U-006-306.27

1997

COMMENT RESPONSE TO U.S. EPA COMMENTS ON: THE RI/FS WORK PLAN ADDENDUM: K-65 SILO EMBANKMENT AND SUBSOILS SAMPLING AND ANALYSIS PLAN JULY 1990

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REPORT

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Comment Response
To U.S. EPA Comments on:

The RI/FS Work Plan Addendum:

K-65 Silo Embankment and Subsoils Sampling and Analysis Plan

July 1990

GENERAL COMMENTS

1. The sampling plan provides a reasonable approach to obtaining soil samples from beneath the K-65 silos. However, it should be noted that auger borings at very low angles (i.e, 8 to 12 degrees) is very unconventional and may prove very difficult to complete.

RESPONSE: We agree that low angle augering for soil sampling is unconventional and may prove very difficult to complete. However, in this case, it is the best method to use. The third bullet under Section 1.2.1 states that if the angle cannot be maintained, the boring will be abandoned and plugged. Due to the unconventional nature of low-angle borings, and sensitivities concerning tracking of the boreholes, practice boring will be completed in an area away from the K-65 silos prior to the drilling under the silos. This will allow crews to become more familiar with drilling, borehole tracking and sampling phases of this project. This will in turn provide for a safer, more efficient operation under the less favorable conditions of working near the silos.

GENERAL COMMENTS

2. The sampling plan does not provide specific details to accurately describe the activities needed to meet the objectives of the sampling plan. Areas of the sampling plan that require additional information are listed below in the specific comments.

RESPONSE: Responses to specific comments are given below.

SPECIFIC COMMENTS

1. Section 1.2.1, page 2, paragraph 2: The required drilling angle for each borehole can be determined prior to setting-up the drill rig and should be stated in the sampling plan. this information is needed to evaluate whether the sampling depths are appropriate to provide sufficient information to meet the sampling objectives. For example, using the information listed for Boring 3 in Table 1 of the sampling plan, it appears that the boring will pass 8.25 feet beneath the silo footer not 3 feet as shown on Figure 1.

RESPONSE: Calculations can be made prior to setting up in the field. The value of those calculations is limited due to the fact that certain critical assumptions used to define the boring window are subject to change slightly thus causing the allowable boring window and the angles defining that window to change. The critical assumptions that are subject to change due to restraining field conditions are:

- The initial boring point elevation
- The horizontal distance from the initial boring point to the edge of the silo footers/decant tank

The above two values are critical to an accurate calculation of the required angle. Other assumptions used in the calculations will be as follows:

- The borings must clear the base of the silo footers/decant tank by a minimum of three feet.
- The borings must have at least three feet of till below the final sampling point.
- The maps and drawings from which the critical elevations were derived are correct.

Using the information in Table 1 a value of 8.25 feet below the silo footer for boring 3 could be calculated as that does fall within the acceptable "window." We calculated that an angle between 4.7° and 9.3° is necessary to maintain the boring within the acceptable window utilizing information from Table 1. A 4.7° drilling angle would place the boring at three feet below the footer as it passed the footer. The boring termination point would be approximately 9.6 feet below the footers, for a 4.7° boring angle.

A 9.3° boring angle would place the boring at 10.32 feet below the silo footer as it passed the footer. The boring termination point would be approximately 23.6 feet below the footer and three feet above the base of the till.

We will add a table to the revised work plan addendum that provides approximate minimum and maximum drilling angles. We will also add a figure depicting parameters used in the calculation of required drilling angles. The minimum drilling angle provides at least three feet clearance below critical structures, and the maximum drilling angle provides at least three feet of till below the final sampling point. The final calculation of the required drilling angle(s) will be completed by a licensed surveyor in the field and checked by the on-site geologist. The calculation will also be checked and approved by DOE and WMCO designees. The responsibility for verifying that the

drilling angle is maintained within the defined window will be that of the on-site geologist.

SPECIFIC COMMENTS

2. Section 1.2.2, page 2, paragraph 1: The type of screening instruments should be explicitly stated in the sampling plan. In addition, it is suggested that a flame ionizing organic vapor analyzer be used instead of a photo ionizing organic vapor detector. Screening instruments which use photo ionization are sensitive to several interferences (eg. moisture, ionization potential of contaminants) and may not yield reliable screening results.

RESPONSE: The instrument for screening of subsurface soil samples for radioactive contamination is specified in the RI/FS Quality Assurance Project Plan (QAPP). It is an ESP-1, Model 141, SPA-3, scintillation detector.

Previous use of a flame ionizing vapor analyzer on this project has not proven it to be a better choice than using an HNU meter. The type of screening instruments will be stated in the revised plan. Response to comment 3 goes into more detail on sample screening.

SPECIFIC COMMENTS

3. Section 1.2.2, page 2, paragraph 1: The report does not clearly state how samples will be screened for radiation and organic vapors. It appears that the "tenite sleeves" are similar to Shelby tubes and do not allow direct access to the sample. This will impede proper and adequate screening and logging of the sample.

RESPONSE: Radiological screening of samples will be accomplished in the field with a pancake GM meter and an alpha detector. Alpha will be screened for at the open ends of each 30-inch tube. Beta and Gamma will be screened for at the ends of the tubes as well as along the length of the tubes. Additionally, prior to archiving or shipping the samples they will be screened for radioactivity with an ESP-1, Model 141, SPA-3, Sodium Iodine Scintillation Detector survey instrument as outlined in Section 6.0 of the RI/FS Quality Assurance Project Plan, Revision 3.

Samples will be screened for volatiles with an HNU photoionization detector. Field measurements for volatiles will be taken at both ends of each 30-inch tube. The use of an HNU photoionization detector is specified in the RI/FS Work Plan, Volume I, Section 4, page 3 of 9. The RI/FS Work Plan was approved by the EPA. The Work Plan Addendum will be revised to reference the RI/FS QAPP and to

describe how samples will be screened for organic vapors and radiation.

SPECIFIC COMMENTS

4. Section 1.2.2, page 3, paragraph 1: The sections of core to be sampled as specified in the sampling plan contradicts early statements that samples will be collected at regular intervals as well as selected based on screening results. Therefore, it is recommended if the first 2.5-foot length of core screens high for radiological parameters it should be sampled for radiologic parameters not chemical parameters as stated.

RESPONSE: We agree that if the first 2.5 foot length of core screens high for radiation, it should be analyzed for radiological constituents rather than chemical constituents. The Work Plan Addendum will be changed to specify that if samples from intervals not scheduled for analysis display elevated readings for radioactivity or volatiles the 30-inch sample that contains the elevated reading or readings will be analyzed for the corresponding parameters.

SPECIFIC COMMENTS

5. Section 1.2.2, page 3, paragraph 1: The numbering system used to identify samples should be presented in this section. This will aid EPA in reviewing the analytical data once it is available.

RESPONSE: We are willing to present the numbering system that will be used to identify samples. The numbers assigned to the samples collected during this task will be transmitted to the U.S. EPA when the task is completed, as the exact number of samples is unknown at the present time.

SPECIFIC COMMENTS

6. Section 1.2.2, page 3, paragraph 4: The vibra core sampling of the berms surrounding the silos was not discussed in the K-65 internal contents sampling plan. This plan should provide more detail concerning the purpose of the vertical borings, sample frequency, and required analysis.

RESPONSE: We recognize that vibra core sampling of the berms has not been described in the K-65 internal contents sampling plan. More detail on the berm sampling will be submitted in a separate plan.

SPECIFIC COMMENTS

7. Section 1.3, page 4, paragraph 1: TCLP organics should also be included in the analysis of samples. This information is needed to determine it's regulatory status for any remedial action.

RESPONSE: We are willing to include TCLP organics in the analysis of samples. The plan will be revised to include TCLP organics. TCLP inorganics will be run only if the HSL analyses show them to be above regulatory concern.

SPECIFIC COMMENTS

8. Section 1.4, page 4, paragraph 1: The sampling locations shown on figure 1 of the sampling plan indicate that no samples will be collected from the embankment. Additional samples should be considered because several possible remedial actions depend on the geotechnical properties of the embankment soils.

RESPONSE: We agree that samples should be collected from the embankment. The details of the embankment or berm sampling will be presented in a separate plan.

SPECIFIC COMMENTS

9. Table 1, page 7: The minimum number of samples to be collected is misleading. The actual number of samples to be collected from beneath the silos is 13 not 28 as implied in Table 1. Typical subsurface soils investigations require the collection of soil samples at a frequency of every 5- or 10-feet. In addition, the nature of the till beneath the silos suggests that the distribution of contaminants will be very irregular; therefore, the sampling plan should provide justification of a 20 foot sampling interval.

RESPONSE: Table 1 will be revised to indicate: Minimum # of Samples to Be Submitted For The Specified Analyses.

It is clearly stated in Section 1.2.2 that <u>continuous</u> samples will be collected from each boring. All samples will be screened for radioactivity and volatiles with samples displaying elevated readings being submitted for the respective analyses (full radiological or full HSL or both). We feel that utilizing field screening to determine the need for further analyses in addition to scheduled interval sampling is a balanced and adequate approach to characterization of soils around and beneath the silos.

SPECIFIC COMMENTS

10. Table 2, page 8: As stated earlier TCLP organics should be added to the list of analytes.

RESPONSE: TCLP organics will be added to the list of analytes.

SPECIFIC COMMENTS

11. Table 2, page 9: The holding times listed for the "full HSL" parameters are excessive. Special handling and priority should be given to these samples so data of sufficient quality can be generated.

RESPONSE: The times listed in this table are not holding times, they include times to complete the analyses and process the data. Holding times for the HSL samples are specified in the RI/FS Work Plan, Revision 3, Volume I, Section 4.0. The specified holding times will be met.

SPECIFIC COMMENTS

12. Table 2, Page 9: The table lists the minimum sample weights per set of analyses (i.e, full HSL). This seems to imply that samples will be collected and shipped to the laboratory in single large containers. Soils for specific analyses should be placed in separate containers. This is required by the RI/FS Work Plan and acceptable laboratory program procedures.

RESPONSE: The implication that samples will be shipped in single, large containers is unintentional. Samples will be collected and shipped in accordance with Revision 3 of the RI/FS Work Plan, Volume I: Sampling Plan and Volume V: Quality Assurance Project Plan (QAPP). Samples to be submitted for HSL, radiological and TCLP analyses will be removed from the tenite sleeves and placed in the appropriate containers for shipment to the laboratory. Table 2 will be revised to clarify that samples will be collected and shipped in accordance with the QAPP and Sampling Plan.