Data Gap and Groundwater Assessment and Groundwater Monitoring Work Plan

Simplot Growers Solutions

7528 Postma Road

Moxee, Washington

Prepared for

J.R. Simplot Company

July 23, 2021

1500450-01

HARTCROWSER

A division of Haley & Aldrich

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Prepared by

Hart Crowser, a division of Haley & Aldrich

Andrew Nakahara, EIT
Environmental Engineer
Andrew.Nakahara@hartcrowser.com

John Haney, PE
Senior Associate, Environmental Engineer
John.Haney@hartcrowser.com

Andrew S. Kaparos, PE
Senior Associate, Environmental Engineer
Andrew.Kaparos@hartcrowser.com

505 W. Riverside Avenue, Suite 205
Spokane, Washington 99201
509.960.7447

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Simplot Growers Solutions

7528 Postma Road

Moxee, Washington

1.0 INTRODUCTION

On behalf of the J.R. Simplot Company (Simplot), Hart Crowser, a Division of Haley & Aldrich (Hart Crowser) has prepared this Data Gap and Groundwater Assessment Work Plan (work plan) for the Simplot Grower Solutions (SGS) facility, located at 7528 Postma Road in Moxee, Washington (see Figure 1). This Work Plan presents the scope of work for completing data gap assessment and groundwater monitoring activities at the SGS property (subject property). Simplot owns and operates the subject property as a retail outlet for crop nutrition and crop protection products; these products are stored and sometimes blended on-site.

1.1 Regulatory Framework

Hart Crowser developed this work plan to further assess the nature and extent of environmental impacts at the site. Hart Crowser will implement this work plan in general accordance with guidance put forth in the Washington State Department of Ecology's (Ecology) Model Toxics Control Act (MTCA) (Washington Administrative Code [WAC] 173-340). We understand that Simplot entered Ecology's Voluntary Cleanup Program (VCP) in 2014 and the Site Number for Ecology is 84612438 (VCP Number CE0419).

2.0 BACKGROUND

This section provides a brief background of the subject property, including: a description of the subject property, recent regulatory history, and a brief overview of regional geology and hydrogeology.

2.1 Subject Property Description

The subject property is approximately 3.74 acres and is bounded on the north by Postma Road, and on the south by BNSF rail lines and Highway 24. According to the Yakima County Assessor, the first structure constructed on the property was in 1950 and additional structures were added in the 1980's and 2000's. The facility also has an aboveground storage tank (AST) farm containing about 16 ASTs that are used to store retail products.

The Moxee City Shop facility (a former sewage treatment plant with documented petroleum releases) is adjacent to the subject property on the west, and a CFN fuel service station and agricultural land to the east. Generally, the land surrounding the subject property north of Highway 24 is a mixture of commercial operations and agriculture, and the land south of Highway 24 is a mixture of residential and agriculture. Aerial photographs and maps accessed from the Yakima County website also show several irrigation and drainage ditches north and east of the subject property.

2.2 Recent Regulatory History

In 2014, Ecology notified Simplot of potential releases of contaminants from the subject property to the subsurface. Ecology informed Simplot that recent borings drilled on the subject property by GeoEngineers, Inc. (GeoEngineers) while conducting an assessment of petroleum releases on the adjacent Moxee City Shop property to the west, encountered elevated concentrations of nitrate and sulfate in soil and groundwater. GeoEngineers concluded that "groundwater anion data support the suggestion that a source area exists near and east of the Moxee City Shop/Simplot property boundary and downgradient transport via groundwater flow are ongoing" (GeoEngineers 2014).

Simplot subsequently engaged HDR to conduct an additional assessment on the subject property in 2015 and 2016. Assessment activities included drilling a series of direct-push borings and installing five monitoring wells on the subject property and one monitoring well on the Moxee City Shop property. Results of these assessments concluded that elevated concentrations of nitrates were present in soil and groundwater beneath the subject property. Groundwater monitoring conducted between 2018 and 2020 indicates that nitrates, sulfates, and/or total dissolved solids (TDS) in groundwater exceed Maximum Contaminant Levels (MCLs) in each of the six monitoring wells and two additional monitoring wells on the Moxee City Shop property.

In 2020, HDR conducted additional off-site assessment downgradient of the subject property. This assessment included drilling six direct-push borings along Highway 24 and collecting groundwater samples. Analytical results from this assessment indicate nitrates, sulfates, and/or TDS in groundwater samples exceeded MCLs in each boring.

Groundwater monitoring data collected to date indicates the inferred groundwater flow beneath the subject property seasonally changes from northwest to southwest. Based on the inferred groundwater flow regimes, potential sources upgradient of the subject property include the agricultural and commercial lands north of Postma Road and agricultural lands to the east. The irrigation channels and ditches also could be potential sources of contaminants to the subsurface.

Additionally, following the discovery of a release of petroleum from an underground storage tank (UST) on the Moxee City Shop property in 1996, the City conducted on-site remediation of petroleum contaminated soil (PCS). According to the "Limited Remedial Action Report for Moxee Sewer Treatment Plant Facility," prepared by Maxim Technologies, Inc. (Maxim 1996), the PCS was remediated by mixing it with a soil amendment called "Oil Sponge" inside the UST excavation after lining the excavation with 6 mil plastic. Protocols for using the Oil Sponge product state that "additional nutrients (i.e., miracle grow [sic], triple 16 fertilizer) should be added every 15 days" during soil treatment. The report is silent on whether or not nutrients were added to the excavation or by what method, but these nutrient amendments also constitute another potential source for nitrates and sulfates.

2.3 Geology and Hydrogeology

Based on soil sampling activities and observations by HDR, on-site soils are a silt loam (Natural Resources Conservation Service [NRCS] classification) with a relatively uniform texture and soil structure from surface to groundwater (0 to approximately 5 feet below ground surface [bgs]) (HDR 2021). The NRCS has mapped

the subject property and adjoining properties as the Umapine silt loam soil series, which is characterized as somewhat poorly drained with the most limiting layer to transit water (Ksat) as moderately high to high (0.6 to 2.0 inches/hour) (NRCS, Web Soil Survey, usda.gov).

The subject property is located within the Yakima Fold and Thrust Belt of the Columbia Basin Province in Washington. Due to the diverse nature of geologic deposits, the hydraulic characteristics of the aquifers are diverse (HDR 2019). Depth to groundwater at the Property measured during previous monitoring events ranged between approximately about 3 and 11 feet bgs. Inferred groundwater flow beneath the subject property seasonally changes from northwest to southwest.

3.0 PURPOSE AND OBJECTIVES

The purpose of this work plan is to document the scope, technical approach, and implementation details to assess potential upgradient, off-site sources that might be contributing to subsurface contamination beneath the subject property, to better understand groundwater conditions beneath the property, and to evaluate potential downgradient receptors that could be affected by nitrate- and sulfate-impacted groundwater. The objectives of our services are to:

- Assess upgradient soil and groundwater conditions by drilling up to five direct-push borings;
- Collect soil samples for field screening and laboratory analysis;
- Measure depth to groundwater and collect samples from borings during drilling;
- Conduct a groundwater monitoring event using five existing on-site and three off-site monitoring wells; and
- Obtain chemical analyses on select soil and groundwater samples for comparison with previously collected data for the Property and to MTCA screening levels.

4.0 PRE-FIELD ACTIVITIES

Prior to conducting the data gap assessment, Hart Crowser will conduct research to identify existing water supply wells (i.e., potential receptors for the ingestion pathway) downgradient of the subject property that could be impacted by nitrate- and sulfate-contaminated groundwater. We will use Ecology's publicly accessible well log database to conduct our research. However, sometimes wells in the database are located by quarter-quarter sections rather than by address. If we identify potential receptors that are identified by section rather than address during our research, we will attempt to locate the well visually (well house, pivot, aboveground completion, etc.) from public rights-of-way while in the area during off-site assessment field activities. We also will research the availability of City/County water supply and sewer utilities for downgradient potential receptors. Results of the receptor assessment will be documented in our data gap assessment report.

5.0 FIELD ACTIVITIES

Prior to conducting assessment activities, Hart Crowser will visit the subject property to mark proposed boring locations and notify the Washington Utility Notification Center, as required by state law; proposed boring locations are shown on Figure 2. We will subcontract a licensed driller to advance five direct-push borings, we will collect soil and groundwater samples from each boring, and submit soil and groundwater samples for chemical analysis. Either in the same mobilization or in a separate one, we will conduct one round of groundwater monitoring in the existing monitoring wells located on the subject property (MW-1 through MW-5) and the adjacent City Shops property (MW-6, CS-4, and CS-6). When these assessment activities have been completed, we will assist Simplot with managing investigation-derived waste (IDW). Additional details for each of these activities are provided in the sections below.

5.1 Utility Location

Hart Crowser will conduct a site visit to mark proposed boring locations in white paint, as required by state law. Hart Crowser will contact the Washington Utility Notification Center, who will, in turn, notify the various utilities in the area to mark any underground installations in the vicinity of the proposed borings. We also will subcontract with a private utility locator to mark utilities present at the proposed boring locations. Boring locations will be adjusted, if necessary, to avoid underground utilities that are identified.

5.2 Drilling

We will coordinate with Simplot to obtain access permits prior to mobilizing to the subject property for drilling; we assume Simplot will obtain access agreements from off-site property owners prior to start of drilling. We will subcontract a licensed driller to advance five soil borings using direct-push techniques to a maximum depth of 20 feet bgs or refusal, whichever occurs first. The borings will be advanced at the locations shown in Figure 2. We will collect soil samples continuously during drilling using a macro sampler. We will log the materials encountered on a boring log, screen soil samples for signs of contamination, collect soil sub-samples for chemical analysis, collect grab groundwater samples from the borings, and abandon the borings in accordance with Ecology requirements. Logging, screening, sampling, and abandonment procedures are discussed in more detail below.

5.2.1 Boring Logs

We will document our observations, field screening results, sampling activities, and any deviations from this work plan in our field notes and boring logs. Samples will be classified in general accordance with American Society for Testing and Materials (ASTM) D2488 (ASTM 2009), and pertinent characteristics of the subsurface conditions will be recorded on the boring logs.

5.2.2 Field Screening & Soil Sample Collection

Soil samples will be collected continuously during drilling using a macro sampler equipped with a disposable acrylic sleeve. Field screening will consist of visual observations and/or olfactory observation (if odors are present). Hart Crowser will collect sub-samples from approximately every foot recovered in each boring and place the samples in laboratory-supplied sample containers for potential analysis. Soil samples will be labeled according to the drilling method, boring number, and the depth range of the sample:

Example:

Direct-push- Boring 1(between 1 and 2 feet bgs) = DP-1(1-2)

The Hart Crowser field representative will clearly mark the sampling depth and interval on the soil boring logs. The Hart Crowser field representative will don new, clean nitrile gloves (or equivalent) prior to collecting each sample. Hart Crowser will submit soil samples for chemical analysis based on the results of field screening. If field screening is inconclusive, the soil sample collected from just above saturated conditions will be submitted for analysis. Hart Crowser will submit soil samples for nitrate-nitrogen and sulfate analyses by U.S. Environmental Protection Agency (EPA) Method 300. We will place soil samples directly into laboratory-supplied sample containers and store the samples in an insulated cooler with ice. We will log the sample names, date collected, and time collected in our field notes and on a chain-of-custody; chain-of-custody procedures will be followed until samples are delivered to the Eurofins-TestAmerica Laboratory in Spokane, Washington (TestAmerica) for analysis (see Section 5.4.3). Samples will remain refrigerated until delivered to TestAmerica and until analyzed. Soil samples will be analyzed on a standard 10-business-day turnaround time.

5.2.3 Grab Groundwater Sample Collection

After a boring is completed to the target depth or refusal, the driller will install a temporary well screen and Hart Crowser field representative will collect a grab groundwater sample. Prior to collecting the sample, we will measure the depth to water using an electronic water level indicator; depth to water will be referenced to ground surface. We will purge the well screen using a peristaltic pump and low flow/low stress techniques. While purging, we will measure the temperature, pH, specific conductivity, oxidation-reduction potential, and turbidity (water quality parameters) using a water quality multimeter equipped with a flow-through cell. We will collect groundwater samples from each boring when the water quality parameters have stabilized. Because temporary wells tend to have higher turbidity than a fully constructed and developed monitoring well, “stabilization” will be based on observed field conditions but will target a 10 percent difference or less between readings 1 minute apart.

We will collect groundwater samples directly into laboratory-supplied sample containers and place groundwater samples in an insulated cooler with ice to preserve the samples until we deliver them to TestAmerica. Each sample will be recorded on a chain-of-custody as described in Section 5.4.3 and appropriate chain-of-custody procedures will be followed until the samples are delivered to the laboratory. TestAmerica will analyze each groundwater sample for nitrate-nitrogen and sulfate by EPA Method 300 and TDS by Standard Method (SM) 2540C. We will submit samples for a 10-business-day turnaround time.

5.2.4 Completion and Abandonment

The driller will abandon borings in accordance with the WAC and Revised Code of Washington (RCW) rules and regulations. Abandonment will consist of filling the boring with granular bentonite and hydrating the bentonite with water. For hardscape areas, a cold asphalt or concrete patch will complete the surface seal. Drilling and sampling equipment will be decontaminated using a high-pressure/low-volume wash and/or detergent wash and water rinse as described in Section 5.5.2.

Cuttings generated during drilling, decontamination water, and purged groundwater will be placed in separate drums and transported to the subject property for storage pending laboratory analytical results and ultimate disposal. Disposal of soil cuttings and purge water will be managed by Simplot with assistance from Hart Crowser. Any additional IDW generated during the assessment (e.g gloves, bags, disposable towels, acrylic sleeves, etcetera) will be managed as solid waste in accordance with Section 5.6.

5.3 Monitoring Well Sampling

Hart Crowser will conduct one round of groundwater monitoring in eight existing monitoring wells (five on-site [MW-1 through MW-5] and three off-site [MW-6, CS-4, and CS-6]). Monitoring activities will include: gauging depths to groundwater, sampling and analyzing groundwater samples, and preparing a report summarizing activities and findings from the event.

5.3.1 Measuring Groundwater Elevations

Prior to purging, the Hart Crowser field representative will measure depth to groundwater in each well using an electronic water-level probe. We will reference depth to water to the top of the well casing in each well (typically the north side) and record the measurements in our field notes to the nearest 0.01 foot.

5.3.2 Purging

After groundwater levels are measured, we will purge each well using low flow/low stress techniques and a peristaltic pump fitted with clean, disposable tubing. The tubing inlet will be placed approximately at the middle of the well screen. Tubing will be used one time and disposed of as IDW, as described in Section 5.6. During purging, we will measure and record water quality parameters using a multimeter equipped with a flow-through cell. The Hart Crowser field representative will consider purging to be complete when there is a 10 percent difference or less between readings 1 minute apart or a maximum of 30 minutes of purge time has elapsed. If the well is purged dry, it will be allowed to recover before collecting a sample. Purge water will be handled in accordance with Section 5.6.

5.3.3 Groundwater Sample Collection Procedures

The Hart Crowser field representative will collect each groundwater sample using the same pump and tubing used for purging. The Hart Crowser field representative will don a clean pair of nitrile gloves (or equivalent) prior to collecting the sample and collect the samples directly into laboratory-supplied sample containers with minimal headspace. We will place groundwater samples in an insulated cooler with ice to preserve the samples until delivered to TestAmerica for analysis. The Hart Crowser field representative will record each sample on a chain-of-custody form, as described in Section 5.4.3 and appropriate chain-of-custody procedures will be followed until the samples are delivered to TestAmerica. TestAmerica will analyze each groundwater sample for nitrate-nitrogen by EPA Method 353.2, ammonia nitrogen by EPA Method 350.1, sulfate by EPA Method 300.0, and TDS by Standard Method (SM) 2540C.

5.3.4 Documentation

We will document observations made during groundwater sampling activities in field notes. Observations will include, but are not limited to, groundwater levels, purge water characteristics (e.g., color, turbidity,

sheens), purge volumes, field parameter measurements, and sampling time. The Hart Crowser field representative also will record any deviations from this work plan in the field notes.

5.4 Sample Management

5.4.1 Sample Containers

TestAmerica will provide pre-cleaned sample containers ready for sample collection, including preservative, if required. Sample containers will be cleaned following the requirements described in Specifications and Guidance for Contaminant-Free Sample Containers (EPA 1992). Hart Crowser will discuss specific container requirements for samples that will undergo multiple analyses with TestAmerica prior to sample collection.

5.4.2 Labeling Requirements

The Hart Crowser field representative will affix a sample label to each container before sample collection. We will mark sample containers with the project number, a sample number, date and time of collection, sampler's initials, and preservation type. Each sample will have a unique identification number that will be referenced by entry into our notes. We will identify soil samples as indicated in Section 5.2.2. We will identify groundwater samples by the boring number (e.g. DP-1) or the monitoring well number (e.g. MW-1).

5.4.3 Chain of Custody Procedures

Hart Crowser will use chain of custody forms to document the collection, custody, and transfer of samples from their initial collection location to the laboratory. We will enter each sample on the custody form immediately after it is collected.

Sample custody procedures will be followed to provide a record that can accompany a sample as it passes from collection through analysis. A sample is considered to be in custody if it meets at least one of the following conditions:

- It is in someone's physical possession or view;
- It is secured to prevent tampering (i.e., custody seals); and/or
- It is locked or secured in an area restricted to authorized personnel.

The Hart Crowser field representative will complete a chain of custody form in the field as samples are packaged. At a minimum, the information on the custody form will include the sample number, date and time of sample collection, sampler, analysis, and number of containers. We will place a copy of the custody form in the cooler with its respective samples before the container is sealed for delivery to TestAmerica. We will retain another copy and place it in the project file after review by the project manager. We will affix custody seals on each cooler containing samples such that the cooler cannot be opened without breaking the seals.

5.4.4 Sample Storage and Shipping Procedures

After sample containers have been filled, Hart Crowser will store the samples in a cooler with ice or gel ice to cool the samples to approximately 4°C. Hart Crowser will transfer the coolers to TestAmerica for chemical analysis while maintaining refrigerated conditions. Chain of custody procedures will be maintained from commencement in the field until samples are delivered to TestAmerica, as discussed in the previous section. Hart Crowser will follow these specific procedures:

- Pack individual sample containers to prevent breakage;
- Sign and date custody seals and place them on coolers before transport/pickup;
- Hand-deliver samples to TestAmerica or the TestAmerica courier;
- Sign the chain-of-custody form when sample possession is transferred to the laboratory and have a TestAmerica representative sign the form acknowledging receipt at the time of transfer; and
- Upon receipt of samples at the laboratory, TestAmerica will break the shipping container custody seal and the sample-receiving custodian will compare samples with information on the chain of custody form and record the condition of the samples received.

5.5 Decontamination Procedures

5.5.1 Personnel Decontamination

Personnel decontamination procedures depend on the level of protection specified for a given activity. The site-specific Health and Safety Plan (HASP) provided in Appendix A identifies the appropriate level of protection for the type of work and conditions involved in this project. Field personnel will thoroughly wash their hands at the end of each day and before taking any work breaks.

5.5.2 Equipment Decontamination

The Hart Crowser field representative will use clean disposable sampling equipment (e.g., disposable gloves, groundwater sampling tubing) for each sample location and will discard sampling equipment after use to prevent cross contamination between sampling events. The Hart Crowser field representative will clean non-disposable field equipment (e.g., sampling spoons, multimeter, flow-through cell, etc.) using a detergent (Liquinox®) solution, rinsing with tap water, and a deionized water rinse. Decontamination water will be collected and handled as IDW, in accordance with Section 5.6.

5.6 IDW Management

During the above activities, soil cuttings, development and purged groundwater, decontamination water, and other IDW will be generated and will require appropriate management. The handling and disposal of specific types of IDW are discussed below.

5.6.1 Soil and Water

Soil and water IDW will be placed in separate, labeled, steel drums and stored on the subject property pending laboratory analytical results. After receiving analytical results, Simplot, with Hart Crowser support, will review the analytical results, characterize the waste for disposal, and dispose of the waste accordingly, either on-site, at a recycling facility, and/or permitted landfill.

5.6.2 Disposable Sampling Equipment and Personal Protective Equipment (PPE)

The Hart Crowser field representative will place disposable sampling and personal protective equipment (e.g. gloves, bags, disposable towels, acrylic sleeves, etcetera) in plastic trash bags after use and dispose of the IDW as solid waste. We will place solid waste IDW in a waste bin on the subject property for disposal.

6.0 QUALITY ASSURANCE AND QUALITY CONTROL

The quality of analytical data is assessed by quality control checks developed for each analysis type. The quality of laboratory measurements will be assessed by reviewing analytical results for method blanks, matrix spikes (MSs), laboratory control samples, surrogate compound recoveries, and so forth, as specified in the analytical methods to be used.

6.1 Data Quality Indicators

The overall quality assurance objectives for field sampling, field measurements, and laboratory analysis are to produce data of known and appropriate quality. The procedures and quality control checks specified herein will be used so that known and acceptable levels of accuracy and precision are maintained for each data set. This section defines the objectives for accuracy and precision for measurement data. These goals are primarily expressed in terms of acceptance criteria for the quality control checks performed.

6.1.1 Precision

Precision is the degree of reproducibility or agreement between independent or repeated measurements. Analytical variability will be expressed as the relative percent difference (RPD) between field replicates, laboratory replicates, and between MS and MS duplicate (MSD) analyses. RPD will be used to measure precision for this investigation and is defined as follows:

$$RPD = \frac{(D_1 - D_2)}{(D_1 + D_2)/2} \times 100$$

Where:
D_1 = sample value
D_2 = duplicate sample value

6.1.2 Accuracy

Accuracy is the agreement between a measured value and its true or accepted value. While it is not possible to determine absolute accuracy for environmental samples, analysis of standards and spiked samples provides an indirect assessment of accuracy.

Laboratory accuracy will be assessed as the percent recovery of MS, MSD, surrogate spiked compounds (for organic analyses), and laboratory control samples. Accuracy will be defined as the percentage recovery compared with the true or accepted value and is defined as follows:

$$\%\,\text{Recovery} = \frac{(\text{SSR} - \text{SR})}{\text{SA}} \times 100$$

Where:
SSR = spiked sample result;
SR = sample results (not applicable for surrogate recovery); and
SA = amount of spike added.

6.1.3 Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, or an environmental condition. The sampling program will be designed carefully to see that sample locations are selected properly, sufficient numbers of samples are collected to accurately reflect conditions at the Site, and samples are representative of sampling locations. A sufficient sample volume will be collected at each sampling point to minimize bias or errors associated with sample particle size and heterogeneity.

6.1.4 Comparability

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. So that results are comparable, samples will be analyzed using standard EPA methods and protocols, as described in Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods (EPA 1986). Data will also be reviewed to verify that precision and accuracy criteria have been achieved and, if not, that data have been appropriately qualified.

The Hart Crowser field representative will collect samples in a consistent manner at all sampling locations so that data collected as part of this study are comparable. Comparability is attained by careful adherence to standardized sampling and analytical procedures, based on rigorous documentation of sample locations (including depth, time, and date).

6.1.5 Completeness

Completeness is the percentage of measurements made that are judged to be valid. Completeness will be calculated separately for each analytical group (e.g., Nitrate-nitrogen). For results to be considered complete, quality control check analyses required to verify precision and accuracy must have been performed. Data qualified as estimated during the validation process will be considered complete. Results that are rejected during the validation review or samples for which no analytical results were obtained will be considered non-valid measurements. Completeness will be calculated for each analysis using the following equation:

$$\text{Completeness} = \frac{\text{valid data points obtained}}{\text{total data points planned}} \times 100$$

The target goal for completeness is a minimum of 95 percent. Completeness will be monitored on an on-going basis so that archived sample extracts can be reanalyzed, if required, without remobilization.

6.2 Data Quality Assurance Review

Hart Crowser will independently review the quality of the chemical analytical results provided by the laboratory. The data quality report will assess the adequacy of the reported detection limits in achieving the project MTCA screening level for soil and groundwater; the precision, accuracy, representativeness, and completeness of the data; and the usability of the analytical data for project objectives. Exceedances of analytical control limits will be summarized and evaluated.

Hart Crowser will conduct a data evaluation review on analytical results using quality control summary sheet results provided by the laboratory for each report. Data evaluation reviews are based on the quality control requirements previously described and follow the format of the EPA National Functional Guidelines for Organic Superfund Methods Data Review (EPA 2017), modified to include specific criteria of individual analytical methods. The laboratory will be contacted to obtain raw data (instrument tuning, calibrations, instrument printouts, bench sheets, and laboratory worksheets) if any problems or discrepancies are discovered during the routine evaluation. The results of the quality assurance review will be presented in an appendix to the Site Characterization Report.

The data evaluation review will verify:

- That sample numbers and analyses match the chain of custody request;
- Sample preservation and holding times;
- That laboratory blanks were analyzed at the proper frequency and that no analytes were present in the blanks;
- That laboratory duplicates, matrix spikes, surrogate compounds, and laboratory control samples were run at the proper frequency and that control limits were met; and
- That required detection limits were achieved, unless raised due to high analyte concentrations in the sample or matrix effects.

Data qualifier flags, beyond any applied by the laboratory, will be added to sample results that fall outside the quality control acceptance criteria. Typical data qualifiers are:

U The compound was analyzed for but was not detected above the reporting limit. The associated numerical value is the sample reporting limit.

J The associated numerical value is an estimated quantity because quality control criteria were slightly exceeded.

UJ The compound was analyzed for, but not detected. The associated numerical value is an estimated reporting limit because quality control criteria were not met.

T The associated numerical value is an estimated quantity because reported concentrations were less than the practical quantitation limit (lowest calibration standard).

R Data are not usable because of significant exceedance of quality control criteria. The analyte may or may not be present; resampling and/or reanalysis is necessary for verification.

7.0 REPORTING

It is assumed the data gap assessment and groundwater monitoring will occur during separate events. Therefore, we will prepare separate reports for each event.

7.1 Data Gap Report

After receiving the analytical results for each event, we will review the laboratory reports and validate the data. We will summarize the analytical data in tables and compare the results against previously collected analytical data from the off-site downgradient assessment, subject property, and Moxee City Shop property, as appropriate. We will document completed field activities, collected assessment data, and any data analysis in a data gap assessment report. The data gap assessment report will include: tables summarizing the laboratory data and water quality parameters, boring logs of geology encountered, figures depicting the assessed locations, and recommendations for next steps.

7.2 Groundwater Monitoring Report

The groundwater monitoring report will include tables summarizing the laboratory data and water quality parameters and a figure depicting the interpreted groundwater contours and flow direction. Draft copies of the reports will be provided for review and comments. After receiving comments from Simplot, we will incorporate agreed-upon edits and comments into the report and a final copy will be produced for Simplot. If requested, final copies of the report will be provided directly to Ecology.

8.0 REFERENCES

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HARTCROWSER
A division of Haley & Aldrich

SIMPLOT MOXEE DATA GAP ASSESSMENT
7528 POSTMA ROAD
MOXEE, WASHINGTON

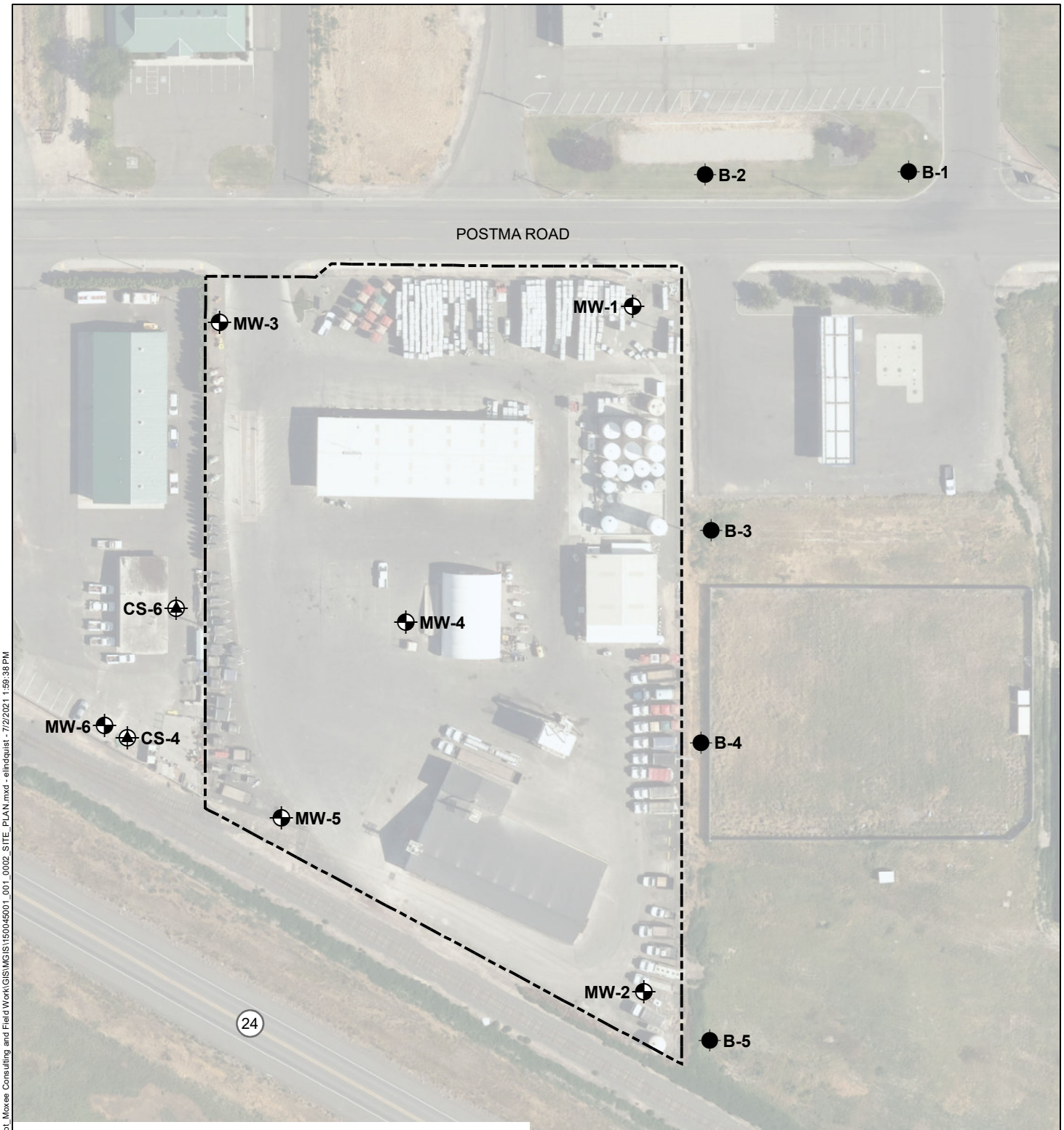
VICINITY MAP

MAP SOURCE: ESRI
SITE COORDINATES: 46°33'42.564"N, 120°23'59.854"W

APPROXIMATE SCALE: 1 IN = 2000 FT
JULY 2021

FIGURE 1

GIS: \\haleyaldrich.com\share\pdx_data\Notebooks\150045001_Simplot_Moxee Consulting and Field Work\GIS\MGIS\150045001_001_0001_VICINITY_MAP.mxd - elindquist - 7/2/2021 12:47:31 AM



LEGEND

- PROPOSED SOIL BORING
- EXISTING MONITORING WELL
- EXISTING CITY WELL
- PROPERTY BOUNDARY

N

0 50 100
SCALE IN FEET

AERIAL SOURCE: ESRI, 2021.

HARTCROWSER
A division of Haley & Aldrich

SIMPLOT MOXEE DATA GAP ASSESSMENT
7528 POSTMA ROAD
MOXEE, WASHINGTON

SITE AND EXPLORATION PLAN

JULY 2021

FIGURE 2

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APPENDIX A
Health and Safety Plan

Health and Safety Plan

Simplot Grower Solutions Data Gap Assessment and Groundwater Monitoring

7528 Postma Road
Moxee, Washington
Date Prepared: July 21, 2021

EMERGENCY INFORMATION

SITE LOCATION	Simplot Grower Solutions (SGS) 7528 Postma Road Moxee, Washington
NEAREST HOSPITALS	Yakima Valley Memorial 2811 Tieton Drive Yakima, WA (509) 575-8000 The route to the hospital is shown on Figure 1.
CONTACTS	**Hart Crowser** Spokane Office……(509) 960-7422 ►Project Manager, John Haney……(509)768-5861 (C) ► Regional Health & Safety Officer, Jessica Blanchette..(360) 720-1279 (C) **J.R. Simplot Company** ►Project Manager, Molly Dimick..... (208) 220-6597 (C) **Washington State Department of Ecology Central Regional Office** **To report environmental problems or spills**……..(509)575-2490 Poison Control Center ……(800) 222-1222
EMERGENCY RESPONDERS **Police, Fire, Ambulance**	**911**
IN EVENT OF EMERGENCY CONTACT 911 FOR HELP AS SOON AS POSSIBLE	Give the following information: ➔ **Where You Are** - address, cross streets, or landmarks ☎ **Phone Number** you are calling from ?? **What Happened** - type of injury, accident # **How many persons** need help ?? **What is being done** for the victim(s) !! **You hang up last** – let emergency dispatcher hang up first

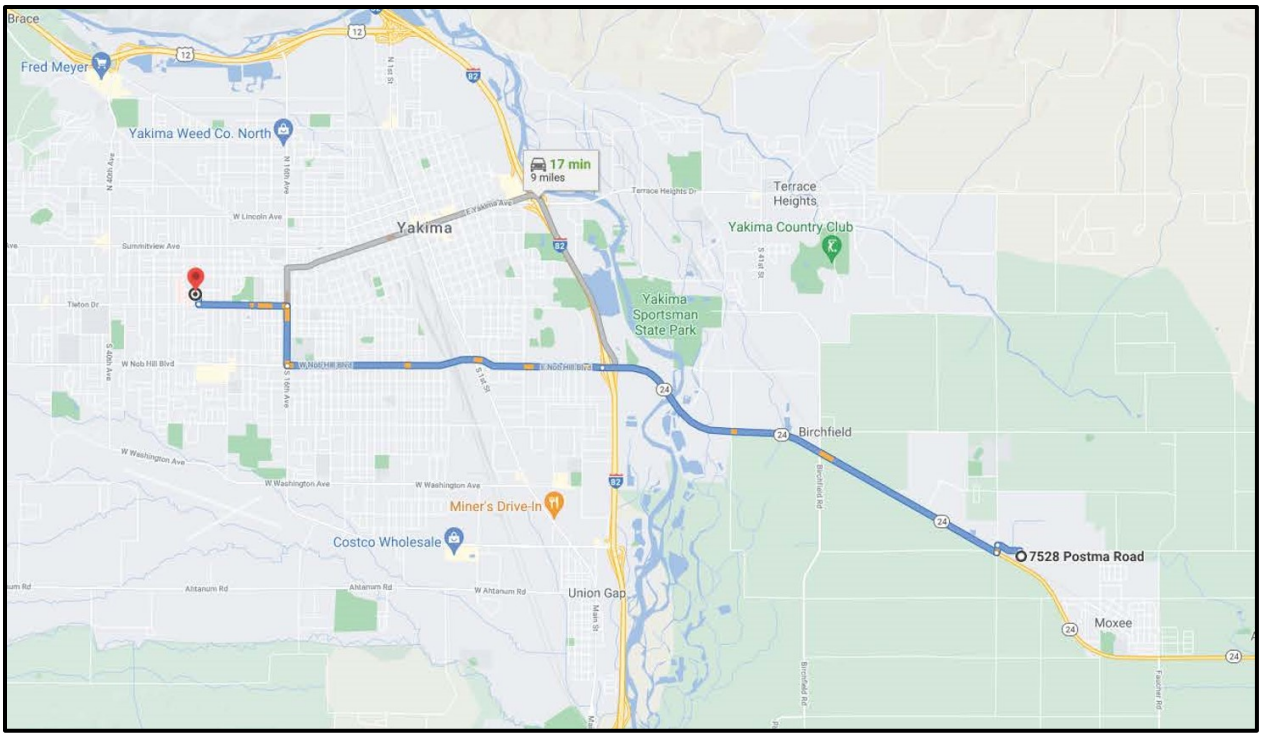

Figure 1 - Route to Hospital Map

Take Postma Rd to WA-24 W

1 min (0.3 mi)

1. Head south toward Postma Rd

0.0 mi

2. Turn right onto Postma Rd

0.2 mi

3. Turn left onto Beaudry Rd

351 ft

Follow WA-24 W and E Nob Hill Blvd to W Tieton Dr in Yakima

14 min (7.0 mi)

4. Turn right at the 1st cross street onto WA-24 W

3.8 mi

5. Continue onto E Nob Hill Blvd

2.7 mi

6. Turn right onto S 16th Ave

0.5 mi

Continue on W Tieton Dr to your destination

2 min (0.8 mi)

SITE HEALTH AND SAFETY PLAN SUMMARY

Location: Simplot Grower Solutions (SGS) site 7528 Postma Road, Moxee, Washington.

Proposed dates of activities: Between July and December 2021.

Type of facility: Retail outlet for crop nutrition and crop protection products.

Land use of area surrounding facility: Agricultural, residential, and highways.

Potential site contaminants: Nitrates and sulfates during sampling, various agricultural chemicals stored, blended, and sold on-site.

Routes of entry: Skin contact with soil and groundwater; incidental inhalation and ingestion of soil and/or groundwater.

Other specific safety hazards: Driving to and from the site; heat/cold stress; working around drill rigs; heavy lifting; noise; biological hazards; and slips, trips, and falls.

Protective measures: Safety glasses or goggles (if splash hazard exists), Class II high visibility safety vest, heavy work gloves, nitrile gloves, weather appropriate clothing, hearing protection, foot protection (e.g., steel-toed boots or shoes), and head protection (hard hat). A half-facepiece respirator will be available if air monitoring indicates levels warranting respiratory protection.

Air monitoring equipment: Dust will be monitored visually and engineering controls (wetting soil) will be implemented as necessary.

1.0 INTRODUCTION

The SGS property is approximately 3.74 acres and is bounded on the north by Postma Road, and on the south by BNSF rail lines and Highway 24. According to the Yakima County Assessor, the first structure constructed on the property was in 1950 and additional structures were added in the 1980's and 2000's. The facility also has an aboveground storage tank (AST) farm containing about 16 ASTs that are used to store retail products.

1.1 Purpose and Regulatory Compliance

This site-specific Health and Safety Plan (HASP) provides information and procedures for protecting Hart Crowser personnel who handle or contact hazardous substances or may be exposed to physical hazards while logging geotechnical borings and collecting samples at the SGS site located in Moxee, Washington. The HASP is to be used by Hart Crowser personnel and is written for the specific site conditions, purposes, dates, and personnel specified herein; it will be amended if conditions change.

This HASP is to be used in conjunction with Hart Crowser's Corporate Accident Prevention Program (APP), located on the Hart Crowser Intranet. Together the APP and this HASP constitute the health and safety plan for this site.

A field copy of this HASP is to be used by Hart Crowser personnel and must be available on site throughout the duration of the project. If site conditions, field activities, personnel, dates, or other conditions change over time, this HASP will be updated to address these changes as they occur. Hart Crowser personnel may make minor changes to the field copy by hand in ink (with date and initials). The signed HASP will be retained with the project files when the project is completed.

1.2 Distribution and Approval

This HASP will be made available to all Hart Crowser personnel working at the SGS site. Hart Crowser workers will read, sign, and return the form titled "Record of Health and Safety Communication" provided in Appendix A of this HASP to certify their agreement to comply with the minimum requirements of this HASP. The Hart Crowser project manager will route the signed Appendix A form to the project files upon completion of field activities covered under the HASP.

This HASP will be provided to subcontractors for informational purposes only. Subcontractors will sign the form titled "Record of Health and Safety Communication" and will be told clearly by the Field Health and Safety Manager that that this HASP represents minimum safety procedures for Hart Crowser workers and that subcontractors are responsible for their own safety while on the site. Nothing herein will be construed as granting rights to Hart Crowser subcontractors or any others working on this site to use or legally rely on this HASP.

This HASP has been approved by the Hart Crowser Regional Health and Safety Director.

1.3 Chain of Command

The Hart Crowser chain of command for health and safety on this project includes the following individuals:

Regional Health and Safety Director: Jessica Blanchette

The Hart Crowser Regional Health and Safety Director has overall responsibility for preparation and modification of this HASP. If health and safety issues arise during site operations, the director will attempt to resolve them with the appropriate members of the project team.

Project Manager: John Haney

The Project Manager has overall responsibility for the successful outcome of the project. In consultation with the regional health and safety director, the project manager makes final decisions about implementing this site-specific HASP. The project manager may delegate this responsibility and the accompanying authority to another project worker as needed.

Project Health and Safety Manager: John Haney

The Project Health and Safety Manager has overall responsibility for health and safety on this project and will verify compliance with applicable requirements. This individual will communicate all relevant health and safety issues to Hart Crowser's workers.

Field Health and Safety Manager: TBD

The Field Health and Safety Manager is responsible for implementing this HASP in the field and for maintaining it at the project site. This individual conducts safety briefings, observes workers to verify that they are following HASP procedures, and assures that proper personal protective equipment (PPE) is available and used correctly and that employees have knowledge of the local emergency response system. The field health and safety manager will see that the field HASP is updated as needed to address changes in field conditions or procedures.

1.4 Work Activities

Hart Crowser's work covered under this HASP includes logging direct push borings, collecting soil and groundwater samples from five borings to the east and northeast of the SGS site, and collecting groundwater samples from eight monitoring wells at the SGS Site and the Moxee City Shop Facility. Work will be conducted in accordance with the Data Gap Assessment and Groundwater Monitoring Work Plan, dated July 2021.

The borings and sampling will be completed on two separate days between July and December 2021.

1.5 Site Description

The SGS site is an approximately 3.74-acre site occupied by warehouse and storage buildings and parking. The Site is used for retail outlet for crop nutrition and crop protection products. Based on soil and groundwater sampling conducted between 2015 and 2019, elevated concentrations of nitrates were

present in soil beneath the subject property and that nitrates, sulfates, and/or total dissolved solids (TDS) in groundwater exceed Maximum Contaminant Levels (MCLs).

2.0 HAZARD EVALUATION AND CONTROL MEASURES

Previous assessment activities conducted at the subject property and hydraulically downgradient locations identified elevated nitrates and sulfates in groundwater. Similar conditions should be anticipated during drilling and groundwater monitoring.

The subject property is a retail agriculture outlet and various agricultural chemicals are stored and blended on-site; however, types, volumes, and locations differ depending on daily operations. Some products are stored in a secondarily contained tank farm near the northeast corner of the property, in 250-300-gallon totes, and/or smaller containers. Staff will not be working in the tank farm or near stored chemicals; however, they should be aware that they are present on site.

2.1 Hazardous Substances

Based on review of previous assessment data, potential substances of concern during assessment activities include nitrates and sulfates. Other substances are present at the subject property that could pose a hazard, Hart Crowser should check in with SGS site manager upon arrival to review potential chemical hazards in our planned work areas and review applicable Safety Data Sheets (SDS).

The potential health hazards of these hazardous substances associated with assessment activities are discussed in individual fact sheets provided in Attachment A to this HASP. The fact sheets describe effects that might occur if acute (short-term) and/or chronic (occurring over a long period – more than 1 year) exposures were to happen. Inclusion of this information does not mean that these effects will occur during the work activities conducted by Hart Crowser.

In general, the hazardous substances that may be encountered during logging environmental borings and collecting soil samples at the SGS site are not expected to be present at concentrations or in a form that could produce significant adverse health effects. The types of work activities to be conducted and the use of personal protective equipment (PPE) will limit potential exposure.

2.2 Potential Exposure Routes

Exposure to the hazardous substances listed above could occur by accidental inhalation of, direct contact with, or ingestion of potentially contaminated soil and groundwater. To prevent contact with potential contaminants, the Hart Crowser sampling team will wear the personal protective equipment (PPE) specified in Section 3.0 while sampling and while decontaminating equipment.

Inhalation

Workers could be exposed by inhaling dust when soil is moved or through volatilization of chemicals from soil. Dust will be monitored visually, and dust-control measures such as soil wetting will be implemented as needed.

Direct Contact

Workers could be exposed if contaminated soil, dust, or groundwater contacts the skin, eyes, or clothing. Wearing protective clothing and safety glasses and performing decontamination activities specified in this plan will minimize the potential for skin and eye contact with hazardous substances.

Ingestion

Workers could be exposed if they eat, drink, or perform other hand-to-mouth activities while logging soil borings or collecting soil samples. Personal hygiene measures will be implemented to prevent inadvertent ingestion of contaminants; for example, workers will remove their gloves and wash their hands and faces before eating, drinking, or using tobacco.

2.3 Air Monitoring

Dust will be monitored visually and engineering controls (wetting soil) will be implemented as necessary.

2.4 Physical Hazards

Potential physical hazards associated with the project include operating motor vehicles, performing heavy lifting, working around drill rigs, noise, suffering from heat/cold stress, biological hazards (insects, blood-borne pathogens [BBPs]), or slips, trips, and falls.

Operating Vehicles

Hart Crowser personnel who operate vehicles are legally licensed to do so, will wear seat belts at all times when driving, and will obey rules of the road while engaged in company business.

Hart Crowser employees will comply with federal, state, and local regulations on use of cellular devices while driving. Cellular devices may not be used during vehicle operation. Under no circumstances is text messaging or any use of a keyboard allowed while operating a vehicle.

Hart Crowser employees should be aware of SGS site traffic, including forklifts, tractor trailers, standard highway vehicles, and farm equipment. Hart Crowser staff will observe safe distances from vehicles and be aware of vehicle movements and alarms while working on the project. Typical street traffic will be present during off-site assessment, Hart Crowser staff should delineate work areas with traffic cones, set up work vehicles during drilling to provide a barrier to traffic, and be aware of moving vehicles.

Heavy Lifting

Field work on this project will require some amount of heavy lifting, for instance, carrying coolers containing samples. Overexertion injuries to the back, shoulders, elbows, hands, or wrists can occur when a load is lifted or otherwise handled. Hands and wrists can be injured from grasping during lifting. Muscles in the forearm that are used for grasping attach to the elbow, so this joint can be injured when lifting. The shoulder can be injured by lifting any load and is especially at risk of injury from lifts done while reaching above the shoulder or away from the body. Frequent lifting and awkward lifting (i.e., above the shoulders, below the knees, at arms' length) can also result in injuries.

The best procedures for lifting vary depending on conditions and the size and shape of the object being lifted. A general rule for avoiding injuries is to assess the object and surrounding area before lifting, and never attempt to lift an object that is poorly packaged or too heavy. Before lifting, workers should make sure their path is dry and clear of obstacles that could cause a fall.

To lift heavy objects:

- Take a deep breath and relax your muscles.
- Approach the object, and in a slow, controlled movement, bend your knees (keeping your back straight) until you are squatting.
- Grip the object securely with both hands and, when ready, push up and extend your knees until reaching a standing position, with the object at chest level. Do not lift above your shoulders or below your knees.
- Do not twist your back or bend sideways.
- Walk slowly to the destination and put down the heavy object using the same slow, controlled movements, keeping your back relatively straight and bending your knees.
- Do not lift or lower with arms extended.
- Take a break between lifting each object if necessary.
- Never attempt to move any object that seems too heavy to manage alone. Get help from a co-worker as needed.

Workers who need to lift objects should be in good physical shape. Workers not accustomed to lifting or vigorous exercise should not be assigned difficult lifting or lowering tasks.

Heat-Related Illnesses

Weather conditions during the sampling event are expected to be in the high 70s to 100°F, clear, and sunny. At a minimum, personnel wearing non-breathable clothing (e.g. PPE like chemical-resistant suits) at temperatures greater than 70°F should take a break every one to two hours and drink plenty of fluids. An average of one quart of fluids per hour is recommended. When temperatures are over 70°F, water will be available at the site in a sufficient quantity for each worker to drink one quart per hour. A cool or shaded rest area should be used for breaks.

The body normally cools itself by sweating. People suffer heat-related illness when the body's temperature control system is overloaded. Several factors affect the body's ability to cool itself during extremely hot weather. For instance, sweat will not evaporate as quickly when humidity is high, and clothing type and amount can affect cooling. Impermeable clothing reduces the body's ability to cool with evaporating perspiration and may lead to heat stress. Outdoor work conducted in hot weather and direct sun also increases the risk of heat-related illness in exposed workers.

Heat related illnesses and their symptoms and first-aid measures are:

- ***Heat Rash***. Raised red vesicles on affected areas and decreased ability to tolerate heat; exacerbated by clothes that chafe. Maintain good personal hygiene and use drying powders or lotions.

- ***Heat Cramps***. Muscle spasms and pain in the extremities and abdomen. Rest in a cool area and drink plenty of fluids. If pain persists, seek medical attention.

- ***Heat Exhaustion***. Pale, cool, moist, clammy skin; profuse sweating; shallow breathing; dizziness; lassitude; and fainting. Rest in a cool area and drink plenty of fluids. Get medical attention before returning to work.

- ***Heat Stroke***: Red, hot, dry skin; no perspiration; nausea; dizziness; confusion; strong rapid pulse; and coma. Cool victim immediately with cool or cold water. **Seek immediate medical attention.**

Cold Stress

Weather conditions at the Site during the winter are expected to average 30°F to 40°F during the winter months with temperatures potentially dropping lower. Workers who are exposed to extreme cold or work outdoors in cold and wet environments may be at risk of cold stress, which can result when the core body temperature gets too low. The most common consequences of cold stress are hypothermia, frost bite, and trench foot; the latter two are not normally risks on Hart Crowser projects. Factors in cold stress include wetness, wind chill, tiredness, improper clothing, health conditions, and poor physical conditioning.

Near-freezing temperatures is a factor in cold stress. Project workers will dress appropriately for the weather conditions and pay attention to the signs and symptoms of hypothermia. When temperatures drop below normal and wind speed increases, heat can leave the body more rapidly. These weather-related conditions may lead to serious health problems.

Hypothermia

Causes. Hypothermia can result when the body loses heat faster than it can replace it, and temperature drops below 95°F. Wind chill and wetness can play a significant role in lowering core body temperature. It is important to understand that hypothermia can occur even when temperatures are not extremely cold, especially when water, wind, and/or pre-existing health conditions are involved.

Signs. Warning signs of hypothermia include shivering (only initially), confusion, loss of coordination, slurred speech, fumbling, inability to decide, disorientation, apathy, drowsiness, inability to stand or walk, dilated pupils, slowed pulse and breathing, and loss of consciousness. Confusion is a key symptom. With medium or advanced hypothermia, shivering is absent, and the person may not realize they have hypothermia. They may also be unwilling to call attention to themselves or seek help.

Treatment. Hypothermia victims should be immediately but not too rapidly re-warmed.

Rewarming involves:

- Moving the victim into a sheltered area.
- Removing any wet clothing.
- Wrapping the victim loosely with blankets or sleeping bag.
- Applying heat packs or warm containers to armpits, groin, head, neck, and chest.
- If core body temperature falls below 90°F and heated shelter is not available, using skin-to-skin contact with another individual.
- Providing warm beverages if the person is conscious.
- Getting medical help as soon as possible.

Rescue breaths and CPR for victims who are not breathing or who don't have a pulse are not covered in this HASP.

Noise

Heavy equipment may produce noise levels that exceed 85 decibels A scale (dBA) for personnel working in or around the job site. At this level or above, hearing protection must be worn. A general guideline is if people 3 to 4 feet apart cannot converse without raising voices, the noise levels are too high and hearing protection should be worn. Earmuffs or ear plugs with a noise reduction rating (NRR) of 29 or higher (the highest NRR is 33) will be used when noise levels are too high as determined by the above guideline or by sound level measurements.

Working Around Drill Rigs

A drill rig will be used at the job site. To work safely around heavy equipment, Hart Crowser on-foot workers will:

- Wear Class II high visibility vests;
- Stay out of the equipment's swing radius;
- Never position themselves in front of or behind a moving piece of equipment, or between two moving pieces of equipment;
- Maintain eye contact with the operator (never assume the operators sees an on-foot worker);

- Be aware of the back-up alarm signal associated with the equipment; use caution if wearing hearing protection; and

- Not operate heavy equipment unless the worker has the appropriate training and/or licenses.

Heavy equipment is typically powered by diesel engines which emit diesel exhaust, a mixture of gases and particulates. Short-term exposure to diesel exhaust can irritate the eyes, nose, and throat; and cause headaches and nausea. If workers experience short-term effects, they will move away from the diesel exhaust and notify the Project Health and Safety Manager or the Regional Health and Safety Director. Exposure to diesel exhaust fumes may lead to other health problems such as lung diseases, heart diseases, asthma, lung damage and immune system problems. These problems typically occur in people with high rates of exposure and long-term exposure (e.g., heavy equipment operators, truck drivers). Existing asthma may be exacerbated by diesel exhaust.

Biological Hazards

Biological hazards include vector-borne diseases, insects, rodents and other wild or stray animals, snakes, and poisonous plants. Vector-borne diseases may be spread to workers by insects such as mosquitoes and ticks. When a mosquito or tick bites a worker, it may transfer a disease-causing agent, such as a parasite, bacteria, or virus. Examples of mosquito-borne diseases are West Nile virus and encephalitis. Lyme disease and Rocky Mountain spotted fever are tick-borne diseases. People are exposed to biological hazards through contact with insects, soil, water, bird or bat droppings, rodent droppings, or poisonous plants.

Blood-Borne Pathogens

Workers responding to a first-aid incident could be exposed to blood-borne pathogens (BBPs), which are infectious microorganisms in blood and other body fluids that can cause disease in humans. Examples of these pathogens include hepatitis B virus, hepatitis C virus, and HIV. Workers exposed to BBPs are at risk for serious or life-threatening illnesses.

Universal precautions will be followed if BBP exposure is a concern. Universal precautions involve treating all human blood and other potentially infectious materials as a BBP and protecting oneself from exposure. The easiest way to protect oneself from blood and body fluids is to have the injured person treat their own wound if they are conscious and capable of doing so. If injured people are unable to take care of themselves, or they need help, workers should use disposable gloves and eye protection if there is a splash hazard.

If disposable gloves are not available, a plastic bag (trash, shopping, or sandwich) can be used to create a barrier. If performing CPR, always use a pocket mask equipped with a one-way valve. After removing PPE, wash hands or other affected body parts. Place PPE in a plastic bag, seal the bag, and contact the regional health and safety director for further instructions.

If you are exposed to BBPs or other potentially infectious materials (i.e. BBPs contact your eyes, mouth, nose, open wounds/sores, abrasions, sunburned areas, or acne), follow these steps:

- Flush the area of the body that was exposed with warm water, and then wash with soap and water. Vigorously scrub all areas. It is the abrasive action of scrubbing that removes the contamination from the skin.
- If you have an open cut, squeeze it gently to make it bleed, then wash with soap and water.
- Notify your project manager or the regional health and safety director to document the incident. Identify the source of the exposure.
- Get medical counseling (i.e., get tested for BBPs, get vaccinated if needed).

Slips, Trips, and Falls

Hart Crowser workers will be careful to prevent slips on wet walking surfaces and will look for and avoid tripping hazards such as loose rock or debris. Wear steel-toed safety boots with slip-resistant soles.

Be aware of your surroundings. Keep pathways and work areas free of debris and supplies to prevent unsafe walking and working conditions. Changes in elevation such as ruts or holes present a trip hazard and should be marked if possible. Avoid leaving tools on the ground.

Plan what you would do if you start to slip or fall. During a fall, do not try to catch yourself; try to avoid landing on your hands, elbows, or knees. Landing on the side of your body is much safer. If you are walking on a slope and know you are going to slide, lower your center of gravity by sitting down and sliding on your feet and/or bottom. If sliding while standing up, keep your weight over your feet and bend your knees; do not lean backward or forward.

Hazards requiring fall protection are not expected at this site. A written Fall Protection Work Plan is required where fall hazards of 10 feet or more exist. Fall prevention or fall protection measures is required for any walking surface of 4 feet or higher, and when working within the affected area (the distance away from the edge of an excavation equal to the depth of the excavation up to a maximum distance of fifteen feet) of any excavation more than 10 feet deep. If there is a fall hazard of 4 feet or more on a hazardous slope (i.e., a slope where normal footing cannot be maintained without the use of devices because of the pitch of the surface, weather conditions, or surface material), a personal fall restraint system or positioning device system is required. Work will not be performed on slopes steeper than 75 percent or near vertical dropoffs without fall protection equipment.

2.5 Hazard Analysis and Applicable Safety Procedures by Task

Table 2 lists the tasks and associated hazards that may be anticipated during the work activities described in this HASP and associated control measures.

Table 2 – Hazard Analysis by Task

Work Task	Potential Hazards	Protective Measures
Observing and logging soil borings	Working around heavy equipment; slips, trips and falls; heavy lifting; noise; and skin contact with contaminated media.	Level D or Level C PPE (see Section 3.0), hard hat, high-visibility safety vest or jacket, caution around moving equipment and traffic, safe lifting practices, and hearing protection.
Collecting soil samples	Skin contact with contaminated media; incidental ingestion/inhalation, working near heavy equipment; slips, trips and falls; inhalation of volatiles; and heavy lifting.	Level D or Level C PPE (see Section 3.0), caution around moving equipment and traffic, hearing protection, safe lifting practices, and air monitoring (as needed).

3.0 PERSONAL PROTECTIVE EQUIPMENT

When fieldwork is performed in contaminated areas, the primary objective is to minimize worker exposure using engineering controls such as ventilating, working up-wind or away from contaminated materials, or wetting soil to reduce dust. If engineering controls are not feasible or may not provide adequate control, and before they are fully implemented, workers will wear specified personal protective equipment (PPE) to minimize potential exposure to hazardous substances.

Contact with hazardous substances at harmful levels is not expected for this project; therefore, PPE is based on the lowest Occupational Safety and Health Administration (OSHA) requirements, Level D or Level C. Conditions requiring Level A or B protection are not anticipated for this project. If they do occur, work will stop, and the HASP will be amended as required before work is resumed.

Table 3 summarizes the minimum PPE requirements for Hart Crowser workers based on the potential routes of exposure and the potential hazardous substances.

Table 3 – Specific Personal Protection Level Requirements for this Site

Potential Route of Contact: Type of Contaminant	Required Protection Level	Safety Glasses	Hard Hat	Steel-toed Safety Boots or shoes	Tyvek	Poly Tyvek	Nitrile Gloves	Respirator	
								Half-Face piece	Full-Face piece
None anticipated	Level D (a)	X	b	X					
Minor skin contact possible	Level D (a)	X	b	X			X		
Skin contamination possible: nutrients	Level C (c)	X	b	X			X		
Inhalation possible: nutrients	Level C (c)	X	b	X			X	d, e	f

Notes:

a. Level D protection required when atmosphere contains no known hazard and work functions preclude splashes, immersion, or the potential for unexpected inhalation of or contact with hazardous levels of any chemicals.

b. Hard hat required where risk of striking overhead objects exists.

c. Level C protection required when atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect any exposed skin; this assumes that the types of air contaminants have been identified, concentrations have been measured or modeled/estimated, an appropriate respirator cartridge is available, and all air-purifying respirator criteria are met.

d. Appropriate respirator cartridges include HEPA (and others as required for the particular contaminants.

e. Half-facepiece respirator required when visible dust cannot be controlled.

f. Full-facepiece respirators will not be used unless field representative has been properly fit-tested for a full-facepiece respirator.

g. Tyvek or protective clothing should be worn if body contact with impacted materials is likely.

3.1 Level D Activities

Level D protection will be used when the atmosphere contains no known hazards and Hart Crowser workers will not perform activities where skin contact with free-phase product or contaminated materials is likely to occur. These workers will wear weather appropriate work clothes, eye protection (safety glasses or goggles), hand protection (nitrile or latex gloves or neoprene-coated work gloves), and foot protection (steel-toed boots or shoes).

3.2 Modified Level D Activities

Modified Level D protection will be used when the atmosphere contains no known hazards and there is a potential that Hart Crowser workers may have skin contact with hazardous substances. These workers will wear weather appropriate work clothes, eye protection (safety glasses or goggles), hand protection (nitrile or latex gloves or neoprene-coated work gloves), and foot protection (steel-toed, boots or shoes), and will supplement this equipment with chemical resistant outer clothing (e.g. Tyvek or rain gear) and chemical resistant gloves. Workers will make sure the protective clothing and gloves are suitable for the types of chemicals that may be encountered on site.

3.3 Level C Activities

Workers performing site activities where skin contact with free product or contaminated materials is likely will wear chemical-resistant gloves (nitrile, neoprene, or other appropriate outer gloves, and surgical inner gloves) and polyethylene-coated Tyvek® or other chemical-resistant suits or rain gear. Workers will make sure the protective clothing and gloves are suitable for the types of chemicals that may be encountered on site. Workers will use face shields or goggles as necessary to avoid splashes in the eyes or face.

When performing activities in which inhalation of chemical vapors and dusts is a concern, workers will wear half-facepiece or full-facepiece air-purifying respirators as specified in Table 3. If respirators are used, cartridges should be changed on a daily basis, at minimum. They should be changed more frequently if chemical vapors are detected inside the respirator or other symptoms of breakthrough are noted (respiratory irritation, dizziness, or breathing difficulty).

4.0 SAFETY SUPPLIES AND EQUIPMENT LIST

The following safety supplies and equipment must be available on site:

- Fire extinguisher – 3 to 4-pound ABC,
- First aid kit in a sturdy weatherproof carrying case,
- Bottled sterile hand-held eyewash solution,
- Mobile telephone,
- Class II high visibility safety vest or jacket,
- Goretex (or similar) rainsuit,
- Head protection – hard hat,
- Hearing protection,
- Half-facepiece respirator with cartridges (as needed),
- Foot protection – steel-toed boots or shoes with slip-resistant soles,
- Hand protection – nitrile outer gloves/nitrile inner gloves or neoprene-coated work gloves, and
- Eye protection – safety glasses or safety goggles if a splash hazard is present.

All non-disposable safety gear and PPE must be cleaned after use and stored securely to avoid damage. Avoid storing gear in direct sunlight or exposed to weather conditions. Safety equipment and PPE should be checked before use and damaged or worn-out gear should be disposed of and replaced.

5.0 SITE CONTROL

Field work for this project consists primarily of low-impact sampling activities that will not result in the migration of contaminants or increased exposure to human health or the environment. Therefore, formal exclusion zones, contaminant reduction zones, and support zones are not necessary for this field work.

Although a formal contaminant reduction zone is not necessary, project workers will use precautions during sampling activities. The amount of equipment and number of personnel allowed in sampling areas will be minimized and the amount of samples collected should not exceed what is needed for laboratory analysis.

6.0 DECONTAMINATION

Decontamination for this project is limited to decontaminating sampling equipment.

Hart Crowser workers will practice good hygiene by washing their hands and faces prior to taking rest breaks, drinking liquids, and so forth. They will also wash their hands and faces fully before eating, using tobacco, or as soon as possible upon leaving a work area.

7.0 SITE SECURITY

Security will be the responsibility of the field health and safety manager. Any security problems will be reported to the appropriate authorities and to the client.

8.0 SPILL CONTAINMENT

Sources of bulk chemical subject to spillage are not expected for this project. Accordingly, a spill containment plan is not required for this project.

9.0 EMERGENCY RESPONSE PLAN

This Emergency Response Plan outlines the steps necessary for appropriate response to emergency situations that could reasonably occur during Hart Crowser's work at the SGS site. The following paragraphs summarize the key emergency responses for this project.

9.1 Plan Content and Review

The principal hazards addressed by this plan are fire, medical emergencies, and situations such as inadequate PPE for the hazards present. However, to help anticipate other potential emergency situations, field personnel will exercise caution and look for signs of potentially hazardous situations, including:

- General physical hazards (slippery or uneven surfaces, inclement weather, traffic);
- Underground pipelines or cables; and
- Live electrical wires or equipment.

These and other potential conditions should be anticipated and steps should be taken to prevent problems before they occur.

This emergency response plan will be reviewed and rehearsed, as necessary, during the on-site health and safety briefing so all personnel will know what their duties are if an emergency occurs.

9.2 Plan Implementation

The field health and safety manager will evaluate the situation and act as the lead if an emergency occurs. That individual will determine the need to implement the emergency response, in concert with other resource personnel including client representatives, the project manager, and the regional health and safety director. Other on-site field personnel will assist the field health and safety manager as needed during an emergency.

If the plan is implemented, the field health and safety manager or designee is responsible for alerting all personnel at the affected area by use of a signal device (such as a hand-held air horn) or visual or shouted instructions, as appropriate.

The field health and safety manager will identify a safe assembly area for workers to gather if it is necessary to evacuate the area and will communicate this location to workers during the on-site health and safety briefing. The “buddy” system will be employed during evacuation to facilitate safe evacuation. The field health and safety manager is responsible for roll call at the assembly area to account for all personnel. If only one Hart Crowser worker will be on-site, a buddy system will be established with other contractors or subcontractors.

9.3 Emergency Response Contacts

Emergency contact information is provided in this HASP (see Page 1). A copy of this HASP will be maintained at the project site. Emergency information includes:

- Emergency telephone numbers,
- Route to nearest hospital (Figure 1), and
- Site description (Section 1.5).

A significant environmental release of contaminants is not likely to occur from work activities subject to this HASP. If it does, the field health and safety manager will contact the project manager or regional health and safety director to make any required notifications.

If an emergency situation occurs requiring implementation of the emergency response plan (fire, serious injury, or inadequate personal protection equipment for the hazards present, for instance), Hart Crowser staff will cease all work immediately, pending approval from the field health and safety manager to restart work. The general emergency actions described below will be followed.

9.4 Fires

Hart Crowser personnel may attempt to control only very small fires. If the fire expands, or an explosion appears likely, Hart Crowser field workers will evacuate the area immediately. If a fire occurs that cannot be controlled with a 3 to 4-pound ABC fire extinguisher, immediate intervention by the local fire department or other appropriate agency is imperative. Use these steps:

- Immediately call **911**,
- Evacuate to a safe area away from the danger to a previously agreed upon upwind location, and
- Inform the project manager or field health and safety manager of the situation.

9.5 Medical Emergencies

Hart Crowser staff will call **911** immediately if a medical emergency (such as a serious injury or an unconscious worker) occurs. If workers are unsure about the severity of an accident or exposure, they will take a conservative approach and seek medical attention. The field health and safety manager will notify the project manager of the outcome of the medical incident as soon as possible.

No Hart Crowser employees are trained to perform rescue duties or medical duties beyond basic CPR and first aid. Hart Crowser employees certified in CPR and first aid may respond to work-related incidents requiring first aid services. First aid will be treatment for such things as minor cuts and bruises as needed. When rendering first aid, Hart Crowser workers will take necessary precautions to avoid exposure to BBPs. Section 2.4, Physical Hazards, provides information on BBPs and precautions for avoiding exposure.

9.6 Uncontrolled Contaminant Release

Work activities for this project do not present the potential for an uncontrolled contaminant release as defined by

- Chapter 296-24, Washington Administrative Code (WAC), General Safety and Health Standards.
- Chapter 296-62, WAC, General Occupational Health Standards.
- Chapter 296-155, WAC, Safety Standards for Construction Work.
- Chapter 296-800, WAC, Core Rules. Core Rules are the basic safety and health rules needed by most employers in Washington State.

Hart Crowser staff are not trained as emergency responders as defined by federal and state regulations; therefore, they are not qualified to respond to hazardous material emergencies.

9.7 Potentially High Chemical Exposure Situations

Work activities for this project do not present the potential for high chemical exposure situations.

10.0 NOTIFICATION AND REPORTING

The project manager will be informed immediately if an emergency, accident, or injury occurs at the project location. The project manager will notify the client immediately. The field health and safety manager will notify the regional health and safety director as soon as possible after the situation has been stabilized. The project manager or regional health and safety director will notify the appropriate client contacts and regulatory agencies, if applicable. If an individual is injured or suffers a work-related illness, the field health and safety manager or designee will complete an injury/accident report and submit it to human resources or the regional health and safety director within 24 hours. A blank report is provided as Appendix C.

The project manager, the field health and safety manager, and the regional health and safety director will evaluate emergency response following the incident. The results of the evaluation will be used in follow-up training exercises to improve the emergency response plan.

11.0 MEDICAL SURVEILLANCE

Hart Crowser employees working on this project participate in a medical surveillance program as described in Section 11 of Hart Crowser's APP.

12.0 SAFETY TRAINING REQUIREMENTS

Hart Crowser employees who work at sites where there is potential for exposure to hazardous substances, health hazards, or safety hazards will have completed 40 hours of hazardous waste operations and emergency response (HAZWOPER) training and 3 days of supervised field experience. In addition, employees will have completed an 8-hour annual refresher training within the past 12 months or will possess equivalent documented training by experience. Site supervisors will have completed 8 hours of HAZWOPER supervisor training. The project manager will ensure that all employees working on this site have completed required HAZWOPER training. The Hart Crowser safety records coordinator maintains employee health and safety training records.

Employees performing some tasks will require additional safety training on performing the task safely (without injury or property damage) and in compliance with safety regulations. Examples of these tasks include entering confined spaces, wearing a respirator, operating equipment or machinery, working at heights, handling or using hazardous substances, and working in excessive outdoor heat. Safety training requirements are specified in Section 7.2 of the Hart Crowser APP. Hart Crowser personnel will complete hazard-specific safety training as needed based on the tasks to be performed.

Before each work day starts, the field health and safety manager will review applicable health and safety issues with Hart Crowser employees. At these briefings the work to be accomplished will be reviewed and there will be an opportunity for questions to be asked. The "Field Health and Safety Report" form (Appendix B) will be completed daily by the Hart Crowser field health and safety manager or designated individual.

13.0 REPORTING, REPORTS, AND DOCUMENTATION

Incidents (accidents, injuries, near-misses) that occur during field work on this project will be reported to the project manager immediately. The project manager will notify the client and the regional health and safety director.

The field health and safety manager is responsible for maintaining records demonstrating that the provisions of this HASP are implemented throughout the course of this project.

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APPENDIX A
Record of Health and Safety Communication

Record of Health and Safety Communication

PROJECT NAME: SGS Data Gap Assessment and Groundwater Monitoring	**PROJECT NUMBER:** 1500450-01
SITE CONTAMINANTS: Sulfates and Nitrates	

PPE REQUIREMENTS (check all that apply):

X	Eye protection	X	Gloves (specify)	Nitrile or neoprene-coated work gloves
X	Foot protection	X	Clothing (specify)	Weather appropriate, high visibility safety vest or jacket
X	Head protection	X	Respirator (specify)	Half-facepiece with HEPA cartridge, as needed.
		X	Other (specify)	Hearing protection

The following personnel have reviewed a copy of the site-specific HASP. By signing below, these personnel indicate they have read the plan, including all referenced information, and that they understand the requirements detailed for this project.

PRINTED NAME	SIGNATURE	PROJECT DUTIES	DATE

Project manager: please route a copy of this form to the job files when completed.

APPENDIX B
Field Health & Safety Report

7528 Postma Road Moxee, Washington	
Field Health & Safety Report 1500450-01 July 2021	
HARTCROWSER	Appendix **B**

Job No. _____

Date _____

S M T W Th F S

Arrival time: _____

Departure time: _____

Job _____

Location _____

Client _____

Field representative _____ Project manager _____

Field H&S manager _____ Project H&S manager _____

Names of personnel on site _____

Site activities _____

Potential hazards _____

Hazard control used _____

Protective measures taken _____

Comments or observations _____

Sketch position of equipment relative to exploration (attach separate diagram if needed); indicate monitoring point(s) and prevailing wind direction.

Exploration No. _____

Nitrate/Nitrite - ToxFAQs™

CAS # 14797-55-8 (nitrate), 14797-65-0 (nitrite)

This fact sheet answers the most frequently asked health questions (FAQs) about inorganic nitrate and nitrite. For more information, call the Agency for Toxic Substances and Disease Registry (ATSDR) Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because these substances may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and possible exposure to other chemicals.

HIGHLIGHTS: Exposure to nitrate and nitrite mainly occurs by ingestion of water and foods that contain these chemicals. Excess nitrate and nitrite can cause methemoglobinemia, which decreases the ability of the blood to transport oxygen. Ammonium nitrate, sodium nitrate, sodium nitrite, and potassium nitrite have been identified in 7, 4, 2, and 1, respectively, of the 1,699 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What are nitrate and nitrite?

Plants and animals require nitrogen to live and grow. However, nitrogen gas, which is abundant in the air we breathe, must first be converted to nitrogen compounds that can be used by plants and animals as sources of nitrogen. This process is called nitrogen fixation. Nitrate and nitrite are two of the nitrogen compounds that are used by plants and animals and eventually return to the air as nitrogen gas. Nitrate and nitrite can also be produced in the body.

In nature, plants utilize nitrate as an essential nutrient. In commerce, the majority of nitrate is used in inorganic fertilizers. Nitrate and nitrite are also used in food preservation, some pharmaceutical drugs, and the production of munitions and explosives.

What happens to nitrate and nitrite when they enter the environment?

- Nitrogen exists naturally in soils, typically bound to organic matter and mineral soil material. Available forms of nitrogen, including nitrate and nitrite, are present in soils, water, air, plants, and meat products.
- In nature, nitrate and nitrite can be found in igneous and volcanic rocks.
- Nitrate and nitrite salts completely dissolve in water.
- Bacteria in soil and plants use oxygen to change nitrite into more stable nitrate, which can be converted back to nitrite by other bacteria when oxygen is lacking.
- Animal wastes and nitrogen-containing fertilizers increase concentrations of nitrate in the environment.

How might I be exposed to nitrate and nitrite?

- Nitrate and nitrite are found in diets through vegetables (especially celery, lettuce, and spinach), fruits, cured meats, fish, dairy products, beers, and cereals.
- Some meats and meat products contain sodium nitrate and/or sodium nitrite as preservatives.
- Your body naturally produces some nitrate and nitrite.
- You can be exposed by drinking water from wells containing nitrate from sources such as animal waste and/or fertilizer runoff.
- Release of nitrate and/or nitrite to soil and water at waste disposal sites could result in contamination of drinking water sources and increased uptake by plants you eat.
- Inhaling nitrate or nitrite is not a likely exposure route of concern for the general population, although nitrates are sometimes inhaled to relieve painful angina attacks.

How can nitrate and nitrite affect my health?

Most people are not exposed to levels that would cause adverse health effects.

Some people who ate food or drank fluids that contained unusually high levels of nitrite experienced methemoglobinemia (decreased ability of the blood to carry oxygen to tissues) and related symptoms such as decreases in blood pressure, increased heart rate, headaches, abdominal cramps, and vomiting; some people died.

Nitrate/Nitrite

CAS # 14797-55-8 (nitrate), 14797-65-0 (nitrite)

How likely are nitrate and nitrite to cause cancer?

There is limited evidence that nitrite may cause some cancers of the gastrointestinal tract in humans and mice.

The International Agency for Research on Cancer (IARC) noted that the presence of nitrite and some types of amines or amides in the acid environment of the stomach may result in the production of some cancer-causing N-nitroso compounds; under these conditions, IARC determined that ingested nitrate and nitrite is probably carcinogenic to humans. The EPA has not classified nitrate or nitrite for carcinogenicity.

How can nitrate and nitrite affect children?

Children can experience the same effects as adults from overexposure to nitrate or nitrite.

Young infants (<6 months of age) appeared to be particularly sensitive to the effects of nitrite on hemoglobin after consuming formula prepared with drinking water that contained nitrate at levels higher than recommended limits; some of these infants died.

It is not known whether nitrate or nitrite can cause birth defects. Some studies suggest that ingesting relatively high levels of nitrate or nitrite could cause developmental effects, but other studies found no evidence for this.

How can families reduce the risk of exposure to nitrate and nitrite?

- Consider eating less of those foods that contain high levels of nitrate or nitrite. This consideration is particularly relevant to infants and small children.
- Do not drink water containing levels of nitrate or nitrite higher than guideline levels for drinking water.

Is there a medical test to show whether I've been exposed to nitrate and nitrite?

Methods are available to detect nitrate and nitrite in plasma and urine; however, these are usually not available at a doctor's office and are not clinically useful.

Routine blood tests are available to detect the medical condition, methemoglobinemia. However, these tests cannot tell whether the high methemoglobin levels were caused by nitrate and nitrite or by some other substance or disease.

Has the federal government made recommendations to protect human health?

The EPA has established maximum contaminant level (MCL) and maximum contaminant level goal (MCLG) values of 10 mg/L (as nitrogen) for nitrate (approximately 44 mg nitrate/L), 1 mg/L (as nitrogen) for nitrite (approximately 3.3 mg nitrite/L), and 10 mg/L (as nitrogen) for total nitrate and nitrite.

The Food and Drug Administration allowable levels in bottled water are 10 mg/L (as nitrogen) for nitrate (approximately 44 mg nitrate/L), 1 mg/L (as nitrogen) for nitrite (approximately 3.3 mg nitrite/L), and 10 mg/L (as nitrogen) for total nitrate and nitrite.

The Occupational Safety and Health Administration has not set a legal limit for nitrate or nitrite in workplace air.

The National Institute for Occupational Safety and Health has not set a recommended limit for nitrate or nitrite in workplace air.

Reference

This ToxFAQs™ information is taken from the 2015 Toxicological Profile for Nitrate and Nitrite (Draft for Public Comment) produced by the Agency for Toxic Substances and Disease Registry, U.S. Department of Health and Human Services in Atlanta, GA.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30333-4027.

Phone: 1-800-232-4636.

ToxFAQs™ on the web: www.atsdr.cdc.gov/toxFAQs

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

APPENDIX C
Hart Crowser Incident/Accident Investigation Report

Hart Crowser Incident/Accident Investigation Report*

Hart Crowser Office: _____ Incident/Accident Site Location: _____ Address: _____ State: County:	Project number: _____ Date/time of occurrence: ___AM ___PM
Name(s) of Hart Crowser personnel involved in the incident/accident: Name(s) and Affiliation of any other personnel involved in the incident/accident:	
What happened? Describe cause and nature of incident, injury or illness.	
Was the incident/accident caused by actions of another individual: __Yes __No If yes, provide name, address, phone and details:	
Describe any unsafe action, equipment, conditions that contributed to the incident/accident:	
Was first aid given? **__Yes __No __ Unknown**	Was person referred to medical evaluation/treatment? **___Yes ___No ___ Unknown** If yes, indicate date, where and to whom:
Did the employee(s) receive medical treatment beyond first aid __Yes __No __ Unknown If yes, describe medical treatment given:	
Will lost time be involved? **__Yes __No __N/A**	Will restricted work days be involved? **__Yes __No __N/A**
If yes to either lost time or restricted work, complete the following: _____ Last normal work date _____ Date of return to normal work _____ Number of days lost time involved or expected _____ Number of days restricted work involved or expected	
What actions will be taken to prevent recurrence? Give responsibilities and expected completion dates for each action.	
Witnesses (Provide name, company, address, and phone number):	
Reported By: Date:	Reviewed by: Regional health and safety director: Date: Employee(s) manager or supervisor: Date: Human resources: Date:
Will the work-related injury/illness results in a Workers' Compensation claim? __Yes __No ____N/A	If yes, provide claim number and date claim filed:
*The supervisor of the employee(s) involved in the incident/accident must ensure that this form is filled out within 24 hours of the incident/or accident and forwarded to Regional Health and Safety Director. Attach additional sheets if necessary. If the incident is a recordable work-related injury or illness, OSHA Form 301 must be completed in addition to this form.	

HASP ADDENDUM
COVID-19 Field Safety

HASP ADDENDUM

COVID-19 Field Safety

This addendum has been prepared as a means to communicate updated health and safety requirements on jobsites pertaining to Coronavirus disease 2019 (COVID-19) spread and prevention. Employees will acknowledge reviewing this addendum or obtaining a briefing on the contents of this addendum by signing the Record of Health and Safety Communication in Attachment A.

Novel Coronavirus 2019

COVID-19 is a respiratory illness that can spread from person to person. The virus that causes COVID-19 is a novel coronavirus that was first identified during an investigation into an outbreak in Wuhan, China.

Symptoms

Most people infected with the COVID-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment.

The below symptoms may appear 2–14 days after exposure (based on the incubation period of MERS-CoV viruses).

- Fever
- Cough
- Shortness of breath

If you develop emergency warning signs for COVID-19, get medical attention immediately. Emergency warning signs include*:

- Trouble breathing
- Persistent pain or pressure in the chest
- New confusion or inability to arouse
- Bluish lips or face

*This list is not inclusive. Please consult your medical provider for any other symptoms that are severe or concerning.

Severe complications can include pneumonia in either or both lungs, multi-organ failure, and in some cases death.

Based upon available information to date, those at high-risk for severe illness from COVID-19 include:

- People aged 65 years and older
- People with chronic lung disease or moderate to severe asthma.

- People who have serious heart conditions.
- People who are immunocompromised. Many conditions can cause a person to be immunocompromised.
- People of any age with severe obesity (body mass index [BMI] > 40) or certain underlying medical conditions, particularly if not well controlled, such as diabetes, renal failure, or liver disease.

People who are pregnant should be monitored since they are known to be at risk for severe viral illness, however, to date data on COVID-19 has not shown increased risk.

Information regarding COVID-19 is still developing. The best way to prevent and slow down transmission is being well informed about the COVID-19 virus, the conditions it causes, and how it spreads. Protect yourself and others from infection by washing your hands or using an alcohol-based sanitizer frequently and not touching your face.

Regulatory Compliance

There is no specific OSHA standard covering COVID-19. However, some OSHA requirements may apply to preventing occupational exposure to COVID-19. Among the most relevant are:

- OSHA's Personal Protective Equipment (PPE) standards (in general industry, 29 CFR 1910 Subpart I), which require using gloves, eye and face protection, and respiratory protection.
    - When respirators are necessary to protect workers, employers must implement a comprehensive respiratory protection program in accordance with the Respiratory Protection standard (29 CFR 1910.134) (See Hart Crowser Respiratory Program).
- The General Duty Clause, Section 5(a)(1) of the Occupational Safety and Health (OSH) Act of 1970, 29 USC 654(a)(1), which requires employers to furnish to each worker "employment and a place of employment, which are free from recognized hazards that are causing or are likely to cause death or serious physical harm."

OSHA's Bloodborne Pathogens standard (29 CFR 1910.1030) applies to occupational exposure to human blood and other potentially infectious materials that typically do not include respiratory secretions that may transmit COVID-19. However, the provisions of the standard offer a framework that may help control some sources of the virus, including exposures to body fluids (e.g., respiratory secretions) not covered by the standard.

Pursuant to one or more Executive Orders issued by the Governors of states Hart Crowser has a primary presence in (Hawaii, Oregon, and Washington), employers are responsible for designating an employee responsible for compliance with State issued requirements. The field health and safety officer will be responsible for informing workers on Hart Crowser jobsites of all requirements specific to their state. Individual employees working on a jobsite controlled by another company will be responsible for maintaining physical distance from other workers. Employees will notify the Project Manager or

Regional Health and Safety Officer immediately if workers on jobsites not controlled by Hart Crowser fail to follow any State issued requirements.

Potential Exposure Routes

Person-to-person contact

The virus is thought to spread mainly from person-to-person.

- Between people who are in close contact with one another (within about 6 feet).
- Through respiratory droplets produced when an infected person coughs or sneezes. These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs.

People are thought to be most contagious when they are most symptomatic (the sickest). Some spread might be possible before people show symptoms; there have been reports of this occurring with this new coronavirus, but this is not thought to be the main pathway the virus spreads.

It may be possible that a person can get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or eyes, but this is not thought to be the main way the virus spreads.

How easily a virus spreads from person-to-person can vary. Some viruses are highly contagious (spread easily), like measles, while other viruses do not spread as easily. Another factor is whether the spread is sustained, spreading continually without stopping. The virus that causes COVID-19 seems to be spreading easily and sustainably in the community ("community spread") in some geographic areas.

DO NOT COME TO WORK IF YOU ARE FEELING SICK.

Safety Supplies and Equipment

The following safety supplies and equipment must be available on site:

- Hand washing station or sanitizer station
- Disposable gloves (nitrile or latex)
- Sanitizing wipes

Site Control

If Hart Crowser is not the site-controlling employer, staff should be informed of what the project is doing for COVID-19 mitigation methods prior to mobilization. If Hart Crowser employees have work areas in a shared field trailer controlled by others, obtain information from the controlling employer on sanitation practices. If job trailers are not controlled by Hart Crowser, we recommend staff wear disposable gloves while accessing common spaces (ex. opening doors, copy areas, shared desks) to limit potential exposures in areas controlled by others.

Although a formal contaminant reduction zone is not necessary, project workers will use precautions during sampling activities. The amount of equipment and number of personnel allowed in sampling areas will be minimized and the amount of samples collected should not exceed what is needed for laboratory analysis. Staff will follow CDC guidelines which, at the time of this document drafting, includes maintaining 6 feet of distance between individuals to prevent potential spread or exposure (physical distancing).

Physical Distancing

The following considerations should be taken when working with other personnel on a project site or when traveling to/from a project site:

- Keep a minimum of 6 feet from other workers at all times. While this may require creative project planning or detailed communications protocols to support physical distancing, this is the most effective method to minimize transmission of COVID-19.
- If more than one employee must travel to the project site, take separate vehicles. Do not switch vehicles during the course of the work day or over the course of the field event without fully sanitizing the vehicle before handing the vehicle over.
- Use video, photographic, email, text messaging, or telephonic communication methods with other office personnel or field personnel working in different areas of the project site versus in person discussions when at all possible.
- Avoid overnight stays at lodging establishments to the extent practical. If overnight stays are required, discuss with workforce and project management prior to securing arrangement. Consider alternatives like local subcontractor arrangements for oversight or daily return to the home base point. Any extended day with travel must balance safety from COVID-19 exposure with fatigue and safe driving considerations.

Other considerations during planning for or work at a project site, include considering:

- Implementing flexible meeting and travel options (e.g., postpone non-essential meetings or events).
- Downsizing operations.
- Delivering products through curbside pick-up or delivery.

Personal Sanitation

Hart Crowser workers will practice good hygiene by washing their hands and faces prior to taking rest breaks, drinking liquids, eating food, or before and after touching shared equipment (such as the Hart Crowser vehicles) and so forth. They will also wash their hands and faces fully before eating, using tobacco, or as soon as possible upon leaving a work area. If using shared equipment, Hart Crowser workers will decontaminate equipment using a disinfecting solution or wipe.

The following considerations should be taken at all times, with particular focus on activities conducted outside the home:

- Wash your hands often with soap and water for at least 20 seconds, especially after you have been in a public place, or after blowing your nose, coughing, or sneezing. This will require our field teams to keep extra water and sufficient soap on hand at project sites for hand washing. Follow World Health Organization (WHO) guidelines for hand washing and hand rubbing with sanitizer (Attachment B). Dry hands using disposable, single-use paper towels or equivalent which must be immediately thrown into trash cans.

- If soap and water are not readily available, use a hand sanitizer that contains at least 60 percent alcohol. Cover all surfaces of your hands and rub them together until they feel dry. Hand sanitizer should be used as a backup to hand washing or where water is no longer remaining or not available. Ensure sufficient supplies of hand sanitizers are available.

- Avoid touching your eyes, nose, and mouth with unwashed hands.

- Cover your mouth and nose with a tissue when you cough or sneeze or use the inside of your elbow. Throw used tissues in the trash. Immediately wash your hands with soap and water for at least 20 seconds or use a hand sanitizer that contains at least 60 percent alcohol.

- Disinfect shared equipment. To clean, use disinfectants found on the EPA list. Disinfecting refers to products that kill germs and lowers the risk of spreading infection. Labels contain instructions for safe and effective use of the product including precautions you should take when applying the product, such as wearing gloves (Personal Protective Equipment) and making sure you have good ventilation during use of the product. Gloves should be discarded after each cleaning and disinfection. Disinfection agents include:

    - Bleach solution of at least 1/3 cup bleach per gallon of water (4 teaspoons per quart).

    - Alcohol solution of at least 70 percent.

    - EPA-registered household disinfectants. Products with EPA-approved emerging viral pathogens claims are expected to be effective against COVID-19 based on data for harder-to-kill viruses: https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2

- Wipe all potential personal contact surfaces down at the start of each workday and every time shared equipment is transferred between personnel.

- When supplies are available, use gloved hands for work activities throughout the day where hands may come into contact with common surfaces or where transfer of shared equipment between personnel is required. Donning and doffing of gloves should follow best practices to avoid touching

the gloves' outer surfaces (pinch and pull glove from the outside for removal on first hand and slide ungloved fingers under inside of glove for removal on second hand).

- Do not share food or drinking glasses or bottles. Consider packing meals for work rather than picking up food while at the project site. Do not share coolers between workers.

DO NOT COME TO WORK IF YOU ARE FEELING SICK.

All information and content in this addendum is for information purposes only and is not medical advice, diagnosis, or treatment. Printed copies are not document controlled.

ATTACHMENT A
Record of Health and Safety Communication for COVID-19

Record of Health and Safety Communication for COVID-19

PROJECT NAME: SGS Data Gap Assessment and Groundwater Monitoring	**PROJECT NUMBER:** 1500450-01

The following personnel have reviewed a copy of the site-specific HASP Addendum regarding COVID-19. By signing below, these personnel indicate they have read the plan, including all referenced information, and that they understand the requirements detailed for this project.

PRINTED NAME	SIGNATURE	PROJECT DUTIES	DATE

Project manager: please route a copy of this form to the job files when completed.