



From Weapons to Wildlife



Cleanup crews remediate soil contaminated with aldrin, dieldrin, dibromochloropropane and arsenic from years of destructive disposal practices.

Rocky Mountain Arsenal

Just ten miles outside of Denver, Colorado, lies an area contaminated by hazardous materials from years of chemical agent and pesticide production. The 27-square-mile Rocky Mountain Arsenal (RMA) Superfund site, located northeast of Denver, is now in the process of being cleaned up and transformed into one of the largest urban national wildlife refuges in the country. Through collaboration with potentially responsible parties, other governmental agencies, and concerned citizens, EPA is helping to restore the 17,000-acre former weapons manufacturing facility to native prairie land to be used for public recreational activities and wildlife habitat.

The Rocky Mountain Arsenal Site

During World War II, the U.S. Army purchased 17,000 acres in Commerce City, Colorado, to manufacture and assemble weapons to support the country's efforts for WWII. After the war, the Army leased a portion of the Arsenal to private industry to offset operational costs. In 1946, Julius Hyman and Company began producing pesticides at the site until 1952, when it was acquired by Shell Chemical Company. From 1952 until 1982, Shell Chemical Company (now Shell Oil Company) manufactured pesticides and herbicides at the site. On its portion of land, the Army produced chemical agents until 1957 and continued weapons operations until 1969.

The Army and private chemical manufacturers disposed of liquid wastes in numerous unlined waste-disposal basins and trenches, resulting in groundwater, surface water, and soil contamination. By the mid-1950s, nearby residents discovered that the contamination was causing crop damage and affecting groundwater supplies. Soil contaminated with aldrin, dieldrin, dibromochloropropane (DBCP), and arsenic posed the most serious threat to public health.

The Cleanup

Both the Army and Shell Oil Company have been engaged in cleanup activities at the site since 1982. Thus far, more than \$1.3 billion has been spent by the responsible parties in the cleanup effort. In 1987, the site was officially added to EPA's National Priorities List (NPL) of hazardous waste sites needing cleanup. The cleanup plan, developed with EPA oversight, used an "outside-in" approach. In other words, to protect surrounding communities from the contamination, cleanup activities were prioritized in the outer areas closest to neighborhoods.

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JUST THE FACTS:

- Responsible parties have spent more than \$1.3 billion on cleanup efforts so far.
- Installed water treatment systems decontaminate 2.4 million gallons of groundwater per day. More than 2 million cubic yards of soil have been cleaned up, and over 9,000 tons of steel from demolished structures have been recycled.
- The wildlife refuge will provide safe habitat to hundreds of waterfowl, deer, black-tailed prairie dogs, and bald eagles.
- The 940-acre Western Tier Parcel was deleted from the National Priorities List on January 21, 2003.

The community has seen a renewal of development in the areas surrounding the Arsenal. Since the cleanup began, 43,000 new households have either been planned or constructed immediately north of the site. These are the first housing developments planned by Commerce City in 40 years. Cleanup work has also created jobs in the area.

Over the years, hundreds of public meetings have been held to strengthen community involvement in the decision-making process related to the cleanup and reuse plans.

During the initial stages of the cleanup, the U.S. Fish and Wildlife Service (USFWS) discovered that the site was inhabited by close to 300 wildlife species, including an abundance of deer, eagles, prairie dogs, hawks, coyotes, and owls. In recognition, Congress passed the RMA National Wildlife Refuge Act in 1992, which provides for the Arsenal to become a National Wildlife Refuge. It is anticipated that the 17,000-acre site will be fully cleaned up by 2011.

Progress Made

To date, work has been completed on the 940-acre Western Tier Parcel (WTP) portion of the RMA site, allowing the Agency to delete the area from the National Priorities List. Several proposals being considered for reuse of the WTP include commercial, recreational, ballfields, and open space options, as well as a community center and a Visitor Center for the refuge. Additional portions of the site are expected to be removed from the NPL in 2003, further establishing the wildlife refuge.

Overall, the RMA cleanup has included the treatment and removal of equipment and structures on the site, the incineration of approximately 10.5 million gallons of liquid waste, and the clean up of more than 2 million cubic yards of contaminated soil. Groundwater treatment systems have been constructed and currently treat 2.4 million gallons of water a day, and more than 9,000 tons of steel have been recycled from demolished structures. These cleanup activities use methods that will not only allow the wildlife refuge to thrive, but will also assure the protection of the many human visitors who will come to enjoy the area.

Benefits to the Community and Wildlife

The community has also seen a renewal of development in the areas surrounding the Arsenal. Since the cleanup began, 43,000 new households have either been planned or constructed immediately north of the site. These are the first housing developments planned by Commerce City in 40 years. Cleanup work has also created jobs in the area. Depending on the season, between 570 and 820 people involved in the cleanup are employed at the RMA site.

Restoring the refuge's prairie ecosystem is a major cleanup goal. Prairie ecosystems are highly endangered and have been destroyed faster than any other ecosystem in the country. The wildlife refuge will provide protected habitat for an estimated 3,600 black-tailed prairie dogs, more than 850 deer, hundreds of migrating waterfowl, and more than 50 bald eagles (the bald eagle is currently listed as a threatened species).

The successes of the Rocky Mountain Arsenal Superfund Site will continue as the wildlife refuge grows in size and scope. EPA is working tirelessly to rehabilitate this contaminated land that was environmentally scarred after years of destructive disposal practices. Through collaboration with the surrounding community, the responsible parties, local government, and the USFWS, EPA is ensuring that the cleanup of the site will result in a safe and healthy prairie ecosystem to be enjoyed by generations to come.

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The RMA National Wildlife Refuge will provide protected habitat for hundreds of mule deer, as well as black-tailed prairie dogs, migrating waterfowl, and eagles.