**ISSUE: Background levels for surficial soils have not been established for RFP. Background soil characterization is required by the IAG and is necessary for developing remediation goals.**

Background

The Background Study, as referenced in Table 6 of the IAG, was to have included a study on water and a study on soil, submitted as two separate documents. At some time before the IAG was finalized, it was decided that both documents could be rolled into one. It is unclear whose decision this was, although Tom Greengard and Mike Arndt were involved with this effort. At the same time, it was decided that samples taken from core in the subsurface could be considered "soil samples" and meet the IAG requirement. However, the need for surficial soil background levels remains and subsequent Background Geochemical Characterization Reports (based on the Background Study) clearly state that surficial soils are not part of the background program. The requirement for separate documents remains in the final version of the IAG, published more than one year after the documents were to have been submitted.

According to Tom Greengard, an attempt was made to meet the surface soil requirement in 1990. Several plans were reviewed and apparently a round of off-site samples were collected. EG&G is looking into the fate of those samples, but it seems the samples were never shipped for analysis.

Last year a lack of background soils data was noted as a deficiency in the OU1 Phase III investigation. An OU1 specific plan was approved by the regulators and implemented. OU2 is currently planning a round of sample collection for background soils pending regulator approval of the OU2 specific plan. It should be noted that the OU1 Phase III RFI/RI Report asserts that surface soil detects of up to an order of magnitude higher than levels in "background" samples are not considered contaminants. The idea that background variability can justify detects of higher magnitude than ambient conditions is opposed to the concept of "background". A defensible background study will establish the variability of background so that exceedences will not be arbitrarily defined.

On December 26, 1991, a memo (ERD:BKT:11059) was sent to EG&G requesting a proposal to characterize soils to avoid possible remediation of soils where metals and/or radionuclides concentrations are not in excess of background. A scoping meeting with EPA, CDH, DOE and EG&G was held on March 11, 1992, to discuss essential elements to the study. Following this meeting, several informal meetings were held between DOE and EG&G. Although a proposal for characterization of the soils was submitted to DOE, no funding was provided and no action was taken on the study. Another memo (ERD:BKT:11135) was sent on November 12, 1992, requesting a work package be prepared for the study. This second memo reiterated the need for background data that will be comparable to RFI/RI data and both on-site and off-site sampling, which will be

necessary for public acceptance.

## Regulatory/IAG Requirements

The need for a background soils study is identified in the IAG, the EPA/CDH approved IAG OU workplans, the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), and 43 CFR 11 Natural Resource Damage Assessment (NRDA).

The IAG requires soils characterization as part of the Background Study, a primary deliverable. Also, Attachment II, VII.D.1.a describes a secondary deliverable, a technical memorandum for contaminant identification and documentation, which shall be submitted at the request of the EPA and CDH. This tech. memo will provide a list of "...hazardous substances present at each site or OU and the indicator chemicals to be evaluated with the known corresponding ambient concentrations of these contaminants."

The EPA/CDH approved IAG OU workplans state background data requirements in sections 8 and 9, the Baseline Human Health Risk Assessment and the Environmental Evaluation Workplan. The criteria for identification of contaminants of concern include comparison of contaminant levels with background levels. Although the comparison is required by the workplans, a plan to collect the data is not presented in the workplans or as a separate program.

CERCLA guidance states that "soil contamination should be documented in both the vertical and horizontal directions..." to "determine both areas of contamination and background concentrations."

The NCP (40 CFR Part 300, Subpart E, Section 300.430) requires collection of data necessary to adequately characterize the site for the purpose of developing and evaluating effective remedial actions and assessing the risks to human health and the environment. Page 8717 of the NCP states: "Preliminary remediation goals for carcinogens are set at a $10^{-6}$ excess cancer risk as a point of departure, but may be revised to a different risk level within the acceptable risk range based on the consideration of appropriate factors including...technical factors... Technical factors may include...background levels of contaminants." If this data is not available, remediation goals may have to be based on risk to human health and the environment. This is particularly important for analytes, such as uranium, which occur naturally along the Front Range at levels above $10^{-6}$ risk. The occurrence of analytes at levels above $10^{-6}$ must be established before RFI/RI reports can be completed. The alternative includes the possibility that remediation be performed on areas unimpacted by RFP operations.

Finally, background levels must be adequately established to defend against a possible damage claim by the Natural Resource Trustees.

## Status

On October 26, 1992, a letter (attached) was received from CDH requesting a date for a formal proposal for a background surficial study. EG&G was unable to commit funds to this effort, which they claim will cost 2.2 million dollars. The scope of the project was to characterize the site soils and compare the results to soils surrounding the site. This is unnecessarily detailed for the needs and a plan should be developed that generates background numbers only for soil types of interest and is statistically defensible. This approach is consistent with the Background Geochemical Characterization Plan and, as pointed out by CDH, should be submitted as an addendum to that plan. The scope should be scaled to meet the needs of the IAG and the RFI/RI reports which depend on the data. The project should be given a priority as requested by EG&G in a November 18, 1992, letter.

As mentioned above, OU1 was required to implement this task and OU2 is about to implement a similar task. These site specific background sampling plans are not well received by the regulators and are not cost effective. Each OU responsible for sampling surface soils will require a new round of background samples. This will be an immediate problem for OU5 (see attached letter dated Dec. 12, 1992 from the State). Other OUs in the field include 4, 6, and 7.

If each OU must designate funding for this effort, a more technically defensible plan can be developed with these funds to support all OUs currently in the field and those investigated in the future. A meeting has been set tentatively for January 6, 1993, with DOE and EG&G to discuss the needs of each OU and the data already collected. Ideally, a plan can be built around the OU1 and OU2 sampling plans, with supplemental sampling and soil type identification.