

**ROCKY MOUNTAIN ARSENAL NATIONAL PRIORITIES LIST SITE  
RESPONSIVENESS SUMMARY FOR PARTIAL DELETION OF THE  
CENTRAL AND EASTERN SURFACE AREAS OF OPERABLE UNIT 3 (CES)  
AND THE ENTIRE SURFACE OF THE OFF-POST OPERABLE UNIT 4 (OPS)  
August 2010**

**U.S. Environmental Protection Agency, Region 8**

**1595 Wynkoop Street**

**Denver, CO 80202-1129**

**ROCKY MOUNTAIN ARSENAL NATIONAL PRIORITIES LIST SITE  
RESPONSIVENESS SUMMARY FOR PARTIAL DELETION OF  
THE CES and OPS  
- August 2010 -**

**A. OVERVIEW**

The Rocky Mountain Arsenal Federal Facility (RMA) is located in southern Adams County, Colorado and is comprised of two operable units (OU), the On-Post OU (OU 3) and the Off-Post OU (OU 4).

The On-Post OU of the RMA Federal Facility originally encompassed 27 square miles (16,990 acres) approximately eight miles northeast of downtown Denver, Colorado. Between 2003 and 2006, the U.S. Environmental Protection Agency (EPA) conducted four partial deletions from the On-Post OU consisting of 13,406 acres of surface media so that property transfer could be expedited.

- In 2003, 1.5 square miles (940 acres) of land on the western portion of the site known as the Western Tier Parcel (WTP) were deleted from the National Priorities List (NPL)
- In 2004, an additional 7.9 square miles (5,053 acres) of land along the perimeter of the site, known as the Selected Perimeter Area (SPA) and Surface Deletion Area (SDA), were deleted from the NPL.
- In 2006, 11.5 square miles (7,396 acres) of land within the On-Post OU were deleted, known as the Internal Parcel Deletion Area (IPDA).

Of the property deleted to date, 917 acres were sold to Commerce City for commercial development, 12 acres were transferred to South Adams County Water and Sanitation District for the Klein Treatment Facility, 126 acres were transferred to local governments for road-widening, and 12,188 acres have been transferred to the RMA National Wildlife Refuge (NWR). Another 163 acres were retained by the Army, primarily for water

treatment systems. The On-Post OU currently encompasses 5.6 square miles (3,584 acres). The Central and Eastern Surface (CES) area includes 2,500 acres (3.9 square miles) of surface media (soil, surface water, and sediment).

The Off-Post OU addresses contamination north and northwest of the RMA. While EPA has not conducted any partial deletions for the Off-Post OU, EPA did issue a Ready for Reuse (RfR) Determination in September 2009 for a portion of the Shell Oil Company property (approximately 294 acres) that is within or adjacent to the Off-Post OU. EPA's determination indicated that the Shell RfR Property "is ready for use for any purpose allowed under local land use and zoning laws." While there has been no redevelopment/reuse of the Shell RfR Property thus far, the area around the Shell RfR Property and Off-Post OU has undergone primarily residential development in recent years. The Off-Post Surface (OPS) area includes the entire surface media of the Off-Post OU (OU 4).

Groundwater has also been included in some of the previous partial deletions. All groundwater below the WTP was included in the deletion in 2003 and all groundwater below the Selected Perimeter Area was included in the 2004 deletion. In 2006, all groundwater east of E street, with the exception of a small area in the northwest corner of Section 6 was included in the Internal Parcel deletion. No groundwater off-post has been deleted or is proposed for deletion at this time.

Institutional controls (ICs) continue to apply to all deleted groundwater and surface media. The primary on-post ICs prohibit: residential development, the use of groundwater or surface water as a source of potable water, the consumption of fish and game, and agricultural activities. The off-post ICs include deed restrictions to prohibit construction of alluvial wells and to prohibit the use of deeper groundwater where contaminated groundwater underlies the Shell property. The off-post ICs also require Army notification to the State Engineer's Office (SEO) where monitoring identifies groundwater that exceeds Containment System Remediation Goals (CSRGs). The SEO then is required to place a distinctive notice on well permits applications, related

correspondence, and any resulting well or drilling permit, that the EPA and/or Tri-County Health Department should be contacted for additional information where the well may be in groundwater could potentially exceed the CSRGs.

The 1992 *Rocky Mountain Arsenal National Wildlife Refuge Act* (Public Law 102-402) designates most of the On-Post OU to become a national wildlife refuge once the cleanup is completed.

## B. BACKGROUND

### *Site Background*

RMA was established in 1942 by the U.S. Army to manufacture chemical warfare agents and incendiary munitions for use in World War II. Following the war and through the early 1980s, the facilities continued to be used by the U.S. Army. Beginning in 1946, some facilities were leased to private companies to manufacture industrial and agricultural chemicals. Shell Oil Company, the principal lessee, manufactured pesticides at the site from 1952 to 1982. Common industrial and waste disposal practices resulted in contamination of structures, soil, surface water, and groundwater. Throughout the history at RMA, numerous military munitions were manufactured, stored, tested, and/or disposed. As a result of this contamination, RMA was proposed to the NPL, excluding the Basin F surface impoundment, on October 15, 1984, (49 FR 40320). On July 22, 1987, RMA was finalized on the NPL and expanded to include Basin F (52 FR 27620 and 52 FR 27643).

A remedial investigation (RI) for the On-Post OU, completed in January 1992, studied each of the environmental media at RMA including soil, sediment, structures, water, air, and biota. The *Record of Decision for the On-Post Operable Unit (ROD)* was signed on June 11, 1996 and specified the remedial actions for soil, structures, and groundwater.

The overall remedy for the On-Post OU includes extraction and treatment of the contaminated groundwater plumes, demolition of 750 structures that had no designated

future use, excavation and disposal of soil presenting a risk to human health (human health exceedance (HHE) soils) in two state-of-the-art hazardous waste landfills to be built within the On-Post OU; location and recovery of munitions, munitions debris, and potential UXO using geophysical surveys, excavation, detonation if necessary (on- or off-post as appropriate), and disposal in the on-site landfills; and excavation and consolidation of debris and soil presenting a risk to biota (biota soil) in the Basin A, South Plants, and Basin F project areas. The On-Post ROD also requires continued use restrictions for the CES that prohibits residential development, “specifies that the U.S. government shall retain ownership of RMA, and prohibits certain activities such as agriculture, use of on-post groundwater as a drinking source, and consumption of fish and game taken at RMA.”

Remedial actions have been completed within the CES for all surface media (soil, surface water, sediment), and structures. Throughout execution of the remedy, significant munitions response-related actions were performed to identify potential munitions response areas/sites and to subsequently locate, recover, and dispose of remaining munitions and munitions debris.

The proposed partial deletion of the CES does not include groundwater. Eleven groundwater contaminant plumes were identified below the western portion of the CES and are being remediated through continued operation of groundwater treatment systems to remove the contaminants.

The Off-Post OU followed the same investigative process and an RI for the Off-Post study area that evaluated groundwater, soil, surface water, sediment, air and biota was completed in 1988 with an addendum issued in 1992. The RI identified two groundwater plume groups encompassing 590 acres in the Off-Post area and wind-deposited contamination in surface soils immediately north of the On-Post boundary in the southeast portion of Section 14 and the southwest portion of Section 13. The Off-Post Endangerment Assessment/Feasibility Study (EA/FS) was issued in 1992 and the Off-Post ROD was signed by the Army, EPA, and the State of Colorado on December 19,

1995. The Off-Post remedy includes extraction and treatment of the contaminated groundwater plumes, and closure of poorly constructed wells that could be acting as migration pathways. For settlement purposes, though the health risks present in the soils were within EPA's acceptable cancer risk range (less than  $1 \times 10^{-4}$ ) for residential use, Shell agreed to revegetate approximately 160 acres of soil to enhance the degradation of low-level pesticide residues. The remedial action for the OPS surface media is complete.

#### *Background of the CES and OPS Deletion*

On June 17, 2010, the U.S. Environmental Protection Agency (EPA) published a Notice of Intent for Partial Deletion (NOIDp) in the Federal Register (75 FR 34405) and in local newspapers proposing the deletion of the CES and OPS of the RMA Federal Facility from the NPL. The RMA Site-Specific Advisory Board (SSAB) requested additional time to adequately review the documentation. The public comment period for the NOIDp was extended through August 16, 2010 (75 FR 42361).

EPA, with concurrence from the State of Colorado, through the Colorado Department of Public Health and Environment (CDPHE), has determined that all appropriate response actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) have been completed for the CES and OPS of the RMA site, to protect human health and the environment and that no further response action by responsible parties is required. This Responsiveness Summary provides responses to comments received during the public comment period, and is comprised of the following sections:

Section C:       Comments Specific to the Proposed Partial Deletion of the CES and OPS, and EPA's Responses

Section D:       Additional Comments Received that are not Applicable to the Proposed Deletion of the CES and OPS

Attachment A:   Community Involvement Activities Conducted at the RMA Federal Facility Pertinent to the CES Area

Attachment B:   Comments Received Regarding Partial Deletion of the CES and OPS Areas

**C. COMMENTS SPECIFIC TO THE PROPOSED PARTIAL DELETION OF THE CES AND OPS, AND EPA'S RESPONSES**

The public comment period for the proposed partial deletion of the CES and OPS was open from June 17, 2010, to August 16, 2010. EPA received comment letters from seven organizations/individuals. Authors of five of the letters voiced their support for proceeding with the partial deletion based upon their confidence in the thoroughness of the cleanup activities conducted by the Department of the Army (Army) and Shell Oil Company (Shell); though one letter, from the Audubon Society of Greater Denver, was received after the public comment period was closed. Authors of the remaining two letters were opposed to the proposed partial deletion of the CES and OPS. One of the opposition letters was prepared by the Site-Specific Advisory Board (SSAB) and represented 12 individual comment letters of opposition. The primary comments in opposition to the proposed deletion are addressed beginning with Comment 2 of this section.

**Comment Letters in Support of Deletion**

**(1) Five letters cited their support of the proposed deletion based upon their confidence in the thoroughness of the cleanup activities conducted by the Army and Shell. Letters supporting deletion were received from private individuals and from the Audubon Society of Greater Denver.**

EPA Response: EPA agrees that the RI and post-ROD studies conducted have adequately characterized areas of contamination within the CES and OPS. Remedial actions have been completed within the CES and OPS for all surface media (soil, surface water, sediment) and structures. Therefore, these areas do not pose a threat to human health, welfare, or the environment. The rest of the On-Post OU, including groundwater below RMA that is west of E Street and the small area in the northwest corner of Section

6 will remain on the NPL. All groundwater in the Off-Post OU will also remain on the NPL. Therefore, EPA believes it is appropriate to delete the CES and OPS.

### **Inadequate Characterization**

**(2) A community member stated that he did not believe there was adequate testing of the soil, dump materials, and groundwater and referred to articles in Westword and speeches by Adrienne Anderson suggesting that radioactive materials were dumped at RMA [On-Post OU].**

EPA Response: As part of the CERCLA process, a review of records associated with RMA operations indicated that there was no production, testing, or disposal of radiological materials (*Installation Assessment of Rocky Mountain Arsenal*, Report Number 107, U.S. Army Toxic and Hazardous Materials Agency, March 1977). Because of this, we believe that there are no issues with radioactive materials related to soil, sediment, and surface water in the CES. Groundwater is not proposed as part of the current CES and OPS partial deletion.

**(3) The SSAB expressed concern with inadequate characterization of disposal and burial activities at RMA based on incomplete records for historical site operations. The comments include references to numerous newspaper articles dated from February 1974 to February 1988 that describe incomplete recordkeeping regarding the nature and amount of waste disposal; production, testing and dumping of toxic and chemical wastes; not inventorying buried waste; not knowing all sources of contamination; and not knowing the extent of unrecorded spills and burial of old and defective munitions.**

EPA Response: The newspaper articles precede the Remedial Investigation (RI) which acknowledged that historical recordkeeping of waste disposal and resulting potential contamination was incomplete. As a result, the RI was designed to better characterize known sources of contamination and search for potential, unidentified contamination (e.g., buried waste). Additional studies to fully define the contamination boundaries were

conducted during design and construction of the selected remedy at RMA. As a result, EPA believes that RMA has been sufficiently characterized through the RI, design, and construction of the remedy.

**(4) The SSAB also commented that cataloging of contaminants and risk characterization was not compiled for Basin A.**

EPA Response: Basin A was investigated as part of the site-wide RI and is documented in several Contamination Assessment Reports (e.g., the *Final Phase I Contamination Assessment Report for Site 36-1: Basin A*, Environmental Science and Engineering, Inc., July 1987 and the *Final Phase II Data Addendum, Site 36-1: Basin A*, Environmental Science and Engineering, Inc. September 1988). The risk evaluation for Basin A determined that the soil posed a risk to both human health and biota, including risks related to unexploded ordnance (UXO) and potential agent. Although groundwater is not part of this deletion, Basin A was also identified as a potential source of groundwater contamination (*Final Detailed Analysis of Alternatives Report*, Volume II of VII, Foster Wheeler Environmental Corporation, October 1995).

**(5) The SSAB comment letter expressed a concern for potential risk to the public from UXO while visiting the wildlife refuge. The SSAB explained that given the long history of unexpected discoveries of UXO at RMA, including the many parcels that are currently proposed for deletion. The SSAB stated that an enforceable protocol must be in place and submitted for public comment prior to deletion; and that the USFWS must operate under the same UXO protocol that was developed between the Army and the State of Colorado that has been in effect during remediation.**

EPA Response: In response to the discovery of Sarin bomblets in 2000 and 2001, a rigorous and comprehensive, 19 month-long, site-wide evaluation for potential ordnance/explosives (OE) and chemical warfare materiel (CWM) was conducted (*Summary and Evaluation of Potential Ordnance/Explosives and Recovered Chemical*

*Warfare Materiel Hazards at the Rocky Mountain Arsenal, Final Report, Hazard Evaluation and Summary Subcommittee, June 18, 2002*). This most recent study was more comprehensive than previous investigations in that it more critically assessed existing documentation in light of the Sarin bomblet discoveries in an area where UXO was not expected. A three-pronged approach was developed for the evaluation, to ensure that all aspects of the RMA project incorporated more complete measures to identify potential OE and CWM hazards at RMA.

First, a team of technical staff members was formed to conduct an RMA-wide evaluation of potential OE and CWM hazards at RMA. This evaluation included review of information from the Administrative Record, a comprehensive review of historical aerial photographs using new state-of-the-art technological capabilities made possible by advances in computer imaging, mapping technology, and Geographical Information Systems software, and performed field investigations to determine the need for remediation. The principal focus of this evaluation was to identify areas that may indicate the presence of production, demilitarization, storage, testing or disposal of OE or CWM, particularly areas not already identified in the ROD as having the potential for UXO or agent. Second, the RMA Emergency Response Integrated Contingency Plan was revised to incorporate lessons learned from the Sarin bomblet discovery. Third, the Visitor Access Plan and public notification procedures were updated to ensure immediate evacuation of visitors upon discovery of any OE or CWM that could pose potential risks to their safety.

The SSAB references an incident where a weathered piece of scrap metal found at the RMA NWR was placed in a dumpster by a USFWS weekend staff personnel in 2003. This metal was later identified to be inert OE debris (part of a bomb case). The USFWS personnel and volunteers did not follow established procedures when they picked up the item and placed it in the dumpster. Since that time, both the USFWS personnel and volunteers were counseled by the Refuge Manager regarding the correct procedures to follow if another item is encountered. The USFWS personnel and volunteers were also provided direct training on the potential hazards of these types of items by the Army

UXO staff. Refuge visitors are restricted from removing any items on the ground at the Refuge by Regulation 50 CFR Subpart C and will be issued a summons by Refuge Law Enforcement for any willful or repeat violations.

In addition, an updated munitions response plan, *Response Plan for Recovered Material Potentially Presenting an Explosive Hazard* (MPPEH Response Plan) (Tetra Tech EC, Inc., April 8, 2010) defines roles and responsibilities for the Army and USFWS personnel upon discovery of MPPEH encountered at both the Army-retained property and the RMA NWR. MPPEH includes Munitions and Explosives of Concern (MEC), UXO, Discarded Military Munitions (DMM), and munitions debris. The MPPEH Response Plan was prepared in accordance with the most recent Department of Defense Explosives Safety Board safety standards, *Department of Defense Ammunition and Explosives Safety Standards (DoD 6055.09-SDT, April 21, 2009)*, and the Department of Defense instructions for *Material Potentially Presenting an Explosive Hazard (DoDI 4140.62, November 2008)*. This plan is also consistent with EPA's recently issued *EPA Munitions Response Guidelines* (July, 2010) that requires hazards associated with MEC be addressed in a manner that best minimizes human health and environmental effects, while maximizing the safety of response personnel. The MPPEH Response Plan is available to the public upon request.

### **Health Risks Remaining After Implementation of the Remedy**

**(6) The SSAB comment letter questions whether the selected remedy is sufficiently protective of the community surrounding and/or visiting RMA. Specifically, the SSAB expressed a concern that the remediation conducted would protect the public to a level of  $1 \times 10^{-4}$  (additional potential cancer risk to 1 in 10,000 people). Therefore, the SSAB does not believe land should be deleted from the NPL and transferred for use by the public.**

EPA Response: The remedy selection process must meet two threshold criteria including overall protection of human health and the environment. The human health exposure assessment identified potentially exposed populations at RMA. Based on the

future use of RMA as a refuge, potential risks to wildlife refuge workers and refuge visitors were evaluated. This evaluation, the *Integrated Endangerment Assessment/Risk Characterization*, Ebasco Services, Inc., July 1994, concluded that the site-specific health risks (cancer and non-cancer risks) were highest for the wildlife refuge worker. Therefore, soil clean-up goals were developed for protection of the wildlife refuge worker at the  $10^{-4}$  level. Because the refuge worker would spend a greater amount of time at the refuge and have the greatest potential exposure to soil, EPA believes that the remedy clean-up level is protective of a refuge visitor. The following table summarizes the clean-up levels required for media included in the CES and OPS partial deletion areas.

Clean-Up Levels for each Media with Exposure Pathways

<b>Media</b>	<b>Risk Level</b>	
<i>Groundwater</i> - Inhalation of vapors - Ingestion of water - Eating vegetables irrigated with groundwater - Eating dairy, eggs, or meat of animals that have been drinking groundwater	Not applicable for this deletion	
<i>Surface Water</i> - Ingestion of water	<u>On-Post</u> : risk levels were not evaluated because there is no exposure pathway (i.e., consumption of surface water on post is prohibited) based on Institutional Controls <u>Off-Post</u> : surface water did not require remediation because of the low risk attributable to this media.	
<i>Soil/Sediment</i> - Absorption through the skin - Ingestion of soil particles on food	On-Post Human Health risk (wildlife refuge worker)	Carcinogenic risk = $1 \times 10^{-4}$ Noncarcinogenic risk = 1 Acute noncarcinogenic risk = 1
	Off-Post Human Health risk (residential)	Soil/sediment did not require remediation because of the low risk attributable to this media.
	On-Post Biota risk (Refuge)	Hazard Index = 2 for the pesticides Aldrin and Dieldrin
	Off-Post Biota risk	Soil/sediment did not require remediation because of the low risk attributable to this media
<i>Structures</i>	All structures with potential contamination were demolished	

**(7) The SSAB comment letter expressed concern with deletion of the Shell Properties because there are no restrictions on future uses of these parcels of land and this land can be sold for commercial or residential purposes. The SSAB also points out that the short-term non-carcinogenic health risks for kids in the Risk Assessment exceed the screening level of 1.0 in several areas, primarily driven by dieldrin in soil, so this soil is still dangerous for children. If deleted, the SSAB requests that these parcels have deed restrictions, particularly in Zones 3 and 4, restricting residential use and restricting uses that would bring and/or attract children onto these properties.**

EPA Response: As correctly indicated by the SSAB, the short term non-carcinogenic health risk for children exceeds 1.0 in Zones 2, 3, and 4, primarily because of dieldrin. However, the risk calculations represent a total of all exposure pathways (i.e., breathing, ingestion, and skin contact) to soil, sediment, and surface water and groundwater, as presented in the tables in Appendix G of the *Offpost Operable Unit, Endangerment Assessment/Feasibility Study, Final Report* (Harding Lawson Associates, November 24, 1992). In Zones 2, 3, and 4, the health risk due to dieldrin is primarily a result of ingestion of groundwater and vegetables irrigated with groundwater. However, groundwater is not proposed as part of the current CES and OPS partial deletion. While groundwater is not proposed as part of the current CES and OPS partial deletion, restrictions are in place to prevent drinking the groundwater.

The risk contribution of dieldrin from all soil exposure pathways is at least 10 times less than the contribution from groundwater and vegetables. Therefore, soil, sediments, and surface water are not a health concern because of the low risk attributable to this media.

**D: ADDITIONAL COMMENTS RECEIVED THAT ARE NOT APPLICABLE TO THE PROPOSED DELETION OF THE CES AND OPS**

The remainder of the comments received pertain to information management and groundwater concerns associated with the RMA Federal Facility site but are not relevant

to the proposed deletion of the CES and OPS areas. There is no groundwater proposed as part of the CES and OPS partial deletion.

### **Information Repository**

**(8) The SSAB requested a permanent repository for documentation regarding RMA, to include the entire administrative record and all supporting documents and information that have previously been contained in the Records Information Center. The SSAB also requested an interactive database that would make all water sampling data publically available.**

EPA Response: At this time, the information repository will continue to be housed, with access available to the public, at the Joint Administrative Records Document Facility. The Army is currently evaluating options for long-term record storage and public access. A plan for the long-term O&M of RMA will include the Army's selected approach for future records management. This plan is currently under development.

### **Off-Post Groundwater Institutional Controls**

**(9) The SSAB identified that the use of institutional controls has not been successful at other sites and that institutional controls, specifically in the Off-Post OU, are not an effective strategy for remedy protection. An example is provided of a land-owner who was able to obtain a permit to drill a well into the contaminated off-post groundwater plume.**

EPA Response: The objective of the institutional controls identified in the Off-Post ROD is to prevent the use of groundwater in the Off-Post OU that exceed remediation goals. This is accomplished by development of a map identifying the off-post groundwater plumes which is provided to Commerce City, City of Brighton, and Adams County officials and the Colorado State Engineers Office (SEO). The SEO assesses if a proposed well is located within the identified Off-post groundwater plumes. If so, the SEO includes a distinctive notice on the well permit indicating that the applicant should contact Tri-County Health Department or EPA for information regarding groundwater

quality and the available options to allow the applicant to avoid the use of potentially contaminated groundwater. Additionally, evaluation of implementation and effectiveness of institutional controls is included in five-year reviews.

To keep homeowners in nearby communities informed about the progress of the cleanup, the Army has published a community newsletter since 1997 that is mailed to 65,000 homes in the area. These newsletters have been delivered to the sales offices of developers as well for many years. In addition, community presentations are offered through its Arsenal Ambassadors program to answer questions and provide information about the cleanup and the site's transition to a refuge. These presentations are given to homeowner, business, and community groups upon request. In advance of major cleanup projects, such as the Basin F Wastepile cleanup, the Army has given as many as 35 presentations in a year. RMA representatives also staff information tables at community outreach events in Commerce City and Brighton each year and submit articles about the remedy to community newspapers several times a year.

Finally, the Army manages a community information line and email account to take community questions. The Army coordinates with federal, state and local regulatory agencies to ensure homeowner or prospective homeowner questions are addressed.

### **Groundwater concerns**

**(10) and (11) The SSAB indicated their concern with the “inadequate number” of monitoring wells for groundwater sampling, and requested that an On-Post groundwater plume map be created every five years.**

EPA Response: The recently revised Long-Term Monitoring Plan for Groundwater and Surface Water (LTMP) provides criteria for evaluating the adequacy of the monitoring data collected, as well as making decisions regarding potential modifications to the existing monitoring approach. Mechanisms are in place to evaluate any changes needed to existing monitoring requirements and provide a vehicle for increasing monitoring if

appropriate. There is extensive operational and performance water level and water quality monitoring at the boundary systems to ensure that potentially contaminated flow is contained, captured and treated as required by the RODs. If the general flowpaths change enough to indicate the potential for system bypass, the need for additional water quality monitoring would be assessed. Site-wide water level maps will in the future be included in the Annual Summary Reports, which will replace the Operational Assessment Reports. The reports will continue to show detailed water level maps around the systems and include operational and performance water quality data upgradient, downgradient, and cross-gradient to the systems.

As included in the LTMP, plume mapping will be performed every 20 years for the on-post operable unit, beginning with a map to coincide with the 2015 Five-Year Review. The need for developing more frequent on-post plume maps can be re-evaluated during the five-year review process.

**ATTACHMENT A**

**COMMUNITY INVOLVEMENT ACTIVITIES CONDUCTED AT THE RMA  
FEDERAL FACILITY PERTINENT TO THE CES AREA**

**COMMUNITY INVOLVEMENT ACTIVITIES CONDUCTED FOR THE RMA/NPL SITE, PERTINENT TO THE CES & OPS**

<b>Construction Completion Reports for Soil Remediation Projects in the Central Deletion Area</b>	<b>Dates of Community Involvement</b>
<p><i>Remedial Investigation Summary Report</i></p> <p><i>Integrated Endangerment Assessment/Risk Characterization</i></p> <p><i>Proposed Plan for the Rocky Mountain Arsenal On-Post Operable Unit</i></p>	<p>Public Comment Period: 10/16/95 to 1/19/96</p> <p>Public Meeting: 11/18/95</p>
<p><i>Offpost Operable Unit Remedial Investigation and Chemical Specific Applicable or Relevant and Appropriate Requirements</i></p> <p><i>Offpost Operable Unit, Endangerment Assessment/Feasibility Study</i></p> <p><i>Proposed Plan for the Rocky Mountain Arsenal Off-Post Study Area</i></p>	<p>Public Comment Period: 3/21/93 to 6/21/93</p> <p>Public Meeting: 4/23/93</p>
<p><i>Basin F/Basin F Exterior Remediation Project</i></p>	<p>30% Design: 12/10/99 to 01/10/00</p> <p>95% Design: 6/12/00 to 6/26/00</p>
<p><i>Burial Trenches Soil Remediation Project</i></p>	<p>30% Design: 4/15/98 to 5/15/98</p> <p>95% Design: 9/15/99 to 10/13/99</p>
<p><i>Complex (Army) Disposal Trenches Remediation Project, Subgrade Construction</i></p>	<p>30% Design: 8/12/03 to 9/11/03</p> <p>95% Design: 9/24/04 to 10/25/04</p>
<p><i>Existing (Sanitary) Landfill Remediation</i></p>	<p>30% Design: 2/24/98 to 3/5/98</p> <p>95% Design: 6/23/98 to 7/24/98</p>
<p><i>Miscellaneous Northern Tier Soil Remediation Project</i></p>	<p>30% Design: 4/6/98 to 5/11/98</p> <p>95% Design: 8/3/98 to 9/2/98</p>
<p><i>Miscellaneous RMA Structure Demolition and Removal Project: Phase I</i></p>	<p>95% Design: 11/02/99 to 12/02/99</p>
<p><i>Miscellaneous RMA Structure Demolition and Removal Project: Phase III</i></p>	<p>95% Design: 11/02/99 to 12/02/99</p>

**COMMUNITY INVOLVEMENT ACTIVITIES CONDUCTED FOR THE RMA/NPL SITE, PERTINENT TO THE CES & OPS**

<b>Construction Completion Reports for Soil Remediation Projects in the Central Deletion Area</b>	<b>Dates of Community Involvement</b>
Miscellaneous Southern Tier Soil Remediation Project	30% Design: 4/6/98 to 5/11/98 95% Design: 8/3/98 to 9/2/98
<i>Munitions (Testing) Soil Remediation Project</i>	30% Design: 4/15/98 to 5/15/98 95% Design: 9/15/99 to 10/13/99
<i>North Plant Structure Demolition and Removal Remediation Project and Destruction of Equipment in the GB Production and Fill Facilities Project</i>	30% Design: 8/18/00 to 9/18/00 95% Design: 4/18/01 to 5/18/01
<i>Sanitary and Chemical Sewer Plugging – Phase I</i>	60% Design: 2/5/97 to 3/3/97 95% Design: 3/14/97 to 4/14/97
<i>Sanitary Sewer Manhole Plugging Project: Phase II</i>	95% Design: 9/20/07 to 10/22/07
<i>Secondary Basins Soil Remediation Project</i>	30% Design: 12/10/99 to 1/10/00 95% Design: 5/26/00 to 6/26/00
<i>Section 35 Soil Remediation Project</i>	30% Design: 5/28/99 to 6/28/99 95% Design: 11/20/01 to 12/20/01
<i>Section 36 Balance of Areas Soil Remediation Project</i>	30% Design: 5/22/01 to 6/22/01 95% Design: 11/26/02 to 12/27/02
<i>Section 36 Bedrock Ridge Groundwater Plume Extraction System</i>	30% Design: 10/20/97 to 11/14/97
<i>South Plants Balance of Areas and Central Processing Area, Soil Remediation Project</i>	30% Design: 2/22/99 to 3/22/99 95% Design: 12/15/99 to 1/17/00 Phase II 95% Design: 8/8/00 to 9/7/00
<i>South Plants Structure Demolition and Removal Project</i>	30% Design: 3/31/98 to 4/29/98 95% Design: 4/30/99 to 6/1/99

**ATTACHMENT B**

**COMMENTS RECEIVED REGARDING  
PARTIAL DELETION OF THE CES AND OPS AREAS**

From: Jim Morris <dolphin@jimmorris.com>

To: Jennifer Chergo/R8/USEPA/US@EPA

Date: 07/05/2010 11:56 PM

Subject: public comment on EPA 's intent to delete portions of the Rocky Mountain Arsenal from the NPL

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Dear EPA & jennifer Chergo,

I object to the removal of the CES and OPS of the Rocky Mountain Arsenal from the NPL.

I believe there has not been adequate testing of the soil, dump materials, and groundwater. Articles in Westword, and speeches by Adrienne Anderson suggest that radioactive materials were dumped into the site. The Army, the corporate dumpers, and the City of Denver all have a motivation to prevent the finding of any such radioactive materials, as such a finding would vastly increase the scope of the cleanup and the expense of the cleanup. Earlier lawsuits led to drilling test bores and they found evidence of highly radioactive materials. A police officer witnessed radioactive barrels being dumped. Operators of Rocky Flats such as Dow and Rockwell may well have dumped radioactive waste there before the government realized how dangerous it could be.

Sincerely, Jim Morris, PO Box 831, Boulder, CO 80306

From: Jeanette Hotmail <jeanettealberg@hotmail.com>  
To: Jennifer Chergo/R8/USEPA/US@EPA  
Date: 07/16/2010 05:14 PM  
Subject: Letter of support for RMA land transfer

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July 12, 2010

Jennifer Chergo  
Community Involvement Coordinator  
U.S. Environmental Protection Agency, Region 8  
999-18th Street, Suite 200  
Denver, CO 80202-2466

Re: Docket ID No. EPA-HQ-SFUND-1987-0002

Dear Ms. Chergo:

I am writing in support of the proposed delisting of the Rocky Mountain Arsenal properties known as the On-Post Central and Eastern Surface Media and Structures (CES) and Off-Post Surface Media (OPS).

The Rocky Mountain Arsenal National Wildlife Refuge is close to realizing its founders' vision. A site that was once dubbed one of the most contaminated plots of land in the United States is quickly becoming one of our Nation's premier urban national wildlife refuges. The potential transfer of the aforementioned properties to the U.S. Fish and Wildlife Service is another major step toward the final transformation and realization of the Rocky Mountain Arsenal Wildlife Refuge.

Having lived in the Denver Metro area for the past 10 years and having advocated the Arsenal and its environmental remediation first as a congressional staffer and now, currently, as a board member of the Friends of the Front Range Wildlife Refuge Friends Group, a nonprofit that raises funds to support Refuge activities and visitation, I believe the transformation of the Arsenal into a wildlife Refuge has had a positive impact on the surrounding community. The delisting of the CES and the OPS is an important step towards a fully functional National Wildlife Refuge as was envisioned by Congress nearly 20 years ago.

I trust that our environmental regulators, the EPA, the Colorado Department of Public Health and Environment (CDPHE) and the Tri-County Health Department , have expertly reviewed and enforced the clean-up agreement requirements and that the U.S. Army and Shell Oil Company have performed all necessary remediation activities to ensure the land proposed for delisting is fully protective of human health and the environment.

Furthermore, I have confidence that all parties involved in the transfer of this property will ensure that this transfer proposal proceeds as expeditiously as possible within the bounds of the law and with the best interest of the community and stakeholders in mind.

Sincerely,

Jeanette Alberg

July 14, 2010

Jennifer Chergo  
Community Involvement Coordinator  
U.S. Environmental Protection Agency, Region 8  
999-18th Street, Suite 200  
Denver, CO 80202-2466

Re: Docket ID No. EPA-HQ-SFUND-1987-0002

Dear Ms. Chergo:

I am writing to support the proposed delisting of the Rocky Mountain Arsenal properties known as the On-Post Central and Eastern Surface Media and Structures (CES) and Off-Post Surface Media (OPS).

As a former employee of Shell Oil Company who spent years working with U.S. Army, Fish and Wildlife Service, EPA, State of Colorado and Tri-County Health Department staff to remediate the site, it is a great pleasure to see the vision of transforming the site into a premier urban national wildlife refuge nearing fulfillment. The Rocky Mountain Arsenal has played an important role in the life of our nation, and I am glad to know that it will continue to serve as a valuable cultural, environmental and recreational asset. The delisting of the CES and the OPS is an important step toward expanding the Refuge and the benefits it offers to Coloradoans and visitors.

I am confident that the U.S. Army and Shell Oil Company, in coordination with the EPA, State of Colorado and Tri-County Health Department, have performed the necessary remediation activities to ensure the land is fully protective of human health and the environment. I anticipate seeing the EPA, State of Colorado and Tri-County Health Department work with the Army and the Fish and Wildlife Service to ensure this process proceeds expeditiously in the best interests of the community.

Sincerely,

William J. McKinney  
Former Manager, Denver Site  
Shell Oil Co.

Jennifer Chergo, Community Involvement Coordinator  
U.S. Environmental Protection Agency, Region 8  
999 18<sup>th</sup> Street, Suite 200  
Denver, CO 80202-2466

July 17, 2010

Dear Ms. Chergo:

I am writing to support the proposed delisting of the Rocky Mountain Arsenal properties known as the On-Post Central and Eastern Surface Media and Structures (CES) and Off-Post Surface Media (OPS).

The Arsenal is working to finish the realization of its vision of transforming the site into a premier urban national wildlife refuge that will be a permanent asset to our community and the greater Front Range Denver Metro region. The potential transfer of this land to the U.S. Fish and Wildlife Service is another major step toward the expansion of this Refuge.

As the organizing and first president of the Friends of the Front Range Wildlife Refuge, a nonprofit Friends Group that raises funds to support the Refuge, I have witnessed the transformation of the Refuge as a tremendously positive impact on the surrounding communities. My professional career in local government and as an outdoors columnist for the North Area Metro community newspapers I have seen how valuable the Refuge has been for youth environmental education and family involvement in nature and outdoors. The delisting of the CES and the OPS is an important step in the economic and community well being.

I am confident that the U.S Army and Shell Oil Company, in coordination with the EPA, State of Colorado and Tri-County Health Department, have preformed the necessary remediation activities to ensure the land is fully protective of human health and the environment. I anticipate seeing the EPA, State of Colorado and Tri-County Health Department work with the Army and the U.S. Fish and Wildlife Service to ensure this process proceeds expeditiously in the best interests of the community and region.

Yours Truly,

Ron Hellbusch

July 18, 2010

Jennifer Chergo  
Community Involvement Coordinator  
U.S. Environmental Protection Agency, Region 8  
999 18<sup>th</sup> Street, Suite 200  
Denver, CO 80202-2466

Dear Ms. Chergo,

As a member of the Friends of the Front Range Wildlife Refuge that raises funds to support the Refuge, I am writing to you in support of the transfer of 2500 acres of land to the Refuge site at the Arsenal. I understand this is a proposed delisting of the Rocky Mountain Arsenal properties known as the On-Post Central and Eastern Surface Media and Structures (CES) and Off-Post Surface Media (OPS).

The Refuge is currently and it growing in use by citizens using the network of trails, and open space corridors and as a terrific resource to encourage the local children to learn about nature and environmental education.

This is a wonderful location to encourage young people to get outdoors and enjoy what nature has to offer and another tool in supporting the Administrations Get Outdoors program.

I write in support of this delisting at the Arsenal.

Sincerely,

Carolyn Boller  
Vice-Chair FFRWR

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SITE SPECIFIC ADVISORY BOARD OF THE ROCKY MOUNTAIN ARSENAL, INC.

Sandra Jaquith, TAG Coordinator  
844 Downing Street \* Denver, Colorado 80218  
(303) 832-3707 \* Fax (303) 832-3708

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BOARD OF DIRECTORS: Nancy Christian \* Dorothy Colagiovanni, Ph.D. \* Lonna Fischer  
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August 16, 2010

Ms. Laura Williams  
USEPA  
RMA Project Manager  
1595 Wynkoop Street  
Denver, Colorado 80202-1129

Dear Ms. Williams:

Please find below the public comments provided by the Site Specific Advisory Board of the Rocky Mountain Arsenal regarding the *Intent to Delete portions of the Rocky Mountain Arsenal Federal Facility (RMA) from the National Priorities List (NPL)* that was published on June 17, 2010 in the Federal Register. The portions proposed for deletion are the Central and Eastern Surface Areas of the On-Post Operable Unit (OU3) including surface media and structures (CES) and the surface media of the entire Off-Post Operable Unit (OU4) (OPS). Thanks you for the opportunity to provide public comments regarding this proposed deletion, and for the extension of the public comment period.

In 1994, citizens concerned with the “clean-up” of the Rocky Mountain Arsenal presented a 300-signature-petition to Colorado Governor Roy Romer, requesting that a citizen advisory group be established based on *the Report of the Federal Facilities Environmental Restoration Dialogue Committee (FFERDC)*. In response to that petition, the ***Site Specific Advisory Board of the Rocky Mountain Arsenal*** was formed in early 1994 by the State of Colorado and EPA Region VIII, as the first Site Specific Advisory Board (SSAB) established at a Department of Defense (DOD) “clean-up” site.

The ***Site Specific Advisory Board of the Rocky Mountain Arsenal*** has met monthly since its inception. Its meetings are open to the public and its programs often include presentations from, and discussions with, the Army, Shell Oil Company, EPA, the State of Colorado, the US Fish and Wildlife Service, and Tri-County Health. The ***Site Specific Advisory Board of the Rocky Mountain Arsenal*** incorporated in December 2000 as a not-for-profit corporation. Regular attendees also serve, or have served, on other RMA-related or RMA-interested boards including, but not limited to, the Restoration Advisory Board (RAB), the Citizen Advisory Board (CAB),

the Medical Monitoring Advisory Group (MMAG), the Sierra Club RMA subcommittee, the National Caucus of RAB Community members, Montbello community groups, the Northern Coalition, and the City Council of Commerce City.

The Rocky Mountain Arsenal is one of the largest and most expensive “clean-up” projects to date in the United States. At the completion of “clean-up”, it will become the Rocky Mountain Arsenal National Wildlife Refuge, intended to attract national and international visitors. As such, the RMA affects citizens and communities bordering RMA, as well as those of the Denver-metropolitan area, the State of Colorado, the United States and potentially the entire planet. It is for this reason the *Site Specific Advisory Board of the RMA* seeks and encourages the involvement of all citizens and interested persons. The Site Specific Advisory Board of the Rocky Mountain Arsenal, Inc. received a Technical Advisory Grant (TAG) from the U. S. Environmental Protection Agency in 2001, and provides public comments on a variety of issues with the assistance of the technical advisors retained through the TAG.. These comments are provided on behalf of twelve individual citizens and should be counted as twelve individual comments of opposition to this proposed deletion of RMA from the National Priorities List.

1. Unexploded ordinance (UXO) is one of the greatest concerns regarding the public use of any of the property of the Rocky Mountain Arsenal. The Army and EPA rely on assertions that historical records do not indicate the presence of further UXO at RMA but it is clear that records are incomplete regarding UXO, as well as disposal and burial of contamination at RMA. Consider the following public statements:

2/25/74 – Rocky Mountain News (RMN). Arsenal Waste Disposal Data Nonexistent, by H. Peter Metzger. “Through most of its 30-year history the Rocky Mountain Arsenal (RMA) kept no records on the nature and amount of wastes it disposed of, the Army says in the first comprehensive report on the subject.

“The report was prepared at the request of Rep. Pat Schroeder, D-Colo. Six months in the preparation, it consists of a review of Army records and those of industrial lessees using arsenal facilities – where such records exist.

“The report tells more of how little, rather than how much, the Army and others know about the waste disposal operations at the arsenal, which has been both a manufacturing and storage site for chemical warfare agents.

“... Consider the Julius Hyman Company, which leased and operated an insecticide manufacturing plant at the arsenal from 1946 to 1951. In response to an Army inquiry, Dr. Hyman answered, “I have no records pertaining to that subject matter and my memory of it, if I ever knew, is unreliable.

“During the Korean War the situation persisted. ‘No records were maintained by the Shell Company or RMA, as to the quantities or types of waste materials generated,’ the report said.

“ . . . During the Vietnam War, (1965-1969) the Army’s waste diminished significantly but waste from the Shell insecticide plant was, and remains considerable. Still “no records were maintained,” said the report.”

*2/8/76 – RMN – by David E. Greenberg. “. . . That’s because few records were kept through most of the facility’s 30-year history of producing, testing, and dumping toxic chemical wastes. For example, 80 tons of a biological agent that causes wheat rust, a blight that destroys grain crops, was buried on the arsenal grounds a few years ago. Arsenal officials don’t know exactly where.”*

7/20/80 - RMN - by Al Gordon, Washington Bureau. “Much of the buried waste isn’t inventoried and officials aren’t sure they have found all of it.

“We’ve found wastes in places I’ve never expected,” Whitney [Arsenal spokesman, Art Whitney] said . He said he wouldn’t call any part of the property safe unless it had been inspected and found free of contamination.”

*7/11/82 - Denver post - by Judith Brimburg. Map identifies areas of chemical dumping that includes a long, narrow area running northwest to southeast. “Not all sources of contamination are known, US Army scientists acknowledge.”*

12/5/82 - Denver Post. “Adams County and Commerce City are interested in acquiring all or part of the arsenal in spite of the fact that problems there still are not fully known.”

“ . . . the difficulties that might be involved in using that land for other purposes - an airport, industrial area or housing - are not fully known.” Art Whitney, spokesman for the Army.

*12/5/82 - Denver post, by Pat McGraw. “After years of study and expenditures in the tens of millions of dollars, officials say no one is certain yet exactly what vestiges remain from decades of lethal chemical production and storage at the arsenal.*

*“There are several problems that have come to light at the arsenal that have not been subject to public debate as decisions approach on the use of the property. They include: . . . the discovery of dangerously corroded containers of mustard gas buried on the arsenal during or after World War II. Other drums and barrels apparently as yet unidentified war gases or chemical agents have been discovered in unmarked sites, and the possibility is strong that further such discoveries will be made.*

*“The discovery that phosphorous used at the arsenal during World War II for the production of incendiary bombs was disposed of in at least one case by burial on the arsenal grounds.”*

*“The arsenal was strictly rural when development of the facility began in 1942 and some of the property was used as a firing range to test mortar shells. Some did not go off and are presumed buried in the soil to this day.”*

1/5/83 - Denver Post. By Fred Gillies. "The consulting firm's (Washington D.C. firm of Coopers and Lybrand) report cites the following factors 'which make it difficult to determine the full extent' of the contamination problem at the arsenal and assesses possible alternate uses for the arsenal: .... The unknowns, including the extent of unrecorded spills and burial over the years of old and defective munitions."

"John Bramble, City manager in Commerce City, said the study was commissioned 'to take a realistic evaluation of what (contamination) is out there (at the arsenal). We were prepared to accept the fact that there is not as much contamination out there as we had believed, and that some areas were not contaminated. But it doesn't appear as such, based on research done to date."

*2/7/88 - RMN. By Janet Day. Map shows waste sites on WTP. Mustard, White phosphorus grenades, and railroad yard suspected-cancer-causing chemicals dumped.*

Given the fact that RMA documentation is incomplete and the site characterization is inadequate, one of the primary issues of concern of the SSAB continues to be the possibility that Unexploded Ordnance or other munitions would be found on the deleted lands. The SSAB argued (when the Wildlife Refuge re-opened after the Sarin Nerve Gas bomb debacle) that the US Fish and Wildlife Service should provide public a warning notice that UXO and other munitions were likely to be present at the RMA National Wildlife Refuge and requested that training be given to all employees, volunteers, and visitors regarding the proper procedures upon discovery of any unexploded ordnance or munitions. The SSAB request was denied, with the explanation that the USFWS personnel would be fully trained in the proper handling procedures of unexploded ordnance and munitions and that it was unlikely that anyone who was untrained would find them. Again, the SSAB proved to have great foresight. As discussed in earlier comments: on November 17, 2003, a bomb case was discovered at the RMA National Wildlife Refuge and was placed in a dumpster by a USFWS weekend staff person, contrary to strict procedures for the movement and/or disposal of discovered UXO or munitions.

There is no excuse for this type of incident to have taken place. After the discovery of ten Sarin Nerve Gas bombs at RMA in 2000 – keeping in mind that the RMA has *no record* of Sarin bombs existing before their discovery in 2000– that it is likely that further UXO and munitions will be found at RMA, on the land that the Army has retained as well as the land that has been transferred to USFWS. In addition, the SSAB has raised issues and concerns dozens of times about Unexploded Ordnance, public notice, and training of proper recovery procedures. USFWS volunteers and personnel, as well as members of the public could have been severely injured or killed because of the lack of adequate notice, training, and procedures at the Wildlife Refuge. Barring enforceable protocol with the State of Colorado, the USFWS cannot be expected to adequately address this problem and protect public health and the environment.

The SSAB is still concerned that transfer of RMA land to the USFWS is premature and unsafe. Given the long history of the unexpected discoveries of unexploded ordinance at RMA including the many parcels that are currently proposed for deletion, an enforceable protocol

must be in place and submitted for public comment prior to deletion. The USFWS must operate under the same UXO protocol that was developed between the Army and the State of Colorado that has been in effect during remediation.

2. The SSAB has long objected to a minimal “clean-up” at RMA, and has tried to be diligent in its oversight of the RMA “clean-up” precisely because a minimum “clean-up” demands that the assumptions underlying the remedies are valid, that the “clean-up” is designed and performed at the highest possible level, and that long-term monitoring is effective and the long-term remedy is protective of human health and the environment. Every step taken at RMA was minimized and compromised, starting with the choice of the RMA “cap and cover” remedies, rather than moving or eliminating contamination at RMA. For example, the remedy is designed to protect the public to a level of 10 (-4). This means that after the RMA “clean-up” is complete, exposure to the contamination left at RMA will provide additional cancer risk to one in ten thousand people (this is in addition to the current cancer rates in the United States: one-in-two men will have cancer and one-in-three women will have cancer during their lifetimes). Therefore, the community surrounding and visiting the RMA will be harmed and the State of Colorado will pay a huge price to try to correct the problems. Land at RMA should not be deleted from the NPL and transferred to use by the public.

3. It is particularly important that the Off-post area called the “Shell properties” not be deleted. There are certain factors not considered in the ROD with respect to future land uses. References to the vacant Shell Properties emphasize the lack of residents on these parcels of land, especially in Zones 3 and 4. No restrictions will be placed on the future uses of these parcels of land, and this land can be sold off for commercial or residential purposes. When you look at the short-term hazard indices for kids in the Risk Assessment, they exceed 1 in several areas, and these are primarily driven by dieldrin in soil. So, RMA soils that have been fully remediated are still dangerous for children. Contaminated soils on the “Shell Properties” was not removed, but was merely mixed with less contaminated soils. The “Shell properties” should not be deleted and made available for public use. If deleted, these parcels should have deed restrictions, particularly in Zones 3 and 4, restricting residential use and restricting uses that would bring and/or attract children onto these properties.

4. Given the fact that the public has had to accept the presence of thousands of tons of contaminated soil being left at the RMA; and that over one-square mile of contaminated land has become a sacrifice zone; and that the cataloguing of contaminants and risk characterization has not been compiled for Basin-A; and that there is no barrier between the contamination and the groundwater; and that every remedy related to the control and treatment of the contaminated groundwater is un-proven; the institutional controls that have been used, and will be used, to control contamination and protect the public must be absolute and fool-proof. As we have discussed previously – and on numerous occasions – the experience regarding institutional controls over the past ten years as a strategy of protection has failed.

In our limited survey, we have been able to identify thousands of land transfers in the Off-Post area that have NOT included the required notice of below-surface contamination emanating from the RMA. Deed restrictions are one of the only institutional controls used Off-Post and have been discussed many times with the public. The fact that there are no groundwater or

CERCLA easements contained in thousands of sales documents shows that that the deed restrictions put in place by the Polluters are inadequate and not functioning as intended by the public.

Off-Post contamination pathways have not been closed and the public is not fully protected. We are aware of homeowner/developer struggles to acquire the so-called replacement water, as provided in the ROD, at properties where existing wells continue to analyze “positive” for military contamination. In addition, we are aware of a landowner in the contaminated Off-Post area of RMA who was able to obtain a permit to drill a well, contrary to the “advertised” institutional controls required by the ROD.

Similarly, as another Defense site in the Denver-metro area, within the last year a local government allowed residential development on a parcel of contaminated land that was protected from development in their Record of Decision and associated institutional controls. This proves to all of us that institutional controls on the use of contaminated land are completely inadequate, and the Off-Post surface area and the Shell properties should not be deleted until the land and water are entirely de-contaminated.

5. This issue also raises the concerns about the inadequate number of sampling and monitoring wells, which are necessary to provide data to insure long-term protection. In order to protect the community and to insure that there are no open pathways to the tons of contamination that have been left in place, the amount of information and data should be increasing over time, rather than decreasing. For all these reasons, the public cannot consider the assurances of protectiveness as adequate, let alone fool-proof.

6. Maps of the contaminated groundwater plumes were created in the early 1990s before the remedy was selected and On-Post and Off-Post Records of Decision were signed. There has been no mapping of the On-Post groundwater plumes since that time.

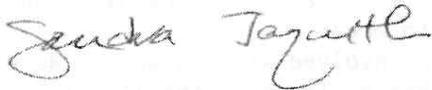
The SSAB believes that it is essential for the public to have maps of the On-Post plumes of contamination in the groundwater. The SSAB formally requests that an On-Post plume map be created, based on current data, providing evidence as to the validity of the assumptions that underlie the selected remedy, and confirming the degree of success of the remedy design and operations to date.

In addition, the SSAB formally requests that an On-Post plume map be created at least every five years – to coincide with the Five Year Review, including data collected within the prior five years before the creation of each new map. Such plume maps are already being created for the Off-Post groundwater plumes. This will allow the community the ability to visually see the progress – and assess the continued protectiveness - of the Long-Term Groundwater remedy both On-Post and Off-Post. This will be particularly important when the remedy has been completed and the Regulators have assigned the RMA Five-Year Review to personnel who do not have an historical knowledge of the RMA.

7. We need a permanent repository for documentation regarding RMA and this must include the entire administrative record as well as all supporting documents and information that have

been contained in the facility known as the RIC, all sampling data, maps, reports, and related data, which exists now or will be acquired in the future. This should include an interactive data base that makes all water sampling data available to anyone who wants to access it by computer. This facility should be in the local community where it is publicly available, and the Army and Shell Oil Company should be responsible for any costs incurred in the permanent housing and availability of these records. This will allow the public, researchers, the press, and all government agencies, including local governments, to have permanently available all information relative to, and/or generated by, the RMA in the event any future actions would be required.

Respectfully submitted,

A handwritten signature in cursive script that reads "Sandra Jaquith". The signature is written in dark ink and is positioned above the printed name.

Sandra Jaquith

TAG Coordinator - Site Specific Advisory Board of the Rocky Mountain Arsenal

From: "Polly P. Reetz" <reetzfam@juno.com>  
To: Jennifer Chergo/R8/USEPA/US@EPA  
Date: 08/19/2010 08:36 AM  
Subject: Exclusion of parts of RMA from NPL

Re: Docket ID No. EPA-HQ-SFUND-1987-002

Due to unforeseen circumstances, the Audubon Society of Greater Denver has been unable to submit comments on the above item until today, August 19, 2010. We are well aware that the deadline has passed but wanted to add our brief comments to the record.

Audubon Society of Greater Denver is a grassroots conservation organization with approximately 3,000 members in the Denver metro area. Through our volunteers and committees, we have been involved with issues at Rocky Mountain Arsenal since 1988, though participation has declined in the last few years.

The Society supports the exclusion of the central and east surface areas (CES) and off-post areas, as described in the federal register notice of July 2010, from the National Priorities List, including soils, surface waters, structures and sediments. We find that through the efforts of the Colorado Department of Health, US Environmental Protection Agency, and US Army, these areas have been restored to a condition sufficient to allow their eventual inclusion in the Rocky Mountain Arsenal National Wildlife Refuge. We believe that the proposed action will be in the public interest.

Thank you for this opportunity to comment.

Sincerely,  
Pauline P. Reetz, Conservation Chairman  
Audubon Society of Greater Denver  
9308 S. Wadsworth Blvd.  
Littleton, CO 80128  
Tel. 303-973-9530

**ATTACHMENT C**  
**LIST OF ACRONYMS AND ABBREVIATIONS**

## ACRONYMS AND ABBREVIATIONS

CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CES	Central and Eastern Surface Partial Deletion Area
CFR	Code of Federal Regulations
CWM	Chemical Warfare Materiel
DMM	Discarded Military Munitions
EPA	U. S. Environmental Protection Agency
FR	Federal Register
FS	Feasibility Study
IPDA	Internal Parcel Deletion Area
LTMP	Long-Term Monitoring Plan for Groundwater and Surface Water
MEC	Munitions and Explosives of Concern
MPPEH	Material Potentially Presenting an Explosive Hazard
NCP	National Contingency Plan
NOIDp	Notice of Intent for Partial Deletion
NPL	National Priorities List
NWR	National Wildlife Refuge
O&M	Operation and Maintenance
OE	Ordnance/Explosives
OPS	Off-Post Surface Partial Deletion Area
OU	Operable Unit
RI	Remedial Investigation
RfR	Ready for Reuse
RMA	Rocky Mountain Arsenal
ROD	Record of Decision
SEO	State Engineer's Office
SPA	Selected Perimeter Area
SDA	Surface Deletion Area
SSAB	Site-Specific Advisory Board
USFWS	U. S. Fish and Wildlife Service
UXO	Unexploded Ordnance
WTP	Western Tier Parcel