Gilt Edge Mine Superfund Site

Lead, South Dakota

Community Involvement Plan

Updated April 2012

On the cover, clockwise from top:

Hoodoo Fill

Sunday Pit

Strawberry Gulch

Introduction

The U.S. Environmental Protection Agency's (EPA) Superfund Community Involvement Program is committed to promoting communication between the communities and residents surrounding the Gilt Edge Mine Superfund Site, EPA, and the South Dakota Department of Environment and Natural Resources (DENR). EPA will use the community involvement activities outlined in this plan to ensure that residents are continuously informed and provided opportunities to be involved throughout the cleanup process.

This plan is based on meetings and interviews with individuals of Lead, Deadwood and other surrounding communities representing a broad range of private residents, local government officials, businesses and community organizations. EPA's community involvement activities are designed to:

- Inform the public of the nature of the environmental issues associated with the site.
- Involve members of the public in the decision-making process that will affect them.
- Involve the public in the responses under consideration to remedy these issues.
- Inform the public of the progress being made to implement the remedy.

This community involvement plan is a "living document," meaning that it will be modified as new information and issues develop while site cleanup activities are ongoing.

This plan is arranged in the following sections:

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I. Community Involvement Background

A. History of Community Involvement

The Gilt Edge Mine was listed on the National Priorities List (NPL) in December 2000, at which time EPA community involvement staff completed the first community involvement plan for the site. In general, interviewees were not concerned about any imminent dangers arising from the mine site or cleanup activities. However, most individuals expressed a fairly high level of concern about water quality because of acid rock drainage (ARD) from the mine that contaminated nearby streams and creeks for many years. ARD is created when water comes into contact with highly mineralized rocks and soils that have been unearthed and exposed to air. This water becomes acidic, and the acid draws heavy metals from the rocks and soils through which it drains.

In 2000 and 2001, EPA hosted public meetings and public comment periods to gather input on the proposed plans for cleanup for Operable Unit 2 (OU2) and OU3. EPA mailed a site update to community stakeholders in 2002 and continuously updates its website in order to provide information to the public.

In the spring of 2008, EPA issued the Remedial Investigation report for OU1. EPA announced the availability of this report in local newspapers, held meetings with individual stakeholders, and hosted site tours.

In May 2008, EPA issued a proposed plan for cleanup for OU1 and held a public comment period. EPA hosted a public meeting to take comments from the public, met with stakeholders to hear their views, and again hosted site tours. The final Record of Decision (ROD) for OU1 includes public comments received on the proposed plan and our responses to those comments.

In January 2012, EPA and DENR staff completed community interviews with residents and local officials of Lead, Deadwood, Sturgis, and Spearfish, to update the community involvement plan. These interviews serve as the foundation of this community involvement plan, and the responses are used to best identify community concerns, needs and outreach during all phases of the Superfund process.

B. Current Concerns

Below are highlights of the responses and information about the types of concerns that were raised during the interviews.

Current Knowledge of the Gilt Edge Mine Site

Many interviewees have general knowledge about the site, such as its location and history. There were a few interviewees who live near the site or have been involved with EPA actions and know specific details about the site history and cleanup actions to date. There were other interviewees who know very little about site, its location or history.

Environmental Concerns

Most interviewees stated that their main concern revolves around ARD generated at the site and water quality in Strawberry Creek and Bear Butte Creek. There was a large concern that EPA will have to treat contaminated water generated at the site forever. There was also concern expressed that once EPA turns the site over to DENR, the financial burden of collecting and treating ARD wa-

ter and ongoing maintenance operations may be difficult for the state to sustain over the long term. There were a few interviewees who expressed the need for downstream water quality and biological monitoring. Other interviewees stated that they did not have any environmental concerns and thought that EPA is doing a good job managing the site.

Health Concerns

Overall most interviewees did not have many health concerns regarding the site. A few of the interviewees stated that their main health concern is exposure to water from Bear Butte Creek or Strawberry Creek if there were a significant release of contaminated water from the site. A couple of interviewees had concerns about what would happen if a catastrophic event were to affect the site, such as a long-term power outage at the water treatment plant, a high water event or an earthquake.

Ongoing Cleanup and Remediation Concerns

Most interviewees did not have major concerns regarding the current remedial actions at the site. A few interviewees did have some concern that water treatment will have to continue forever. These interviewees are concerned that EPA and SD DENR will not have funding to continually treat water at the site. Other interviewees expressed concerns about the current remedies in place. There was concern regarding protective geomembrane caps in place in the Ruby Repository and making sure something does not puncture them. There was also a concern regarding groundwater contamination and what is being done to monitor and treat the problem. Some interviewees expressed concern about the cost to taxpayers to remediate the site.

Communication and Public Outreach

Most interviewees preferred to have information about the site emailed to them. It was suggested that EPA provide an annual update to interested residents and elected officials. In addition to the annual update, many individuals would like to see some information on the impact of the employment of site workers and contractors on the local economy. Some local officials would like to receive quarterly or annual water monitoring and discharge reports.

Many interviewees stated that "no news is good news" when talking about the site, but would like to receive information as soon as possible if something with a potentially negative impact happens. It was also stated that it is important to share information with other individuals and communities in the entire Black Hills area beyond Lead and Deadwood. Some interviewees indicated that they did not have much concern about the site.

Most interviewees indicated that the Deadwood City Hall would be a good place to conduct public meetings in the future. It was indicated that the best way to get information out regarding site activities would be through the following: the *Back Hills Pioneer*; *the Rapid City Journal*; information distributed to the towns of Lead and Deadwood; and announcements on the local radio station, KDSJ. A few interviewees stated that EPA should use Facebook or the Lead City Hall Facebook page to announce new information and public meetings, and to post fact sheets.

II. Community Involvement Program

A. Response to Concerns and Communication Needs

Overall most of those interviewed felt they have been adequately informed about Superfund activities at the site. However, there were a few interviewees who stated they either did not feel adequately informed or did not know about Superfund activities in the area. It appears that most of the interviewees are pleased that EPA and SD DENR are taking action at the Gilt Edge Mine.

Many of the interviewees were appreciative of EPA taking the time to conduct community interviews and involve the public throughout the Superfund process. EPA will begin to produce annual updates for the site and will update community members and elected officials if there is new information to share, public meetings to announce, or upon request. EPA will use the *Black Hills Pioneer* and/or *Rapid City Journal* to announce public meetings and place public notices about the site. Deadwood City Hall will be used for public meetings and input sessions, unless community members object and suggest a better alternative.

B. Community Involvement Objectives

This section will outline specific activities and resources that EPA will use to help the public be actively involved in the cleanup progress.

Fact Sheets

EPA uses fact sheets as a key way to provide site-related information to the public. They are short (2–4 pages) documents, written in non-technical language to describe current events, cleanup progress, or to announce events at the site. EPA will post fact sheets on our website and mail them out to our mailing list. EPA will create fact sheets as events dictate or in response to community requests for specific information.

Community Meetings

EPA will hold public meetings at various milestones throughout the Superfund process. These meetings will convey site information through presentations and discussions, and answer questions from the general public. Different types of meetings will be used to best suit the needs of the public and EPA, and include town hall meetings, PowerPoint presentations, open houses, informal gatherings, etc.

Website

EPA has established a website and will keep it updated with the latest site and contact information. The website address is: www.epa.gov/region8/superfund/sd/giltedge/.

Mailing List

EPA maintains a mailing list for the site. It is used for distribution of fact sheets and meeting notices. To be added or deleted from the mailing list, please contact Chris Wardell (see contact information in the attachments).

Public Comment Periods

The public comment period is the time during which EPA accepts comments from the public on proposed actions and decisions. Public comment periods enable the public to participate in the decision-making process. The comment periods will be announced in several ways including the

use of public notices, fact sheets, announcements at public meetings, and/or through the mail and email lists.

Public Notices

EPA will announce community meetings, decisions, comment periods and other information that the public should know about the site through public notices. These public notices will appear in the *Rapid City Journal* and/or the *Black Hills Pioneer*.

Technical Assistance Grants (TAG)

Grants of up to $50,000 are available to incorporated nonprofit organizations of community members affected by the site. TAGs can be used for hiring a technical advisor, attending approved training, and obtaining relevant supplies and equipment. A technical advisor is an independent expert who can explain technical information and help articulate the public's concerns to EPA.

Community Advisory Group (CAG)

A CAG is a committee, task force or board comprised of stakeholders affected by the site that meets periodically to learn about EPA's cleanup progress, discuss issues and concerns and provide feedback to EPA officials.

III. Site Description and Background

A. Site Overview

The Gilt Edge Mine Superfund Site is located approximately 6.5 miles southeast of the city of Lead in the northern Black Hills in Lawrence County, South Dakota. The site is located at the headwaters of three tributaries draining into Bear Butte Creek: Strawberry Creek, Terrible Gulch and Ruby Gulch.

Mining began at the site in 1876 when the Gilt Edge and Dakota Maid mining claims were located. Sporadic mining by numerous operators was conducted at the site until 1941. Early gold miners developed extensive underground workings that wind through the central portion of the site and deposited mill tailings in Strawberry Creek and Bear Butte Creek.

Beginning in 1975, an extensive mine development program at the site was begun to investigate potential production of gold and other metals. Several companies engaged in both surface and underground mining as well as other mining related activities.

In 1986, Brohm Mining Company began development of a large scale open pit, cyanide heap leach gold mine operation. In 1999, Brohm Mining Company abandoned the site. At the request of the state, EPA listed the site on the NPL in 2000 and assumed responsibility for cleanup.

The site is contaminated as a result of historic mining activities. ARD is a significant environmental problem impacting water quality at the site. Other sources of contaminants at the site include hazardous substances such as arsenic, aluminum, cadmium, copper, iron, lead, manganese and zinc contained in the solid mine wastes and soils.

B. Cleanup Progress

The Gilt Edge Mine Superfund Site is organized into three operable units: OU1, OU2 and OU3.

Operable Unit 1

OU1 addresses the surface contamination for the entire disturbed area. EPA finalized the final Remedial Investigation (RI) report for OU1 in early 2008. The RI report details the nature and extent of the residual mining contamination in the groundwater, surface water, waste rock and soils at the site.

EPA issued a Feasibility Study (FS) report in the spring of 2008. The FS report analyzed various remedial alternatives that could be used to reduce the amount of ARD that is generated at the site and to remove or contain contaminated fill materials. The primary objective of all of the alternatives described in the FS report, including the alternative ultimately selected in the ROD, was to reduce the amount of ARD that is generated on-site in order to protect human health and the environment.

In the spring of 2008, a proposed plan was issued for public comment. This proposed plan presented all of the alternatives offered in the FS and described in detail EPA's preferred alternative. In September 2008, EPA issued a ROD for OU1 of the site, identifying EPA's final cleanup decision. A primary goal of the OU1 cleanup will be to clean up and contain mine wastes at the site. This is anticipated to reduce the amount of contaminated water that is generated on the site and treated in the water treatment plant.

Operable Unit 2

OU2 includes the management and treatment of ARD that threatens surface water quality in the area. Discharge of ARD water without treatment poses a risk to human health and the environment, particularly to surface water quality in Strawberry Creek and Bear Butte Creek. In 2001, after receiving public input on its plans, EPA implemented an interim remedy for OU2 that converted the existing water treatment plant to a lime, high-density sludge system. This provided a cheaper and more efficient means of treating the water on-site.

The water treatment plant continuously treats ARD water that is collected at various facilities around the site. Several water diversion structures have been constructed to keep uncontaminated water from entering the treatment plant conveyance system.

The final remedial decision for OU2 will provide for the study, design and implementation of a water treatment system that produces water in compliance with water quality standards. EPA will issue the final decision, taking public input into consideration, after the OU1 Record of Decision remedy is implemented and the resulting new site conditions are investigated. It is estimated that once the OU1 remedy is implemented, there will be less water on-site to treat, and the chemistry of this water will be different from the current conditions.

Operable Unit 3

OU3 addresses ARD coming from the Ruby Gulch Waste Rock Repository. The repository is a large ARD source on the Gilt Edge Mine site. ARD generated from the sulfide-bearing wastes within the dump, if not reduced and contained, posed a major threat of contamination and release into the Ruby Gulch drainage and Bear Butte Creek.

Beginning in 2001, EPA addressed this threat by reducing the volume of contaminated materials exposed, reducing water infiltration that produced large quantities of ARD, and containing waste materials. EPA constructed a cap for the Ruby Gulch Waste Rock Repository, which included a monitoring system, drainage systems, a synthetic liner and a clean soil cover. At the completion of that work in 2003, EPA began ongoing performance monitoring and operations and maintenance activities at the site.

In 2004, it was noted that outflows from the "Ruby Toe" were higher than anticipated. Tests performed on the drainage diversion ditches indicated that many of them were leaking. EPA, in consultation with DENR, decided to minimize the leakage from the ditches by drilling and pressure grouting the stretches that have been shown to be highly fractured and leaking surface water into the ground.

In 2009, the site received $3.5 million in American Recovery and Reinvestment Act (ARRA) funds to implement the ditch grouting and lining work in OU3. Approximately 1,000 linear feet of the ditches were cleaned of rock, riprap and other loose debris, drilled to an average depth of 20 feet, and pressure grouted, which involves injecting concrete to seal joints, cracks and fractures.

In 2010 and 2011, drilling and pressure grouting continued and some ditches were also lined with an impermeable geomembrane, to aid in reducing infiltration. Approximately 3,200 linear feet of ditch were grouted and approximately 660 linear feet of ditch were lined with geomembrane to reduce or eliminate surface water infiltration into the Ruby Repository. These activities are anticipated to reduce the potential for mobilization of residual heavy metal constituents from the waste rock to surface water.

The remedial action at OU3 will be completed when the final eight acres adjacent to the water treatment plant are capped. This will occur during implementation of the OU1 remedy.

C. Community Profile

Lawrence County

Lawrence County is located on the western border of South Dakota and includes the cities of Deadwood, Lead, Spearfish, Whitewood and the township of St. Onge. The county seat is located in Deadwood. The county has a rich mining background, which includes the Homestake Gold Mine, the world's longest producing gold mine; located in the city of Lead.

The Gilt Edge Mine is located approximately 6.5 miles from Lead and 7.6 miles from Deadwood.

Demographics

In 2010 Lawrence County had a total population of 24,097 (12,162 females and 11,935 males). The median age is 41 years.

Income

In 2010 the median income for a household in Lawrence County was $43,869. Males had a median income of $30,609 versus $21,576 for females. The per capita income for the county was $26,667. About 5.6 percent of families and 13.4 percent of the population were below the poverty line.

Lead

The city of Lead was founded on July 10, 1876 after the discovery of gold and became a company town for the Homestake Mining Company. The Homestake Mine was the largest, deepest and most productive gold mine in the western hemisphere, stretching over 8,000 feet below Lead. The mine closed in January 2002 after 125 years of operation. Two prominent geographic features in Lead are the giant open cut pit used for surface gold mining by the Homestake Mine and the resulting ridge nearby built with ore waste material from the pit.

The Homestake Mine is currently being used as the Sanford Underground Laboratory at Homestake. The South Dakota Science and Technology Authority is using the mine as a laboratory for low-background physic experiments on dark matter, biology and mine engineering studies. On July 10, 2007 the National Science Foundation named the Homestake site for a Deep Underground Science and Engineering Laboratory, which will include facilities and labs throughout the mine up to a depth of 8,000 feet or perhaps deeper.

Lead's proximity to the city of Deadwood, 3.4 miles, leads the two towns to be collectively named "Lead-Deadwood."

Demographics

In 2010 the city of Lead had a total population of 3,124 (1,553 females and 1,571 males). The median age is 40.5 years.

Income

In 2009 the median income for a household in Lead was $38,221. Males had a median income of $34,286 versus $26,056 for females. The per capita income for the city was $18,321. About 5.6 percent of families and 13.4 percent of the population were below the poverty line.

Deadwood

Deadwood was founded in 1876 during the Black Hills gold rush when gold was discovered in a narrow canyon in the northern Black Hills. This canyon became known as Deadwood Gulch. Deadwood was soon populated with prospectors looking for an easy way to get rich from gold mining during the Black Hills gold rush. This lawless region attracted a crowd of "rough and shady characters." Wild Bill Hickock, a well known scout and frontier marshal, was shot and killed in Deadwood in 1876. Deadwood gradually evolved into a prosperous commercial center due to the construction of a railroad.

As the mining industry declined over the years, the community looked at other sources of income. In 1989 voters in South Dakota approved limited stakes casino gambling. The introduction of gaming in Deadwood has allowed the community to preserve its many historic buildings and increase tourism and revenue to the city. The Lead-Deadwood area also depends on logging and milling to contribute to the area's economy.

The Black Hills area is also important to the Lakota Sioux people, as this area includes ancestral lands and was included in the 1868 Treaty of Laramie.

Demographics

In 2010 the city of Deadwood had a total population of 1,270 (603 females and 667 males). The median age is 47.6 years.

Income

In 2009 the median income for a household in Deadwood was $31,477. Males had a median income of $30,833 versus $23,603 for females. The per capita income for the city was $22,735. About 9.7 percent of families and 13.2 percent of the population were below the poverty line.

D. References

City of Deadwood, South Dakota. 2011. *History: An Entire American City Named a Historic Landmark!* Retrieved December 13, 2011, from www.cityofdeadwood.com/

City of Lead, South Dakota. 2011. *Visit Lead.* Retrieved December 13, 2011, from www.cityoflead.com/visitlead.html

Environmental Protection Agency. 2011. *Superfund Program, Gilt Edge Mine*. Retrieved December 12, 2011, from www.epa.gov/region8/superfund/sd/giltedge/

Lawrence County, South Dakota. 2011. *About Us.* Retrieved December 12, 2011, from www.lawrence.sd.us/history.htm

Lead Area Chamber of Commerce. 2011. *History of Lead, South Dakota.* Retrieved December 12, 2011 from www.leadmethere.org/historyoflead.php

United States Census Bureau. 2001. *American Fact Finder*. Retrieved December 13, 2011 from factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml

Attachments

A. Contacts

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Tim Johnson U.S. Senator 605-341-3990	405 E Omaha St, Ste B Rapid City, SD 57701
John Thune U.S. Senator 605-348-7551	1313 W Main St Rapid City, SD 57701

B. Location of Information Repositories

Phoebe Apperson Hearst Library
315 W Main St
Lead, SD 57754
605-584-2013
Email: hearstlibrary@sdln.net

C. Community Interview Questionnaire

Gilt Edge Mine Community Interviews

Interview Contact _____

Date _____

Interviewer _____

1. Have you had a chance to learn about the Gilt Edge Mine Superfund Site and if so what areas are you familiar with?

2. What environmental concerns do you have regarding the site?

3. What health concerns do you have regarding the site?

4. What questions or concerns do you have regarding the ongoing cleanup actions at the site?

5. What information would you like to receive from EPA about this site? How often would you like to receive information from us?

6. What is the best way to keep you informed about the site?

7. How do you currently receive information on this site?

8. What advice would you have to effectively involve the surrounding communities in EPA activities at the site?

9. Who else should we talk to?

10. Is there anything else you would like to add?

D. Site Map

85
14
Sturgis
Deadwood
14
Lead
Gilt Edge
Mine Site
Gilt Edge Rd.
Meade County
85
90
385
Lawrence County

United States
Environmental Protection
Agency

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