

Colorado Department of Health

Review and Comment

Phase I RFI/RI Workplan, OU 9 - Original Process Waste Lines
November, 1991

General Comments:

1) The Division believes that this Phase I Workplan will adequately support RCRA closure activities within OU 9. These activities will be further delineated in the Phase I IM/IRA. However, we suggest that DOE and EG&G begin to develop a strategy for implementing OU 9 closure(s). Based on the October 1988 Closure Plan submitted for OU 9 and the brief description of the OPWL in the 1987 Part A permit application, the portions of the OPWL that need to be closed are the tanks. Normally, the pipelines would be treated as ancillary equipment to the tanks and any soil contamination would be addressed as a part of closure. In this case, however, the Division is concerned that closure of the tanks may become burdened by the need to investigate the lengthy and complicated pipeline sections that, in places, are long distances from the nearest OPWL tank. Therefore, the Division suggests that the requirements for closure can be addressed on a tank by tank basis in the Phase I IM/IRA Decision Document. These requirements would include investigation, characterization and, if necessary, removal of the tanks and only the immediately adjacent ancillary piping and soils. The remainder of the pipelines and any associated soil contamination could be investigated under the RCRA and CERCLA RFI/RI-CMS/FS process. Corrective and/or remedial action addressing the pipelines could be handled in the CAD/ROD. This approach would allow the portions of OU 9 that need to go through closure to close as soon as possible while not compromising the investigation and characterization of the remainder.

2) The Division, in consultation with EPA, has determined that the Environmental Evaluation (EE) portion of this workplan can be omitted. Based upon the EPA's Risk Assessment Guidance for Superfund (RAGS), Volume II, and upon IAG requirements, we will be evaluating, along with the Risk Assessment Technical Working Group, whether or not EEs are appropriate for the plantsite OUs. If it is

determined that EE are appropriate, we will evaluate the proper scope for plantsite EEs. In the interim, however, the Division has determined that data from an EE is not necessary to "close" (see comment 1) any portions of this OU. If the plantsite OUs are determined to need EEs, the EE for OU 9 can be implemented in the Phase II RFI/RI Workplan.

3) This plan states that any OPWL beneath buildings can not and will not be evaluated in this RFI/RI. From the standpoint of RCRA closure, the Division agrees that investigating portions of the OPWL that are not accessible under active buildings may be deferred, but all OPWL should be evaluated to the extent possible for the release of hazardous materials. In other words, the Division does not want this workplan to categorically ignore any portions of the OPWL that are under buildings. We expect covered intervals to be evaluated against:

- * building status - active or inactive
- * proximity of the covered OPWL to building edges
- * known or suspected releases from covered portions of OPWL

If a partial investigation of a covered OPWL can evaluate the presence or absence of significant contamination beneath a building, then the work should be included in this workplan.

4) As indicated in our cover letter, the Division concurs with the recommendation included in this workplan to make all IHSSs that target known or suspected OPWL historical releases part of OU 9. This would include IHSSs 122, 147.1, 123.2, 159, 146, 126, 127, 149, 124, 125, and 132. This may necessitate modifications and additions to the FSP. If so, please expand the FSP. The Division will initiate the IAG amendment procedures regarding this matter at the soonest possible time.

5) The text of this workplan does not indicate whether an evaluation has been made of the OU 9 areas for rig and/or backhoe accessibility. Much of the FSP may be rendered moot if equipment access is restricted by buildings, underground utilities, overhead steam lines, etc. Please evaluate the impact this issue may have on the implementation of this workplan.

6) The Division estimates that about 200 testpits will be necessary to implement Stage I of this plan. Unless several crews are simultaneously in the field, locating, digging, and sampling this large number of pits will require a significant amount of time. This is particularly true of pits in the PSZ. We are concerned that the budget for OU 9 is going to be restricted and implementation of this workplan and related data evaluation may take more time than will be available for the preparation of the RFI/RI Report. A delay in the RFI/RI Report submittal may be unacceptable if based solely on budget constraints.

7) Based on an evaluation of the hydraulic conductivities of the

Rocky Flats Alluvium that have been determined to date, the Division does not believe the value of 6×10^{-5} , presented repeatedly in the text, to be very representative. In fact, most of the values for Rocky Flats Alluvium hydraulic conductivity we have seen are significantly higher (two orders of magnitude). Please check this number, particularly in the areas immediately surrounding the OPWL. If the hydraulic conductivities are indeed in the higher ranges, the conceptual model and the FSP may need to be reconsidered.

Specific Comments:

Section 1.2: This section states that as of early 1991, only a small fraction of the historical data in the OU 9 area had been validated. As it is now early 1992, please update the statement to reflect how much of the data has now been validated.

Section 1.3.3.4: The last sentence of the second paragraph should be changed to read ". . .flows eastward into Standley Lake with periodic diversions into Mower Reservoir."

Section 1.3.3.7: The third paragraph on page 1-12 states that the Arapahoe Formation is approximately 150 feet thick in the center of RFP. Please state the source of this figure.

Section 1.3.3.8: The value of hydraulic conductivity stated on page 1-14 of the text may not be representative of the upper HSU, particularly considering the fact that the upper HSU includes the Rocky Flats Alluvium which can have K values several orders of magnitude higher than that stated (please see general comment 6).

Section 2.2.2: Based on the figures supplied in this section, it is unclear how the figure of 18,000 feet was calculated for the amount of OPWL pipelines that are not located beneath buildings. Starting with 35,000 total feet of pipeline and subtracting 13,000 feet that are beneath buildings leaves 22,000 feet that should not be beneath buildings. Please clarify this apparent discrepancy.

Section 2.3.3.2: This section refers to a hydraulic conductivity value that may not be representative for the Rocky Flats Alluvium. Please refer to General Comment 6.

Section 2.5.2.1: This section refers to a hydraulic conductivity value that may not be representative for the Rocky Flats Alluvium. Please refer to General Comment 6.

The second paragraph on page 2-26 defines a release of 500 gallons to be the average release volume for slower or gradual releases from the pipelines. This 500 gallon figure was then used to calculate an average spill size within the trench fill material which was, in turn, used to determine a reasonable distance between

test pits. This Phase I RFI/RI Workplan is supposed to completely characterize the "source and soils" within OU 9. However, the Division is concerned about two items in this conceptual model. First, 500 gallons is a rather large average spill volume considering that most of the OPWL stood empty except when waste was being transported. Second, no consideration is being given to spills of lesser volume. As the OPWL pipelines get closer to the waste source, the total volume ever carried by the lines decreases, which lessens the probability of large but gradual leaks. Because of these items, the Division is of the opinion that this workplan and conceptual model may not fulfill its intended purpose of characterizing the soils and source.

In addition, based upon the figures presented on page 2-26, the Division was unable to re-create the result that a spill would cover a 300 foot length of pipeline trench. Please verify this result and submit the calculations. The figures for porosity, density, and moisture content are assumptions. Please give the source of these numbers.

Section 2.5.4: The role of a conceptual model within the RFI/RI process is to propose all possible pathways that might carry contamination to a receptor. The data that is collected from the workplan implementation determines which pathways are completed. The pathways itemized in the text of this section represent most, but not all, of the possible pathways presented by this OU. It is inappropriate to confine the investigation to just those pathways listed in this section.

The first pathway described in this section, beginning on the bottom of page 2-27, raises the issue of what the true "source" of contamination should be. The Division believes that from an IAG perspective, the term "source and soils" means the original source of the contamination and any soils that have been affected. However, from a conceptual model and risk assessment point of view, the source should be whatever media is currently contributing contamination to another media.

In addition, the second pathway described in this section mentions volatilization as a release mechanism. Volatilization is shown on the conceptual model diagram (Figure 2-9), as well. However, it is not included on the conceptual model flow-chart (Figure 2-8). The Division recommends that a box for "volatilization and evaporation" be added to the "Secondary Release Mechanism" column on the flow chart so that this inconsistency can be resolved.

Finally, based on the conceptual model flow-chart (Figure 2-8), the pathway "Released waste - leaching - ground water - seepage - surface water - ingestion and dermal contact" should be added to the discussion.

Figure 2-2: Some of the tank locations shown on this figure are

not connected to the OPWL pipeline network by any of the 57 pipeline segments. Please clarify why this is the case.

Figure 2-8: In addition to the "volatilization and evaporation" box mentioned previously, the Division suggests the addition or change of the following:

- * change the "Contaminant Source" column to "Historical Source".

- * add a new column entitled "Current Source". Under this header would appear boxes for "OPWL pipelines and tanks" and for "soils and pavement" (soils and pavement should not be called a transport medium).

- * delete the word "sediments" from the "surface water/sediments" box. Only surface water, ground water, air, and biota can act as transport media.

- * additional release mechanisms need to be incorporated into this flow-chart. These include:

- volatilization/evaporation
- ground water pumpage (for future-use scenario)
- deposition/precipitation

- * the box for "infiltration/leaching" should be split into two separate boxes; the infiltration box should be changed to read "infiltration/percolation" and the leaching box should be changed to read "leaching/percolation". These are two distinctly different processes that each could impact OU 9 soils contamination differently.

- * add an arrow from the surface water box to the wind erosion box and to the volatilization/evaporation box.

Table 2.5: Are the values presented on this table average values, typical values, or single well values? This table presents a large range of hydraulic conductivity values for the Rocky Flats Alluvium (three orders of magnitude) that are not fully represented elsewhere in this workplan. Please clarify this inconsistency.

Figure 2-6: Please clarify in what time frame the data used to construct this map was collected (ie., is this from one particular quarterly well sampling event? If so, which one?).

Section 3.0: The Division will with-hold comments to this section until such time as the site-wide chemical specific potential ARAR issues have been resolved. The Division reserves the right to comment on this section at that time.

Table 4.1: This table needs to be expanded to include an actual or estimated number of each sample type.

In addition, the third and sixth objectives listed on the table need to be changed to read "Provide assessment of extent of soil contamination along OPWL pipelines (around OPWL tanks)." The overall goal of this Phase I RFI/RI is to assess the contamination of the source and soils in OU 9. Also, characterizing the

contamination "along pipeline alignments" assumes that this is where the contamination will be. This assumption may be inappropriate at this time. The RFI/RI investigation should test the model, but not be structured in a manner that is biased by the model.

The sampling/analysis activity described in the "assessment of soil contamination" item is a "grid" around the contaminated test pits. However, the FSP is inconsistent with this since it only proposes boreholes along the trench, not gridded around the test pit. This inconsistency needs to be addressed.

Section 7.1: As mentioned previously, this investigation should not provide a "preliminary" assessment of the extent of soil contamination; it should completely assess the extent of soil contamination.

Section 7.2.1: In light of the previous comment, the descriptions of Stage 1 and Stage 2 seem to be able to establish the complete nature and extent of vadose zone soil contamination, provided that the issue of "gridding" is resolved. If complete characterization can be established, it should be stated in the workplan.

Section 7.2.2: The final paragraph of this section should reference potential ARARs. The actual final ARAR values are far from being finalized.

Section 7.2.4.1: The purpose of the second bulleted item is unclear to the Division.

Section 7.2.4.2: Please invite appropriate members of the CDH and EPA staffs to the Site Walk. An understanding of the layout, logistical considerations, and general site characteristics would be very helpful to the regulatory agencies.

Section 7.3.1.1: Please clarify how DOE arrived at the figure of 100 foot pit spacing.

Also, the OPWL carried many mixed and non-radioactive waste streams. However, this section states that wipe samples will only be tested for radionuclide contamination. Please add testing for the possible non-rad constituents.

During the construction of the test pits, backhoe operations must not be allowed to damage the pipelines. The pipelines should be exposed in their in-situ condition so that unbiased decisions can be made as to their integrity and proper sampling locations and techniques. This issue is not discussed in the workplan. However, as this document will be used in the field during plan implementation, proper test pit procedures must either be discussed or a SOPA developed for reference (in addition to SOPA 11.1 included in the workplan).

The Division recommends that a procedure be developed to pressure test the OPWL pipeline segments between testpits. This type of procedure could be used to help establish leak locations and may aid in locating small areas of contamination between test pits. A more important use of this type of information, however, would be to establish segments of pipe that still have integrity and, therefore, have probably never leaked. These segments could be removed from further investigation and characterization and, more importantly, from having to be addressed by a final remedy for this operable unit.

Section 7.3.1.2: As mentioned previously, the description of the Stage 2 investigation needs to be augmented to include the grid sampling mentioned in Table 4-1. Assessing the contaminant migration only in the direction of the pipeline trenches assumes that the conceptual model is correct and contamination has not migrated out of the trenches. At this time, this assumption may be inappropriate.

In addition, this section states that a sample will be taken from the soil boring at a location midway between the trench bottom and the water table or bedrock. How will this be determined since the depth to water or bedrock is not known at a given location until after the midway point is passed? This comment is applicable to Section 7.3.2.1, also.

Section 7.3.2.2: This section needs to clarify that the grid sampling referred to in the text is a soil boring grid.

Niether Stage I or Stage II sampling addresses tanks that have already been removed. Since the most likely location for contamination in the vadose zone is beneath the tank, for those tanks already removed, a soil boring directly through and continuing beneath the original tank location would seem appropriate.

Section 7.6: This section implies that duplicate samples will be collected 100% of the time. This seems excessive.

Section 7.7: By the time this workplan is implemented, the Final PPCD will be in place and should be referenced here.

Table 7.2: The EG&G soil scientist does not believe the CDH method for surficial soil sampling gives sufficient guidelines for actually sampling soil, nor does it give consistent results. The Division is not married to the CDH method and would rather see the best method employed for the situation, regardless of who developed it. Whether or not the CDH method is used, CDH soil sampling guidance states that single soil samples must be taken from a point that is representative of the area in question and to which interpretation of the data will extend. This is not clearly stated in SOP GT.8, but is very important. Please take this in to

consideration during the implementation of this workplan.

Figure 7-3 and 7-6: Regarding Example 2 on each of these figures; since unsaturated bedrock is still vadose zone, and since an objective of this workplan is to characterize contaminated soil in the vadose zone, an additional sample should be collected from the uppermost portion of the bedrock that is encountered. This will help verify the conceptual model.

Section 10.0: No QAA was transmitted with this document as is indicated by this section. Please provide the Division with this document.

Section 11.2: The title of this section should be "Residue Sampling" instead of "Sediment Sampling."