OFF-PROPERTY GROUNDWATER INVESTIGATION WORK PLAN

Bee-Jay Scales Site
116 N 1st Street
Sunnyside, WA 98944

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1.0 Introduction

Stantec Consulting Services Inc. (Stantec) is submitting this *Off-Property Groundwater Investigation Work Plan* to the Washington Department of Ecology (Ecology) for the Bee-Jay Scales Site (the Site), on behalf of Chevron Environmental Management Company (CEMC) and Atlantic Richfield Company (ARC). This work plan presents the planned field activities for an additional off-property groundwater investigation to delineate nitrate impacts as part of the Cleanup Action Plan (CAP) for the Site.

The remaining sections of this work plan are organized as follows:

- Section 2 includes a summary of the Site background, historical operations, and previous investigations;
- Section 3 details the health and safety procedures that will be implemented;
- Section 4 describes the specifics of the proposed off-property groundwater investigation activities;
- Section 5 presents the schedule and reporting requirements; and
- Section 6 lists references.

2.0 Site Description & Background

The Site is located in the city of Sunnyside, within Yakima County, and consists of the following two parcels: Parcel No. 22102522014 and Parcel No. 22102522015 as recorded by the Yakima County Department of Assessment. Parcel No. 22102522014 is located at 116 North 1st Street and is owned by Bee-Jay Scales, Inc. Parcel No. 22102522015 is located at 301 Warehouse Avenue and is currently owned by Western General Land, LLC (formerly owned by Hickenbottom & Sons, Inc.).

The Site location is shown on **Figure 1**. The Site layout, including monitoring well locations, building locations, and additional Site features, is shown on **Figure 2**. Historically, the Site was divided into six main study areas as follows:

- Area 1 – Liquid Fertilizer Plant and Truck Wash Area;
- Area 2 – Dry Fertilizer Area;
- Area 3 – Drum Storage Area;
- Area 4 – Suspected Historic Washdown Area;
- Area 5 – North Area; and
- Area 6 – Hickenbottom Property.

The Site is bordered to the north and west by Warehouse Avenue and North 1st Street and to the south by active railroad tracks. Properties to the north, east, and south of the Site are industrial/commercial facilities. The property west of the Site across North 1st Street is currently vacant.

The Site and adjacent properties have been the location of agricultural warehouses, lumber yards, coal storage, and railroad transportation activities since approximately 1906. Portions of the Site were owned by the Northern Pacific Railroad Company from 1906 until 1989 when they were purchased by the Glacier Park Company. An agricultural distribution facility operated at the Site from the 1960s through at least 1986. This facility consisted of buildings and aboveground storage tanks (ASTs), and was operated by at least two separate companies: Laneger Agricultural Services and Valley Agricultural, Inc. The ASTs have since been removed from the Site. Documentation indicates that American Oil Company (Amoco), now part of BP, leased portions of this property from Northern Pacific Railroad between 1965 and 1972. A lagoon was constructed by Valley Agricultural, Inc. in the early 1980s to collect water from the washdown of farm chemical applicator vehicles.

The western portion of Lot 10 was purchased by Chevron Chemical Company in 1981 and sold to Bee-Jay Scales, Inc. in 1987. Bee-Jay Scales, Inc. purchased additional portions of Lots 10 and 11 in 1995 and 1996. Lots 10 and 11 are referenced in the Summary of Ownership included as Appendix B of the RI/FS Work Plan and are not shown on any available figures. Three businesses currently operate at the Bee-Jay Scales portion of the property: Sandy Farms, a local trucking company; Sanleco, Inc., an interstate trucking company with an on-site tractor-trailer repair garage; and Bee-Jay Scales, a commercial scale operation.

Hickenbottom & Sons, Inc. leased a portion of the Site from the Northern Pacific Railroad Company beginning in 1961 and purchased portions of Lots 10 and 11 in 1992. The Hickenbottom & Sons property was previously used as pastureland; since 1961, it has been used for food packing, storage, and a transportation business, and is currently owned by Western General Land, LLC.

2.1 PREVIOUS INVESTIGATIONS

Key investigations and evaluations conducted by Stantec (formerly SECOR) at the Site since 2003 that are relevant to this work plan are presented in the following reports:

- *Bee-Jay Scales Site Phase I Remedial Investigation Report* (SECOR, 2003);
- *Phase II Remedial Investigation Report for the Bee-Jay Scales Site* (SECOR, 2005);
- *Phase III Remedial Investigation Report for the Bee-Jay Scales Site* (SECOR, 2007a);
- *2006 Interim Remedial Measures Completion Report for the Bee-Jay Scales Site* (SECOR, 2007b);
- *Down-Gradient Assessment Documentation Report for the Bee-Jay Scales Site* (SECOR, 2008);
- *Revised Feasibility Study Report* (Stantec, 2009); and
- *Nitrate Synthetic Precipitation Leaching Procedure Shallow Soil Assessment Results and Discussion Draft 3/4/2011 Draft Cleanup Action Plan Comments for the Bee-Jay Scales Site* (Stantec, 2011).

The following subsections summarize the key findings of investigations and evaluations that are relevant to this work plan.

Phase I Remedial Investigation

The Phase I remedial investigation (RI) activities were conducted in July 2003 and consisted of soil and groundwater investigations. SECOR collected soil samples from boreholes completed to depths of up to 11 feet below ground surface (bgs) in each of the six identified main study areas at the Site and installed three groundwater monitoring wells (MW-5, MW-6, and MW-7) to supplement groundwater quality information provided by three previously installed wells (MW-1, MW-3, and MW-4). Eight soil boreholes were advanced in Area 1, seven soil boreholes in Area 2, two soil boreholes in Area 3, six soil boreholes in Area 4, five shallow soil boreholes in Area 5, and seven soil boreholes in Area 6 (two of which were shallow). The soil data suggested an above-ground source of stored fertilizer that had leached nitrogen compounds to the soil. The major nitrogen source area appeared to be directly east of the Dry Fertilizer Manufacturing Building in Area 2, and two source areas appeared to be located adjacent to the lagoon.

Phase II Remedial Investigation

The Phase II RI, conducted in 2004, included soil, groundwater, and surface water/sediment investigations. The Phase II groundwater investigation consisted of the advancement of 18 vertical profile boreholes in Areas 1, 5, and 6, and installation of five permanent monitoring wells (MW-8 through MW-12). Nitrate concentration isopleths showed source areas primarily located in the southeastern portion of the property (Area 1 and the southern section of Area 6). The average hydraulic conductivity from single well pump tests was 1.45E-04 centimeters per second (cm/s).

In the Phase II soil investigation, soil samples were collected from boreholes advanced in Areas 3 and 5. In Area 3, concentrations of total petroleum hydrocarbons as gasoline (TPH-Gx) at a depth of 7.5 feet bgs were above the Model Toxics Control Act (MTCA) Method B cleanup level (CUL). In Area 5, concentrations of constituents in subsurface soil (ammonia, iron, nitrate, nitrite, phosphate, and sulfate) did not exceed MTCA Method B CULs or other screening criteria. Ten of the soil samples from Area 5 were selected for synthetic precipitate leaching procedure (SPLP) analysis to evaluate the soil leaching to groundwater pathway. Comparing the detected results to MTCA Method B CULs or secondary Maximum Contaminant Levels (MCLs), nitrite and sulfate did not exceed CULs. Nitrate and iron did exceed MTCA Method B CULs and secondary MCLs, respectively.

A treatability investigation, including both a bench-scale study and field pilot study (consisting of *in situ* injection of sodium acetate into four injection wells around well MW-4), was conducted as part of the Phase II RI to guide potential nitrate and herbicide remediation activities. The treatability study determined the most effective treatment was denitrification using acetate as an electron donor. The pilot study demonstrated that injection of acetate was successful in remediating nitrate, nitrite, and dinoseb concentrations to below detectable limits in groundwater

at well MW-4 within a 10-foot radius for the duration of the monitoring period and reducing concentrations of those constituents in saturated soils.

Interim Remedial Measures

In 2006, SECOR conducted interim remedial measures including: 1) lagoon closure activities; and 2) treatment of petroleum hydrocarbon impacts in Area 3 using persulfate injections. The former lagoon was removed as a potential source and safety hazard, and calcium acetate was placed into the excavation to mitigate residual impacts remaining in the soil. *In situ* injection of sodium persulfate into four injection wells was conducted in Area 3 for the treatment of petroleum hydrocarbons, and favorable geochemical conditions were observed in the injection wells during and immediately after injection. Groundwater samples collected from a nearby well three months after injection showed an average percent (%) reduction in petroleum hydrocarbon concentrations of over 78%.

Phase III Remedial Investigation

The Phase III RI was conducted in 2007 and included additional soil and groundwater investigation to evaluate horizontal and vertical extent of nitrate impacts down-gradient of the Bee-Jay Scales property. Twelve vertical profile boreholes and one permanent groundwater monitoring well (MW-13) were installed. The Phase III RI determined the nitrate plume extends off-property and is delineated to the east and west; however, the plume was not fully delineated to the south because a probable second source of nitrate and ammonia was encountered.

Down-Gradient Assessment

The down-gradient assessment was conducted in 2008 to further evaluate: 1) the off-property down-gradient extent of nitrate concentrations; and 2) a potential separate off-property source. One off-property vertical profile boring was advanced and sampled. The assessment results provided further evidence of a potential additional source based on the detached ammonia plumes and relatively higher concentrations of several constituents down-gradient rather than up-gradient of the potential off-property source. However, a commingled nitrate plume was observed.

Revised Feasibility Study Report

Stantec evaluated remedial alternatives to address soil and groundwater concentrations of indicator hazardous substances (IHSs) above specified CULs at the Site. The remedial alternatives were evaluated with respect to threshold criteria that must be met for all cleanup actions conducted under Ecology's authority. Based on the evaluation of on- and off-property remedial alternatives, the following combination of remedial actions was recommended:

- On-site *in situ* bioremediation, groundwater monitoring, soil excavation with off-site disposal and/or *ex situ* biological treatment, and institutional controls; and

- Off-property monitored natural attenuation (MNA), institutional controls, and a contingency plan.

Following review, Ecology requested modifications to the off-property remedial alternatives, and revised alternatives are presented in the CAP (discussed in Section 2.3).

Nitrate SPLP Soil Assessment

A nitrate SPLP shallow soil assessment was conducted in 2011 at the Site to evaluate the Site-specific leaching potential of nitrate. Twenty shallow soil boreholes were advanced, and 88 sample pair results demonstrated that a soil CUL of 220 milligrams per kilogram (mg/kg) will be protective of a nitrate concentration in groundwater of 10 milligrams per liter (mg/L) at the soil point of compliance.

2.2 GROUNDWATER MONITORING

Groundwater monitoring has been conducted at the Site since July 2003. Groundwater is typically encountered between approximately 6 and 10 feet bgs, and a clay aquitard exists at approximately 30 feet bgs. The groundwater flow direction is generally to the northeast in the northern portion of the Site (near MW-1 and MW-7) and to the southeast throughout the rest of the Site, with a groundwater flow divide observed at the southern edge of Area 5. The groundwater contour map from the March 2013 groundwater monitoring event is presented as **Figure 3**. Currently, the following monitoring wells are sampled on a semi-annual basis: MW-1, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, and MW-13.

2.3 CLEANUP ACTION PLAN

A CAP has been prepared for the Site by Ecology to address contamination that could pose a risk to human health and the environment. The objectives of the cleanup action at the Site are to:

- Prevent leaching of nitrate from soil to groundwater by reducing soil concentrations at the Site to the CUL of 220 mg/kg thereby preventing leaching to groundwater in excess of the Federal MCL of 10 mg/L.

- Prevent ingestion of groundwater with nitrate in excess of 10 mg/L by on- and off-property receptors by reducing nitrate concentrations in groundwater to less than 10 mg/L.

- Prevent vaporization of ammonia from soil by reducing soil concentrations at the Site to 385 mg/kg.

- Design the groundwater treatment system, to the extent practicable, to reduce the potential for impacted groundwater to infiltrate storm/irrigation drains that may eventually discharge to surface waters.

The proposed cleanup action includes a combination of shallow soil excavation, *in situ* bioremediation injection wells/boreholes (for delivery of a sodium acetate solution or calcium acetate), institutional controls, natural attenuation, and construction of vertical barrier wall treatment system(s) or other Ecology-approved treatment method following public comment for the off-property groundwater plume attributable to the Bee-Jay Scales Site. The purpose of these systems is to remove the source material that is continuing to contribute to groundwater contamination; treat the existing nitrate groundwater plume attributable to the Bee-Jay Scales Site to prevent its continued expansion and to reduce the potential for a discharge to storm/irrigation drains that may eventually discharge to surface waters; and provide for an estimated 30 to 40 year groundwater restoration timeframe.

This groundwater investigation is proposed to further delineate the off-property nitrate plume to aid in the design of groundwater treatment methods.

3.0 Health & Safety

Stantec will prepare a Site-specific health and safety plan (HASP) that will address the proposed off-property groundwater investigation activities. The Site-specific HASP will outline potential hazards to Stantec field personnel during the field activities described herein and the steps that will be taken to mitigate risk. Job safety analyses (JSAs) for tasks to be performed by Stantec personnel will be included. The Site-specific HASP will also include required personal protective equipment to be worn by all Stantec field personnel for each task. In addition, Stantec will produce a Journey Management Plan (JMP) in an attempt to prevent losses associated with motor vehicle incidents. A copy of Stantec's Site-specific HASP and JMP will be available on-site during all field activities.

Subcontractors will also develop a Site-specific HASP and JSAs for tasks applicable to their work (e.g., driving, well installation, etc.). Subcontractor HASPs and JSAs will also be available on-site.

4.0 Off-Property Groundwater Investigation Activities

Seven additional off-property monitoring well locations (MW-14 through MW-20) are proposed based on the southeastern flow direction observed in the southern portion of the Site and off-property (**Figure 3**) and the nitrate plume as defined by historical assessment activities (**Figure 4**). These wells are intended to further delineate the off-property nitrate plume.

4.1 PRE-FIELD ACTIVITIES

Proposed wells MW-14, MW-16, and MW-17 are located on Parcel No. 22102522555, owned by Valley Processing, Inc. Proposed well MW-15 is located on Parcel No. 22102522016, owned by Northwest American Land, LLC. Proposed wells MW-18 and MW-20 are located within the East Blaine Avenue and 3rd Street right-of-ways. Proposed well MW-19 is located on Parcel No. 22102523438, owned by Mary Ann Bliesner. Stantec will ensure that access agreements are established with the each of the property owners prior to commencing work.

A schedule of field activities will be communicated to the property owners and City of Sunnyside representatives a minimum of 10 days prior to field activities. A formal access agreement is not required for the wells installed within the road right-of-ways, but in addition to communication of the schedule, a traffic control plan will be submitted to the City of Sunnyside Public Works Department.

As required by law, Washington's Northwest Utility Notification Center (1-800-424-5555) will be notified at least 48 hours before any intrusive activities. In addition, a private utility locator will be contracted to locate and mark all utilities in the areas of the proposed well locations.

4.2 BOREHOLE ADVANCEMENT & SOIL SAMPLING

Stantec will contract a licensed drilling company to advance the soil boreholes and subsequently install the seven proposed groundwater monitoring wells (MW-14 through MW-20; shown on **Figure 4**) to a depth of approximately 16 feet bgs. The final location may change slightly due to aboveground structures and subsurface utilities present at or near the proposed borehole locations. Prior to drilling, the borehole location will be cleared by hand auger or air knife to a depth of 8 feet bgs to further decrease the risk of encountering an underground utility. A hollow-stem auger (HSA) drill rig equipped with 8¼-inch diameter augers will be used to advance the borehole beyond a depth of 8 feet bgs.

Detailed field records of all activities will be kept by Stantec field personnel and will include Site conditions, sampling processes, names of field personnel, pertinent dates and times, etc. A borehole/well construction log will be maintained during the advancement of the borehole and installation of the monitoring well. Stantec field staff will record the soil lithology (using the Unified Soil Classification System [USCS] as a guide), relative moisture content, composition,

photoionization detector (PID) readings, depth to first-encountered groundwater, well construction details, and other distinguishing characteristics such as color changes, debris, rootlets, and odor. An example borehole/well construction log is included in **Appendix A**.

During drilling activities, soil from each depth interval will be collected in a Ziploc™ bag for headspace analysis to evaluate for the presence of volatile organic vapors using a PID. At approximately 2-foot intervals, soil samples will be collected and stored in an iced cooler for preservation for potential submittal for laboratory analysis.

At a minimum, one soil sample from the vadose zone, one soil sample from the groundwater table interface, and one soil sample from the saturated zone (i.e., from the maximum depth of exploration) will be collected into laboratory-supplied containers and submitted for laboratory analysis. Additional soil samples may be submitted for laboratory analysis based upon field screening using a PID, staining, or odor.

The samples will be submitted to Eurofins Lancaster Laboratories (Lancaster) in Lancaster, Pennsylvania for analysis of the following (as shown in **Table 1**):

- Nitrate by United States Environmental Protection Agency (EPA) Method 300.0; and
- Ammonia by EPA Method 350.3.

Following soil sampling, the boreholes will be converted to monitoring wells.

4.3 MONITORING WELL INSTALLATION

Two-inch diameter polyvinyl chloride (PVC) wells will be installed within the 8¼-inch diameter boreholes drilled by HSA method. The well screen interval will be constructed from approximately 6 to 16 feet bgs with 2-inch flush-threaded, schedule 40 PVC casing perforated with 0.010-inch slots and fitted with a PVC end cap. The well screen casing will be flush threaded to the necessary length of schedule 40 PVC blank casing to complete the well casing to ground surface. The well installations will be completed with sand filter packs and hydrated bentonite seals. Wells will be completed with flush-mounted well monuments. Well construction details will be recorded on the borehole/well construction log. Well completion details may be modified based on conditions encountered in the field at the discretion of qualified field personnel.

Once the wells are completed, each will be developed by surging and bailing to remove fine-grained sediment from the formation and filter packs, and increase the hydraulic efficiency of the well. The depth-to-groundwater and total length of each groundwater monitoring well will be measured to determine the quantity of groundwater within each well. A surge block will be used to agitate water and well construction materials prior to and during well development. A submersible pump or bailer will be used to purge groundwater and sediment from well casings. Well development will be continued until water quality parameters (pH, temperature,

specific conductivity, and turbidity) have all stabilized (±10 percent) or ten well casing volumes of groundwater have been purged from the groundwater monitoring wells during development. Groundwater quality parameters will be recorded onto well development field logs.

4.4 GROUNDWATER SAMPLE COLLECTION

Stantec will attempt to schedule installation and sampling of proposed monitoring wells MW-14 through MW-20 to correspond with the semi-annual groundwater monitoring and sampling event for wells MW-1 and MW-3 through MW-13.

Groundwater samples will be collected from each monitoring well using low-flow sampling procedures with a combination of dedicated and non-dedicated equipment. The equipment will consist of a peristaltic pump with dedicated tubing (i.e., Tygon tubing and polyethylene tubing). Prior to sampling activities, the static water level will be measured in each well.

An electronic sounder, accurate to the nearest ±0.01 feet, will be used to measure depth to water in each well. When using an electronic sounder, the probe will be lowered down the casing to the top of the water column, and the graduated markings on the probe tape will be used to measure the depth to water from the top of the casing. Total well depth will be sounded from the top of casing measuring point by lowering the weighted probe to the bottom of the well. Depth to water and total well depth measurements will be recorded to the nearest ±0.01 feet on the Groundwater Sampling Field Data Sheet (**Appendix B**).

The opened end of the polyethylene tubing will be placed near the mid-point of the screened interval. If possible, the intake will be kept at least 2 feet above the bottom of the well to minimize mobilization of particulates present in the bottom of the well. Once the tubing is in the well, the initial water level will be re-measured and recorded before purging begins.

The pump will be started at its lowest speed setting and speed will be slowly increased until discharge occurs. The flow rate should be maintained at less than 0.5 liters per minute. The drawdown will be measured with the electronic sounder during well purging to assure minimal drawdown (less than 0.3 feet), and if necessary, the pump speed will be adjusted. If the minimal drawdown that can be achieved exceeds 0.3 feet but remains stable, purging will be continued until indicator field parameters have stabilized. The water level and pumping rate will be monitored and recorded every 3 to 5 minutes (or as appropriate) during purging.

Any pumping rate adjustments (both time and flow rate) will be recorded. Pumping rates will, as needed, be reduced to the minimum capabilities of the pump to ensure stabilization of indicator parameters. Adjustments are best made in the first 15 minutes of pumping to help minimize purging time. During pump start-up, drawdown may exceed the 0.3 feet target and then "recover" as pump flow adjustments are made.

Wells with low recharge rates may require the use of special pumps capable of attaining very low pumping rates, and/or the use of dedicated equipment. If the recharge rate of the well is

lower than extraction rate capabilities of currently manufactured pumps and the well is essentially dewatered during purging, then the well will be sampled as soon as the water level has recovered sufficiently to collect the appropriate volume needed for all anticipated samples (ideally the intake will not be moved during this recovery period). Samples may then be collected even though the indicator field parameters have not stabilized.

During well purging, water levels and indicator field parameters (pH, oxidation-reduction potential [ORP], specific conductivity, temperature, and dissolved oxygen [DO]) will be recorded on the Groundwater Sampling Field Data Sheet every 3 to 5 minutes. Purging is considered complete and sampling may begin when indicator field parameters have stabilized. Stabilization is considered to be achieved when three consecutive readings, taken at 3 to 5 minute intervals, are within the following limits:

- DO (10%)
- Conductivity (3%)
- Temperature (3%)
- pH (± 0.1 unit)
- ORP (± 10 millivolts)

All measurements will be obtained using a multi-meter with flow-through-cell. Field instruments will be calibrated in accordance with the manufacturer's directions prior to use, which will be documented on a field equipment calibration form.

Purge volumes for each well are to be recorded on the Groundwater Sampling Field Data Sheet. If parameters have not stabilized after three well volumes have been purged, purging will be stopped and samples will be collected.

Depth to water will be measured immediately prior to sample collection. Water samples for laboratory analyses must be collected before water has passed through the flow-through-cell (use a by-pass assembly or disconnect cell to obtain sample). Volatile organic compound (VOC) samples will be collected first and directly into pre-preserved laboratory-supplied sample containers. All sample containers will be filled by allowing the pump discharge to flow gently down the inside of the container with minimal turbulence. If a duplicate sample is to be collected at a location, all bottles designated for a particular analysis for both sample identification numbers will be filled sequentially before bottles for another analysis are filled.

After collection of the samples, the pump tubing may be dedicated to the well for re-sampling (by hanging the tubing inside the well) or properly discarded.

Groundwater samples will be submitted to Lancaster for analysis of the following (as shown in **Table 1**):

- Alkalinity (SM 2320 B-1997);
- Ammonia-N (SM 4500-NH3 D-1997);
- Arsenic, Iron, and Manganese (EPA 6010B);
- Chloride and Sulfate (EPA 300.0);
- Chlorinated Herbicides (EPA 8151A).
- Nitrate-N and Nitrite-N (EPA 353.2);
- pH (SM 4500-H+ B-2000);
- TPH-Gx (ECY 97-602 NWTPH-Gx); and
- VOCs (EPA 8260B; 524M for 1,2,3-TCP).

4.5 QUALITY ASSURANCE & QUALITY CONTROL

To ensure accuracy in the sampling results, the following quality assurance/quality control (QA/QC) samples will be collected during the soil and groundwater sampling activities: duplicates, equipment blanks, and trip blanks.

Duplicate samples will be collected at a frequency of 10 percent to evaluate the laboratory's performance by comparing the analytical results of two samples collected at the same location.

Equipment blanks will be collected at a frequency of one per day to evaluate for cross-contamination due to sampling equipment. Additionally, if a different sampling method or different sampling equipment is used, both sampling methods will include equipment blanks.

As volatiles are part of the analytical program, trip blanks will be required and will be analyzed for VOCs only.

Laboratory blanks (e.g., method blank, instrument blank) will be prepared and analyzed as appropriate by Lancaster.

4.6 DECONTAMINATION PROCEDURES

Any non-dedicated sampling equipment that comes into contact with the ground surface or groundwater will be decontaminated between sampling locations. If disposable sampling implements are used, they will be discarded after each sample and replaced with a new

implement. Where sampling implements are to be reused, they will be washed with Liquinox and triple rinsed with distilled water before and after each sample is collected.

The well sounder will be decontaminated following each measurement by spray-washing the probe and cable with a Liquinox solution, wiping down the probe and cable, followed by a final rinse with de-ionized water. To decontaminate groundwater sampling equipment, a Liquinox solution will be pumped from buckets through the pump, flow-through-cell, and associated equipment. All equipment will then be rinsed thoroughly with de-ionized water pumped from buckets. The Liquinox solution and de-ionized water will be changed periodically, if recycled. Dedicated tubing will be used at each monitoring well to prevent cross-contamination during groundwater sampling.

4.7 SURVEYING

The well locations will be surveyed following completion by a licensed surveyor. The surveyor will measure both the horizontal coordinates and land surface elevation. Horizontal coordinates should be determined to the nearest 0.1-foot relative to the North American Datum of 1983 (NAD83), while the elevation should be to the nearest 0.01-foot relative to the National Geodetic Vertical Datum of 1988 (NAVD88).

4.8 WASTE MANAGEMENT

Soil cuttings and decontamination and purge water will be collected and transferred to 55-gallon Department of Transportation (DOT)-rated drums. The proper label(s) will be affixed, and drums/bins will be stored in Area 1 pending analysis and disposal. All investigatory-derived wastes will be removed from the property by an approved waste hauler, in accordance with state and federal regulations.

4.9 SAMPLE IDENTIFICATION AND HANDLING

Samples collected during the soil and groundwater sampling efforts will be given unique, encoded sample identifications according to the nomenclatures outlined in this section. Samples will be identified by a unique alphanumeric identifier (sample number). The following sample ID format will be used for soil and groundwater samples collected:

Soil: MWxx-SB-D'-q **Groundwater: MWxx-mmddyy-q**

Where:

xx = Two-digit well number

D = Depth in feet bgs

mm = Month

dd = Day of the month

yy = Last two digits of current year

q = The sample type code, as indicated by:

0 Normal environmental sample

1 Field duplicate

2 Field equipment blank

Example soil sample IDs are: MW15-SB-4'-0 or MW18-SB-16'-1.

Example groundwater sample IDs are: MW14-081413-0 or MW16-080913-2.

The field equipment blanks will be associated with the samples they are collected after. Trip blanks will be labeled as TB-1, TB-2, etc. Two trip blank vials will be included in each cooler, each with the same sample ID. Only one will be run by the lab unless confirmation is needed.

The sampling containers are listed in **Table 1**. Pre-cleaned containers, laboratory-prepared with preservative, will be procured from the analytical laboratory. Following sampling activities, all samples will be held at 4°C in a cooler until delivery to the laboratory. Specific guidelines for packing and shipping of coolers are detailed in **Appendix C**.

Before a particular sample is collected, all containers needed for the analytical parameters will be assembled and properly labeled. The sample labels will be attached directly to the sample containers. The information that will be included on the sample label includes: Project name; Sample ID; Date sampled; Time sampled (in military time); Initials of sampler(s); and Preservative in the sample container, if any.

The chain-of-custody (COC) form serves as a record of sample collection information, analysis requests, and sample tracking. COC forms will be obtained along with sample containers from Lancaster. Information that must be recorded on the COC includes the following:

- Project name and number;
- Project Manager's name;
- Sample date and time;
- Sample ID;
- Sample matrix;

- Number of containers for each sample;
- Parameters for analysis for each sample;
- Special analytical requests (turnaround time, short hold time, etc.); and
- Sampler's name and signature.

Sample possession will be traceable from the time a sample is collected until it is received at the analytical laboratory. Samples will be in the custody of the field sampler from the time they are collected until the samples are transferred to the proper dispatcher. Samples will be packed in coolers with inert packing material (for example, bubble wrap or plastic netting) to prevent breakage. At the end of the sampling effort each day, the field sampler will inventory the samples in each cooler against the COC form.

A laboratory representative will be given advance notification of the scheduled sampling event. Samples will be shipped to Lancaster via Fed Ex by a member of the field sampling team. Samples should be sent out to the analytical laboratory by approximately 3:00 PM (15:00) Pacific Time each day to meet hold times.

Upon transferring custody of the samples, the individuals relinquishing and receiving them will sign, date, and note the time of transfer on the COC record(s). Any changes to the analyses that are requested on the COC record will be noted, initialed, and dated on the COC copies possessed by both Lancaster and the project coordinator.

Once the COC record is completed, the carbon copies will be separated. The field member who relinquished the samples will retain a copy, and the original will accompany the coolers to the laboratory. The original COC record will be placed in a sealed plastic bag, and taped to the inside top of the cooler, which will be sealed with a custody seal and taped. The field copy of the COC record will be sent to the project coordinator and maintained in the project management files. Each cooler sent will contain a separate COC record.

Lancaster will send notification acknowledging sample receipt to the Project Manager. In the acknowledgment, the laboratory will list the samples received, the associated laboratory IDs that were assigned, and any problems that were encountered at sample receipt (including samples not within the specified temperature range or broken upon arrival). Upon completion of analysis, Lancaster will send copies of the appropriate COC record for each sample to the Project Manager.

5.0 Schedule and Reporting

Stantec will begin planning for the proposed activities upon approval of this work plan by Ecology. The schedule will be dependent on obtaining access agreements with the property owners. Once all access agreements have been obtained, Stantec will schedule the proposed field work.

The proposed field work is expected to span up to one week. Laboratory analysis reports will be obtained approximately two to four weeks following the last requested analysis of samples submitted to Lancaster.

Following analysis of soil and groundwater samples, the results will be presented in a well installation report that includes the following:

- Brief summary of borehole advancement, well installation, and sampling activities;
- Tabulated groundwater elevation data;
- Tabulated analytical results, including comparison to Site-specific CULs for soil and groundwater;
- Groundwater elevation and constituent concentration map(s);
- Copies of field forms; and
- Certified laboratory analytical reports.

If the groundwater sampling event is conducted in conjunction with the semi-annual groundwater sampling event at the Site, then a summary of activities and the results will be presented in the semi-annual groundwater monitoring and sampling report.

6.0 References

SECOR, 2003. *Bee-Jay Scales Site Phase I Remedial Investigation Report*, Sunnyside, Washington, Chevron Environmental Management Company (ChevronTexaco) and BP America, Incorporated (BP), October.

SECOR, 2005. *Phase II Remedial Investigation Report for the Bee-Jay Scales Site*, Chevron Environmental Management Company and BP America, Inc., May 10.

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7.0 Limitations and Certification

This work plan was prepared in accordance with the scope of work outlined in Stantec's contract and with generally accepted professional engineering and environmental consulting practices existing at the time this work plan was prepared and applicable to the location of the site. It was prepared for the exclusive use of CEMC and ARC for the express purpose stated above. Any re-use of this work plan for a different purpose or by others not identified above shall be at the user's sole risk without liability to Stantec. To the extent that this work plan is based on information provided to Stantec by third parties, Stantec may have made efforts to verify this third party information, but Stantec cannot guarantee the completeness or accuracy of this information. The opinions expressed and data collected are based on the conditions of the site existing at the time of the field investigation. No other warranties, expressed or implied are made by Stantec.

Prepared by:

Marisa Kaffenberger
Project Manager

Reviewed by:

Robert McAlister
Project Scientist

All information, conclusions, and recommendations provided by Stantec in this document regarding the Subject Property have been prepared under the supervision of and reviewed by the Licensed Professional whose signature appears below:

Licensed Approver:

Name: **Amanda Magee, R.G.**
Associate Geologist

Date: 6/20/13

Signature:

Stamp:

State of Washington
2602
Licensed Geologist
AMANDA S. MAGEE

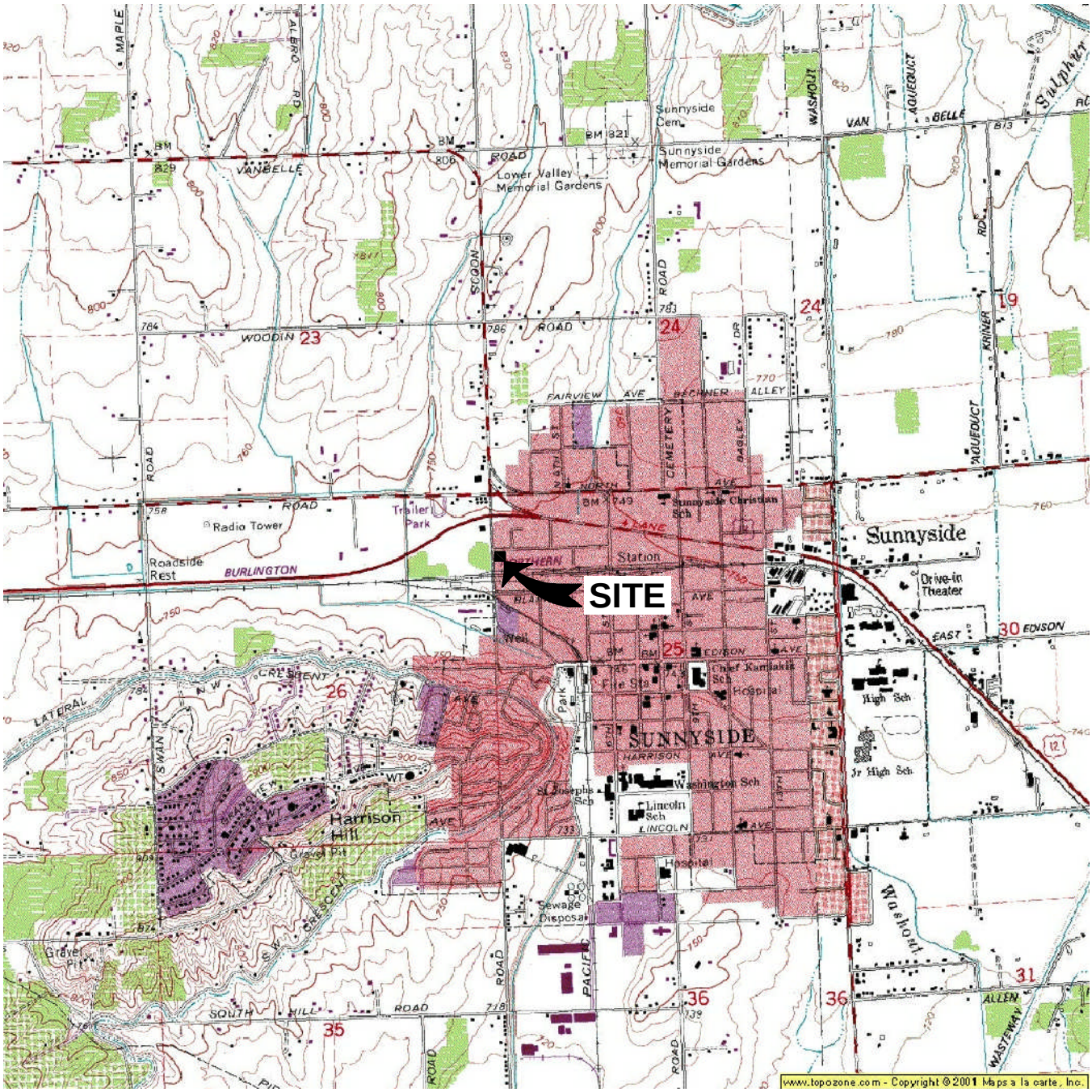
Tables

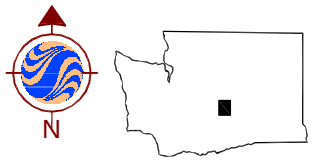
Table 1
Sampling Program Details
Off-Property Groundwater Investigation
Bee-Jay Scales Site, Sunnyside, Washington

Matrix	Analyte	Analytical Method	Sample Container(s)	# of Bottles	Preservative	Hold Time
Soil	Ammonia	EPA 350.3	4 oz. Glass Jar	1	None	28 days
	Nitrate	EPA 300.0				28 days
Groundwater	Alkalinity	SM 2320 B-1997	250ml plastic	1	None	14 days
	Ammonia	SM 4500-NH3 D-1997	500ml glass	1	H_2SO_4	28 days
	Arsenic, Iron, Manganese	EPA 6010B	250ml plastic	1	HNO_3	6 months
	Chloride and Sulfate	EPA 300.0	40ml glass vials	2	None	28 days
	Chlorinated Herbicides	EPA 8151A	1000ml amber glass	2	None	7 days
	Nitrate and Nitrite	EPA 353.2	40ml glass vials	2	1-H_2SO_4; 1-None	28 days; 48 hours
	pH	SM 4500-H+ B-2000	250ml plastic	1	None	N/A
	TPH-Gx	ECY 97-602 NWTPH-Gx	40ml glass vials	3	HCl	14 days
	VOCs	EPA 8260B (524M for 1,2,3-TCP)	40ml glass vials	3	HCl	14 days

Abbreviations:
EPA = United States Environmental Protection Agency
HCl = Hydrochloric Acid
HNO_3 = Nitric Acid
H_2SO_4 = Sulfuric Acid
ml = Milliliter
N/A = Not Applicable

Figures





WASHINGTON

1 1/2 0 1

SCALE IN MILE

1000 0 1000 2000 3000 4000 5000 6000 7000

SCALE IN FEET

SOURCE: USGS 7.5 MINUTE QUADRANGLE; SUNNYSIDE, WASHINGTON; 1975

Stantec
2321 CLUB MERIDIAN DR. SUITE E
OKEMOS, MI
PHONE: (517) 349-9499 FAX: (517) 349-6863

FOR:		SITE LOCATION MAP	FIGURE:
BEE-JAY SCALES SITE SUNNYSIDE, WASHINGTON			1
JOB NUMBER: 213202156/213202157	DRAWN BY: JRO	CHECKED BY: MRK	APPROVED BY: ASM	DATE: 05/31/13

FILEPATH:P:\Chevron\Bee-Jay Scales\05_reports\Groundwater Monitoring\Drawings\24CH-67201-11SLM.dwg|jopalekopsahl|May 28, 2013 at 8:14|Layout: .

WAREHOUSE AVENUE

N. 1ST STREET

MW–7

MW–1

CHAINLINK FENCE

CHAINLINK FENCE

AREA 6
HICKENBOTTOM PROPERTY

CARPORT

AREA 5
NORTH AREA

AREA 4
SUSPECTED HISTORIC WASHDOWN AREA

BLDG.

BLDG.

AREA 2
DRY FERTILIZER AREA

MW–8

AREA 1
LIQUID FERTILIZER PLANT AND TRUCK WASH AREA

FORMER LAGOON

MW–3

BLDG.

GATE

MW–10

AREA 3
DRUM STORAGE AREA

BLDG.

MW–5

MW–12

MW–4

CHAINLINK FENCE

MW–11

MW–6

CENTER OF NORTH RAIL FOR RAILROAD SIDE TRACK

MW–9

VALLEY PROCESSING BLDG.

BLDG.

BLDG.

MW–13

0 70 140

SCALE IN FEET

LEGEND

- RIGHT-OF-WAY LINE
- BUILDING
- BUILDING OVERHANG
- CHAINLINK FENCE
- MONITORING WELL

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FOR: BEE-JAY SCALES SITE
SUNNYSIDE, WASHINGTON

SITE PLAN

FIGURE: 2

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
213202156/213202157	JRO	MRK	ASM	05/31/13

WAREHOUSE AVENUE

N. 1ST STREET

CHAINLINK FENCE

MW–7 (734.23)

MW–1 (734.45)

734.5

735.0

CARPORT

BLDG.

735.5

AREA 4
SUSPECTED HISTORIC
WASHDOWN AREA

AREA 5
NORTH AREA

AREA 6
HICKENBOTTOM
PROPERTY

CHAINLINK FENCE

734.0

BLDG.

736.0

MW–8 (734.57)

AREA 2
DRY FERTILIZER AREA

GATE

MW–3 (733.91)

AREA 3
DRUM STORAGE AREA

MW–10 (735.96)

BLDG.

AREA 1
LIQUID FERTILIZER PLANT
AND TRUCK WASH AREA

FORMER LAGOON

733.5

MW–5 (734.26)

(733.75) MW–4

(733.17) MW–12

BLDG.

MW–11 (736.05)

MW–6 (735.09)

CHAINLINK FENCE

736.0

CENTER OF NORTH RAIL FOR
RAILROAD SIDE TRACK

735.5

733.0

735.0

MW–9 (732.86)

734.5

734.0

VALLEY PROCESSING BLDG.

BLDG.

733.5

BLDG.

733.0

MW–13 (732.52)

N

0 70 140

SCALE IN FEET

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LEGEND

- RIGHT-OF-WAY LINE
- BUILDING
- BUILDING OVERHANG
- CHAINLINK FENCE
- MONITORING WELL
- INFERRED GROUNDWATER FLOW DIRECTION
- (734.45) GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- GROUNDWATER ELEVATION CONTOUR (FEET ABOVE MEAN SEA LEVEL); DASHED WHERE INFERRED
- CONTOUR INTERVAL = 0.5 FEET
- GROUNDWATER CONTOURS WERE CREATED USING SURFER VERSION 8.0

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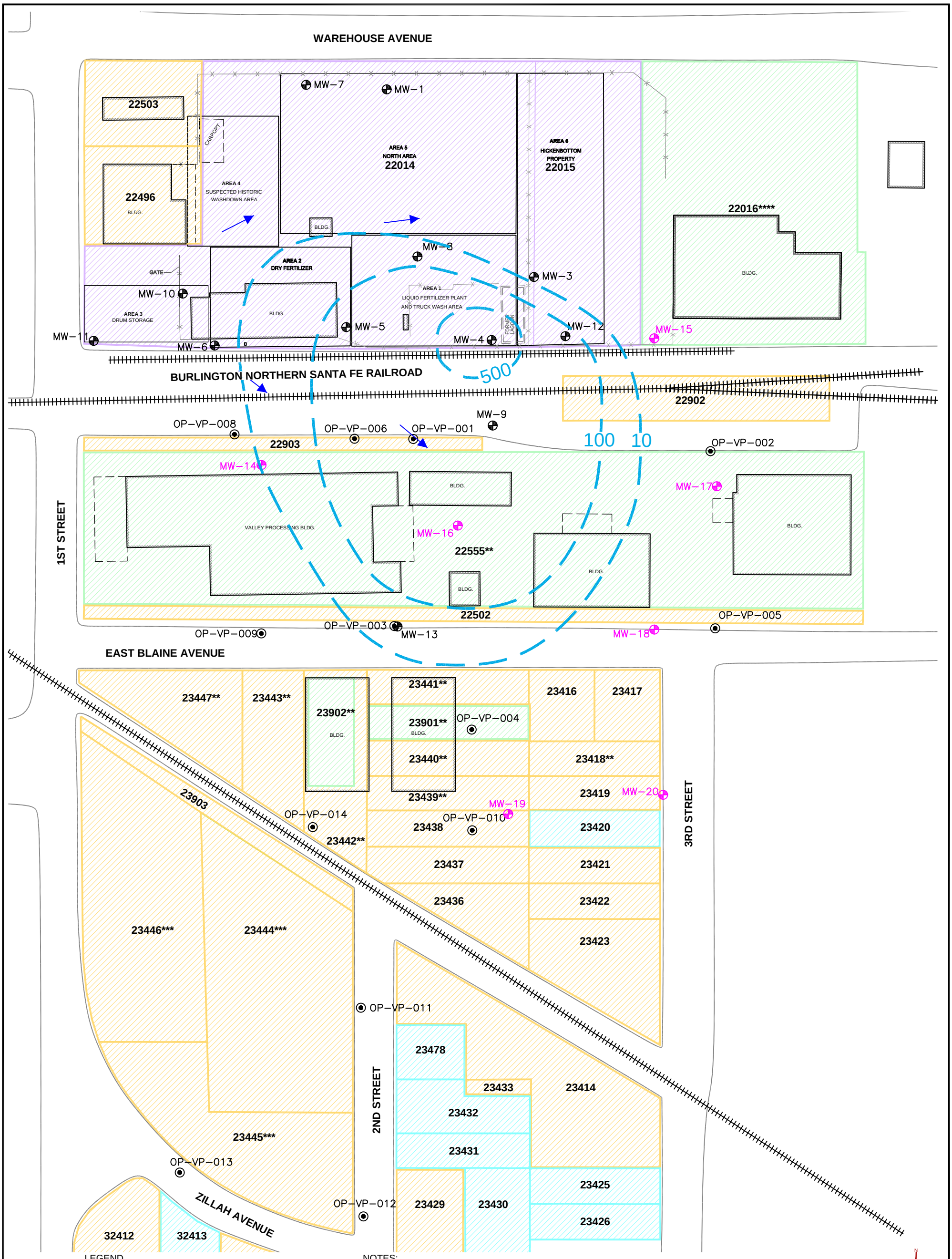
FOR: BEE-JAY SCALES SITE
SUNNYSIDE, WASHINGTON

FIRST HALF 2013
GROUNDWATER ELEVATION
CONTOUR MAP

FIGURE: 3

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
213202156/213202157	JRO	MRK	ASM	05/31/13

FILEPATH:P:\Chevron\Bee-Jay Scales\05_reports\Groundwater Monitoring\Drawings\24CH-67201-21CONT_v4.dwg|jopalekopsahl|May 28, 2013 at 8:16|Layout: 1H13



LEGEND

- BUILDING
- BUILDING OVERHANG
- CHAINLINK FENCE
- RAILROAD TRACKS
- MONITORING WELL
- VERTICAL PROFILE BORING
- PROPOSED MONITORING WELL LOCATION
- CONTOURS FOR SITE-SPECIFIC NITRATE PLUME
- GROUNDWATER FLOW DIRECTION (1H13)
- SITE
- RESIDENTIAL PROPERTIES
- COMMERCIAL PROPERTIES
- INDUSTRIAL PROPERTIES
- 23445 PARCEL ID NUMBER

NOTES:

CONCENTRATIONS IN MILLIGRAMS PER LITER (mg/L)

* NOT USED IN CONTOUR DETERMINATION. THE MAXIMUM CONCENTRATIONS FROM THE VERTICAL PROFILE BORINGS WERE USED TO GENERATE THE ISOCONCENTRATIONS UNLESS THE CONCENTRATIONS CONFLICT WITH CURRENT MONITORING WELL DATA.

RESULTS AT MW-1 AND MW-3 THROUGH MW 13 FROM SAMPLING EVENT IN MARCH 2013.

RESULTS AT OP-VP-001 THROUGH OP-VP-013 FROM SAMPLING EVENT IN MARCH AND MAY 2007.

RESULTS AT OP-VP-014 FROM SAMPLING EVENT IN MARCH 2008.

THE TOWN RANGE SECTION FOR ALL PARCELS IS 221025.

** PARCEL OWNED BY VALLEY PROCESSING, INC.

*** PARCEL OWNED BY J.R. SIMPLOT COMPANY.

**** PARCEL OWNED BY NORTHWEST AMERICAN LAND, LLC.

N

0 100 200

SCALE IN FEET

Stantec
2321 CLUB MERIDIAN DR. SUITE E
OKEMOS, MI
PHONE: (517) 349-9499 FAX: (517) 349-6863

FOR: BEE-JAY SCALES SITE
SUNNYSIDE, WASHINGTON

PROPOSED OFF-PROPERTY MONITORING WELL LOCATIONS

FIGURE: 4

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
213202156/213202157	JRO	MRK	AM	06/18/13

FILEPATH:P:\@GMT-2013.07.08-11.00.16\Chevron\Bee-Jay Scales\05_reports\Off-Property GW Investigation\Work Plan\Figures\Cad\BJS_Prp MW_2013.dwg|nbizjak|Jul 08, 2013 at 13:54|Layout

Appendix A
Borehole/Well Construction Log

PROJECT:
LOCATION:
PROJECT NUMBER:

WELL / PROBEHOLE / BOREHOLE NO:

PAGE 1 OF

Stantec

DRILLING / INSTALLATION:
STARTED COMPLETED:
DRILLING COMPANY:
DRILLING EQUIPMENT:
DRILLING METHOD:
SAMPLING EQUIPMENT:

NORTHING (ft): EASTING (ft):
LAT: LONG:
GROUND ELEV (ft): TOC ELEV (ft):
INITIAL DTW (ft): WELL DEPTH (ft):
STATIC DTW (ft): BOREHOLE DEPTH (ft):
WELL CASING DIA. (in): BOREHOLE DIA. (in):
LOGGED BY: CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID			Headspace PID (units)	Depth (feet)
5									5
10									10
15									15

PROJECT:
LOCATION:
PROJECT NUMBER:

WELL / PROBEHOLE / BOREHOLE NO:

PAGE 2 OF

Stantec

DRILLING / INSTALLATION:
STARTED COMPLETED:
DRILLING COMPANY:
DRILLING EQUIPMENT:
DRILLING METHOD:
SAMPLING EQUIPMENT:

NORTHING (ft): EASTING (ft):
LAT: LONG:
GROUND ELEV (ft): TOC ELEV (ft):
INITIAL DTW (ft): WELL DEPTH (ft):
STATIC DTW (ft): BOREHOLE DEPTH (ft):
WELL CASING DIA. (in): BOREHOLE DIA. (in):
LOGGED BY: CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID			Headspace PID (units)	Depth (feet)
25									25
30									30
35									35

Appendix B

Groundwater Sampling Field Data Sheet

Stantec Consulting Corporation
GROUNDWATER SAMPLING FIELD DATA SHEET

Stantec Project No.: _____ DATE: _____ WELL NO. _____

FACILITY NAME: _____ TEMPERATURE: _____ °F or °C

FIELD PERSONNEL: _____ WEATHER: _____

FIELD MEASUREMENTS:

A. Static Water Level (SWL) below top of casing/piezometer: _____ FT. or IN.

B. Thickness of Free Product, if present: _____ Inches _____ FT. or IN.

C. Total Depth of well (TD) from top of casing/piezometer: _____ FT. or IN.

D. Height of Water Column in casing (h = TD - SWL): _____ FT. or IN.

E. **Useful approximate Purge Volumes (PV) per foot of water column for common casing sizes:**

	3 Well Vols.	5 Well Vols.		
2" Diameter =	0.5 gals/ft	0.82 gals/ft	x feet of water_____ =	_____PV (Gal)
4" Diameter =	2.0 gals/ft	3.25 gals/ft	x feet of water_____ =	_____PV (Gal)
6" Diameter =	4.4 gals/ft	7.35 gals/ft	x feet of water_____ =	_____PV (Gal)

PURGING METHOD: _____ DURATION: _____

OBSERVATIONS:

Cum. PV (Gal)	Time	Turbidity	DO	ORP	pH	Temp.	Conduct.	SWL
		--						
		--						
		--						
		--						
		--						
		--						
		--						
		--						

TOTAL VOLUME OF WATER PURGED FROM WELL: _____

PURGE WATER STORED/DISPOSED OF WHERE/HOW: _____

SAMPLES COLLECTED: Depth to Water at time of sample collection: _____

Sample Number(s)	Time	Size/Number of Container(s)	Preservative

COMMENTS:

_____

_____

Casing Capacities:
2-inch hole.....0.16 gal/lin ft.
4-inch hole.....0.65 gal/lin ft.
6.5-inch hole.....1.70 gal/lin ft.
8-inch hole.....2.60 gal/lin ft.
10-inch hole.....4.10 gal/lin ft.

Recharge Calculation at Time of Sample Collection:

Total Depth of Well:
Original Water Column: _____ **x** 0.80 = -- (_____)
Collect sample when Depth to Water measures
Less than or equal to:

Signature: _____

Appendix C
Packing and Shipping Guidelines

Packing and Shipping Coolers to Lancaster Laboratories

This guide will explain the step-by-step process of packing samples for shipment to Lancaster Laboratories.

How to properly pack the cooler for shipment.

It is very important to follow the directions exactly to ensure the samples properly arrive at Lancaster Laboratories. **Any changes in these steps may cause the samples to be rejected and significant additional costs to Lancaster Laboratories for resampling.**

Critical issues when packing and shipping samples to Lancaster Laboratories
1. Chain of Custody (COC) - proper completion of the Received and Relinquished Fields
2. Temperature blank - samples must be $4^{o}C \pm 2$
3. No breakage (no glass touching glass)
4. Holding times must be met so the samples must be shipped via Overnight Priority Delivery
5. All documents must be placed in a ziploc bag – 2 copies are sent to the laboratory - the client will keep the pink copy of the COC
6. Prechill temperature blanks in a refrigerator

If you run into problems or have questions about the packing process please contact:

Andy Amaya: 510-232-8901

Backup Contact:

Megan Moeller: 717-656-2300, Ext. 1246

How to properly pack the cooler for shipment to Lancaster Laboratories.

Items you need to provide

- Tape - clear packing tape
- Ice – approximately 20 lbs per cooler

Items provided by Lancaster Laboratories

- Cooler custody seal - one per cooler
- Return shipping label with Lancaster Labs address for the outside of the cooler
- FedEx Air bill
- Ziploc bags for ice, documents and 40mL vials in foam holder
- Empty coolers

Critical issues when packing and shipping samples to Lancaster Laboratories
1. Chain of Custody (COC) - proper completion of the Received and Relinquished Fields
2. 20 lbs of ice for each cooler - prepared in two Ziploc bags of 10 lbs of ice each (see photo above)
3. Temperature blank - samples must be $4^{o}C \pm 2$
4. No breakage (no glass touching glass)
5. Holding times must be met so the samples must be shipped via Overnight Priority Delivery
6. All documents must be placed in a Ziploc bag - all originals are sent to the laboratory - the client will keep the pink bottom copy of the COC
7. Prechill temperature blanks in a refrigerator

After you've properly packed and sealed the coolers, deliver them to a Federal Express Service Center. To find a location near you, visit:

www.fedex.com

Step 1

1. Start with an empty cooler.

2. Place the large plastic bag into the cooler and pull excess down the outer edge of cooler. Then place cardboard insert into the bag.

3. Fill one large Ziploc bag with 10 lbs. ice and place on top of the cardboard insert in the bottom of the cooler.

4. Place the cardboard divider insert on top of the Ziploc bag filled with ice.

Step 2a
This step describes packing water samples.

Make sure that the ID labels on the samples are matched with the correct Chain of Custody form.

Analysis Request / Environmental Services Chain of Custody

Lancaster Laboratories
Where quality is a science.

For Lancaster Laboratories use only
Acct. # _____ Group# _____ Sample # _____

COC # 0071071

Please print. Instructions on reverse side correspond with circled numbers.

(1) Client: Company LLI Acct. #:
Project Name/#: Groundwater Only PWSID #:
Project Manager: Wilson Hershey P.O.#: AB-8322
Sampler: Donald E. Wyand Quote #:
Name of state where samples were collected: PA

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	(3) Composite	(4) Matrix: Soil	Water	Other	Total # of Containers	(5) Analyses Requested: TCL VOC 8260	TCL Semi 8270	TAL Metals 6010	pH, TDS	Remarks
MW-1	11/4/04	0900				X		6	X	X	X	X	
MW-2	11/4/04	0930				X		6	X	X	X	X	
MW-3	11/4/04	2100				X		2	X				

(4) Matrix: ☐ Potable ☐ NPDES (Check if Applicable)
(6) For Lab Use Only: FSC: _____ SCR #: _____
(6) Temperature of samples upon receipt (if requested)

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: _____
Rush results requested by (please circle): Phone Fax E-mail
Phone #: 717-656-2300 Fax #: 717-656-0450
E-mail address: dwyand@lancasterlabs.com

(8) **Data Package Options** (please circle if required)
QC Summary Type VI (Raw Data)
Type I (Tier I) GLP
Type II (Tier II) Other
Type III (NJ Red. Del.)
Type IV (CLP)
SDG Complete? Yes No
Site-specific QC required? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal Chain of Custody required? Yes No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
Donald E. Wyand	11/4/04	2130			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time

Lancaster Laboratories, Inc., 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 (717) 656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

2102 Rev. 10/27/02

The Chain of Custody form that matches the samples must be sent with the samples in the cooler.

Step 2b
This step describes packing water samples.

1. Place the foam holder containing the vials, in the smaller size Ziploc bag and seal.

Foam holders must be packed with vial tops facing upward. You must place bubble wrap between foam holders if you stack them on top.

Plastic bottles can touch, but should not be able to move about during shipping.

2. Pack the sample bottles into the cooler using the cardboard divider insert. You may bend the cardboard inserts to meet your needs but **no glass bottles can touch** each other.

Step 3
Final cooler packing

This step applies to packing either soil samples or water samples.

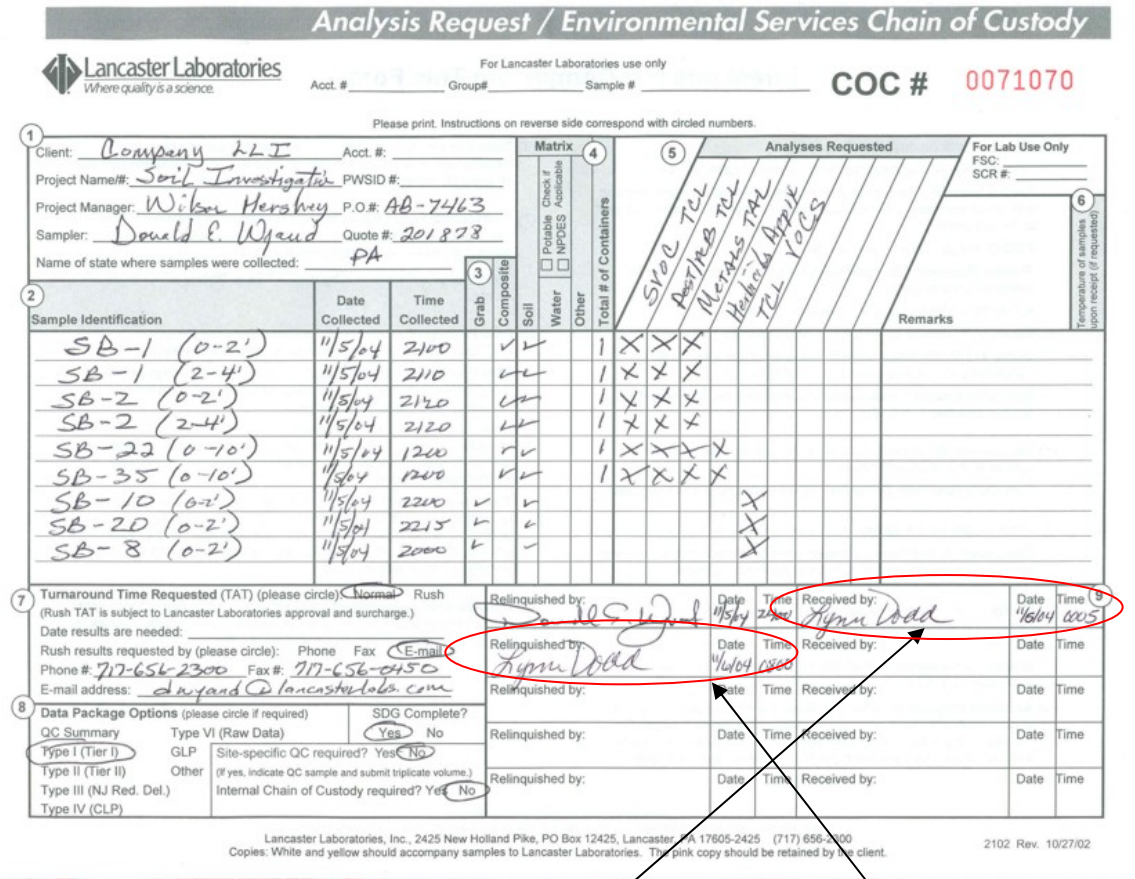
1. The temperature bottle **MUST** be returned with the samples in the cooler. Place this bottle on top of the samples in the cooler.

2. After the samples and temperature bottle are packed, fill the large Ziploc bag with 10 lbs. of ice and place on top of the cardboard divider and temperature bottle.

3. Pull up edges of large bag and cinch together and secure the bag closed with the cable tie.

Step 3b
Final cooler packing

The last item to place in the cooler will be the Chain of Custody. Sign off on this form (as shown below), then **place in a Ziploc bag** on top of the closed bag.



Analysis Request / Environmental Services Chain of Custody

Lancaster Laboratories — Where quality is a science.

For Lancaster Laboratories use only — Acct. # ____ Group# ____ Sample # ____

COC # 0071070

Please print. Instructions on reverse side correspond with circled numbers.

1 Client: Company LLI — Acct. #: ____
Project Name/#: Soil Investigation — PWSID #: ____
Project Manager: Wiker Hershey — P.O.#: AB-7463
Sampler: Donald E. Wyand — Quote #: 201878
Name of state where samples were collected: PA

2 Sample Identification	Date Collected	Time Collected	3 Grab	3 Composite	4 Matrix: Soil	Water	Other	Potable / NPDES (Check if Applicable)	4 Total # of Containers	5 Analyses Requested: SVOC TCL	Pest/PCB TCL	Metals TAL	Herbicides Appnt IX TCL	VOCs	Remarks	6 Temperature of samples upon receipt (if requested)
SB-1 (0-2')	11/5/04	2100		✓	✓				1	X	X	X				
SB-1 (2-4')	11/5/04	2110		✓	✓				1	X	X	X				
SB-2 (0-2')	11/5/04	2120		✓	✓				1	X	X	X				
SB-2 (2-4')	11/5/04	2120		✓	✓				1	X	X	X				
SB-22 (0-10')	11/5/04	1240		✓	✓				1	X	X	X	X			
SB-35 (0-10')	11/5/04	1240		✓	✓				1	X	X	X	X			
SB-10 (0-2')	11/5/04	2210	✓		✓									X		
SB-20 (0-2')	11/5/04	2215	✓		✓									X		
SB-8 (0-2')	11/5/04	2000	✓		✓									X		

7 Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: ____
Rush results requested by (please circle): Phone Fax E-mail
Phone #: 717-656-2300 Fax #: 717-656-0450
E-mail address: dwyand@lancasterlabs.com

8 Data Package Options (please circle if required)
QC Summary — Type VI (Raw Data) — SDG Complete? Yes No
Type I (Tier I) — GLP — Site-specific QC required? Yes No
Type II (Tier II) — Other — (If yes, indicate QC sample and submit triplicate volume.)
Type III (NJ Red. Del.) — Internal Chain of Custody required? Yes No
Type IV (CLP)

Relinquished by:	Date	Time	Received by:	Date	Time
Donald E. Wyand	11/5/04	2400	Lynn Dodd	11/6/04	0005
Lynn Dodd	11/6/04	0950			

Lancaster Laboratories, Inc., 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 (717) 656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

2102 Rev. 10/27/02

You must sign your name in the **Received by** area and write the time and date you received the samples.

You must sign your name in the **Relinquished by** area and write in the time and date when you will be sending the cooler for shipping.

Step 4
Sealing the cooler

1. Place clear shipping tape around the lid of the cooler so that the lid is sealed to the bottom of the cooler.

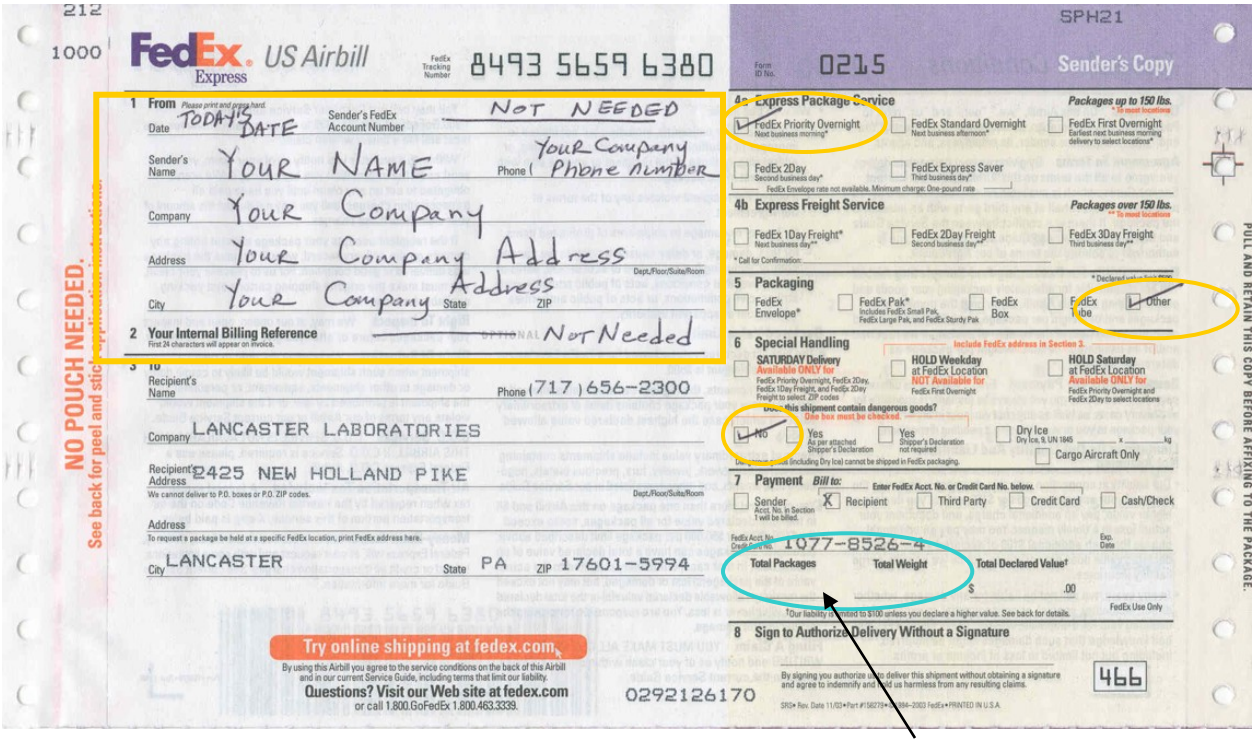
2. Place clear shipping tape around the body of the cooler. Place one strip on either side of the latch that opens the lid.

3. Sign and date the custody seals for each cooler.

4. Place the custody seal on the cooler as shown, so that the lid of the cooler is sealed to the bottom of the cooler.

5. Place the shipping label with Lancaster Laboratories' address, on the top of the cooler. Place clear packing tape over the label to keep it secure.

Step 5
Completing the Fed Ex shipping forms



Samples must be dropped off at a staffed Federal Express Service Center. To find a staffed location near you, visit: **www.fedex.com**

Federal Express can weigh the coolers.