RMRS Rocky Mountain Remediation Services, L L C
protecting the environment

INTEROFFICE MEMORANDUM

DATE February 24, 1997

TO Isabelle Wheeler, Nuclear Safety Coordinator, T130C, x3153

FROM WRS Wayne Sproles, Environmental Restoration Projects, T893B, x5790

SUBJECT REVIEW OF THE HEALTH AND SAFETY PLAN TO SUPPORT THE SOURCE REMOVAL AT THE MOUND SITE, IHSS 113, REV 0 -WRS-008-97

Please find enclosed the Comment Resolution Summary (Attachment A) for the Health and Safety Plan for the Mound Site Source Removal Project Your approval is requested to document concurrence that all comments have been resolved and that there are no outstanding issues associated with the HASP In addition, your concurrance documents the completion of the independent review performed by the RMRS Operations Review Committee and this item can be closed in preparation for project execution

If you have any questions regarding this transmittal, please contact me at (303) 966-5790

WRS/wrs

Attachment
As Stated

cc RMRS Records (2)

Attachment A

COMMENT RESOLUTION SUMMARY
Draft Health and Safety Plan to Support the Source Removal at the Mound Site, IHSS 113, Rev 0, January 1997

SAFETY ANALYSIS - MOUND PROJECT

Comment #1 My main comment is to question your level of confidence that all drums have been removed from the site and if not the likely impact this will have on the Safety Analysis

Response #1 Based on interviews conducted for the Historical Release Report (HRR) and photographs taken during both the initial placement of drums at the mound site and the removal of drums and contaminated soil in 1970, the drums were placed on the ground surface and covered with soil, thus creating a mound Based on the HRR, the 1970 photographs, and the health physics log from the 1970 removal action, all of the drums and radiologically contaminated soil were removed from the Mound Site Unanticipated conditions or hazards will be addressed in accordance with RMRS Policy as stated in Section 7 6 of the Health and Safety Plan Reference response #3 for the Health and Safety Plan

Comment #2 On page 4 Table 3-1, reference is made to the pCi/g concentrations, again what is the confidence level that the highest concentrations are just that? In Table 4-1 the total 'Sum of Ratios' is 0 956, and the highest level recorded could take that U-238 limit to unity

Response #2 The activity for radionuclides present at the Mound Site was determined based on the sampling data that was provided to Nuclear Engineering Data was collected in accordance with approved Sampling and Analysis Plans during previous characterization efforts and the results are representative of the site

The radionuclide sum of the ratios approach, described in 40 CFR 302 6, was used to determine if the released mixture of radionuclides exceeds the 40 CFR 302 Reportable Quantities (RQs) This screen was used to categorize the Mound Site using the methodology in DOE-EM-STD-5502-94 The DOE-EM-STD-5503-94 establishes uniform EM guidance on hazard baseline documents that identify and control radiological and non-radiological hazards

The radionuclide sum of the ratios were calculated utilizing the 95% UCL concentrations documented in the Proposed Action Memorandum (PAM) This was a conservative approach to take, rather than using the maximum concentration data which would be grossly over-conservative However, if the maximum concentration data were used, the sum of the ratios would exceed unity and the Mound Site would be categorized as radiological rather than non-

nuclear The hazard baseline documentation required for radiological and non-nuclear categorizations are essentially the same Under either scenario, the Hazard Class is still considered to be low A low Hazard Class means that the Mound Site hazards present minor onsite and negligible offsite impacts to people and the environment

Comment #3 The main concern of this analysis appears to be to support the determination that this project is "low hazard, non-nuclear" and hence has minimal/if any public impact It does not address the issue of nuclear accidents involving workers or collocated workers should your assumptions prove incorrect Perhaps this appears in a Radiological Control Section, where I am used to seeing it as a component of a project safety case

Response #3 A low hazard non-nuclear and a low hazard radiological categorization are semi-quantitative determinations based on screening the radiological and chemical inventories against thresholds identified in DOE-EM-STD-5502-94 Once the categorization was made for the Mound Site, it was qualitatively determined, per accepted definitions in DOE-EM-STD-5502-94, that the radiological and chemical inventories present negligible impacts to the public and co-located worker (the co-located worker and public receptors are both considered to be offsite and are negligibly impacted) Therefore, nuclear accidents were not postulated as the accident consequence results would be well below nuclear safety radiological consequence acceptance criteria The onsite worker is protected through implementation of the controls identified in the Mound Site Health and Safety Plan

DRAFT HEALTH AND SAFETY PLAN FOR THE SOURCE REMOVAL AT THE MOUND SITE IHSS 113 (RF/RMRS-96-006 1)

Comment #1 Page 3 of 69 - If personnel change, does the Plan go to page change or another revision issue? Are there controlled copies of this document? How/who administers this?

Response #1 The Health and Safety Plan will be controlled, issued, and modified in accordance with RMRS Procedure DC-06 01, Document Control Program The RMRS Document Control group administers this program The Health and Safety Plan will be modified for changes in project personnel

Comment #2 Page 4 of 69 - The Project phone list is not compatible with the Project Organization on the previous page Is there a reason for this? For example, Mike Jennings -EC- is not listed on page 4

Response #2 The project phone list and organizational chart are currently being modified to include appropriate project support personnel and will be incorporated into the

final document

Comment #3 Page 10 of 69 - How certain/confident are you that you will find no drums? From the Safety Analysis this could push you to a Category 3 Nuclear Project Have you considered the impact this potential assumption could have?

Response #3 Although we are confident that all drums were removed from the site in 1970, the potential exists for uncovering debris (i e drum lids, bolts, wood, plastic, etc) Unanticipated hazards or conditions encountered during the project will be managed in accordance with this RMRS Policy statement "In the event that unanticipated hazards or conditions are encountered, the project activities will pause to assess the potential hazards or condition The potential hazard or condition will be evaluated to determine the severity or significance of the hazard or condition and whether the controls on the project are sufficient to address the hazard or condition Based on this initial evaluation, a determination will be made whether to proceed with control currently in place, segregate the hazard or condition from the project activity, if it can be done safely, or curtail operations to address the unexpected hazard or condition Concurrence to proceed down the path selected must be obtained from the RMRS Environmental Restoration Vice President or their designee" This direction is provided in the site specific Health and Safety Plan

Comment #4 Page 12 of 69 - Correct me if I am wrong, but how is the removal and treatment of soil being managed, my quick reading left me uncertain? Are you removing and treating simultaneously or are you doing one then the other? I ask from a safety standpoint for with the former you have greater potential to mix 'clean batches' with 'contaminated ones' and spread contamination etc

Response #4 It is anticipated that all of the soil will be excavated from the Mound Site prior to initiation of soil treatment activities In the event that the two activities overlap, separate heavy equipment will be used for each activity The physical separation between the Contaminated Soil Feed Stockpile and the Treated Soil Stockpile will prevent cross-contamination

Comment #5 I note that you reference 'water spraying' in a number of areas, is there a potential liquid effluent issue or are quantities and contamination levels dispositioned?

Response #5 Controlled water sprays will be used to moisten the soil during excavation and stockpiling activities to minimize the suspension of particulates

Comment #6 Page 14 - 69 - reference is made to control of truck movements to minimize the spread of contamination How is this going to be done? Will you be using some kind of grid system, and if so who is responsible/controlling movements?

Response #6 Controls will be in place during the transport of soil to the CSFS to minimize the potential spread of contamination Radiological monitoring of the truck tires will

be performed prior to the truck leaving the Exclusion Zones (Soil Contamination Areas) The soil loaded into the dump truck will be maintained below the free-boards and the dump truck will be escorted during soil transport to minimize the potential for spills To ensure further emission control, soil movement will not be conducted during adverse windy weather conditions and a low truck speed will be maintained during transport The RMRS Field Supervisor will be responsible for the coordination of all field activities

Comment #7 Page 15 of 69 - reference is made to sample control management - who is responsible for this and who are the results reported to?

Response #7 Confirmation sampling will be controlled by the RMRS sample coordinator Analytical data will be submitted to the sample coordinator for evaluation and transmittal to the Field Supervisor and Project Manager

Comment #8 Page 16 of 69 - reference is made to the HSP for Treatment of Soil being prepared by the Treatment Subcontractor Who will review and approve this Plan within RMRS ? Is there a formal system for doing so ? Will this second Plan also have a Safety Analysis? How will the two Plans tie together should you need to make changes in the RMRS one?

Response #8 The subcontractor Health and Safety Plan will be submitted to the RMRS Contract Technical Representative (Project Manager) The HASP will be reviewed by the RMRS Project Health and Safety Site Officer, RMRS Project Manager, RMRS Field Supervisor, RMRS Radiological Controls, and SSOC Radiological Engineering The requirements for approval of subcontractor Health and Safety Plans are addressed in the Site Health and Safety Program Plan The Auditable Safety Analysis prepared for the project includes all project activities Task specific Activity Hazard Analyses will be included in the subcontractors Health and Safety Plan

Comment #9 Page 17 of 69 - If samples are being taken by a subcontractor, are they also doing the analysis, and do you have a defined reporting chain for the results?

Response #9 The subcontractor is only responsible for collecting post-treatment soil samples for RMRS RMRS will be responsible for coordinating sample shipments with the Kaiser Hill Analytical Program Office

Comment #10 Same page - I am surprised that you do not plan to confirm the assumption made w r t metals and semi-volatiles by taking spot samples as excavation gets underway rather than planning for none This is a 'better safe than sorry' approach which I would have thought you would want Is there a confidence element or cost issue to this?

Response #10 An extensive amount of volatile organic, semi-volatile organic, metals and

radionuclide characterization data was obtained from the 1995 OU2 Phase II RI/RFI, 1994 OU2 Soil Vapor Survey, 1996 Pre-remedial Investigation of the Mound Site, 1996 Draft Trenches and Mound Site Characterization Report This data was used during the development of the Proposed Action Memorandum, Sampling and Analysis Plan, and the Health and Safety Plan Based on the characterization data, metals and semi-volatile organics have not been detected in downgradient groundwater monitoring wells In addition, metals and semi-volatile organic analytical results are below RFCA Tier II Subsurface Soil Action Levels

Comment #11 Same page - Are there Administrative Controls to ensure trucks for treated soil do not get mixed up with untreated batches? Will there be designated vehicles for each? How do you plan to manage this? Is it in the Traffic Management Plan? If so you may like to consider referencing it here

Response #11 It is anticipated that all of the soil will be excavated from the Mound Site prior to initiation of soil treatment activities In the event that the two activities overlap, separate heavy equipment will be used for each activity The physical separation between the Contaminated Soil Feed Stockpile and the Treated Soil Stockpile will prevent cross-contamination This detail is included in the Field Implementation Plan

Comment #12 Page 19 of 69 - Did you assess applicable techniques for soil removal to minimize dust dispersion and mechanical handling? Was this optimized - or is this just an over-the-top question for this project?

Response #12 The project approach, which includes the use of a hydraulic excavator for excavation and water sprays for dust suppression, is based on similar projects successfully completed at RFETS Based on previous project, new soil handling techniques, during soil treatment operations, have been incorporated into the project to further minimize dust and steam generation The new tray design for the thermal desorption system will allow for safer handling of soils and will allow soil to cool prior to the application of water during unloading operations, hence further minimizing the potential for particulate suspension

Comment #13 Page 22 of 69 - The TCE value is high anyway, what is your confidence level that you do not encounter higher levels as you excavate?

Response #13 Based on an extensive amount of characterization data, we do not anticipate higher levels of volatile organics during excavation However, the designated level of personnel protective equipment is adequate for higher than expected levels of volatile organics Volatile organics above background at the perimeter is addressed in the Unanticipated Hazards and Conditions section of the Health and Safety Plan which is intended for the protection of collocated workers and the Public

Comment #14 Related to the above, how deep and comprehensive was the soil sampling program? Was it an approved sampling program based on statistical analysis?

Response #14 Previous sampling events were conducted in accordance with approved Sampling and Analysis Plans that were verified by Quality Assurance During August 1996, sixteen boreholes were drilled for the purpose of characterizing and defining the extent of subsurface contamination which was identified during the 1995 investigation In addition, seven monitoring wells and six boreholes have been drilled in the vicinity of the Mound Site during the past nine years

Comment #15 Page 24 of 69 - What is the estimated total rem dose for this work activity and how does it compare to the individual worker dose limit of 5 rem/year? Or the values stated on page 51 of 69?

Response #15 Based on SSOC Radiological Engineering calculations, the estimated total rem dose for individual workers is less than 5 mrem for the entire project

Comment #16 Same page - you do not refer to distance control in this section or the use of remote handling techniques as a means to help control external radiation exposure

Response #16 Although no significant individual or cumulative radiation dose(s) are anticipated from the sources of external radiation, namely the excavated soil, based on maximum soil concentrations of radionuclides from historical sampling events, as a good health physics practice and in achieving ALARA, the remote handling of soil will be maximized to the greatest extent practicable Heavy equipment will be used to perform a majority of soil handling Moreover, the distance of personnel not immediately involved with soil handling operations will be maximized by the designation of site control zones

Comment #17 Page 26 of 69 - Borehole 14295 appears to have the highest radionuclide inventory and TCE levels, how does this compare in relation to the others ? In the Safety Analysis, they do not use the maximum values as I would expect if doing a 'bounding case' study See Safety Analysis comments

Response #17 Reference the response to Safety Analysis comment #2

Comment #18 Page 34 of 69 - Radiological Hazard is stated in the table as 'Low', but this document does not assess an absolute value to back it up Is this done elsewhere?

Response #18 Based on the radionuclide levels in the soil and the potential for inhalation, the radiological classification in the HASP will be changed to moderate

Comment #19 Page 40 of 69 - What will be the available means for decontamination at the project site? Are they stated in another document or are there standards for the site?

Response #19 A temporary decontamination pad will be established in the field Decontamination activities will be conducted in accordance with RFETS ER Field Operations Procedure FO 03, General equipment decontamination This activity will be addressed in the Field Implementation Plan

Comment #20 Page 42 of 69 - Clarification - Are truck drivers supplied with air or SCBA?

Response #20 Heavy equipment that will be used within the Exclusion Zone will be equipped with air cylinders Operators will use air-line respirators during soil excavation, transporting, and stockpiling operations

Comment #21 Page 48 of 69 - Personnel Contamination with an action level above background implies you are expecting none Could this not give you problems? See below, where it is considered an emergency situation

Response #21 The Health and Safety Plan will be changed from > background to the minimum detectable counts (MDC) of the instrument Personnel contamination above the minimum detectable counts (MDC) of the instrument is also addressed in the Unanticipated Hazards and Conditions section of the Health and Safety Plan

Comment #22 Same page - this is a point of comment In the past when I have been using DAC values they applied only inside buildings never in the open air is this an American standard usage?

Response #22 DACs were established based on continuous, non-shielded exposure via immersion in a semi-infinite atmospheric cloud (air) No distinction between indoor and outdoor application of the DAC as a quantitative indicator of radioactive concentrations in air is made by RFETS procedures or DOE regulations The application of DAC monitoring is for the purposes of estimating either an annual CEDE of 5 rem or CDE of 50 rem to reference man (ICRP Publication 23)

Comment #23 Page 52 of 69 - Radiological Badges - What is the frequency of counting these dosimeters or changing them, and are you following a project or site specific policy here?

Response #23 Thermoluminecent dosimeters will be issued, stored, worn, and processed in accordance with 1-E96-HSP-18 07, External Radiation Dosimetry Dosimeters will be exchanged by full-time RFETS employees on a quarterly basis or turned in for account closeout processing for subcontractors at the completion of the project

Comment #24 Page 56 of 69 - I note you state confined space entry is not necessary Will no entries be made into the excavation area at any stage of the project ?

Response #24 Personnel will not enter the excavation at any stage during the project Soil samples will be collected from the excavator bucket

Comment #25 Page 58 of 69 - How are you going to retrieve objects unexpectedly found in the excavation area? Is it not envisaged that remote survey of these objects be planned for even if never carried out?

Response #25 The hydraulic excavator will be used to retrieve debris encountered during excavation All personnel within the Exclusion Zone will be in Level B personnel protective equipment This level of protection is adequate for higher than expected levels of volatile organics or radionuclides

Comment #26 Page 61 of 69 - The Emergency Response Plan - personnel action levels are mentioned here My concerns are as stated above

Response #26 Refer to previous responses to comments