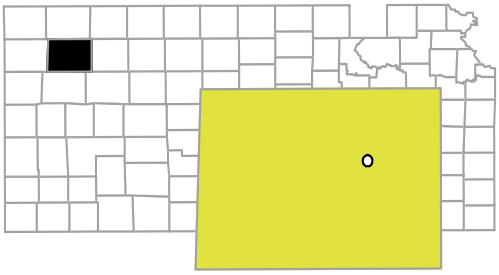
ACE SERVICES

KANSAS
EPA ID# KSD046746731

EPA Region 7
City: Colby
County: Thomas County
Other Names:

10/11/2011



SITE DESCRIPTION

The 2.5 acre Ace Services site is a former chrome plating facility where chrome plating was applied to farm implement parts. The facility operated from 1969 to 1989, and was permanently closed in early 1990. From 1969 to 1975, chrome plating wastewater generated during operations at the Ace Services facility was discharged directly to the ground surface immediately west of the unnamed tributary to Prairie Dog Creek. A local citizen filed a complaint with the Kansas Department of Health and Environment (KDHE) in early 1971. KDHE and EPA collected wastewater samples in 1971 and 1972, that showed the presence of chromium. In 1974 and 1975, concrete retention vats were installed at the Ace Services facility, and an evaporation lagoon was built immediately adjacent to the facility to receive discharged wastewater. The evaporation lagoon was not lined, however, and chromium-contaminated wastewater was allowed to contaminate soil and infiltrate into the ground. Chrome plating solutions, bulk hazardous wastes, and caustic acidic processing materials contained in vats and drums were present at the site. Ground water from the Ogallala Aquifer is the sole source of municipal and private drinking water in and around the city of Colby. The Colby public water supply well No. 8 is located one-fifth of a mile from the site. This well was closed by KDHE in 1980, due to chromium concentrations measuring above Federal drinking water standards. Approximately 6,180 people are currently served by seven Colby municipal drinking water wells. All of these wells are located within a 4-mile radius of the site, and each draws water from the Ogallala Aquifer. The area is an agricultural community with a total population of approximately 6,525, including college students and nearby rural residents. Residences and commercial property surround the site.

Site Responsibility:

The site is being addressed through Federal, State, and potentially responsible parties' actions.

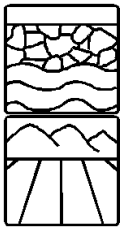
NPL LISTING HISTORY

Proposed Date: 02/13/95

Final Date: 09/29/95

Deleted Date:

THREATS AND CONTAMINANTS



Soils and sludge in the lagoon area were contaminated with chromium prior to removal by Ace Services, KDHE and EPA. Surface wastewater was also contaminated with chromium prior to treatment and disposal by KDHE and EPA. The ground water in the Ogallala Aquifer is contaminated with chromium. Inhalation exposure to lead and chromium VI in indoor air within on-site buildings and ingesting contaminated ground water were the primary threats to the public.

CLEANUP APPROACH

Response Action Status

Initial Actions: In 1981, Ace Services excavated approximately 2,200 cubic yards of chromium contaminated soil and sludge from the lagoon area and disposed of it at the Thomas County Landfill, a municipal sanitary landfill. In early 1992, KDHE removed the bulk hazardous liquid and solid wastes stored inside the Ace Services facility. In mid-1994, EPA removed residual contamination (mainly dusts) from the building interior, excavated the concrete trough and the underlying soil, installed additional building support columns near the trough, demolished the wastewater treatment building, excavated underlying soil, and excavated and stabilized the lagoon soil. All waste was shipped off site for disposal, except for approximately 3,000 gallons of wastewater, which were treated on site and discharged to a publicly owned treatment works.

Buildings: EPA conducted indoor air sampling in the building in 1996. The Remedial Investigation/Feasibility Study (RI/FS) was completed in 1999. A remedy for the buildings was selected in the Record of Decision (ROD) signed May 5, 1999. The Remedial Design was completed for the buildings in 1999. The cleanup of the buildings was completed in March 2000. The Final Remedial Action Report was approved December 5, 2000. Because of a large increase in the size of the ground water plume, EPA decided in a ROD amendment dated September 13, 2001, to demolish the buildings at the site so that a ground water treatment plant could be constructed there. This demolition was the first phase of construction at the site, and was completed in May 2002. During this demolition, more than 1000 cubic yards of contaminated soil and concrete rubble was removed and disposed at a hazardous waste landfill; this was much more than anticipated during project design.

Groundwater: KDHE installed and sampled three groundwater monitoring wells at the site in

1990. During 1995, KDHE sampled groundwater monitoring wells and residential wells. EPA conducted groundwater sampling of monitoring wells and residential wells in 1996. During 1997, EPA installed two additional groundwater monitoring wells and sampled all groundwater monitoring wells and residential wells. The RI/FS was completed in 1999, and a remedy for final cleanup was selected in the ROD signed on May 5, 1999, following a public meeting in Colby. Additional monitoring wells were installed in 2000 during remedial design, revealing a larger-than-expected plume. Residential wells were sampled in 1999, 2000, and 2001. A ROD amendment was completed on September 13, 2001, for a larger treatment plant, to be placed on the Ace Services property, utilizing ion exchange technology to remove chromium from the extracted groundwater. The amendment also addresses the provision of a city water line to serve residences with affected residential water wells. Design was completed on the groundwater extraction and treatment system, and notice to proceed was given to the subcontractor on May 28, 2002. Work on the construction was completed and a performance test of the treatment plant showed it to work very well. Operation began on August 12, 2003, and the plant has operated successfully since then.

The amended remedy includes institutional controls including deed restrictions, as permitted by law, to prevent use of contaminated groundwater. In 2002 the City of Colby passed an ordinance requiring connection to the City public water system for properties within the City limits and prohibiting new construction of water wells within the City limits, as well as requiring certification by KDHE as bacteriologically safe for personal use of any existing wells.

A Five Year Review was conducted in September 2008 and the remedy was found to be protective of human health and the environment. Exposure pathways to groundwater do not exist because the City of Colby ordinance has required the connection of private wells to the City public water system and prohibited any new well construction.

The restoration of the aquifer has progressed by pumping and treating the chromium contaminated groundwater. The pumping of the groundwater within the aquifer is facilitated by six nested extraction wells. The treatment of contaminated groundwater is performed by the ion exchange process using a strong base anionic resin. The treated groundwater from the ion exchange plant is discharged to the City of Colby public drinking water system as needed, or can be discharged to the on-site tributary to Prairie Dog Creek.

Groundwater monitoring of monitoring wells, extraction wells and residential wells is conducted semi-annually. The City of Colby operates the ion exchange groundwater treatment plant under a Cooperative Agreement with EPA. Within the groundwater ion exchange treatment plant, the sampling for hexavalent chromium is conducted for the well field composite, the plant influent, the lead resin bed effluent, the train effluent, and the effluent tank which goes to the City system, twice each day and analyzed within the plant. Sampling and analyzing for total chromium within the treatment plant is conducted for the effluent tank which goes to the City public water system. Weekly ground water treatment plant samples are sent to an off-site laboratory for analysis of total chromium. The Cooperative Agreement quarterly performance reports from the City of Colby include the treatment plant operation and maintenance summary, the sampling data, and financial information.

In February 2010 shallow monitoring well 6, which historically had high chromium

concentrations, was converted to an extraction well in order to accelerate the clean up of the site groundwater plume. Sampling results have shown that extraction well 6 is pumping high concentrations of chromium from the aquifer for treatment by the ion exchange groundwater treatment plant.

During March through May 2011 a geomembrane/soil cap was constructed on site over the former lagoon area where the highest chromium concentrations in soil at depth are located beyond a depth feasible for excavation. The composite geomembrane and soil layered cap will prevent infiltration of rainfall and stormwater and will inhibit further migration of the groundwater plume.

Site Facts:

ENVIRONMENTAL PROGRESS

Removing containers of hazardous waste and removing and stabilizing contaminated soils, sludges, dust, and buildings, and treating contaminated wastewater reduced threats at the Ace Services site while investigations into groundwater contamination were conducted. Remedial design for the groundwater remedy was completed and construction of the ion exchange groundwater treatment system was completed. The ion exchange groundwater treatment system is operating and groundwater is monitored semi-annually..

A Remedial Systems Evaluation (RSE) with a report dated September 2007, was issued by EPA Headquarters. The RSE found a well-operated system and provided recommendations for improvements in remedy effectiveness, reductions in O&M costs, technical improvements, and gaining site closeout. Additionally as part of the RSE, the KDHE requested further evalaution of the source area to determine if residual source materials exist and if they are contributing to ground water contamination. Additional source area investigation was conducted in 2008, including installation of an additional extraction well and several direct-push soil borings.

The first Five Year Review for the site was completed in September 2008. The remedy was found to be protective of human health and the environment because exposure pathways to groundwater have been removed through connection of private wells to the City water system, and an institutional control in the form of a City ordinance prohibiting the installation of any new wells and requiring certification by KDHE of bacteriological safety for existing wells.

A bench scale treatability study began in February 2010 to evaluate reductant blends of ferrous sulfate to convert hexavalent chromium to trivalent chromium in vadose zone site soils. The bench scale treatability study did not result in conversion to trivalent chromium which was attributed in part to the alkaline pH of the site soils.

In February 2010 in order to accelerate the clean up of the groundwater plume, shallow well 6, which historically had high chromium concentrations, was converted to an extraction well. Sampling results from extraction well 6 have shown that this well is pumping high concentrations of chromium from the aquifer for treatment by the ion exchange groundwater treatment plant.

During March, April and May 2011 a geomembrane/soil cap was constructed over the former lagoon area where the highest chromium concentrations in soil at depth are located beyond a depth feasible for excavation. The layered cover is comprised of composite geomembrane, soil and native grasses. The geomembrane/soil cap will prevent infiltration of rainfall and stormwater and inhibit further migration of the contaminated groundwater plume.

COMMUNITY INVOLVEMENT

6/98 - Community involvement interviews/community involvement plan.
12/98 - Public meeting, public comment period, fact sheet, display ad published in Colby Free Press, announcing the Proposed Plan.
8/99 - Fact Sheet, display ad published in Colby Free Press announcing ROD.
6/01 - Fact Sheet, public comment period, display ad published in Colby Free Press, announcing Amendment to ROD and public meeting 7/9/01.
11/07 - Fact Sheet announcing the start of the first Five Year Review. Display ad in the newspaper.
11/08 - Fact Sheet announcing completion of first Five Year Review. Display ad in the Colby Free Press.

SITE REPOSITORY

Pioneer Memorial Library
375 W. Fourth St.
Colby, Kansas

Superfund Records Center
901 N. 5th St.
Kansas City, KS 66101
Mail Stop SUPR
(913)551-7166

REGIONAL CONTACTS

SITE MANAGER:	Catherine Barrett/SUPR/R7/USEPA/US
E-MAIL ADDRESS:	barrett.catherine@epa.gov.
PHONE NUMBER:	(913) 551-7704
COMMUNITY INVOLVEMENT COORDINATOR:	Ben Washburn
PHONE NUMBER:	(913) 551-7364
E-MAIL ADDRESS:	washburn.ben@epa.gov
STATE CONTACT:	Ashley Allen
PHONE NUMBER:	(785) 291-3089

MISCELLANEOUS INFORMATION

STATE:	KS
	07GE
CONGRESSIONAL DISTRICT:	01
EPA ORGANIZATION:	SFD-MOKS/SUPR

MODIFICATIONS

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