

STATE OF NEW MEXICO
WATER QUALITY CONTROL COMMISSION



IN THE MATTER OF PROPOSED AMENDMENTS
TO 20.6.2, THE COPPER MINE RULE,

No. WQCC 12-01(R)

New Mexico Environment Department,
Petitioner.

ATTORNEY GENERAL'S MOTION TO STRIKE FMI VIDEO – BRACK EXHIBIT 4

The Attorney General hereby moves to strike Freeport MacMoRan, Inc. (“FMI”) Brack Exhibit 4 because the data, views and arguments presented therein are not subject to cross-examination, as required under the Water Quality Act, NMSA 1978, § 74-6-6(D). As grounds for this motion, the Attorney General states:

1. Brack Exhibit 4 is an 18+ minute public relations video prepared by the Minerals Education Coalition, an organization funded by the minerals industry,¹ in conjunction with FMI. About one half dozen scientists appear in the video, which discusses how copper is formed and processed, and the industrial applications of copper.
2. Neither the experts who appear in the public relations video nor the persons who produced the video (whoever they are) are subject to cross-examination regarding the contents of the video.
3. As one example of the prejudice this lack of opportunity for cross-examination presents, there is substantial discussion in the video of the FMI Morenci Mine in Arizona and its accomplishments. Yet, there is no opportunity for cross-examination on the ground and surface water contamination caused by the Morenci Mine operations. There have been at least 21 reported spills and releases at the Morenci Mine, including a 2008 pipeline spill of 186,000 gallons of sulfuric acid that ran along two miles of a creek, which feeds to the San Francisco

¹ See <http://www.mineralseducationcoalition.org/about-us>.

River. *U.S. Copper Prophyry Mines Report: The Track Record of Water Quality Impacts Resulting from Pipeline Spills, Tailings Failures and Water Collection and Treatment Failures*, pp. 4, 8-9 (Earthworks, July 2012 (rev. Nov. 2012)) [attached as Exhibit A]. In 2012, the United States Department of Justice and the State of Arizona entered into a consent decree with FMI which found that, “Concentrations of hazardous substances measured in groundwater at the Morenci Mine and measured in the San Francisco and Gila Rivers downstream of the mine provide further indications that the hazardous substances present in the source materials at the Morenci Mine have been released to the environment.” *Id.* at 9.

4. Morenci Mine operations have caused ground and surface water contamination. Yet, while the video touts the accomplishments of the Morenci Mine, the parties do not have an opportunity to question the experts in or the producers of the video regarding the issues relevant in this hearing related to the Morenci Mine, such as the contamination to ground water caused by its operations.

5. Under the Water Quality Act, parties are entitled to cross-examine any person who presents data, views or arguments. NMSA 1978, § 74-6-6(D). The experts and producers of the public relations video present data, views and arguments through the video, but they are not subject to cross-examination. The video, therefore, is improper and should be struck.

Based on the foregoing, the Attorney General respectfully requests the Commission to strike FMI Brack Exhibit 4.

Respectfully submitted,

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Certificate of Service

I certify that the following were served with the foregoing pleading by email on March 25, 2013:

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U.S. Copper Porphyry Mines Report

THE TRACK RECORD OF WATER
QUALITY IMPACTS RESULTING FROM
PIPELINE SPILLS, TAILINGS FAILURES
AND WATER COLLECTION AND
TREATMENT FAILURES.

JULY 2012
(REVISED 11/2012)



INTRODUCTION:

The Pebble Mine is proposed for development at the headwaters of the Bristol Bay watershed in southwest Alaska, which supports the world's largest wild sockeye salmon fishery. According to current ore estimates, the Pebble Mine would be the largest copper porphyry mine in the U.S., if constructed.

Currently, the U.S. Environmental Protection Agency (EPA) is completing a watershed assessment to evaluate the potential impacts of large-scale mining on water quality and fishery resources using a mine scenario that reflects the expected characteristics of mining operations at the Pebble deposit.

The purpose of this report is to compile the record of pipeline, seepage control and tailings impoundment failures at operating copper porphyry mines in the U.S., and to document associated water quality impacts.

Copper porphyry is a form of copper deposit that is often characterized as low-grade, typically with 0.4% and 1.0% concentration of copper, and containing other minerals such as gold, molybdenum, and other trace elements in the ore body. Copper porphyry deposits are almost always mined in industrial-scale open pit operations.

Contact water drainage from porphyry deposits commonly has concentrations of aluminum, cadmium, copper, iron, manganese, lead, and zinc that exceed US drinking-water limits, which were developed to protect public health, and also commonly exceeded for cadmium, copper, lead and zinc aquatic life standards, developed to protect fish and other sensitive aquatic organisms.¹

METHODS:

We reviewed state and federal documents and a federal database for fourteen copper porphyry mines currently operating in the U.S. with respect to three failure modes: pipeline spills or other accidental releases, tailings spills or tailings impoundment failures, and failure to capture and treat mine seepage.

The 14 mines represent 87% (14 out of 16) of currently operating copper porphyry mines, and 89% of U.S. copper production in 2010 – the most recent data on copper production available from the U.S. Geological Survey. The mines were chosen based on an operating record of more than five years. These mines provide a representative view of the types of environmental impacts resulting from the development of copper porphyry deposits, focusing on pipeline spills, tailings failures, and water collection and treatment failures.

RESULTS:

Our research shows that copper porphyry mines are often associated with water pollution associated with acid mine drainage, metals leaching and/or accidental releases of toxic materials. We found that all of the mines experienced at least one failure, with most mines experiencing multiple failures:

- At 14 of the 14 mines (100%), pipeline spills or other accidental releases occurred. The most frequent spills were reported at the Ray Mine in Arizona, where over fifty pipeline spills occurred from 1988 to 2012. Examples of recent pipeline spills include a 2012 spill at the Ray Mine which washed tailings into the Gila River, and a 2008 pipeline spill at the Morenci Mine of 186,000 gallons of sulfuric acid along two miles of Chase Creek - a tributary of the San Francisco River.
- At 13 of the 14 mines (92%), water collection and treatment systems have failed to control contaminated mine seepage, resulting in significant water quality impacts. The development of acid mine drainage was associated with the most severe and lasting impacts. For example, at the Tyrone and Chino mines – the two largest copper porphyry



Table 2

Synopsis of pipeline spills, tailings spills and impoundment failures, and water capture and treatment failures for 14 copper porphyry mines (1986-2012).

Mine	Number of reported pipeline spills and other accidental releases*	Water collection and treatment failures	Tailings dam failures	Affected surface and/or ground water
Morenci	21	Yes		San Francisco River, Gila River, Chase Creek, groundwater aquifer
Bingham Canyon	28	Yes		72 square mile plume of contaminated groundwater; fish and wildlife habitat in the Great Salt lake ecosystem
Ray	54	Yes	Partial	Mineral Creek, Gila River, groundwater aquifer
Chino	10	Yes		Hanover/Whitewater Creek, contaminated groundwater will require water treatment in perpetuity
Bagdad	7	Yes	Partial	Boulder Creek, Burro Creek, Butte Creek, Bridle Creek
Sierrita	18	Yes		Demetrie Wash and its tributaries; groundwater aquifer including drinking water wells in Green Valley
Pinto Valley	3	Yes	Partial	Pinto Creek
Mission	3	Yes	Partial	Tributaries of the Santa Cruz River, groundwater aquifer
Robinson	8	Unknown		2.3 miles of downstream drainage bed
Tyrone	7	Yes	Partial	Mangas Creek, groundwater contamination will require water treatment in perpetuity
Mineral Park	3	Yes		Groundwater aquifer and surface water
Miami	8	Yes		Pinal Creek alluvial aquifer
Silver Bell	3	Yes		Cocio Wash
Continental Pit	2	Yes		Groundwater aquifer

*Limitations in the data for pipeline spills and other accidental releases make it difficult to determine, in some cases, whether water quality impacts resulted from the spill.

CASE STUDIES:

MORENCI MINE, AZ (Freeport McMoRan) The Morenci Mining District is located in southeastern Arizona, near the towns of Clifton and Morenci. It is located near the Gila River, the San Francisco River and Eagle Creek.	
Reports of pipeline failures and other accidental releases*	<p>2008: Report of pipeline spill releasing 186,000 gallons of sulfuric acid and heavy metals into a tributary (Chase Creek) of the San Francisco River, resulting in a \$150,000 settlement with the State of Arizona.¹⁶ The highly acidic material traveled downstream more than 2 miles. The pollutants in the discharge exceeded Arizona surface water quality standards for copper, zinc and pH in Lower Chase Creek.</p> <p>2007: Report of release of 1,200,000 gallons of pregnant leach solution released due to power failure.¹⁷</p> <p>2006: Report of release of 3,000 pounds of sulfuric acid from pipeline break.¹⁸</p> <p>2006: Report of 1,127 pounds of material from PLS pipeline.¹⁹</p> <p>2006: Report of release of rich electrolyte (acid content 1,057 pounds) from an underground process pipeline.²⁰</p> <p>2004: Report of release of 8,920 pounds of sulfuric acid and water from process pipeline due to failure of valve.²¹</p> <p>2001: Report of release of 6,350 pounds of sulfuric acid released from pipeline.²²</p> <p>2000: Report of release of 72,000 gallons of sulfuric acid released from pipeline.²³</p> <p>1998: Report of release of 66,200 pounds of sulfuric acid released from pipeline.²⁴</p> <p>1996: Report of release of unknown amount of pregnant leach solution spilled from pipeline, affecting Chase Creek, leading to San Francisco River.²⁵ At the time of report, 20 gpm were being released.</p> <p>1996: Report of release of 160,000 gallons of process solution spilled due to pipeline weld failure.²⁶</p> <p>1996: Report of release of 50,000 pounds of sulfuric acid spilled due to backhoe hitting pipeline.²⁷</p> <p>1996: Report of 12,435 pounds of sulfuric acid released from pipeline.²⁸</p> <p>1995: Report of 2,980 pounds of sulfuric acid released from pipeline.²⁹</p> <p>1994: Report of 203,400 gallons of raffinate released due to ruptured pipe.³⁰</p> <p>1994: Report of 5,400 pounds of sulfuric acid released due to fractured weld in pipeline.³¹</p> <p>1993: Report of unknown amount of copper sulfate released into San Francisco River due to storm event.³²</p> <p>1993: Report of 180,000 gallons of pregnant leach solution spilled due to plugged drain line, affected 1 acre.³³</p> <p>1992: Report of 2,500 gallons of electrolyte released.³⁴</p> <p>1992: Report of 15,000 pounds of copper sulfate spilled due to valve failure.³⁵</p> <p>1992: Report of 7,500 gallons of electrolyte spilled due to failure of pipeline weld.³⁶</p>
Water collection and treatment failures	<p>In 2012, the U.S. Dept of Justice and the State of Arizona released a consent decree which found that, "mine tailings exposed to air and precipitation released hazardous substances on the surface of the tailings or that can percolate through the tailings to groundwater." The consent decree found that, "releases of hazardous substances at or from the Morenci mine site have occurred and allege that such releases have caused injuries to natural</p>

	<p>resources at and in the vicinity of the site including surface water, sediments, soils, terrestrial habitats and terrestrial receptors.”³⁷ A financial settlement followed an investigation of natural resource injuries related to the release of hazardous substances into the environment from acid mine drainage and process solution, among other sources.</p> <p>The investigation found that the main ore minerals are sulfide minerals, which have resulted in the development of acid mine drainage. According to the report, “Surface water has been, and most likely continues to be, exposed to hazardous substances released from the Morenci Mine through a variety of pathways.”³⁸ Concentrations of hazardous substances measured in groundwater at the Morenci Mine and measured in the San Francisco and Gila Rivers downstream of the mine provide further indications that hazardous substances present in the source materials at the Morenci Mine have been released to the environment. The report found that “Concentrations of total and dissolved zinc have exceeded 1,000 ug/l in the Gila River and concentration of dissolved copper have exceeded 100 ug/l in the San Francisco River.”³⁹ Contaminated groundwater is also released to surface water via seeps and springs.⁴⁰</p>
<p>Tailings spills and impoundment failures</p>	<p>No impoundment failures.</p>
<p>Impacts to water, fish and wildlife</p>	<p>In 2012, the US Department of Justice and Department of Interior have jointly announced that Freeport McMoRan has agreed to pay \$6.8 million to settle federal and state natural resource damages related to the Morenci Mine. According to the complaint, the hazardous substance release, which included sulfuric acid and metals, injured, destroyed or led to the loss of “surface waters, terrestrial habitat and wildlife, and migratory birds.”⁴¹</p> <p>As described above, metals contamination occurred in the San Francisco and Gila Rivers downstream of the mine, and to groundwater supplies.</p>

*Limitations in the data for pipeline spills and other accidental releases make it difficult to determine, in some cases, whether water quality impacts resulted from the spill.