



# CITY AND COUNTY OF DENVER

DEPARTMENT OF HEALTH AND HOSPITALS

PUBLIC HEALTH  
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Program Manager  
Rocky Mountain Arsenal  
Attn: AMCPM-PM/ Col. Eugene H. Bishop  
Building 111-RMA  
Commerce City, Colorado 80022-1748

January 19, 1996

re: On-Post Proposed Plan

Dear Colonel Bishop:

Provided below are the Denver Public Health Department, Environmental Protection Division comments on the Army's Proposed Plan for the Rocky Mountain Arsenal.

## General Comments

### 1. Potential Air Emissions

Any remedial activity that may result in the emission of air pollutants is of concern to Denver. Air emission modeling associated with the SQI has shown that the populated area of maximal total off-post deposition (even though negligible for the SQI) is the Montbello neighborhood. Understandably, the community is extremely concerned about combined emissions from future remedial measures because of the potential for detrimental health effects. In order to ensure the health and safety of onsite workers, visitors to the Arsenal, and the general population, we have previously advised that the characteristics and risks associated with the combined sources of air emissions be considered when evaluating the alternative remedial actions. More specifically, we expect that all dispersion associated with the various sources of emissions would be evaluated by air modeling and that the cumulative effect of all components of the separate sources be included in a Human Health Risk Assessment. This analysis has not yet been performed. Furthermore, we advised that in addition to monitoring emissions at their source and at the boundary of the Arsenal, that air monitoring stations be established within the surrounding communities for baseline and subsequent routine monitoring of indicator pollutants.

### 2. On-post Detonation of UXO

Component 14 of the Parties' agreement states that if explosives-containing munitions are found, they are to be taken to the closest on-post site for detonation. The DAA report (Vol. VII, page 9-4) indicates that site ESA-4b could be used again for on-site detonations. Is that site suitable today and will it remain so throughout the duration of the remedy, considering the continual development of the Denver International Airport and the vehicular corridor adjacent to the

eastern side of the Arsenal? How and where will agent-containing, unexploded munitions be destroyed?

### 3. Institutional Controls and Restrictions

As stated in our comments of 9/16/94, we would like to see a comparison of the effects of proposed restrictions associated with the various remedial alternatives on humans and wildlife, both during and after implementation.

### 4. Trust Fund

The Proposed Plan and the DAA report lack any proposed legal mechanism for the development of a Trust Fund. That mechanism and at least an estimated date when the Fund could be established should have been provided.

### 5. Human Health Risk Characterization

Since performing the human health risk characterization, DIMP, PCBs, and NDMA have been identified as contaminants of concern beyond the 27 others previously evaluated. More recent analyses of animals and soils have proven the presence of dioxins on the RMA. How will the risks posed by these new COCs be evaluated? After completion of the proposed remediation, how would any future additional contaminated media found to pose a significant risk be addressed?

### 7. Environmental Justice

Our 9/16/94 response to the Parties' descriptions of five conceptual cleanup approaches, reported several concerns heard from the residents living adjacent to the Arsenal. The Parties' agreement could partially address some concerns, such as medical health monitoring for Montbello residents (Component 18 of the Agreement). However, other concerns also exist:

- How will surrounding property values be effected by the proposed cleanup approach?
- Will education and vocational training opportunities be offered to the community during the remediation of the RMA?
- What emergency response measures will be established to protect the surrounding communities?
- Will the local communities' contractors and work force benefit from the opportunities afforded by the selected remedial actions?

8. Five-Year Reviews

It is not clear when the clock will be started on the five-year review of remedial actions. It is recommended that the reviews be site-specific and the trigger for starting the time clock be the completion of a separate site activity within the total site remedy. For example, review of the protectiveness of the remedy applied to the Army (Complex) Trenches should be performed within five years subsequent to completion of the slurry wall and RCRA-equivalent cap/cover.

9. Prioritization of Remedial Actions

Please see the attached letter, dated January 17, 1996.

Structures Medium

10. Structures Containing Agent

What measures will be taken to prevent accidental releases during the demolition, crushing, sorting, and sizing of debris from potentially agent-contaminated structures? If a release to air occurs at South Plants or elsewhere on RMA, how will the chemical agent's risk to the health and safety of any off-site human population be mitigated?

11. Caustic Washing of Structures and Soil Containing Chemical Agent

The DAA report, Vol. VII, page 9-8 states that "detailed laboratory and pilot scale testing would be necessary before implementing this alternative as this technology has not been well demonstrated and is largely theoretical." The narrative goes on to describe previous testing of this procedure at RMA. Re-formation of GB during the spray drying of the brine [spent caustic] solution, difficulties confirming that the brine was free from agent, and reported exceedance of air emission action levels were reported. At RMA there is potential for several types of chemical agents and other COCs in any batch of material to be treated, which further complicates the process and may require re-treatment. Yet, these implementation difficulties are not discussed elsewhere in the DAA report or the Proposed Plan. Please clarify why this process is the preferred alternative. Where would the treatment facilities be constructed?

Soils Medium

12. Inconsistencies in Soils Volume Estimates

What is the estimated total volume of soils in the South Plants Central Processing Area exceeding Human Health and Principle Threat? Human Health and Principle Threat volumes for soils were estimated in the DAA report for each contaminant of concern between land surface and a depth of 10 feet (or to the water table if it is shallower). (DAA, Vol. IV, pages A-4). Why wasn't the volume for the Proposed Plan's 5-foot depth of excavation detailed in this appendix? Volumes of

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the soils media are inconsistently stated among numerous sections of the DAA report, its appendices, and the Mass Balance Logic Flow Diagram. Which are the correct estimates?

### 13. Firing Ranges

The October 1995 edition of "RMA Update," which was distributed at the same time as the Proposed Plan, includes a map on the front page showing areas of RMA where cleanup activities would be conducted under the Proposed Plan. Two soil remediation areas are depicted in Sections 12 and 19 on that map, which are believed to be firing ranges; these areas are not included in the Proposed Plan's Figure 4 - Preferred Soil Alternative. Please clarify whether these areas will be included in the remedial action.

### 14. Slurry Wall Construction

The DAA report (Vol. VII, page 6-9) states "for a slurry wall to control groundwater migration, a groundwater removal system is generally installed in conjunction with the slurry wall." We concur. It is recommended that dewatering and treatment of liquids within the Army (Complex) Trenches and the Shell Trenches be retained as an initial, necessary component of the remedy.

### 15. South Plants Cap/Cover

How was it determined that a biota barrier and 4 or more feet of soil cover would not be needed over the Human Health and Principle Threat exceedance soils that are proposed to be covered in the South Plants Balance of Areas?

### 16. Biota Barrier

Is it truly protective to use rubble from a demolished RMA structure as a biota barrier without first performing verification sampling and confirming the presumed lack of contamination?

### 17. Hex Pits

We would like to see an innovative treatment technology be applied to the 3300 cu. yd. of waste in the Hex Pits, if practicable. Of the available treatment alternatives, the alternative posing the least amount of risk to human health and safety is preferable.

### 18. Southern Lakes

Degradation of the quality of the surface waters in the southern lakes is threatened by the contaminants within the South Plant's plumes. The Proposed plan involves maintaining hydraulic control of the lakes and continued monitoring of groundwater quality and water-level data near the lakes in conjunction with the proposed capping of South Plants. The frequency of monitoring events and the method of controlling lake levels is not discussed. It appears

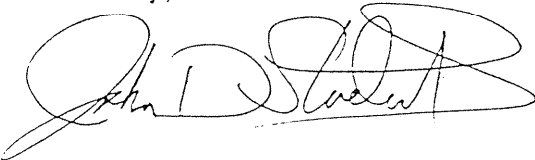
however, that the proposed alternative would only delay the need to extract/treat ever increasing concentrations of contaminants further from their source area. Should the ability to maintain the lake water levels be compromised (for example, due to the loss of a dam or the result of a severe draught) what response actions would be implemented?

19. Confined Flow System Monitoring

The DAA report offers several hypotheses regarding mechanisms to explain the numerous detections of contaminants in the confined flow system. Additional investigation and characterization of this deeper zone of groundwater contamination appears to be warranted. The proposed establishment of a monitoring well network consisting of 20 existing wells and annual sampling, seems premature and potentially insufficient. Additional wells are needed to assess the lateral extent of contaminant migration. More frequent sampling (such as quarterly sampling over some limited duration) would provide the data needed to better identify and designate a more appropriate monitoring network.

Thank you for extending the public comment period and for considering all comments. If you have any questions, feel free to call (tel. 436-7305).

Sincerely,

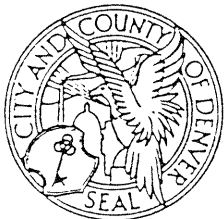


John D. Student  
Remedial Program Manager  
Environmental Protection Division  
Denver Public Health Department

attachment

cc: Tom Stauch, Environmental Supervisor, Environmental Protection Division

jds onpostpp



WELLINGTON E. WEBB  
Mayor

# CITY AND COUNTY OF DENVER

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January 17, 1996

SENT BY FAX (289-0485 & 289-0582)

Program Manager  
Rocky Mountain Arsenal  
Attn: Mr. Brian Anderson  
Environmental Engineering Division  
Commerce City, Colorado 80022

re: Sequencing of Remedial Activities

Dear Mr. Anderson:

The Denver Public Health Department, Environmental Protection Division, has reviewed the documentation for the Army's proposed sequence of remedial actions at the Rocky Mountain Arsenal. In general we found the sequence logical. Our exceptions to your priorities are noted on the attached Remedial Activities Rating Sheet.

In addition to addressing the "fixed facilities" subproject group that you have identified, we would like a commitment for early action on the following additional critical path issues:

- medical monitoring program,
- Trust Fund for O&M of remedial actions,
- contingency, health and safety, and emergency response plans, and
- air pathway monitoring program and baseline concentrations.

Please note that this letter supersedes my previous letter to you concerning this subject, dated January 16, 1996. Please discard that letter. Should you have any questions, please feel free to contact me (tel. (303)436-7305).

Sincerely,

John D. Student  
Remedial Program Manager  
Environmental Protection Division  
Denver Public Health Department

cc: Tom Stauch, Environmental Supervisor, Environmental Protection Division

# Remedial Activities Rating Sheet

Indicate impression of risk (high/medium/low) and community interest (high/medium/low) for each subproject group. Rate each subproject group between 0 (low priority) and 6 (high priority) with total not to exceed 6 points for all subproject groups combined.

Subproject Group	Risk (H/M/L)	Community Interest (H/M/L)	Comments	Points
Fixed Facilities	NA	NA		NA
Off-Post Water	H	H	If there is exposure this must be addressed ASAP.	1
Section 36	H	H	Shell Trenches and complex Trenches need early remediation.	2
Section 26	M	H	Basin F Wastepile is controlled and final remedy can be delayed.	0
North Plants	L	L	Structures & Soil can be delayed.	0
South Plants	H	H	Hex pits need early remediation. Structures remediation should concentrate early in South Plants in order to accelerate schedule.	3
Other	M	L	Other structures could be delayed if they don't block soils clean-up and access can be controlled. Munitions should be addressed ASAP.	0
Total				6

Name Environmental Protection Division

Organization Denver Public Health