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USACE / NAVFAC / AFCEC **UFGS-02 61 23 (February 2025)**

Preparing Activity: NAVFAC **Superseding**
UFGS-02 61 23 (April 2006)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated April 2026
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SECTION TABLE OF CONTENTS

DIVISION 02 - EXISTING CONDITIONS

SECTION 02 61 23

REMOVAL AND DISPOSAL OF PCB CONTAMINATED SOILS

02/25

-- End of Section Table of Contents --

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SECTION 02 61 23

REMOVAL AND DISPOSAL OF PCB CONTAMINATED SOILS
02/25

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NOTE: This guide specification covers the requirements for the removal of polychlorinated biphenyls (PCBs) contaminated soils.

Adhere to UFC 1-300-02 Unified Facilities Guide Specifications (UFGS) Format Standard when editing this guide specification or preparing new project specification sections. Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable item(s) or insert appropriate information.

Remove information and requirements not required in respective project, whether or not brackets are present.

Comments, suggestions and recommended changes for this guide specification are welcome and should be submitted as a Criteria Change Request (CCR).

****

PART 1 GENERAL

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NOTE: This guide specification is intended for use where as-found concentrations of PCBs in soils exceed 50 parts per million (ppm). The as-found concentration is defined in the Environmental Protection Agency's (EPA's) PCB Question and Answer Manual (June 2014): "The concentration of the PCBs in the waste at the site at the time the waste is discovered, as opposed to the concentration of the PCBs in the material that was originally spilled, released, or otherwise disposed of at the site. For example, if dielectric fluid containing PCBs at greater than 500 ppm was spilled onto soil, and testing revealed the PCB concentration of the soil to be less than 50 ppm, the soil would be managed as

having a concentration of less than 50 ppm, not as having the concentration of the dielectric fluid that spilled. You may not dilute the as-found concentration of the contaminated soil by mixing it with clean soil during excavation or other management activities."

For disposal and removal of PCBs not in soils, use Section 02 84 33 REMOVAL AND DISPOSAL OF POLYCHLORINATED BIPHENYLS (PCBs).

This guide specification section is intended for use when PCBs are either the sole contaminant or the contaminant "driving" cleanup decisions. However, if PCBs are only a co-contaminant and not the sole/"driving" contaminants, Section 02 61 13 EXCAVATION AND HANDING OF CONTAMINATED MATERIAL should be used, and relevant requirements from this section should be copied into that section, including but not limited to paragraphs 1) REGULATORY REQUIREMENTS, 2) PERFORMANCE REQUIREMENTS, 3) FIELD SCREENING TEST KITS, 4) DECONTAMINATION MATERIALS, 5) DECONTAMINATION OF NON-POROUS SURFACES, 6) REMOVAL OF POROUS SURFACES, and 7) SAMPLING SOLID SURFACES.

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1.1 UNIT PRICES

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NOTE: These paragraphs should be edited based on whether the contract will use a single job price or unit prices. If there is a separate Measurement and Payment section, edited versions of these paragraphs should be inserted in that section.

The amount of contaminated material to be excavated is often subject to uncertainty due to the difficulty in fully characterizing subsurface conditions prior to excavation. For this reason, single job pricing that is fair to both the Government and Contractor can be a challenge. One option if using single job pricing is to set the base bid using the best estimate of the amount of contaminated material to be excavated and include options that can be exercised for additional volumes or weights. Coordinate requirements of these paragraphs with the bidding schedule.

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1.1.1 Measurement

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NOTE: Options are provided for payment by either volume or weight. If payment is on a weight basis, weights must either be measured on-site using a scale system (provided by the Government or the Contractor) or off-site at the point of disposal (e.g., a landfill).

****

Base measurement for removal and onsite transportation on the[actual number of cubic meters cubic yards of PCB-contaminated material in-place prior to excavation. Base determination of the volume of contaminated material excavated on cross-sectional volume determination reflecting the differential between the original elevations of the top of the PCB-contaminated material and the final elevations after removal of the contaminated material.][metric tons tons of PCB-contaminated material excavated. Use a properly calibrated weighing system to accurately measure the gross (bulk) weight of the PCB-contaminated material. Covert the measured gross (bulk) weight of the PCB-contaminated material to dry weight based on the[percent moisture content] [_____] of representative PCB-contaminated material samples. Determine the percent moisture content in accordance with[ASTM D2216][ASTM D4643][ASTM D4959] [_____]. Determine moisture content[daily.][for every [500][_____] metric tons tons of excavated PCB-contaminated material.]] Base measurement for construction, maintenance, and removal of stockpile areas on the number of square meters square yards of stockpile liner constructed.

1.1.2 Payment

1.1.2.1 Excavation and Handling

Compensation for excavation and onsite handling of PCB contaminated soil will be paid as a unit cost. Include any other items incidental to excavation and handling not defined as having a specific unit cost.

1.1.2.2 Stockpiling

Compensation for construction of stockpile areas will be paid for as a unit cost. Include all aspects of grading, preparation, handling, placement, maintenance, removal, treatment, and disposal of stockpile cover materials and liner materials and all other items incidental to construction of stockpiles in the unit cost.

1.1.2.3 Other Work Items

Payment for other work items not included in the above paragraphs will be included in the payment for the base bid for excavation, handling, and temporary storage of the PCB contaminated soils. The other work items include preparation of submittals; mobilization and demobilization; site preparation; environmental compliance monitoring; health and safety monitoring and controls; and utilities required for the project if approved by the Government as necessary for the project.

1.2 REFERENCES

****

NOTE: This paragraph is used to list the publications cited in the text of the guide specification. The publications are referred to in the text by basic designation only and listed in this paragraph by organization, designation, date, and title.

Use the Reference Wizard's Check Reference feature when you add a Reference Identifier (RID) outside of the Section's Reference Article to automatically

place the reference in the Reference Article. Also use the Reference Wizard's Check Reference feature to update the issue dates.

References not used in the text will automatically be deleted from this section of the project specification when you choose to reconcile references in the publish print process.

****

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM D2216	(2019) Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D4643	(2017) Standard Test Method for Determination of Water Content of Soil and Rock by Microwave Oven Heating
ASTM D4959	(2016) Determination of Water (Moisture) Content of Soil by Direct Heating
ASTM D5434	(2012) Field Logging of Subsurface Explorations of Soil and Rock

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)

NIST HB 44	(2018) Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 505-B-04-900A	(2005) Intergovernmental Data Quality Task Force - Uniform Federal Policy for Quality Assurance Project Plans: Evaluating, Assessing, and Documenting Environmental Data Collection and Use Programs Part 1: UFP-QAPP Manual
EPA 560/5-86-017	(1986) Field Manual for Grid Sampling of PCB Spill Sites to Verify Cleanup
EPA SW-846	(Third Edition; Update VII) Test Methods for Evaluating Solid Waste: Physical/Chemical Methods
UFP-QAPP WKSTS	(2012) Intergovernmental Data Quality Task Force - Uniform Federal Policy for Quality Assurance Project Plans, Optimized UFP-QAPP Worksheets

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.1000	Air Contaminants
40 CFR 761	Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions

1.3 SYSTEM DESCRIPTION

****
NOTE: The Designer should include the bracketed text if the amount and type of debris anticipated to be present in the PCB-contaminated soil will not impact the work described in this section and referenced sections. If the amount or type of debris is significant (see Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS for definitions related to debris), this section and associated sections should be edited to indicate how debris will be managed.
****

The work includes removal of approximately [_____] [metric tons][cubic meters] [tons][cubic yards] of PCB-contaminated soils[and any debris contained within the contaminated soils].

1.3.1 Design Requirements

1.3.1.1 PCB Contaminated Soil Removal Plan

****
NOTE: The Designer may wish to require the PCB Contaminated Soil Removal Plan, UFP-QAPP, and any other preconstruction submittals required under this section to be completed concurrently or with all other plans being appendices of one primary plan. This section should be edited to reflect such a requirement if applicable.
****

Submit a PCB Contaminated Soil Removal Plan within [30][_____] calendar days after notice to proceed. Do not perform work at the site, with the exception of site inspection and surveys, until the Removal Plan is approved. Prepare[draft for Government review][draft-final for [regulatory][_____] review] and final versions of the PCB Contaminated Soil Removal Plan. Allow [30][_____] calendar days for[Government] review[and [30][_____] calendar days for regulatory review]. Allow [45][_____] days for comment resolution following each review and preparing the next version of the document. No adjustment for time or money will be made if resubmittals of the Removal Plan are required due to deficiencies in the plan. Describe methods, techniques, and phases of dealing with the PCB contaminated soil, including: a schedule to be employed in the excavation, a sequence of operations, the method of excavation, hauling, and handling of the contaminated materials, and the proposed equipment. Provide design details for stockpiles including but not limited to: geomembrane liner and cover, berms, anchors/ballast for cover, vehicle access points, and leachate collection sumps. Identify temporary use areas required for staging equipment and supplies, for

temporary storage of excavated materials, or for stockpiles.

1.3.1.2 Uniform Federal Policy Quality Assurance Project Plan (UFP-QAPP)

Prepare a Uniform Federal Policy Quality Assurance Project Plan (UFP-QAPP) in accordance with the requirements set forth in EPA 505-B-04-900A and using the UFP-QAPP WKSTS. Submit the UFP-QAPP within [30][_____] calendar days after notice to proceed. Do not perform work at the site, with the exception of site inspection and surveys, until the UFP-QAPP is approved. Prepare[draft for Government review][draft-final for [regulatory][_____] review] and final versions of the UFP-QAPP. Allow [30][_____] calendar days for[Government] review[and [30][_____] calendar days for regulatory review]. Allow [45][_____] days for comment resolution following each review and preparing the next version of the document. Tailor the content to the requirements of the project and the site conditions. If field screening test kits are used as described in paragraphs EXCAVATION and FIELD SCREENING, include those field analysis in the UFP-QAPP.

1.3.1.3 PCB Contaminated Water Handling Plan

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NOTE: Include the bracketed items when on site treatment of contaminated water is required.
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Prepare and submit a plan detailing methods and techniques for collection[and treatment] of PCB contaminated water.[For treatment system, include size and location of equipment, catalog data on all components of system, size and arrangement of filters, type and quantity of filtering material, and method of containment.]

1.3.1.4 Hazardous Waste Management Plan

****
NOTE: If Section 02 81 00 TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS is not in the project, details of a Hazardous Waste Management Plan can be copied from that section and edited as appropriate.

A Hazardous Waste Management Plan should include the following minimum elements: identification of PCB wastes associated with the work; estimated quantities of wastes to be generated and disposed of; names and qualifications of each Contractor that will be transporting, storing, treating, and disposing of the wastes. Include the facility location and a 24-hour point of contact. Include regulatory agency PCB waste permits and regulatory identification numbers; spill prevention, containment, and cleanup contingency measures to be implemented.
****

Prepare a Hazardous Waste Management Plan in accordance with [Section 02 81 00 TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS][_____].

1.3.2 Performance Requirements

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NOTE: This paragraph provides for two approaches to excavation of contaminated materials. The first approach is to excavate only a fixed volume of contaminated material. This approach could be used in a situation where excavation cannot proceed beyond certain limits, or excavation is being used to target hot-spots of contamination only. If this approach is used, the bracketed text and Table should be deleted. The second approach is to excavate to "clean" soil, using post-excavation confirmation samples to demonstrate achievement of cleanup goals.

Typical PCB cleanup goals for soils are 1 ppm, 10 ppm, or up to 25 ppm or more. Cleanup levels for non-porous surfaces are those defined in 40 CFR 761.61. Cleanup goals depend on many factors including the State that work is located in, land use (high occupancy, low occupancy, etc.), and proximity to surface and ground water. Cleanup goals should be determined on a site-specific basis considering the purpose of the excavation, applicable regulations, and other criteria. Ideally, cleanup goals will be defined in a site-specific decision document. Guidance on

defining cleanup goals is beyond the scope of this section.

This section includes provisions for managing PCB-contaminated non-porous and porous surfaces that are known to be present or may be encountered during excavation. If non-porous and porous surfaces are not present, the optional text in this paragraph, cleanup goals in Table 1, and work requirements related to non-porous and porous surfaces in Part 3 need to be deleted.

****

Excavate to the limits as shown on the drawings.[Excavation includes decontamination of non-porous surfaces and removal of porous surfaces[as shown on the Drawings][encountered within the excavation limits] [_____].][When excavation samples collected in accordance with paragraph FIELD QUALITY CONTROL indicate that remaining contaminant concentrations exceed the cleanup goals specified in Table 1, conduct additional excavations to achieve the cleanup goals in the excavation.]

TABLE 1 - CLEANUP GOALS	
SAMPLE TYPE	PCB CLEANUP GOAL
PCB Contaminated Soil and Porous Surfaces	
[_____]	[<=1][<=10][<=25][_____] mg/kg (parts per million)
[_____]	[<=1][<=10][<=25][_____] mg/kg (parts per million)
Non-Porous Surfaces	
[_____]	[<=10][<=100][_____]ug/100 cm^2
[_____]	[<=10][<=100][_____]ug/100 cm^2
Run-on Stormwater, Dewatered Groundwater, and Rinsewater Containing PCBs	
[_____]	[<=0.5][<3][_____]ug/L

[1.4 PRE-INSTALLATION MEETING

****

NOTE: Delete this paragraph if a separate specification section is developed for the entire project to cover pre-installation meetings and other administrative requirements.

****

Conduct a pre-installation meeting at the jobsite [at least 5 business days prior to the start of operations on the project][_____]. The pre-installation meeting is to be arranged by the Contractor and is to follow the written pre-installation meeting agenda submitted prior to the meeting. The purpose of this meeting is to review the requirements of this specification and the associated plans. The following individuals must be in attendance at this meeting: Contractor's Project Manager and

Site Foreman and [Contracting Officer][_____].

Record pre-installation meeting minutes and publish via email within 48 hours to all attendees. The minutes must be re-published within 48 hours via email pending any subsequent comments from the attendees.

]1.5 DEFINITIONS

PCB and PCBs (Polychlorinated Biphenyls), 40 CFR 761. PCB and PCBs means any chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances which contain such substance.

1.6 SUBMITTALS

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NOTE: Review Submittal Description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list, and corresponding submittal items in the text, to reflect only the submittals required for the project. The Guide Specification technical editors have classified those items that require Government approval, due to their complexity or criticality, with a "G." Generally, other submittal items can be reviewed by the Contractor's Quality Control System. Only add a "G" to an item if the submittal is sufficiently important or complex in context of the project.

For Army projects, fill in the empty brackets following the "G" classification with a code of up to three characters to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy and Air Force projects.

The "S" classification indicates submittals required as proof of compliance for sustainability Guiding Principles Validation or Third Party Certification and as described in Section 01 33 00 SUBMITTAL PROCEDURES.

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Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are for Contractor Quality Control approval. for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

[Pre-Installation Meeting Agenda

][Pre-Installation Meeting Minutes; G, [_____]

] PCB Contaminated Soil Removal Plan; G, [_____]

PCB Contaminated Water Handling Plan; G, [_____]

Uniform Federal Policy Quality Assurance Project Plan (UFP-QAPP); G, [_____]

[Confirmatory Grid Sampling Plan; G, [_____]

] Pre-Installation Examination Report

Pre-Construction Equipment Examination

Hazardous Waste Management Plan

SD-02 Shop Drawings

Surveys

SD-03 Product Data

Field Screening Test Kits

SD-06 Test Reports

Dewatering Performance Records

SD-07 Certificates

Qualifications; G, [_____]

SD-11 Closeout Submittals

Closeout Report; G, [_____]

1.7 QUALITY CONTROL

1.7.1 Regulatory Requirements

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NOTE: Some States regulate PCBs as hazardous waste. The Designer should verify presence of State-level PCB regulations and their impact on this section and associated referenced sections.

****

Maintain at the job site one readily available copy each of 29 CFR 1910.1000, 40 CFR 761, and all contractor prepared plans required under paragraph SUBMITTALS. Ensure that work operations or processes involving PCB-contaminated materials are conducted in accordance with 40 CFR 761 and the applicable requirements of this section, including but not limited to:

a. Obtaining advance approval of PCB storage sites.

b. Notifying Contracting Officer prior to commencing the operation.

c. Reporting leaks and spills to the Contracting Officer.

d. Cleaning up spills.

e. Maintaining an access log of employees working in a PCB control area and providing a copy to the Contracting Officer upon completion of the operation.

f. Inspecting PCB and PCB-contaminated items and waste containers for leaks and forwarding copies of inspection reports to the Contracting Officer.

g. Maintaining a spill kit.

h. Maintaining inspection, inventory, and spill records.

1.7.1.1 Environmental Protection

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NOTE: This specification section does not attempt to provide comprehensive environmental protection requirements, but rather refers to a separate specification section that would be prepared using UFGS Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS. Specific technical considerations for excavation projects are discussed below.

An air pathway analysis should be performed during design to determine what air monitoring and controls are required. Guidance on air pathway analyses is provided in EP 200-1-24 Air Pathway Analysis for the Design of Hazardous, Toxic, and Radioactive Waste (HTRW) Remedial Action Projects. Specify perimeter air monitoring requirements in Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS.

Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS provides information related to regulations of spills including notification and response requirements. Spills on excavation projects can occur due to releases from equipment, fuel storage tanks, etc. Excavated materials can also be inadvertently spilled during transport between the excavation and storage locations. Lastly, although not directly related to spills, excavation projects have the potential to encounter unanticipated materials such as buried tanks, containers, munitions and explosive constituents, etc. An environmental protection plan prepared under Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS should include provisions for managing both spills and encountering unanticipated materials.

The environmental protection plan should also consider the following spill-prevention and control related requirements: use appropriate vehicles and operating practices to prevent spillage or leakage of contaminated materials from occurring during operations; inspect vehicles leaving the

contaminated soil removal site to ensure that no contaminated soil adheres to the wheels or undercarriage; immediately report any spills to the Contracting Officer and provide cleanup in accordance with 40 CFR 761, Subpart G.

****

Develop and implement environmental protection requirements per [Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS][_____].

1.7.2 Qualifications

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NOTE: Requirements for the Contractor's experience should be determined and specified based on the experience and availability of Contractors in the area as well as the complexity of the project.

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1.7.2.1 Contractor Experience

Submit evidence of successful completion of at least [one][_____] project of comparable size and scope.

1.7.2.2 Key Personnel

Provide key personnel with a minimum of [3][_____] years of contaminated soil excavation field experience. Include the Site Foreman, quality control personnel, and supervisory engineering and technical staff involved with operation in key personnel. Perform all survey work under the supervision of a registered land surveyor licensed in the[applicable jurisdiction][State of [_____]]. Submit a list of these personal with their qualifications.

1.7.2.3 Lab Validation

Perform testing by a DoD Environmental Laboratory Accreditation Program (DoD ELAP) accredited commercial testing laboratory meeting the requirements of [Section 01 45 00 QUALITY CONTROL][_____] and approved by the Contracting Officer. Submit testing laboratory validation for the testing to be performed. Do not permit work requiring testing until the Contracting Officer approves use of the testing laboratory.

1.8 PROJECT/SITE CONDITIONS

1.8.1 Environmental Requirements

****

NOTE: Revise this paragraph if requirements are provided in other specification sections, health and safety plans, environmental permits/permit equivalents, etc. The conditions described in the following paragraph represent challenges to environmental protection (winds causing dust, rain causing stormwater contamination), saturation of excavated materials (rain), or site damage (saturated soils).

****

Do not conduct excavation or handling of PCB-contaminated materials in the following conditions: [wind speeds in excess of [50][_____] kilometers [30][_____] miles per hour,][moderate rain greater than [5][_____] mm [0.2][_____] inches per hour,][saturated soils caused by recent rains/snowmelt such that equipment traffic would cause excessive rutting or damage].

1.8.2 Existing Conditions

****

NOTE: Include any pertinent information regarding project/site conditions in this paragraph, the appendices to the specifications, or on the drawings. If the PCB-contaminated soil to be excavated contains a significant amount of debris, the available information about its extent and characterization should also be provided. Indicate the detail to which site characterization has been performed and indicate where obvious data gaps exist. The following information should be shown on the project drawings (unless the Contractor is required to develop any aspects of the project design under a performance-based project):

a. Overall site plan, borrow areas, stockpile areas, storage areas, security requirements, special shoring requirements, boring logs, and access routes.

b. Individual site plans of each area of contamination with site features such as buildings, roads, utilities, topography, trees, shrubs, surface conditions, etc.

c. Limits of pavement removal, fence removal, and the location of ancillary equipment to be removed.

****

The existing site conditions are presented[in Appendix [_____]][and][on the Drawings]. These include[physical configuration,][utilities,][topography,][land uses,][groundwater depth,][geotechnical characteristics of the contaminated materials (including[grain size analysis,][pH,][moisture content,][density,][porosity]),][hydrogeology,][nature and extent of contamination,] [_____]. The existing conditions presented are the result of site investigations at specific locations; variations in the existing site conditions could occur. Perform an independent interpretation of the site characterization data. Notify the Contracting Officer within [48 hours][_____] if discrepancies between the data provided and actual field conditions are discovered.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Field Screening Test Kits

Provide PCB field screening test kits which analyze PCBs by EPA SW-846 Method 4020 or equivalent screening method having a false negative rate of less than 5 percent when PCBs are present at 1 ppm, and providing on-site

results within 2 hours of sample collection.

2.1.2 Backfill

****

NOTE: If Section 31 00 00 EARTHWORK is not in the project, backfill information can be copied from that section and edited as appropriate.

The paragraph ENVIRONMENTAL REQUIREMENTS FOR OFF-SITE SOIL in Section 31 00 00 EARTHWORK should be edited to include an appropriate list of chemical testing parameters for off-site soil. Some backfill sources may have chemical testing data already available; the Government should require chemical testing if the backfill chemical testing data is inadequate or does not exist. Off-site backfill should not be tested for only the site contaminants of concern. At a minimum, samples should be analyzed for target contaminant list (TCL) VOCs, TCL SVOCs, target analyte list (TAL) Metals, and Pesticides/PCBs. Additional analyses such as Total Petroleum Hydrocarbons may be appropriate also. Individual States or military installations may require or recommend additional parameters. Typical frequency of sampling would be one sample per 1,900 to 2,300 cubic meters 2,500 to 3,000 cubic yards. However, individual States or military installations may require or recommend more frequent or less frequent sampling.

In many cases, the degree of engineering control of the materials used as backfill may not need to be as stringent as described in Section 31 00 00 EARTHWORK. In other cases, such as under pavements, special compaction and material requirements may apply and the specifications will need to address these special requirements.

At some sites, previously contaminated soil which has been removed from the excavation is reused as backfill following treatment to remove the contaminant of concern.

****

Provide backfill in accordance with the requirements in [Section 31 00 00 EARTHWORK][_____].

2.1.3 Topsoil

****

NOTE: If Section 31 00 00 EARTHWORK is not in the project, topsoil information can be copied from that section and edited as appropriate. Section 31 00 00 EARTHWORK includes a provision to strip existing on-site topsoil for re-use. The project specifications should only allow that practice if topsoil has been tested or will be tested to confirm that it is not considered contaminated.

****

Provide topsoil in accordance with the requirements in [Section 31 00 00 EARTHWORK][_____]. Stripping existing topsoil for re-use on-site[is][is not] allowed.

2.1.4 Decontamination Materials

Provide solvents for decontaminating non-porous surfaces. Suggested solvents are stoddard solvent or hexane.

2.1.5 Geomembrane

****

NOTE: If Section 02 56 13.13 GEOMEMBRANE WASTE CONTAINMENT is not in the project, geomembrane material information can be copied from that section and edited as appropriate.

Scrim reinforced geomembranes are commonly specified for stockpile covers and liners. Due to their higher strength properties, scrim reinforced geomembranes can generally be thinner than non-reinforced geomembranes. For bottom liners, a commonly used minimum thickness is 0.5 mm 20 mils for non-reinforced geomembrane and for scrim reinforced geomembranes a common minimum weight is 20 kg/100 square meter 40 lbs./1000 square feet. For stockpile cover geomembranes, a commonly used minimum thickness is 0.25 mm 10 mils for non-reinforced geomembrane and for scrim reinforced geomembranes a common minimum weight is 13 kg/100 square meter 26 lbs./1000 square feet.

Section 02 56 13.13 GEOMEMBRANE WASTE CONTAINMENT includes substantial levels of effort for quality control and quality assurance (QC/QA) that are meant to ensure performance when geomembranes are used in long-term applications like a landfill. For use of geomembranes in temporary stockpiles of contaminated soils, the designer should consider reducing the level of QC/QA in Section 02 56 13.13 GEOMEMBRANE WASTE CONTAINMENT. Specific QC/QA requirements that could be reduced include Qualifications, requirements for Layout and Detail Drawings, Tests/Inspections/Verifications of materials conducted off-site, and on-site QA/QC of Field Seams. Reduced material requirements for temporary applications of geomembranes can also be considered; instead of using HDPE geomembranes that are 1 mm 40 mil or greater (typical for landfills), other materials such as PVC may be appropriate.

****

Provide geomembranes for lining and/or covering PCB contaminated soil stockpiles. Provide geomembranes in accordance with [Section 02 56 13.13 GEOMEMBRANE WASTE CONTAINMENT][_____].

[2.2 SCALES

****
NOTE: This paragraph is primarily intended to ensure that calibrated scales are being used to weigh excavated contaminated soil, when weight is being used as the basis for measurement and payment. If off-site scales will be used (e.g., at a weighing station or disposal facility), this paragraph can be deleted.
****

Provide scales of sufficient length to permit simultaneous weighing of all axle loads and with an accuracy within 0.2 percent throughout the range of the scales. Ensure the scale's accuracy conforms to the applicable requirements of NIST HB 44 and is certified[by an acceptable scales company representative][by an inspector of the State Inspection Bureau charged with scales inspection within the state in which the project is located] prior to weighing any excavated contaminated soil.[Locate the scales at the site of work.][Ensure the scales are capable of printing a weight ticket including time, date, truck number, and weight.] Perform a check of calibration of measuring equipment prior to initial use, and once every [7][_____] calendar days. The requirements of this paragraph do not apply to measurement of chemical data.

]PART 3 EXECUTION

3.1 EXAMINATION

3.1.1 Surveys

****
NOTE: If payment for the project is based on a single job price or based on weight of material exported/imported from the site, then a highly accurate survey by a registered land surveyor may not be necessary. A lower level of effort in these cases could be to require the Contractor to survey only the excavation, using a handheld, sub-meter accurate GPS unit.
****

Perform surveys immediately prior to and after excavation of PCB contaminated soils to determine the volume of contaminated soil removed. Provide cross-sections on [7.6][_____] meter [25][_____] foot intervals and at break points for all excavated areas. Survey and show locations of confirmation samples on the drawings.[Perform surveys in accordance with Section: [_____].]

3.1.2 Site Conditions

Conduct a pre-installation examination of the on-site infrastructure, utility conduits, monitoring points, site access constraints, and infrastructure. Photographically document, with identifying labels, the existing condition of infrastructure and utilities, particularly for comparison to post-removal conditions. Verify locations of critical utilities that cannot be disrupted and those utilities that would potentially have significant impacts on removal and public safety. Submit a Pre-Installation Examination Report documenting the examination

activity. Obtain all necessary utility clearances before initiation of subsurface work.

3.1.3 Pre-Construction Equipment Examination

Conduct a pre-construction examination of the excavation equipment for any damage, defect, and dilapidation. Submit the results of the pre-construction examination to the Contracting Officer for review and information. The Contracting Officer may conduct an independent examination to ascertain the condition and functionality of the equipment. Based on this examination, the Contracting Officer has the right to reject any damaged, defective or dilapidated equipment. The cost associated with equipment or control replacement or repair, and delays caused by the rejection must be borne by the Contractor. Routinely and properly inspect and maintain the equipment to provide the project execution as required by the contract schedule. Any schedule delay and cost associated with power failure, improper functioning of equipment and controls, unavailability of labor and materials, etc., must be the responsibility of the Contractor.

3.2 PREPARATION

3.2.1 Mobilization

****
NOTE: Section 01 35 29.13 HEALTH, SAFETY, AND EMERGENCY RESPONSE PROCEDURES FOR CONTAMINATED SITES includes requirements for decontaminating equipment that has been used in contaminated zones. That section should be modified to extend decontamination/cleaning requirements to equipment being brought on-site to cover the requirements of this paragraph.
****

Do not mobilize to the site until the [PCB Contaminated Soil Removal Plan][_____] has been approved by the Contracting Officer and the Contractor has received written confirmation. Delays caused by the Contractor's failure to meet regulatory requirements must result in no additional cost to the Government. In accordance with [Section 01 35 29.13 HEALTH, SAFETY, AND EMERGENCY RESPONSE PROCEDURES FOR CONTAMINATED SITES][_____], the equipment which is rented [and][or] previously used for other site remediation must be decontaminated and tested for contaminants of concern before being brought to the site.

3.2.2 Clearing

****
NOTE: Grubbing is typically not required at sites where contaminated soil is being excavated for treatment and/or disposal. Typically, vegetation that is cut off above a certain height is defined as clean and any stumps and brush below this height are defined as contaminated.
****

Perform clearing to the limits[shown on the Ddrawings][defined in the PCB Contaminated Soil Removal Plan] [_____] in accordance with [Section 31 11 00 CLEARING AND GRUBBING][_____].

3.3 PCB CONTAMINATED SOIL REMOVAL

Notify the Contracting Officer [_____] calendar days prior to the start of excavation of PCB contaminated soil. The[Contracting Officer][Contractor] is responsible for contacting regulatory agencies in accordance with the applicable reporting requirements.

3.3.1 Excavation

****
NOTE: For large excavations, more than one excavation log may be required.
****

Excavate areas of contamination to meet the requirements in paragraph PERFORMANCE REQUIREMENTS. Perform excavation in a manner that will limit spills and the potential for contaminated soil to be mixed with uncontaminated soil. Maintain an excavation log describing visible signs of contamination encountered for each area of excavation. Prepare excavation logs, describing materials in accordance with ASTM D5434.

Use methods and equipment that result in minimal disturbance to remaining soil beyond the excavation limits. Remove and dispose of any material that becomes contaminated as a result of the Contractor's operation at no additional cost to the Government. Stage operations to minimize the time the contaminated soil is exposed to the weather.

3.3.2 Shoring, Sloping, or Bracing

Implement shoring, sloping, bracing, or any other excavation health and safety requirements in accordance with [Section 01 35 26 GOVERNMENTAL SAFETY REQUIREMENTS][_____].

3.3.3 Contaminated Soil Storage

Place material in temporary storage[immediately after excavation][after treatment while awaiting test results]. The following paragraphs describe acceptable methods of material storage. Provide storage units that are in good condition and constructed of materials that are compatible with the material or liquid to be stored. If multiple storage units are required, clearly label each unit with an identification number and keep a written log to track the source of contaminated material in each temporary storage unit.

3.3.3.1 PCB Contaminated Soil Stockpiles

****
NOTE: Check state regulations to determine the minimum requirements for stockpiles and modify this paragraph accordingly. For contaminated soil with high moisture content, the subgrade for the stockpile must be sloped and a sump should be provided.

For post treatment stockpiles, chemical testing is usually required to determine if material is contaminated or clean. Maximum stockpile size should be based on the required frequency of

chemical testing. For example, if chemical tests are required at a frequency of one per 1,000 cubic meters cubic yards, then stockpiles should be no greater than 1,000 cubic meters cubic yards in size.

If anticipated volumes of PCB contaminated soils are small, consider requiring work methods that do not use stockpiles, such as storing PCB contaminated soils in roll-offs (included below) or in trucks suitable for carrying PCB contaminated soils as specified herein. Avoiding use of stockpiles means that soils do not need to be double handled, liners and covers do not need to be constructed, and sampling under stockpiles is not necessary.

As noted in paragraph GEOMEMBRANE, the Designer may wish to reduce the level of QC/QA requirements if using Section 02 56 13.13 GEOMEMBRANE WASTE CONTAINMENT as the requirement for installation of the stockpile bottom liner.

****

Construct stockpiles to isolate stored contaminated soil from the environment. Cover stockpiles at the end of each workday. Stockpile size greater than [_____] cubic meters cubic yards is prohibited. Construct stockpiles to include:

a. [Place a geomembrane liner on a ground surface that is free of rocks greater than 13 mm 0.5 inches in diameter and any other object which could damage the membrane. Where multiple geomembrane panels are necessary to construct the liner, seam the panels together and test the seams in accordance with[manufacturer requirements][Section 02 56 13.13 GEOMEMBRANE WASTE CONTAINMENT].][Use pavement as the liner system. Construct pavement in accordance with Section [_____]].

b. Place a geomembrane cover over the stockpiles. Extend the cover material over the berms and anchor or ballast to prevent it from being removed or damaged by wind. Where multiple geomembrane panels are necessary to construct the cover, shingle the upslope panel over the downslope panel and overlap the panels at least [150][_____] mm [6][_____] inches. Secure the panels together using[ballast such as sandbags or tires][adhesives][thermal fusion seams] [_____].

c. Construct berms surrounding the stockpile, a minimum of 300 mm 12 inches in height. Berm vehicle access points.

d. Slope the liner system to allow collection of leachate. Construct sumps to facilitate removal of leachate from the stockpile. Store and remove liquid which collects in the stockpile, in accordance with paragraph[COLLECTION AND DISPOSAL OF INCIDENTAL CONTAMINATED WATER][COLLECTION, TREATMENT, AND DISCHARGE OF CONTAMINATED WATER].

3.3.3.2 Roll-Off Units

Use water-tight roll-off units to temporarily store contaminated soil. Place a cover over the units to prevent precipitation from contacting the stored material. Remove liquid which collects inside the units and manage in accordance with paragraph[COLLECTION AND DISPOSAL OF INCIDENTAL CONTAMINATED WATER][COLLECTION, TREATMENT, AND DISCHARGE OF CONTAMINATED

WATER].

3.3.4 Decontamination of Non-Porous Surfaces

****
NOTE: Management of decontaminated non-porous surfaces should be specified here and should align with the cleanup goals provided in paragraph PERFORMANCE REQUIREMENTS.
****

Non-porous surfaces as defined in 40 CFR 761.3 encountered within the limits of excavation may be decontaminated in accordance with the requirements of 40 CFR 761, Subpart D, and this paragraph. Brush to remove soil materials and clean by double rinsing. Collect and manage washdown water in accordance with paragraph CONTAMINATED WATER. Repeat cleaning process and testing until PCBs are below the limits defined in paragraph PERFORMANCE REQUIREMENTS. Manage decontaminated non-porous surfaces by [_____].

3.3.5 Removal of Porous Surfaces

Remove porous surfaces as defined in 40 CFR 761.3 encountered within the limits of excavation. PCB-contaminated concrete may be scarified to remove the contaminated portion of the concrete; following scarification, collect samples in accordance with paragraph POROUS SURFACES. Manage the removed porous surface materials[in accordance with the same requirements for excavated contaminated soils in this section] [_____].

3.3.6 Contaminated Water

****
NOTE: Water treatment can significantly increase the cost of a project involving the excavation of contaminated soil and should be carefully considered during design. UFC 3-220-05 Dewatering and Groundwater Control provides guidance on the design of dewatering systems.

If water from dewatering operations will be allowed to discharge onto the ground, an NPDES permit for dewatering may be required (see Regulatory Requirements Designer's Note for more details on permits). Reference the permits paragraph of Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS for permit requirements.

Note that Section 31 00 00 EARTHWORK also includes dewatering requirements, but they are limited in scope and do not include any consideration of collection, treatment, sampling, or discharge of contaminated waters. If Section 31 00 00 EARTHWORK is included in the project, either delete dewatering requirements from that section or cut and paste the dewatering requirements from this section into 31 00 00.
****

Divert surface water to prevent entry into the excavation.[Limit

dewatering to that necessary to assure adequate access, a safe excavation, prevent the spread of contamination, and to ensure that compaction requirements can be met.][Do not perform dewatering without prior approval of the Contracting Officer.]

[3.3.6.1 Collection and Disposal of Incidental PCB-Contaminated Water

****

NOTE: Determine appropriate disposal method. Choose this paragraph when significant quantities of groundwater will not be encountered and only small amounts of rinse and other contaminated waters are expected.

****

Collect rinsewater. Collect ground, surface, and rain water contaminated by operations including water collected in the open excavation pit or temporary containment. Soak up with absorbent material so that no free liquid is present. Containerize, sample, and analyze PCB absorbed material and dispose of as specified for contaminated soils.

][3.3.6.2 Collection, Treatment, And Discharge Of PCB-Contaminated Water

****

NOTE: Choose these paragraphs when groundwater will be encountered or when significant amount of rinse water or other contaminated water is expected, and on-site treatment is allowed. Paragraphs may need modifying to fit site specific requirements. Typical treatment system consists of particulate/suspended solids removal by various means such as settling or filtration and contaminant removal by carbon filtration. Location of discharge for water after it is treated must be coordinated and approved by appropriate (EPA, State, station, local, and regional) authority.

Another option to consider is to containerize liquid and haul to off-site publicly-owned treatment works (POTW) with pretreatment capability, however this can be extremely costly for large quantities of water. Use unit pricing, assumed quantities, or some other method to give Contractor something to base bids on when water is to be taken off site. Where off site facilities are involved, verify such facilities exist, that they are permitted to accept, and that they will accept the liquid waste stream. Specification will require modifying for site specific requirements.

****

Furnish labor, materials, and equipment necessary for collecting, treating, and discharging of PCB-contaminated surface and subsurface water in excavations at the site. Conduct excavation and backfilling operations at the site in a manner that minimizes the amount of surface and subsurface water which may collect in the open excavation. Collect standing surface water in contact with PCB contaminated soil.

3.3.6.2.1 Subsurface Drainage

Remove water by pumping or other methods to prevent softening of surfaces exposed by excavation. Provide water treatment necessary to treat water to levels specified in paragraph PERFORMANCE REQUIREMENTS. Operate dewatering system continuously until construction work below static water levels is complete. Submit Dewatering Performance Records weekly. Measure and record performance of the dewatering system at the same time each day by use of observation wells or piezometers installed in conjunction with the dewatering system.

3.3.6.2.2 Treatment System Requirements

The Contractor is responsible for all aspects of verifying design parameters, designing, providing, installing, operating, maintaining, and removing the collection, storage, and treatment facilities as required to discharge treated waters within the treatment limits required. The treatment system must:

a. Be capable of removing PCB contaminants to below the limit defined in paragraph PERFORMANCE REQUIREMENTS for contaminated water.

b. Include effluent holding tanks designed to allow on-site testing of water quality prior to discharge.

c. Include recycle capability for retreatment of effluent not meeting the discharge requirements of this specification, as determined by on-site testing.

3.3.6.2.3 Treatment System Operations

Monitor, test, and adjust the treatment system in accordance with the PCB Contaminated Water Handling Plan[and UFP-QAPP][basewide QAPP], or as otherwise modified by special regulatory requirements. If there is a conflict between requirements, the more stringent requirement prevails.

3.3.6.2.4 Discharge of Treated Water

Do not discharge any water until tests results show water is below PCB contaminated water limits as specified in paragraph PERFORMANCE REQUIREMENTS. Provide erosion control at outlet of piping to minimize erosion. Discharge treated water to the [_____].

3.3.6.2.5 Cleanup and Removal of Treatment System

Upon completion of work, close and remove from the site the surface water and groundwater treatment system. Restore the site to its original condition. Decontaminate equipment in accordance with [Section 01 35 29.13 HEALTH, SAFETY, AND EMERGENCY RESPONSE PROCEDURES FOR CONTAMINATED SITES][_____]. Containerize, sample, test, and dispose of carbon, residues, cleaning aids, decontamination liquids, and waste as specified for the contaminated soils.

]3.3.7 Backfilling and Finishing/Finish Operations

Backfill excavations immediately after all contaminated soils have been removed and confirmation test results have been approved. Conduct backfilling and finishing/finish operations in accordance with [Section 31 00 00 EARTHWORK][_____].

3.3.8 Disposal Requirements

****

NOTE: Federal Regulations (40 CFR 761) require (with some exceptions) that generators, transporters, commercial storers, and disposers of PCB waste possess U.S. EPA identification numbers. If required, verify that the activity has a U.S. EPA generator identification number for use on the Uniform Hazardous Waste Manifest. (There are exceptions to this requirement of obtaining an identification number. In the case of a Very Small Quantity Generator, for example, who is not required to use the hazardous waste manifest except when shipping PCBs, which are not hazardous waste in most states, but still require the use of a hazardous manifest.) If not, the activity must file and obtain an identification number with EPA prior to commencement of removal work. Where disposal will be through the Defense Logistics Agency (DLA), modify paragraphs to meet DLA requirements.

Specific information for PCB waste shipment documents is described in 02 81 00 TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS.

****

Provide transportation and disposal of PCB-contaminated soils and materials per [02 81 00 TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS][_____].

3.3.9 Closeout Activities

Maintain surfaces of the PCB control area free of accumulations of PCBs. Restrict the spread of dust and debris; keep waste from being distributed over work area. Do not remove any PCB control area and warning signs required per [Section 01 35 29.13 HEALTH, SAFETY, AND EMERGENCY RESPONSE PROCEDURES FOR CONTAMINATED SITES][_____] prior to the Contracting Officer's approval. Reclean areas showing residual PCBs.

3.3.9.1 Cleanup Wastes

****

NOTE: If the reference to Section 01 35 29.13 HEALTH, SAFETY, AND EMERGENCY RESPONSE PROCEDURES FOR CONTAMINATED SITES is used, the Designer should ensure that the cleanup waste procedures in 40 CFR 761.61 (a)(5)(v) are referenced in that section.

****

Decontaminate or dispose of cleanup wastes, such as contaminated tools and containers, after use in accordance with [Section 01 35 29.13 HEALTH, SAFETY, AND EMERGENCY RESPONSE PROCEDURES FOR CONTAMINATED SITES][_____].

3.3.9.2 Closeout Report

****

NOTE: If there is a separate section in Division 01

that defines project close-out documentation, edited versions of this paragraph should be inserted in that section, and this paragraph deleted. In addition to progress photos, video has been used at some sites to record site activities.

****

Submit [_____] copies of a Closeout Report within [60][_____] calendar days of completing work at the site. Label the report with the contract number, project name, location, date, name of general Contractor, and the Government Agency contracting for the work. As a minimum, include the following information:

a. A cover letter signed by a[responsible company official][Professional Engineer registered in the State of [_____] who is a responsible company official] certifying that all services involved have been performed in accordance with the terms and conditions of the contract documents and regulatory requirements.

b. A narrative report including, but not limited to, the following:

(1) site conditions, ground water elevation, and cleanup criteria;

(2) excavation logs;

(3) field screening readings;

(4) quantity of materials removed from each area of contamination;

(5) quantity of water/product removed during dewatering;

(6) sampling locations and sampling methods;

(7) sample collection data such as time of collection and method of preservation;

(8) sample chain-of-custody forms; and

(9) source of backfill.

c. Copies of all chemical and physical test results.

d. Copies of all manifests and land disposal restriction notifications.

e. Copies of all certifications of final disposal signed by the responsible disposal facility official.

f. Waste profile sheets.

g. Documentation verifying that vehicles and containers were decontaminated prior to leaving the disposal site, were properly operating, and were covered.

h. Scale drawings showing limits of each excavation, limits of contamination, known underground utilities within 15 m 50 feet of excavation, sample locations, and sample identification numbers. Show on-site stockpile, storage, treatment, loading, and disposal areas on the drawings.

i. Progress Photographs. Use color photographs to document progress of the work. Take a minimum of four views of the site showing the location of the area of contamination, entrance/exit road, and any other notable site conditions before work begins. After work has been started, photographically record[daily][weekly] activities at each work location. Provide photographs including:

(1) Soil removal and sampling.

(2) Dewatering operations.

(3) Unanticipated events such as spills and the discovery of additional contaminated soil.

(4) Contaminated soil/water storage, handling, treatment, and transport.

(5) Site or task-specific employee respiratory and personal protection.

(6) Fill placement and grading.

(7) Post-construction photographs. After completion of work at each site, take a minimum of four views of each excavation site.

Include a digital version of all photos shown in the report with the Closure Report. Provide photographs with a minimum of 181.11 pixels per cm 300 pixels per inch resolution for all photo files. Provide photos in a lossless compression file format that does not lose any pixels in the compression process (e.g., .TIFF, .PNG, and .GIF). Ensure no loss of original resolution from the raw photo if converted to a lossless format. Create digital images and metadata that meet or exceed the specifications of the Exchangeable Image File Format (EXIF) version [_____][2.3] or higher. In addition to the raw digital photo submissions, submit a PDF document as part of the Closeout Report displaying all required progress or other photos organized into separate documents. Render the photos in the PDF with a resolution that represents the original photo resolution to the human eye. Place photos according to their proper orientation (portrait or landscape). Create an index with bookmarks for each PDF organized by submittal section and suborganized by work area (if applicable) and then by date in the sequence which they were taken.

Process all raw photos for inclusion in the PDF submission with a border including a 13 mm 0.5 inch caption at the base of each photo for descriptive information. Include the following information for each photographic image in the caption:

Project Name

Contract Number

Contractor Name

Date

Station and Offset

Photo Number

Orientation View

Work Element Depicted

General Project Area

3.4 FIELD QUALITY CONTROL

3.4.1 Tests

****

NOTE: If a UFP-QAPP will be prepared for the project, the detailed requirements included in this paragraph and it's sub-paragraphs can be replaced with simple statements indicating that sampling is to be performed in accordance with the UFP-QAPP. If that approach is used, the unique PCB sampling requirements in 40 CFR 761 (detailed below) would need to be incorporated into the UFP-QAPP to ensure compliance.

****

3.4.1.1 Sampling Solid Surfaces

3.4.1.1.1 Non-Porous Surfaces

Collect wipe samples from non-porous surfaces that are either removed from the excavation area or washed down in accordance with paragraph DECONTAMINATION OF NON-POROUS SURFACES.[Collect wipe samples in accordance with the[UFP-QAPP][basewide QAPP] [_____], which defines sampling frequency, location, and analysis.][40 CFR 761. A 10 cm by 10 cm template gauze pad or glass wool of known size which has been saturated in the laboratory with hexane and stored in sealed glass vials. Wipe immediately after exposing medium to air. Place sample in precleaned glass bottle, cap, label, and place in ice chest until analyzed.]

3.4.1.1.2 Porous Surfaces

Collect destructive samples from porous surfaces[in accordance with the[UFP-QAPP][basewide QAPP] [_____], which defines sampling frequency, location, and analysis.][in accordance with EPA 560/5-86-017 and this paragraph. Remove sufficient sample for analysis using chisel, hole saw, drills, etc. Take samples less than 1 cm 3/8 inch deep and place in glass precleaned sample bottle, cap, label, and place in ice chest.]

3.4.1.2 Sampling Excavations

****

NOTE: If excavations are limited to a fixed extent and do not proceed until clean soils are encountered, delete the field screening requirements included below.

****

3.4.1.2.1 Field Screening

Collect soil samples at the same interval as determined for the confirmatory grid sampling plan along the bottom and along the sidewalls of the excavation, and test using field screening test. Follow field

screening test kit manufacturer directions[and the UFP-QAPP].

3.4.1.2.2 Confirmation Sampling and Testing

[Collect excavation base and sidewall confirmation samples in accordance with the[UFP-QAPP][basewide QAPP] [_____], which defines sampling frequency, location, and analysis.][When field screening results show PCB concentrations below the cleanup goals defined in paragraph PERFORMANCE REQUIREMENTS, test using confirmation sampling and testing. Sample along the bottom and sidewalls of excavation. Use sampling grid scheme and number of samples as defined in EPA 560/5-86-017. Do not composite samples for analysis. Submit and receive approval of Confirmatory Grid Sampling Plan scheme prior to starting work. Analyze samples in accordance with EPA SW-846, Method 8080 for PCBs. Determine moisture content of the sample in accordance with EPA Method 160.3. Provide quality control in accordance with EPA guidelines, and as a minimum as follows:

a. Duplicate samples - collect and analyze duplicate soil samples at the rate of 10 percent of the total number of samples (rounded to the next highest number).

b. Matrix spike and matrix spike duplicate - collect one matrix spike sample for every 20 samples collected (rounded to the next highest number). Split the matrix spike sample, and analyze both the matrix spike and the matrix spike duplicate.]

3.4.1.3 Sampling of Stored PCB-Contaminated Soil

[Collect samples of stored material in accordance with the[UFP-QAPP][basewide QAPP] [_____], which defines sampling frequency, location, and analysis.][Take composite samples from stored material prior to removing from site. Analyze a minimum of one composite sample for every [75][_____] cubic meters [100][_____] cubic yards or fraction thereof of soil to be disposed of from any one site. To develop a composite sample of the size necessary to run the required tests, take several samples from different areas along the surface and in the center of the stockpile. Combine these samples and thoroughly mix to develop the composite sample.]

3.4.1.4 Sampling Beneath Storage Units

****

NOTE: At some sites, samples are collected to verify the soil underlying a contaminated material storage unit has not become contaminated due to leachate migration or mixing of contaminated soils with underlying soils.

Sampling along any connecting pipelines that transport contaminated liquid may also be appropriate. A standard practice is to sample at 6 meter 20 foot intervals under piping and at connections such as bends, elbows, or tees.

Options are provided for defining sampling requirements by either reference to a UFP-QAPP/basewide QAPP (first option) or including the requirements in this section (second option). As noted previously, referencing a UFP-QAPP is the

preferred approach.

****

Collect samples from beneath storage units in accordance with the[UFP-QAPP][basewide QAPP] [_____] and this paragraph. Collect samples from beneath each storage unit[prior to construction of and] after removal of the storage unit. Collect samples at a minimum frequency of one per each [_____] square meter [_____] square yard from a depth interval of [0 to 0.15][_____] meter [0 to 0.5][_____] feet and analyze for the contaminants identified in paragraph PERFORMANCE REQUIREMENTS. Collect samples as[discrete grabs][composites][incremental samples] [_____]. Complete all other sampling and analysis activities in accordance with the[UFP-QAPP][basewide QAPP] [_____] (including but not limited to sample handling, preservation, transportation, collection/analysis of quality control samples, data validation, and data reporting). Any deviations to sampling frequency, number of samples, or sample collection methods must be[established in the approved[UFP-QAPP][basewide QAPP]][approved by the Contracting Officer].

If sample results from beneath storage units exceed the cleanup goals specified in paragraph PERFORMANCE REQUIREMENTS, remove soil which has become contaminated at no additional cost to the Government. Handle contaminated soil which is removed from beneath the storage unit in accordance with the requirements for managing excavated PCB contaminated soils. As directed by the Contracting Officer and at no additional cost to the Government, perform additional sampling and testing per the requirements of this paragraph to verify areas of contamination found beneath stockpiles have been excavated to below the cleanup goals specified in paragraph PERFORMANCE REQUIREMENTS.

3.4.1.5 Government Quality Assurance Testing

****

NOTE: The need for quality assurance testing should be considered on a project-by-project basis, and if not considered necessary this paragraph should be deleted. Factors to consider include whether the Government has access to a laboratory that can analyze quality assurance samples in a timely manner to not delay the project execution. If conducting quality assurance testing, a separate third-party quality assurance contract should be considered based on the qualifications of the Government QA personnel, and the size and importance of the project.

Use of quality assurance testing data also needs to be considered. A relatively straightforward data use is to compare quality assurance sample results to the project performance requirements, and failing result would be treated the same way as a failing Contractor test result. A more complicated data use is to compare results from quality assurance samples and contractor quality control samples for the purpose of determining if there is meaningful disagreement between the results. In this case, procedures would need to be developed for determining when there is a meaningful disagreement between quality assurance and quality control sample

results; corrective actions for when a meaningful disagreement was identified would also need to be developed. The process of defining procedures for identifying and correcting meaningful differences should be documented in a project-specific CQA Plan or Quality Assurance Project Plan and referenced in this specification; the process is likely too complex to be adequately defined in this specification.

Two options are provided for defining Government Quality Assurance. The first option is to defer details of the Government QA to a separate CQA Plan. This option would be preferred for large, complex projects where the excavation is one component of a larger process. A second, simpler option is provided to define Government QA testing frequency.

****

[Work will be monitored and tested in accordance with the requirements of the Construction Quality Assurance (CQA) Plan. Be aware of all monitoring and testing activities defined in the CQA Plan and account for these activities in the construction schedule. Quality Assurance testing and monitoring does not relieve the contractor of the responsibility to complete the quality control testing and monitoring defined in this specification section.

][[Provide][The Contracting Officer may provide]duplicate quality assurance samples to the Government's quality assurance laboratory at a frequency of one set of samples per [10][_____] sets of quality control tests performed. Quality assurance samples will be tested for the same parameters as the parent quality control sample. The Contracting Officer may require additional quality assurance tests as a result of failed quality assurance or quality control tests. Account for Government quality assurance testing in the construction schedule. Quality Assurance testing and monitoring does not relieve the contractor of the responsibility to complete the quality control testing and monitoring defined in this specification section.

]3.5 PROTECTION

Do not store or stockpile contaminated soils on excavation areas that have been completed and tested in accordance with paragraph FIELD QUALITY CONTROL.

-- End of Section --