

Environmental Monitor

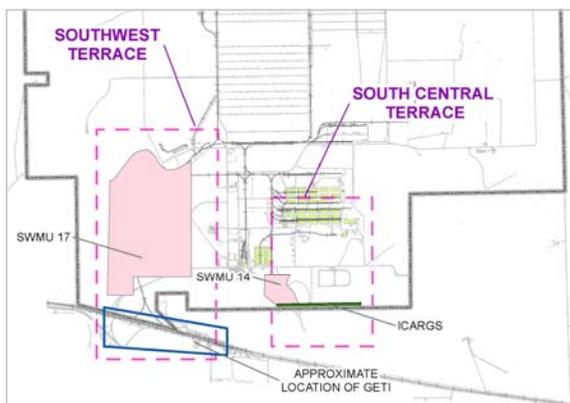
July 2010

Two-Tiered Groundwater Treatment Speeds Up Cleanup

By Kathleen Romalia, Shaw Environmental, Inc.

Groundwater cleanup at Pueblo Chemical Depot (PCD) is being accomplished with boundary treatment systems and in-situ (in-place) remediation activities. Boundary treatment systems were installed in 1994 and 2001, and in-situ cleanup started in 2009. These two approaches are used first to prevent contamination from migrating off PCD property, and second to remove the contamination sources. Ultimately, PCD will shut down all treatment systems when cleanup goals are reached.

PCD boundary treatment systems are the Interim Corrective Action Groundwater Remediation System (ICAGRS) located near Solid Waste Management Unit (SWMU) 14, the Sanitary Landfill; and the Groundwater Extraction, Treatment, and Injection (GETI) system located downstream of SWMU 17, the Trinitrotoluene Washout Facility and Discharge Sys-



tem. These systems prevent contamination from migrating off PCD property. Soil excavation and in-situ groundwater treatment systems (recirculation systems, infiltration galleries and bio barriers) are used at source and intermediate areas of groundwater contamination. The systems use enhanced bioremediation, or naturally occurring bacteria and food sources added to the groundwater, to break down contaminants in groundwater. Infiltration galleries and bio barriers help bio-enhanced groundwater move through the site,

promoting bacteria growth and creating a zone of bioremediation to help speed up the breakdown of groundwater contaminants. PCD also installed a network of groundwater monitoring wells below the barriers to evaluate the remedy's performance.

The recirculation systems, bio-barriers, and boundary treatment systems will ensure, over time, the capture and breakdown of contaminants in groundwater at the depot, ultimately cleaning up the groundwater so that the systems can be shut down. ◇

Calendar of Events

July 12: Restoration Advisory Board (RAB) Meeting—**RAB**
Tour of Environmental Restoration Sites



Depot Workers Learn More About Healthy Homes at Earth Day Celebration

By Kathryn Cain, PCD Environmental Manager

PCD celebrated Earth Day April 22, 2010, and hosted special guest speaker Susan Finzel-Aldred of the Pueblo City-County Health Department. Susan spoke about the many ways we can make our homes and our own environment more healthy. She explained how and where to recycle materials in Pueblo, and she described the features of the Department's new green building on Santa Fe.

PCD employees participated in a team-building experience of collecting recyclable materials and they also were able to learn more about a good way to cheer up an office or a room in your home — indoor plants. Did you know that plants “breathe in” carbon dioxide (what we breathe out) and create oxygen? Having a plant in your office or home can brighten up the room and make the air more healthy! ◇

The *Environmental Monitor* is published quarterly by Pueblo Chemical Depot for the citizens of Pueblo County and surrounding communities. Editorial views and opinions expressed in this publication are not necessarily those of the Department of the Army.

The *Environmental Monitor* encourages comments, questions, and suggestions. Please direct all correspondence to the Public Affairs Office, Pueblo Chemical Depot, 45825 Hwy. 96E, Bldg. 1, Pueblo, CO 81006-9330, or call 719-549-4135.

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PCD Completes Cleanup at Former Sandblast Building 545

By Tim Kilgannon, PCD Project Manager

There is more good news at Pueblo Chemical Depot (PCD). The cleanup is complete at Solid Waste Management Unit (SWMU) 49, the area around former Sandblast Building 545. This building was used until 1975 to sandblast coatings off machinery and vehicles. The building was demolished in 1996.

PCD hired Earth Tech (now AECOM) to sample soil and groundwater around and under the foundation of the demolished building. Results identified hexavalent chromium, a heavy metal, as the major contaminant of concern in soil. Earth Tech removed contaminated soils between 2003 and 2008. After several soil removal efforts, recent sampling shows that chromium levels are now below human health and ecological (plant and animal) risk-based screening levels for PCD.

AECOM prepared a Remedy Completion Report, which documents the sampling and soil removal at SWMU 49. Additionally, the Colorado Department of Health (CDPHE) has been an integral part of the review of this document and earlier work that led to this report. Based on the final results and CDPHE review, the report confirms completion of cleanup at the site. The area around former Building 545 is now safe for workers and animals alike. ◇

Geophysical Survey Defines Buried Materials at SWMU 60

By Shawn Weary, PCD Environmental Protection Specialist

Geophysical work is progressing at SWMU 60, the Pershing Missile Disposal Area. This area was once used to decommission and dispose of Pershing missile components at PCD. From 1988 through 1991, the Army decommissioned Pershing missiles at the depot in accordance with the Intermediate-Range Nuclear Forces Treaty. Under this agreement, the United States and the former Soviet Union agreed to eliminate both nuclear and conventional ground-launched missiles with intermediate ranges.

During decommissioning at PCD, the Army conducted static firing tests of the separated upper

and lower stages of the missiles. Next, the missile casings and components were crushed. Spent and crushed missile casings were buried at the Pershing Missile Disposal Area, a 7-acre area in the western portion of SWMU 60. Asbestos-containing components, such as thrust nozzles and heat shields, were disposed in the Asbestos Landfill, a 3-acre area in the eastern portion of SWMU 60.

The Army prepared a RCRA facility investigation (RFI) Phase I Work Plan for SWMU 60, which planned for a geophysical survey to be conducted at SWMU 60. The purpose of the survey was to define where missile casings or other debris are



Geophysical sleds help map buried objects at SWMU 60

buried on the missile disposal portion of SWMU 60. The work plan was approved by CDPHE on March 2, 2010. During the week of April 12, the Army's contractor, AECOM, performed the geophysical survey.

Technicians surveyed the area using an EM-31 dual-sensor magnetometer array with an integrated global positioning system (GPS) unit that records both location and magnetic data. By making calculated passes with the hand-pulled sled, technicians were able to map buried objects and variations in soil density. This information will be used to help define the location and contents of three burial trenches at SWMU 60.

AECOM is currently processing field data and will prepare a report in the next few months. Survey results will provide PCD with valuable geophysical information to accurately identify the extent of materials in SWMU 60 and begin developing a cleanup approach for this area. ◇



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Predators Stalk Their Prey

by Max Canestorp, U.S. Fish and Wildlife Service

Predator/prey relationships happen around us all the time. Two coyotes chase down a jackrabbit; a badger digs a spotted ground squirrel out of its burrow; a red-tailed hawk swoops down from its perch, picks up a bull snake, and flies off to feed the young in its nest. In simplest terms, predators are animals that feed on other animals, and prey are the animals being fed upon. The prey in the last example given above (the bull snake) is also an efficient predator in its own right, feeding primarily on small mammals.

Because of the visibility afforded by the open prairie, these predator/prey interactions are often quite easy to observe in this region, unlike those in forested areas. In early June, soon after the pronghorn have dropped their fawns, it's not uncommon to see one or more coyotes coursing back and forth across the prairie, searching for a fawn lying hidden in the grass, while the mother stands nervously on a nearby ridge, watching. If the coyotes get too close to her fawn, she may



Coyotes hunt pronghorn on the prairie

feel confident enough, or protective enough, to actually chase the coyotes away.

There is much we don't understand yet about these relationships and interactions. Coyotes and badgers reportedly "team up" from time to time, to cooperate in putting food on the table. They have been seen ambling side-by-side across the prairie, only to stop at a prairie dog burrow where the badger starts digging down into the den while the coyote sits patiently by, waiting to grab a prairie dog fleeing out of an adjoining burrow. This curious partnership has been observed at PCD and elsewhere as well.

Prairie dogs are an important prey item for many PCD predators. Being colonial, they provide many tasty entrees in a concentrated area to which hunters can devote their attention. Primary prairie dog predators include coyotes and badgers, of course, and also ferruginous hawks, eagles, and rattlesnakes. Coyotes like to hunker down in a ditch or in tall cover adjacent to a prairie dog colony and raise up just enough to see through the grasses. From this vantage point they watch for an unsuspecting prairie dog to get far enough away from its burrow that the coyote can charge out and grab it before it escapes.



Pronghorn (prey)

Coyote (hunter)

Birds of prey look for high perches, such as telephone poles, that give them a vantage point for searching out their next meal.

The black-footed ferret, an endangered weasel-like animal, is another predator that feeds almost exclusively on prairie dogs (PCD is included in historic black-footed ferret range, but ferrets no longer exist on the depot).

However, living in a colony has its advantages: while some prairie dogs are busily foraging for food, others act as lookouts and sound an alarm if they observe a predator. Mounds built around the mouths of their burrows provide elevated platforms from which they can better detect impending danger. Because prairie dogs are mostly active during daylight hours, they don't worry as much about night-time hunters, such as great horned owls.

The give and take of predator/prey relationships helps keep wildlife populations in balance. That being the case, the PCD Environmental Management Office generally does little to influence the outcomes of these interactions. Predator/prey relationships are like games that the players take very seriously. As well they should — their very lives depend on who wins. ◇

CONTACT US If you have questions about the environmental restoration projects or base reuse, please call: Chuck Sprague, Pueblo Chemical Depot (PCD) Public Affairs Officer, 719-549-4135 • Kathryn Cain, Chief, PCD Environmental Management Office, 719-549-4201

Or return this form to: U.S. Army Pueblo Chemical Depot, 45825 Hwy. 96E, Building 54, Pueblo, CO 81006-9330

Would you like to be added to our mailing list? Yes No

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City/State/Zip _____ Phone (optional) _____ Email (optional) _____

The PCD Environmental Program schedules presentations that can be given to community groups, clubs, and schools. If you know of a group that might be interested, please complete the following:

Name _____ Address _____
City/State/Zip _____ Phone _____ Email _____



U.S. ARMY PUEBLO CHEMICAL DEPOT

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ENVIRONMENTAL MANAGEMENT OFFICE

45825 Highway 96 East, Building 54
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Information Repositories

Boone Fire Station: 421 E. 1st St, Boone, CO, (719) 947-3311
Hours: 8 a.m. to 2 p.m. M-Th

Robert Hoag Rawlings Public Library: 100 East Abriendo, Pueblo, CO, (719) 562-5600
Hours: 9 a.m. to 9 p.m. M-Th; 9 a.m. to 6 p.m. F-Sat;
1 p.m. to 5 p.m. Sun

Avondale Water & Sanitation District: 321 3rd St,
Avondale, CO, (719) 947-3186
Hours: 8 a.m. to 5 p.m. M-F (closed 12:00 to 1:00 p.m. for lunch)

Pueblo Chemical Depot Document Tracking Center
Environmental Management Office, (719) 549-4268
Hours: 6:30 a.m. to 5 p.m. M-Th

Additional Contacts

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Jeannine Natterman, Public Information Officer, (303) 692-3303 or (888) 569-1831, ext. 3303
Hazardous Materials and Waste Management Division,
Colorado Department of Public Health and Environment

Vera Moritz, Program Manager, U.S. Environmental Protection Agency, (303) 312-6981

Heather Maio, Environmental Health Director, Pueblo City-County Health Department, (719) 583-4321