



Matthew Rodriguez  
Secretary for  
Environmental Protection

California Regional Water Quality Control Board  
Central Valley Region  
Katherine Hart, Chair

11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114  
Phone (916) 464-3291 • FAX (916) 464-4645  
<http://www.waterboards.ca.gov/centralvalley>



Edmund G. Brown Jr.  
Governor

26 September 2011

Michael Miller, President  
Original Sixteen to One Mine, Inc.  
PO Box 941  
Alleghany, CA 95910

**INSPECTION REPORT, ORIGINAL SIXTEEN TO ONE MINE, INC., SIXTEEN TO ONE MINE, SIERRA COUNTY**

Enclosed is a copy of an inspection report for the Original Sixteen to One Mine. The inspection was conducted on 17 June 2011 by staff of the Central Valley Water Board and one of its attorneys. As a result of the inspection, Board staff concluded that:

1. The 21 Tunnel at the Original Sixteen to One Mine is discharging to Kanaka Creek, a water of the United States.
2. The NPDES permit for the Original Sixteen to One Mine has expired, and the Discharger has not submitted a complete report of waste discharge to support its reissuance.
3. Water was discharging from the 21 Tunnel and a sample was collected. Water was discharging from the Happy Jack Extension Tunnel, but the fate of the discharge was unknown and no sample was collected.
4. Laboratory analyses of the sample collected from the 21 Tunnel discharge indicated that, if the expired WDRs Order R5-2002-0043 was still in effect, then the effluent limitations for arsenic and electrical conductivity would have been exceeded.

Our Permitting group will be contacting you shortly to discuss whether or not this discharge will be permitted under the NPDES program. If you have any questions regarding the inspection, please contact me at (916) 464-4623 or at [vvasquez@waterboards.ca.gov](mailto:vvasquez@waterboards.ca.gov).

VICTOR VASQUEZ  
Senior Water Resources Control Engineer  
NPDES Compliance and Enforcement Unit

Enclosure: Inspection Report, Laboratory Report

**California Environmental Protection Agency**



Recycled Paper  
CIWQS Inspection 5219479  
CIWQS Violations 905735, 905736  
WDID 5A462023001

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION  
INSPECTION REPORT**

16 September 2011

*Responsible Party:* Original Sixteen to One Mine, Inc. (OSTOMI)  
PO Box 941  
Alleghany, CA 95910

*Facility:* Sixteen to One Mine  
506 Miners Street  
Alleghany, CA, Sierra County

*Contact:* Michael Miller, President, 530-287-3264.  
Rae Wittkopp, Geologist  
Klaus Kolb, Attorney

*Inspection Date:* 17 June 2011  
Arrived at Facility at 10:20. Departed from facility at 13:30.

*Lead Inspector:* Spencer Joplin, Water Resource Control Engineer, Central Valley Water Board

*Other Inspectors:* Rick Moss, Assistant Executive Officer, Central Valley Water Board  
Gayleen Perreira, Senior Water Resources Control Engineer, Central Valley Water Board  
Jeff Huggins, Water Resource Control Engineer, Central Valley Water Board  
Alex Mayer, Staff Counsel assigned to Central Valley Water Board by the Office of Chief Counsel of the State Water Resources Control Board

*Effective Orders:* None

*Weather:* Temperature 70s°F, clear sky, calm wind, no precipitation in past day.

***Background***

The Original Sixteen to One Mine, Inc. (OSTOMI) owns the Sixteen to One Mine, a gold mine located in and around the town of Alleghany. The mine and surface operations are located on the south side of Pliocene Ridge and on the north side of Kanaka Creek ravine. Surface features include roads, maintenance shops, offices, an inactive mill, mining waste piles, inactive settling ponds, and supply areas. The terrain is steep and covered in heavy riparian vegetation. The mine consists of about 35 miles of tunnels.

The surface milling operations have not operated since 1999. When the mill was used, water from a surface spring was used in the mill, and the waste water then flowed to a cyclone separator and settling ponds, where the sediment collected and the water percolated into the ground.

The Sixteen to One Mine has a portal known as the 21 Tunnel. Water flows out of the 21 Tunnel portal and into Kanaka Creek.

Waste Discharge Requirements Order R5-2002-0043 regulated the discharge of mill process water and groundwater drainage to Kanaka Creek but expired 1 March 2007.

Approval:

### **Objective**

OSTOMI invited Board staff to visit the Sixteen to One Mine to determine whether discharges from the Sixteen to One Mine required a NPDES permit.

The previous inspection was conducted on 2 July 2008. At that time, Board staff found that OSTOMI had been discharging to waters of the United States without an NPDES permit since 1 March 2007.

### ***Observations***

#### **Main Office**

Spencer Joplin, Rick Moss, Gayleen Perreira, Jeff Huggins, and Alex Mayer arrived at the Sixteen to One Mine office, where they met Michael Miller and geologist Rae Wittkopp. While at the main office, Michael Miller consented to Board staff collecting samples from the facility. While at the Main Bench area, he consented to Board staff taking photographs of the facility.

#### **Main Bench**

The group drove to an office on the Main Bench and met Klaus Kolb, attorney for OSTOMI. The group discussed the Sixteen to One Mine, its history and current operations:

1. The water source for operations at the Sixteen to One Mine is Ram Spring above Alleghany.
2. The Sixteen to One Mine has about 35 miles of tunnels. OSTOMI wants to drill a new shaft because traveling to the bottom takes about one hour.
3. Rae Wittkopp said the presence of gold ore in the mine is probable. He also stated that arsenic is recaptured by arsenopyrite and graphite found in the mine area, possibly preventing arsenic migration.
4. Blasted rock is stored underground in unused mine workings. Metal detectors are used on the blasted rock, and probable gold is collected in a sack and taken to the office. Specimen gold is sold as-is, and the rest is milled by hand.
5. There are enough unused workings to store waste and muck underground. No mining waste is currently being deposited above ground at the Sixteen to One Mine.

#### **Mill Building**

The group drove to the mill. Michael Miller said the mill operations had not changed since 1999. The mill is not used because no waste rock is produced. The general appearance of the mill building supported Michael Miller's statement. A spring near the ball mill was discharging into the road (**Figure 1**).

### **Settling Ponds**

The group drove to and walked around the hydrocyclone and inactive settling ponds. Most of the ponds were dry (**Figure 2**). The hydrocyclone did not appear to have been used in several years.

### **21 Tunnel Portal**

The group drove to the 800-level Tunnel (the main entrance to the mine) and lower shop, and then walked along a trail to the 21 Tunnel portal. Water was discharging from the portal to Kanaka Creek (**Figures 3 and 4**). Spencer Joplin and Jeff Huggins collected a sample from the 21 Tunnel Portal discharge at the location indicated in **Figure 5**. Details about the sampling and field analysis are found as Attachment B to this inspection report.

### **Happy Jack Extension Tunnel**

The inspection group drove to the entrance of the Happy Jack Extension Tunnel (**Figure 6**). Michael Miller said the tunnel was an abandoned mine that was discovered while Sierra County was drilling to assess the soil quality around an underground storage tank in a maintenance yard. Water was discharging from the Happy Jack Extension Tunnel to an unknown location, and a hay bale had been placed in the channel (**Figure 7**). Michael Miller said the underground storage tank cleanup fund would not reimburse OSTOMI because the cleanup would benefit OSTOMI.

### **Analytical Results**

The results of field and laboratory analyses that were quantifiable (i.e., above reporting limits) are summarized in **Table A**. The arsenic result was above the monthly average effluent limitation of 10 ug/L that contained in the expired WDRs Order R5-2002-0043 (the expired permit). The electrical conductivity result was above the expired permit's monthly average effluent limitation of 900 umhos/cm but below the daily maximum effluent limitation of 1600 umhos/cm. The mercury result was below the expired permit's daily maximum effluent limitation of 0.050 ug/L. In addition, several notable constituents (i.e., beryllium, cadmium, chromium, lead, selenium, silver, thallium, zinc, vinyl chloride, MTBE, benzene, toluene, and PCBs) were not detected by the analyses.

**Table A. Parameters detected in 21 Tunnel discharge above method detection levels.**

<b>Parameter</b>	<b>Units</b>	<b>Result</b>	<b>Method</b>
Aluminum	ug/L	14.4	EPA 200.7
Antimony	ug/L	28.8	EPA 200.7
Arsenic	ug/L	525	EPA 200.7

Parameter	Units	Result	Method
Barium	ug/L	25.7	EPA 200.7
Copper	ug/L	1.1	EPA 200.7
Iron	ug/L	202	EPA 200.7
Manganese	ug/L	134	EPA 200.7
Nickel	ug/L	128	EPA 200.7
Ammonia, Total (as N)	mg/L	0.138	SM 4500-NH3 B
Chloride	mg/L	46.9	EPA 300.0
Electrical Conductivity @ 25 Deg. C	umhos/cm	1005	Field Measurement
Electrical Conductivity @ 25 Deg. C	umhos/cm	1100	EPA 120.1
Hardness, Total (as CaCO3)	mg/L	524	SM2340B
Mercury, Total Recoverable	ug/L	0.0281	EPA 1631
Nitrate, Total (as N)	mg/L	0.23	EPA 300.0
Nitrite, Total (as N)	mg/L	0.26	EPA 300.0
pH	SU	7.78	Field Measurement
Phosphorus, Total (as P)	mg/L	0.23	SM-4500P
Sulfate, Total (as SO4)	mg/L	257	EPA 300.0
Total Dissolved Solids (TDS)	mg/L	653	SM 42540C

### Summary

5. The 21 Tunnel at the Original Sixteen to One Mine is discharging to Kanaka Creek, a water of the United States.
6. The NPDES permit for the Original Sixteen to One Mine, Inc. has expired, and the Discharger has not submitted a complete report of waste discharge to support its reissuance. Letters dated 7 July 2008 and 9 September 2008 discuss this issue.

7. Water was discharging from the 21 Tunnel and a sample was collected. Water was discharging from the Happy Jack Extension Tunnel, but the fate of the discharge was unknown and no sample was collected.
8. Laboratory analyses of the sample collected from the 21 Tunnel discharge indicated that the effluent limitations for arsenic and electrical conductivity contained in expired WDRs Order R5-2002-0043 would have been exceeded if that permit was still in effect.

---

Spencer Joplin, Water Resource Control Engineer

Attachment A: Photo Log  
Attachment B: Sampling and Field Analysis  
Attachment C: Laboratory Report

## ATTACHMENT A – PHOTO LOG

Original Sixteen to One Mine, Inc.  
Sixteen to One Mine  
17 June 2011



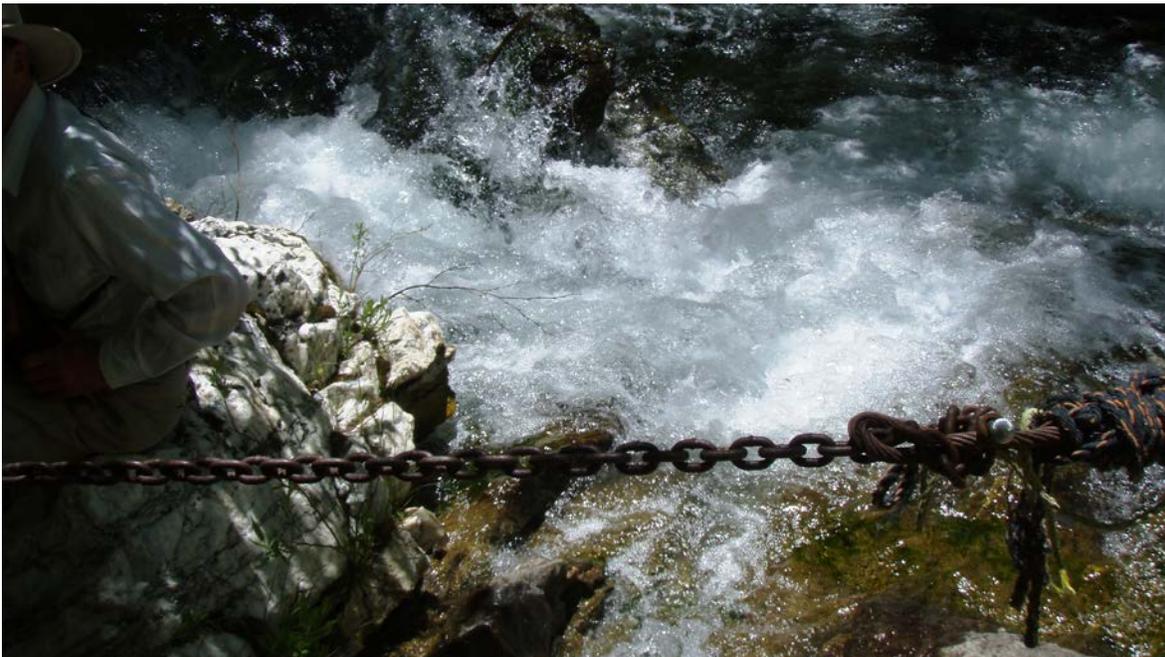
**Figure 1. Discharge from spring. SMJ.**



**Figure 2. Inactive settling ponds. SMJ.**



**Figure 3. Discharge from 21 Tunnel (far left) to Kanaka Creek (far right). SMJ.**



**Figure 4. Discharge from 21 Tunnel (far bottom) to Kanaka Creek (top). SMJ.**



**Figure 5. 21 Tunnel. Arrow indicates location of sample collection. SMJ.**



**Figure 6. Happy Jack tunnel. SMJ.**



**Figure 7. Discharge from Happy Jack Tunnel (far bottom right). SMJ.**

**ATTACHMENT B: SAMPLING PROTOCOL**

Samples were collected with a clean unused HDPE dipper and poured into the sample containers as listed below.

**Table B. Containers for sample of the 21 Tunnel discharge.**

Material	Volume	Preservative	Intended Analytical Methods
Amber Glass	4 x 1 L	None	Pesticides, PCBs, Semi-VOCs
Poly	5 x 1 L	None	Nitrate, Nitrite, Phosphorus, Specific Conductance, Hardness, Total Dissolved Solids, Chloride, Sulfate, Foaming Agents
Poly	1 x 500 mL	H <sub>2</sub> SO <sub>4</sub>	Ammonia
Poly	3 x 500 mL	HNO <sub>3</sub>	Inorganics
Glass in double bags.	1 x 250 mL	Container preserved with acid prior to sampling. Sample not preserved.	EPA 1669/1631 (low-level mercury)
VOA Vials	3 x 40 mL	HCl	VOCs

Samples were also analyzed by Board staff in the field with the equipment listed below.

**Table C. Field monitoring equipment.**

Item	Make	Model	Serial Number
Portable Meter	Hach	HQ40d	080700023422
pH Electrode with Temperature Compensation.	Hach	pHC101	073462560016
Electrical Conductivity Probe with Temperature Compensation.	Hach	CDC401	073402581008

The pH electrode and EC probe were calibrated to standard solutions, as found in Table D.

**Table C. Field monitoring equipment calibration.**

<b>Standard</b>	<b>Temperature</b>	<b>Measurement</b>
pH 4.00 SU	22.1 °C	161.1 mV
pH 7.00 SU	21.7 °C	-6.9 mV
pH 10.01 SU	21.9 °C	-179.7 mV
EC 2060 $\mu$ S/cm	19.6 °C	1848 $\mu$ S/cm

The samples of the 21 Tunnel discharge were transported in an ice chest on ice to Excelchem Environmental Labs in Rocklin, following chain of custody procedures. A trip blank for VOC analysis was included in the ice chest.