated with potential contamination at this site have been reported or documented. However, the potential exists for receptors to interact with soils that have been disturbed ~~.~~and impacted by contamination.

3. PROJECT DATA QUALITY OBJECTIVES

3.1 Project Task and Problem Definition

The purpose of this investigation is to assess the soil for impacts from historical site use. Definitive data will be collected to determine the extent of soil contamination, if any.

3.2 Data Quality Objectives (DQOs)

The DQO process (EPA 2006) is a systematic planning tool that is used to establish performance or acceptance criteria. These criteria, in turn, serve as the basis for designing a plan for collecting data of sufficient quality and quantity to support the goals of a study. The DQO process consists of seven iterative steps, as described in the following sections and summarized in Table 1.

3.2.1 Step 1: State the Problem

Historical information indicates that the subject property was formerly used by Nevada Power and/or California Pacific Utilities for an electrical power related facility, that appears in the historic aerial photos to likely have been a substation. Communication with NV Energy subsequent to the completion of the Phase I ESA has confirmed this conclusion. It appears that the facility was~~may have been~~ in use sometime between 1950 and 1996. It is unknown ~~what~~he exact ~~type of~~ equipment that was used, but electrical transformers were present on the site and because of the age of the former facility, it is likely these transformers used a di-electric oil containing polychlorinated biphenyls (PCBs) and there is a chance that some of this di-electric oil was released over the course of the substation's operation. There is also the chance that petroleum fuel, chlorinated and non-chlorinated solvents and de-greasers, and heavy metals were used and potentially released to the ground surface during the site's operational history. Additional data are needed to define the nature and extent, if any, of contamination within the soil from this past use.

3.2.2 Step 2: Identify Decisions

Analytical data for collected soil samples will be evaluated to determine if concentrations of contaminants of concern (COC) exceed Nevada reportable concentrations (RCs) for total petroleum hydrocarbons (TPH) using USEPA Method 8015B, volatile organic compounds (VOCs) using USEPA Method 8260B, semi-volatile organic compounds (SVOCs) using USEPA Method 8270C using Select Ion Monitoring (SIM) and Resource Conservation and Recovery Act (RCRA) metals using USEPA Method 6010. Analytical data will be compared to RCs as published in the NDEP Draft Guidelines for Discovery Events document (NAC 445A.345 to 445A.348). Results of the investigation will be used to determine if additional assessment and/or regulatory notification with subsequent clean-up are required on the site. Prior to selection of sampling locations, the site will be investigated using the historic aerial photographs depicting the former electric transmission facility, visual indications of an historic release and a photo-ionizing detector (PID) to determine the biased locations of most likely areas of contamination where the trenching activities will occur.

3.2.3 Step 3: Identify Inputs

Information required to address project objectives includes historical data, proposed quantitative data to be collected under this study, laboratory reporting limits that are below Nevada RCs~~soil RCs~~, and regulations regarding waste disposal.

Analytical testing of soil samples shall be conducted by ESC Lab Sciences of Mount Juliet, Tennessee. The laboratory Data Quality Indicators (DQIs) and Method Quality Objectives (~~D~~MQOs) for the analytical testing are provided in Appendix A.

3.2.4 Step 4: Define Study Boundaries

The proposed investigation will occur at the vacant property located at the northwest corner of West Victory Road and South Water Street, Henderson, Nevada. Access will be provided by the City of Henderson. Soil sampling will be limited to within the excavated trenches. The duration of activities described in this SAP is approximately one to two days.

3.2.5 Step 5: Develop Decision Rules

Decision rules are specified in Table 1 and describe actions based on qualitative and definitive data. Laboratory analytical data for the soil samples will be compared to State of Nevada RC. If results indicate the impacted soil is greater than three cubic yards, the spill will be reported to the NDEP.

3.2.6 Step 6: Specify Tolerable Limits on Decision Errors

This is not a statistically based study; therefore, sampling locations will be selected based on professional judgment and site knowledge.

3.2.7 Step 7: Optimize the Sampling Design

The number of samples will be determined in the field using professional judgment such that samples are representative of site conditions.

3.3 Data Quality Indicators (DQIs)

DQIs (precision, accuracy, representativeness, completeness, comparability and sensitivity [i.e., PARCCS parameters]) refer to quality control criteria established for various aspects of data gathering, sampling, and/or analyses. The DQIs are as follows:

- **Precision**: The degree of mutual agreement between or among independent measurements of a similar property (usually reported as standard deviation (SD) or relative percent difference) and relates to the analysis of duplicate laboratory or field samples.
- **Accuracy**: The degree of agreement of a measurement with a known or true value and is determined by comparing the reported laboratory value for a sample to a known or true concentration (i.e. matrix spikes, surrogate spikes, laboratory control samples and performance samples).
- **Representativeness**: The expression of the degree to which data accurately and precisely represent a characteristic of an environmental condition or population and relates to the method of collecting samples and determining sampling locations.
- **Completeness**: Expressed as the percent of valid usable data obtained compared to the amount that was expected.
- **Comparability**: The degree of confidence with which one data set can be compared to another.
- **Sensitivity**: Defined by the laboratory detection limits and are generally expressed in terms of method detection limits (MDLs) or reporting limits (RLs).

3.3.1 Precision and Accuracy

Data quality objectives will be met through adherence of required sampling methodology, required laboratory analytical methods, and data review. Data are accepted and rejected based on the data quality objectives. If the data are near the regulatory limit and could be affected by variability and accuracy measures, such as low recovery for spikes or surrogates, then further evaluation may be conducted.

Accuracy is determined for field measurements by field equipment calibration before and after sample measurement using appropriate standards. For laboratory measures, accuracy is determined through field blanks, lab matrix spikes, certified reference material, and/or laboratory control samples.

Precision measurements are typically determined by the resolution of the instrument and through evaluation of field and laboratory duplicates. Field duplicates account for both precision of sampling techniques and laboratory analysis, as well as environmental variability. Field duplicates will consist of two grab samples collected in rapid succession from the same location. Laboratory duplicates are used to evaluate precision of the laboratory process.

3.3.2 Representativeness

Sampling locations will be selected using professional judgment and will adequately represent site conditions for the area being investigated.

3.3.3 Completeness

The project goal is to obtain an adequate number of samples to characterize site conditions.

3.3.4 Comparability

Similar studies have not been performed at the project site in the past.

3.3.5 Sensitivity

The laboratory reporting limits are adequate for this investigation when comparing those to screening levels utilized for this project. The table below presents the constituents of concern and their associated reporting limits and screening levels.

Constituent of Concern	Method Detection Limit (MDL) / Reported Detection Limit (RDL)	Screening Level
PCB aroclor 1016	RDL: 0.017 mg/kg	4.0 mg/kg
PCB aroclor 1221, 1232	RDL: 0.017 mg/kg	0.15 mg/kg
PCB aroclor 1242, 1248, 1254, 1260	RDL: 0.017 mg/kg	0.24 mg/kg
PCB aroclor 5460	RDL: 0.017 mg/kg	3.7 mg/kg
TPH	MDL: 0.0289 mg/kg RDL: 0.10 mg/kg	100 mg/kg
Arsenic	MDL: 0.3950 mg/kg RDL: 1 mg/kg	0.67
Barium	MDL: 0.05 mg/kg RDL: 0.25 mg/kg	15,000
Cadmium	MDL: 0.0350 mg/kg RDL: 0.25 mg/kg	70

Chromium	MDL: 0.1150 mg/kg RDL: 0.50 mg/kg	0.30
Lead	MDL: 0.12 mg/kg RDL: 0.25 mg/kg	0.30
Mercury	MDL: 0.0015 mg/kg RDL: 0.02 mg/kg	9.4
Selenium	MDL: 0.46 mg/kg RDL: 1 mg/kg	390
Silver	MDL: 0.1250 mg/kg RDL: 0.50 mg/kg	390

3.4 Data Review and Validation

Data verification is the process of evaluating the completeness, correctness, conformance, and compliance of a specific data set against the method, procedural, or contractual requirements. Data verification evaluates whether sampling protocols, Standard Operating Procedures (SOP), and analytical methods were followed during data generation. Verification also involves examining the data for errors or omissions. Field and laboratory staff will verify that the work is producing appropriate outputs.

Data validation is a systematic process for reviewing a body of data against a pre-established set of acceptance criteria defined in this plan. Data validation is an analyte- and sample-specific process that extends the evaluation of data beyond data verification and is performed to determine the analytical quality of a specific data set. Validation involves a detailed examination of the data package to determine whether measurement quality objectives (MQO) for precision, accuracy, and sensitivity have been met. For this environmental assessment, the intent of the data review and validation process is to verify that the specified levels of precision, accuracy, reproducibility, completeness, comparability, and analytical sensitivity of the final results are achieved, with respect to the project MQOs, and that the data fulfill project DQOs.

MGA's QA officer will supervise or perform data quality assessment tasks. MGA will consistently evaluate and document measurement data to monitor consistency with MQOs, to quantitatively assess data quality, and to identify potential limitations to data use. MGA will review field and analytical laboratory data generated for this project, including the following:

- Chain of custody documentation;
- Laboratory batch QC frequency; and
- Results of batch and field QC analyses.

The laboratory will generate and review all laboratory data. Each data point will be assessed as non-qualified or qualified based upon the acceptance criteria. Data may be qualified as "estimated" (J-qualified); these data are used as is. Some data may be qualified as "rejected" (R-qualified) if critical QC parameters are not met; these data are unusable for any purpose. Sample re-analysis, for data not meeting MQOs, will be considered as a possible corrective action. Third-party data validation will not be performed.

3.5 Data Management

Sampling will be conducted in accordance with MGA's SOP. A unique identification number will be assigned to each sample. The number will be an alphanumeric sequence that serves as an

acronym to identify the sample. The following sections define the format will be used for the sample designation.

3.5.1 Soil Samples

Soil samples collected for this project will be identified based on the following unique identification system:

Sample ID: BRN031-T1-01-2.0

BRN031 - MGA project number

T1-01 – Trench number and soil sample number (i.e., #01)

2.0 – Depth of soil sample (i.e., 2.0 feet bgs)

3.5.2 Field Logs

Field logs shall be maintained throughout the project. The following information shall be included on the field logs: description of activities conducted, dates and times, field observations, deviations from sampling program, names of on-site personnel, and sampling locations.

Samples shall be preserved or cooled as required for each laboratory analysis. Samples shall be delivered or shipped to the laboratory under chain-of-custody protocol.

3.6 Assessment Oversight

Prior to commencing with field activities, the SAP and Health and Safety Plan (HASP) will be reviewed by the Project Team. A copy of the HASP is located in Appendix B. The MGA QA Officer will oversee QC of all field activities. If modifications to the proposed sampling program are required due to field conditions, the Project Manager shall be notified for direction. Any modifications to the sampling plan will be documented in the field logs and in the project report as "deviations from the sampling plan."

4. SAMPLING RATIONALE

Soil samples will be collected from various depths within each trench. An adequate number of samples will be collected to initially assess site conditions. Professional judgment shall be used to select sampling locations that are likely to provide data to address project DQOs (Table 1). Decision statements formulated in the project DQOs are largely concerned with delineating the extent and magnitude of contamination. It is estimated that a maximum of twenty soil samples will be collected for this assessment.

4.1 Soil Sampling

An initial walkthrough will be conducted to identify possible locations of impacted soil. Trenching activity will occur at locations where staining and/or the presence of odors are observed or detected and where the land has been cleared from possible underground utilities or unknown obstructions. Soil samples will be collected from each trench at select depths and sample locations and will be screened via PID. MGAs SOP for PID soil screening and soil sampling can be found in Appendix C. A minimum of two soil samples will be collected from each trench. A copy of MGA sampling label is located in Appendix D.

5. REQUEST FOR ANALYSIS

Laboratory analyses for each collected sample are discussed in Section 5.1 below.

5.1 Analyses Narrative

5.1.1 Soil Samples

It is anticipated that four trenches will be excavated for this assessment. A minimum of eight soil samples will be collected for analytical testing. The soil samples will be collected as described in Sections 4.1 and 4.2 and analyzed for the following:

- PCBs: EPA Method 8082
- TPH full suite including gasoline range organics (GRO), diesel range organics (DRO), and oil range organics (ORO): EPA Method 8015
- Resource Conservation and Recovery Act (RCRA) metals: EPA Method 6010;
- Semi-volatile organic compounds (SVOCs) Polynuclear aromatics (PNA) with SIM: EPA Method 8270C (if necessary); and
- Volatile organic compounds (VOCs): EPA Method 8260B (if necessary).

5.2 Analytical Laboratory

Analytical testing on soil samples shall be conducted by ESC Lab Sciences. Analytical testing and sample handling shall be conducted in accordance with their SOP (Appendix A). ESC Lab Sciences is certified in the State of Nevada.

6. FIELD METHODS AND PROCEDURES

6.1 Field Equipment

6.1.1 List of Equipment Needed

- Field logbook and field data sheets;
- Personal protective equipment (Level D);
- Tape measure;
- Camera;
- 55-gallon drums;
- PID instrument;
- 4-oz glass sample containers;
- Volatile organic analysis (VOA) vials;
- Cooler and ice;
- Sample labels;
- Pick axe;
- Shovel;
- Stainless steel bowls and scoops;
- Decontamination supplies;
- Knife/box cutter with retractable blade;
- Zip-lock type bags;
- Permanent marker; and
- Surface tape.

6.1.2 Calibration of Field Equipment

All field equipment will be calibrated according to the manufacturer's guidelines and specifications. Calibration records will be logged in field notebooks.

6.2 Field Screening

PID screening of soil collected from trenching activities will be utilized to help determine collection locations for soil samples. MGA SOP utilized for screening is provided in Appendix C.

6.3 Soil Sampling

6.3.1 Surface Samples

Surface samples are not anticipated to be collected for this project. However, if surface soil sampling is performed, sample collection will be conducted in accordance with MGA's SOP as presented in Appendix C.

6.3.2 Sub-surface Samples

Sub-surface soil samples will be collected in accordance with MGA's SOP as presented in Appendix C.

6.4 Decontamination Procedures

All field equipment which comes in contact with potentially contaminated soil will be decontaminated in accordance with MGA's SOP as presented in Appendix C. Decontamination will occur prior to and after each use of a piece of equipment.

7. SAMPLE CONTAINERS, PRESERVATION AND STORAGE

7.1 Soil Sampling

7.1.1 Soil Sample Containers

Soil samples will be collected in dedicated sample containers provided by the analytical laboratory. The soil samples will be delivered to the laboratory within an acceptable period of time. Appendix C provides MGA's SOPs for sampling.

7.1.2 Soil Sample Preservation and Storage

Collected soil samples will be chilled to 4°C within a laboratory supplied cooler upon collection and during transport to the laboratory.

8. DISPOSAL OF RESIDUAL MATERIALS

No investigation-derived waste is anticipated to be generated during this investigation. Any investigation-derived waste that is generated will be disposed of in accordance with local, state, and federal regulatory requirements.

9. SAMPLE DOCUMENTATION AND SHIPMENT

9.1 Field Notes

9.1.1 Field Logbooks

Field logs will be completed describing all field activities. The following information will be included in the field logs:

- Project name and location;
- Sampling location and description utilizing a survey- or mapping-grade GPS unit;
- Site plan showing sample locations;
- Sampler's name (s);
- Date and time of sample collection;

- Type of sample (e.g., soil);
- Type of sampling equipment used;
- Field instrument readings and calibration;
- Field observations and details related to analysis or integrity of samples (e.g., noticeable odors, colors, etc.);
- Sample preservation;
- Lot number of the sample containers, sample identification numbers and explanatory codes, and chain-of-custody form numbers; and
- Name of recipient laboratory.

9.1.2 Photographs

Photographs will be taken at select sampling locations. They will serve to verify information entered in the field logbook. For each photograph taken, the following information, at a minimum, will be written in the logbook:

- Time, date, location, and weather conditions;
- Description of the subject photographed; and
- Name of person taking the photograph.

9.2 Labeling

All samples collected will be labeled in a clear and precise manner for proper identification in the field and for tracking in the laboratory. The samples will have pre-assigned, identifiable, and unique numbers. At a minimum, the sample labels will contain the following information:

- Sample location;
- Date and time of collection;
- Analytical parameter(s) requested; and
- Method of preservation.

9.3 Sample Chain-of-Custody Forms and Custody Seals

All samples shall be delivered to the laboratory under chain-of-custody protocol. All chain-of-custody forms and sample labels will be signed and dated. A copy of the chain-of-custody form is provided in Appendix E. Laboratory supplied custody seals shall be used to seal the screw lid of each sample container.

9.4 Packaging and Shipment

Samples shall be placed in a sturdy cooler. Bubble wrap shall be placed in the bottom of the cooler and sample containers shall be placed in containers provided by the laboratory. Ice shall be packed in zipper-locked, double plastic bags. Empty space in the cooler shall be filled with bubble wrap. Appendix C provides MGA's SOP for sample packaging and shipping.

10. QUALITY CONTROL

10.1 Field Quality Control Samples

Samples will be collected in accordance with industry standard procedures. One equipment rinsate blank sample will be collected during this investigation. The collection of this sample will determine if field decontamination procedures have been successfully implemented.

10.2 Background Samples

No background samples are anticipated to be collected during this investigation.

10.3 Field Screening and Confirmation Samples

Field screening for soil samples will be performed utilizing a properly calibrated PID instrument. No confirmation soil samples will be collected during this investigation.

10.4 Assessment of Field Variability (Field Duplicates or Co-located Samples)

The scope of this project includes the collection of soil samples. As soils and sediments are generally too heterogeneous to assess the precision of sample collection, field-duplicate soil samples will not be collected for this project.

10.5 Laboratory Quality Control Samples

Laboratory QC (e.g., matrix spike/matrix spike duplicate samples) samples will be analyzed to monitor the precision and accuracy of its analytical procedures.

11. FIELD VARIANCES

As conditions in the field may vary, it may become necessary to implement minor modifications to sampling as presented in this SAP. Modifications to the approved SAP will be documented in the sampling project report.

12. FIELD HEALTH AND SAFETY PROCEDURES

A site-specific HASP is provided in Appendix B. The HASP shall be reviewed by all on-site personnel prior to commencing with field activities.

13. SCHEDULE FOR SAMPLING ACTIVITIES

MGA will commence with the activities proposed herein upon receiving NDEP approval of this SAP. It is anticipated that field activities will be completed within three weeks of receiving SAP approval. However, the field activities will be reliant upon amenable weather conditions. It is anticipated that a draft report of findings will be submitted prior to June 26, 2015.

14. REFERENCES

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