NAVAL SUBMARINE BASE NEW LONDON		OPERATING PROCEDURE
DOCUMENT OWNER: PWD Environmental Division	**AUTHORIZED BY:** Environmental Division Director	**Doc ID** SOIL-001
PROCEDURE: Soil Management Standard Operating Procedures (SOP)	**Origin Date:** 8 January 2020	**Page 1 of 10**
	Revision Date: 24 June 2025	**Revision #7**

PURPOSE: To define the proper procedures for managing soil on Naval Submarine Base New London (SUBASE) for all parties performing excavation and/or importing fill to ensure compliance with applicable Federal and State laws and regulations.

ACTION: Management of excess soil should be considered at the earliest stages of planning for any project involving excavation, and soil management should be included when developing the cost estimate. In accordance with the procedures established herein, excavated soil shall be managed through reuse at the immediate project site (preferred), reuse at an industrial or commercial area within the SUBASE fence line, or disposal at a permitted, off-base disposal facility. Any soil imported for use on the base shall meet State requirements for "clean fill".

PROCEDURES:

A. Excavated Soil Procedures

1. A "Request for Permit to Excavate" form, also known as a dig permit, shall be submitted to and approved by the Public Works Department (PWD) prior to initiating any ground-disturbing activities. Excavation work shall be performed in accordance with the site excavation procedures identified in the dig permit and shall be recorded on the soil tracking form (Attachment 1).
2. The completed soil tracking form shall be submitted to the PWD Environmental Division (EV) Installation Restoration (IR) Program Manager within 5 days of completing excavation operations.
3. If any signs of contamination, including visible staining or chemical/petroleum odors, are noted during excavation, excavation operations shall immediately cease, and EV shall be notified. Notification shall be made to the IR Program Manager.
4. In the event of an inadvertent discovery of archaeological deposits including human remains, monuments, artifacts, tools, or other similar archeological, Native American, or historic objects, excavation operations shall immediately cease, the site shall be secured, and EV shall be notified. Notification shall be made to the Cultural Resources (CR) Program Manager. Work activities in the area of the resource(s) shall not resume without approval from EV.
5. All excavated soil that can be reused at the immediate project site shall be placed back in the same location, i.e., excavated hole, from which it was removed. Soils reused at the immediate project site shall not require analytical testing.
6. For projects with excess soil that cannot be reused at the project site, the following procedures shall apply:

Storage and Sampling

a. Excess soil shall be placed on polyethylene sheeting and covered with polyethylene sheeting, a tarp, or an equivalent impervious material that prevents erosion and provides adequate dust control. Soils shall be labeled "Awaiting Analytical Results", and the label shall include the excavation date. All soils awaiting analytical results shall be managed/stored as Hazardous Waste.

b. A representative sample(s) of the excess soil shall be tested for Resource Conservation and Recovery Act (RCRA) 8 metals using Toxicity Characteristic Leaching Procedure (TCLP) analyses, extractable total petroleum hydrocarbons (ETPH), and volatile organic compounds (VOCs) by a Connecticut accredited laboratory. All analysis, methods, sample collection and frequency, etc. shall be conducted in accordance with validated EPA methods and in accordance with the most recent version of the Department of Defense Quality Systems Manual (DoD QSM). Contact the EV Hazardous Waste Program Office for detailed requirements. Costs associated with soil testing shall be included as a project cost and will not be funded by EV.

c. If the excess soil is from a site with known Per- and polyfluoroalkyl substances (PFAS) in the soil, excess soil shall also either be tested for PFAS or managed as PFAS-impacted soil.

    i. The analytical sampling must be collected by an experienced professional with a minimum of 3 years of experience dealing with PFAS sampling methods and treatment. All PFAS data must be collected per EPA standard operating procedures, analyzed by an Environmental Laboratory Accreditation Program (ELAP) certified lab, in accordance with the latest version of the DoD QSM, and using EPA method 1633. Costs associated with soil testing shall be included as a project cost and will not be funded by EV. Contact SUBASE Hazardous Waste Program Office for management and testing of PFAS-impacted soil.

Management/Disposition of Soil

a. If results show PFAS is identified in the soil, appropriate management and disposal methods shall follow the Assistant Secretary of Defense for Energy, Installations, and Environment policy, "Interim Guidance on Destruction or Disposal of Materials Containing PFAS in the U.S.", July 11, 2023 (see https://www.acq.osd.mil/eie/eer/ecc/pfas/tf/policies.html), and applicable state-specific waste disposal regulations. Regardless of analytical results, excess soil from a site with known PFAS substances shall not be reused on base.

b. If the results of all analytes exceed the criteria designated in Connecticut's RCRA Contained-in Policy, the soil shall be managed as Hazardous Waste and disposed of off base in accordance with

the SUBASE Hazardous Waste Management Plan. CT's RCRA Contained-in Policy, updated February 2020, is posted at the end of this document.

c. If the results of all analytes are below the criteria designated in CT's RCRA Contained-in Policy but exceed current Connecticut Remediation Standard Regulations (RSRs) direct exposure criteria for residential soil and GA pollutant mobility criteria, the soil shall be managed as non-RCRA hazardous contaminated soil and shall not be reused on base. The RSRs in effect in December 2019 are summarized in Table 1. Soil shall be transported off-base to an appropriate, permitted disposal facility.

d. If results for all analytes are below current Connecticut Remediation Standard Regulations (RSRs) direct exposure criteria for residential soil and GA pollutant mobility criteria, the excess soil meets the State requirements for reuse. Soil eligible for reuse may be placed at a location within the SUBASE main installation, pending submission to the EV IR Program Manager of the analytical results, a map denoting the project location and the proposed location for reuse, and an estimate of the volume of soil to be relocated. Excess soil shall be reused within 60 days of the excavation date. Any soil not relocated for reuse on base shall be disposed of off-base as non-regulated soil.

e. Additional IR Site Excavation Procedures may apply to project sites located within an IR site/zone, per the SUBASE Instruction 5090.25A and Section 3 of the Request for Permit to Excavate.

f. Manifests for soil transported off-base shall be coordinated through the EV Hazardous Waste Program Office. The only authorized individual who may sign the waste manifest is a representative from the SUBASE Hazardous Waste Program authorized by the ICO in writing. The receiving facility may require additional analyses not included in this SOP to meet their facility permitted acceptance criteria..

B. Imported Soil Procedures

1. All imported soil to be used on-base shall meet the requirements for "clean fill", as defined in the Regulations of Connecticut State Agencies (RCSA) §§ 22a-209-1.
2. Documentation of the clean fill source, an estimate of the volume of soil imported, and a map depicting the location where the fill will be placed shall be provided to the EV IR Program Manager prior to soil importation or use on SUBASE.
3. If clean fill to be used on SUBASE is "treated, polluted soil," as defined in RCSA §§ 22a-209-1, then analytical results documenting that pollutant concentrations do not exceed the GA pollutant mobility criteria and direct exposure criteria for residential soil established in the RSRs shall be provided to the EV IR Program Manager prior to soil importation or use on SUBASE.

EQUIPMENT AND MATERIALS: Sampling equipment and containers, if applicable

SAFETY EQUIPMENT: Appropriate PPE for sampling, as needed

TRAINING: Sampling for Hazardous Materials or equivalent training

POINT(S) OF CONTACT:

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SIGNIFICANT ENVIRONMENTAL ASPECT(s): None

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Christopher Koproski, EV Division Director

DOCUMENT REVISION HISTORY:

Original Document Issue Date: 8 January 2020		
REVISION NUMBER	**REVISION DATE**	**REVISION SUMMARY**
1	7-Feb-20	Updated procedure A.3 (now A.4) to indicate that soil shall be reused in the same location from which it was excavated
2	17-Nov-20	Added information regarding unanticipated discoveries; updated Table 1 to correct units for GA Pollutant Mobility Criteria for metals and define acronyms
3	4-May-22	Updated analyte list in Section 5b. to reflect current standards and removed duty phone number

4	12-Dec-22	Added a soil tracking form as part of the excavation procedures
5	2-Nov-23	Updated personnel and contacts
6	18-Oct-24	Update procedure A.6.e to include PFAS language
7	24-Jun-25	Update procedure A.6 to include CT's RCRA Contained-in Policy and to address off-base disposal. Update to the entire document to clarify PFAS requirements per current guidance.

Attachment 1. Soil Tracking Form

SOIL TRACKING FORM							
Project Location	**Estimated Quantity of Excavated Soil**	**Estimated Quantity Reused at Site**	**Estimated Quantity of Excess Soil**	**Disposal Plan (check one)**		**Short-term Storage Location**	**Proposed Location for Reuse**
				All soil reused at project site		not applicable	not applicable
				Off-site disposal with manifest from HazWaste			not applicable
				Sampling and analysis to support planned reuse*			
Comments:							
Completed by:							
Submit to lindsey.a.bidder.civ@us.navy.mil within 5 days of conducting excavation operations							

*Refer to requirements detailed in the SUBASE Soil Management Standard Operating Procedures

Table 1. Connecticut Remediation Standard Regulations (RSRs)

Substance	Direct Exposure Criteria for Residential Soil (mg/kg)	GA Pollutant Mobility Criteria for Soil (mg/kg)
Volatile Organic Substances		
Acetone	500	14
Acrylonitrile	1.1	0.01
Benzene	21	0.02
Bromoform	78	0.08
2-Butanone(MEK)	500	8
Carbon tetrachloride	4.7	0.1
Chlorobenzene	500	2
Chloroform	100	0.12
Dibromochloromethane	7.3	0.01
1,2-Dichlorobenzene	500	3.1
1,3-Dichlorobenzene	500	12
1,4-Dichlorobenzene	26	1.5
1,1-Dichloroethane	500	1.4
1,2-Dichloroethane	6.7	0.02
1,1-Dichloroethylene	1	0.14
cis-1,2-Dichloroethylene	500	1.4
trans-1,2-Dichloroethylene	500	2
1,2-Dichloropropane	9	0.1
1,3-Dichloropropene	3.4	0.01
Ethylbenzene	500	10.1
Ethylene dibromide (EDB)	0.007	0.01
Methyl-tert-butyl-ether	500	2
Methyl isobutyl ketone	500	7
Methylene chloride	82	0.1
Styrene	500	2
1,1,1,2-Tetrachloroethane	24	0.02
1,1,2,2-Tetrachloroethane	3.1	0.01
Tetrachloroethylene	12	0.1

Table 1. Connecticut Remediation Standard Regulations (RSRs)

Substance	Direct Exposure Criteria for Residential Soil (mg/kg)	GA Pollutant Mobility Criteria for Soil (mg/kg)
Volatile Organic Substances (continued)		
Toluene	500	20
1,1,1-Trichloroethane	500	4
1,1,2-Trichloroethane	11	0.1
Trichloroethylene	56	0.1
Vinyl chloride	0.32	0.04
Xylenes	500	19.5
Total Petroleum Hydrocarbons		
Extractable Total Petroleum Hydrocarbons	500	500
Substance	**Direct Exposure Criteria for Residential Soil (mg/kg)**	**GA Pollutant Mobility Criteria by TCLP(mg/L)**
RCRA-8 Metals		
Arsenic	10	0.05
Barium	4,700	1
Cadmium	34	0.005
Chromium	3,900	0.05
Lead	400	0.015
Mercury	20	0.002
Selenium	340	0.05
Silver	340	0.036

Source: RCSA §§22a-133k-1—22a-133k-3

mg/kg – milligrams per kilogram
mg/L – milligrams per liter
RCRA – Resource Conservation & Recovery Act
TCLP – Toxicity Characteristic Leaching Procedure

Connecticut's RCRA "Contained-In" Policy

For the Characterization of Contaminated Soil, Sediment, and Groundwater

Policy

RCRA hazardous waste determinations for contaminated soil, sediment or groundwater may compare contaminant concentrations with the characterization criteria below. If the concentrations are below these criteria then the soil, sediment or groundwater do not need to be managed in Connecticut as RCRA hazardous waste. If the concentrations are above these levels then the soil/water must be treated, stored, transported, and disposed in the same manner as hazardous waste.

Purpose

To simplify the management of non-hazardous contaminated soil, sediment, and groundwater and to encourage remediation of contaminated sites.

Applicability

This policy applies to contaminated soil, sediment, and groundwater managed in Connecticut. It does not establish cleanup criteria. When contaminant concentrations are below the levels described in this policy, but are greater than applicable Connecticut Remediation Standard Regulations ("RSR") criteria, then the soil, sediment or groundwater must be handled as non-hazardous contaminated soil, sediment, or groundwater subject to applicable RSR polluted soil reuse requirements and to Connecticut solid waste requirements.

Contaminant	**Soil and Sediment Characterization Criteria**	**Groundwater Characterization Criteria**
Characteristically hazardous waste " **D codes**"	Non-hazardous if below levels in Toxicity Characteristic Table in 40 CFR 261.24 ("TC Table")[1]	Non-hazardous if below levels in Toxicity Characteristic Table in 40 CFR 261.24 ("TC Table")
Listed hazardous waste "**F,K,P,U codes**" See 40 CFR 261.33 for "**P**" & "**U**" See 40 CFR 261 Appendix VII to identify constituents for which " **F**" & "**K**" wastes are listed.	Non-hazardous if below the lower of A and B: **(A)** Industrial/Commercial Direct Exposure Criteria in RSR[2] **and** ---------- [choose one method from B]: **(B) either** TC Table[1] **or** 100 x GA Pollutant Mobility Criteria in RSR[3] **or**	Non-hazardous if below 100 x GA Groundwater Protection Criteria in RSR

	100 x Groundwater Protection Criteria in RSR[4]	

1. via Toxicity Characteristic Leachate Procedure ("TCLP")
2. via mass analysis
3. via mass analysis or leachate analysis
4. via leachate procedure (e.g., TCLP or Synthetic Precipitation Leachate Procedure ["SPLP"])

For more information about the application of the Contained in Policy in Connecticut, see the following:

- **Characterization of Remediation Waste - Overview of Key Concepts**: A PowerPoint presentation providing guidance on how to properly characterize remediation-derived waste under RCRA. See in particular slides 6 - 8.
- **"Contained-In" Policy References**: A list of EPA documents that elaborate on the Contained-In Policy and its application in certain particular situations.

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