

**ENVIRONMENTAL MONITORING AND
MANAGEMENT PLAN
SPOKANE CONVENTION CENTER EXPANSION
SPOKANE, WASHINGTON**

**JUNE 28, 2004
FOR
SPOKANE PUBLIC FACILITIES DISTRICT**

**Environmental Monitoring and
Management Plan
File No. 0110-047-02**

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EXECUTIVE SUMMARY

The Spokane Convention Center project will include certain activities that will interface with contaminated soil and groundwater at the site. It is the desire of the Spokane Public Facilities District (Owner) to appropriately dispose waste, manage worker and public exposure to site contaminants, and to clean up environmental contaminants consistent with Washington State Department of Ecology regulations. Environmental conditions at the site are provided in GeoEngineers reports "Phase I and Limited Phase II Environmental Site Assessment Proposed Convention Center Expansion Option 2 Site, Spokane, Washington" dated September 26, 2002, and "Corrective Action Plan, Proposed Convention Center Expansion Site, Spokane, Washington" (CAP) dated April 16, 2004. The reports are incorporated herein by reference.

The upper layer of soil and debris at the site, beneath existing pavement and site structures, is contaminated to about 4 feet below grade. Asphalt, base coarse, and topsoil associated with current landscaping is not suspected to be contaminated. The Subcontractor will remove and dispose contaminated soil as necessary to complete construction activities. Generally, contaminated soil that does not need to be removed as part of construction will be left in-place and thus encapsulated by the new Convention Center Exhibit Hall. Because the soil is contaminated, there is potential that groundwater beneath the site also is contaminated. Consequently, groundwater generated during dewatering and drilled shaft construction will be treated by the Hoffman-Bouten Joint Venture (HBJV) before discharge. Subcontractor requirements pertaining to management of site environmental conditions are described in this Environmental Monitoring and Management Plan. These requirements are summarized as follows:

- Subcontractor employees performing excavation and construction work will require special training once the existing pavement, underlying base coarse, and existing structures are removed. Definition of this special training is provided in General Contractor's Site Safety Plan. Further, watering and other dust suppression activities, decontamination, and other work practices will be performed to minimize worker exposure to environmental contaminants. These activities are provided in the Site Safety Plan.
- The Subcontractor will excavate soil as necessary to complete the earthwork/utility/drilling portions of Bid Package 3 (BP-3). The Owner's Representative will advise the Subcontractor to place suspected contaminated and non-contaminated soil into separate lined and covered soil stockpiles for possible testing by the Owner's Representative. Testing will be completed using one to two day laboratory turnaround.
- Once testing results are available, the Owner's representative will indicate to the Subcontractor whether the soil is contaminated (Problem Waste) or non-contaminated. If contaminated, the Subcontractor will load, haul, and dispose soil to either the Graham Road Recycling and Disposal Facility in Medical Lake, Washington, or the Rabanco Regional Landfill in Roosevelt, Washington. If non-contaminated, the contractor will dispose the soil off-site as described in the Environmental Monitoring and Management Plan. A portion of Problem Waste soil will be reused on site as fill as directed by the Owner's Representative.
- As soon as possible following excavation and construction of foundations/piers/utilities, the Subcontractor will partially construct pavement sections by placing base coarse and a single lift of asphalt to limit human exposure to underlying environmental contaminants. The final lift of asphalt will be placed at a later date yet to be determined. The Subcontractor will cover areas of the site that are not scheduled to be paved with approximately 1-foot of clean granular soil or limit site access to these areas. The Subcontractor will place hay bales, silt fences, or booms around the perimeter of excavations to minimize stormwater run-on or run-off. Additional

stormwater control requirements are defined in the site temporary erosion and sediment control plan.

- The Subcontractor will direct all groundwater that is brought to the surface as part of construction activities to a centralized water treatment facility operated by HBJV. This includes dewatering water, water generated during drilled shaft/pier construction, and water generated during decontamination activities.

PROJECT DESCRIPTION AND INTRODUCTION

The Spokane Convention Center Expansion project site is located within an area historically a hospital and a lumber mill (pre-1900), a junk yard and a paint shop (early 1900s until about 1915), and a railroad freight yard and several railroad mainlines (1901 to the early 1970s). An electrical transformer station was located on the eastern portion of the site, and several roads historically transected the site. Multiple environmental investigations have been performed on the site and environmental contaminants have been confirmed in soil, and to a lesser extent groundwater, at concentrations that exceed Washington State Department of Ecology Model Toxics Control Act (MTCA) Method A cleanup levels. Results of environmental investigations performed to date are summarized in the GeoEngineers reports "Phase I and Limited Phase II Environmental Site Assessment Proposed Convention Center Expansion Option 2 Site, Spokane, Washington" dated September 26, 2002, and "Corrective Action Plan, Proposed Convention Center Expansion Site, Spokane, Washington" (CAP) dated April 16, 2004. These documents are incorporated herein by reference and provide additional details regarding the environmental condition of the site, areas that are contaminated, and the planned cleanup. It is the responsibility of the Bidder (Subcontractor) to review these documents and refer to them during preparation their Bid.

The April 16, 2004 Corrective Action Plan (CAP) also describes the general method for environmental cleanup of the site concurrent with construction of the Convention Center Exhibit Hall facility. The CAP, as it pertains to the Subcontractor, generally describes a cleanup action that consists of:

- Providing special worker protection measures during site development work including use of personal protection equipment, exposure monitoring during earthwork, and hazardous materials working training. This is a requirement of the selected Subcontractor.
- Disposal of waste construction soil to specially engineered landfills. The Subcontractor will excavate and transport soil as directed by the Owner's representative.
- Onsite encapsulation of contaminated soil that remains onsite. Generally, the Subcontractor will partially construct asphalt concrete pavement over impacted soil to limit worker exposure during construction. The Subcontractor will either place 1-foot of clean soil over, or limit access to, other areas of the site that are not paved in final design (see Civil Plans C-301 and C-704), such as curbing areas and cement concrete areas. The constructed Convention Center building and associated paved areas will encapsulate contaminated soil following construction. The Owner's representative will document areas of contaminated soil that remains following construction.
- The Subcontractor will provide special management of groundwater during site dewatering during construction. This will include directing dewatering water to a treatment system operated by Hoffman Bouten Joint Venture (HBJV); the Owner's representative will sample and monitor the discharge of the treated water to city sewer.
- The Subcontractor will perform best management practices during construction as defined in the site Temporary Erosion Control Plan (TECP).

Contaminated materials currently exist below the site's existing asphalt cover and generally consist of a mixture of soil, fill (concrete, bricks, ash, and coal), and other debris to a depth of about 4 feet below existing ground surface. The purpose of this plan is to provide specific information to the Subcontractor regarding:

1. Procedures to minimize worker and general public potential exposure to hazardous materials.
2. Management and handling of excavated soil.
3. Management and handling of surface water and groundwater.
4. Monitoring of environmental contaminants during construction.
5. Possible responses to unexpected environmental conditions should they be encountered.

CONTAMINANT INFORMATION

Generally, site soil beneath the existing asphalt, base coarse, and landscaping contains contaminants of concern at concentrations that are slightly to moderately above soil cleanup levels to a depth of about 4 feet beneath grade. However, several areas of the site have been identified to contain higher concentrations of contaminants and deeper zones of impact. This section further describes concentration and distribution of site contaminants.

Contaminants of Concern

Contaminants of concern in soil include arsenic, cadmium, lead, mercury, carcinogenic polynuclear aromatic hydrocarbons (cPAHs, particularly benzo(a)pyrene), and diesel- and oil-range petroleum hydrocarbons. These contaminants and their corresponding concentrations are typical for Spokane-area sites with historic railroad use. The following table summarizes concentrations of these contaminants at the project site relative to Ecology’s MTCA soil cleanup levels:

CHEMICALS DETECTED IN ON-SITE SURFACE AND SUBSURFACE SOIL

Chemical	On-site Concentrations (mg/kg)	MTCA Method A Soil Cleanup Levels for Unrestricted Land Use (mg/kg)
Arsenic	5.5 to 34.9	20
Cadmium	ND to 9.86	2
Lead	7.17 to 2,860	250
Mercury	ND to 2.15	2
Benzo(a)Pyrene	ND to 65.9	0.10
GRPH	ND to 1.84	30 (if benzene detected)
DRPH	ND to 1,700	2,000
ORPH	ND to 16,000	2,000

GRPH = Gasoline-range petroleum hydrocarbons.

DRPH = Diesel-range petroleum hydrocarbons.

ORPH = Oil-range petroleum hydrocarbons.

Note that benzo(a)pyrene has the lowest cleanup level of the cPAHs and is presented for comparison. Other cPAHs were detected at concentrations exceeding MTCA cleanup levels.

mg/kg = Milligrams per kilogram

ND = Not detected at various quantification limits.

Groundwater at the site has been identified to be contaminated with several contaminants of concern at concentrations exceeding corresponding MTCA Method A groundwater cleanup levels. Concentrations in groundwater monitoring wells at the site are relatively low and might be related to isolated pockets of soil contamination, background concentrations, and/or possible cross-contamination that may have occurred during groundwater monitoring well installation. However, groundwater contaminant conditions are not as well defined as soil and thus areas of higher or lower contaminant concentrations, compared to current monitoring well data, are possible throughout the site. The following table summarizes concentrations of contaminants in groundwater at the project site relative to Ecology's MTCA Method A groundwater cleanup levels:

COMPARISON OF ONSITE GROUNDWATER CONCENTRATIONS WITH REGULATORY CRITERIA AND CONCENTRATIONS COMMONLY DETECTED IN GROUNDWATER

Chemical	On-site Concentrations (ug/l)	MTCA Groundwater Cleanup Levels (ug/l)
Arsenic	ND to 17	5
Cadmium	ND	5
Lead	ND to 18	15
Mercury	ND	2
Benzo(a)Pyrene	ND to 2.9	0.10
GRPH	ND	800
DRPH	ND	500
ORPH	ND	500

GRPH = Gasoline-range petroleum hydrocarbons.

DRPH = Diesel-range petroleum hydrocarbons.

ORPH = Oil-range petroleum hydrocarbons.

Note that benzo(a)pyrene has the lowest cleanup level of the cPAHs and is presented for comparison. Other PAHs were detected and might be present at the site exceeding MTCA cleanup levels.

ug/l =Micrograms per liter

ND = Not detected at various quantification limits.

NA = Not available

Contaminant Distribution

Because most site soil contaminants are associated with past railroad activities that occurred over large portions of the site, environmental contaminants are widely distributed across the site in plan extent. However, there may be locations where contaminants are not present, such as beneath several buried brick roadways known to be present at the site, beneath former buildings, post railroad utility excavations, and other areas of the site that historically did not contain railroad activity. In general, these areas have not been previously explored.

The specific soil contaminants of concern at the site generally do not readily migrate and were deposited at or near the ground surface. Therefore, most contaminants are most likely to be found within the upper 4 feet of soil across most of the site beneath existing asphalt, gravel base, and landscaping. However, there could be exceptions. Specifically, contaminants may also be present in localized areas at depths greater than 4 feet below ground surface (bgs), such as at and near former drywells, basements and utility trenches, areas where fill was placed below this depth, and areas impacted with oily contaminants. All areas with concentrations of contaminants exceeding regulatory levels shall be considered "hot zones".

Contaminant Classes

Soil and debris at the site generally fall into three contaminant classes:

Non-contaminated. This class includes native, clean soil that is generally located at depths greater than 4 feet bgs, cobbles and boulders, and other inert materials. Soil of this class is considered Class 1 or Class 2, depending on concentration and evaluation by the Owner's representative, relative to MTCA-defined criteria.

Problem Wastes. This class includes all of the contaminated soil that has been identified at the site through previous environmental characterization and testing studies. This material contains concentrations of contaminants above MTCA cleanup levels and is generally found across large portions of the site in the upper 4 feet of soil. This material is considered Class 3 or 4, depending on concentration and evaluation by the Owner's representative, relative to MTCA-defined criteria.

State Dangerous Wastes. This class of soil is not suspected at the site, but is described here for contingency planning purposes. This waste might be encountered as sludge in underground storage tanks (USTs) if encountered, unusual debris unearthed during construction, or during other unforeseen situations.

The Owner's representative will determine the contaminant class of all soil and debris excavated during construction. It is the Owner's anticipation that the selected Subcontractor will facilitate management of each waste class as a function of site work. Further direction for soil management is provided in this plan.

SOIL MANAGEMENT

SOIL EXCAVATION

Site preparation for facility construction will include excavation of soil during grading, footing construction, drilled shaft placement, utility placement, elevator shaft preparation, and other earthwork activities. It is the intent of this plan to coordinate Subcontractor activities so that contaminated soil cleanup and construction are performed simultaneously. Therefore, as the Subcontractor excavates soil as part of construction, the Owner's representative will advise the Subcontractor to manage the soil based on suspected contaminant class, as described earlier in this Plan. The Subcontractor shall understand that generally the upper 4 feet of soil across the site will be problem waste (contaminated) and require off-site disposal and soil beneath this depth will be non-contaminated (clean). See Bid Sheet for estimated units. The actual depth of contamination will be determined in the field by the Owner's representative.

The Subcontractor shall provide all bill of ladings, disposal locations, and weight receipts to HBJV.

Excavation equipment that has contacted soil that is classified by the Owner's representative as problem or dangerous waste, shall be decontaminated before use in areas containing uncontaminated material. The Subcontractor shall institute procedures and provide the necessary equipment to decontaminate all construction equipment that comes in contact with problem or dangerous waste. This work shall be completed in a manner that minimizes the amount of wash water that is generated. The Subcontractor shall store and dispose of the decontamination water as described in the Decontamination Rinsate control section of this document.

STOCKPILING, STAGING, AND SAMPLING

Non-contaminated waste, problem waste, and dangerous waste shall be handled in accordance with all applicable laws, regulations, guidance, policy and best management practices.

All excavated problem waste material shall be handled as indicated by the Owner's representative, and will be either: (1) placed directly into trucks and hauled by the Subcontractor to an approved disposal facility selected by the Owner, (2) transferred to on-site containers provided by the disposal facility, or (3) segregated and placed into temporary stockpile containment areas for possible characterization and subsequent Subcontractor loading into trucks or containers, or for reuse on-site. The Owner's representative, in coordination with HBJV and Subcontractor, will determine the location and maximum allowable size of each stockpile containment area.

The Subcontractor shall stockpile non-contaminated waste, problem waste, and dangerous waste in separate areas, as directed by the Owner's representative. The Owner's representative will collect and analyze samples from each stockpile of soil and based on testing results and will determine the appropriate disposition before each stockpile is disposed (described later in this plan). The Subcontractor shall anticipate soil stockpiling, laboratory testing turnaround, sequencing, and bid their work accordingly on the Bid Sheet.

The Subcontractor shall be responsible for placement of 20-mil, minimum, plastic sheeting on the ground at each stockpile containment area. Excavated soil that is suspected to be problem waste shall not be allowed to contact the ground surface, or be placed in an interim stockpile without the prior approval of the Owner's representative. The Subcontractor shall take all necessary precautions to assure the stability of the stockpile in the containment area and prevent soil/sediment from moving out of the containment area into other portions of the site. The Owner's representative will obtain soil samples from soil stockpiles prior to removal from the site and will submit selected samples for chemical analysis requesting a one to two working day laboratory turnaround. After receiving results of chemical analysis, the Owner and/or the Owner's representative will either: (1) notify the Subcontractor that the soil is classified as non-contaminated soil, (2) direct the Subcontractor to load and transport the material to the approved problem waste disposal facility, or (3) notify the Subcontractor that the waste is dangerous waste. If the waste is dangerous waste, the Owner will develop disposal options and negotiate a management and disposal strategy for the waste with the Subcontractor. This will be handled as a contract change order.

On-site reuse of non-contaminated and problem waste material will be performed as directed by the Owner's representative. The Bid Sheet provides estimated units of soil to be reused at the site.

The Subcontractor shall assist the Owner's representative regarding sample collection activities, if required. Anticipate one to two working day turnaround time to receive the chemical analytical results. The Subcontractor shall plan accordingly and work around soil stockpiles during this period, providing for adequate security, and proceed with other work activities pending notification of waste disposal instructions.

The Subcontractor shall take all necessary precautions to assure that soil loading and other activities do not generate fugitive dust. Other activities that will generate dust include soil excavation, trenching, hauling sweeping, vehicle movement, compaction, etc. In general, limit the amount of water used to control dust because of the potential to spread contaminants or produce free draining water. Do not allow

water to puddle or runoff. Use of dewatering water will be allowed when approved by the Owner's representative.

Soil Sampling and Testing

The Owner's representative will collect composite soil samples from each soil stockpiles, before disposal or removal from the site, for characterization purposes. Collected soil samples will be submitted for rush one to two working day turnaround time. Note that turnaround times described in this plan are working day based; for instance, samples submitted late on Friday will not be available until late on the following Monday assuming one working day turnaround. Samples from soil being disposed at the approved landfill will generally be analyzed only for total lead, which serve as an indicator chemical for disposal purposes. Test results from previous investigations were provided to the landfill facilities for waste acceptance/clearance.

Stockpiles with sample results indicating total lead concentrations of 3,000 mg/kg or greater will be additionally analyzed for Toxicity Characteristic Leaching Potential (TCLP) lead for waste characterization purposes. The additional testing could delay notification to the Subcontractor of the appropriate disposal of a particular stockpile of soil. The purpose of the additional TCLP lead testing is to verify that stockpiled soil does not characterize as dangerous waste. The threshold of 3,000 mg/kg is based on results of TCLP lead testing performed during completion of the CAP. Additionally, soil that exhibits unusual characteristics as determined by the Owner's representative will be tested for other appropriate contaminants of concern. The Subcontractor shall anticipate occasional delays relating to soil sampling and testing.

Soil that has low lead levels might be suspected to be non-contaminated by the Owner's representative. If this is the case, the Owner's representative will test the soil for additional contaminants to verify that it is clean. The Subcontractor shall anticipate occasional delays relating to soil sampling and testing of suspected non-contaminated soil.

The Owner's representative will collect composite soil samples from the soil stockpiles based on the following frequency:

Cubic Yards of Soil	Minimum Number of Samples
0-100	3
101-500	5
501-1000	7
1001-2000	10
>2000	10 + 1 for each additional 500 cubic yards

ON-SITE REUSE

Estimated quantities of non-contaminated and problem waste to be reused at the site are presented in the Bid Sheet. Non-contaminated soil and fill and Problem Wastes will be reused at the site with the following provisions and only with approval from the Owner's representative:

- Debris fill containing concrete slabs, non-inert debris (such as wood), concrete and brick rubble, asphalt, and open-graded cobbles will not be used as fill at the site, regardless of contaminant content.
- Non-contaminated soil and fill and problem wastes, consisting of loose to medium dense sand and gravel with cobbles and variable silt will be used as structural fill at the site, providing that the material and placement location is approved by the Owner or Owner's representative. This is consistent with Class 1, 2, and 3 end use criteria relative to Ecology guidance for petroleum-contaminated soil.
- Problem wastes and non-contaminated soil with detectable concentrations of contaminants will not be used as topsoil or as fill in or near wetlands, surface water, groundwater wells, or off-site utility trenches. In addition, final placement of problem wastes at the site will be at a location beneath impervious Convention Center pavements and/or structures and must be documented and approved by the Owner and/or Owner's representative. This is consistent with Class 2 and 3 end use criteria relative to Ecology guidance for petroleum-contaminated soil
- Oil-containing soil with concentrations of petroleum hydrocarbons exceeding MTCA cleanup levels will not be reused on site. This is consistent with Class 4 end use relative to Ecology guidance for petroleum-contaminated soil .
- Generally, onsite reuse will only be allowed within 200 feet of the waste's source area.
- Additional requirements for structural fill at the site are presented in the Geotechnical Engineering Study for the site, dated September 25, 2002, and the Supplemental Geotechnical Engineering Study for the site, dated May 13, 2004.
- Dangerous Wastes will not be used as fill at the site.

OFF-SITE HAULING AND WASTE DISPOSAL

Non-Contaminated soil and fill can be used off-site as fill in municipal and construction debris landfills, commercial or industrial areas, and as road or parking lot construction material. Other uses must be approved by the Owner or Owner's representative. All off-site uses must be approved by the Owner and/or Owner's representative. Use as topsoil or as fill in or near wetlands, surface water, groundwater wells, non-commercial and non-industrial areas, or off-site utility trenches is not allowed unless approved by the Owner or Owner's representative and no detectable concentrations of suspected contaminants are present in the soil. Note that soil and fill with concentrations of petroleum hydrocarbons less than the MTCA cleanup levels might retain undesirable properties such as odor and staining.

The Subcontractor shall be responsible for loading and transporting problem waste to permitted Resource Conservation and Recovery Act (RCRA) Subtitle D municipal and/or non-hazardous waste landfill facilities selected by the Owner and/or the Owner's representative. Selected landfill facilities are Waste Management's Graham Road Recycling and Disposal facility in Medical Lake, Washington and Rabanco Disposal Company's Roosevelt, Washington regional landfill. Contact information for these landfills follows:

Fred Downs
 Graham Road Recycling and Disposal Facility
 1820 S. Graham Road
 Medical Lake, WA 99022

509 244-0151
509 244-0207 fax

Dennis McLaughlin
Rabanco Disposal Company
509 990-1041 (Local)
Regional Office
54 S. Dawson
Seattle, WA 98134
206-332-7700
206-332-7600 fax

The Subcontractor is also responsible for loading, transporting, and disposing non-contaminated soil as approved by the Owner or Owner's representative. The Subcontractor shall coordinate the loading/transportation schedule with HBJV and the disposal facility to maintain a smooth flow of truck traffic to and from the site.

Dangerous Wastes, if discovered, must be appropriately disposed off-site to a RCRA Subtitle C landfill or treated by a permitted Treatment, Storage, and Disposal (TSD) entity. Dangerous waste management must be performed in compliance with appropriate state and federal dangerous and hazardous waste regulations. Do not consider Dangerous Waste disposal for this Bid. If encountered, Subcontractor and Owner or Owner's representative will negotiate the appropriate response.

The Subcontractor shall design and implement a traffic control plan for truck traffic to and from the site that conforms to all applicable local and state requirements. The Subcontractor shall use best management practices to limit the quantity of soil/sediment removed from the site by truck tires. The Subcontractor shall take any additional measures needed to assure that waste is not tracked off-site during hauling. The Subcontractor shall arrange for street sweeping as needed to remove any soil/sediment carried by trucks for this project.

DEWATERING AND GROUNDWATER MANAGEMENT

The Subcontractor shall design, provide, test, operate, monitor, and maintain a dewatering system of sufficient scope, size, and capacity to control groundwater flow into excavations and permit construction to proceed on dry, stable subgrades. This task includes: (1) maintaining dewatering operations to ensure erosion is controlled, stability of excavations and constructed slopes is maintained, and flooding of excavation and damage to structures are prevented, (2) preventing surface water from entering excavations by grading, dikes, or other means, (3) performing dewatering activities without damaging existing buildings adjacent to excavation, and (4) removing the dewatering system when no longer needed.

Dewatering operations might be performed in areas of groundwater contamination. Consequently, dewatering water will be treated by HBJV prior to discharge to the City of Spokane municipal sewer system. The Subcontractor shall expect to coordinate with other trades so that HBJV's water treatment system is not overloaded.

Based on existing subsurface information, we anticipate that groundwater will be encountered in site excavations that exceed approximately 7 to 9 feet below grade. Groundwater inflow to site excavations, in

the absence of an active dewatering system, would be 15 gallons per minute per linear foot of a five-foot wide utility excavation excavated approximately 3 feet below the water table.

HBJV will provide, operate, and maintain an on-site facility for the treatment of dewatering fluid prior to disposal to the city of Spokane sewer system. The HBJV treatment system will comprise two or more 21,000-gallon portable water storage tanks plumbed in series which will treat water by settling particulate materials. HBJV will direct discharge from the system to a municipal sewer manhole at a yet to be determined location for discharge. The Subcontractor shall be responsible for providing, operating, and maintaining all pumps, piping, hoses, and other items necessary to transport dewatering fluid from the excavations to the on-site treatment facility. The Subcontractor will be responsible to plumb their dewatering discharge to a 2-inch cam-lock coupling located at a manifold that HBJV will provide at the base of the treatment system. See the Bid Sheet for estimated distances of dewatered excavations to the site water treatment system.

Best management practices shall be employed to prevent leaks, spills or releases from piping between the excavations and treatment facility. A totalizing flow meter shall be placed by the Subcontractor in series on effluent plumbing. The Subcontractor shall perform maintenance, as required, to keep the flow meter operational throughout dewatering operations.

Groundwater brought to surface during drilled shaft/pier construction and other site construction activities that do not require dewatering will be collected by the Subcontractor and transferred to the water treatment system. Introduction of the water to the treatment system will be coordinated with HBJV.

A condition of the project's permit to discharge treatment facility effluent to the city of Spokane sewer system stipulates that discharge is prohibited during periods of precipitation. The Subcontractor shall shut down dewatering operations when precipitation is causing surface water flow to storm sewers, as determined by the Owner's Representative. No standby charges shall be accrued by the Subcontractor during periods of precipitation.

If, during excavation and dewatering activities, a fluid is encountered that the Owner's representative decides cannot be effectively treated by the on-site treatment facility, the Subcontractor shall transport this fluid to an alternative storage location as directed by the Owner and/or the Owner's representative. The recovered fluid will be transported off-site for approved discharge or disposal based on analytical results. The Owner will separately contract for the transport and disposal of the recovered fluid.

SURFACE WATER MANAGEMENT

SPILL PREVENTION AND CONTROL

The Subcontractor shall be responsible for prevention, containment, and cleanup of spilled oil, fuel, and other petroleum products used in the Subcontractor's operations. In addition, the Subcontractor is responsible for prevention, containment, and cleanup of contaminated soil and groundwater that is released off-site through improper or accidental actions caused by the Subcontractor. All such prevention, containment and cleanup costs shall be borne by the Subcontractor.

The Subcontractor is advised that discharge of oil from equipment or facilities into state waters or onto adjacent land is not permitted under state water quality regulations. The Subcontractor will be responsible for all costs, including cleanup, fines or penalties that are incurred as a result of discharge of oil from the Subcontractor's equipment or facilities.

The Subcontractor shall, at a minimum, take the following measures regarding oil spill prevention, containment and cleanup:

1. Fuel hoses, lubrication equipment, hydraulically operated equipment, oil drums, and other equipment and facilities shall be inspected regularly for drips, leaks, or signs of damage, and shall be maintained and stored properly to prevent spills. Proper security shall be maintained to discourage vandalism.
2. All land-based oil and products storage tanks stored at the project site shall be kept in areas that are diked, have secondary containment or are otherwise located so as to prevent spills from escaping to the ground or water.
3. All visible floating oils on surface water at the project site shall be immediately contained with booms, dikes, or other appropriate means and removed from the water prior to discharge into state waters. All visible oils on land shall be immediately contained using dikes, straw bales, or other appropriate means and removed using sand, ground clay, sawdust, or other absorbent material, which shall be properly disposed of by the Subcontractor. Waste materials shall be temporarily stored in drums or other leakproof containers after cleanup and during transport to disposal. Recovered oils and/or waste materials shall be disposed of by the Subcontractor off site at an approved facility at no cost to the Owner.
4. In the event of any oil or product discharges into public waters, or onto land with a potential for entry into public waters, the Subcontractor shall immediately notify the Owner or Owner's representative and the following agencies at their listed 24-hour response numbers:

Site Security: 509-838-2010, 503-803-6296

National Response Center: 1-800-424-8802

Washington Emergency Management Division: 1-800-258-5990

Ecology, Eastern Regional Office: 509-329-3400

STORM DRAINAGE CONTROL

The Subcontractor shall follow the site Temporary Erosion Control Plan (TESP) provided in Civil Site Plan C-104 and C-105. The contaminated materials exposed in cut areas shall be protected from erosion from rainfall and site drainage while exposed by preventing run-on and run-off from adjacent impermeable areas using hay bales, silt fencing, or sorbent booms. Drainage from other areas of the site shall be directed away from all areas of exposed contaminated materials using similar controls. These measures must be established before beginning any specific work that will be impacted by excavation activities. Additional sediment control measures are required during truck hauling activities. The erosion and sediment control measures shall be maintained by the Subcontractor for the duration of the work.

Excavation of contaminated material shall be sequenced to limit potential contact of exposed contaminated material with precipitation to the greatest extent possible. The Subcontractor will place base coarse and one lift of asphalt at exposed contaminated areas that are designed to be covered with asphalt following construction. The Subcontractor will place a 1-foot cover of clean granular soil over areas designed to be covered with concrete (such as future curbs, sidewalks, and landscaped areas) or provide access limitations (fencing, caution tape, barricades). See Civil Site Plan c-301 and C-704 for detail. The purpose of partial asphalt, soil cover, or access limitation shall serve two purposes; to limit worker exposure to contaminated soil and to protect contaminated soil from being spread across the site. The Subcontractor shall design and conduct their work so that rainstorms and rain-on-snow events do not

create stormwater discharges to the Spokane River; releases of contaminated soil and groundwater to the Spokane River during construction shall be considered an improper action of the Subcontractor.

Temporary stockpiles should be lined and covered with minimum 20-mil plastic sheeting and the adjacent area shall be sloped to direct surface water runoff and rainfall away from the stockpile area. The Subcontractor shall drain wet soils from excavations below the water table on 20-mil plastic sheeting sloped and configured such that draining water can be collected by the Subcontractor and transferred to the site water treatment system. The stockpile area shall be cordoned off. Traffic and worker activities in the stockpile area shall be limited. The Subcontractor shall complete this work in a manner that assures that contaminated soil does not enter the public water system.

DECONTAMINATION RINSATE CONTROL

All decontamination rinsate and wash water must be collected and properly managed. The decontamination area shall be located within the existing site limits. No rinsate or wash water may be discharged directly onto pavement or into storm drains. The Subcontractor shall transfer the rinsate and wash water to the site water treatment system for eventual disposal to the City of Spokane sewer system. Associated sediment will be placed in problem waste soil stockpiles for off-site disposal.

ENVIRONMENTAL SAMPLING

Soil, air, and groundwater samples will be collected by the Owner's representative during activities that disturb soil and groundwater at the site. The Subcontractor will, at no additional cost, assist as needed the Owner's representative in obtaining samples and will facilitate access for the brief duration while samples are collected.

SOIL SAMPLES

The Owner's representative will collect routine soil samples following excavation but before placement of the asphalt or gravel cover (encapsulation layer). The purpose of this sampling is to define contaminants concentrations throughout the site following remedial activities and specifically to document areas of the site where concentrations remain greater than applicable cleanup levels. Approximately one soil sample will be collected spaced representatively in a grid-type layout at about every 50-foot on center in locations that are suspected to non-contaminated and at about 100-foot on center for areas of the site that are suspected to be contaminated above MTCA cleanup levels. The Subcontractor will assist the Owner's representative with collection of the samples if the excavation is deeper than 4 feet and sidewall sloping/shoring is not adequate for safe entry. Generally, the Subcontractor will not be required to wait for analytical results of routine samples to continue with construction.

AIR MONITORING

The Owner's representative will provide compliance air monitoring services during construction in the "hot zone" for the purpose of worker exposure monitoring. Initially, this will include monitoring the breathing zone of construction personnel for particulate contaminants using personal air monitoring pumps. The Owner's representative will also monitor particulate levels at the site boundary for the purpose of evaluating possible migration of contaminants outside the work zone. Perimeter air monitoring will be performed using air monitoring pumps at approximately four stations; three downwind locations and one upwind location. Sample frequency and monitoring locations might be modified

depending on site conditions and other factors. Once qualitative concentrations of potential particulate contaminants in worker breathing zones and the site boundary are established, the Owner's representative will use a real-time portable particulate monitor (PPM) and photo ionization detectors (PID) to monitor these areas. We anticipate that three worker breathing zone and four site boundary particulate air samples will be collected at the start of the project for performance verification. Real-time particulate monitoring will be performed approximately daily during the remainder of construction activities. Particulate air monitoring samples will be analyzed for cPAHs and metals (arsenic, cadmium, lead, and mercury), using one to two working day laboratory turnaround.

The Subcontractor will be required to use work practices and/or engineering controls to prevent off-site releases of environmental contaminants and to reduce worker exposure to site contaminants to levels below the applicable permissible exposure limits (PEL). The Subcontractor is expected to coordinate and take direction from the Site Safety Officer to ensure this occurs.

GROUNDWATER MONITORING

There are two active groundwater monitoring wells present at the site and three abandoned monitoring wells. Two additional monitoring wells will be constructed late summer or early fall along the northern portion of the site. The Subcontractor will facilitate installation of these monitoring wells by allowing unobstructed access of the drill rig for 1-2 days. The Subcontractor shall also preserve all active monitoring wells and is responsible for replacement at no additional cost to the Owner if the wells are damaged by the Subcontractor's sole actions. The Subcontractor also shall provide access as necessary for the Owner's representative to access these wells for sampling on a quarterly basis.

CONTINGENCY PLANNING

This portion of the Plan is intended to provide procedures and recommendations to the Subcontractor for recognizing and managing unexpected environmentally sensitive materials should they be encountered during excavation activities. These procedures and recommendations are not intended to be all-inclusive. Best management practices related to handling of contaminated materials should be implemented as appropriate and in accordance with applicable laws and regulations.

RECOGNITION OF POTENTIALLY CONTAMINATED FILL, SOIL, AND GROUNDWATER

The following describes characteristics of potentially contaminated fill and demolition debris, soil and groundwater, which might be encountered at the site. The Environmental Materials, Indicators, Storage, And Response, presents a summary of recommended recognition, handling and response protocol at the site.

5. Site developers/Subcontractors should review the GeoEngineers reports: "Phase I and Limited Phase II Environmental Site Assessment, Proposed Convention Center Expansion Option 2 Site, Spokane, Washington" dated September 26, 2002; "Geotechnical Engineering Study, Proposed Convention Center Expansion Option 2 Site Spokane, Washington" dated September 25, 2002; and "Corrective Action Plan, Proposed Convention Center Expansion Site, Spokane, Washington" (CAP) dated April 16, 2004 to familiarize themselves with fill, soil and groundwater conditions on site.
6. Certain buried materials at the site might contain asbestos, given the age of former site structures and past demolition practices that included filling basements with demolition debris. Inhalation

of asbestos fibers that might be released during excavation and subsequent disposal poses a health risk without proper management. Further, federal, state, and local laws require that identification of asbestos-containing building material (ACBM) be performed by personnel trained in the identification of such materials. The Subcontractor should be cognizant of the potential for ACBM and recognize the appearance of buried debris that might be ACBM so that the potential for mishandling of ACBM is minimized. A partial list of materials that might be ACBM includes roofing felt, drywall tape, plaster, pipe insulation, sheet vinyl floor goods and mastic, floor tile and mastic, window glazing, duct tape, boiler insulation, wall insulation, cement-asbestos board panels, Orangeburg pipe, woven insulation, and fire brick. ACBM is often fibrous, resilient to weathering, and resistant to heat.

7. Other building components or debris with potential environmental concerns include electrical transformers, pumps, hydraulic equipment including hoists, fuel tanks (USTs) and piping, drums, wells, sumps, floor drains, drywells (and sediment within sumps, floor drains, and drywells), and unopened containers.
8. Soil at the site has been confirmed to contain metals, polycyclic aromatic hydrocarbons (PAHs), petroleum hydrocarbons and other chemicals. Metals and PAHs will be difficult to identify visually or with field screening devices. In the Spokane area, metals and PAHs are often associated with ashy fill. Petroleum hydrocarbons could be present if soil exhibits one or more of the following physical characteristics: (1) grey to black staining, (2) incidental odors, or (3) sheen when placed in water. Any chemical or petroleum odor emitting from soil should be considered an unusual environmental concern.
9. Groundwater that is contaminated with petroleum hydrocarbons might have petroleum odors, have a rainbow-colored sheen on top of the water, or might appear frothy or emulsified.

ENVIRONMENTAL MATERIALS, INDICATORS, STORAGE, AND RESPONSE

Environmental Material	Indicators	Storage	Response
ACBM	<p>Building and demolition debris that is neither concrete nor brick. The following is a partial list of potential ACBMs:</p> <ul style="list-style-type: none"> Roofing felt Drywall and tape Plaster Pipe insulation Sheet vinyl floor goods and mastic Floor tile and mastic Window glazing Boiler insulation Wall insulation Cement-asbestos board panels Orangeburg pipe Woven insulation Fire brick 	If excavated, keep material moist to prevent dust generation, place on 10-mil plastic sheeting, and cover with 10-mil plastic sheeting.	Contact Owner or Owner's Representative.
Hazardous Buried Chemicals	Tanks, drums, transformers, cylinders, boxes, containers with warning labels, etc.	Do not disturb. Material will be secured by hazmat-trained individuals.	Immediately contact Owner or Owner's representative.
Unusual Contaminated Soil	<p>Chemical or petroleum odors</p> <p>Creates a sheen when placed in water</p>	If excavated, keep material dry and control runoff. Place on 20-mil plastic sheeting, and cover with 20-mil plastic sheeting.	Contact Owner or Owner's representative. Keep material exposed and secure excavation to prevent entry. Samples will be collected by the Owner's representative. Owner and Subcontractor will develop an excavation and disposal plan for this material.
Contaminated Groundwater	<p>Chemical or petroleum odors</p> <p>Rainbow-colored sheen on water</p> <p>Frothy and/or emulsified appearance</p>	If groundwater is removed from excavation, it must be stored onsite until an appropriate disposal method is identified.	Contact Owner or Owner's representative. Keep excavation open and secure to prevent entry. Samples will be collected by the Owner's representative. Owner and Subcontractor will develop liquid storage, treatment, and disposal plan for groundwater.