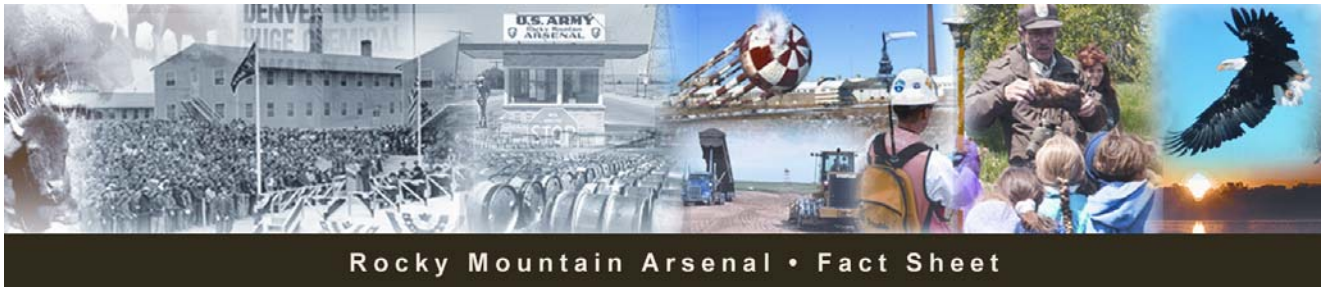

Explanation Of Significant Differences For The Section 36 Bedrock Ridge Groundwater Plume Extraction System

Introduction

This fact sheet summarizes a significant change in a portion of the remedy for a groundwater extraction (removal) system (system) at the Rocky Mountain Arsenal (Arsenal) Federal Facility Site. The proposed changes to the system requirements are detailed in the "Explanation of Significant Differences for the Section 36 Groundwater Plume Extraction System, Rocky Mountain Arsenal Federal Facility Site, March 2, 2006." The Explanation of Significant Differences (ESD) and related Arsenal design documents are available for public review and comment (see bottom of fact sheet for locations).

These changes to this project do not alter the overall hazardous waste management approach that was selected in the Record of Decision (ROD). The ROD is the official document that describes the Arsenal's 31 cleanup projects.

What Are The Significant Changes To The Remediation Project?

Summary of the ROD Remedy and the ESD Changes

The ROD groundwater remedy called for installing a system in the center portion of the site known as the Section 36 Bedrock Ridge area to help treat Arsenal groundwater contamination. The groundwater will be pumped to one of the Arsenal's on-site water treatment facilities called the Basin A Neck Treatment System.

The original design included drilling and installing a 1,400-foot-long horizontal well under the Bedrock Ridge area. However, due to the geology of the area, it was determined that installing vertical wells in the area would produce better results than a long horizontal well. Three vertical wells were installed October 2000 and a fourth well was added in 2005 to maintain performance and fulfill groundwater treatment requirements.

Cost

The redesign of the system resulted in a 66 percent cost decrease compared to the ROD-estimated cost. This significant cost decrease prompted an ESD under the Comprehensive Environmental Response, Compensation and Liability Act of 1980. The baseline estimated cost was $3.63 million and the actual cost of the project was $1.2 million. This includes design costs, implementation, and piping to the existing groundwater treatment facility.

Site History

The Arsenal is located in Adams County, Colorado, approximately 10 miles northeast of downtown Denver. The Arsenal now encompasses 11,000 acres and is currently on the U.S. Environmental Protection Agency (EPA) National Priorities List for environmental cleanup as a result of contamination released during previous RMA operations. The On-Post ROD, which describes the site-wide remedy for the Arsenal, was signed by the U.S. Army, EPA and the State of Colorado with concurrence from Shell Oil Company (Shell) and the U.S. Fish and Wildlife Service on June 11, 1996. The selected remedy includes 31 different cleanup plans for soils, structures and the treatment of groundwater contaminants.

The Arsenal was established in 1942 by the U.S. Army to manufacture chemical warfare agents and incendiary munitions for use as a deterrent 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, the principal lessee, manufactured pesticides from 1952 to 1982. Common industrial and waste disposal practices used during these years resulted in contamination of structures, soil, surface water, and groundwater.

Currently, the Arsenal is undergoing an extensive environmental cleanup of the site's soil, structures and groundwater. Once cleanup is complete, the Arsenal's vast open spaces will constitute one of the nation's largest, urban wildlife refuges. In April 2004, 5,000 acres of Arsenal land were transferred from the U.S. Army to the U.S. Fish and Wildlife Service marking the official establishment of the Rocky Mountain Arsenal National Wildlife Refuge. In all, 15,000 acres will be transferred to the U.S. Fish and Wildlife Service by the time cleanup is complete in 2011. The site now provides sanctuary for nearly 330 species of animals, including deer, coyotes, bald eagles and burrowing owls.

Operable Units

The On-Post Operable Unit is one of two operable units at RMA. The On-Post Operable Unit addresses contamination within the boundaries of the Arsenal. The Off-Post Operable Unit addresses contamination north and northwest of the Arsenal.

The overall remedy required by the 1996 Record of Decision (ROD) for the On-Post Operable Unit (OU) includes:

- Interception and treatment of contaminated groundwater at the three existing on-site treatment plants.
- Construction of a new Resource Conservation and Recovery Act and Toxic Substances Control Act-compliant Hazardous Waste Landfill on-post.
- Demolition of structures with no designated future use and disposal of the debris in either the Arsenal's on-site landfill or the Basin A consolidation area, depending upon the degree of contamination.
- The contaminated soil at the Arsenal is addressed primarily through containment in the Arsenal's landfills, under caps/covers, or through treatment, depending upon the type and degree of contamination. Areas that have caps or covers require long-term maintenance and will be retained by the Army. These areas will not be part of the Rocky Mountain Arsenal National Wildlife Refuge.
- The Basin A consolidation area is used for disposing structural debris from other Arsenal contaminated areas and soil that poses a risk to wildlife, known as biota soil. Once all of the waste is received, a wildlife barrier and soil cover will be placed over Basin A.

Site Contamination

The contaminated areas within the On-Post Operable Unit include approximately 3,000 acres of soil, 15 groundwater plumes and 798 structures. The most highly contaminated sites were identified in South Plants (i.e., Central Processing Area, Hex Pit, Buried M-1 Pits, Chemical Sewers), Basins A and F, the Lime Basins, and the U.S. Army and Shell

Trenches. The primary contaminants found in the soil and/or groundwater at these areas is pesticides, solvents, heavy metals and chemical agent by-products. Most of these contaminated areas have been cleaned up or are in the process of being cleaned up.

The areas showing the highest concentrations and/or the greatest variety of contaminants are located in the central manufacturing, transport and waste disposal areas. The highest contaminant concentrations tend to occur in soil within about five feet of the ground surface, though the higher contamination is also found at greater depths particularly where burial trenches, disposal basins or manufacturing complexes are located.

Groundwater contaminant plumes predominantly consist of organic compounds, arsenic, fluoride and chloride. The overall concentrations and configurations of the plumes suggest that the greatest contaminant releases to the unconfined flow system have occurred from Basin A, the Lime Settling Basins, the South Plants Chemical Sewers, the South Plants Tank Farm and Production Area, the U.S. Army and Shell Trenches in Section 36, and the former Basin F. Plumes flowing from the Motor Pool, Rail Yard and North Plants areas are other sources of contaminant releases to the unconfined flow system.

Public Participation

A public notice was published beginning on March 14, 2006 in the *Denver Post*, *Rocky Mountain News, Brighton Blade, Commerce City Beacon* and *Commerce City Gateway* newspapers announcing the Bedrock Ridge ESD public comment period, how to provide comments and where the document was available for review.

A presentation explaining the ESD was provided to the Arsenal's Restoration Advisory Board (RAB) on March 30, 2006. The meeting was open to the public. The RAB is a community group that meets regularly to receive information and provide input on the cleanup. The public comment period closed on April 14, 2006 and no comments were received.

This ESD and all documents that support the changes and clarifications are part of the Administrative Record and are available at the Joint Administrative Records and Document Facility (JARDF) and the EPA Region 8 Superfund Records Center. The JARDF can be reached at 303-289-0362. Hours of operation are Monday through Friday 12 p.m. to 4 p.m. or by appointment. EPA's Superfund Record Center can be reached at 303-312-6473. Hours of operation are Monday through Friday from 8 a.m. to 4:00 p.m.

Affirmation Of Statutory Determinations

Considering the new information presented in this ESD, the Army, in consultation with EPA and CDPHE, believes that the groundwater remedy and the soil remedy, with the modifications described, satisfy the requirements of CERCLA Section 121 and are protective of public health and the environment, comply with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action, use a permanent solution through extraction and treatment of contaminated groundwater, and are cost effective.

For more information, please contact:

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  www.rma.army.mil / 303-289-0136

- U.S. Environmental Protection Agency
  Laura Williams
  Remedial Project Manager
  (303) 312-6660

- Colorado Department of Public Health & Environment
  Susan Newton
  State Project Officer
  (303) 692-3321

Document Locations

- Joint Administrative Record and Document Facility (JARDF)
  Rocky Mountain Arsenal, Building 129
  Commerce City, Colorado 80022
  Monday – Friday 12 – 4 p.m. or by appointment (303) 289-0362

- EPA Superfund Records Center
  999 18th Street
  Denver, CO 80202
  303-312-6473
  Monday – Friday 8 – 4 p.m.