

OSM RI
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MAR 24 2006

STATE OF COLORADO

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of Public Health
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Re: Review of the CSMRI Creekside Site Draft Site Characterization Work Plan dated January 24, 2006

The Colorado Department of Public Health and Environment is in receipt of the above referenced document. We must express our deep frustration that the document does not include disposal of the contaminated materials, and therefore does not fully implement your approved decommissioning plan. Although we understand your reasons for this, we continue to express our desire that this material be disposed of off site as soon as possible.

In recognition of your need to preserve cost recovery options under CERCLA, and more importantly to continue to move this project toward ultimate completion, we are prepared to approve the Characterization Plan with the following comments.

General:

CSM has stated that due to cost/volume over runs, they must reevaluate the remedy, including the possibility of on-site disposal. The Department believes that reevaluation is not necessary to comply with the National Contingency Plan, and that the approved plan for off-site disposal should be implemented. However, in order to insure that this reevaluation is accurate, the Department, as the implementing agency for Superfund, provides the following information:

- The ARARs analysis must indicate that the Rules and Regulations for Radiation Control have a strong preference for off-site disposal, and that there are several criteria described in Section 4.61.3 that must be met for on-site disposal to be allowed. As the agency responsible for implementing these rules, your ARARs analysis should indicate that it is unlikely these criteria can be met.
- In evaluating alternatives for on-site disposal, state Solid Waste regulations must also be included in the analysis. Siting and design criteria for solid waste landfills would be applicable. In addition, a Certificate of Designation would be needed, and should be considered under the public acceptance criteria.

- The stockpiling of these materials will result in inadvertent mixing. As we have said in the past, mixing will not be allowed as a means to justify on-site disposal. Therefore, as on-site disposal is evaluated, CSM must consider the design of an engineered disposal facility that utilizes previous in-situ measurements in its design criteria.

Due to the fact that the stockpiles may remain on site for an extended period of time while the final cleanup decision is re-made, additional engineering controls and monitoring will be required to insure the protectiveness of this storage and compliance with all applicable state rules and regulations. These controls must be added to the plan.

The document describes a method for determining background in the field. We are unsure of the purpose of this exercise. Background has already been determined and approved for the site. This, in combination with the (cleanup criteria), means that everything above 4.1 pCi/gm radium must be excavated. It would seem more appropriate to calibrate your field instruments to this level. All references to new background measurements or calculations should be removed from the document.

Specific:

Page 1-5, 1.5 Current Site Conditions-All of the wells should be sampled. If wells were abandoned, why were they and when were they? Were they sampled prior to abandonment and if so, what were the results? Please submit the well abandonment logs for our files.

Page 4-4, 4.2 Site Preparation- Where will the metal debris, piping, drums, etc. that are placed in roll-off containers be removed to?

Page 4-4, 4.2 Site Preparation - It is indicated that the previous excavated test pits be backfilled with the excavated material to render the site more suitable for performing the gamma characterization. This could result in mixing and dilution of sample and survey results or shielding of deposits within the excavation. These areas were excavated for a reason and should be evaluated in place as well as the adjacent stockpiles. It is not recommended to backfill these excavations until they have been tested.

Figure 4-2 only shows 20 BFI test pit locations while the text under section 4.2 Site Preparation mentions 21 test pits. Where is the other pit?

Page 5-2, 5. Site Characterization - Third bullet regarding Figure 5-4 shows areas in excess of 100 pCi/gm. What is the basis for using 100 pCi/gm? Based on the approved risk assessment the BFI landfill cannot take materials greater than 40 pCi/gm. Should a separate pile be made for materials between 40 pCi/gm and 100 pCi/gm?

Page 5-3, 5. Site Characterization- "The majority of the excavation will be limited to one foot below the ground surface." This is a rather firm statement to make when the school has adamantly stated that they don't know what is out there. It is not clear if this is in the area where the proposed BFI trenches that are two to three feet deep are to be backfilled. Again, do not backfill the existing trenches. In areas where only one foot of material is removed, trenches 2 to 3 feet deep should be excavated to verify that there is no material buried in the heterogeneous materials on the site.

Page 5-7, 5.7 Materials Handling- Is the excess of 100pCi/gm total radioactive or radium-226 only? As stated above, there may need to be another stockpile for materials that are between 40 and 100 pCi/gm, in order to ensure compliance with waste acceptance criteria at the approved disposal facility.

Page 5-7, 5.7 Materials Handling- If the materials that have been placed in the separate stockpiles have already been sampled, why do they need to be sampled again? It is a waste of time and money, especially if materials are stockpiled appropriately.

Page 5-10, 5.8.4 Personal Protective Equipment- Document should say what level of protection will be required, level C or D.

Figure 5-3, What is the gamma number used for drawing the areas of known and inferred extent?

Figure 5-4 should show the areas where the areas containing 40-100 pCi/gm total activity are located.

Figure 5-6 may require removal of all of the material in the north area near Clear Creek as all 7 locations show a need for removal, but are not tied together.

Page 6-1, 6. Sampling and Analysis Plan – mentions that the purpose of the SAP is to provide necessary guidance to control excavation by properly identifying soils that exceed the tentative clean-up goals. These goals, which are part of the approved cleanup decommissioning plan, should not be referred to as tentative. Reevaluation of the approved plan for cost-recovery purposes does not make these goals tentative.

Page 6.2, 6. Sampling and Analysis Plan – Please add the following - Split samples will be provided to CDPHE for testing, and CDPHE will be given the opportunity to do a verification gamma survey upon completion of excavation activities.

Page 6-3, 6.1 Field Radiation Detection Instrumentation- States “The FSL will be calculated as the average plus two standard deviations of the data set.” Part 18 of the Colorado regulations says that background will be the average, not two standard deviations. It is necessary to follow the Colorado radiation regulations during the reclamation and the sentence should be changed to the FSL will be calculated as the average- delete plus two standard deviations.

Page 6-6, 6.5.2 Personnel and Equipment Survey Requirements – indicates that radon gas could potentially cause elevated removable alpha readings. Will radon be tested? There are also other alpha emitters on site that could contaminate personnel and equipment. Will these also be looked for?

Section 6.7.2 - The procedure of mixing soils before filling individual sample containers for XRF measurements, would dilute these samples. Containers should be filled with material exhibiting the highest readings.

Page 6-10, 6.8 Sample Acquisition – Initial Gamma Characterization Survey Sampling - As the laboratory data will be reported on a dry-weight basis and moisture content will be requested, will moisture content be done on all samples? How will this moisture content data be used?

Appendix A In the licensing activity summary table, it indicates that CSMRI had an AEC license for plutonium. Plutonium should be added to the sampling criteria unless a case can be made that

plutonium analysis is not necessary. The public may read this document and may wonder why plutonium is not being looked for. The same may apply for americium. It would be good to know how much americium was on site.

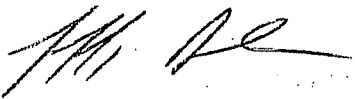
Appendix B –Project Schedule – What will be the next step after project characterization and what is the schedule? Several piles of contaminated material will be on site and could blow into the surrounding neighborhoods and the college campus. This material should be removed as soon as possible. The plan should describe how the stockpiles and the open pits will be controlled.

Appendix G – ALARA Assessment – Staff disagrees with this section and the interpretation of ALARA. Regulation 4.61.2 requires that for unrestricted use, the site should be cleaned up to 25 mrem/year and the residual radioactivity has been reduced to levels that are ALARA. 4.52 of the regulations says that the license shall use, to the extent practicable, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses and public doses that are as low as reasonably achievable (ALARA). 3.16.2.5.2 of the regulations says that in order to ~~terminate a radioactive material license, it is necessary to reduce residual radioactive contamination to~~ levels which are as low as reasonably achievable. In the November 17, 2005 letter mentioned above several sites are discussed that have been cleaned up to ALARA levels less than what were approved for the Creekside site. Hopefully, CSM is not proposing to use higher cleanup standards than have been met elsewhere, especially at a site that is on a college campus close to the center of the town of Golden, Colorado. As we have previously stated, CSM has approved cleanup standards that we expect to be achieved. In addition, CSM has indicated that they had \$3,800,000 in their budget to cleanup and restore the CSMRI site which should be more than enough to meet the ALARA objective. It would be helpful if CSM would submit what their projected costs are to complete the characterization and cleanup. This estimate could be based on the 10,000 cubic yards on page 1-3 of the Characterization Report and taking it to different repositories.

Appendix G- Table 4 numbers need to be explained. The cost values used in Table 4 are approximately 4 to 12 times greater than the cost value for ALARA calculations in Table 2 and the volumes in Table 4 are 4 to 12 times higher than those used in Table 2. And if more money is being spent as shown in Table 4, the concentration /DCGL should be less, not higher as shown. The more money you spend the cleaner the site becomes.

CSM should submit a revised document that addresses the comments noted above. There may be additional comments regarding the new submittal.

Sincerely,



Jeffrey Deckler
Remedial Programs Manager