

**MEETING MINUTES
DISCUSSION OF COMMENTS BY
U.S. ENVIRONMENTAL PROTECTION AGENCY AND
COLORADO DEPARTMENT OF HEALTH
CONCERNING THE DRAFT FINAL WORK PLAN FOR
OPERABLE UNIT 10, OTHER OUTSIDE CLOSURES
MARCH 17, 1992**

A meeting was held on March 17, 1992 to discuss the U.S. Environmental Protection Agency (EPA) and Colorado Department of Health (CDH) review comments on the Draft Final Work Plan for the RFI/RI at Operable Unit 10 (OU10) at the Rocky Flats Plant. Representatives from EPA, CDH, DOE, EG&G, and Ebasco Services (EG&G's contractor) were present. The following personnel attended the meeting:

<u>Name</u>	<u>Organization</u>	<u>Telephone</u>
Bruce Thatcher	DOE	966-3532
Charles Haddox	EBASCO	980-3533
Terry Sindelar	EBASCO	980-3559
Lee Sobchak	EG&G	966-5620
R. T. Reiman	EG&G	966-5946
Milt Lammering	EPA	293-1440
Al Hazle	CDH/RFPU	966-2115
Joe Schieffelin	CDH	331-4421
Bonnie Lavelle	EPA	294-1067
Arturo Duran	EPA	294-1080
Edd Kray	CDH	331-8494

After general introductions, Mr. Thatcher began the meeting by asking Mr Reiman (EG&G) to describe how the high purity germanium (HPGe) gamma ray detector could be used on OU10 sites. Reiman described the HPGe detector and how the surveys will be conducted in combination with vertical soil profiling of both gamma- and nongamma-emitting radionuclides. Mr. Reiman explained that the HPGe is more sensitive than the sodium iodide detector that is required to be used by the IAG Mr Reiman believes that the HPGe can

support the CDH standard of 0.9 pCi/g, but the sodium iodide detector cannot. He also described some of the limitations of the instrument, such as the lack of a direction vector associated with instrument readings, the attenuation of activities by standing water or pavement, and the potential for readings to reflect background activity from buildings or sources inside buildings. Background activities can be eliminated, however, by using collimators to reduce the "field of view". Soil type and soil moisture content can also cause instrument readings to vary. Mr. Reiman explained that the instrumentation is the same type as would be used in a laboratory method for gamma radiation measurement. SOPs are being written for the field instrument, and QA is built into the method because of the procedures that are used to evaluate natural radiation.

Mr. Shiefflin asked what the HPGe strategy would be at small IHSSs, especially those next to buildings. Mr. Reiman replied that the first measurement would be made with a bare detector to measure the total activity. If activity were detected, the detector would be lowered closer to the ground or shielded to reduce the field of view and evaluate whether the activity was from the IHSS soil. Shielding is done with collimators that are designed to result in different fields of view according to the angle from vertical of their sides. Mr. Reiman also pointed out that field measurement of the entire site can be considered more representative of distributed radionuclide activity than laboratory analysis of small soil samples.

Mr. Schieffelin asked if the SOPs would include the logic and decision points that will be used to implement the HPGe survey in the field. For example, how will an anomalous reading be defined so that additional readings and appropriate soil samples can be collected?

Ms. Lavelle asked if the field survey technique would be useful in a small IHSS where soil sampling will be conducted anyway. In such an IHSS, the area of potential contamination can be deduced by looking at possible release points, areas of runoff, or staining. Mr. Reiman responded that the field methods would still be valuable because of the lower cost and lower time requirement compared to laboratory analysis.

Ms. Lavelle asked if the type of data obtained would be adequate for use in characterizing each type of exposure, such as ingestion and inhalation.

Mr. Duran asked what approach would be used where radionuclide contamination is not indicated by the site history. Mr. Reiman responded that the survey would be conducted at all OU10 IHSSs.

Mr. Thatcher explained that the beginning approach would be to establish a grid spacing of 150 ft. This grid spacing would give 100 percent coverage of the IHSS.

Mr. Reiman pointed out that the HPGe, because it has a larger field of view than the sodium iodide detector specified in the IAG, will be a more conservative approach to evaluating radionuclides because it will provide more thorough coverage of a site for a given grid spacing.

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Mr. Thatcher suggested that the PRGs in the RAGS Part B could be used to identify hot spots for further definition.

Ms. Lavelle asked if the instrument readings would be evaluated both as point sources and as distributed contamination. Mr Thatcher responded that a point source interpretation is probably unrealistic.

Mr. Reiman added that the detector records a surface measurement and does not evaluate contamination below 2 cm. He described how previously collected aerial survey data could be reprocessed to provide additional information on radioactivity in OU10. The HPGe readings could be collected with the use of a GPS system to record exact instrument locations. Mr. Thatcher and others pointed out that field survey grids could probably be tied to surveyed points like monitoring wells.

Mr. Thatcher suggested that the identification of a reading as anomalous could be according to a risk-based standard or after determining that a reading reflected man-made radioactivity. He requested the EPA and CDH representatives to discuss this issue and contact him.

Mr. Reiman pointed out that the HPGe measures americium, although the objective is to detect plutonium. Interpretation of the readings depends on certain assumptions about the vertical distribution of the contaminant. For example, the distribution is different between wind deposition and emplacement by a bulldozer. Mr. Thatcher replied that vertical profiling through laboratory analysis of soil samples will be used to verify the assumptions used in interpreting the field survey data.

An EPA representative requested that the results be reported as activity per unit area. Mr Thatcher responded that this data could be included in an appendix to the report, but that the risk assessment would be performed using activity per unit mass.

CDH Comments

After discussion of the HPGe, the EPA and CDH comments on the work plan came under discussion. Ms. Lavelle excused herself from the meeting. Mr Sindelar began to address the CDH comments.

General Comment 1

Mr. Sindelar asked what type of inconsistency between the OU10 and other plans were of concern to CDH. Mr. Schieffelin responded that he was familiar with the investigation of another OU that included soil cores drilled to 5 to 6 ft at soil gas sampling locations versus soil bores that were drilled deeper, perhaps to bedrock.

General Comment 2

Mr Sindelar stated that reaching most of the IHSSs with drilling equipment is not expected to

be difficult. IHSS 129 may be difficult because of overhead piping. Surface storage IHSSs will be cleared before field work begins.

General Comment 3

Mr. Thatcher responded to CDH general comment 3 by stating that until IHSS 124 was officially transferred to OU9, it would not be removed from the OU10 work plan.

Executive Summary

Mr. Sindelar explained how the field program will be redesigned. The program will now include use of the available nonvalidated data to estimate the level of variability in the analyte concentrations. The variability will be used to develop a surface soil sampling plan that will be described in a technical memorandum. For sites without previous sampling data, a program will be designed to collect samples for the determination of the variability.

Mr. Schieffelin commented on the difference in the RFP program between soil cores, which have been used to verify soil gas results, and soil bores, which are a more elaborate sampling approach.

Mr. Sindelar explained that at OU10, soil bores will be drilled to the water table or 6 ft into bedrock, whichever is shallower. No samples will be collected from the saturated zone, and no groundwater monitoring wells will be installed. BAT sampling will be used to obtain screening level groundwater quality data from selected boreholes.

Mr. Schieffelin proposed that it would be cost-effective during drilling operations to obtain data on the depth to the water table, saturated thickness, depth to bedrock, and chemical constituents of the saturated zone, even if the data were not used in Phase I. Mr. Thatcher responded that even the Phase II investigation would not necessarily include the entire saturated thickness of the alluvium. Therefore, Phase I is definitely too early to investigate this entire zone. However, piezometers will be recommended sparingly where water levels are needed to refine the interpretation of groundwater flow direction and will be installed through the entire alluvial thickness.

Mr. Schieffelin requested that the various steps of the revised Phase I program be outlined. Mr. Thatcher outlined it as follows:

The OU10 technical plan will propose an HPGe survey, soil gas survey, surficial soil sampling for variability analysis, and tank sampling and inspection as appropriate to each IHSS. The soil data variability will be analyzed and described in the first technical memorandum along with any additional proposed sampling. This approach will be consistent with OU1 Technical Memorandum 5.

Memo 1 will include an analysis of the existing data variability and outline the surface soil sampling grid for radionuclide and other contaminant sampling programs. Stained or other identifiable areas of contamination that will also be sampled. Quantitative

DQOs will then be developed for surficial soil sampling

Memo 2 will include the proposed locations for soil borings to determine the presence or absence of subsurface contamination. Soil borings will be located based on the results of the screening programs and surficial soil sampling

If contamination is detected, Memo 3 will include the proposed locations of the following types of field samples or measurements

- Soil borings for assessing the vertical and horizontal extent of contamination
- Piezometer locations
- Potential BAT sampling locations for VOC analysis
- Surface water and sediment sampling locations
- Tensiometer nests for observing wetting fronts

Lysimeters are no longer proposed in Phase I

Figure 1.3-4

Mr. Sindelar asked Mr. Schieffelin which stratigraphic column CDH would like to see in the work plan. Mr. Schieffelin said that the one from the OU3 work plan was acceptable.

Section 2.0 General Comment 1

Mr. Sindelar stated that CDH's comments on background levels of contaminants will be addressed by removing all discussion of background from the text and data tables

Section 2.0 General Comment 2

Regarding how many of the soil samples proposed in the closure plans were collected, Mr. Sindelar agreed that the source documents will be reviewed to determine the number, but that he believed that only the number already discussed in the OU10 work plan were ever collected.

Section 2.1.15.3

Mr. Schieffelin believes that he intended for this section to be consistent with the site-wide geologic characterization, especially with respect to the dip of strata.

Section 2.2

Mr. Schieffelin emphasized the need to delineate what will be addressed in Phase I versus Phase II. Mr. Thatcher stated that the revised BRA for each IHSS will address complete characterization of surficial soils and evaluate the vadose zone qualitatively with respect to its effect on groundwater. The revised work plan will clarify what parts of the BRA will be

done.

Section 3 0

Regarding the comment on ARARs, Mr. Thatcher assured CDH that the comment is noted.

Section 7 General Comment 1

Mr Schieffelin explained that the State has allowed clean closure of a unit when the incremental amount of contamination in the unit is removed to the level of general site contamination. The rest of the contamination must be removed later as a part of the site-wide corrective action. Therefore, if the site background level is determined, incremental cleanup will allow clean closure of each unit, which limits DOE's liability. Perhaps the surface soil sampling program will allow the evaluation not only of contaminant levels within each IHSS but also of the incremental contamination of the unit. This approach applies only to nonradioactive contamination since radioactively contaminated sites do not go through closure. Mr. Thatcher responded that DOE would rather clean to a final level right away rather than creating additional hazardous waste by contaminating clean fill during a partial cleanup. This issue reaches beyond the OU10 work plan and should be elevated. However, the surface soil sampling program will be extended beyond IHSS boundaries to evaluate the difference between contaminant levels inside and outside the units. Mr Schieffelin agreed that since this approach was beyond the State's requirements, it was acceptable.

Section 7.0 General Comment 3

Mr. Schieffelin asked how hot spots will be delineated. Mr. Thatcher proposed using a risk-based level in accordance with RAGS Part B methodology. We will reevaluate whether soil cores are more economical than soil borings. We will stress samples of opportunity discussed in Section 7 general comment 3, where field operations uncover visual evidence of contamination.

*What was
contaminated?*

Section 7.0 General Comment 5

In the near term, the mobile laboratory referred to by Section 7 general comment 5 will be able to analyze only for VOCs

Section 7.2

Mr. Thatcher proposed that the OVA and HNu be used over each split spoon sample and for head-space analysis of subsamples. The resulting information would be used to select locations for BAT sampling of groundwater.

Table 7-1

The CDH comment on Table 7-1 was intended to be a comment on Section 2 tables. Mr Sindelar stated that the Section 2 tables of previously collected data would be removed from the text and placed in an appendix.

Section 7.3 2

EBASCO will review the HRR information on this IHSS. The closure plan deals only with one tank. Mr. Thatcher explained that EBASCO will evaluate whether the other tanks are in use. If they are not, the scope of the investigation can be expanded. If they are in use, then it cannot. The investigation of this IHSS will include tank inspection and a revised soil gas sampling grid. There will be a provision to evaluate hot spots. Mr. Schieffelin recommends following the OU5 approach, using the same investigative stages.

Section 7.3.3

At IHSS 170, no surface water is expected because of the level topography. Some other IHSSs have defined drainages with cattails or other evidence of surface water.

Section 7.3.5

A radioactivity survey is recommended in the text from IHSS 175, but was inadvertently omitted from the table.

Section 7.3.7

The sampling program for IHSS 177 will be reevaluated if inspection indicates that the road to the south could cause runoff to pond.

For IHSSs where surface releases occurred, the work plan will include soil gas and soil samples below pavement where the construction date of the pavement is unknown.

Section 7.3.9

In revising the work plan, EBASCO will review the HRR to determine whether this document describes a slightly different boundary or location of each OU10 IHSS. However, new IHSSs will not be added to the OU10 work plan until they are officially added to OU10.

Section 7.3.14

Soil gas sampling was proposed because the cargo container rests on a gravel topped storage area rather than on a bermed concrete pad. In addition, part of the site was used for storage of materials directly on the gravel and not in the cargo container.

Section 7.4.1

Mr. Schiefflin requested that EBASCO revise the proposed surface soil sampling method to be consistent with the OU1 Technical Memorandum 5 approach. However, Mr. Duran stated that OU10 data will be used for a different purpose and need not be comparable to OU1 data. Mr. Duran asked that grab samples be collected and not composited. Mr. Thatcher pointed out that better coverage can be attained by collecting and compositing more samples. However, there will be no compositing of samples collected because of staining, topographic location, or other evidence of potential contamination.

Mr. Duran asked how composited results will be used to select additional sampling locations. Mr. Schiefflin supported the use of composites at larger IHSSs. Mr. Thatcher reiterated that composites will probably be used to increase the representativeness of the analytical data.

Mr. Schieffelin suggests that by the time that this sampling is proposed in Technical Memorandum 1, CDH and EPA will have come to an agreement on the type of sampling to use.

Section 7.4.7

Mr. Thatcher mentioned that in general, DQO level 4 data will be obtained by the field program.

Section 7.5.2

The numbers of samples can remain indeterminate until the technical memorandum is issued for this sampling.

EPA Comments

General Comments

In responding to EPA's general comments, Mr Thatcher reiterated that the work plan would be revised to satisfy the EPA's general comments on the work plan. First, the existing data will be used to evaluate the variability. They may be found to be inadequate for this purpose. The number of additional samples needed will be explained in the technical memorandum. The DQOs will be developed after the data variability has been determined.

The risk assessment approach will be revised to assess ingestion, inhalation, and dermal contact with surficial soils. The effect of the vadose zone on groundwater will be addressed qualitatively, touching on the pathways that will be addressed in Phase II.

Section 2.1.2.1

EBASCO will improve the drawings of the tanks, identifying connections to the building, showing the tank berms, and illustrating that the berms and building have a common wall and that all of the bermed areas are adjacent, so that no soil sampling can be done between bermed areas. Mr Thatcher commented that the proposed soil gas program was an appropriate approach to investigating the site and that the tanks are buried only halfway. However, the building covers two of the tanks.

Not Comment-Related

Mr. Duran recommended referencing each SOP section as appropriate, however, Mr. Sindelar pointed out that this might be excessively redundant. Mr. Sindelar stated that the introduction to the field sampling plan will be modified to indicate what is contained in each section of the field sampling plan.

Section 7.3.11

A building is planned to be built over IHSS 206. Before construction begins, sampling will be done. Occupational risk will be evaluated using the sampling results. The OU10 work plan should be coordinated with this sampling program to avoid duplication of effort.

PRC Comments

Mr. Thatcher suggested disregarding all PRC comments on the EEWs, as the EEWs are undergoing revision. The OU9 work plan will establish how all EEWs will be done. Mr. Duran commented that since the OU10 work plan was a draft, the EPA did not attempt to approve or edit any of PRC's comments. Therefore, they do not constitute regulatory comments, but are provided for consideration.