KAISER•HILL
COMPANY

December 7, 1995

95-RF-09236

Ms. Jackie Berardini
Colorado Department of Public Health and Environment
4300 Cherry Creek Dr. South
Denver, CO 80222-1530

Mr. Lou Johnson
U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 500
Denver, CO 80202

LETTER OF ASSURANCE - DCS-013-95

The purpose of this letter is to transmit the newly agreed upon ER milestones, the ER baseline, the IHSS Prioritization List, and the OU Consolidation Agreement. These four items are needed to develop and finalize the letter of assurance which would replace the IAG milestones with more appropriate milestones as per Task 4 of the Workout Session.

With the satisfactory transmittal of these items to you, it is our understanding that you will finalize the "letter of assurance" as drafted. The Department of Energy has approved the transmittal of the documents in order to expedite resolution of the IAG milestone issue. As you know, rapid resolution is essential to prevent the Site from expenditures of money and resources on tasks which all parties have agreed are no longer priorities, and yet are legally binding until officially eliminated.

We appreciate your cooperation in this matter.

Chuck Dayton for

David C. Shelton
Director Regulatory Relations, Kaiser-Hill

DCS:jsp

Attachments
As Stated

DOCUMENT CLASSIFICATION
REVIEW WAIVER PER
CLASSIFICATION OFFICE

cc:
B. April - DOE/RFFO

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ER Milestones for FY96

1. Accelerated Action at Trench T-3 in OU-2

Trench T-3 is believed to be a potential source of volatile organic compound (VOC) and radionuclide contamination to groundwater. The accelerated action is a source removal. The action consists of excavating approximately 2240 cubic yards of source material from the trench, treating material using thermal desorption technology, placing processed soils back into the trenches (if appropriate), and adding clean soil (if needed) to return the terrain to its pre-excavation condition.

Milestone	Date
Completion of Source Material Excavation	July 30, 1995

2. Accelerated Action at Trench T-4 in OU2

Trench T-4 is believed to be a potential source of VOC and radionuclide contamination to groundwater. The accelerated action is a source removal. The action consists of excavating approximately 2240 cubic yards of source material from the trench, treating material using thermal desorption technology, placing processed soils back into the trenches (if appropriate), and adding clean soil (if needed) to return the terrain to its pre-excavation condition.

Milestone	Date
Completion of Source Material Excavation	September 30, 1995

3. Accelerated Actions on IAG tanks on the Industrial Area

Accelerated actions will be completed at six Interagency Agreement (IAG) tanks in four Industrial Area Operable Units (OUs) (OU8, OU9, OU10, and OU13). The actions will consist of removal of the tanks' contents, rinsing the tanks, and filling the tanks with closed-cell foam for closure in place. All source materials in the tanks will be removed and treated using onsite treatment facilities.

Milestone	Date
Completion of Tank Cleaning and Foaming	September 30, 1995

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FY96 ER Baseline As Of Oct 3, 1995

K-H WORK PACKAGEs ARE IN BOLD

Cat (1, 2A, 2B, 3)	Cost Acct.	Work Package #	Priority	Title/Brief Scope	Drivers	PCS Total Dollars
2B	**DAA**	**16100**	**13**	**ER Program Support**	**L**	**5,181**
1	DAB	12176	6	Integrated Sitewide Surface & Ground Water Process Water Plan	PM	320
1	DAB	12177	17	ER Baseline IA Strategy	I	247
3	DAB	12182	25	ER Tracking/Reporting/Budget Preparation	L	276
2A	DAB	13108	18	D&D Baseline	PM	558
2A	DBA	13302	24	Environmental Waste Storage - IDM Storage (Ensure the S&H of employees working in Env. Storage areas and to comply with all regulatory requirements as specified in the RCRA Operating Permit and applicable state and federal regulations.	L	600
2B	DBA	13404	23	Sludge/Pondcrete Storage (EW20). Provides RCRA compliant storage for 82 tanks with solar pond sludge and storage for 8,000+ containers.	L	3,807
1	DCA	12579	8	OU1 Consolidated Water Treatment Plant - Operations (OU 1 & 2)	L	2,242
2B	DCA	13601	24	Interceptor Trench - Operations and Maintenance (EW20). Supports continued operation of the Modular Storage Tanks and Interceptor Trench System, as well as maintenance of Building 910 in the lay-up condition.	L	519
2B	DCB	12227	21	Groundwater Monitoring - Sampling and Analysis	L	1,367
2B	DCB	12326	1	Surface Water Management & Compliance	L	200
1	DDB	12431	1	On-site Disposal Cell	PM	6,543
1	DDB	12475	3	OU7 Landfill - IM/IRA and Slurry Wall	L	2,033
2A	DEA	13019	2	D&D Bldg 991	I	1,999
2A	DEA	13020	2	D&D Tanks 221 & 224	I	1,002
2A	DFA	12327	2	Prioritization and Investigation - Industrial Area RI & Tolling Agreement	L	3,463
2A	DFA	12328	7	Site Wide Closure - NFA, IHSS	PM	320
2B	DFA	12329	14	OU1 881 Hillside Close-out - ROD	L	399
2B	DFA	12330	14	OU2 903 Pad Close-out	L	2,100
2B	DFA	12331	15	OU3 Offsite Close-out - ROD	L	509
2B	DFA	12332	21	OU6 Walnut Creek Close-out	L	360
2B	DFA	12333	28	OU11 West Spray Fields Close-out - NFA ROD	L	36
2B	DFA	12334	29	OU15 Inside Building Close-out - NFA ROD	L	25
3	DFA	12336	20	Technical Services	CR	2,789
2B	DFB	12429	19	ER Operations - Decon Facility/Contractor Yard Mgmt	L	2,561
2B	DFB	12430	12	OU5 Woman Creek - RFI/RI and FS Reports	L	435

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FY96 ER Baseline As Of Oct 3, 1995

K-H WORK PACKAGEs ARE IN BOLD

Cat (1, 2A, 2B, 3)	Cost Acct.	Work Package #	Priority	Title/Brief Scope	Drivers	PCS Total Dollars
2A	DFB	12432	16	Construction Facilities - Water Treatment Consolidation/Decon Pad	L	1,346
1	DFB	12474	10	OU4 Solar Ponds	L	3,368
1	DFB	12524	2	Accelerated Actions - IHSS 110,111.1, 113,118.1,129 & 132	PM	11,342
2A	DFB	12525	3	Hot Spots Removals - PCB and B-1 Dam	PM	296
2B	DGA	12880	26	Training and Qualification Program (Parallel12910). Covers the training and qualification activities supporting all RMRS work that affects the environment, health, or safety.	L	100
					Total	56,343

FY96 ER Baseline As Of Oct 3, 1995

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K-H WORK PACKAGEs ARE IN BOLD

Cat (1, 2A, 2B, 3)	Cost Acct.	Work Package #	Priority	Title/Brief Scope	Drivers	PCS Total Dollars
3	DAA	16300	11	**Environmental Protection Support**	L	2,000
2B	DCB	12228	6	Groundwater Management/ Support - RCRA GW Sampling/Analysis/Rptg, WARP	L	2,830
2B	DCB	12384	2	NPDES-FFCA Management - Permit Negotiation Support, Sitewide Surface H2O	L	430
2B	DCB	12385	3	Pond Water Management - Offsite Discharges, Dam Safety, Interior Pond Mgmt	L	3,200
2B	DCB	12386	4	Federal & State Water Monitoring - Sample/Analysis/NPDES Monitoring Support	L	2,650
1	DGA	13286	2	Waste Char. (EW70) (WSRIC) (Analyze designated wst stream and Residue ID & Char. wst streams/Maint. Bldg Books for all Bldg at RF/Maint. doc supporting char. of waste gen. by Non-Routine Wst Origination Logs)	L	2,802
2B	DGB	12387	9	Natural Resource Protection and Compliance	L	1,272
2B	DGB	13883	10	**RFETS NEPA Support (Implements activities required to keep RFETS in compliance with NEPA and its implementing regulations and DOE Orders.)**	L	620
2B	DGB	61108	12	5400.1 Environmental Reporting	L	315
2B	DGD	16350	5	**Air Quality Monitoring**	L	1,276
2B	DGD	16351	8	**Air Permitting & Compliance**	L	1,148
3	DGD	16352	13	**DOE-RFFO Community Radiation Monitoring Program**	L	336
					Total	18,879

ENVIRONMENTAL RESTORATION RANKING

prepared by
ROCKY MOUNTAIN REMEDIATION SERVICES

ENVIRONMENTAL RESTORATION/
WASTE MANAGEMENT

SITEWIDE ACTIONS

under contract to

KAISER HILL/
U.S. DEPARTMENT OF ENERGY
ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

September 27, 1995

Approved by:
Program Manager

Alan M. Parker 9/27/95
Alan Parker

Concurrence:
Sitewide Actions Manager

John E. Law 9/27/95
John E. Law

Team Lead:

Annette L. Primrose 9/27/95
Annette L. Primrose

September 27, 1995

Working Group Recommendation for
Prioritization of Candidate Sites for Environmental Restoration at Rocky Flats
Environmental Technology Site

The following is the proposed list of prioritized ER sites as developed by the working group comprised of DOE, EPA, CDPHE, Kaiser-Hill, L.L.C. and RMRS, L.L.C. professionals. Also included is a brief description of the methodology used by the group to create this list. This document will be used as an aid in planning and prioritizing remedial actions at RFETS. The sequence of remediation activities at Rocky Flats will generally follow this prioritization. Funding, data sufficiency, resource availability and integration with other remedial and site activities will also influence remediation sequence.

The list will change on an annual basis and as new data is developed. There are a number of locations on the list which will require further investigation. Further working sessions will be held in October to jointly develop a prioritized investigation list.

EPA, Bill Fraser

CDPHE, Melani Arai

DOE RFFO, Ravi Batra

Kaiser-Hill, Ann Sieben

DOE RFFO, Roger Merrick

RMRS, John Law

ENVIRONMENTAL RESTORATION RANKING

A prioritized list of Environmental Restoration (ER) sites was developed to select the top priority sites for remediation. This prioritization will accelerate the cleanup process, which will more quickly reduce risks to human health and the environment. The prioritization of cleanup targets should also result in a reduction of costs associated with cleanup by allowing better planning, and more efficient utilization of resources.

A previous ER risk prioritization system ("Process for Determining the Remediation Category Of IHSSs", prepared for EG&G Rocky Flats by ICF Kaiser Engineers, March 1994) was extensively revised to include risk and cost data. The methodology for generating this prioritized list is provided below, and was developed by a working group composed of EPA, CDPHE, DOE RFFO, Kaiser-Hill, and RMRS staff. The methodology was implemented by RMRS staff and resulted in a prioritized list of ER sites, as well as identifying and ranking sites that require more information.

The list will be updated annually, or as significant new information becomes available. With the consensus of all parties, the priority of any ER site can be changed prior to updating the list, if additional information clearly indicates a need. The list should continue to be evaluated as data become available, and should also be verified by field checks and other processes to corroborate these rankings.

METHODOLOGY

General

The ER prioritization was completed using two separate evaluations:

- A screening level risk assessment including PPRG ratios, mobility and potential for further release
- Evaluation of secondary criteria including safety, waste, cost and schedule estimates.

To generate a screening level risk evaluation, analytical data were compared against background values and the appropriate specific programmatic preliminary remediation goals (PPRGs). The ratio of the analytical value to the PPRG is an estimate of associated risk, with a ratio of 100 in a given media approximating a risk of 10^{-4}. These PPRG scores were combined with the mobility and potential for further release scores to calculate the final risk score.

Mobility and potential for further release are important factors in the calculation of the prioritization because a mobile chemical near surface water, near a building, or on a steep slope is far more likely to be transported offsite or impact human health than an immobile contaminant located away from these areas. Continued environmental degradation and increasing risk to the environment and/or human health is caused by continued release of contaminants.

Data evaluation

More than 800 megabytes of RFEDS analytical data for three media were evaluated; surface soils, subsurface soils, and groundwater. The analytical data were extracted, then

compiled into data sets by media and analytical suite. The analytical data by media were compared against the chemical-specific background data, and chemical-specific PPRGs. PPRGS are risk based numbers derived using specific exposure scenarios. The specific exposure scenario basis on which the PPRGs were derived are shown below by media:

Media and Location	PPRG Set Used for Comparison
Sitewide groundwater	Open-space surface water
Sitewide subsurface soil	Construction worker subsurface soil
Industrial Area surface soil	Office worker soil
Buffer Zone surface soil	Open-space soil/sediment

Sitewide groundwater data for 1990 to 1995 were screened against background values presented in the 1993 Background Geochemical Characterization Report. There is no exposure pathway to groundwater under the current land use guidance. Groundwater data were assessed against surface water PPRGs to represent the most conservative risk by assuming that groundwater directly contacts a receptor as it daylights to surface water. Degradation was not taken into account and modeling was not performed to determine if this exposure were likely.

All subsurface soil data available for all years were used. These were compared against subsurface soil background values and PPRGs for the construction worker as the most likely receptor.

All surface soil data for all years was used. These were compared against surface soil background values. Two sets of PPRGs were used for this comparison, depending on the sample location, and the most likely exposure pathway for that location. Within the fence surrounding the Industrial Area, the surface soil data were compared to office worker PPRGs. Outside of the fence in the Buffer Zone, the surface soil data were compared to open-space PPRGs.

Assignment to Environmental Restoration Sites

All exceedances of PPRGs were tabulated for groundwater, subsurface soils, and surface soils at each unique sampling location. These sampling locations were plotted on maps using available survey information. Where no survey data were available, approximate locations were calculated using work plan maps. Using this approach, 96% of the sample locations exceeding PPRGs were plotted on maps.

The sample locations that exceeded PPRGs were assigned to areas, IHSSs or groups of IHSSs based on the media and location of the exceedance, and the chemical nature of the analytes. The following describes this process by media:

- Groundwater - The locations of all wells where a chemical concentration exceeded a PPRG were plotted on a sitewide map. Groundwater level maps were examined to ascertain groundwater flow directions. Upgradient IHSSs or groups of IHSSs were associated with each PPRG exceedance in groundwater. All known groundwater plumes were associated with the most probable source area IHSS or group of IHSSs.

- Subsurface Soils - The locations of all borings where a chemical concentration exceeded a PPRG were plotted on a sitewide map. Many of the borings were drilled to characterize known contaminant sources and so were already within an IHSS. Where a

boring was not immediately within an IHSS, it was assumed that (1) the boring was drilled to characterize an adjacent IHSS or (2) the boring was associated with the construction of a monitoring well. For borings drilled to install monitoring wells, it was assumed that any PPRG exceedances were the result of chemical movement through groundwater. In these cases, PPRG exceedances were associated with upgradient IHSSs.

- Surface Soils - The spatial extent of PPRG exceedances were plotted and examined to ascertain whether these exceedances could be assigned to an IHSS or area. Any PPRG exceedances within an IHSS were assigned to that IHSS. Exceedances outside an IHSS were compared with common air dispersion patterns and assigned to the most likely IHSS.

Screening Level Risk Evaluation

All PPRG exceedances were tabulated by IHSS. The maximum ratio for each analyte per media per area, IHSS or group of IHSSs was tabulated. A risk score was calculated for each media within each site by adding maximum ratios per media, then summing groundwater, subsurface soils, and surface soils scores. All of the individual media scores, and the total score per site, were tabulated on spreadsheets. Only the highest PPRG ratio is used for each chemical in each environmental media per location. This is a conservative approach that allows sites to be judged on a more uniform basis than if averages or median values were used.

Since several of the PPRG ratios are very large, using these ratios directly tends to bias the ranking results. Therefore, the total chemical scores were graded using the following table to bring the PPRG score more in line with the mobility and potential for further release scores.

Total Chemical Score	PPRG Score
>501	10
251-500	9
101-250	8
76-100	7
51-75	6
31-50	5
21-30	4
11-20	3
6-10	2
1-5	1

Mobility

This score takes into account the mobility of chemicals in the environment as well as the proximity of contamination to:

- steep slopes, as slope failure or erosion could move contaminants into drainages and potentially offsite,
- surface water which could potentially transport contaminants offsite, and

- buildings, as workers could be contaminated and spread contamination by walking through areas.

Mobility factors were assigned on a scale of 1 to 3. When the mobility factor was between two scores, the highest score was used.

1 - Contaminants that are immobile in the environment and are not close to buildings, surface water, and/or steep slopes. Unless radionuclides and metals were near buildings, near surface water, or on or near a steep slope, these were given the mobility score of one. Where engineered structures are in place that prevent the spread of contaminants, such as contamination beneath pavement, a mobility factor of one was used.
2 - Contaminants that are semi-mobile in the environment and are near surface water, or buildings. Includes semi-volatiles organics, pesticides and PCBs especially within the Industrial Area.
3 - Contaminants that are mobile in the environment and/or are close to surface water, steep slopes, and/or building received this score.

Potential for Further Release

This factor takes into account the potential for additional release of contaminants into the environment and includes cross media movement of contaminants within the environment. Sites were assigned a value of 1 to 3 based on the following criteria:

1 - Assigned to a site when contaminants were not present as free product, very high concentrations, and/or show no cross contamination of environmental media.
2 - Any sites where free product may be present in the ground and/or where there is a potential for cross contamination.
3 - Sites where there is indication or certainty that free product exists in the ground, where significant levels of contamination exist, and/or where cross contamination of environmental media is present.

Total Risk Score and Ranking

The total score for the phase I, screening level risk evaluation portion of the ER prioritization was calculated by multiplying the total PPRG score times the mobility and potential for further release factors. As a formal risk assessment is a more precise evaluation of the same data, where risk assessment data exist, they were used to rank sites. However, the scores calculated by the above methodology are shown. Where insufficient data currently exist to rank sites, these sites were roughly ranked using process knowledge and placed on the ranking above known low-risk sites. As data become available, the ranking for these sites will be updated. After the total list was ranked, the top 20 sites were evaluated for the secondary criteria.

SECONDARY CRITERIA EVALUATION

The most likely potential remediation technology was selected for the top 20 sites, in order to evaluate these for the following criteria:

- Worker Safety
- Waste Disposal/Treatment issues
- Reduction of toxicity, mobility and/or volume
- Rough order of magnitude costs
- Rough order of magnitude project durations
- Environmental risk due to remediation activities

These criteria were used to further prioritize the to 20 sites for remediation.

The attached list is the result of the screening level risk assessment score and the secondary evaluations.

PROFESSIONAL JUDGMENT

Professional judgment was applied in the following instances:

- Where the mobility factor for a site was primarily calculated based on building proximity, and if the site was paved, the mobility factor was reduced.

- If engineered controls are currently in-place to prevent further spread of contaminants, mobility and potential for further release factors were set at one.

- The Solar Ponds groundwater score was calculated without using data from an upgradient well which shows the effects of an upgradient plume. This well was used to calculate the groundwater score for IHSS 118.1.

- The Old Landfill has analytical data indicating the presence of radiological anomalies at the surface. These hotspots will be dealt with under the final remedy for this site.

- Hot spots - Where analytical and process knowledge indicated that a high value was of localized extent, these values were eliminated from site evaluation, and were assigned to a localized extent list. These sites will need to be evaluated to ensure that this is the case. Most of the localized extent sites are PCB sites, including a PCB site in IHSS 150.6.

- Radium - Radium 226 and 228 analyses were not used for calculation of the PPRG ratios for this prioritization. This was done for the following reasons:
  - Radium 226 and 228 are not listed for historical usage at RFETS in either the Historical Release Report (DOE, 1992) or the Rocky Flats Toxicologic Review and Dose Reconstruction, Task 3/4 Report (ChemRisk, 1992).
  - The decay chains and half-lifes of decay products make it highly unlikely that significant amounts of radium 226 or 228 would have accumulated by radioactive decay of radionuclides known to have been used at RFETS.

- The soils and groundwater in the foothills to the west of RFETS are known to have high levels of both uranium (total) and radium 226.
- The background amount for radium 226 in surface soil has a PPRG ratio of 48. Therefore, any surface soil analytical result above background would skew the prioritization score to a higher result. This is not justified given the information on usage and local occurrence.

FURTHER WORK

Fact Sheets for the top 20 ranked IHSSs and sites will be provided by November 3, 1995. These fact sheets will provide information about the IHSSs and sites, as well as provide more information for the factors evaluated during the secondary evaluation process.

December 7, 1995

Working Group Recommendation for Consolidation of Operable Units at Rocky Flats Environmental Technology Site

DOE, Kaiser-Hill, RMRS, CDPHE and EPA staffs developed the following proposal for Operable Unit (OU) consolidation during recent working sessions. These working sessions resulted in a recommendation to minimize the number of OUs for remediation and closure at the site. This replaces the earlier proposal dated September 28, 1995 which was modified to incorporate the Site Conceptual Vision (dated November 8, 1995) and other strategies, as well as to delineate the lead regulatory agency by area for the site.

The primary benefit of consolidating OUs is the reduced process and administrative requirements. Coordinating the regulatory jurisdictional boundaries with the OU consolidation boundaries also eases the administrative management of the OUs. The resulting cost savings can be applied to environmental remediation or other higher priority tasks at RFETS. In addition, less time and resources will be spent generating and reviewing documents, and more time and resources can be spent on risk reduction. Consolidation will also facilitate a more integrated approach to sitewide planning which will include sitewide prioritized remediation.

In the consolidation process, the working group identified the logical stopping point for each OU. Stopping points were selected to maximize the utilization of work completed to date. The working group recommends continuation of the closure process for those OUs which are nearing completion (OUs 1 and 3). In addition, the IM/IRA for OU 7 will continue and a proposed plan will be submitted based on the Presumptive Remedy currently being executed. This approach will accelerate closure and reduce costs. The following table summarizes the recommended stopping points for each OU.

Current OUs	**Consolidation/Stopping Point for Work in Progress**
OUs 1 and 3	Closure using the ROD process
OU 7	Submit IM/IRA and Proposed Plan concurrently
OU 2, OU 5 and OU 6	Complete RFI/RI Report
OU 4	Continue IM/IRA for Solar Ponds
OUs 8, 9, 10, 12, 13 and 14	Data summaries completed
OUs 11, 15 and 16	Already closed by RODs

Contaminant types and distribution, impact on surrounding areas, future potential for contamination, future land uses, and water management requirements were considered in addition to stopping points for each OU in developing the consolidation strategy. Based on these considerations the existing operable units are proposed to be consolidated in the following manner:

Proposed OUs	Consisting of	Lead Regulatory Agency
OU 1	Current OU 1 IHSSs	EPA
OU 3	Current OU 3 IHSSs	EPA
OU 7	Current OU 7 IHSSs	EPA
Industrial Area OU	All IHSSs from OUs 4, 8, 9, 12, 13, 14, the Original Landfill (OU 5-IHSSs 115 and 196), the Triangle Area, Old Outfall and Sludge Dispersal Area (OU 6-IHSSs 165,143, and 141) and all OU 10 IHSSs except those in the PU&D yard (IHSSs 170, 174a and 174b).	CDPHE
Buffer Zone OU	All IHSSs from OU 2, the PU&D yard from OU 10, and all IHSSs from OU 5 and OU 6 except those listed above.	EPA

CDPHE will be the lead regulatory agency for the Industrial Area OU and the EPA will be the lead regulatory agency for the Buffer Zone OU. Enclosed is a map showing the new OUs and the lead regulatory agency for each area.

Groundwater at the site will be managed in an integrated fashion. The working group does not recommend that a separate operable unit be created for groundwater as closure is not anticipated in the near-term and the added resource costs of creating an OU do not outweigh the benefits.

Working Group concurrence signatures:

W. Carl Spreng 12/7/95
CDPHE date

EPA date

Ravi Ratro 12/7/95
DOE RFFO date

Chris S Dayton 12/7/95
Kaiser-Hill date

John E. Fa 12/7/95
RMRS date