

FOR INFORMATION, CONTACT:

Colorado Department of Public Health and Environment:

Wendy Naugle, Project Manager
(303) 692-3394

Toll free: 1 (888) 569-1831, ext 3394

wendy.naugle@state.co.us

Warren Smith, Community Involvement
Manager

(303) 692-3373

Toll free: 1 (888) 569-1831, ext.3373

warren.smith@state.co.us

U.S. Environmental Protection Agency

Mike Holmes, Remedial Project Manager
(303) 312-6607

Toll free: 1(800) 227-8917, ext. 6607

holmes.michael@epa.gov

Jennifer Chergo, Public Affairs Specialist

(303) 312-6601

Toll free: 1 (800) 227-8917, ext. 6601

chergo.jennifer@epa.gov

On the Web:

www.epa.gov/region8/superfund/co/eagle/

www.cdphe.state.co.us/hm/rpeagle.htm

View Documents at:

Minturn Town Hall

P.O. Box 309

Minturn, CO 81645

(970) 827-5645

Colorado Department of Public Health and Environment

4300 Cherry Creek Drive South

Denver, CO 80246-1530

(303) 692-3331

EPA Superfund Records Center

1595 Wynkoop Street

Denver, CO 80202-1129

(303) 312-6473



Colorado Department
of Public Health
and Environment

EAGLE MINE SUPERFUND SITE EAGLE MINE NEWS

Spring 2012



Draft Battle North feasibility study available

The Colorado Department of Public Health and Environment (the department) and the U.S. Environmental Protection Agency (EPA) invite stakeholder review of the latest draft of the feasibility study for redevelopment of a section of the Eagle Mine Superfund Site. Stakeholders reviewed a previous version of this document that was

developed when Ginn Company was proposing a large golf, skiing and residential development on the North Property. This draft was prepared by the current developer, Battle North, LLC, in response to comments from the two agencies.

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Eagle Mine Site North Property Timeline

2005: The agencies and Ginn Company LLC, begin discussions about redeveloping the North Property for residential and recreational uses.

2006: The North Property remedial investigation is submitted.

2007: Ginn submits feasibility study to the agencies. Agencies send the study to stakeholders.

Fall 2009: Battle North assumes responsibility for redevelopment.

August 2010: Battle North submits a draft feasibility study with changes in the redevelopment plan to EPA and the state.

Feb. 11, 2011: The agencies sub-

mit comments to Battle North, triggering changes to the feasibility study.

May 17, 2011: Battle North submits an addendum to the remedial investigation report with additional soil and water sampling results.

November 2011: Battle North submits an updated draft feasibility study, based on agency review of the previous draft.

February 2012: The November 2011 feasibility study is sent to stakeholders for review.

Next Steps: Once the agencies accept the feasibility study, they will prepare a proposed plan, hold a public meeting and solicit public comments.

Project Managers' Letter

Dear Friends:

This issue of *Eagle Mine News* provides updates on the Battle North Feasibility Study, the CBS Focused Feasibility Study, and the Eagle Mine Water Treatment Plant Audit Report. We'll also take a look at CBS's progress implementing recommendations in the Pipeline Audit Report.

The two feasibility studies will guide the preparation of proposed plans, and there will be plenty of opportunity to comment on all these documents in the coming weeks and months.

As always, if you have questions, please don't hesitate to contact Wendy Naugle, Mike Holmes, Warren Smith or Jennifer Chergo. You'll find our contact information on the back page of this newsletter.

Wendy Naugle, Colorado Department of Public Health and Environment

Mike Holmes, U.S. Environmental Protection Agency

Pilot test to refine focused feasibility study alternatives

As a result of stakeholder comments and water quality data furnished by the Eagle River Water and Sanitation District (ERWSD), the Colorado Department of Public Health and Environment and the U.S. Environmental Protection Agency have asked CBS to collect more data about sources of metals loading in the Rock Creek area and Belden. The focused feasibility study (FFS) will be delayed while CBS conducts a pilot study. The agencies will respond to stakeholder comments after the study is complete.

"We took the stakeholder comments very seriously," said Wendy Naugle, state project manager. "We have lots of data for the river, but lack data for the load reduction that can be accomplished through source removal."

Pilot testing began in early March, and involved pumping groundwater in Belden and Rock Creek and draining the mill level inside the mine workings in Belden. Previous tests have identified the Belden area as the largest remaining source of zinc loading to the Eagle River. In 2009, the Colorado Water Quality Control Com-

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Plant audit

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and the season. Although large swings in quality complicate treatment, plant staff monitor only for incoming pH and conductivity. The report notes "current practices may not be effective in identifying minor changes in incoming water quality necessary to optimize treatment processes."

Improve in-house laboratory capabilities: The report recommends the facility obtain lab testing equipment and establish standard operating procedures (SOPs) for routine monitoring to optimize metals removal.

Monitor blanket level: Monitoring the sludge "blanket" level in the clarifier is critical to plant operation. The report recommends facility personnel evaluate different monitoring tools. If online tools are not used, operators should develop SOPs for mechanically monitoring the blanket level.

Evaluate polymer effectiveness: "The system should continue to evaluate polymer time, feed point, mixing energy and floc formation time to ensure that optimum conditions exist throughout the year with variable water chemistry," the report concludes.

Repair reverse osmosis (RO) system.

Identify critical equipment needs: Staffing limitations and treatment priorities have fostered a reactive approach to maintenance.

Because the system has only a single treatment train, predictive and preventive maintenance is crucial. The operator already has identified maintenance partners.

Develop SOPs: ENVIRON personnel were developing operational safety SOPs at the time of the site visit. The report recommends generating specific SOPs for all facets of the facility.

Investigate lime occlusions: The line between Reactor Tank 2 (R2) and the clarifier frequently becomes clogged with gypsum/carbonate solids, reducing its capacity.

Upgrade Supervisory Control and Data Acquisition system (SCADA): Although the SCADA system, put in place over the past 11 years, is an improvement, upgrades should provide real-time data both onsite and off-site. "The local water and wastewater utility has volunteered to be included in responding to alarm situations at the plant," Poirot writes. "Due to the limited resources available at the Eagle Mine Plant itself, the facility may want to take advantage of this generous offer from the local utility."

The report discusses the plant's recently issued discharge permit, noting that "it is uncertain that the plant as currently configured can be in compliance with the new limits." Addressing the problem areas in the report may help it achieve compliance.

Water Treatment Plant Audit Report Available

According to the report, *Eagle Mine Water Treatment Plant: Summary of October 2010 Performance Evaluation*, past staff cuts may have led to issues with the plant in 2009. The current operator, ENVIRON, employs two full time and two part-time staff, which is one FTE more than the previous operator employed.

The September 2011 report by Andy Poirot of the Colorado Department of Public Health and Environment's Water Quality Control Division Engineering Section was triggered by stakeholder concerns about problems that caused the

mine pool to back up in 2009 and early 2010. ENVIRON replaced the previous operator shortly before the audit. In almost all cases, ENVIRON agreed with the audit findings and has either already implemented the recommendations or is in the process of doing so. Read the official ENVIRON response to the audit at www.cdphe.state.co.us/hm/eagle/index.htm.

Recommendations include:
Identify chemistry changes in the incoming water: Water quality varies depending upon the source

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Pipeline audit

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would require digging it up again later. The line, including couplings, will be inspected at least twice a year; once after the spring thaw and once in the fall. Freezing of the new bypass line has not occurred.

MDDVault

Security improvements included installing a hinged metal lid over the vault and enclosing the butterfly valve in a lockable sleeve. A pressure gauge has been installed in Adit 5 to measure mine pool water levels at a second location. A new flow meter was installed

and flow can now be observed remotely from the treatment plant.

Pump-Back System

The electrical distribution equipment was enclosed in a shed.



Lockable enclosures now protect sensitive equipment such as electrical distribution systems.

Battle North

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The study focuses on cleanup required before development can occur on 529 (North Property) acres of the Eagle Mine Superfund Site. It addresses soil cleanup, water storage in Bolts Lake, wetlands and other remediation issues.

When Battle North took over development of the North Property in 2009, the company reworked development plans, eliminating a proposed golf course to focus on a smaller-scale development. Because ongoing Operable Unit 1 (OU1) clean-up activities being implemented by CBS Operations, Inc. (CBS) were not intended to meet residential standards, a new feasibility study was required to address additional cleanup necessary for more intensive human use.

Battle North's proposed remedy would excavate the site's most contaminated soils, place them in the Consolidated Tailings Pile (CTP) and cover them with an engineered cap of clean soil. Excavated areas would be backfilled with three feet of clean soil. According to Battle North, the proposed remedy is designed to complement, rather than conflict with CBS's remedial activities.

The new plan does not rely on features such as building pads, golf greens or reservoirs to cap contaminated areas. Minturn officials have reviewed the plan.

'When Battle North took over development of the North Property in 2009, the company reworked development plans, eliminating a proposed golf course to focus on a smaller-scale development.'

Bolts Lake restoration is an important feature of Battle North's development plans. In a Dec. 15 letter to the agencies, Dave Kleinkopf of Battle North wrote: "Overall, restoration of Bolts Lake will protect the existing remedy, rehabilitate Minturn's water supply, and return this historic reservoir to productive use, while providing additional protection to the Eagle River."

State and EPA officials are reviewing the feasibility study to determine if the proposed remedy will meet remedial objectives and protect human health and the environment.

To obtain a copy of the feasibility study, please contact Jennifer Chergo at the U.S. Environmental Protection Agency, (303) 312-6601 or chergo.jennifer@epa.gov.

Pilot test

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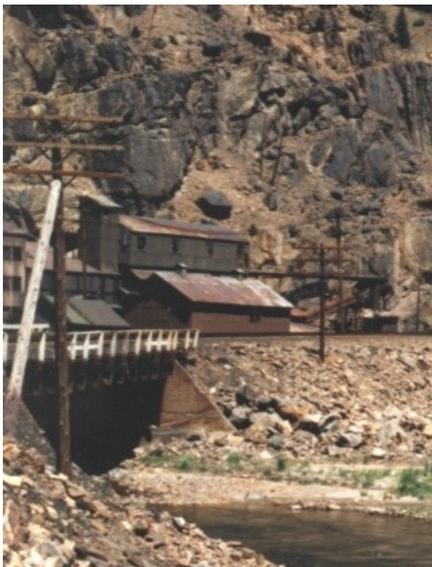
mission modified the standards for the Eagle River, requiring CBS to remove more zinc and triggering the FFS process.

According to David Hinrichs, project manager for CBS's environmental consultant, NewFields, ponded water in the underground Mill Level may be feeding zinc-contaminated groundwater to the river each spring. Underground mapping shows the lower bench on the mine's mill level holds between 50,000 and 80,000 gallons of water. That water will be sent to the water treatment plant during the pilot test.

After dewatering, plans called for ED Mining to conduct an underground survey to determine if the pool is refilling, and if so, where and at what rate. A transducer was to be installed to track future water levels. Results will be released when they are available.

Plans also called for a pump test at three Belden locations in March. Collected water was sent to the water treatment plant. Rock Creek groundwater also was pumped and sent to the water treatment plant.

The pump tests began in mid-March and ran continuously for 14 days. Grab samples from each well were collected every other day and



Pump tests in Belden will determine whether or not ponded water in the underground mill feeds zinc-laden groundwater to the river each spring. The lower bench on the mine's mill level is estimated to hold between 50,000 and 80,000 gallons of water. Testing began in mid-March.

tested. A transducer in Belden well BW-3R will record March and April water levels .

During March and April 2012, the Eagle River will be monitored weekly to determine compliance with stream standards. During the two-week test period additional samples will be taken downstream of Belden every few days.

Analysis of the test results will be finalized by late summer or early fall.

CBS, ENVIRON complete pipeline work from audit

CBS Operations, Inc. has completed its "to-do" list of actions in the January 2011 Audit of Collection and Conveyance Systems for Eagle Mine. The repairs, updates and changes are expected to improve reliability and security of systems related to the collection and pipeline systems.

ENVIRON International Corp., CBS's water treatment plant operator, submitted a formal notice of completion to the EPA and Colorado Department of Public Health and Environment on Feb. 10. Most work was delayed until the fall of 2011 because ENVIRON was busy treating snowmelt from record-breaking snows of 2010-2011. A summary follows.

North Groundwater Extraction Trench

The pump in the North Trench is monitored daily, and a backup pump is available. The alarm beacon light was reconnected to warn of pump failure, and a tripod and pulley system was purchased to facilitate quick pump replacement if needed. Environ concluded that continued daily inspections would be more cost-effective than a computer-operated monitoring and control system. Electrical work on various pumps, the alarm beacon and the electrical service line was completed. Electrical distribution and motor control equipment was enclosed in a new lockable shed.

East Groundwater Extraction Trench

Actions taken at the East Trench pump mirror those implemented for the North Trench pump. Repairs and updates were made to manhole MH-E, which was enclosed in a new lockable building. An inspection of the upper portion of the force main found only soft sediment and no hard scale or grit. Pressure gauges are being added to the pipe in the North and East Trench manholes to monitor changing pressure. Electrical distribution and motor control equipment was enclosed in a new lockable shed.

Existing Mine Water Pipeline

The conveyance system was inspected and cleaned during Fall 2011. Criteria for determining future cleaning needs will be submitted in a separate report. Preliminary results of the pipeline evaluation indicate that adding chemicals is not an efficient or cost-effective way to reduce scale build-up.

New Bypass Line

CBS concluded that burying the bypass line is unnecessary and would require approval from the landowner, BMP, which has proposed relocating the trestle and bypass line. If that plan were approved, burying the line now

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