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## Central Valley Regional Water Quality Control Board

### FACT SHEET

### NORTHSTAR INACTIVE MINE DISCHARGES

### NEWMONT PROPERTY

There are four inactive mine related discharges that originate from historic Newmont underground mine operations in the Grass Valley area near the City's municipal wastewater treatment plant. The Central Valley Water Board is working with Newmont, Nevada County, and the City of Grass Valley to ensure that these discharges are treated, as necessary to protect water quality. This fact sheet provides information on the character of the discharges and progress in collecting and treating the discharges.

#### **How many mine related discharges originate from the historic Newmont underground mine operations?**

Four in total: 1) Drew Tunnel, 2) Adit, 3) Pipe Culvert, and 4) Spring. The Drew Tunnel discharge is located on City of Grass Valley property at the northern end of the City's municipal wastewater treatment plant. Currently, the Drew Tunnel discharge is the only discharge that is not directly to Wolf Creek. Drew Tunnel discharge is collected and treated within the City's municipal wastewater treatment plant prior to discharge into Wolf Creek. The remaining three discharges are to Wolf Creek in the jurisdictional boundaries of Nevada County and are grouped together approximately 3,500 feet south of Drew Tunnel between Allison Ranch Road and Wolf Creek.

#### **What is an adit?**

An adit is a horizontal or nearly horizontal tunnel entrance to an underground mine.

#### **What is the quality of the mine discharges?**

The discharges all contain iron and manganese at levels that exceed water quality objectives. In addition, the Adit and Pipe Culvert discharges also periodically contain arsenic at levels exceeding water quality objectives. The table below provides the range of detections of iron, manganese, and arsenic for each of the discharges and summarizes the water quality objectives. The table also summarizes the quality of Wolf Creek for these constituents.

For iron and manganese, the discharges exceed objectives based on Secondary Maximum Contaminant Levels (Secondary MCLs), which are derived from human welfare considerations (e.g., taste, odor, laundry staining) for drinking water. USEPA and the California Department of Public Health have established Secondary MCLs as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color, and odor. These contaminants are not considered to present a risk to human health at the Secondary

MCL. For more information on EPA's Secondary MCLs see:  
<http://water.epa.gov/drink/contaminants/secondarystandards.cfm>.

For arsenic, the Adit and Pipe Culvert discharges have periodically exceeded objectives based on the Primary Maximum Contaminant Level for drinking water; however, the average levels are at or below the objective. The Primary MCL for arsenic is a health-based objective and has been set at 10 parts per billion (µg/L) to protect consumers served by public water systems from the effects of long-term exposure to arsenic. The average is a more reliable indicator of long-term exposure than individual measurements. Arsenic is ubiquitous in nature and is commonly found in drinking water sources in California. For more information on USEPA's Primary MCL for arsenic see: <http://water.epa.gov/lawsregs/rulesregs/sdwa/arsenic/index.cfm>.

Constituent of Concern	Iron (µg/L) (total recoverable)			Manganese (µg/L) (total recoverable)			Arsenic (µg/L) (total recoverable)		
	Max	Min	Ave	Max	Min	Ave	Max	Min	Ave
Drew Tunnel <sup>(1)</sup>	59,700 <sup>(1)</sup>	1,890 <sup>(1)</sup>	5,340 <sup>(1)</sup>	1,460 <sup>(1)</sup>	907 <sup>(1)</sup>	1,132 <sup>(1)</sup>	8.3 <sup>(1)</sup>	1.0 <sup>(1)</sup>	2.5 <sup>(1)</sup>
Adit	9,950	100	3,841	2,160	30	1,799	22.2	0.5	10.0
Pipe Culvert	3,740	1,100	3,053	1,990	1,370	1,826	11.3	4.9	8.4
Spring	2,680	60	515	1,200	407	1,006	0.8	0.5	0.7
Wolf Creek Upstream	2,760	170	639	93	19	36	3.3	0.7	2.0
Wolf Creek Downstream	390	280	335	86	41	64	3.3	2.6	3.0
Applicable water quality objective	Secondary MCL (drinking water)- 300 µg/L			Secondary MCL (drinking water) - 50 µg/L			Primary MCL (drinking water)- 10 µg/L		
<p>1. Drew Tunnel does not directly discharge to Wolf Creek. The discharge is collected and treated within the City of Grass Valley's wastewater treatment plant. The levels of iron and manganese for Drew Tunnel shown in this table are not discharged to Wolf Creek, except during extreme wet weather events when the City diverts the Drew Tunnel water around its treatment plant. The discharge from the treatment plant has been below the water quality objectives for total recoverable iron and manganese.</p>									

### What is being done about the discharges?

Newmont performed a pilot test on the Drew Tunnel discharge to determine what type of treatment would effectively treat the discharge before the water is released to Wolf Creek. The pilot test use of the Drew Tunnel drainage water is consistent with the other mine drainages since all the drainage features have similar constituents of concern. Newmont plans on building a full scale version of the pilot test system that will collect all four discharges, treat the water, and discharge the treated water to Wolf Creek. Once the new treatment facility is completed, the Drew Tunnel discharge will be removed from the City's wastewater treatment plant and conveyed to the new treatment facility. Newmont and the City are exploring options to convey the Drew Tunnel discharge to the proposed location of the treatment facility.

In the interim for the Drew Tunnel discharge, the City and Newmont are looking into a temporary treatment system that will allow the discharge to be removed from the wastewater treatment plant. The temporary system will be designed to remove iron and manganese to achieve water quality objectives, allowing direct discharge to Wolf Creek.

**What does the treatment process consist of?**

Newmont has submitted plans to the Central Valley Water Board for the construction of an overland flow passive treatment system. The system includes limestone aeration channels, a settling pond for iron removal, a wetland pond for residual metal removal, a polishing pond to remove any constituent that may have made it past the settling pond and wetland pond, and active greensand polishing that will be used on an as needed basis for additional treatment.

**What is the timeframe for completion of the treatment system?**

Initial studies and planning for the treatment system have been conducted and Newmont is currently working on land use planning applications. Permits and California Environmental Quality Act (CEQA) planning will commence summer 2014 through spring 2015, with construction to follow.

**What is the Central Valley Water Board's role?**

The Central Valley Water Board is working with Newmont, Nevada County, and the City of Grass Valley to ensure that the discharges are collected and treated in a manner that protects the beneficial uses of Wolf Creek. The board is actively working with Newmont and the City to develop a schedule for construction of treatment systems. The board will also issue a permit for the treated waste discharge, review monitoring data, and enforce permit limitations.

**Do the mine discharges require a permit even with treatment?**

Yes, a permit from the Central Valley Water Board will specify limits for constituents, including but not limited to iron, manganese and arsenic that must be met before the treated water is discharged to Wolf Creek. Permit limits will be based on Central Valley Water Board Basin Plan objectives for the protection of human health and aquatic life.

**Has Newmont submitted the needed information for a permit?**

Yes. Newmont has submitted a complete report of waste discharge to the Central Valley Water Board.

**Who can I contact to get more information?**

You may contact the following Central Valley Water Board staff for more information:

<b>Name</b>	<b>email</b>	<b>Phone</b>
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