CONFIRMATION PROTOCOL
"NOT TO EXCEED"
BACKGROUND CLEANUP STANDARD FOR SOILS

This presents the post-excavation confirmation sampling that will be used to confirm completion of cleanup activities at the Santa Susana Field Laboratory ("SSFL").

OBJECTIVE

The objective of the post-excavation confirmation sampling and analysis plan is to confirm that residual concentrations of radiological and chemical contaminants of concern are "not to exceed" local background concentrations. The implementation of this protocol after excavation has been completed is to assure that the end state of the site (the whole of Area IV and the Northern Buffer Zone) after cleanup will be background (i.e., at the completion of the cleanup, no contaminants remain in the soil above local background levels), subject to any special considerations specified in the agreement executed between U.S. Department of Energy (DOE) and the State of California (the "final agreement"). Sample collection and data analysis shall be consistent with field sampling plans and quality assurance/quality control plans for the U.S. Environmental Protection Agency (USEPA's) Radiological Background Study, California Department of Toxic Substances Control (DTSC) Chemical Background Study, and USEPA's Radiological Study for Area IV/Northern Buffer Zone (NBZ).

RADIOLOGICAL AND CHEMICAL CLEANUP LEVELS

Radiological Contaminants

Per the final agreement, USEPA, in the course of conducting its radioactive contaminant background study, will determine local background levels and detection limits. Upon completion of the USEPA Radiological Background Study, a table of the radiological background levels will be prepared by USEPA, which will include both local background concentrations as well as minimum detection limits for specific contaminants whose minimum detection limits exceed local background concentrations. DTSC will use USEPA's radiological background levels as the "Look-up" Table values for the radiological cleanup levels.

Chemical Contaminants

Per the final agreement, DTSC, in the course of overseeing and approving its chemical contaminant local background study, will determine local background levels and chemical detection limits (using methods that are consistent with USEPA guidance on determining local background concentration values). Upon completion of the DTSC Chemical Background Study, a "Look-Up" Table of the chemical cleanup levels will be prepared, which will include both local background concentrations as well as minimum detection limits for specific contaminants whose minimum detection limits exceed local background concentrations.

CONFIRMATION SAMPLING PROTOCOL

Look-up Table Comparisons

The concentrations of radiological and chemical contaminants of concern observed in the confirmation samples will be compared directly to the concentrations listed in the "Look-up" Tables of radiological and chemical cleanup levels. The "Look-up" levels cannot be exceeded by any sample. The analytical result level shall be the number that the laboratory reports, not including (i.e. not adding or subtracting) the standard deviation (analytical error)[1]. Analytical methodologies shall be consistent with the USEPA Radiological Background Study (for radionuclides) and DTSC's Chemical Background Study (for chemicals) Quality Assurance Project Plans (QAPPs).

When an area has been impacted by and soil removed due to the presence of multiple contaminants, all relevant Look-up Table levels will apply.

Uranium, radium, and thorium may occur naturally at SSFL and may accumulate in drainages. In the absence of an upgradient source, methods to determine whether levels of these constituents in drainages exceed background shall be addressed in site-specific plans.

Sampling Methodology and Results Verification

For purposes of this protocol, discrete samples will be collected and analyzed. Discrete sample collection for radionuclide testing shall be in accordance with MARSSIM. Individual discrete samples may be homogenized in accordance with the approved QAPP. Composite sampling techniques will not be used for confirmation purposes or backfill acceptance testing. Individual confirmation sample results will be compared to Look-up Table values. If the result is above the Look-up Table value, two options may be pursued: 1) the suspect sample may be reanalyzed to verify its accuracy either with a longer count time (for radionuclides) or increased precision (radiation or chemical); or 2) additional soil may be excavated and additional confirmation samples taken as described below. In consultation with the USEPA Technical Advisor, DTSC will determine the best option available when presented with confirmation sampling results that exceed Look-up Table values.

For each source area that requires excavation, analytical test methods during confirmation sampling shall include all contaminants within the analytical suite associated with the contaminants of concern identified for that source area. For radionuclides, the analytical suites shall be the same as those used by USEPA in its Area IV/NBZ Radiological Study.

[1] Federal Register/Vol. 65. No. 236/Thursday, December 7, 2000/Rules and Regulations, page 76727 paragraph 5 (Interpretation of Analytical Results)

If any individual confirmation sample result is determined to be greater than the Look-up Table concentrations, additional soil will be excavated from the area surrounding the point from which the confirmation sample was taken and additional confirmation samples will then be collected to confirm that remaining concentrations are below the Look-up Table values.

CONFIRMATION SAMPLE LOCATIONS

Confirmation samples will be collected as follows:

Random Samples
A set of statistically derived random points will be sampled from an area where soil has been excavated to confirm that enough soil has been excavated to meet the goal of the cleanup to background. A number of discrete points will be sampled in accordance with the soil confirmation sampling plan prepared and implemented by USEPA.

Targeted Samples
Targeted samples may be collected from an area where soil has been excavated as specified by DTSC in consultation with the USEPA Technical Advisor. The number and location of targeted confirmation samples will be determined by DTSC in consultation with the USEPA Technical Advisor based on their best professional judgment as informed by their knowledge of the site-specific conditions and their observations of soil lithology, visual observations, and location of previous soil contamination that has been removed.

BACKFILL/REPLACEMENT SOILS CONFIRMATION PROTOCOL

Backfill/replacement soils may be from onsite or offsite locations, with a preference for onsite locations. For purposes of this protocol, “onsite” locations are those within the geographic boundaries of the SSFL site, including the Northern and Southern Buffer Zone areas. “Offsite” locations are those locations outside the SSFL and Northern and Southern Buffer Zone areas.

Backfill/replacement soils will be verified as acceptable for use pursuant to a sample and analysis plan prepared and implemented by USEPA, testing for chemical and radiological constituents and using analytical methodologies proposed by USEPA and consistent with this protocol. For any constituent for which there is no Look-up Table value, USEPA shall propose and DTSC shall approve the acceptable level for that constituent. DOE shall identify the potential backfill source locations and USEPA shall test each potential backfill source location in accordance with its plan.

For backfill soils from the Santa Susana Field Lab, the relevant Look-up Table shall be for the geologic formation from which the backfill soils were obtained. If such soils are approved by DTSC as acceptable, they may be used as backfill at any location within Area IV and the NBZ. For backfill soils obtained from outside the Santa Susana Field Lab, the relevant Look-up Table shall be for the formation to which the backfill soils are to be placed.

If an onsite or offsite source of backfill soils that achieves all Look-up Table values cannot be reasonably found, then DTSC, DOE and USEPA shall enter a consultation process and DTSC shall determine the best available source of backfill.