North Boeing Field/ Georgetown Steam Plant Site Remedial Investigation/Feasibility Study

Health and Safety Plan

Prepared for

DEPARTMENT OF ECOLOGY
State of Washington

Toxics Cleanup Program
Northwest Regional Office
Washington State Department of Ecology
Bellevue, Washington

Prepared by

leidos

Leidos
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May 2014

Leidos Health and Safety Plan

Name of site or project: North Boeing Field / Georgetown Steam Plant

Location: NBF: 7742 East Marginal Way S (Badge Office). Access to site through 14th Ave SE Boeing gate.
GTSP: 6605 13th Avenue South.

Site description: The North Boeing Field / Georgetown Steam Plant Site (NBF-GTSP or Site) is located in south Seattle. RI activities will be conducted throughout the Site, which includes two different but adjacent properties. The NBF property is almost entirely paved and is completely fenced. Land use at NBF includes office and industrial buildings, aircraft parking, and related facilities. Automobile parking areas comprise approximately 28 percent of NBF; flightline positions and taxiways comprise about 33 percent of NBF. There are approximately 80 buildings located on the NBF property. Boeing's Propulsion Engineering Laboratory (PEL) area is located in the northern portion of NBF; Flight Test and Operations area is located in the central portion of the property; and the Tent Hangars are located in the southernmost portion of the property. South of the PEL area on the eastern portion of the facility is a large area of concourses and flightline; airplane movement is rarely seen and takeoff/landings occur at the adjacent King County airport, which is not part of the Site.

The GTSP property contains a 19,400-square-foot decommissioned power plant. Most of the property is covered by a grass lawn, except for the power house, water tanks, sheds, retention ponds, and gravel driveway. A concrete slab is present on the north side of the power house, where the Greely substation was formerly located. The NBF-GTSP Site is relatively flat and there is little vehicle traffic near most of the work areas.

Most areas of NBF drain to one of four main lateral lines: the north, north-central, south-central, and south lateral drainages. A network of stormwater catch basins, manholes, roof drains, other structures, and pipes collect and convey stormwater from the lateral lines at the NBF-GTSP Site to the head of Slip 4. Slip 4 is part of the Lower Duwamish Waterway (LDW) Superfund Site.

Potential Contamination: Leidos reviewed recent and historical documents and evaluated the data as part of the 2013 NBF-GTSP RI/FS Work Plan. Sampling results indicate that contamination is present at some areas of NBF-GTSP in various environmental media (soil, groundwater, storm drain solids) and anthropogenic media (surface debris on pavement, concrete joint material [CJM], paint, caulking, roofing, building siding, and pavement). Contamination of soil vapor is also suspected at some areas of NBF. The 2013 Work Plan determined chemicals of potential concern for the Site by comparing concentrations to stringent RI screening levels. Contaminants include the following chemical groups:

- PCBs
- Dioxins/furans
- Metals: mainly arsenic, cadmium, chromium, copper, lead, mercury, silver, zinc
- Petroleum hydrocarbons: gasoline, diesel, and oil ranges
- Semivolatile organic compounds (SVOCs): polycyclic aromatic hydrocarbons, phenols, and phthalates
- Volatile organic compounds (VOCs): PCE, TCE, DCE, vinyl chloride, and benzene

Asbestos is not believed to be present in any building materials that may be sampled. Many of the significant areas of contamination have been removed through numerous previous interim actions, and remaining contaminants are expected to be relatively low. The nature and extent of any contamination remaining at the NBF-GTSP property has not yet been fully characterized, and the RI activities will fill these data gaps. Occupational exposure to contaminants for the environmental media and tasks that Leidos will perform should not represent a hazard to personnel. However, efforts will be made to limit the exposure to these chemicals through the use of gloves and safety glasses. Inhalation hazards are considered minimal, but airborne VOC levels will be monitored.

Hazardous equipment: Leidos staff and subcontractors may be working in the vicinity of drilling or direct push (geoprobe) rigs and also possibly near Boeing-operated forklifts or other heavy machinery. Leidos staff and subcontractors will wear steel-toed boots, safety glasses, and hard hats while working around this equipment. High-visibility traffic vests will be worn whenever onsite.

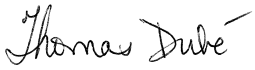
Sampling locations: Sampling activities will take place in a variety of locations on the Site, from near or between buildings, to flightline areas, to roadways, and grassy areas. Some sampling will be located within an enclosed secured fenced area, while others will require up to 360-degree safety coverage. Storm drain structures may range from a foot deep to greater than 10 feet below ground surface (ft bgs). Potential accessibility issues include confined space requirements, storm drain structure or well blockage (vehicles parked over structure), and various facility operations that may interfere with the schedule for sampling. In the event that confined space entry is required for storm drain sampling (where sampling cannot be accomplished from the surface), Leidos will subcontract with an approved contract team partner (Herrera Environmental Consultants) to conduct below-grade sample collection.

Scope of work to be performed by Leidos: The activities to be performed for this RI are intended to identify the nature and extent of contamination at the Site. Investigation activities will include sampling and analysis of soil, groundwater, soil vapor, storm drain solids, surface debris, and anthropogenic materials (paint, caulk, siding, downspout/roof material).

Leidos' objective is to provide support to collect samples of soil, groundwater, soil vapor (outside buildings), storm drain solids, surface debris, concrete joint material (CJM) samples, and building materials (paint, caulk, siding, downspout/roof material). A general scope of work is described below; a more detailed description of proposed activities and an overview of field logistics are presented in the Sampling and Analysis Plan (SAP).

- A private utility locator will mark the approximate positions of subsurface utilities and/or assets prior to beginning any intrusive work.
- Boeing and Seattle City engineers will assist in further identifying subsurface utilities and will approve locations prior to intrusive activities.
- A jackhammer, concrete saw, or other equipment may be used by the drilling subcontractor to remove paved surface at applicable boring locations.
- Each soil boring will be advanced to a depth of approximately 5 ft bgs using a hand auger and/or air-knife (if hand augering is not feasible) to provide physical clearance of subsurface utilities and other assets, prior to beginning direct push or drilling activities.
- Soil borings for soil sampling will be advanced to depths of approximately 10 to 15 ft bgs using direct-push methods (e.g., geoprobe) and 2-inch diameter rods.
- Soil vapor points will be advanced to a depth of approximately 5 ft bgs by hand auger, or by air-knife if hand augering is not feasible. Sampling will take place into 1-liter Summa canisters, with helium as a leak detection gas within a shroud.
- Monitoring wells (2-inch diameter) will be installed within 3.75-inch diameter geoprobe borings.
- Groundwater samples will be collected into the appropriate sample containers using a peristaltic pump.
- Storm drain solids will be collected from the bottom of each sampling location using a decontaminated stainless steel scoop affixed to the end of a telescoping sampling pole. If sampling requires Leidos field personnel to break the surface plane of the storm drain, then a subcontractor (Herrera) will be brought in for sampling those structures requiring confined-space entry.
- Surface debris on pavement will be swept together using a new, clean broom head and a clean stainless-steel dust pan device. Based on past sampling, this material contains low levels of contaminants and should not produce a dust hazard; but if so, sweeping can be accomplished from the upwind direction.
- CJM on the ground surface and caulk from windows or door jams will be collected using a retractable utility knife with disposable blades. These will be accessed from ground level or with the use of a step stool.
- Paint chip samples will be collected using a retractable utility knife with a disposable blade or a stainless steel scraper, as appropriate. These will be accessed from ground level or with the use of a step stool.
- All reusable tools and equipment will be decontaminated before initial use, between sampling locations, and upon demobilization from the site.

Private utility location services will be provided by a private locating service (ULS). Pavement removal, hand augering, direct-push methods or drilling, and air-knifing will be conducted by Cascade Drilling. Leidos will coordinate with Herrera Environmental Consultants for confined space entry, if required, but will not be responsible for any confined space entry procedures. Leidos employees will provide technical/H&S oversight for all field operations, will conduct hand augering activities (with Cascade), and will collect samples.

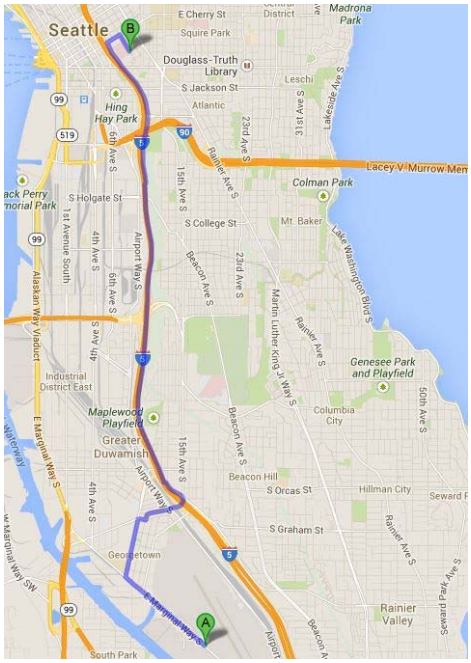
Approval signatures: Signature below indicates review and approval of the Health and Safety Plan (HSP) and agreement that the anticipated hazards are correct and that planned hazard controls are sufficient.
Leidos Health & Safety (H&S) Manager and HSP Reviewer: Mike Crenshaw / 865-406-2659; Randy Hansen (reviewer) / 314-486-6916
Signature and date: RH 5/16/14 
Project Manager (PM): Thomas Dubé / 425-422-0480
Signature and date: TD 5/27/14 
Field Manager (FM) / Site Safety and Health Officer (SSHO): Corey Wilson / 425-354-0551 or Aaron Wisher / 206-459-4436
Signature and date: CW 5/27/14 

Commitment to comply:
Signature below indicates that the individual has reviewed this Health and Safety Plan, has received site-specific training (briefing), and agrees to comply with the requirements of this plan.

Name	Signature	Date

Potential Hazards
Third parties (vehicle traffic, crime, hostile facility personnel)
Proximity to hazardous equipment or heavy equipment (passerby in/near work zone)
Traffic accidents associated with travel to and from the Site
Noise from airplanes, drill rigs or geoprobe rigs, or other equipment
Lifting/moving material/equipment ≥50 pound weight
Slips/trips/falls
Cuts/contusions
Pinching/crushing
Muscle strain to back/shoulder/arm from hand augering
Biological hazards (stinging or biting insects)
Temperature extremes or weather extremes (e.g., sun/ultraviolet exposure, lightning)
Struck by mobile/moving equipment (dump truck, forklift, other vehicle)
Fire
Airplanes taxiing on flightlines; foreign object debris (FOD) concerns (Boeing-required brief training)
Confined space entry (Herrera Environmental Consultants)
Exposure to onsite contaminants: PCBs, dioxins/furans, metals, petroleum hydrocarbons, SVOCs, and VOCs.
Exposure to chemicals used onsite: gasoline, sample preservatives, isobutylene gas, and Liquinox®.
Emergency Phone Numbers
Medical: 911
Police: 911
Fire: 911
Non-emergency Boeing number: 206-655-8800
Emergency Boeing number: 206-655-8888
Emergency Equipment Required Onsite
Cellular phone (or verify access to immediately available landline)
First aid kit
Fire extinguisher
Emergency Reporting
The Field Manager will immediately report injuries or illnesses, vehicle accidents, releases (hazardous material, hazardous waste, or uncharacterized waste), inspections by regulatory agencies or Site managers or their consultants, and any incident that could reasonably have caused a significant injury or property damage (fire, catastrophic equipment failure, damaged heavy equipment, etc.) to the Project Manager and emergency response organizations (if needed). The PM will notify the client (as appropriate), Division Manager, Program Manager, and EH&S Manager. If the PM is not available, the FM will make the other notifications. For details, see EH&S Procedure 4.1, Incident Reporting and Investigation, and Procedure 21, Regulatory Agency Inspections and Related Reporting. Incident notification contact information is included in Attachment 1.
HSP Attachments
Attachment 1: Leidos Incident Notification Contact List
Attachment 2: Foreign Object Debris (FOD) Awareness and Prevention
Attachment 3: Safety Data Sheets
Attachment 4: Tailgate Safety Meeting Form

Emergency Medical Facility
Name and telephone number of nearest hospital or emergency medical service:
Harborview Medical Center
325 9th Ave
Seattle, WA 98104
206-744-3000
Directions to medical facility:

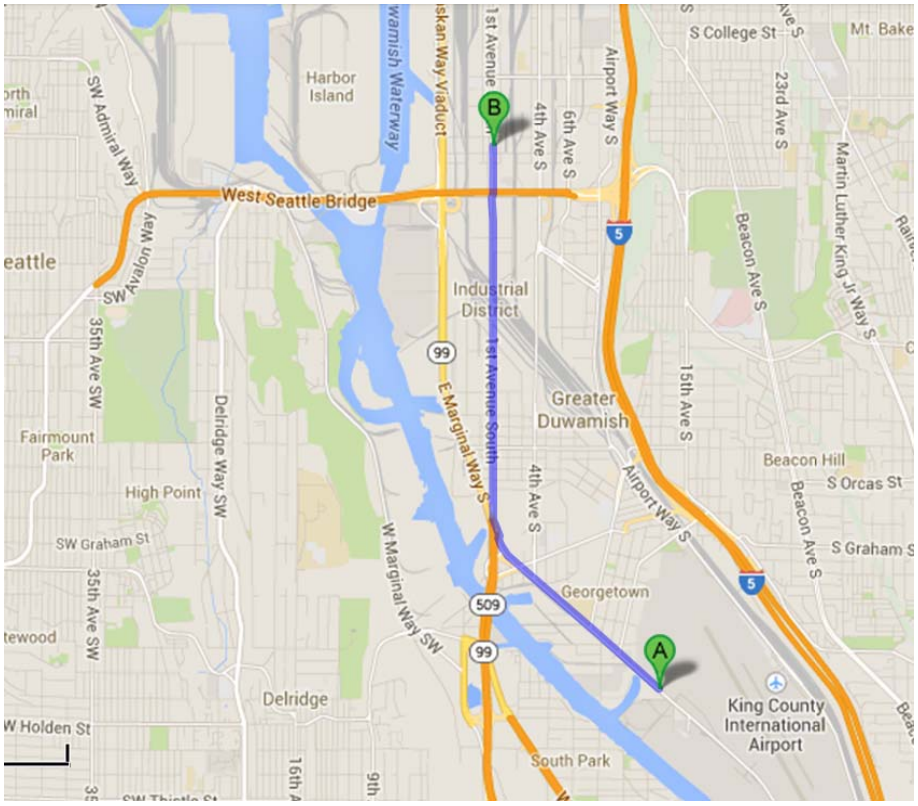


A 7742 East Marginal Way S, Seattle, WA 98108

1.	Head **northwest** on **E Marginal Way S** toward **16th Ave S** About 2 mins	go 0.9 mi total 0.9 mi
2.	Turn right onto **Corson Ave S** About 1 min	go 0.5 mi total 1.4 mi
3.	Turn right onto **S Bailey St**	go 335 ft total 1.4 mi
4.	Turn left onto the **Interstate 5 N** ramp About 2 mins	go 0.6 mi total 2.0 mi
5.	Merge onto **I-5 N** About 3 mins	go 2.5 mi total 4.6 mi
6.	Take exit **164A** for **Dearborn St** toward **James St/Madison St** About 1 min	go 1.1 mi total 5.6 mi
7.	Follow signs for **James St**	go 0.2 mi total 5.8 mi
8.	Turn right onto **James St**	go 0.1 mi total 6.0 mi
9.	Take the 1st right onto **9th Ave** Destination will be on the right	go 0.2 mi total 6.1 mi

B **Harborview Medical Center**
325 9th Ave, Seattle, WA 98104

WorkCare Clinic
Name and telephone number of nearest hospital or emergency medical service:
US HealthWorks
3223 1st Ave South, Suite C
Seattle, WA 98134
206-624-3651
WorkCare nationwide phone: 888-449-7787
Directions to medical facility:



A 7370 East Marginal Way S, Seattle, WA 98108

1.	Head **northwest** on **E Marginal Way S** toward **Ellis Ave S** About 3 mins	go 1.2 mi total 1.2 mi
2.	Slight right onto **1st Avenue South** Destination will be on the left About 4 mins	go 1.8 mi total 3.0 mi

B 3223 1st Ave S, Seattle, WA 98134

General Hazard Controls Applicable to All Work

This plan represents a good-faith effort to identify, evaluate, and prescribe controls for the hazards that will be posed by this work. Revisions to this plan will be documented in the field by hard copy editing and by adding the employee's initials and date. This plan complies with all currently applicable Washington State Safety and Health Regulations (WAC 173-340-810 and WAC 296-843).

This work is subject to the requirements of the Leidos Environmental, Health and Safety (EHS) program. The FM will ensure that applicable provisions of EHS procedures are followed and that personnel have access to these procedures. Potentially applicable procedures include, but are not limited to:

- EHS Procedure 4.1, Incident Reporting and Investigation
- EHS Procedure 8, Hazard Communication
- EHS Procedure 10, Confined Space Entry
- EHS Procedure 13, Personal Protective Equipment
- EHS Procedure 15, Hearing Conservation and Noise Control
- EHS Procedure 20, Hazardous Waste Operations
- EHS Procedure 21, Regulatory Agency Inspections and Related Reporting
- EHS Procedure 24, Hazardous Materials Transportation
- EHS Procedure 110, Vehicle Operation
- EHS Procedure 130, Subsurface Asset and Hazard Avoidance
- EHS Procedure 150, Manual Lifting;
- EHS Procedure 190, Electrical Safety
- EHS Procedure 200, Bloodborne Pathogen Exposure
- EHS Procedure 230, Hand and Power Tool Safety
- EHS Procedure 280, Investigative Derived Waste

The FM will perform and document daily safety inspections to verify that the work is performed safely, that the requirements of this plan are met, that the public or site workers are not endangered by this work, and that no environmental releases or violations occur as a result of this work. All onsite personnel will be responsible to report unsafe, or potentially unsafe, conditions to the FM immediately. The FM will take action to correct any work that he/she judges to be unsafe or non-compliant with this plan.

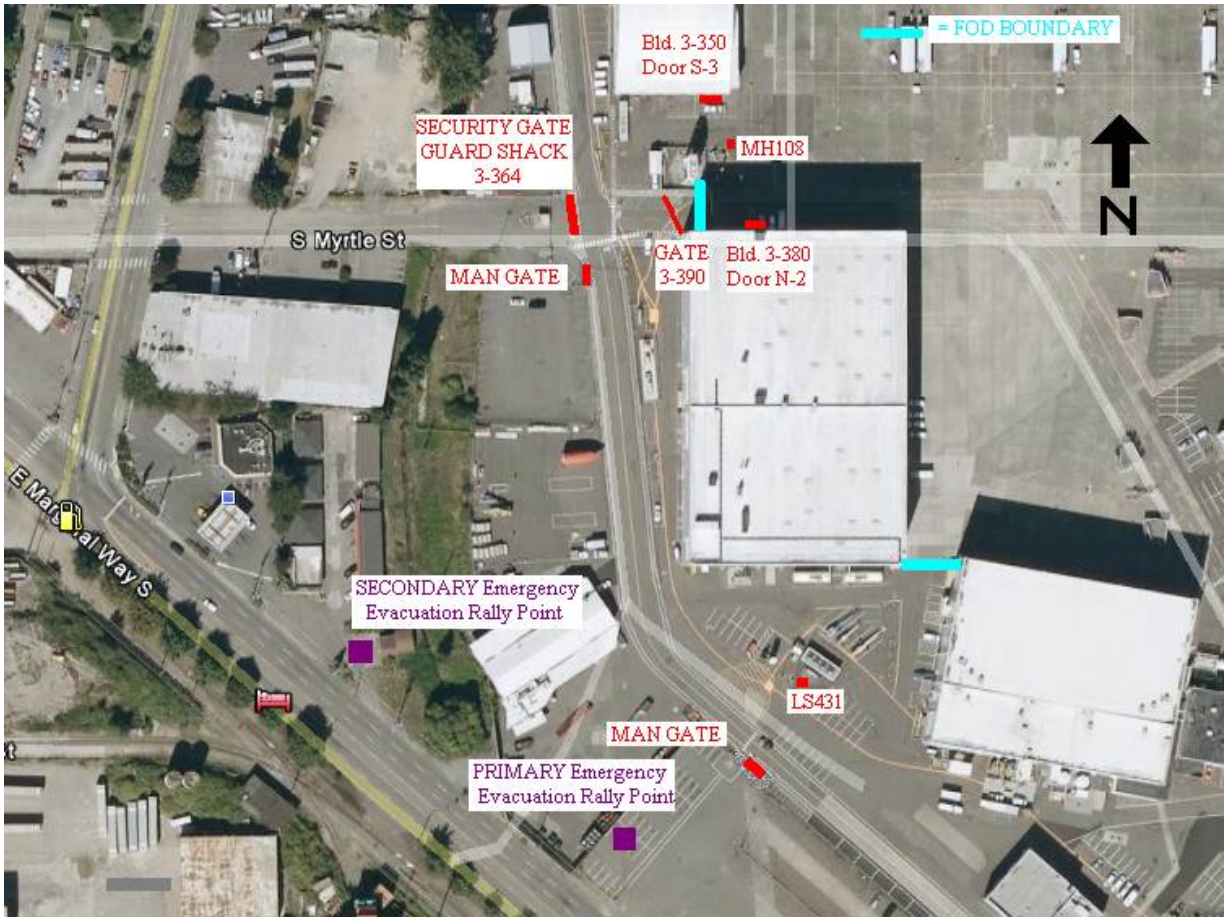
Leidos subcontractors will be informed of the requirements of this plan, will be provided with copies and unrestricted access to this plan. This plan does not relieve subcontractors of the regulatory requirement to provide a safe workplace for their employees. Leidos subcontractors are required to provide trained, experienced personnel and to operate equipment as required by the manufacturer's procedures, or the subcontractor's standard operating procedures, and are required to have their own health and safety programs in compliance with all applicable regulations. Herrera is responsible for performing all confined space entry in compliance with their health and safety program. Leidos personnel will not act in any confined-space entry capacity during entries.

Prior to the start of field activities, the SSHO will ensure all Leidos field personnel training and certifications are up to date and on file. The FM or SSHO will present a project kick-off safety briefing to cover this plan, physical hazards, chemicals used, potential chemical or biological (including pathogenic) exposure risks, required hazard controls, and emergency contacts. Additional safety briefings will be conducted as needed (typically once per day). At least one person onsite will have current first aid, cardiopulmonary resuscitation, and bloodborne pathogen training, unless emergency medical care is available within 5 minutes.

Portable electrical tools will be connected through a Ground Fault Circuit Interrupter. No energized electrical components will be exposed to potential personnel contact.

General Hazard Controls Applicable to All Work
All vehicle operators must have valid driver's licenses and operate in compliance with applicable laws and regulations. Prohibited actions include driving while distracted and driving while using a cell phone. See EH&S Procedure 110 for details. No confined space operations will be conducted by Leidos during sample activities. Storm drain structures will only be open while measurements or sampling activities are conducted. Leidos personnel will walk around open storm drain structures, eliminating the potential to fall through openings. Team members will maintain visual contact at all times during sampling operations, and close any structures when not in use. No hot work or open flame is allowed in areas where flammable substances may be present. No hot work will be initiated without expressed authorization of the FM for each hot work event. Flammable and combustible liquids (gasoline, kerosene, fuel oil) will be transported and stored in containers approved by Factory Mutual, Underwriters Labs, or equivalent or in containers provided by the vendors (e.g., isopropanol). Any generator usage will be first approved by the facility point of contact. Containers of hazardous chemicals must be labeled to indicate contents and hazard. SDSs for hazardous chemicals must be available onsite. Shipment and transportation of hazardous materials must be performed per DOT or IATA requirements. See QA FTP 651 and EHS 24 for guidance.
An exclusion zone (at least barricade tape) will be established around any work that poses a risk of exposure, hazardous contaminants, hazardous chemicals, or physical hazards, in order to exclude unauthorized personnel. No food or drink will be allowed in exclusion zones. Personnel will wash their hands prior to eating or drinking, if chemical contact occurs. The FM will determine if additional controls such as sawhorse barricades, traffic delineators, or additional personal decontamination are needed. The FM will ensure that equipment and supplies are available to control and remove any probable spills of chemicals. The required equipment and supplies will vary by project, type and quantity of chemicals, and may include sorbent pads, granular sorbent, sorbent boom, open-top drums, shovels, etc. Each employee is empowered and expected to stop his or her own work or the work of co-workers if any person's safety or the environment are at risk. The FM is expected to support and reinforce this stop-work authorization. Each major task must have an Activity Hazard Analysis (AHA) and the work must be performed as required by the AHA.

Site Map and Emergency Evacuation Rally Points



- Primary Emergency Evacuation Rally Point – northwest end of Boeing Parking lot
  - If the primary rally point is unsafe or becomes unsafe, move to the secondary rally point location.
- Secondary Emergency Evacuation Rally Point – in parking area just south of motel.

Activity Hazard Analysis

Work Activity: Oversight of opening pavement by jackhammer or powered saw (to be conducted by subcontractor)

Personal Protective Equipment (PPE)	Selected	Comments
Safety Shoes	X	
Hard Hat		No hats/hardhats to be worn while near flightline due to FOD concerns.
Safety Glasses with Side Shields	X	
Fire Resistant Clothing		
Face Shields		
Goggles		
Lifeline/Body Harness		
Hearing Protection	X	Only if necessary to be within 25 ft of jackhammer, compressor, or saw; or if need to shout to be heard.
Welding Hood		
Welding/Pipe Clothing		
Welding Mask/Goggles		
Personal Flotation Device		
Gloves		
Safety Cones/Barricades	X	To control/alert traffic and exclude unauthorized personnel.
Safety Vest	X	DOT type II required for traffic safety and visibility.
Knee Pads		
Caution/Danger Tape	X	As needed, to exclude unauthorized personnel (not to be used in flightline due to FOD concerns).

Work Activity: Oversight of opening pavement by jackhammer or powered saw (to be conducted by subcontractor)		
Job Steps	**Potential Hazard**	**Critical Actions**
Mobilize to work site	Traffic accident	Compliance with EH&S Procedure 110, Vehicle Operation (valid driver's license, seat belt use, routine vehicle inspections, no cell phone use while driving).
Oversight of powered saw cutting of pavement	Severe weather	Locate nearest severe weather shelter/strong structure before beginning field work. Avoid water, high ground, open spaces, and metal objects. Suspend field work when lightning is first seen or thunder is first heard.
	Struck by moving vehicles	• Face line of danger with respect to being struck by vehicles. • Control/alert traffic and exclude unauthorized personnel. Barricades/delineators (sawhorse, traffic candle barricades, cones; more substantial barriers required as traffic hazard increases). • Vehicle(s) placed between workers and oncoming traffic. • High-visibility safety vests shall be worn while at any facility conducting field work.
	Subsurface utilities	FM will ensure that each location has been cleared to preclude contact with buried utilities through compliance with EH&S Procedure 130.
	Slips/trips/falls	Observe area ahead for hazards before proceeding. Ensure good housekeeping is maintained in work area. Avoid trip hazards and wet surfaces.
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (cooled or warmed drinks, routine breaks in heated or shaded area, provisions for emergency heating or cooling).
	Flying debris	Stay outside of active work zone. Safety glasses required to protect face and eyes. Establish an exclusion zone to keep non-workers out of range of flying debris or erect barriers to prevent flying debris from leaving work zone.
	Lifting (musculoskeletal injuries) hazards	• Compliance with EH&S Procedure 150, Manual Lifting. • If equipment is to be moved, an evaluation of potential pinch points and/or weight strain will be conducted. • Clear area of all unnecessary equipment and slip/trip hazards.
	Silica exposure	Leidos staff will remain a safe distance and/or upwind from active power saw to prevent exposure to dust from cutting operations.
	Unauthorized personnel entering work zone	If structures or public access areas fall within area affected by work, establish a work schedule to minimize hazard to public, or establish an exclusion zone boundary that unauthorized personnel cannot cross.
	Noise	Stay outside active work zone. Hearing protection when within 25 ft of equipment, or if need to shout to be heard.
Oversight of jackhammer operation	Severe weather	Locate nearest severe weather shelter/strong structure before beginning field work. Avoid water, high ground, open spaces, and metal objects. Suspend field work when lightning is first seen or thunder is first heard.

Work Activity: Oversight of opening pavement by jackhammer or powered saw (to be conducted by subcontractor)		
Job Steps	**Potential Hazard**	**Critical Actions**
Oversight of jackhammer operation (continued)	Struck by moving vehicles	• Face line of danger with respect to being struck by vehicles. • Control/alert traffic and exclude unauthorized personnel. Use barricades/delineators (sawhorses, traffic candle barricades, cones); more substantial barriers required as traffic hazard increases. • Vehicle(s) placed between workers and oncoming traffic. • High-visibility safety vests shall be worn while at any facility conducting field work.
	Pressurized systems	Remain at least 20 ft away from jackhammer and/or pressurized line to prevent contact with pressurized systems.
	Flying debris	Stay outside of active work zone. Safety glasses required to protect face and eyes. Establish an exclusion zone to keep non-workers out of range of flying debris or erect barriers to prevent flying debris from leaving work zone.
	Unauthorized personnel entering work zone	If structures or public access areas fall within area affected by work, establish a work schedule to minimize hazard to public, or establish an exclusion zone boundary that unauthorized personnel cannot cross.
	Subsurface utilities (electric shock, fire, damage to utilities)	FM will ensure that each location has been cleared to preclude contact with buried utilities through compliance with EH&S Procedure 130.
	Noise	Keep distance from operations; hearing protection used only when within 25 ft, or if need to shout to be heard.
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (cooled or warmed drinks, routine breaks in heated or shaded area, and provisions for emergency heating or cooling).
	Lifting (musculoskeletal injuries) hazards	• Compliance with EH&S Procedure 150, Manual Lifting. • If equipment is to be moved, an evaluation of potential pinch points and/or weight strain will be conducted. • Clear area of all unnecessary equipment and slip/trip hazards.
	Silica exposure	Leidos staff will remain a safe distance and/or upwind from active jackhammer to prevent exposure to dust or debris from jackhammer operations.
All operations near flightline	Flightline safety	• Before entering the flightline, drivers must stop and remove foreign materials from the vehicle's tires. Vehicles that leave the pavement at any point must do another FOD check prior to re-entering the flightline, taxiway, or aircraft parking ramp. Good housekeeping must be maintained in work area to ensure objects are not left on or near the flightline. • Employ additional FOD procedures in Attachment 2. • Dispose of all solid waste into secure container to prevent foreign object debris. • Clean up any debris or waste immediately upon generation while near flightline. • Only use those tools necessary. Return all unused or unnecessary tools to a secure location immediately.

Activity Hazard Analysis

Work Activity: Hand augering in potentially contaminated areas

Personal Protective Equipment (PPE)	Selected	Comments
Safety Shoes	X	
Hard Hat	X	Within 25 ft of any overhead hazards. No hats/hardhats to be worn while near flightline due to FOD concerns, and hand augering will be done away from active equipment.
Safety Glasses with Side Shields	X	
Fire Resistant Clothing		
Face Shields		
Goggles		
Lifeline/Body Harness		
Hearing Protection	X	Used when within 25 ft of operating air excavator or if need to shout to be heard.
Welding Hood		
Welding/Pipe Clothing		
Welding Mask/Goggles		
Personal Flotation Device		
Gloves	X	Nitrile or similar for potentially contaminated material. Heavy duty work gloves (e.g., leather) for material handling and augering.
Fall Restraint/Arrest PPE		
Safety Cones/Barricades	X	To control/alert traffic and exclude unauthorized personnel.
Safety Vest	X	DOT type II required for traffic safety and visibility.
Knee Pads		
Caution/Danger Tape	X	As needed, to exclude unauthorized personnel (not to be used in flightline due to FOD concerns).

Work Activity: Hand augering in potentially contaminated areas		
Job Steps	**Potential Hazard**	**Critical Actions**
Mobilize to work site	Traffic accident	Compliance with EH&S Procedure 110, Vehicle Operation (valid driver's license, seat belt use, routine vehicle inspections, no cell phone use while driving).
Hand augering and soil sampling	Severe weather	Locate nearest severe weather shelter/strong structure before beginning field work. Avoid water, high ground, open spaces, and metal objects. Suspend field work when lightning is first seen or thunder is first heard.
	Struck by moving/mobile vehicles or equipment	• Face line of danger with respect to being struck by vehicles. • Control/alert traffic and exclude unauthorized personnel. Use barricades/delineators (sawhorses, traffic candle barricades, cones); more substantial barriers required as traffic hazard increases. • Vehicle(s) placed between workers and oncoming traffic. • High-visibility safety vests shall be worn while at any facility conducting field work.
	Subsurface utilities (electric shock, fire, damage to utilities)	FM will ensure that each boring location has been cleared to preclude contact with buried utilities through compliance with EH&S Procedure 130.
	Slips/trips/falls	Observe area ahead for hazards before proceeding. Ensure good housekeeping is maintained in work area. Avoid trip hazards and wet surfaces.
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (cooled or warmed drinks, routine breaks in heated or shaded area, provisions for emergency heating or cooling).
	Lifting (musculoskeletal injuries) hazards	• Compliance with EH&S Procedure 150, Manual Lifting. • If equipment is to be moved, an evaluation of potential pinch points and/or weight strain will be conducted. • Clear area of all unnecessary equipment and slip/trip hazards. • Additional help will be obtained by workers or mechanical assistance used onsite if equipment to be moved is unwieldy, has a weight >50 lbs, or has to be moved by maneuvering through awkward positioning.
	Muscle strain turning auger	Stretch before starting to turn auger. Use smooth movement while turning auger. Do not turn from the waist. Do not jerk auger. Alternate with partner between samples to reduce fatigue/strain.
	Unauthorized personnel entering work zone	If structures or public access areas fall within radius of rig mast, establish a work schedule to minimize hazard to public, establish an exclusion zone boundary that unauthorized personnel cannot cross, and position rig so as to minimize inclusion of public access areas within work zone.
	Pinch hazards	• Keep fingers away from connecting ends when assembling hand auger. • A first aid kit will be kept in the field vehicle at all times.
	Noise	• Hearing protection when within 25 ft of equipment, or if need to shout to be heard.

Work Activity: Hand augering in potentially contaminated areas		
Job Steps	**Potential Hazard**	**Critical Actions**
Hand augering, and soil sampling (continued)	Chemical exposure	• PID air monitoring of breathing zone when in areas with potential exposure to VOCs; action level of 5 ppm sustained for 1 minute, then stop work and reassess. • Wash hands before eating or drinking. • Hazard communication labels on all chemical containers. • SDSs onsite for all chemicals in use. • Site-specific training must address chemicals, hazards, and proper handling. • Nitrile gloves for chemical/contaminant contact. • Safety glasses for eye protection.
	Biological hazards	• Inspect area for hazardous organism conditions. Avoid such areas if possible. • Wear clothing that covers potentially affected body parts. • Identify allergic personnel, and review route to hospital if allergic to inspect/spider sting/bite.
	IDW control	• If rinse water is drummed – label or mark IDW containers to indicate container number, contents (including physical state), investigation location, date of collection, and client name, if necessary. • Ensure that storage area provides adequate protection against physical damage or disturbance. • Be aware of pinch points and communicate your next move when moving drums.
All operations near flightline	Flightline safety	• Before entering the flightline, drivers must stop and remove foreign materials from the vehicle's tires. Vehicles that leave the pavement at any point must do another FOD check prior to re-entering the flightline, taxiway, or aircraft parking ramp. Good housekeeping must be maintained in work area to ensure objects are not left on or near the flightline. • Employ additional FOD procedures in Attachment 2. • Dispose of all solid waste into secure container to prevent foreign object debris. • Clean up any debris or waste immediately upon generation while near flightline. • Only use those tools necessary. Return all unused or unnecessary tools to a secure location immediately.

Activity Hazard Analysis

Work Activity: Subsurface soil sampling and oversight of well and vapor point installation using direct-push methods, drill rig, or air knife in potentially contaminated areas (drilling to be conducted by subcontractor)

Personal Protective Equipment (PPE)	Selected	Comments
Safety Shoes	X	
Hard Hat	X	Within mast height of drill/geoprobe rig or other overhead hazards. Hardhats are generally not allowed by Boeing to be worn while near flightline; a variance will be requested of Boeing for direct-push operators, and Leidos will remain more than a mast height distance from rig.
Safety Glasses with Side Shields	X	
Fire Resistant Clothing		
Face Shields		
Goggles	X	If splash potential exists.
Lifeline/Body Harness		
Hearing Protection	X	When within 25 ft of operating air excavator, drill rig, or geoprobe; or if need to shout to be heard
Welding Hood		
Welding/Pipe Clothing		
Welding Mask/Goggles		
Personal Flotation Device		
Gloves	X	Nitrile or similar for potentially contaminated material. Heavy duty work gloves for material handling.
Fall Restraint/Arrest PPE		
Safety Cones/Barricades	X	To control/alert traffic and exclude unauthorized personnel.
Safety Vest	X	DOT type II required for traffic safety and visibility.
Knee Pads	X	Optional, as needed.
Caution/Danger Tape	X	As needed, to exclude unauthorized personnel (not to be used in flightline due to FOD concerns).

Work Activity: Subsurface soil sampling and oversight of well and vapor point installation using direct-push methods, drill rig, or air knife in potentially contaminated areas (drilling to be conducted by subcontractor)		
Job Steps	**Potential Hazard**	**Critical Actions**
Mobilize to work site	Traffic accident	Compliance with EH&S Procedure 110, Vehicle Operation (valid driver's license, seat belt use, routine vehicle inspections, no cell phone use while driving).
Oversight of rig setup, boring, and addition of drill string	Severe weather	Locate nearest severe weather shelter/strong structure before beginning field work. Avoid water, high ground, open spaces, and metal objects. Suspend field work when lightning is first seen or thunder is first heard.
	Struck by moving/mobile vehicles or equipment	• Face line of danger with respect to being struck by vehicles. • Control/alert traffic and exclude unauthorized personnel. Use barricades/delineators (sawhorses, traffic candle barricades, cones); more substantial barriers required as traffic hazard increases. • Vehicle(s) placed between workers and oncoming traffic. • High-visibility safety vests shall be worn while at any facility conducting field work.
	Subsurface utilities (electric shock, fire, damage to utilities)	FM will ensure that each boring location has been cleared to preclude contact with buried utilities through compliance with EH&S Procedure 130.
	Slips/trips/falls	Observe area ahead for hazards before proceeding. Ensure good housekeeping is maintained in work area. Avoid trip hazards and wet surfaces.
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (cooled or warmed drinks, routine breaks in heated or shaded area, and provisions for emergency heating or cooling).
	Lifting (musculoskeletal injuries) hazards	• Compliance with EH&S Procedure 150, Manual Lifting. • If equipment is to be moved, an evaluation of potential pinch points and/or weight strain will be conducted. • Clear area of all unnecessary equipment and slip/trip hazards.
	Unauthorized personnel entering work zone	If structures or public access areas fall within radius of raised mast, establish a work schedule to minimize hazard to public, establish an exclusion zone boundary that unauthorized personnel cannot cross, and position rig so as to minimize inclusion of public access areas within work zone.
	Contact with overhead structures or utilities during rig setup	• FM will survey location and ensure absence of obstructions and overhead utilities prior to rig set-up. • Rig will not be allowed to come within 10 ft of overhead power lines. • At the time the mast is being raised or lowered, drill crew members should not be engaged in any other activity; the task at that time is to assist in raising or lowering the mast in the safest manner possible. • The mast of the rig must be lowered before moving to the next location.
	Falling equipment	• Workers should be present under suspended loads at any time. • Exclusion zone placed around rig (no caution tape on flightline). • At no time should Leidos employees work in close proximity to the rotating augers.
	Pinch hazards	• Keep hands from between drill string components. • Keep fingers out of all openings.

Work Activity: Subsurface soil sampling and oversight of well and vapor point installation using direct-push methods, drill rig, or air knife in potentially contaminated areas (drilling to be conducted by subcontractor)		
Job Steps	**Potential Hazard**	**Critical Actions**
Oversight of rig setup, boring, and addition of drill string (continued)	Falls from elevated surface (≥6 ft)	At no time should Leidos employees work on the drill or geoprobe rig.
	Noise	Keep distance from drill or geoprobe rig; hearing protection used only when within 25 ft, or if need to shout to be heard.
	Fire	• Identify location of fire extinguishers onsite and posted emergency response numbers. • A fire extinguisher will be kept in the field vehicle at all times. • Hotwork controls if welding/cutting required.
	Chemical exposure	• PID air monitoring of breathing zone when in areas with potential exposure to VOCs; action level of 5 ppm sustained for 1 minute, then stop work and reassess. • Wash hands before eating or drinking. • Hazard communication labels on all chemical containers. • SDSs onsite for all chemicals in use. • Site-specific training must address chemicals, hazards, and proper handling. • Nitrile gloves for chemical/contaminant contact. • Safety glasses for eye protection.
Oversight of soil sampling with rig	Severe weather	Locate nearest severe weather shelter/strong structure before beginning field work. Avoid water, high ground, open spaces, and metal objects. Suspend field work when lightning is first seen or thunder is first heard.
	Struck by moving/mobile vehicles or equipment	• Face line of danger with respect to being struck by vehicles. • Control/alert traffic and exclude unauthorized personnel. Barricades/delineators (sawhorses, traffic candle barricades, cones); more substantial barriers required as traffic hazard increases. • Vehicle(s) placed between workers and oncoming traffic. • High-visibility safety vests shall be worn while at any outdoor facility conducting field work.
	Slips/trips/falls	Observe area ahead for hazards before proceeding. Ensure good housekeeping is maintained in work area. Avoid trip hazards and wet surfaces.
	Rotating and/or moving equipment	Rotating/moving equipment controls as above. Keep clear of all rotating/moving equipment components. Stay at least 25 ft from operating rig.
	Falling equipment	• No workers present under suspended loads. • Exclusion zone around rig.
	Noise	Keep distance from operations; hearing protection when within 25 ft of equipment, or if need to shout to be heard.
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (cooled or warmed drinks, routine breaks in heated or shaded area, and provisions for emergency heating or cooling).

Work Activity: Subsurface soil sampling and oversight of well and vapor point installation using direct-push methods, drill rig, or air knife in potentially contaminated areas (drilling to be conducted by subcontractor)		
Job Steps	**Potential Hazard**	**Critical Actions**
Oversight of soil sampling with rig (continued)	Lifting (musculoskeletal injuries) hazards	• Compliance with EH&S Procedure 150, Manual Lifting. • If equipment is to be moved, an evaluation of potential pinch points and/or weight strain will be conducted. • Clear area of all unnecessary equipment and slip/trip hazards. • Additional help will be obtained by workers or mechanical assistance used onsite if equipment to be moved is unwieldy, has a weight >50 lbs, or has to be moved by maneuvering through awkward positioning.
	Unauthorized personnel in work zone	If structures or public access areas fall within radius of raised mast, establish a work schedule to minimize hazard to public, establish an exclusion zone boundary that unauthorized personnel cannot cross, and position rig so as to minimize inclusion of public access areas within work zone.
	Cuts/contusions	Use dedicated tube cutter or hooked safety blades when opening polymer sample tubes. Wear heavy cut-resistant gloves when opening polymer sample tubes. Keep fingers from between split spoon halves.
	Fire	• Identify location of fire extinguishers onsite and posted emergency response numbers. • A fire extinguisher will be kept in the field vehicle at all times.
	Chemical exposure	• PID air monitoring of breathing zone when in areas with potential exposure to VOCs; action level of 5 ppm sustained for 1 minute, then stop work and reassess. • Wash hands before eating or drinking. • Hazard communication labels on all chemical containers. • SDSs onsite for all chemicals in use. • Site-specific training must address chemicals, hazards, and proper handling. • Nitrile gloves for chemical/contaminant contact. • Safety glasses for eye protection.
	Biological hazards	• Inspect area for hazardous organism conditions. Avoid such areas if possible. • Wear clothing that covers potentially affected body parts. • Identify allergic personnel, and review route to hospital if allergic to inspect/spider sting/bite.
	Particulate exposure	Stay upwind and outside of work zone. Visually monitor for dust and take action (wetting, etc.) to suppress if dust is visible in breathing zone.
	Electric shock	Portable electrical tools and all portable electrical equipment must be connected through ground fault circuit interrupters.
	IDW control	• If rinse water is drummed – label or mark IDW containers to indicate container number, contents (including physical state), investigation location, date of collection, and client name, if necessary. • Ensure that storage area provides adequate protection against physical damage or disturbance. • Be aware of pinch points and communicate your next move when moving drums.
Oversight of well construction or abandonment	Fire	Fire extinguisher rated 2A and 5B (serviced annually and inspected monthly) in all fuel use/hotwork areas. Clear 30 ft radius area of combustible/flammable materials during hotwork.

Work Activity: Subsurface soil sampling and oversight of well and vapor point installation using direct-push methods, drill rig, or air knife in potentially contaminated areas (drilling to be conducted by subcontractor)		
Job Steps	**Potential Hazard**	**Critical Actions**
Oversight of well construction or abandonment (continued)	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (cooled or warmed drinks, routine breaks in heated or shaded area, and provisions for emergency heating or cooling).
	Severe weather	Locate nearest severe weather shelter/strong structure before beginning field work. Avoid water, high ground, open spaces, and metal objects. Suspend field work when lightning is first seen or thunder is first heard.
	Lifting (musculoskeletal injuries) hazards	• Compliance with EH&S Procedure 150, Manual Lifting. • If equipment is to be moved, an evaluation of potential pinch points and/or weight strain will be conducted. • Clear area of all unnecessary equipment and slip/trip hazards.
	Slips/trips/falls	Observe area ahead for hazards before proceeding. Ensure good housekeeping is maintained in work area. Avoid trip hazards and wet surfaces.
	Unauthorized personnel in work zone	Exclude non-site workers from work area using barrier tape (tape not to be used in flightline).
	Chemical exposure	• Wash hands before eating or drinking. • Hazard communication labels on all chemical containers. • SDSs onsite for all chemicals in use. • Site-specific training must address chemicals, hazards, and proper handling. • Nitrile gloves for chemical/contaminant contact. • Safety glasses for eye protection.
	IDW control	• If rinse water is drummed – label or mark IDW containers to indicate container number, contents (including physical state), investigation location, date of collection, and client name, if necessary. • Ensure that storage area provides adequate protection against physical damage or disturbance. • Be aware of pinch points and communicate your next move when moving drums.
Containing and managing waste soil, decon fluids, purge water, and other IDW	Unauthorized personnel in work zone	Exclude non-site workers from work area using barrier tape (tape not to be used in flightline).
	Severe weather	Locate nearest severe weather shelter/strong structure before beginning field work. Avoid water, high ground, open spaces, and metal objects. Suspend field work when lightning is first seen or thunder is first heard.
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (cooled or warmed drinks, routine breaks in heated or shaded area, and provisions for emergency heating or cooling).
	Lifting (musculoskeletal injuries)	• Compliance with EH&S Procedure 150, Manual Lifting. • If equipment is to be moved, an evaluation of potential pinch points and/or weight strain will be conducted. • Clear area of unnecessary equipment and slip/trip hazards. • Additional help will be obtained by workers or mechanical assistance used onsite if equipment to be moved is unwieldy, has a weight >50 lbs, or has to be moved by maneuvering through awkward positioning.
	Electric shock	Portable electrical tools and all portable electrical equipment must be connected through ground fault circuit interrupters.

Work Activity: Subsurface soil sampling and oversight of well and vapor point installation using direct-push methods, drill rig, or air knife in potentially contaminated areas (drilling to be conducted by subcontractor)		
Job Steps	**Potential Hazard**	**Critical Actions**
Containing and managing waste soil, decon fluids, purge water, and other IDW (continued)	Chemical exposure	• Wash hands before eating or drinking. • Hazard communication labels on all chemical containers. • SDSs onsite for all chemicals in use. • Site-specific training must address chemicals, hazards, and proper handling. • Nitrile gloves for chemical/contaminant contact. • Safety glasses for eye protection.
	Slips/trips/falls	Observe area ahead for hazards before proceeding. Ensure good housekeeping is maintained in work area. Avoid trip hazards and wet surfaces.
	Forklift	No personnel under or near lifted loads.
	IDW control	• If rinse water is drummed – label or mark IDW containers to indicate container number, contents (including physical state), investigation location, date of collection, and client name, if necessary. • Ensure that storage area provides adequate protection against physical damage or disturbance. • Be aware of pinch points and communicate your next move when moving drums.
All operations near flightline	Flightline safety	• Before entering the flightline, drivers must stop and remove foreign materials from the vehicle's tires. Vehicles that leave the pavement at any point must do another FOD check prior to re-entering the flightline, taxiway, or aircraft parking ramp. Good housekeeping must be maintained in work area to ensure objects are not left on or near the flightline. • Employ additional FOD procedures in Attachment 2. • Dispose of all solid waste into secure container to prevent foreign object debris. • Clean up any debris or waste immediately upon generation while near flightline. • Only use those tools necessary. Return all unused or unnecessary tools to a secure location immediately.

Activity Hazard Analysis		
Work Activity: Well development and groundwater sampling		
Personal Protective Equipment (PPE)	**Selected**	**Comments**
Safety Shoes	X	
Hard Hat	X	Within 25 ft of any overhead hazards. No hats/hardhats to be worn while near flightline due to FOD concerns.
Safety Glasses with Side Shields	X	
Fire Resistant Clothing		
Face Shields		
Goggles	X	If splash potential.
Lifeline/Body Harness		
Hearing Protection	X	As necessary near flightline areas or heavy equipment, if need to shout to be heard.
Air Purifying Respirator		
Supplied Air Respirator – SCBA		
Welding Hood		
Welding/Pipe Clothing		
Welding Mask/Goggles		
Personal Flotation Device		
Gloves	X	Nitrile or similar for potentially contaminated material. Heavy duty work gloves for material handling.
Safety Cones/Barricades	X	To control/alert traffic and exclude unauthorized personnel.
Safety Vest	X	DOT type II required for traffic safety and visibility.
Knee Pads	X	When working over flush-grade wells, if needed.
Caution Tape	X	Not to be used in flightline due to FOD concerns.

Work Activity: Well development and groundwater sampling		
Job Steps	**Potential Hazard**	**Critical Actions**
Mobilize to work site	Traffic accident	Compliance with EH&S Procedure 110, Vehicle Operation (valid driver's license, seat belt use, routine vehicle inspections, no cell phone use while driving).
Groundwater monitoring and sampling	Struck by moving/mobile equipment	• Face line of danger with respect to being struck by vehicles. • Control/alert traffic and exclude unauthorized personnel. Use barricades/delineators (sawhorses, traffic candle barricades, cones); more substantial barriers required as traffic hazard increases. • Vehicle(s) placed between workers and oncoming traffic. • High-visibility safety vests shall be worn while at any facility conducting field work.
	Noise	Hearing protection as needed near flightline or around other equipment, or if need to shout to be heard.
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (cooled or warmed drinks, routine breaks in heated or shaded area, provisions for emergency heating or cooling).
	Severe weather	Locate nearest severe weather shelter/strong structure before beginning field work. Avoid water, high ground, open spaces, and metal objects. Suspend field work when lightning is first seen or thunder is first heard.
	Lifting (musculoskeletal injuries) hazards	• Compliance with EH&S Procedure 150, Manual Lifting. • If equipment is to be moved, an evaluation of potential pinch points and/or weight strain will be conducted. • Clear area of all unnecessary equipment and slip/trip hazards. • Additional help will be obtained by workers or mechanical assistance used onsite if equipment to be moved is unwieldy, has a weight >50 lbs, or has to be moved by maneuvering through awkward positioning.
	Pinch hazards	Identify, mark, and communicate pinch points on equipment.
	Electric shock	Portable electrical tools and all portable electrical equipment that poses a shock hazard must be connected through ground fault circuit interrupters.
	Battery fire/explosion	Use only batteries that are not installed in vehicles and are not being charged during use for powering equipment. If no other battery available use vehicle battery by making the final connection away from the battery.
	Fire	• Identify location of fire extinguishers onsite and posted emergency response numbers. • A fire extinguisher will be kept in the field vehicle at all times.
	Chemical exposure	• Wash hands before eating or drinking. • Hazard communication labels on all chemical containers. • SDSs onsite for all chemicals in use. • Site-specific training must address chemicals, hazards, and proper handling; PID air monitoring not required. • Nitrile gloves for chemical/contaminant contact. • Safety glasses for eye protection.
	Biological hazards	• Inspect area for hazardous organism conditions. Avoid such areas if possible. • Wear clothing that covers potentially affected body parts. • Review route to hospital if allergic to inspect/spider sting/bite.

Work Activity: Well development and groundwater sampling		
Job Steps	**Potential Hazard**	**Critical Actions**
Groundwater monitoring and sampling (continued)	Slips/trips/falls	Observe area ahead for hazards before proceeding. Ensure good housekeeping is maintained in work area. Avoid trip hazards and wet surfaces.
	IDW control	• If rinse water is drummed – label or mark IDW containers to indicate container number, contents (including physical state), investigation location, date of collection, and client name, if necessary. • Ensure that storage area provides adequate protection against physical damage or disturbance. • Be aware of pinch points and communicate your next move when moving drums.
All operations near flightline	Flightline safety	• Before entering the flightline, drivers must stop and remove foreign materials from the vehicle's tires. Vehicles that leave the pavement at any point must do another FOD check prior to re-entering the flightline, taxiway, or aircraft parking ramp. Good housekeeping must be maintained in work area to ensure objects are not left on or near the flightline. • Employ additional FOD procedures in Attachment 2. • Dispose of all solid waste into secure container to prevent foreign object debris. • Clean up any debris or waste immediately upon generation while near flightline. • Only use those tools necessary. Return all unused or unnecessary tools to a secure location immediately.

Activity Hazard Analysis

Work Activity: Soil vapor sampling (outside of buildings)		
Personal Protective Equipment (PPE)	**Selected**	**Comments**
Safety Shoes	X	
Hard Hat	X	If near heavy equipment or overhead obstacles.
Safety Glasses with Side Shields	X	
Fire Resistant Clothing		
Face Shields		
Goggles		
Lifeline/Body Harness		
Hearing Protection	X	If necessary, if need to shout to be heard.
Air Purifying Respirator		
Supplied Air Respirator – SCBA		
Welding Hood		
Welding/Pipe Clothing		
Welding Mask/Goggles		
Personal Flotation Device		
Gloves	X	Nitrile or similar for potentially contaminated material.
Safety Cones/Barricades		
Safety Vest	X	DOT type II required for traffic safety and visibility.
Knee Pads	X	When working over flush-grade wells, if needed.
Caution Tape		

Work Activity: Soil vapor sampling (outside of buildings)		
Job Steps	**Potential Hazard**	**Critical Actions**
Mobilize to work site	Traffic accident	Compliance with EH&S Procedure 110, Vehicle Operation (valid drivers' license, seat belt use, routine vehicle inspections, no cell phone use while driving).
Soil vapor sampling and preparation	Struck by moving/mobile equipment	• Face line of danger with respect to being struck by vehicles. • Control/alert traffic and exclude unauthorized personnel. Use barricades/delineators (sawhorses, traffic candle barricades, cones); more substantial barriers required as traffic hazard increases. • High-visibility safety vests shall be worn while at any facility conducting field work.
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (cooled or warmed drinks, routine breaks in heated or shaded area, provisions for emergency heating or cooling).
	Severe weather	Locate nearest severe weather shelter/strong structure before beginning field work. Avoid water, high ground, open spaces, and metal objects. Suspend field work when lightning is first seen or thunder is first heard.
	Slips/trips/falls	Observe area ahead for hazards before proceeding. Ensure good housekeeping is maintained in work area. Avoid trip hazards and wet surfaces.
	Lifting (musculoskeletal injuries) hazards	• Compliance with EH&S Procedure 150, Manual Lifting. • If equipment is to be moved, an evaluation of potential pinch points and/or weight strain will be conducted. • Clear area of all unnecessary equipment and slip/trip hazards. • Additional help will be obtained by workers or mechanical assistance used onsite if equipment to be moved is unwieldy, has a weight >50 lbs, or has to be moved by maneuvering through awkward positioning.
	Chemical exposure	• Wash hands before eating or drinking. • Hazard communication labels on all chemical containers. • SDSs onsite for all chemicals in use. • Site-specific training must address chemicals, hazards, and proper handling. • Nitrile gloves for chemical/contaminant contact. • Safety glasses for eye protection.

Activity Hazard Analysis

Work Activity: Storm drain solids grab sampling

Personal Protective Equipment (PPE)	Selected	Comments
Safety Shoes	X	Used while sampling.
Hard Hat		No hats/hardhats to be worn while near flightline due to FOD concerns.
Safety Glasses with Side Shields	X	As needed if splash potential exists.
Fire Resistant Clothing		
Face Shields		
Goggles	X	If splash potential exists.
Lifeline/Body Harness		
Hearing Protection	X	As necessary, if need to shout to be heard.
Trenching/Excavation Competent Person		
Welding Hood		
Welding/Pipe Clothing		
Welding Mask/Goggles		
Personal Flotation Device		
Gloves	X	Nitrile or similar for potentially contaminated material. Heavy duty work gloves for material handling.
Lighting		
Safety Cones	X	To control/alert traffic and exclude unauthorized personnel. Each candle stick will have two weighted bases used for stability while in flightline.
Safety Vest	X	DOT type II required for traffic safety and visibility.
Knee Pads	X	Optional as necessary.
Caution Tape		Not to be used in flightline due to FOD concerns.
Secured or Weighted Waste Containers	X	Dispose of all solid waste into secured container to prevent spills and foreign object debris; waste container will be secured or maintained in vehicle.
Shop Vacuum or broom	X	Clean up any debris or waste immediately upon generation while near flightline.
Manhole hook or similar tool	X	For opening/moving manhole or catch basin covers.

Work Activity: Storm drain solids grab sampling		
Job Steps	**Potential Hazard**	**Critical Actions**
Mobilize to work site	Traffic accident	Compliance with EH&S Procedure 110, Vehicle Operation (valid driver's license, seat belt use, routine vehicle inspections, no cell phone use while driving).
Collection of storm drain solids grab samples	Struck by moving/mobile vehicles or equipment	• Face line of danger with respect to being struck by vehicles. • Control/alert traffic and exclude unauthorized personnel. Use barricades/delineators (sawhorses, traffic candle barricades, cones); more substantial barriers required as traffic hazard increases. • Vehicle(s) placed between workers and oncoming traffic. • High-visibility safety vests shall be worn while at any facility conducting field work.
	Noise	Hearing protection as needed near flightline or around other equipment; needed if need to shout to be heard.
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (cooled or warmed drinks, routine breaks in heated or shaded area, provisions for emergency heating or cooling).
	Severe weather	Locate nearest severe weather shelter/strong structure before beginning field work. Avoid water, high ground, open spaces, and metal objects. Suspend field work when lightning is first seen or thunder is first heard.
	Lifting (musculoskeletal injuries) hazards	• Compliance with EH&S Procedure 150, Manual Lifting. • If equipment is to be moved, an evaluation of potential pinch points and/or weight strain will be conducted. • Clear area of all unnecessary equipment and slip/trip hazards. • Additional help will be obtained by workers or mechanical assistance used onsite if equipment to be moved is unwieldy, has a weight >50 lbs, or has to be moved by maneuvering through awkward positioning. • Use manhole hook for removing and replacing lids of manholes or catch basins. Use two hooks and two people for heavy lids.
	Slips/trips/falls	• Observe area ahead for hazards before proceeding. Ensure good housekeeping is maintained in work area. Avoid trip hazards and wet surfaces. • Leidos employees to remain at least 1 ft from open structure. • At each structure conduct a location-specific safety brief prior to lid removal.
	Pinch hazards	Identify, mark, and communicate pinch points on equipment. Use manhole hook for removing and replacing lids of manholes or catch basins. Don't put hands or feet between lids and ground surface.
	Biological hazards	• Inspect area for hazardous organism conditions. Avoid such areas if possible. • Wear clothing that covers potentially affected body parts. • Identify allergic personnel, and review route to hospital if allergic to insect/spider sting/bite.

Work Activity: Storm drain solids grab sampling		
Job Steps	**Potential Hazard**	**Critical Actions**
Collection of storm drain solids grab samples (continued)	Chemical exposure	• Wash hands before eating or drinking. • Hazard communication labels on all chemical containers. • SDSs onsite for all chemicals in use. • Site-specific training must address chemicals, hazards, and proper handling. • Nitrile gloves for chemical/contaminant contact. • Safety glasses for eye protection.
	Noise	Hearing protection as needed near flightline or around other equipment, or if need to shout to be heard.
	Cuts/contusions	• Ensure proper hand tools are available and used. Use hand tools correctly. • Wear Kevlar gloves when handling glassware or VOAs. • A first aid kit will be kept in the field vehicle at all times.
	IDW control	• If rinse water is drummed – label or mark IDW containers to indicate container number, contents (including physical state), investigation location, date of collection, and client name, if necessary. • Ensure that storage area provides adequate protection against physical damage or disturbance. • Be aware of pinch points and communicate your next move when moving drums.
All operations near flightline	Flightline safety	• Before entering the flightline, drivers must stop and remove foreign materials from the vehicle's tires. Vehicles that leave the pavement at any point must do another FOD check prior to re-entering the flightline, taxiway, or aircraft parking ramp. Good housekeeping must be maintained in work area to ensure objects are not left on or near the flightline. • Employ additional FOD procedures in Attachment 2. • Dispose of all solid waste into secure container to prevent foreign object debris. • Clean up any debris or waste immediately upon generation while near flightline. • Only use those tools when necessary. Return all unused or unnecessary tools to a secure location immediately.

Activity Hazard Analysis

Work Activity: Building materials, surface debris, and CJM sampling		
Personal Protective Equipment (PPE)	**Selected**	**Comments**
Safety Shoes	X	
Hard Hat	X	If overhead hazards are present. No hats/hardhats are to be worn while near flightline due to FOD concerns.
Safety Glasses with Side Shields	X	
Fire Resistant Clothing		
Face Shields		
Goggles	X	If splash potential exists.
Lifeline/Body Harness		
Hearing Protection	X	As necessary, if need to shout to be heard.
Air Purifying Respirator		
Supplied Air Respirator – SCBA		
Welding Hood		
Welding/Pipe Clothing		
Welding Mask/Goggles		
Personal Flotation Device		
Gloves	X	Nitrile or similar for potentially contaminated material. Heavy duty work gloves for material handling. Cut-resistant gloves for handling retractable utility knives or blades.
Lighting		
Safety Vest	X	DOT type II required for traffic safety and visibility.
Knee Pads	X	As necessary.
Caution Tape		
Buddy System/Spotter	X	As necessary, give the location, logistics, traffic patterns, and unknown hazards of a specific sample collection area. At a minimum, employees should be within earshot of each other if no immediate concerns are identified.

Work Activity: Building materials, surface debris, and CJM sampling		
Job Steps	**Potential Hazard**	**Critical Actions**
Mobilize to work site	Traffic accident	Compliance with EH&S Procedure 110, Vehicle Operation (valid driver's license, seat belt use, routine vehicle inspections, no cell phone use while driving).
Sampling preparation and collection	Struck by moving/mobile vehicles or equipment	• Face line of danger with respect to being struck by vehicles. • Control/alert traffic and exclude unauthorized personnel. Use barricades/delineators (sawhorses, traffic candle barricades, cones); more substantial barriers required as traffic hazard increases. • Vehicle(s) placed between workers and oncoming traffic. • High-visibility safety vests shall be worn while at any facility conducting field work.
	Noise	Hearing protection as needed near flightline or around other equipment, or if need to shout to be heard.
	Slips/trips/falls	Observe area ahead for hazards before proceeding. Ensure good housekeeping is maintained in work area. Avoid trip hazards and wet surfaces.
	Lifting (musculoskeletal injury) hazards	• Compliance with EH&S Procedure 150, Manual Lifting. If equipment is to be moved, an evaluation of potential pinch points and/or weight strain will be conducted. • Clear area of all unnecessary equipment and slip/trip hazards. • Additional help will be obtained by workers or mechanical assistance used onsite if equipment to be moved is unwieldy, has a weight >50 lbs, or has to be moved by maneuvering through awkward positioning.
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (cooled or warmed drinks, routine breaks in heated or shaded area, provisions for emergency heating or cooling).
	Severe weather	Locate nearest severe weather shelter/strong structure before beginning field work. Avoid water, high ground, open spaces, and metal objects. Suspend field work when lightning is first seen or thunder is first heard.
	Pinch hazards	Identify, mark, and communicate pinch points on equipment.
	Falling equipment	No workers under suspended loads.
	Chemical exposure	• Wash hands before eating or drinking. • Hazard communication labels on all chemical containers. • SDSs onsite for all chemicals in use. • Site-specific training must address chemicals, hazards, and proper handling. • Nitrile gloves for chemical/contaminant contact. • Safety glasses for eye protection.

Work Activity: Building materials, surface debris, and CJM sampling		
Job Steps	**Potential Hazard**	**Critical Actions**
Sampling preparation and collection (continued)	Cuts/contusions	• Wear cut-resistant gloves for retractable utility knife or blade use. • Hard plastic sealable container for disposable blades. • Ensure force of cut is away from body. • Close blade before setting down or carrying knife.
All operations near flightline	Flightline safety	• Before entering the flightline, drivers must stop and remove foreign materials from the vehicle's tires. Vehicles that leave the pavement at any point must do another FOD check prior to re-entering the flightline, taxiway, or aircraft parking ramp. Good housekeeping must be maintained in work area to ensure objects are not left on or near the flightline. • Employ additional FOD procedures in Attachment 2. • Dispose of all solid waste into secure container to prevent foreign object debris. • Clean up any debris or waste immediately upon generation while near flightline. • Only use those tools necessary. Return all unused or unnecessary tools to a secure location immediately.

Activity Hazard Analysis

Work Activity: Equipment decontamination (performed by Leidos)		
Personal Protective Equipment (PPE)	**Selected**	**Comments**
Safety Shoes	X	
Hard Hat		
Safety Glasses with Side Shields		
Fire Resistant Clothing		
Face Shields		
Goggles	X	For splash protection.
Lifeline/Body Harness		
Hearing Protection	X	Near pressure washer or generator or loud equipment, or if need to shout to be heard.
Air Purifying Respirator		
Supplied Air Respirator – SCBA		
Welding Hood		
Welding/Pipe Clothing		
Welding Mask/Goggles		
Personal Flotation Device		
Gloves	X	Nitrile or similar for potentially contaminated material.
Safety Cones/Barricades	X	As necessary, to control/alert traffic and exclude unauthorized personnel
Safety Vest	X	DOT type II required for traffic safety and visibility.
Knee Pads		
Caution Tape	X	As needed, to exclude unauthorized personnel.
Lockable Lid Weighted Waste Containers	X	Dispose of all solid waste into secure container to prevent foreign object debris.
Shop Vacuum or Broom	X	Clean up any debris or waste immediately upon generation while near flightline.
Tool Control Implementation	X	Only use those tools necessary. Return all unused or unnecessary tools to a secure location immediately.

Work Activity: Equipment decontamination (performed by Leidos)		
Job Steps	**Potential Hazard**	**Critical Actions**
Mobilize to work site	Traffic accident	Compliance with EH&S Procedure 110, Vehicle Operation (valid driver's license, seat belt use, routine vehicle inspections, no cell phone use while driving).
Equipment decontamination by washing and water rinse	Severe weather	Locate nearest severe weather shelter/strong structure before beginning field work. Avoid water, high ground, open spaces, and metal objects. Suspend field work when lightning is first seen or thunder is first heard.
	Struck by moving/mobile vehicles or equipment	• Face line of danger with respect to being struck by vehicles. • Control/alert traffic and exclude unauthorized personnel. Use barricades/delineators (sawhorses, traffic candle barricades, cones); more substantial barriers required as traffic hazard increases. • Vehicle(s) placed between workers and oncoming traffic. • High-visibility safety vests shall be worn while at any facility conducting field work.
	Lifting (musculoskeletal injury) hazards	• Compliance with EH&S Procedure 150, Manual Lifting. If equipment is to be moved, an evaluation of potential pinch points and/or weight strain will be conducted. • Clear area of all unnecessary equipment and slip/trip hazards. • Additional help will be obtained by workers or mechanical assistance used onsite if equipment to be moved is unwieldy, has a weight >50 lbs, or has to be moved by maneuvering through awkward positioning.
	Temperature stress	If temperature is above 80°F or below 40°F, administrative controls will be implemented (cooled or warmed drinks, routine breaks in heated or shaded area, and provisions for emergency heating or cooling).
	Electric shock	Portable electrical tools and all portable electrical equipment must be connected through ground fault circuit interrupters.
	Fire	Fire extinguisher rated 2A and 5B (serviced annually and inspected monthly) in all fuel/flammable liquid use areas.
	Chemical exposure	• Wash hands before eating or drinking. • Hazard communication labels on all chemical containers. • SDSs onsite for all chemicals in use. • Site-specific training must address chemicals, hazards, and proper handling. • Nitrile gloves for chemical/contaminant contact. • Safety glasses for eye protection.

Work Activity: Equipment decontamination (performed by Leidos)		
Job Steps	**Potential Hazard**	**Critical Actions**
Equipment decontamination by washing and water rinse (continued)	Slips/trips/falls	Observe area ahead for hazards before proceeding. Ensure good housekeeping is maintained in work area. Avoid trip hazards and wet surfaces.
	IDW control	• Label or mark IDW containers to indicate container number, contents (including physical state), investigation location, date of collection, and client name. • Ensure that storage area provides adequate protection against physical damage or disturbance.

Attachment 1

LEIDOS INCIDENT NOTIFICATION CONTACT LIST

LEIDOS EMPLOYEE	POSITION	OFFICE PHONE	CELL PHONE	E-Mail
John Lynch	Division Manager	404-229-2228	678-481-3270	john.w.lynch@leidos.com
Doug Pearman	Program Manager	425-482-3307	206-200-7637	douglas.n.pearman@leidos.com
Mike Crenshaw (all safety-related Incidents)	ECI Operation H&S Manager	865-481-4767	865-406-2659	james.m.crenshaw@leidos.com
Tom Dubé	Project Manager	425-482-3325	425-422-0480	thomas.e.dube@leidos.com
Corey Wilson	SSHO/FM	425-398-2105	425-354-0551	corey.h.wilson@leidos.com
Aaron Wisher	SSHO/FM	425-398-2113	206-459-4436	aaron.p.wisher@leidos.com
Amber Kennedy	Field & Logistics Support	757-270-1607	757-270-1607	amber.m.kennedy@leidos.com
Melissa Ivancevich	Field Support	425-398-2114	206-718-9535	melissa.a.ivancevich@leidos.com
Michael Pagel	Field Support	425-398-2115	206-200-5061	michael.a.pagel@leidos.com
Malena Foster	Field Support	425-482-3327	360-904-5599	malena.l.foster@leidos.com
Jason Little	Field Support	425-482-3314	206-381-3747	jason.m.little@leidos.com
Jessa Moser	Field Support	425-398-2110	206-450-9805	jessa.v.moser@leidos.com
Jen Wallin	Field Support	425-482-3332	425-213-4288	jennifer.m.wallin@leidos.com
Gabe Cisneros	Field Support	425-482-3301	206-718-9799	gabriel.cisneros@leidos.com
Kate Lawson	Field Support	425-398-2108	425-412-0827	kathryn.a.lawson@leidos.com

Attachment 2

FOREIGN OBJECT DEBRIS (FOD) AWARENESS AND PREVENTION

When working on or near airport runways and taxiways an active FOD awareness/prevention program will be implemented. Tool accountability, control, and safe housekeeping practices will be followed by Leidos and Leidos subcontractors to minimize any opportunity for FOD incidents to occur.

Leidos and Leidos subcontractors will control potential FOD incidents by immediately picking up and controlling any dropped parts, process debris, tools, or other unsecured objects. The job site and work area will be cleaned up immediately after completion of each task at each location. Tools and other equipment necessary to perform specific tasks will be placed in a centralized collection container when not in direct use. Each individual worker is responsible for minimizing any FOD incidents and will provide oversight of other workers to identify possible FOD hazards. A check-double-check will be performed by at least two separate people for any FOD prior to leaving the work area.

Control and Accountability of Tools, Hardware, and Debris in and Around Flightline

- A staging area for tools, material, and debris disposal will be identified. Where possible, a containment barrier will be erected to isolate this area. Disposal and confinement containers will have weighted and/or lockable lids to prevent being blown open by wind.

- Small hardware such as fasteners and small parts shall be contained. Use of closeable containers or five gallon buckets will be used wherever possible.

- Construction related debris (drill shavings, hardware, sawdust etc.) will be vacuumed or swept up as generated. After completing a task or job a FOD survey will take place and additional vacuuming or sweeping will be conducted as often as FOD hazards dictate.

- To the extent possible, materials, tools, and supplies will not be brought onto the flightline until ready for use. Unused or unnecessary tools will be returned to a secured collection container when not in use.

Reporting FOD

- All FOD related incidents should be immediately reported by field crews to the Leidos Field Manager(s) and ultimately the Leidos Project Manager. When FOD violations or problems occur, operations should immediately cease, any additional equipment should be secured, and a review should be initiated to determine the cause. Corrective action will be implemented to prevent additional incidents, prior to resuming work activities.

- Should any damage occur as a result of poor FOD practices or serious FOD problems and/or concerns arise, Jennifer Parsons (206-715-7981) will serve as a primary contact person. Voice mails will be left as needed by the Leidos FM or PM; however, every effort will be made to notify a Boeing representative directly. Contact efforts will continue through Fred Wallace and/or Carl Bach (206-898-0438), if necessary.

- Any missing tools or items will be reported to the Leidos FM, who will convey the information to the Leidos PM. If determined appropriate, a Boeing representative will be contacted.

- Any tool or item that appears to be abandoned, from Leidos related work or otherwise, will be collected and reported to the to the Leidos FM, who will convey the information to the Leidos PM. If determined appropriate, a Boeing representative will be contacted.

Specific FOD Activities

- Unpacking materials:
    - To the extent possible all equipment and materials will be unpacked offsite or in a dedicated staging area.
    - Packing material will be disposed of in weighted lid/lockable lid containers.
- Vehicles and equipment:
    - Vehicles entering the flightline will be inspected prior to entrance for FOD by no less than two people. One person will stay in the vehicle while the other inspects each individual tire for FOD. The person inspecting will notify the driver when the visible surface area has been searched and the driver will drive forward so that a new area of tire is exposed. This process will be repeated until the surface area of each tire is determined to be free of FOD.

Attachment 3

SAFETY DATA SHEETS

SDSs will be maintained onsite for each of the following chemicals:

- Asphalt patch
- Bentonite
- Isobutylene calibration gas
- Liquinox
- Methanol
- Portland cement/concrete
- Silica sand
- Sodium bisulfate

Attachment 4

TAILGATE SAFETY MEETING FORM

Date: _____ Time: _____ Project: _____

Client: **Washington State Department of Ecology**

Site Specific Location: _____

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment: **Orange reflective vest, steel toe boots, earplugs (when required), safety glasses (when required), nitrile gloves, hard hat (when required).**

Chemical Hazards: _____

Physical Hazards: **High traffic area, slip/trip/fall, overhead obstructions**

Special Equipment: **None**

Other: _____

Emergency Procedures: **Assess situation, notify supervisor and Leidos, call 911 or transport if life threatening. If not life threatening, call WorkCare (1-888-449-7787).**

Hospital: **Harborview Medical Center** Phone: **206-744-3000**

Hospital Address and Route: **325 9th Avenue, Seattle, WA 98104**
Drive to Interstate-5 North. Take I-5 North to exit 164A for Dearborn Street toward James/Madison Street. Follow signs for James Street. Turn right onto James St. Take the first right onto 9th Avenue. Hospital will be on your right.

ATTENDEES

NAMES PRINTED SIGNATURE

_____

_____

_____

_____

_____

_____

_____

_____

Meeting Conducted By: _____
Name Printed Signature

Project Safety Officer: C. Wilson Project Manager: T. Dubé