STATE OF NEW MEXICO
BEFORE THE WATER QUALITY CONTROL COMMISSION

IN THE MATTER OF:	)	
	)	
PROPOSED AMENDMENT TO	)	**No. WQCC 12-01(R)**
PART 20.6.2 NMAC - COPPER RULE	)	
	)	

NOTICE OF INTENT TO PRESENT TECHNICAL REBUTTAL TESTIMONY

Gila Resources Information Project ("GRIP") and Turner Ranch Properties, L.P. ("TRP") file this Notice of Intent to Present Technical Rebuttal Testimony ("Rebuttal NOI") pursuant to the Water Quality Act and the Water Quality Control Commission's ("the Commission") Guidelines for Water Quality Control Commission Regulation Hearings and the Procedural Order issued November 26, 2012.

1. Entity for Whom the witness will testify: GRIP and TRP.

2. Technical Rebuttal Witness: James R. Kuipers, P.E.

3. Testimony: The written rebuttal testimony of Mr. Kuipers is hereby pre-filed along with this Rebuttal NOI. Mr. Kuipers will acknowledge and affirm his written rebuttal testimony under oath at hearing and provide a brief summary.

4. Recommended Amendments: Recommended have already been provided.

5. Exhibits: Two exhibits are attached to Mr. Kuipers' pre-filed written rebuttal testimony: Kuipers Attachment A is an excerpt from the Consent Decree entered in *State of New Mexico v. Freeport MacMoRan Corporation et al.*, N.M. U.S. Dist. Ct., Civ. Action No. 10-CV-1254 RHG/LFG. Kuipers Attachment B is an excerpt from the *Final Groundwater Restoration Plan for the Chino, Cobre, and Tyrone Mine Facilities* completed by the New Mexico Office of the Natural Resources Trustee (ONRT) in 2012.

6. Reservation of Rights: GRIP and TRP reserve the right to call additional witnesses or introduce additional exhibits in response to the testimony and witnesses presented at hearing.

Respectfully submitted:

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CERTIFICATE OF SERVICE: I hereby certify that on MARCH 15, 2013 I sent Amigos Bravos' Notice of Intent to Present Technical Testimony by email to the following:

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REBUTTAL TESTIMONY OF JAMES R. KUIPERS, P.E.

Blandford, FMI

p. 15 "Sampling for field parameters only is an appropriate monitoring approach."

Field parameters should only be regarded as an indicator, and not as the sole approach to monitoring. If field parameters such as pH or TDS indicate contamination from acid rock drainage or copper mine process solutions then additional sampling should be performed to verify field results and to provide for analysis of specific constituents such as sulfate.

p. 15-16 "Where ground water is impacted by metals it is rare that only one metal is elevated in concentration, but rather if one metal is elevated typically other metals are elevated also." "Pyrite, an iron sulfide mineral common at mine sites, contains iron as well as other metals such as copper, nickel, cobalt, zinc, arsenic and selenium." "...sampling for a reduced list of metals, such as one or two selected from each group, would be sufficient to reasonably infer the concentrations of the others, and specifically whether or not they likely exceed applicable standards."

Arsenic and selenium are not metals but rather metalloids or semi-metals. This is a highly important distinction in mine geochemistry because metalloids behave differently than metals. In particular, metalloids such as arsenic and selenium will often increase in concentration at higher pH values while at the same time true metals such as copper or zinc concentrations will decrease in concentration at higher pH values. Treatment(?) of metalloids as metals contradicts the suggestion that if one metal is elevated in concentration then other metals are elevated also. For this reason it would not be sufficient to conclude that concentrations of one or two "metals" would be sufficient to reasonably infer the concentration of the others. Further, it is well established that different metals (and metalloids) have specific behavior and there is no scientific evidence that concentrations of one metal or metalloid can be or ever has been used in a regulatory context to establish compliance with applicable standards for a different metal or metalloid.

p. 21-22 "For an open pit that is a hydrologic evaporative sink, the standards of Section 20.6.3.3103 NMAC do not apply within the area of hydrologic containment because ground

water within the area of hydrologic containment will be contained indefinitely at the pit location through natural processes."

The containment is both temporal and spatial and subject to changes in climactic conditions as well as influenced by other local hydrologic impacts such as offsite pumping or discharges. While general "hydrologic containment" as defined might occur it does not mean that once the pit lake level reaches equilibrium localized areas of spillage or leakage through faults or other conduits might exist or occur at a later time.

p. 29 "...the Proposed Rule provisions are consistent with...standard practices used by professionals...to assure containment of water contaminants so that they do not adversely impact surrounding ground water."

The provision in Section 20.6.7.22.A(4) (b) of a liner system is the standard practice used by professionals to prevent rather than mitigate contamination of ground water after the fact and similarly it could be used to prevent contamination of ground water that would otherwise be caused by the use of ground water collection systems as per the Proposed Rule. The failure to use liners at FMI's mines in Grant County contributed to the extensive ground water pollution above standards. This pollution is documented in numerous reports, including a Consent Decree entered in federal court (Attached A) and the *Final Groundwater Restoration Plan for the Chino, Cobre, and Tyrone Mine Facilities* (excerpts included as Attachment B) completed by the New Mexico Office of the Natural Resources Trustee (ONRT) in 2012.

Finley, FMI

p. 12 "Additional measures, such as interceptor wells, have also been used to reduce, attenuate, and contain waste rock stockpile leachate in saturated conditions."

It should be noted that as stated by Finley, the use of interceptor wells is an additional measure in response to waste rock pile discharges of contaminants to ground water, and is not a measure used to prevent ground water contamination. I am not aware of a mine that has intentionally designed ground water interceptor wells as part of an original design, but am aware of numerous instances where interceptor wells have been installed as part of an abatement or similar response action to address unintended discharges to groundwater.

p. 13 "In my experience in the hard rock mining industry, there is currently no waste rock stockpiles placed on a liner."

Potentially acid generating (PAG) waste rock has been placed on a geomembrane liner at the Hollister Mine in Nevada since at least 2010 and is proposed for future mining operations. A geomembrane waste rock liner has been specified for future mining operations at the Blackfoot Bridge Mine in Idaho to prevent selenium discharges to ground and surface water. Waste rock will be combined with tailings at the Idaho Cobalt Mine in a geomembrane and clay lined facility

to prevent discharges. In addition various forms of waste rock liners and/or sub-drain systems are being either used or proposed as the current standard of practice where prevention of ground water contamination is required. Attachments A and B provide examples of the consequences of not using liners.

p. 18 "The Proposed Rule does not distinguish between an open pit that acts as a terminal sink from an open pit that allows ground water flow through."

In fact, the "area of hydrologic containment" in 20.6.7.24.A. (4) refers to the boundaries of the terminal sink. The Proposed Rule does not apply the standards of 20.6.2.3103 for open pits that act as a terminal sink thereby creating an area of hydrologic containment, but does apply the standards for open pit that allow ground water flow through."

p. 18 "An exemption of water in an operating open pit from WQCC standards is justified because all operating open pits will have active water management plans in place that prevent the accumulation of water in the open pit."

The conceptual existence of active water management plans for all open pits will not prevent ground water exceedances from taking place. Because those exceedances together with water management activities to prevent their spread to additional ground water will be required in perpetuity which cannot be guaranteed a variance, which will only be granted based on appropriate site-specific conditions, is justified instead of an exemption. An example of the very long duration of ground water pollution caused by copper mines is provided in Attachments A and B, where ONRT determined that pollution from FMI's mines injured ground water resources and subjected FMI to liability for natural resource damages.

Grass, FMI

p. 26 "Waste rock stockpiles are rarely, if ever, constructed with liner systems. Similarly, ground water interceptor systems are rarely needed for waste rock stockpiles."

See Finley p. 13 response.

p. 26 "In most instances, it would be preferable to capture drainage or seepage in a lined impoundment."

I agree.

Lande, FMI

p. 10 "Discharge permits issued under the Water Quality Act by NMED to date have not sought to apply or to enforce the standards of 20.6.2.3103 NMAC in open pits."

Unless the open pit lake is somehow disconnected from or otherwise not regarded as ground water, Lande's statement would appear to contradict NMED's sworn testimony in the Tyrone

Appeal, which was provided to this Commission. NMED's testimony was summarized by the WQCC as follows:

> The fundamental purpose of each of the operational permits is to prevent ground water contamination underneath and around the areas of the mine that are permitted and to require abatement of ground water contamination that has occurred. Menetrey, Tr. Vol. 9, p. 2418, line 7 to p. 2419, line 13. [IN THE MATTER OF: APPEAL OF SUPPLEMENTAL DISCHARGE PERMIT FOR CLOSURE (DP-1341) FOR PHELPS DODGE TYRONE, INC., Docket Nos. WQCC 03-2(A) and WQCC 03- 3(A) (Consolidated), Decision and Order on Remand ("WQCC Order") at 6 ¶ 16]
>
> ...
>
> None of the operational permits authorizes Tyrone to contaminate ground water in excess of ground water standards; none of the operational permits authorizes any form of natural attenuation as a treatment, containment or mitigation measure; and none of the operational permits defines or mentions a place of withdrawal of water for present or reasonably foreseeable future use. Menetrey, Tr. Vol. 9, p. 2775, line 22 to p. 2776, line 5; p. 2852, line 19 to p. 2853, line 5; p. 2857, lines 4-9; Olson, Tr. Vol. 7, p. 1922, lines 1-25; Tr. Vol. 8, p. 2004, lines 1-4. [WQCC Order at 7, ¶ 18]

Lande's testimony would also appear to contradict WQCC's conclusions of law:

> The purpose of the Water Quality Act (the "Act"; is to abate and prevent water pollution in accordance with its provisions and the regulations of the WQCC. [WQCC Order, Conclusion of Law #1 at 75]
>
> ...
>
> Except to the extent that existing conditions exceed standards, all ground water having a TDS of 10,000 mg/L or less "shall meet the standards of subsection A [human health standard], B [domestic water supply standards] and C [standards for irrigation use], unless otherwise provided." 20.6.2.3103 NMAC. 77. [WQCC Order, Conclusion of Law # 9 at 77]

Scott, FMI

p. 5 "A synthetic liner system for this facility was not considered due to...and a lack of proven technology to design, maintain and prevent clogging of a granular drainage system on top of the liner as necessary to maintain stability consistent with NMOSE requirements."

Lined tailings facilities have been designed, constructed and operated, in some cases for over 25 years, to maintain stability consistent with NMOSE requirements in Montana (Stillwater Mine) and elsewhere.

p. 14 "it is my opinion these design and construction requirements are reasonable and appropriate. They are intended to maintain the stability of the tailing impoundment, which is protective of ground water quality by operating a safe and stable tailing impoundment and maintaining control of seepage."

Stability of tailings impoundments can be maintained by using lined tailings impoundments without incorporating the designs which rely upon seepage causing impacts to ground water.

Brown, NMED

p. 4 "In all cases, the mine water management system controls discharges of water contaminants from the copper mine units, prevents water pollution, and protects the groundwater of the state of New Mexico for present use (during the mining period) as domestic and agricultural water supply and surface water recharge."

If seepage is allowed to occur before collection it does not prevent water pollution. The WQA requires controls to prevent the exceedance of standards at all places of withdraw of ground water for present and reasonably foreseeable future use, NMSA 1978, § 74-6-5(E)(3), not merely to control the spread of pollution after the fact.

p. 4-5 "The store-and-release soil cover system largely prevents infiltration... and there is correspondingly little seepage through the rock and tailings materials into the underlying groundwater system. This limits the transport of any contaminants that may be contained within, or released from, the materials in the units. The amounts of contaminants being released from beneath the units are sufficiently small that the impact on the underlying groundwater is also small, and is expected to prevent water pollution. As a result, the store and-release soil cover protects the groundwater of the state of New Mexico for potential future use as domestic and agricultural water supply and surface water recharge."

In fact, the expectation at nearly all major mine sites in New Mexico (Questa, Chino, Tyrone) is that although store-and-release cover systems will reduce infiltration, some seepage causing water pollution will still occur and requiring ongoing capture and treatment will be necessary. Store-and-release rarely, if ever, achieve zero infiltration and even in arid states such as Nevada infiltration results in seepage requiring capture and treatment from most heap leach piles having "store-and-release" cover systems. These piles are highly indicative examples of the limitations of this type of design to "prevent" or "protect" ground water from pollution.

p. 23 "Thus when the operating waste rock stockpile is located over bedrock, the seepage management system of the Rule contains water pollution so that groundwater meets the quality standards at locations of present and potential future groundwater use."

Allowing for seepage results in ground water pollution which must then be contained, however a lined waste rock stockpile would control and prevent ground water pollution. A lined waste rock stockpile also makes subsequent management and treatment of any seepage more efficient in terms of certainty, minimization of volume and optimization of treatment requirements.

p. 29 "Thus when the operating tailings impoundment is located over alluvium, the seepage management system of the Rule prevents water pollution so that groundwater meets the quality standards at the Rule-required monitoring wells at the toe of the unit, and therefore it will protect groundwater standards at locations of present and potential future groundwater use."

p. 31 "Thus the when the operating tailings impoundment is located over bedrock, the seepage management system of the Rule prevents water pollution so that groundwater meets the quality standards at locations of present and potential future groundwater use."

See previous.

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March 15, 2013