



MARCH 26, 1993

OPERABLE UNIT 1 COMMENTS MEETING  
HUMAN HEALTH RISK ASSESSMENT ISSUES

MEETING MINUTES

<u>Meeting Attendees</u>	<u>Organization</u>	<u>Telephone</u>
Tye R. DeMass	EG&G	x 8760
Ralph Lindberg	EG&G	x 8582
Bruce Thatcher	DOE	x 3532
Randy Boan	EG&G	x 8658
Mary A. Siders	EG&G	x 6933
Amy Johnson	CDH	692-2636
Diane Niedzwiecki	CDH	692-2651
Joe Gordon	Dames & Moore	299-7996
Dennis Smith	EG&G	966-8636
Cindy Gee	EG&G	966-8550
Richard DeGrandchamp	PRC	295-1101
Bonnie Lavelle	EPA	294-1067
Lorraine Alcott	PRC	295-1101
Paul Singh	DOE	966-4651
Eric Dille	EG&G	966-8684
Rick Roberts	EG&G	966-8508

---

The meeting began at 8:40 a.m. The list of issues handout from the March 15, 1993 meeting was discussed first. All parties agreed that comment resolution on the background geochemical report is still needed. In addition, the U.S. Environmental Protection Agency (EPA) and Colorado Department of Health (CDH) both stated that Point 3.4 on the handout was not accurate. It was requested that this point be reworded to specifically states that hot spot will be examined separately.

A discussion on the definition of a hot spot then began. Joe Gordon (Dames & Moore) presented the contaminant of concern (COC) flowchart presented in the operable unit (OU) remedial investigation (RI) report. EPA asked if this flowchart determined that a hot spot is automatically a COC.

EG&G Position: EG&G stated that hot spots are not automatically COCs. The identified hot spot will be carried through the rest of the flowchart to determine if it is a COC.

EPA Position: This position was not acceptable to EPA.

The discussion on hot spots continued. Mr. Gordon explained the process of the hot spot analysis. For the hot spot analysis only infrequent contaminants, detected less than 5 percent of the time, are listed. These values along with all the "nondetect" values (calculated by using one-half of the detection limit) are added and a mean concentration determined. The maximum detected concentration is then compared to the mean and hot spots are identified as locations where the maximum concentration is greater than 100 times the mean calculated concentration.

EPA Response: Did not agree with using the nondetect values for computing an average. Suggested that only detected values be used and the mean calculated by an iterative process.

U.S. Department of Energy (DOE) representatives then introduced DOE order 5400.05, DOE guidance on hot spots. DOE has directed EG&G to comply with this order in analyzing radionuclide hotspots. Copies were made and distributed to all parties (see attached). This order spatially defines the hot spot as less than 25 meters square.

EPA then requested that the parties try to agree on a definition of a hot spot.

EPA Definition: A localized area of high concentration. High concentration defined as significantly above a calculated risk-based concentration (RBC).

EG&G: Did not agree with the use of an RBC.

The COC and hot spot discussion continued. However, because the issue of hot spot definition could not be resolved, all parties agreed to present the various flowcharts and positions.

Joe Gordon, Dames & Moore

Mr. Gordon referred all parties to the current COC flowchart. He suggested posing the following questions in the process to identify a hot spot and assess whether the contaminant in the hot spot is a COC:

- 1) Is the contaminant waste related to the processes conducted at the Rocky Flats Plant (RFP)?
- 2) Is the distribution of the contaminant spatially distinct?
- 3) Is the concentration elevated?

Mean concentration is determined by sum of detects and nondetects (one-half the sample quantitation limit).

Elevated is defined as 100 times the mean.

After reviewing these factors, the contaminant concentrations defined as hot spots are compared to background concentration. In addition, the hot spot is included in the concentration toxicity screen where the maximum concentration multiplied by the high reference dose or slope factor is used to determine whether it would contribute to more than 1 percent of the site risk. Professional judgment is used to determine if the contaminant is a COC.

EPA

After determining that the detection frequency is less than 5 percent, EPA uses an iterative process to determine the hot spots. Each concentration is ranked in descending order. Each concentration is then compared to the mean of the two previous concentrations as follows:

Concentration values: 2, 3, 4, 20, 300

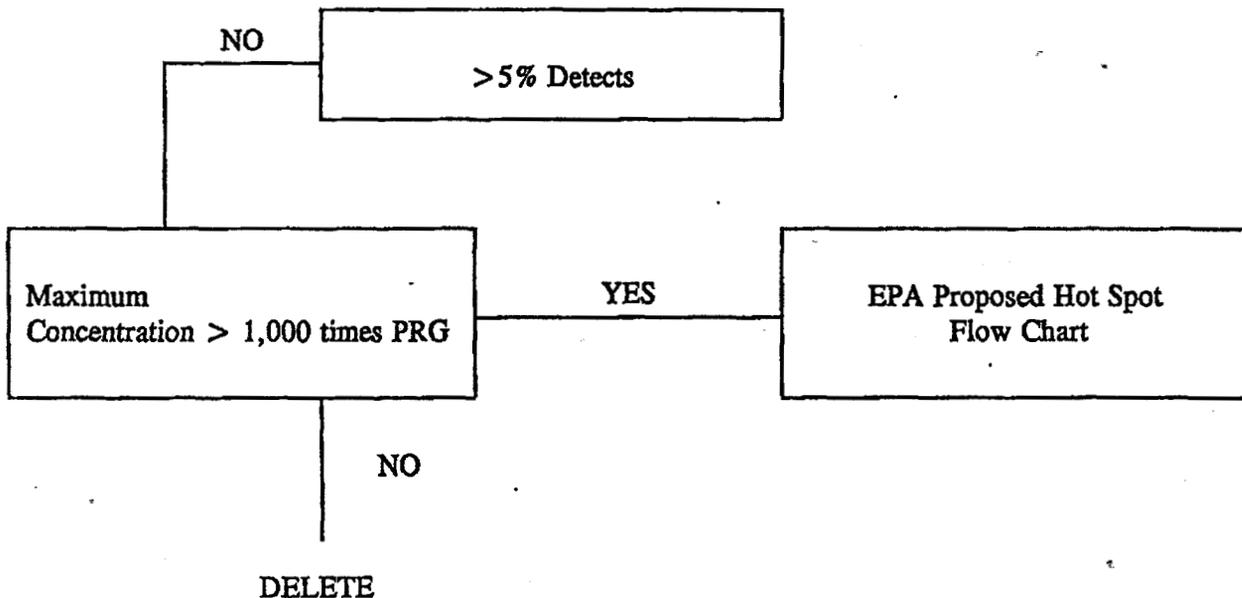
$4 < 10$  times mean of 2 and 3 (or 2.5),  $20 < 10$  times mean of 2 + 3 + 4 (or 3.0),  
 $300 > 10$  times mean of 2 + 3 + 4 + 20

if greater than 10 times mean it is a hot spot

This process determines which concentrations should be combined. The maximum concentration is then compared to 1,000 times the preliminary remedial goal (PRG). If the concentration is above 1,000 times the PRG, it is a hot spot. The spatial distribution of the contaminant is then evaluated.

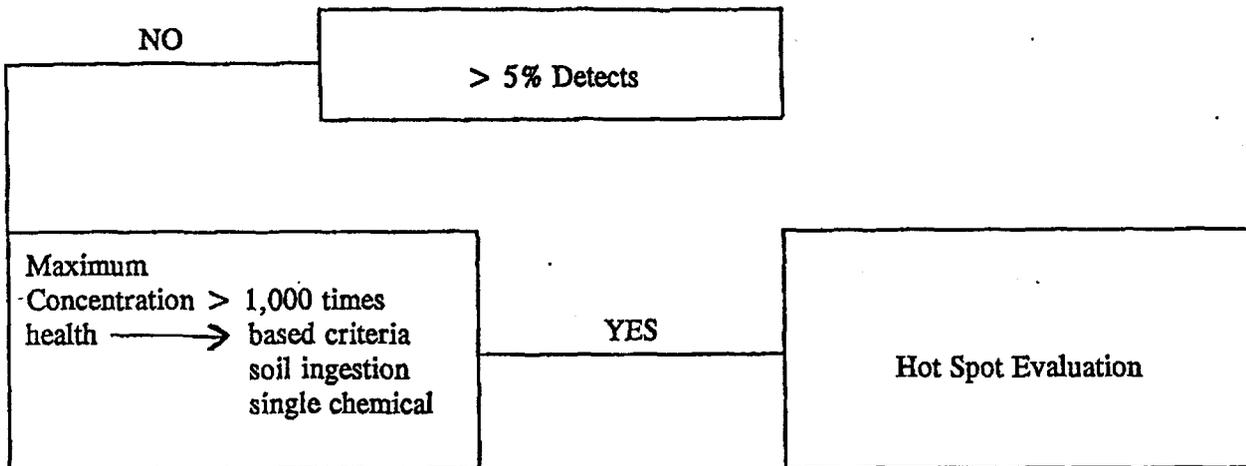
The parties could not agree on a procedure, but there was a consensus that the important element of a hot spot is the health risk associated with exposure to it. All parties agreed to create a separate flowchart for the hot spot analysis.

EPA Recommendation:



EG&G then asked for a short break to discuss the proposals.

EG&G Proposal:



EG&G did not want to use a PRG because this would give the public the perception that EG&G agreed to remediate to this concentration. EG&G agrees with using the volume but did not want to use the term "preliminary remediation goal."

EPA's position was that the health based criteria must include all media (soil, surface water, ground water, sediments), multiple exposure pathways, standard default exposure parameters, and  $10^{-6}$  risk level or a hazard index of 1.0. EG&G and DOE do not intend to use consistent exposure parameters between operable units. EPA objected and will require that standard default parameters be used

**RESOLUTION**

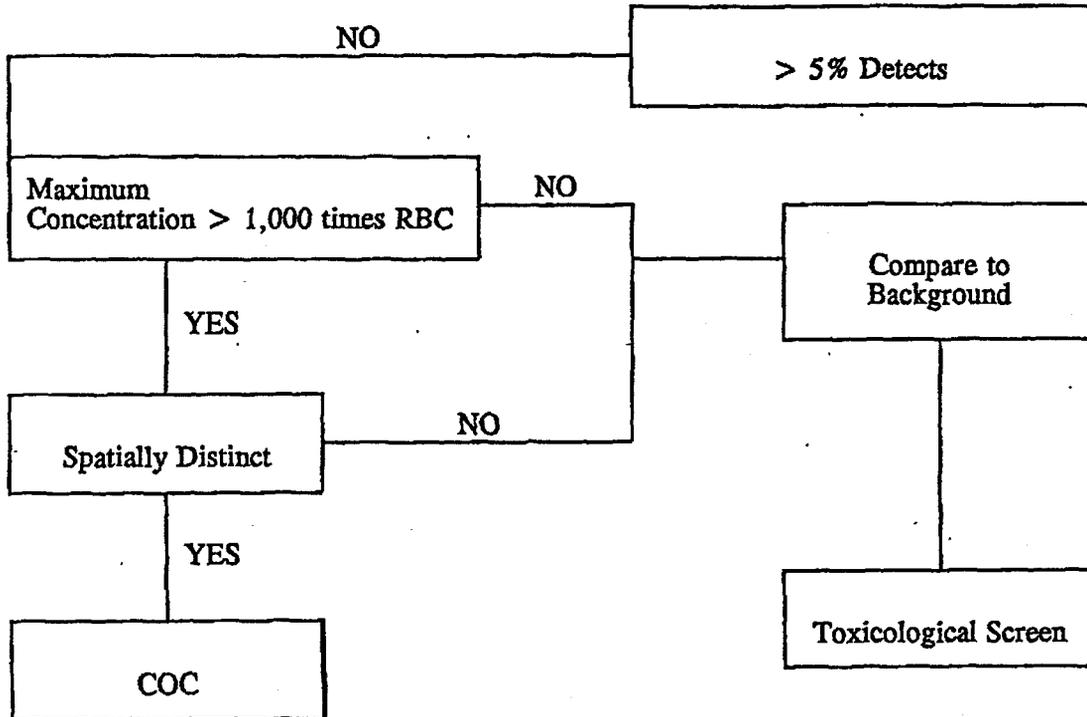
All parties agreed that the hot spot designation will include the following three factors:

- 1) Risk based concentration
- 2) Spatial designation
- 3) Comparison to background

The issue of whether a contaminant is related to the waste practices at the RFP is still an issue.

CDH then presented its proposal for a hot spot flow chart.

CDH Hot Spot Flow Chart Proposal



A discussion on whether hot spots should be calculated for chemicals detected in greater than 5 percent of the samples then ensued. EG&G stated that the nature and extent discussion in the RI report will point out these hot spots. EG&G stated that this is really a data aggregation issue for the exposure assessment. EPA agreed.

FINAL RESOLUTION

The parties agreed that EG&G will continue to use the existing COC flowchart. A separate flowchart for hot spot analysis will be added to the RI report. Contaminants detected infrequently (<5%) and associated with hot spots will be COCs. Contaminants detected with >5% frequency and associated with hot spots will be dealt with in the RI and exposure assessment through an analysis of spatial distribution. The flowchart will reflect the CDH recommendation. The chart will be presented in the nature and extent of contamination discussion in the RI report. All contaminants identified with hot spots will be COCs.

New Issue

The question of comparing the concentration values to background was raised. The draft RI, environmental evaluation (EE), and public health evaluation (PHE) used different methods, and this is

not acceptable to EPA or CDH. EPA also is concerned that the method used in the PHE differed from the method contemplated in the background geochemical report.

Ralph Lindberg of EG&G discussed the background report briefly. He stated that the upper tolerance limit (UTL) was used in the report but that all the raw data were presented so that other statistical tests could be used. There was some discussion of using the UTL procedure as a preliminary screening method and then using an analysis of variance in the RA. EPA still is concerned with using different procedures in the various RI documents.

In addition, although the RI and EE both used the UTL, the RI compared the values to 10 times the UTL and the EE compared the values to two times the UTL. DOE stated that the use of an arbitrary multiplier of the UTL is non-sensical. All parties agreed that the real issue is what comparative test is appropriate.

All parties agreed that a standard method had to be used for all comparisons to background. The standard method was not determined.

EG&G Proposal:

EG&G proposed using the UTL for the RI, but have the PHE use all the raw data to conduct the analysis of variance (ANOVA) test to all the data. If the RA and RI reach different results, this information will be passed on to the RI and EE people.

EPA objected. EPA insisted on consistency between the RI, PHE, and EE.

Resolution:

The parties could not resolve this issue. EPA agreed to bring its final position on this issue to the next meeting.

Next Meeting: April 2nd, 8:30 a.m. at Interlocken.  
Agenda: Items 5 and 6 on handout.

Follow Up Meeting: April 8, 8:30 a.m. at EPA  
Agenda: Remaining items on handout

Meeting adjourned at 12:15 p.m.