



CALIFORNIA STATE UNIVERSITY, FULLERTON

Environmental Health & Safety

Acceptance of Soil from Off Site Sources

I. Policy

In order to guard against receiving contaminated soils to used as fill material on campus, the EHS Department has established the policy for receiving soils from off-site sources.

II. Authority

California Code of Regulations Title 22

III. Scope

The use of imported fill material has the potential of bringing contaminated soil onto the campus impacting an otherwise clean site. Currently, the California Environmental Protection Agency (Cal EPA), Department of Toxic Substance Control (DTSC) has not established standards that address environmental requirements for imported fill material.

Environmental Health and Instructional Safety Department has prepared this guideline document in order to provide information for acceptance of clean imported fill material from off campus sites.

IV. Definitions

Department of Toxic Substances Control (DTSC)

The DTSC establishes regulations governing the remediation of site, and hazardous chemical disposal.

Local Oversight Program Agency (LOP)

The Local Oversight Program Agency is the Fullerton Fire Department or the Orange County Environmental Health Agency. These Agencies enforce regulations pertaining to the remediation of gas stations, auto repair facilities and sites containing petroleum impacted soils and disposal and transportation of these soils on and off-site a contaminated site.

Phase I Site Assessment (PSA)

A PSA consists of a historical review of a site through document reviews, visual site visits, aerial photo reviews etc. A PSA does not involve invasive soil or groundwater sampling.

Preliminary Endangerment Assessment (PEA)

A PEA provides basic information for determining if there has been a release of a hazardous substance that present a risk to human health or the environment.

State Water Quality Control Board (RWQCB)

The SWQCB enforces laws pertaining to groundwater, surface water and stormwater runoff as well as underground storage tank remediation encompassing any contaminated soil found during the remedial activities including transportation and disposal.

Santa Ana Regional Water Quality Control Board (SARWQCB)

SARWQCB has been delegated authority by the SWQCB to enforce all laws and regulations pertaining to their authority.

V. Accountability

Facilities Management Ensures all soil brought onto the CSUF campus to be free from contaminants that may adversely affect human health and/or the environment.

Environmental Health and Safety Consults and advises with campus departments and contractor about the policy and guideline established in this document.

VI. Program

Both natural and man-made fill materials are used for a variety of purposes. Fill material properties are commonly controlled to meet the necessary site specific geotechnical engineering specifications. Because most sites requiring fill material are located in or near urban areas, the fill materials are often obtained from construction projects that generate an excess of soil, and from demolition debris (asphalt, broken concrete, etc.). Materials from those types of sites may or may not be appropriate, depending on the proposed use of the fill and the quality of the assessment and/or mitigation measures, if necessary. Unless material from construction project can be determined to be free of contamination and/or appropriate for the proposed use, the use of those materials as fill should be avoided.

1.0 Selecting Fill Material

- Gravel, crushed aggregate base, and fill materials/soil from commercial brokers are exempted from this guideline.
- Fill source areas should be located in non-industrial areas and not from sites undergoing an environmental cleanup. Non-industrial sites include those that were previously undeveloped, or used solely for residential or agricultural purposes.
- If the source is from an agricultural area, care should be taken to insure that the fill does not include former agricultural waste products such as manure or other decomposed organic materials.
- Undesirable sources of fill material include industrial and/or commercial sites where hazardous materials were used, handled or stored as part of the business operations, or unpaved parking areas where petroleum hydrocarbons could have been spilled or leaked into the soil.

- Undesirable commercial sites include former gasoline service stations, auto repair facilities, retail strip malls that contained dry cleaners or photographic process facilities, paint stores, auto repair and/or painting facilities.
- Undesirable industrial facilities include metal processing shops, manufacturing facilities, aerospace facilities, oil refineries, waste treatment plants, etc.
- Alternative to using fill from construction sites include the use of fill materials obtained from a commercial supplier of fill material or from soil pits in rural or suburban areas. However, material accepted from these sites for the latter sites must demonstrate they are uncontaminated by virtue of appropriate suite of chemical analyses.

2.0 Documentation

- To minimize the potential of introducing contaminated fill material onto a site, it is necessary to verify through documentation that the fill source is appropriate and/or to have the fill material analyzed for potential contaminants based on the location and history of the source area.
- Fill documentation should include detailed information on the previous use of the land from where the fill is taken, whether an environmental site assessment was performed and its findings, and the results of any testing performed. It is recommended that any such documentation should be signed by an appropriate CA-registered geologist or engineer.
- If such documentation is not available or is inadequate, samples of the fill material should be chemically analyzed. Analysis of the fill material should be based on the source of the fill and knowledge of the prior land use.
- If knowledge of the prior use of the site is unknown, then an appropriate suite of analyses must be performed prior to the fill material being utilized on Campus.
- Detectable amounts of chemical compounds of concern (CCOCs) within the fill material should be evaluated for risk in accordance with the DTSC Preliminary Endangerment Assessment (PEA) Guidance Manual. If metal analyses are performed only those metals (CAM 17/Title 22) to which risk levels have been assigned need to be evaluated. California Human Health Screening Levels maybe used in place of the PEA Guidance Manual risk assessment. Additionally, this guidance may include the Santa Ana Regional Water Quality Control Board's (SA RWQCB) guidelines for reuse of non-hazardous petroleum hydrocarbon contaminated soil as applied to Total Petroleum Hydrocarbons (TPH) only. The RWQCB guidelines shall not be used for volatile organic compounds (VOCs) or semi-volatile organic compounds (SVOCs). In addition, a standard laboratory data package, including a summary of the quality analysis/quality control (QA/QC) sample results should also accompany all analytical reports.
- Representative samples should be collected at the borrow area while the potential fill material is still in place, and analyzed prior to removal from the borrow area. When obtaining samples from the borrow site and appropriate number of samples must be taken relative to the volume or area of the soil to be used as fill material

ion order accurately represent the soils within the borrow area. The Table 1 can be used as a guide to determine the number of samples needed to adequately characterize the fill material when sampled from a borrow site.

Table 1: Recommended Fill Material Sampling Schedule

Area of Individual Borrow Area	Sampling Requirements
2 acres or less	Minimum of 4 samples
2 to 4 acres	Minimum of 1 sample every ½ acre
4 to 10 acres	Minimum of 8 samples
Greater than 10 acres	Minimum of 8 locations with 4 sub-samples per location (32 total samples)
Volume of Borrow Area Stockpile	Sample per Volume
Up to 1,000 cubic yards	1 sample per 250 cubic yards
1,000 to 5,000 cubic yards	4 samples for first 1,000 cubic yards +1 sample per each additional 500 cubic yards
Greater than 5,000 cubic yards	12 samples for first 5,000 cubic yards + 1 samples per each additional 1.000 cubic yards

3.0 Alternative Sampling

- A Phase I Site Assessment (PSA) or PEA may be conducted prior to sampling to determine whether the borrow area may have been impacted by previous activities on the property. After the property has been evaluated, any sampling that may be required can be determined during a meeting with EHS or appropriate regulatory agency such as DTSC or the Local Oversight Program (LOP).
- If it is not possible to analyze the fill material at the borrow site or determine that it is appropriate for use via a PSA or PEA, it is required that one (1) sample per truckload be collected and analyzed for all CCOCs to ensure that the imported soil is uncontaminated and acceptable prior to being off-loaded. Table 2 can be used as a guide to determine the analyses required. Sampling frequency may be modified upon consultation with EHS or appropriate regulatory agency if all of the fill materials are derived from a common borrow area. However, fill material that is not characterized at the borrow area will need to be stockpiled either on or off-site until the analyses have been completed. In addition, should contaminants exceeding acceptance criteria be identified in the stockpiled fill material, that material will be deemed unacceptable and new fill material will need to be obtained, sampled and analyzed.
- All sampling and analyses should be completed prior to delivery to the site to ensure the soil is free of contamination and to eliminate unnecessary transportation charges for unacceptable fill material.
- Composite sampling for fill material characterization may or may not be appropriate, depending on quality and homogeneity of source/borrow area, and CCOCs. Compositing samples for VOCs and SVOCs constituents is **not** acceptable. Composite sampling for heavy metals, pesticides, herbicides or PAHs from

unanalyzed stockpiled soil is also unacceptable, unless it is stockpiled at the borrow area and originates from the sample source area. Additionally, if samples are composited, they should be from the same soil layer (stratum), and not from different soil layers.

- When very large volumes of fill material are anticipated, or when larger areas are being considered as borrow areas, EHS recommends that a PSA or PEA be conducted on the area to ensure that the borrow area has not been impacted by previous activities on the property. After the property has been evaluated, any sampling that may be required can be determined during a meeting with EHS.

Table 2: Potential Contaminants Based on the Fill source Area

Fill Source	Target Compounds
Land near to existing freeway	Lead (EPA Methods 6010B or 7471A), PAHs (EPA Method 8310)
Land near mining area or rock quarry	Heavy Metals (EPA Methods 6010B and 7471), Asbestos(polarized light microscopy), pH
Agricultural Land	Organochlorine Pesticides (EPA Method 8081A or 8080A); Organophosphate Pesticides (EPA Method 8141A); Chlorinated Herbicides (EPA Method 8151A), Heavy Metals (EPA 6010B and 7471A)
Residential/Acceptable Commercial Land	VOCs (EPA Method 8021 or 8260B, as appropriate and combined with collection by EPA Method 5035), semi-VOCs (EPA Method 8270C), TPH (EPA Method 8015 modified), PCBs (EPA Method 8082 or 8080A), Heavy Metals including Lead (EPA Methods 6010B and 7471A) Asbestos (OSHA Method ID-191)

*** The recommended analyses must be performed in accordance with USEPA SW-846 Methods. Analyses for Hexavalent Chromium shall be EPA Method 7199.*

For further information, please contact Rob Denman, Environmental Compliance Specialist, Environmental Health and Safety at 657-278-7233.

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