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 STATEMENT OF REASONS
IN SUPPORT OF JOINT PROPOSAL
FOR THE COPPER MINE RULE

GARY KING
ATTORNEY GENERAL OF NEW MEXICO
Tannis L. Fox
Assistant Attorney General
Water, Environmental and Utilities Division
Office of the New Mexico Attorney General
P.O. Box 1508
Santa Fe, New Mexico 87504
T 505.827.6695
F 505.827.4444
tfox@nmag.gov

Counsel for the Attorney General of New Mexico

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Introduction

The Attorney General hereby files his Statement of Reasons in Support of Joint Proposal for Copper Mine Rule ("Joint Proposal"), and in opposition to the New Mexico Environment Department's ("NMED") February 18, 2013 Proposed Copper Mine Rule ("Proposed Rule"). The Attorney General attaches to this Statement as Exhibit A the Joint Proposal, and files contemporaneously with this Statement the Attorney General's Closing Argument. The Joint Proposal was developed by the Attorney General, Gila Resources Information Project ("GRIP"), Turner Ranch Properties, Inc. ("Turner"), Amigos Bravos and William C. Olson, and represents a consensus of these parties.[1]

PROPOSED FINDINGS OF FACT

I. GROUND WATER IS A PUBLIC RESOURCE

1. Since 1931, ground waters in New Mexico have been "declared to be public waters and to belong to the public." NMSA 1978, § 72-12-1 & History.

2. New Mexico's ground water is not owed by or does not belong to the owners of private property above ground water. Individuals and entities may use the State's ground water for "beneficial use," subject to appropriate authorization from the State. *Id.*

3. Ground water, in New Mexico, is a public resource. *Id.*

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[1] At the close of the hearing in this matter, the Water Quality Control Commission requested the parties present a joint proposed rule to the Commission if possible. The Joint Proposal responds to the Commission's request. Tr. vol. 10, p. 2585, l. 21 to p. 2586, l. 5.

II. NEW MEXICO HAS A LONG STANDING HISTORY PROTECTING ALL GROUND WATER WITH A PRESENT AND REASONABLY FORESEEABLE FUTURE USE

A. Protection of Ground Water with a Present and Future Use under the Oil and Gas Act

4. "There is a 46 year history of protecting *all* ground water in New Mexico with that presumption that *all* ground in New Mexico is to be protected unless it can be demonstrated that a present or foreseeable future use." Olson Direct Test., p. 11 (emphasis in original) [Olson Ex. 1].

5. In 1967, then State Engineer Steve Reynolds designated for protection against contamination under the Oil and Gas Act, "*All* ground water in the State of New Mexico" with a concentration of 10,000 milligrams per liter ("mg/l") or less total dissolved solids ("TDS") that has a "present and reasonably foreseeable beneficial use . . . . " April 13, 1967 ltr. from S. Reynolds, State Engineer, to A.L. Porter, Oil Conservation Commission ("OCC") (emphasis added) [Olson Ex. 4]; *see* NMSA 1978, § 70-2-12 (Oil Conservation Division ("OCD") is authorized to promulgate orders to protect against contamination of "fresh water supplies" designated by State Engineer) [AGO Ex. 43][2]; *see also* Decision and Order on Remand ("Comm'n Decision"), Finding of Fact ("FOF"), ¶ 43 (Feb. 9, 2007), *In the Matter of Appeal of Supplemental Discharge Permit for Closure (DP 1341) for Phelps Dodge Tyrone, Inc.*, Nos. 03-12(A) and 03-13(A) (*"Tyrone"*) [AGO Ex. 1].

[2] The State Engineer's 1967 designation was pursuant to Section 65-3-11(15) of the Oil and Gas Act, now codified at Section 70-2-12(B)(15). *See* NMSA 1978, § 70-2-12 (History).

6. This designation was used during a hearing before the OCC in support of an order, and represents one of the early ground water protection efforts in the State. Olson Direct Test., p. 11.

7. The State Engineer reaffirmed the designation in 1985, designating for protection against contamination "*all* underground waters in the State of New Mexico containing 10,000 milligrams/liter or less of dissolved solids . . . ." May 15, 1985 ltr. from S. Reynolds, State Engineer, to D. Stamets, OCD (emphasis added) [Olson Ex. 6].

B. <u>Protection of Ground Water with a Present and Future Use under the WQA</u>

8. The Water Quality Act ("WQA"), first enacted in 1967, is the primary statutory mechanism by which ground water in New Mexico is protected. *See* NMSA 1978, §§ 74-6-1 to -17 & History.

9. The purpose of the WQA is "to abate and prevent water pollution." *Bokum Resources Corp. v. N.M. Water Quality Control Comm'n,* 93 N.M. 546, 555, 603 P.2d 285, 294 (1979); Comm'n Decision, Conclusions of Law ("COL") ¶ 1.

10. The WQA prohibits discharge of a water contaminant if:

> the discharge would cause or contribute to water contaminant levels in excess of any state or federal standard. Determination of the discharge's effect on ground water shall be measured *at any place of withdrawal of water for present and reasonably foreseeable use.*

NMSA 1978, § 74-6-5(E)(3) (emphasis added).

11. Thus, pursuant to Section 74-6-5(E)(3) of the WQA, ground water may not be contaminated above water quality standards at any "place of withdrawal."[3]

[3] Throughout this brief, "place of withdrawal" will be used to refer to a "place of withdrawal of water for present or reasonably foreseeable future use" under the WQA.

12. Section 74-6-5(E)(3) of the WQA was enacted by the legislature in 1993. New Mexico Laws of 1993, ch. 291, § 5. The legislature's requirement that discharges not contaminate places of withdrawal codified the Water Quality Control Commission's ("Commission") Regulations, promulgated 16 years earlier in 1977, protecting all ground water at places of withdrawal for present and reasonably foreseeable future, as discussed below in Section II.C.

13. Under the WQA, "reasonable degradation of water quality" is permitted for beneficial use, provided that water quality standards are not exceeded. NMSA 1978, § 74-6-12(F).

14. The WQA provides for limited exemptions from water quality standards. For example, changes in dissolved oxygen, temperature, dissolved solids, sediment and turbidity attributed to the "reasonable operation of irrigation or flood control facilities" are exempt from standards under certain circumstances. NMSA 1978, § 74-6-12(H).

15. There are no other exemptions for discharges from particular industries in the WQA. *See* NMSA 1978, § 74-6-12. Specifically, there are no exemptions for discharges from copper mining in the WQA. *See id.*

16. The Commission has authority under the WQA to grant "individual variances" from regulations promulgated by the Commission under limited circumstances after a public hearing. Under the WQA, the Commission:

> . . . may grant *an individual variance* of any regulation of the commission, whenever it is found that compliance with the regulation will impose an unreasonable burden upon any lawful, business, occupation or activity. *The commission may only grant a variance conditioned upon a person effecting a particular abatement of water pollution within a reasonable period of time.* Any

> variance shall be granted for the period of time specified by the commission. The commission shall adopt regulations specifying the procedure under which variances may be sought, *which regulations shall provide for the holding of a public hearing before any variance is granted . . . .*

NMSA 1978, 74-6-4(H) (emphasis added).

17. The variance mechanism under the WQA allows flexibility for a discharger's operations, allowing a discharger to temporarily contaminate ground water, but requires the discharger to abate any ground water pollution within a reasonable time. *Id.;* Olson Direct Test., p. 6.

C. **Protection of Ground Water with a Present and Future Use under the Commission's Regulations**

18. The 1967 legislation enacting the WQA authorized the Commission to adopt water quality standards. New Mexico Laws of 1967, ch. 190, § 4.

19. In 1973, the Legislature amended the WQA to add what is now Section 74-6-5, authorizing the Commission to promulgate regulations requiring a discharger to obtain a permit for "the discharge of any water contaminant either directly or indirectly into water." New Mexico Laws of 1973, ch. 326, § 4.

20. In response to the 1973 authorization under the WQA, the Environmental Improvement Agency ("EIA"), a predecessor to NMED, organized a task force composed primarily of EIA and industry representatives, the Ad Hoc Technical Advisory Committee ("Committee"), to provide input into drafting regulations governing water quality standards and discharge permits to be proposed to the Commission. The Committee met several times in 1975. Comm'n Decision, FOF ¶ 44; Olson Direct Test., p. 11.

21. At the Committee's July 11, 1975 meeting, EIA offered the following clarification:

> *The aim is that all ground water shall be protected to the extent provided in paragraphs 1 [all ground water with TDS less than 10,000 mg/l shall be protected for present or possible future domestic and agricultural use*] and 2 [new sources must prevent contamination; existing sources must contain it], including ground water inside the discharger's property boundaries and ground water directly under or adjacent to a discharge. *In order to verify that the ground water is being adequately protected, monitoring in the ground water should be as close as possible to the point where the contaminants are expected to enter the ground water,* or in the case of an approved limited volume of contaminated aquifer, as close as possible to the boundary of the contaminated volume; *monitoring at the property boundary* or at the subsequent user's well *is not adequate.*

Comm'n Decision, FOF ¶ 47 (emphasis added).

22. The Committee's "April 29, 1975 minutes further indicate that among EIA's bases for regulation of ground water was, '[t]he use of property boundaries is not an appropriate method for determining boundaries of allowable ground water degradation.'" *Id.* ¶ 46.

23. The Commission held hearings on EIA's proposed regulations in June 1976. *See id.* ¶ 50.

24. EIA's proposed regulations "did not identify the discharger's property boundary as the place where compliance with ground water standards would be measured." *Id.* ¶ 51.

25. "Transcripts of the June 1976 rule making hearing do not contain any discussion of or reference to using the discharger's property boundary as the point of compliance with standards." *Id.* ¶ 50.

26. Commissioner Reynolds, State Engineer, introduced the phrase "place of withdrawal for present and future use" during the Commission's December 1976 deliberations. The minutes from the deliberations state:

> Before consideration of the section by section wording of the amendments was begun, there was, at the request of Mr. Reynolds, a discussion of the general philosophy of the proposed amendments. *Mr. Reynolds said that there is an obvious need for the Commission to protect ground water for use, but there have been difficulties in determining where the measurements shall be made and in making it clear where the burden of proof lies. Mr. Reynolds distributed copies of language he would propose for inclusion in subsection 2-410 C. which he believed would place the basic burden [of] proof where it belongs, on the discharger to provide that his discharge would not impair any other use of ground water.* This would be parallel to water rights law where a permit cannot be granted except with a finding that other water rights will not be impaired. *Mr. Reynolds concluded that it would be an excessive burden on the director if he had to provide that there would in each case be damage.* The Commission agreed with the philosophy of the language offered.

Id. ¶ 52 (emphasis added); *see also id.* ¶ 56.

27. In December 1976, the Commission came to a consensus on language to include in the regulations. That language largely conforms to the text of the current regulations at 20.6.2.3109.C NMAC. It provides that a discharge should be allowed when the "person proposing to discharge demonstrates that the approval of the plan will not result in either concentrations in excess of the standards of Section 2-403 or the presence of toxic pollutants an any place of withdrawal of water for present or reasonably foreseeable future use." *Id.* ¶ 53.

28. The Commission's regulations governing ground water quality standards and discharge permits were promulgated in 1977. *See* 20.6.2 NMAC (History); Comm'n Decision, FOF ¶ 54.

29. The purpose of the regulations, now codified at 20.6.2 NMAC ("Commission Regulations"), is to protect "*all* ground water of the State of New Mexico which has an existing concentration 10,000 mg/l or less TDS, for present and potential future use as domestic and agricultural water supply . . . ." 20.6.2.3101.A NMAC (emphasis added).

30. The Commission's numeric ground water quality standards apply to "*any* place of withdrawal [of water] for present or reasonably foreseeable future use" of ground water with 10,000 mg/l TDS or less. 20.6.2.3103 NMAC (emphasis added).

31. Under the Commission's Regulations, in order to obtain a discharge permit, the applicant bears the burden of demonstrating that the proposed discharge will not result in an exceedance of water quality standards at *any* place of withdrawal. 20.6.2.3106.C(7), 20.6.2.3109.C(2), 20.6.2.3109.E NMAC.[4]

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[4] Section 20.6.2.3106.C(7) NMAC requires an applicant for a discharge permit to provide:

> Any additional information that may be necessary to demonstrate that the discharge permit will not result in concentrations in excess of the standards of Section 20.6.2.3103 NMAC or the presence of any toxic pollutant *at any place of withdrawal of water for present or reasonably foreseeable future use.*

Section 20.6.2.3109.C(2) NMAC requires a demonstration from an applicant for a discharge permit:

> . . . that approval of the proposed discharge plan, modification or renewal will not result in either concentrations in excess of the standards of 20.6.2.3103 NMAC or the presence of any toxic pollutant *at any place of withdrawal of water for present or reasonably foreseeable future us* . . . .

Section 20.6.2.3109.E NMAC provides:

> If data submitted pursuant to any monitoring requirements specified in the discharge permit or other information available to the secretary indicates that this part is being or may be violated or that the standards of 20.6.2.3103 NMAC are being or will be exceeded, or a toxic pollutant as defined in 20.6.2.7 NMAC is present, *in ground water at any place of withdrawal for present or reasonably foreseeable future use* . . . due to the discharge, ...
>
> (1) The secretary may require a discharge permit modification within the shortest reasonable time so as to achieve compliance with this part and *to provide that any exceeding of standards in ground water at any place of withdrawal for present or reasonably foreseeable future use* . . . will be abated or prevented.

32. As the Commission found, "[t]he regulations make clear that the basic of proof was on the discharger 'to prove that his discharge would not impair any other use of the ground water' . . . and to demonstrate 'that his discharge will not impair another present or reasonably foreseeable future water use.'" Comm'n Decision, FOF ¶ 55.

33. In 1995, the Commission promulgated its Abatement Regulations. *See* 20.6.2.4101 to – 4115 NMAC (History).

34. The Commission's Abatement Regulations affirmed and continued forward the Commission's protection, since 1977, of places of withdrawal. The Abatement Regulations require abatement of ground water contamination to water quality standards for *all* ground water with 10,000 mg/l TDS or less at *any* place of withdrawal for present and reasonably foreseeable future use. 20.6.2.4104.A, -4103.B, -4104.B NMAC.[5]

(Emphasis added.)

[5] Section 40.6.2.4104.A NMAC provides:

> The purposes of Sections 20.6.2.4000 through 20.6.2.4115 NMAC are to:
> (1) Abate pollution of subsurface water so that *all ground water* of the State of New Mexico which has a background concentration of 10,000 mg/L or less TDS, is either remediated or protected for use as domestic and agricultural water supply. . . .

Section 20.6.2.4103.B NMAC provides:

> Ground-water pollution *at any place of withdrawal for present or reasonably foreseeable future use,* where the TDS concentration is 10,000 mg/L or less, shall be abated to conform to the following standards:
> (1) toxic pollutant(s) as defined in Section 20.6.2.1101 NMAC shall not be present; and
> (2) the standards of Section 20.6.2.3103 NMAC shall be met.

Section 20.6.2.4104.B NMAC provides:

> Ground-water pollution *at any place of withdrawal for present or reasonably foreseeable future use,* where the TDS concentration is 10,000 mg/L or less, shall be abated to conform to the following standards:
> (1) toxic pollutant(s) as defined in Section 20.6.2.1101 NMAC shall not be present; and

35. The Commission's Regulations allow for individual variances from the Regulations after a public hearing, in accordance with Section 74-6-4(H) of the WQA. Pursuant to its variance authority, the Commission has promulgated three sets of regulations: (1) 20.6.2.1210 NMAC, that allows for a site-specific variance for up to five years after a public hearing; (2) 20.6.2.4103 NMAC, that allows for site-specific alternative abatement standards upon a showing of technical infeasibility to meet standards after a public hearing; and (3) 20.6.6.18 NMAC, allowing for a site-specific variance for dairy facilities that may continue through the life of the facility after a public hearing.

D. Protection of Ground Water with a Present and Future Use through State Agencies' Long Standing Interpretation of and Practices under the WQA and Commission Regulations

36. In 1987, the Director of NMED's predecessor agency recognized in a letter to the United States Environmental Protection Agency ("EPA") that, since 1977, Commission regulations protect "for present and future use as domestic and agricultural water supply is *all* ground water having a concentration 10,000 mg/l or less total dissolved solids . . . ." Feb. 26, 1987 ltr. from M. Burkhart, N.M. Envt'l Improvement Div., to Project Officer, EPA ("1987 EID Ltr."), attached memo, p. 2 (emphasis added) [Olson Ex. 7]; Comm'n Decision, FOF ¶¶ 60-62.

37. The Director's letter was circulated to Commission members for comment prior to issuance to EPA. 1987 EID Ltr., transmittal.

38. The Director stated that the Commission Regulations "assume that ground water not in present use is potentially useable unless demonstrated otherwise." He stated further that

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(2) the standards of Section 20.6.2.3103 NMAC shall be met.

(Emphasis added.)

the "discharger must demonstrate that his discharge will not cause standards to be violated in ground water . . . ." *Id.* attached memo, p. 3; *see also* Comm'n Decision, FOF ¶ 62.

39. The Director stated that the Commission Regulations "give[] the same protection to present and potential future uses of ground water." 1987 EID Ltr., attached memo, p. 4; *see also* Comm'n Decision, FOF ¶ 62.

40. The Director stated that:

> The WQCC system has been in use in New Mexico for ten years, since 1977. Experience has shown that this relatively clear and easily understood system is very effective in protecting ground water quality in the state.

1987 EID Ltr., attached memo, p. 4; *see also* Comm'n Decision, FOF ¶ 62.

41. William Olson, a party in this proceeding, testified as an expert. Mr. Olson has a Bachelor of Science in Geology and a Master of Science in Hydrology from New Mexico Institute of Mining and Technology. He began his employment with the State of New Mexico in 1986 with the OCD Environmental Bureau. Over the span of his 25 year career with the State, he worked for OCD and NMED. He retired from NMED in 2011 as Chief of the Ground Water Quality Bureau. During his career, Mr. Olson was involved in all phases of ground water protection at OCD and NMED, including abatement of ground water contamination, issuing discharge permits, development of ground water protection rules, undertaking enforcement action under the Commission's Regulations and WQA to protect ground water, and providing expert testimony at hearings. He served as a member of the Commission on behalf of OCD for 13 years, and served as a member of the OCC for six years. After he retired, NMED retained Mr. Olson on contract to facilitate development of the Copper Mine Rule. Olson Resume [Olson Ex. 2.]

42. Mr. Olson has significantly more experience and expertise than any of the other technical witnesses who testified in this matter interpreting, administering and enforcing the WQA and the Commission's Regulations on behalf of NMED and OCD, constituent agencies under the WQA. *Compare* Olson Resume with resumes of other experts; *see* NMSA 1978, § 74-6-2(J)(4).

43. Mr. Olson was trained from the beginning of his employment with the State that ground water is a public resource, and that "*all ground water*" is protected from contamination above standards unless the discharger demonstrates that the water has no present or reasonably foreseeable future use. Olson Direct Test., pp. 12-13; *see also* Olson Rebuttal Test., pp. 5-6 [Olson Rebuttal Ex. 1].

44. That all ground water is protected, absent such a demonstration, was the "consistent interpretation on behalf of the state agencies for 25 years." Olson Direct Test., p. 13; *see also* Olson Rebuttal Test., p. 6.

45. Since at least 1977, for 36 years, the State of New Mexico has protected from contamination above water quality standards under the WQA and Commission Regulations *all* ground water with 10,000 mg/l or less TDS unless the discharger demonstrates that the ground water does not have a present or reasonably foreseeable future use. *See* Sections II.B, -C, -D.

46. The long standing interpretation of the Commission's constituent agencies of the WQA and Commission Regulations has been to ensure through permitting and abatement actions that *all ground water underneath a discharge site* meets ground water quality standards unless the applicant or discharger demonstrates the ground water does not have a present or future use. Olson Rebuttal, pp. 5-8

47. Since promulgation of the Commission Regulations, no constituent agency under the WQA has interpreted the WQA or has adopted a practice to allow the exceedance of water quality standards *underneath* a discharge site or up to a designated "point of compliance" adjacent to or outside a discharge site, absent a site-specific determination that the discharge site is not a "place of withdrawal" or the discharger obtaining a variance or alternative abatement standards. *See* Olson Direct Test., pp. 5-13.

E. Protection of Ground Water with a Present and Future Use by the Commission Pursuant to Its Interpretation of Section 74-6-5(E)(3)

48. In 2009, after 24 days of hearing in the *Tyrone* matter, the Commission issued an 85 page Decision and Order on Remand. *See* Comm'n Decision.

49. The Commission determined that "Section 74-6-5(E)(3) of the Act provides that determination of the discharges' effect on ground water shall be measured at *any* place of withdrawal of water for present or reasonably foreseeable future use." *Id.* COL ¶ 26 (emphasis in original).

50. The Commission determined that a "place of withdrawal of water is not limited to a place on the ground, but extends into the aquifer underlying an area on the ground surface; it need not be a well." *Id.* ¶ 32.

51. The Commission determined that "Section 74-6-5(E)(3) does not establish any specific 'point(s) of compliance' for water quality standards", and that "[n]othing in the Act or the Commission Regulations provides for a 'point of compliance,' hydraulically up-gradient of which ground water need not be protected." *Id.* ¶¶ 27, 28.

52. The Commission determined that "[n]either the Act nor the WQCC Regulations establish a discharger's property boundary as a place of withdrawal of water where water quality standards shall be measured." *Id.* ¶ 29.

53. The Commission determined that "the regional and alluvial aquifers underlying portions of the Tyrone Mine site of places of withdrawal of water for present and reasonably foreseeable future use pursuant to Section 74-6-5(E)(3)." *Id.* ¶ 33.

54. In sum, after 24 days of hearing, the Commission upheld the interpretation of ground water protection under the WQA given by the Commission's constituent agencies for decades, proposed by NMED in that proceeding, and proposed now in this proceeding by the Attorney General's Office (and GRIP/Turner, Amigos Bravos and Mr. Olson). *See* Section II.E *supra*.

III. WATER RESOURCES IN NEW MEXICO ARE SCARCE AND SHOULD BE PRESERVED FOR PRESENT AND FUTURE GENERATIONS

A. New Mexico Is Dependent on Ground Water for Drinking Water

55. The entire state of New Mexico is heavily dependent on ground water for its source of supply. Thomson Direct Test., p. 4 [AGO Ex. 16]; Olson Direct Test., p. 3.

56. The best data that summarize this dependence are contained in a 2008 report by John Longworth and collaborators with the New Mexico Office of the State Engineer ("OSE").[6] Their report shows that in 2005, the latest year for which data were compiled, ground water withdrawals provided nearly 90% of the water for public and domestic water supply in the state.

[6] Longworth, J.W., Valdez, J.M., Magnuson, M.L., Albury, E.S., Keller, J. (2008). New Mexico Water Use by Categories, 2005. NM Office of the State Engineer, Technical Report 52, Santa Fe, NM, 122 p. (cited in Dr. Thomson's references, attached to his direct testimony).

In Grant County, where the major copper mines are located, ground water provides in excess of 99% of the water for human consumption. Similar dependence on ground water for potable supply also occurs in the other counties of southwestern New Mexico. Thomson Direct Test., p. 4; Olson Direct Test., p. 3.

57. Besides the state's dependence on ground water for potable supply, ground water provides nearly 50% of the supply of water for irrigated agriculture and livestock watering, and over 90% of the water for mining and industrial activities on a state wide basis. In Grant County, ground water provides 13% of the supply for irrigated agriculture and livestock watering, and 100% of the supply for mining and industrial activities. Thomson Direct Test., p. 5.

58. This overwhelming dependence on ground water for public and private water supply and support for the economic drivers in New Mexico has led the state to develop some of the earliest and most protective ground water standards in the country. Thirty-five years ago, New Mexico was one of a very few states in the country that had statewide ground water quality standards. Passage of the WQA and development of ground water standards recognized the importance of this resource to the health of New Mexico's residents, the quality of the state's environment, and the necessity of a high quality water supply for economic development. *Id.*

59. It is widely recognized that the water resources in New Mexico are not sufficient to meet current needs let alone support future growth. Virtually every public water supply agency, every irrigation and conservancy district, and every industrial sector in the state is facing imminent water shortages, and all are looking for new sources of supply to meet current and future needs. These shortages extend beyond the state's borders, and New Mexico is

experiencing increased scrutiny of the state's water resources from all of neighboring states as well as those on the lower Colorado River. *Id.*

60. The interest in New Mexico water by out of state entities, especially that of Texas on the Rio Grande and Pecos rivers, was part of the catalyst for the New Mexico Interstate Stream Commission's ("ISC") development of a statewide water plan. The statewide plan is supported by 16 regional water plans, completed between 1999 and 2008. These plans were developed by local organizations, usually with the assistance of technical consultants, and were "charged with identifying water supply, projecting demand, and where water supply is determined to be inadequate to meet projected demand, which is almost always the case in New Mexico, regions must develop strategic alternatives to meet their water shortage challenges." *Id.* (citing ISC website).

B. Water Supplies in Southwest New Mexico and in Grant County in Particular Are Predicted to Experience Shortages in the Coming Decades

61. The Southwest New Mexico Regional Water Plan [AGO Ex. 18] is a plan for Grant, Catron, Hidalgo, and Luna counties. The principal river basins within that region are the Gila River and Mimbres Basins. The 400+ page plan has extensive descriptions of the hydrogeology, water quality, current water use, and projected water use in the four counties. Nearly half of the document describes alternatives for meeting future demands. *Id.*

62. The regional water plan emphasizes rapidly declining ground water levels throughout the basin and the need for conservation of current resources and the need for new sources of water. *Id.*

63. The regional plan identifies and discusses the ground water contamination from mining operations and the need to protect this resource from future contamination. *Id.*

64. There are three recent studies that have focused on future water demand for Grant County that have made extensive use of ground water modeling to determine the amount of water available from ground water resources. Michael Johnson and colleagues with OSE developed a ground water model and published the results in "Analysis of Ground-Water Development to Meet Projected Demands in Regional Planning District 4, Southwest New Mexico" [AGO Ex. 19]. They described the hydrogeologic conditions and ground water resources of Grant County in detail and include estimates of population growth in developing estimates of future water demands. The OSE model was then used to predict the sustainability of ground water resource for the municipalities in Grant County under two different management scenarios. They conclude that the well fields that supply Silver City, Santa Clara, and Bayard have no capacity for further development and that the communities will likely begin to experience water shortages by about 2040. *Id.* p. 6; Johnson Testimony (2007), pp. 3-4 [AGO Ex. 20].

65. In 2009, technical consultants for Silver City investigated ground water recharge in Grant County to determine if enhanced recharge could be used to increase the water supply for municipal and domestic use. Technical Memorandum on Groundwater Recharge Analysis and Estimate of Recharge Option Costs [AGO Ex. 21]. They included domestic wells in their analysis, an important category of water use that was not incorporated in Johnson's model. The consultants constructed a computer model and quantified use. Thomson Direct Test., p. 6.

66. The Silver City model generally agrees with the OSE model: unless an additional source of supply is identified, severe water shortages will be expected in the next few decades. *Id.* p. 6.

67. Virtually the only source of water for municipal and domestic supply in Grant County is ground water. Current round water pumping in the well fields which supply Silver City, Santa Clara, and Bayard already exceeds the recharge rate as evidenced by water level declines ranging from less than 0.5 to greater than 3.0 feet per year. The Southwest New Mexico Regional Water Plan, studies by OSE hydrologists, and models done by consulting hydrogeologists all agree that water shortages affecting community systems will become evident in the next 30 to 40 years. *Id.* p. 9.

C. Ground Water Withdrawals from the FMI Mines Represent a Significant Portion of the Demand in Grant County

68. The Silver City report includes one component that was not part of the OSE model. It includes a map of the ground water capture zone of the Silver City well fields. It shows that the drawdown from these well fields extends to within a few miles of the radius of influence of the Tyrone mine. It is not a true fate and transport model, and therefore cannot be used to determine if contamination from the mine might reach the well fields. However, the relative proximity and possible impacts of future ground water management alternatives in the basin suggest that this is a concern that should be considered. *Id.* p. 6.

69. In 2011, Cuddy and Keyes with the OSE Hydrology Bureau published the results of a ground water modeling study of the Mimbres Basin in 2011: "Ground Water Model of the Mimbres Basin, Luna, Grant, Sierra, and Dona Ana Counties, New Mexico" [AGO Ex. 22].

They included water withdrawals for municipal, agricultural and industrial use, but did not include withdrawals by domestic wells. *Id.* pp. 6-7.

70. Industrial use was almost entirely for mining operations, and the report included pumping from 13 well fields operated by the mines for five year intervals dating back to 1935. The most recent reported data from 2000 showed that the well fields associated with the mines pumped over 15,000 acre feet per year ("acre-ft/yr") while the communities of Bayard, Columbus, Deming, Santa Clara, Silver City, and Tyrone pumped just over 8,000 acre-ft/yr. The Cuddy and Keyes model doesn't have the resolution of the Silver City model, and the study did not report on the long term sustainability of ground water resources in the basin. However, the impact of mining on the resource and on flow patterns in the vicinity of the mines can be interpreted from the data presented and the simulated drawdowns from model calculations. While mining withdrawals do not account for a large fraction of state water withdrawals, they constitute a large percentage of total diversions in Grant County. *Id.* p. 7.

71. According to the summary of New Mexico water use published by Longworth and colleagues at OSE, ground water withdrawals due to mining in Grant County were nearly 22,000 acre feet in 2005, which constituted over 35% of the total withdrawals in the county and nearly 70% of the total ground water pumping. It is clear from the models that the mines at Tyrone, Chino and Cobre account for a large proportion of water pumped from the aquifer and have an important impact on the flow regime in the northern extent of the basin. *Id.*

D. Climate Change Projections Predict a Worsening of New Mexico's Water Supply

72. While there is a high degree of uncertainty in predictions of the specific effects of climate change in a specific location such as New Mexico, all models agree that the climate of New Mexico and the southwest will become warmer as a result of climate change. This warming has three consequences. *Id.* p. 8.

73. First, winters will be shorter and spring runoff will occur earlier in the spring. This is especially important in rivers such as the Gila, San Francisco and Rio Grande because most of their runoff is the result of snow melt. *Id.*

74. Second, a warming climate will increase the length of the growing season. This has already been experienced in central New Mexico where the growing season begins roughly one week earlier in the spring and ends one week later in the fall. A longer growing season results in increased water demands for irrigated agriculture and to a lesser extent for municipalities whose residents water their lawns and gardens for a longer period of time. *Id.*

75. Third, warming will increase evaporation and transpiration. This will result in less runoff from mountain watersheds due to evaporation of the snowpack, increased evapotranspiration from undeveloped watersheds, and increased evapotranspiration from irrigated crops, lawns and gardens. By analogy to illustrate the effect of this phenomenon: Carlsbad, which is commonly perceived as being more like a desert, actually receives about 35% more annual precipitation than Albuquerque. But because Carlsbad is warmer, it experiences roughly 50% more evaporation. The consequence is a more arid environment. *Id.*

76. In 2011, the United States Bureau of Reclamation issued a report to Congress titled "SECURE Water Act Section 9503(c) – Reclamation Climate Change and Water" that analyzes the impacts of climate change on major western watersheds including the Rio Grande. The Bureau of Reclamation projects that the mean annual runoff of the Rio Grande at Elephant Butte reservoir in 2050 will be 13.5 % than that of the 1990's. *Id.* pp. 7-8.

77. The consequences of climate change and the reduction in surface water are threefold:

- All water resources in the state will become more valuable as demands increase and the supply becomes more scarce.
- Ground water resources will increase in importance because they are not subject to evaporative losses. However, aquifers may see reduced recharge as upland watersheds experience increased evapotranspiration.
- Increased demand and decreased availability for all water resources will probably make inter-basin transfers less likely because of the decreased supply and increased demands in all of the watersheds in the arid southwest.

Id. p. 8.

E. Ground Water from the Tyrone Mine Is a Reasonably Foreseeable Source of Water Supply for Southern New Mexico for Municipal, Domestic, Agricultural and Industrial Uses

78. The only significant potential source of new water identified in the Southwest Regional Water Plan is the Gila River. While it is possible that this source may be available as a result of the Arizona Water Settlements Act of 2004, it is "highly speculative as municipal supply" because municipal supply is only one of more than 20 proposed uses for this water. *Id.* pp. 5, 9.

79. In 2007, the ISC similarly observed that "development of this water has proven problematic," that there was no consensus among the stakeholders how or even whether to use the Gila River water, and there was no decision that the Gila River water would be available for municipal, domestic, agricultural or industrial use. Roepke Test. (2007), p. 6, and Proposal [AGO Ex. 23].

80. One potential proposed source of water for communities in Grant County and nearby is use of water from the Tyrone Mine. Thomson Direct Test., p. 9; Comm'n Decision, FOF ¶¶ 253-58; Roepke Test., pp. 7-8 and Proposal.

81. After mining ceases at the Tyrone Mine, Tyrone will construct a water treatment plant and will route all impacted water to the treatment plant in order to intercept, capture, pump, and treated the contaminated ground water. In 2007, Tyrone estimated that active mining would continue for 20 more years, or until 2027. Comm'n Decision, FOF ¶¶ 205, 238; Tyrone Closure Permit, DP-1341, cond. 36 [NMED Ex. 2 & FMI Ex. Shelly 2].

82. In 2003, Phelps Dodge Corporation ("Phelps Dodge"), the predecessor of Freeport McMoRan, Inc. ("FMI"), proposed to ISC and the State Engineer, upon closure of the Tyrone mine, to treat and pump up to 6,600 acre-ft/yr from the main open pit to supply drinking water to the communities of Silver City, Deming in adjoining Luna County, and as far away as Hatch and Las Cruces in Dona Ana County. Thomson Direct Test., p. 9; Roepke Test., pp. 7-8 & Proposal; Comm'n Decision, FOF ¶¶ 253-58.

83. According to the ISC, water from the Tyrone Mine represents a "scarce and highly valuable resource in the near future and therefore should be preserved for future use." Roepke Test., p. 7.

84. As to the efficacy and viability of Phelps Dodge's proposal, ISC stated that,

> Given the expected and potential growth southwest New Mexico . . ., and the technical practicability of conveying water to those locations, downhill, through gravity flow, Phelps Dodge's proposal to pump treated ground water from the Tyrone Mine to Silver City, Deming, Hatch and Las Cruces and their environs *is a reasonable and foreseeable future use of that ground water.*

Id. p. 8 (emphasis added).

85. The volume of water capable of being produced at the Tyrone mine "would satisfy most of the anticipated future demand in Grant and Luna Counties and . . . constitutes a reasonably foreseeable future use of water." Thomson Direct Test., p. 3.

86. Phelps Dodge's proposal demonstrates that there is a potential significant amount of ground water for future use from the Tyrone mine that southern New Mexico communities may have an interest in. It is therefore important to protect the quality of this resource for reasonable future use. *Id.* p. 9.

IV. PROTECTION OF GROUND WATER QUALITY UNDER NMED'S COPPER MINE DISCHARGE PERMITS

A. <u>Copper Mining Has a High Risk of Contaminating Ground Water</u>

87. The largest copper mines in the United States and abroad, including in New Mexico, are open-pit, dump leach operations in which large piles of copper ore are leached using sulfuric acid solutions. Sulfuric acid is sprayed on the tops of the leach stockpiles, the acidic solutions pull copper out of the ore, and the copper-rich solution is collected at the base or toes of the leach stockpiles. Travers Direct Test., p. 5 [AGO Ex. 3].

88. Many copper mines process copper using both dump leach and flotation operations, and the flotation operations produce tailings, which are placed in impoundments. *Id.*

89. In either type of operation, rock with lower copper concentrations must be removed to access the ore, and this removed material becomes waste rock. Because copper ore today is usually relatively low grade, large amounts of waste are produced relative to the amount of copper in the ore. Therefore, the waste rock stockpiles are usually quite large. *Id.*

90. At some point, after the leach stockpiles have been leached for a number of years, they become waste rock because the copper content has decreased, and they are no longer considered to be economic. *Id.* pp. 5-6.

91. All these facilities -- the open pits, leach stockpiles, waste rock stockpiles, and tailings materials -- remain on the mine site forever. *Id.* p. 6.

92. The primary contaminants of concern at copper mine sites are metals, such as copper, cadmium, lead, and zinc; acidity; sulfate; and TDS. These constituents derive from the weathering and dissolution of metal sulfide and other minerals and the use of sulfuric acid in copper processing. *Id.*

93. Rain and snow fall on all surface mine facilities, and these waters will leach metals and other contaminants out of the waste rock, leach stockpiles, tailings, and the walls of the open pits. Sulfuric acid has been applied to the tops of the ore stockpiles, and it infiltrates through the piles. *Id.*

94. "Acid rock drainage" or "ARD" is the geochemical process by which ground water becomes contaminated. The primary way acid rock drainage is created is when minerals

containing iron and sulfide are exposed to oxygen and water. Prior to mining, these minerals were buried beneath the ground surface, and acidic, metal-rich drainage is generally not released. However, when the ore and waste rock are extracted by blasting, ground into smaller particles, and placed on the earth's surface, the mineral surfaces are exposed to oxygen and water, and the ARD process begins. *Id.*

95. Exposure of these minerals allows the sulfide minerals to oxidize, and "secondary minerals" that contain metals and sulfate are formed. These metal sulfate minerals dissolve easily in a rain storm or when snow melts and also release dissolved metals, sulfate, and acidity. The acidic water can leach metals from other minerals, because most minerals dissolve more readily in acidic water. Because these waters are acidic and metal-rich, the process is now referred to as "acid rock drainage/metal leaching" rather than simply "acid rock drainage." *Id.*

96. It is also possible to leach metals and other contaminants, including arsenic and selenium, even if the waters are not acidic. *Id.*

97. The movement of these usually acidic and metal-rich waters from mine facilities can cause increasing concentrations of metals and sulfate in tailings pore water, ground water, and surface water at mine sites. *Id.*

98. Thus, the movement of acidic and metal-rich waters from mine facilities such as the open pits, leach stockpiles, waste rock stockpiles, and tailings impoundments can, and historically have, caused ground water contamination at copper mines. *Id.*

B. For Three Decades, the Copper Mine Discharge Permits Have Required Standards to Be Met underneath the Mine Sites

99. The first discharge permit issued to Phelps Dodge Tyrone, Inc. ("Tyrone") for the Tyrone mine site in Grant County was in 1978. Eight other discharge permits were issued through 2007. Comm'n Decision, FOF ¶ 15.

100. None of the nine operational Tyrone permits authorized exceedances of ground water standards. *Id.* ¶ 18.

101. "The fundamental purpose of each of the 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 where it has occurred." *Id.* ¶ 16.

102. There are numerous conditions in the copper mine discharge permits to protect water quality underneath the copper mine sites during operations and upon closure. Olson Rebuttal, p. 6; Menetrey Test., pp. 3, 6-11 [Olson Rebuttal Ex. 2]; *see generally* Tyrone Closure Permit DP-1341 [NMED Ex. 2]; Chino Closure Permit DP-1340, [NMED Ex. 3]; Cobre Closure Permit DP-1403 [FMI Ex. Shelly 4].

103. There are numerous conditions in the discharge permits to protect water quality underneath the copper mines through abatement if ground water standards are exceeded underneath the site. Olson Rebuttal, pp. 4-5; Menetrey Test., pp. 6-11.

104. Over the many years that Tyrone applied for and received discharge permits from the Department for its mining operation, Tyrone repeatedly represented that ground water quality underneath the mine site would not be impaired by the discharges for which it sought permits to operate. Menetrey Test., pp. 10, 16.

105. Tyrone operations, nonetheless, resulted in ground water contamination. NMED required abatement of that contamination. In 2007, Tyrone had numerous abatement activities underway as a result of its failure under its operational permits to prevent ground water contamination at the site. *Id.* pp. 14-16; Comm'n Decision, FOF ¶ 19.

106. The Tyrone discharge permits protect ground water quality from exceedances of standards underneath the *entire* mine site, including underneath leach piles, waste rock piles and tailings impoundments. Olson Rebuttal, pp. 5-6; Menetrey Test., p. 3.

107. For over two decades, Tyrone did not challenge the permit requirements prohibiting contamination of ground water under its site. Menetrey Test., p. 11.

C. Copper Mining Has Extensively Contaminated New Mexico's Ground Water

108. Prior to open pit mining at the Tyrone mine site, the water quality at the site was of good to excellent quality. Even more recently, ground water upgradient of Tyrone met ground water quality standards. Comm'n Decision, FOF ¶¶ 1, 6, 39-41.

109. However, despite the requirement that discharges from mining not cause ground water contamination, copper mining operations in New Mexico have resulted in extensive ground water pollution. Menetrey Test., p. 16.

110. Ground water quality has been severely degraded within the central mining areas at the Chino, Tyrone and Cobre Mines. Leachate from the ore stockpiles, areas around the open pits, and waste rock has contaminated ground water beneath and downgradient of the facilities. The alluvial, regional, and bedrock aquifers are affected by releases from the mines. Travers Direct Test., p. 7.

111. The New Mexico Office of Natural Resources Trustee ("ONRT"), administratively attached to NMED, engaged in a Natural Resource Damage Assessment and Restoration ("NRDAR") process, in cooperation with FMI at the Chino, Tyrone and Cobre Mines. The NRDAR for the mines concluded that the Chino Mine had the largest areal extent of injured alluvial and regional ground water, 13,935 acres; the Tyrone Mine had an injured areal extent of 6,280 acres; and the Cobre Mine had an areal extent of 528 acres, *totaling 20,743 acres, 19,299 acres of which is regional ground water and 1,444 acres of which is alluvial ground water.* Final Ground Water Restoration Plan for the Chino, Cobre, and Tyrone Mine Facilities, pp. S-1, 3-14 & Figs. 3.2, 3.3, 3.4 (ONRT Jan. 2012) ("Final Restoration Plan") [AGO Ex. 11]; Travers Direct Test., p. 7; Travers Test. Tr. vol. 7, p. 1549, l. 7 to p. 1551, l. 9.[7]

112. Maps of the Tyrone, Chino and Cobre Mines from the Final Restoration Plan depict the extent of the ground water contamination plumes at these sites. [AGO Exs. 34, 35, 36.]

113. One ground water plume at the Tyrone Mine has moved several miles off-site. Marshall Test. (2007), pp. 10-11 [AGO Ex. 13]. Ground water along Whitewater Creek at the Chino Mine is contaminated for several miles downstream/downgradient of the mine. Final Restoration Plan, Fig. 3.2; Travers Test. Tr. vol. 7, p. 1558, ll. 1-4.

[7] The injured ground water is ground water with concentrations of sulfate above 250 mg/l, the federal drinking water standard. Final Restoration Plan, pp. 3-13. The Commission's ground water standard for sulfate is 600 mg/l. 20.6.2.3103.B(7) NMAC. The spatial extent of contamination would change a little if the Commission's ground water standards were used: some areas would have a smaller footprint; other areas would have a larger footprint. Travers Test. Tr. vol. 7, p. 1549, l. 19 to p. 1551, l. 14.

114. The ground water contamination from the copper mines in New Mexico is extensive, in that it is widespread at the mine sites, there are off-site excursions, and it has resulted in high concentrations of ground water contaminants. Travers Direct Test., p. 7.

115. In particular, the ground water contamination at the Tyrone mine site has been extensively documented before the Commission. *See* Comm'n Decision, ¶¶ 25-38 (Commission findings on ground water contamination at Tyrone mine); *see generally* Marshall Test. (2003) [AGO Ex. 12] & Marshall Test. (2007 written), pp. 9-12 [AGO Ex. 13] (detailing ground water contamination at Tyrone mine site). In summary:

- The leach piles, waste rock piles and tailing impoundments at the Tyrone mine site all have contributed to contaminating ground water above standards as a result of acid rock drainage. Comm'n Decision, FOF ¶¶ 25-38.

- The open pits at Tyrone cover approximately 2,000 acres; the leach piles and waste rock piles cover approximately 2,800 acres; and the tailing impoundments cover approximately 2,300 acres. *Id.* ¶ 2; Tyrone Closure Permit DP-1341, pp. 1-2.

- Regional ground water under the Tyrone's central mining area is "severely degraded." Comm'n Decision, FOF ¶ 33. Some of the ground water under the central mining area exceeds ground water standards by 10 times for TDS, sulfate, nickel, cobalt and copper, and by 1,000 times for aluminum, cadmium, manganese, iron, and zinc. *Id.* ¶ 34.

- Ground water along the north, east, south and west perimeter of the Tyrone mine site is degraded. *Id.* ¶ 33.

- Ground water contamination has been discovered to be moving offsite and into the alluvial and regional aquifers. *Id.*

116. The Commission has found that, "Tyrone studies have concluded that acid generation in the leach stockpiles and waste rock piles will continue to occur for 300 years or more." Comm'n Decision, FOF ¶ 28.

117. Adrian Brown, NMED's only technical witness, acknowledged that the sources of contamination at a mine site can last 200 years. Brown Test. Tr. vol. 3, p. 667, ll. 2-4.

V. THE LEGISLATURE'S REJECTION OF THE 2003 "MINING DISTRICT" LEGISLATION EXEMPTING GROUND WATER FROM STANDARDS

118. During the 2003 New Mexico legislative session, Senate Bill 473 ("SB 473") was introduced. *See* SB 473 (accessed at http://www.nmlegis.gov/lcs/_session.aspx?Chamber=S&LegType=B&LegNo=473&year=03.)[8]

119. SB 473 proposed to amend the WQA and the state Mining Act to establish hard rock "mining districts" that would be exempt from water quality standards under the WQA. *Id.* SB 473, p. 37, ll. 1-4; p. 42, l. 20 to p. 43, l. 2. "Mining districts" would have encompassed all land owned or leased by mining owners or operators. *Id.* p. 4, ll. 3-7.

120. During the session, SB 473 was withdrawn from all committees and tabled indefinitely. The legislature did not exempt hard rock mining under the WQA from meeting water quality standards under their sites. http://www.nmlegis.gov/lcs/_session.aspx?Chamber=S&LegType=B&LegNo=473&year=03.

VI. TYRONE LITIGATION

A. Introduction

121. What constitutes a "place of withdrawal of water for present and reasonably foreseeable use" under the WQA has been the subject of complex and protracted litigated

[8] The Commission may take administrative notice of the introduction and subsequent disposition of SB 473, which appears on the New Mexico Legislature's Bill Finder website. *Accord* NMRA Rule 11-201.B(2) (judicial notice may be taken of facts capable of accurate and ready determination by resort to sources whose accuracy cannot reasonably be questioned); Procedural Order, § 401.A (Nov. 21, 2012) (rules of evidence may be looked to for guidance in this proceeding).

brought by Phelps Dodge and FMI[9] before NMED and the Commission for over a decade. Olson Direct Test., p. 13.

122. The former and present owners of the Tyrone, Chino and Cobre mines, Phelps Dodge and FMI, are the *only* dischargers to formally challenge NMED's interpretation of "place of withdrawal." There has been no other litigation before the Commission or the courts brought by dischargers claiming they may contaminate ground water underneath their discharge sites. Olson Test. Tr. vol. 9, p. 2112, ll. 1-13.

B. <u>2002 Permit Hearing before NMED</u>

123. Tyrone initially challenged NMED's draft closure permit for Tyrone during a 10 day evidentiary hearing in May 2002 before NMED. Settlement Agreement and Stipulated Final Order, ¶ 2 ("Tyrone Settlement") [AGO Ex. 11]; *see also In the Matter of Appeal of Supplemental Discharge Permit for Closure (DP 1341) for Phelps Dodge Tyrone, Inc.,* Nos. 03-12(A) and 03-13(A), Commission's Partial Final Decision and Order Affirming Supplemental Discharge Permit and Requesting a Modification, FOF ¶ 2 (June 10, 2004) ("First Comm'n Decision) [attached as Ex. B to AGO Mot. for Remand].[10]

124. On March 7, 2003, NMED's Hearing Officer issued a 106 page Hearing Officer's Report and 307 pages of Findings of Fact and Conclusions of Law, recommending substantially adoption of NMED's proposed closure measures. *Id.* ¶ 3.

125. NMED issued a closure permit for Tyrone based on the Hearing Officer's report, findings and conclusions. Tyrone Settlement, ¶ 2; First Comm'n Decision, ¶ 6.

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[9] FMI acquired Phelps Dodge in 2007. FMI 2012 Annual Report, p. 1 [FMI Ex. Brack 2].

[10] The Commission may take administrative notice of its 2004 decision in *Tyrone* for the same reasons as set forth in footnote 8 above.

C. 2003 Appeal Hearing before the Commission and the Commission's 2004 Decision

126. Tyrone challenged NMED's closure permit by filing an appeal petition with the Commission on July 3, 2003. Tyrone Settlement, ¶ 3; First Comm'n Decision, ¶ 7.

127. The Commission held a 10 day evidentiary hearing in October and November 2003. Tyrone Settlement, ¶ 5; First Comm'n Decision, ¶ 13.

128. By a 10 to 1 vote, the Commission upheld NMED's closure permit. On June 10, 2004, the Commission issued a decision holding *inter alia* that the Tyrone copper mine was a "place of withdrawal," and that the ground water underneath the site was protected under the WQA. Tyrone Settlement, ¶ 6; First Comm'n Decision, COL ¶ 29.

D. Tyrone's First Appeal to the Court of Appeals

129. Tyrone appealed the Commission's 2004 decision to the New Mexico Court of Appeals. *See Phelps Dodge Tyrone, Inc. v. N.M. Water Quality Control Comm'n,* 2006-NMCA-115, 140 N.M. 464, 143 P.3d 502.

130. The appellate court found, in 2006, that the Commission's determination that the entire Tyrone mine was place of withdrawal was overly broad, and remanded the matter to the Commission to "create some general factors or policies to guide its determination" as to what constitutes a "place of withdrawal" under the WQA. *Id.* ¶ 35, 140 N.M. at 473, 143 P.3d at 511.

131. The court declined to adopt as a standard a "point of compliance" regime for purposes of meeting water quality standards, as Tyrone had urged. *Id.* ¶ 37.

E. 2007 Remand Hearing before the Commission and the Commission's 2009 Decision

132. The Commission held a hearing on remand from the Court of Appeals during 2007. *See* Comm'n Decision.

133. During the 24 day hearing, NMED took the position that the ground water underneath the Tyrone mine site was a "place of withdrawal" that could not be contaminated above standards. *Id.* FOF ¶ 9.

134. Tyrone took the position that, under the WQA, a "point of compliance" for determining standards could be established at its property boundary, that the lands inside its Mining and Minerals Division permit boundary were *not* places of withdrawal, and that it could pollute ground water above standards up to that boundary surrounding 12,500 acres. *Id.* ¶ 10.

135. The Commission issued its decision on February 9, 2007. *See* Comm'n Decision.

136. In response to the Court of Appeals' direction to "create some general factors or policies to guide its determination" as to what constitutes a "place of withdrawal" under the WQA, the Commission held that the following factors must be considered in such a determination: site hydrology and geology, quality of water prior to discharge, past and current land use in the vicinity, future land use in the vicinity, past and current water use in the vicinity, and population trends in the vicinity. *Id.* COL ¶¶ 15-21.

137. The Commission found the planning horizon for future water use is "at least 100 years." *Id.* ¶ 25.

138. The Commission held that the WQA protected ground water at "*any* place of withdrawal for present and reasonably foreseeable future use." *Id.* ¶ 26 (emphasis in original).

139. The Commission determined that a "place of withdrawal of water is not limited to a place on the ground, but extends into the aquifer underlying an area on the ground surface; it need not be a well." *Id.* ¶ 32.

140. Based on the testimony of FMI's expert hydrologist, John Shomaker, the Commission determined that, "The effects of Tyrone's discharges into ground water may be measured at any place within the MMD Permit Boundary where the hydraulic conductivity of the underlying water-bearing units is at least 0.05 feet per day and is capable of producing water in sufficient amounts to support beneficial use." *Id.* COL ¶ 51.

141. The Commission determined that the WQA does not establish a "point of compliance" regulatory system that would allow contamination above standards downgradient of a source. *Id.* ¶¶ 27, 28.

142. The Commission determined that neither the WQA nor the Commission Regulations allow for a discharger's property boundary to be a place of withdrawal of water where water quality standards shall be measured. *Id.* ¶ 29.

143. Applying the factors identified by the Commission, the Commission determined that "the regional and alluvial aquifers underlying portions of the Tyrone mine site are places of withdrawal of water for present and reasonable foreseeable future use pursuant to Section 74-6-5(E)(3)." *Id.* ¶ 33.

144. The Commission identified the following areas as places of withdrawal for present or reasonably foreseeable future use:

- Two drinking water wells, the Fortuna Wells;
- Six parcels within the mine site not owned by Tyrone or affiliates;
- The north side of the mine around the Mangas Valley Tailings Impoundment;
- The area west and to the east of the 1A Tailings Impoundment;
- An area immediately south of the 1A Tailings Impoundment;
- An area to the southeast of the 3A Stockpile and to the east of the 3B Waste Rock Pile;
- Open areas around the pits;
- The area on the east side of the mine south of the 5A Waste Rock Pile; an area south of the Gettysburg Pit;
- Areas on the southwest corner of the mine; an area to the west of the Gettysburg Pit, along the 1C Stockpile;
- Areas on the southeast side of the mine along and within Oak Grove Draw;
- An area on the east side of the mine to the southeast of the No. 1 Stockpile;
- Areas in the southeast corner of the mine, around the reclaimed Burro Mountain Tailings; and
- Areas on the west side of the mine in Deadman Canyon.

Comm'n Decision, COL ¶¶ 46-49, FOF ¶ 125; Travers Direct Test., pp. 19-10; *see* AGO Ex. 25 (Tyrone map depicting places of withdrawal, as determined by Commission, that are found within the "open pit surface drainage area" under NMED's Proposed Rule where exceedances of standards are allowed).

145. The areas identified by the Commission as places of withdrawal at the Tyrone mine site are not exclusive. The Commission directed NMED and Tyrone to identify additional places of withdrawal at Tyrone consistent with the Commission's findings and conclusions. Comm'n Decision, Final Order, ¶ A.

146. Finally, the Commission held that "[i]f it is not technically feasible for water quality standards to be met underneath the Tyrone Mine, the appropriate remedy for Tyrone is to seek alternative abatement standards under the Commission Regulations at section 20.6.2.4103.F NMAC." *Id.* COL ¶ 52.

F. Tyrone's Second Appeal to the Court of Appeals

147. On March 9, 2009, Tyrone appealed again to the Court of Appeals challenging the Commission's Decision.

148. Tyrone's second appeal to the Court of Appeals has been stayed pending implementation of a Settlement Agreement and Stipulated Final Order ("Tyrone Settlement") finalized between NMED and FMI on December 20, 2010. Tyrone Settlement, ¶¶ 47, 49 [AGO Ex. 10].

G. The Settlement between NMED and Tyrone

149. The structure of the Tyrone Settlement – which has been approved by the Commission -- is consistent with the requirements of the WQA, the Commission's Regulations and the Commission's Decision in *Tyrone* in that treats the *entire* Tyrone mine site as a place of withdrawal. The Tyrone Settlement requires FMI to meet water quality standards underneath the *entire* mine site or FMI must obtain a variance or alternative abatement standards. *See id.* ¶¶ 24, 26, 27, 35, 37, 38, 42, 43.

150. Specifically, the Tyrone Settlement provides that:

- Tyrone shall "collect all water reporting to pit bottoms and treat that water to water quality standards set forth in section 20.6.2.3103 NMAC prior to discharge, as provided in the current permit." *Id.* ¶ 24.

- Discharges from *new* mine facilities may not result in exceedances of water quality standards unless Tyrone obtains a variance from the Commission and provided that Tyrone abates the contamination upon closure in accordance with the Commission's Abatement Regulations. *Id.* ¶¶ 37, 38.

- Tyrone must obtain a variance from the Commission for discharges from *existing* mine facilities that result in exceedances of water quality standards and must abate the contamination upon closure in accordance with the Commission's Abatement Regulations. *Id.* ¶¶ 42, 43.

- "At closure, ground water beneath the *entire* Tyrone mine site will be subject to either water quality standards set forth in Section 20.6.2.3103 NMAC, background concentrations approved by the Department, or alternative abatement standards approved by the Commission." *Id.* ¶ 35 (emphasis added).

- As part of the copper mine rule hearing, NMED is required to propose new variance procedures and criteria for copper mines. *Id.* ¶ 45.

151. NMED's Proposed Rule -- which allows exceedances above standards within the open pit surface drainage area and from discharges from existing mine units[11] without the need to obtain a variance or alternative abatement standards -- is inconsistent with the terms of the Tyrone Settlement agreed to by NMED and approved by the Commission. *Compare* NMED's Proposed Rule with Tyrone Settlement.

VII. THE 2009 WQA AMENDMENTS

152. In 2009, the New Mexico Legislature amended the WQA to require the Commission to promulgate regulations for the copper industry for "the measures to be taken to *prevent* water pollution and to monitor water quality." NMSA 1978, § 74-6-4(K) (emphasis added).

153. Prior to the 2009 amendments, the Commission was not authorized through regulation to "specify the method to be used to prevent or abate water pollution," but was only authorized to specify a standard of performance for sources of pollution. That prohibition was deleted in the 2009 amendments. *Compare* NMSA 1978, § 74-6-4(D) (1993) with NMSA 1978, § 74-6-4(D) (2009).

[11] Under the Proposed Rule, "unit" means "a component of a mining operation including but not limited to processing, leaching, excavation, storage, stockpile or waste units." 20.6.7.7.B(63) NMAC [NMED].

154. Prior to the 2009 amendments, the permitting process was based on a regulatory framework whereby the applicant would propose for NMED's review a plan to protect ground water. There was no specificity or guidance in the Commission's Regulations for measures that were required to be taken to protect ground water except that the applicant was required to demonstrate that it would not contaminate above standards. Olson Direct Test., p. 7.

155. The 2009 amendments changed that regulatory framework by allowing, indeed requiring for the copper industry, the Commission to promulgate industry-specific rules that specified particular measures to prevent ground water contamination. The main purpose of the 2009 amendments was to allow the Commission to promulgate industry-specific regulations to *prevent water pollution.* *See* NMSA 1978, § 74-6-4(K); Olson Direct Test., p. 7.

156. The plain language of the 2009 amendments does not authorize or otherwise allow for the establishment of a "point of compliance" regulatory system to allow pollution above standards to occur underneath copper mine sites. *See* NMSA 1978, § 74-6-4(K); Olson Direct Test., pp. 7-8.

157. The 2009 amendments required NMED to establish an advisory committee "composed of persons with knowledge and expertise particular to the industry category and other interested stakeholders" to advise NMED on regulations to propose and to develop a schedule for development of the rule approved by the Commission. NMSA 1978, § 74-6-4(K).

VIII. DEVELOPMENT OF NMED'S PROPOSED COPPER MINE RULE

A. <u>The Schedule and the CRAC</u>

158. On January 3, 2012, NMED filed a motion with the Commission to approve a schedule for development of the copper mine rule.

159. The CRAC and its subcommittee, the Copper Rule Technical Committee, were established. The CRAC and committee, facilitated by Mr. Olson under contract with NMED, expended substantial time, effort and expertise to develop proposed rules. The CRAC met during at least 10 days during 2012, and the technical groups met during at least 12 days. http://www.nmenv.state.nm.us/gwb/NMED-GWQB-CopperRegulationDevelopment.htm.[12]

B. NMED's August 17, 2012 Draft

160. On August 17, 2012, based on the work of the CRAC, NMED issued a Copper Mine Rule Discussion Draft ("August 2012 Draft") [AGO Ex. 5]. The draft was prepared by Mr. Olson and NMED technical staff, and was review by NMED technical staff before it was sent to the CRAC for comment. Olson Test. Tr. vol. 9, p. 2099, l. 2 to p. 2100, l. 7.

161. The August 2012 Draft required ground water standards to be met underneath copper mine sites during operations and upon closure unless variances or alternative abatement standards were obtained. *See, e.g.,* August 2012 Draft, 20.6.7.20.A(1), -20.B(2), -21.B(1), 21.C(2)(b) NMAC.

162. The August 2012 Draft required:

- New leach stockpiles must be synthetically lined unless, for existing facilities, a variance is obtained and the leach stockpiles are located in the open pit surface drainage area or an area with existing contamination. *Id.* 20.6.7.20.A(1) NMAC.
- Existing leach stockpiles may continue to operate as authorized under the discharge permit if a variance is obtained. *Id.* 20.6.7.20.B(2) NMAC.
- New waste rock stockpiles that "may cause an exceedance" of standards must be synthetically lined unless, for existing facilities, a variance is obtained and the waste rock stockpiles are located in the open pit surface drainage area or an area with existing contamination. *Id.* 20.6.7.21.B NMAC.

[12] The Commission may take administrative notice of this information, taken from NMED's website, for the same reasons as set forth in footnote 8.

- Existing waste rock stockpiles may continue to operate as authorized under the discharge permit if they do not contaminate above standards or a variance is obtained. *Id.* 20.6.7.21.C(2) NMAC.

- New tailings impoundments must be synthetically lined unless a variance is obtained. *Id.* 20.6.7.22.A(4) NMAC.

- Existing tailing impoundments may continue to operate as authorized under the discharge permit if they do not contaminate above standards or a variance is obtained. *Id.* 20.6.7.22.B(2) NMAC.

- A sufficient number of ground water monitoring wells must installed to adequately monitor impacts and must be located as close as practicable to the toe of all leach stockpiles, waste rock stockpiles and tailings impoundments. There is no point of compliance system for determining compliance with standards established. *Id.* 20.6.7.28.B NAMC.

- If monitoring anywhere at the mine site indicates an exceedance of standards or increasing contamination, the copper mine must undertake corrective action or abatement. 20.6.7.30.A, -B NMAC.

- Upon closure, water quality standards would not apply to the area of hydrologic containment for open pits that are hydrologic evaporative sinks. *Id.* 20.6.7.33.D(1) NMAC.

163. The August 2012 Draft was circulated to the CRAC for comments. FMI, the New Mexico Environmental Law Center, and New Mexico Copper Corporation ("New Mexico Copper") submitted comments to NMED. Sept. 7, 2012 email from B. Olson to D. Martin, NMED (attaching NMED 2nd Internal Discussion Draft Copper Mine Rule ("Sept. 7, 2012 NMED Internal Draft"))[AGO Ex. 7].

164. The engineering design requirements included in the August 2012 Draft were the product of discussion of the CRAC technical committee, primarily based on input from FMI's consultants and staff together with input from other stakeholders. The draft represented an exemplary product of the collaboration process undertaken by technical committee, and

represents the state-of-the-art in such regulations incorporating rules and guidance from other states and agencies, including Arizona, Nevada and the United States Bureau of Land Management. Kuipers Direct Test., p. 7 [GRIP/Turner NOI].

C. **FMI's September 5, 2012 Comments**

165. FMI submitted its comments on the August 2012 Draft to NMED on September 5, 2012 ("Sept. 5, 2012 FMI Comments") [AGO Ex. 6].

166. FMI proposed that water quality standards *not* apply to the operations of open pits and that standards only be met at monitoring wells – points of compliance in effect -- located around the perimeter of an open pit and downgradient of leach stockpiles, waste rock piles and tailing impoundments, and their associated containment or capture systems. Sept. 5, 2012 FMI Comments, 20.6.7.24.A(4) & -28.B NMAC.

167. FMI proposed to change the August 2012 Draft through the following:

- New leach stockpiles within the open pit surface drainage area would not be required to be synthetically lined, but could install an alternative design administratively approved by NMED. *Id.* 20.6.7.20.A(1)(f).

- New waste rock stockpiles within an open pit surface drainage area would not be required to be synthetically lined and new waste rock stockpiles outside an open pit surface drainage area that "would cause" exceedances may (or may not) be subject to additional controls, such as liners, as "additional conditions." *Id.* 20.6.7.21.B NMAC.

- New tailings impoundments that "would cause" exceedances may (or may not) be subject to additional controls, including liners, as "additional conditions." *Id.* 20.6.7.21.B NMAC.

- Existing leach stockpiles, waste rock stockpiles, and tailings impoundments would be authorized to contaminate ground water above standards without the need to obtain a variance. *Id.* 20.6.7.20.B(2), -12.C(2) NMAC.

- During operations, water quality standards would not apply to open pits. *Id.* 20.6.7.24.A(4) NMAC.

- Compliance with water quality standards during operations and upon closure would be determined at a point downgradient of leach stockpiles, waste rock stockpiles, and tailings impoundments and their associated capture and containment systems, establishing a point of compliance system for purposes of determining compliance with standards. *See id.* 20.6.7.28.B, -33.F NMAC.

- Upon closure, water quality standards would not have to be met for flow-through open pits; contamination above standards would only have to be managed to mitigate exceedances. *Id.* 20.6.7.33.D(2) NMAC.

D. <u>NMED's September 7, 2012 Internal Draft</u>

168. Mr. Olson and an NMED Ground Water Quality Bureau technical staff person, Kurt Vollbrecht, among others from NMED, reviewed the comments from the CRAC members on NMED's August 2012 Draft. Sept. 7, 2012 email from B. Olson to D. Martin, NMED [AGO Ex. 7].

169. Based on the comments received, Mr. Olson and Mr. Vollbrecht circulated within NMED a revised draft rule on September 7, 2012 ("NMED Sept. 7, 2012 Internal Draft"). *See* Sept. 7, 2012 email from B. Olson to D. Martin, NMED & Sept. 7, 2012 NMED Internal Draft [AGO Ex. 7].

170. The NMED Sept. 7, 2012 Internal Draft did *not* adopt FMI's proposals, set forth above. *See generally* NMED Sept. 7, 2012 Internal Draft.

171. It was Mr. Olson's understanding that the rule would incorporate existing permit language and new engineering practices and comport with the Tyrone Settlement. Olson Test. Tr. vol. 9, p. 2103, ll. 10-16.

172. The NMED September 7, 2012 Internal Draft was prepared by Mr. Olson and NMED technical staff. Olson Test. Tr. vol. 9, p. 2102, ll. 4-6, 23-25.

173. A memorandum attached to the draft, identifying "major issues" to NMED senior management prepared by Mr. Olson and Mr. Vollbrecht, identified eight provisions proposed by FMI that would violate the WQA. Mr. Vollbrecht was the principal NMED technical staff person responsible for development of the Proposed Rule. Sept. 7, 2012 email from B. Olson to D. Martin, NMED (attaching Major Issues in 9/7/12 NMED 2nd Internal Discussion Draft, pp. 1, 2) [AGO Ex. 8]; Skibitski Test. Tr. vol. 2, p. 357, l. 23 to p. 358, l. 5.

174. The memorandum stated in part:

> **20.6.7.20.A(1)** Freeport deleted the agreed language developed as part of the Tyrone Settlement (paragraphs 36-40) that discusses the need for a variance for new leach piles within the open pit. . . . The Water Quality Act does not allow ground water contamination and without a variance *this would violate the WQA.* We set up the variance mechanism in the Tyrone Settlement to be able to legally permit these types of mining activities within the framework of the WQCC rules and the statute . . . .
>
> . . .
>
> **20.6.7.20.B(2), 20.6.7.21.C(2)** Freeport wanted to remove the variance requirement for existing facilities that have caused ground water contamination. We have retained it. Removing the variance requirement for existing facilities is not in accordance with the Tyrone Settlement (paragraphs 41-43) language and continuing to discharge without a variance *violates the WQA.*
>
> **20.6.7.21(B) New Waste Stockpiles.** Freeport proposed to change the language such that it would allow ground water contamination from new waste rock stockpiles so long as the contaminated ground water is captured. The Water Quality Act does not allow ground water contamination and without a variance *this would violate the WQA* so we retained our language.
>
> **20.6.7.22.A(4) New Tailing Impoundment Facilities.** Freeport proposed to change the language such that it would allow ground water contamination from new tailing impoundment facilities so long as the contaminated ground water is captured. The Water Quality Act does not allow ground water contamination and without a variance *this would violate the WQA* so we retained our language.

> **20.6.7.21.A(2), 20.6.2.21.B(1)** Freeport added language regarding placement of materials inside (or outside) the open pit surface drainage area without a need for a variance. . . . This is not in accordance with the Tyrone Settlement and *would violate the WQA.*
>
> **20.6.7.24[.A](4)** Freeport proposed to allow ground water contamination in the open pit by rule. *This would violate the WQA.*

Id. (emphasis added).

175. In sum, Mr. Olson and Mr. Vollbrecht identified numerous ways in which FMI's proposals would violate the WQA and the Tyrone Settlement, and identified those issues to NMED senior management. *Id.*

E. <u>NMED's September 10, 2012 Draft Adopting FMI's Comments</u>

176. On September 10, 2012, NMED senior management directed Mr. Olson to revise the draft copper mine rule to include all of FMI's proposed amendments from its September 5, 2012 comments. Olson Test. Tr. vol. 9, p. 2107, ll. 6-18; Sept. 10, 2012 email from B. Olson to R. Flynn, NMED (attaching Copper Mine Rule NMED Internal Discussion Draft #3 (September 10, 2012)) [AGO Ex. 42].

177. NMED senior management directed Mr. Olson to incorporate the provisions that Mr. Olson and Mr. Vollbrecht had identified days earlier as violating the WQA and Tyrone Settlement. Olson Test. Tr. vol. 9, p. 2107, ll. 11-23.

178. NMED senior management did not provide a technical or legal basis for accepting all of FMI's comments that Mr. Olson and Mr. Vollbrecht had identified as violating the WQA and Tyrone Settlement. *Id.* p. 2108, ll. 12-19.

F. NMED's September 13, 2012 Public Draft

179. On September 13, 2012, NMED released a draft Copper Mine Rule for public comment ("NMED September 2012 Public Draft") [AGO Ex. 9].

180. The NMED September 2012 Public Draft adopted virtually wholesale the Sept. 5, 2012 FMI Comments. Indeed, the NMED September 2012 Public Draft adopted each of the eight provisions, cited above, that had been identified by Mr. Olson and NMED staff as violating the WQA and Tyrone Settlement. *See* Olson Test. Tr. vol. 9, p. 2107, l. 24 to p. 2108, l. 11; *compare* Sept. 5, 2012 FMI Comments *with* NMED September 2012 Public Draft.

G. NMED's Petition

181. On October 30, 2012, NMED filed its Petition to Adopt 20.6.7 and 20.6.8 NMAC and Request for Hearing with the Commission ("Petition").

182. Proposed 20.6.7 NMAC retained FMI's September 5, 2012 Comments and all provisions identified by NMED's technical contractor and technical staff as violating the WQA and Tyrone Settlement. *See* Proposed 20.6.7 NMAC attached to Petition.

183. According to James Kuipers, a member of the CRAC, and an expert witness for GRIP/Turner, NMED's Petition provisions "reflect practices by FMI which are the artifact of pre-modern mining operations and do not recognize or represent current engineering design best practices." Kuipers Direct Test., pp. 7, 8.[13]

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[13] Mr. Kuipers has a Bachelor of Science in Mineral Process Engineering from Montana College of Mineral Science and Technology. He is a Professional Engineer, registered in Montana and Colorado. He has more than 30 years of experience in the mining industry and mining environmental compliance, and worked for the mining industry as an engineer, mine superintendent, and project manager, among other positions. In Mr. Kuipers' consulting business, he has worked under contract with EPA on major projects nationally and internationally. Kuipers Test., pp. 2-3; Kuipers Resume [GRIP/Turner Ex. Kuiper 1].

184. On November 21, 2012, the Hearing Officer issued a Procedural Order governing this rule making proceeding.

185. The following entities entered appearances as parties in this matter: NMED, FMI, the Attorney General, GRIP/Turner, Amigos Bravos, Mr. Olson, and the New Mexico Mining Association.

186. NMED file an Amended Petition on February 18, 2013.

187. The Amended Petition retained FMI's September 5, 2012 Comments and all provisions identified by NMED's technical contractor and technical staff as violating the WQA and Tyrone Settlement. *See* Proposed 20.6.7 NMAC ("NMED's Proposed Rule") attached to Amended Petition.

188. The parties filed written direct testimony and exhibits on February 22, 2013, and written rebuttal testimony and exhibits on March 15, 2013 pursuant to the Hearing Officer's Procedural Order.

189. The Commission took technical testimony and offered an opportunity for public comment on NMED's Amended Petition on April 9, 10, 11, 16, 17, 18, 22, 23, 24, and 30, 2013. The Commission took public comment in the evenings in Santa Fe on April 10 and 11, 2013, and in Silver City on May 3, 2103. *See generally* Tr.

IX. THE COPPER RULE HEARING

1. <u>The Attorney General's Expert Witnesses</u>

190. The Attorney General offered two expert witnesses in support of his case: Connie Travers, M.S., and Bruce Thomson, Ph.D., P.E.

191. Ms. Travers is Principal at Stratus Consulting, Inc. ("Stratus Consulting") in Boulder, Colorado. She has a Bachelor of Science in Geology and a Master of Science in Applied Hydrogeology from Stanford University. Her education and professional experience have been focused on understanding the movement of ground water in aquifers and the migration of contaminants through and in soil, rocks, ground water, and surface water. She has worked on assessing the impacts to ground and surface water quality of mining projects -- for the mining industry, for state and federal agencies, and for tribes -- for 25 years. Her mine site evaluations are conducted primarily for federal agencies, such as EPA and the United States Department of Justice, and for states, including New Mexico. On behalf of ONRT, she worked on the natural resource damage assessment for the Chino, Tyrone and Cobre copper mines. She has assessed the effects of mine operations on water quality and ground water and surface water flows at more than 50 proposed, active, and abandoned mines. These projects have involved assessments of the impacts on water quantity and quality from mine operations, including dewatering/supply, and releases and migration of contaminants from mine facilities such as open pits, heap leach pads, tailings impoundments, and waste rock piles. Her experience and credentials are set forth in more detail in her resume, her written direct testimony, and her oral testimony. Travers Resume [AGO Ex. 4]; Travers Direct Test., pp. 1-2; Travers Test. Tr. vol. 7, p. 1542, l. 2 to 1543, l. 21.

192. Dr. Thomson is a Professor of Civil Engineering and Director of the Water Resources Program at the University of New Mexico ("UNM"). He has a Bachelor of Science degree in Civil Engineering from the University of California, at Davis, and Master of Science and Ph.D. degrees in Environmental Science and Engineering from Rice University, Houston,

Texas. He is a Licensed Professional Engineer in the State of New Mexico. Dr. Thomson has been a faculty member in Civil Engineering at UNM for nearly 35 years. He has been Director of the interdisciplinary Water Resources Program at UNM for seven years. Prior to joining UNM, he was a Research Professor at Rice University and also worked for and EPA Region IX permit program. He has supervised the research of approximately 150 Master of Water Resources, Master of Science, and Ph.D. students. His professional areas of expertise are in environmental and water resources engineering. He teaches classes in environmental engineering, water resources, hydrogeology, and water chemistry. His research focus has principally been in areas dealing with chemistry, contamination and treatment of surface and ground waters by inorganic contaminants including arsenic, selenium, fluoride, uranium and other radionuclides. He has done work on gold, copper, uranium and coal mines. He recently contributed a chapter titled "Water Resources of New Mexico" to Water Policy in New Mexico. Dr. Thomson has worked with leading water resource firms in the state as a consultant and on many state and local committees on water resource and water quality challenges facing our communities. He has served on many federal, state, and local boards and panels, including serving as an alternate public member on the Mining Commission and on the Task Force assembled by NMED to develop the dairy regulations promulgated by the Commission. Dr. Thomson works closely with Dr. David Gutzler, Professor of Earth and Planetary Sciences at the University of New Mexico, an accomplished and respected climate scientist, and has reviewed many reports and technical papers on the projected impacts of climate change in the southwestern United States. Dr. Thomson's experience and credentials are set forth in more detail in his resume, his written direct testimony, and his oral testimony. Thomson Resume

[AGO Ex. 17]; Thomson Direct Test., pp. 1-2; Thomson Test. Tr. vol. 7, p. 1706, l. 24 to p. 1709, l. 24.

B. <u>The Proposed Copper Mine Rule</u>[14]

1. General Principles of Proposed Rule

193. The Proposed Rule is based on a number of key concepts:

- *Ground water is allowed to be contaminated above standards without a determination of whether the area is a place of withdrawal of water for present or reasonably foreseeable future use. There is no requirement that a variance be obtained to exceed water quality standards if the area is a place of withdrawal.*
    - *Specifically, ground water contamination above water quality standards is allowed during operations and closure at open pits; within the "open pit surface drainage area" and "area of open pit hydrologic containment" of a copper mine; and underneath leach stockpiles, waste rock stockpiles, and tailings impoundments and their associated capture systems up to a designated monitoring well without a determination as to whether the area is a place of withdrawal.*
    - *Existing leach stockpiles, waste rock stockpiles and tailings impoundments* may continue to operate as they have previously, even if those units have and will continue to contaminate ground water above standards *without a determination as to whether the area is a place of withdrawal. There is no requirement that a variance be obtained to exceed standards if the area is a place of withdrawal.*
    - *New leach stockpiles and waste rock stockpiles within the surface drainage area are not required to be lined, and may contaminate above standards without a determination if the area is a place of withdrawal. There is no requirement that a variance be obtained to exceed standards if the area is a place of withdrawal.*
    - *New waste rock stockpiles and tailings impoundments outside the surface drainage area will be allowed to contaminate above standards, and the contamination will attempted to be addressed through a containment strategy, rather than through a prevention strategy.* New leach stockpiles outside the surface drainage area must be lined and contamination prevented.

[14] The Proposed Copper Mine Rule has many technical requirements that the Attorney General supports. This brief will focus on those provisions to which the Attorney General objects.

- *The proposed rule establishes a point of compliance regulatory system to determine compliance with standards* at a designated monitoring well or wells downgradient of the mine units and their capture systems.
    - Monitoring for ground water contamination for *new* mine units is required only *outside the surface drainage area and downgradient of the capture systems of mine units* at a designated point of compliance monitoring well or wells.
    - *During operations and upon closure, water quality standards do not have to be met at places of withdrawal. Water quality standards must be met only at the designated point of compliance monitoring wells located outside the surface drainage area and downgradient of the capture systems of mine units.*
- During closure, if standards are exceeded beyond the designated monitoring well locations, abatement to standards *may* be required, however, abatement to standards is not necessarily required.

Travers Test. Tr. vol. 7, p. 1547, l. 4 to p. 1548, l. 8; p. 1552, ll. 11-22; *see generally* Proposed Rule.

194. The Proposed Rule departs significantly from 35 years of NMED interpretation of the WQA and Commission Regulations and practice thereunder by allowing contamination of ground water above water quality standards without a determination of whether the area is a place of withdrawal of water for present and reasonable foreseeable future use. Olson Direct Test., pp. 8-13, 19-22; Travers Test. Tr. vol. 7, p. 1547, l. 4 to 1548, l. 8; Section II *supra*.

2. Place of Withdrawal

195. The Proposed Rule does not require an evaluation of whether a location is a place of withdrawal prior to allowing an exceedance of standards. *Id.* p. 1548, ll. 15-22.; Brown Test. Tr. vol. 4, p. 858, ll. 8-12.

196. The Proposed Rule does not require an evaluation of the factors determined by the Commission to determine place of withdrawal prior to allowing an exceedance of standards. Travers Test. Tr. vol. 7, ll. 15-22.

197. Section 20.6.7.10.J(2) NMAC [NMED][15] provides that:

> **J.** The secretary shall approve a discharge permit provided that it poses neither a hazard to public health nor undue risk to property, and:
>
> (2) the provisions of 20.6.2.3109 NMAC are met, *with the exception of Subsection C of 20.6.2.3109 NMAC*; . . . .

(Emphasis added.)

198. Section 20.6.2.3109.C NMAC provides in pertinent part:

> **C.** Provided that the other requirements of this part are met and the proposed discharge plan, modification or renewal demonstrates that neither a hazard to public health nor undue risk to property will result, the secretary shall approve the proposed discharge plan, modification or renewal if the following requirements are met:
>
> (1) ground water that has a TDS concentration of 10,000 mg/l or less will not be affected by the discharge; or
>
> (2) the person proposing to discharge demonstrates that approval of the proposed discharge plan, modification or renewal *will not result in either concentrations in excess of the standards of 20.6.2.3103 NMAC or the presence of any toxic pollutant at any place of withdrawal of water for present or reasonably foreseeable future use*, ...

(Emphasis added.)

199. The Proposed Rule, therefore, specifically exempts the copper mines from demonstrating that its discharge will not result in an exceedance of standards at a place of withdrawal. *See* 20.7.6.10.J(2) NMAC [NMED].

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[15] Throughout this brief, NMED's Proposed Rule will be cited to by using the NMAC citation followed by "[NMED]".

200. When asked if NMED's intent in drafting this section was "to allow pollution above standards at places of withdrawal," Mr. Brown answered, "I don't know." When asked if the intent was to allow pollution of water having 10,000 TDS or less, he responded, "presumably it was, because that's what's in here." Brown Test. Tr. vol. 3, p. 647, ll. 2-9.

3. Open Pits

201. Under the Proposed Rule, ground water quality standards of 20.6.2.3013 NMAC do not apply within the "area of hydrologic containment" of *existing and new open pits during operations and during closure*. 20.6.7.24.A(2), -33.D(1) NMAC [NMED].

202. The "area of open pit hydrologic containment" is defined as:

> for an open pit that intercepts the water table, the area where ground water drains to the open pit and is removed by evaporation and/or pumping, and is interior to the department approved monitoring well network installed around the perimeter of an open pit pursuant to Paragraph (4) of Subsection B of 20.6.7.28 NMAC.

20.6.7.7.B(5) NMAC [NMED].

4. Surface Drainage Area

203. Under the Proposed Rule, ground water quality protections are loosened or eliminated within the "open pit surface drainage area" such that contamination above standards is allowed within that area.

204. The open pit surface drainage area is defined as:

> the area in which storm water drains into an open pit and cannot feasibly be diverted by gravity outside the pit perimeter, and the underlying ground water is hydrologically contained by pumping or evaporation of water from the open pit.

20.6.7.7.B(42) NMAC [NMED].

205. For example, *within the surface drainage area*:

- NMED may administratively approve an unlined leach stockpile, if designed to maximize capture of solutions and if the leach solutions will not migrate outside the surface drainage area. 20.6.7.20.A(1)(f) NMAC [NMED].

- New waste rock piles that may result in exceedances of standards are not subject to the interceptor system requirements to capture contamination. 20.6.7.21.B(1)(c) NMAC [NMED].

- Ground water monitoring requirements for new leach stockpiles, waste rock stockpiles and tailings impoundments do not apply during operations or closure. 20.6.7.28.B(2), -33(F) NMAC [NMED].

See generally AGO Ex. 37 (highlighting "open pit surface drainage area" term); *see* 20.6.7.17.(4) NMAC [NMED] (impacted stormwater impoundments inside surface drainage area do not require liners); 20.6.7.18(F)(2) NMAC [NMED] (existing impoundments inside surface drainage area do not have to meet monitoring or integrity requirements); 20.6.7.21.A(2)(e) NMAC [NMED] (acid generating waste rock inside surface drainage area is not subject to static or kinetic testing); 20.6.7.22.A(1) NMAC [NMED] (new crushing and milling facilities inside surface drainage area that may contaminate ground water are not subject to the containment requirements); 20.6.7.22.A(5) NMAC [NMED] (new dry stack tailings piles inside surface drainage area are not required to comply with the material characterization, engineering design, construction, and operational requirements); 20.6.7.23.A(1) NMAC [NMED] (new pipelines inside surface drainage area are not subject to integrity, inspection and secondary containment requirements); 20.6.7.23.B(2) NMAC [NMED] (existing pipelines and tanks inside surface drainage area are not subject to inspection and testing requirements); 20.6.7.26.B(2) NMAC [NMED] (existing truck and equipment wash facilities inside surface drainage area are not subject to design requirements); 20.6.7.28.B(3) NMAC [NMED] (monitoring requirements for new process water or impacted stormwater impoundments inside

surface drainage area do not apply); 20.6.7.33.I(4), -(6) NMAC [NMED] (reservoirs and impoundments inside the surface drainage area are not subject to closure requirements).

5. Leach Stockpiles

206. *Existing leach stockpiles* are not required to meet the engineering design requirements, including liner systems and solution collection and containment systems. They "may continue to operate as previously permitted under a discharge permit subject to compliance with the contingency requirements of 20.6[.7].30 NMAC." Existing leach stockpiles that contaminate ground water above water quality standards are not required to obtain a variance. 20.6.7.20.B(2) NMAC [NMED].

207. *New leach stockpiles* are subject to engineering design requirements for liner systems and solution collection and containment systems, except that (as stated) *new leach stockpiles within the open pit surface drainage area* are not required to be lined under certain circumstances. New leach stockpiles within the surface drainage area that contaminate ground water above standards are not required to obtain a variance. 20.6.7.20.A(1) NMAC [NMED]; *see also* Brown Test. Tr. vol. 4, p. 912, ll. 17-22 (new leach stockpiles within surface drainage area do not have to be lined).

5. Waste Rock Stockpiles

208. *Existing waste rock stockpiles* are not required to meet the design and construction requirements for new waste rock facilities. Existing waste rock stockpiles, like existing leach piles, "may continue to operate as previously permitted under a discharge permit." Existing waste rock leach stockpiles that contaminate ground water above water quality standards are not required to obtain a variance. 20.6.7.21.C(2) NMAC [NMED].

209. As stated, n*ew waste rock stockpiles located within a surface drainage area* are not subject to liner requirements. They may contaminate ground water above standards without obtaining a variance. 20.6.7.21.B(2) NMAC [NMED]. *New waste rock stockpiles located outside a surface drainage area* that may cause an exceedance of standards must have a collection and interceptor system. Even if such a stockpile "would cause ground water to exceed applicable standards," NMED "may" – or may not – require additional controls such as a liner. 20.6.7.21.B(1) NMAC [NMED]; Travers Test. Tr. vol. 7, p. 1563, ll. 6-17.

210. Mr. Brown agreed that waste rock stockpiles that contaminate will not be lined. When asked, "But you don't have to line waste rock, no matter how acid-generating it is," he replied, "That is correct." Brown Test. Tr. vol. 3, p. 658, ll. 21-23.

6. Tailings Impoundments

211. *Existing tailings impoundments* are not required to meet the design and construction requirements for new tailing impoundments. Existing tailings impoundments waste, like existing leach stockpiles and waste rock stockpiles, "may continue to operate as previously permitted under a discharge permit." Existing tailings impoundments that contaminate ground water above water quality standards are not required to obtain a variance. 20.6.7.22.B(2) NMAC [NMED].

212. *New tailings impoundments* are not required to be lined. They must have a collection and interceptor system for ground water impacted above standards. Even if such an impoundment "would cause ground water to exceed applicable standards," NMED "may" – or may not – require additional controls such as a liner. 20.6.7.22.A(4) NMAC [NMED]; Travers Test. Tr. vol. 7, p. 1563, ll. 6-17.

7. Designated Compliance Monitoring Wells: Point of Compliance Regulatory System

213. A "point of compliance" regulatory system for ground water establishes a point on the surface, below which ground water quality standards must be met. This point generally extends vertically downward into the subsurface and into the aquifer(s). Upgradient of this point, water quality standards may be exceeded. At the point of compliance, water quality standards must be met. Some form of monitoring must be installed at the designated point of compliance, which could be at the property boundary, a residential well, at a specified distance from a source of contamination, or at a point where ground water discharges to surface water, such as a spring or in the stream. Travers Direct Test., p. 10; Travers Direct Test. Tr. vol. 7, p. 1569, ll. 2-12.

214. The Proposed Rule proposes the use of monitoring wells to establish compliance with ground water quality standards, and to establish a point of compliance regulatory system. *See* 20.6.7.28 NMAC [NMED].

215. For *new leach stockpiles, waste rock stockpiles or tailings impoundments located outside the surface drainage area,* compliance is proposed to be determined at a monitoring well located "around and downgradient of the perimeter" of those mine units, including the area of the mine units' "leachate and solution capture and containment systems." Monitoring for compliance with standards would be conducted *outside the surface drainage area and downgradient of new mine units and their capture systems.* 20.6.7.28.B(2) NMAC [NMED]; *see* 20.6.7.21.B(1)(d)(vii), -(b) & -C(2) NMAC [NMED] (standards for waste rock stockpiles must be met at monitor well locations specified in 20.6.7.28 NMAC); 20.6.7.22.A(4)(d)(viii), -

(e) NMAC [NMED] (standards for tailings impoundments must be met at monitor well locations specified in 20.6.7.28 NMAC); Brown Test. Tr. vol. 3, p. 628, ll. 2-8, 17-20; p. 918, ll. 15-22 (monitoring not required within surface drainage area during operations).

216. The designated monitoring system would surround mine units and associated capture systems that are contiguous or adjacent to one another. The designated monitoring well system would surround the mine units and associated capture systems that are contiguous or adjacent to the surface drainage area. Blandford Test. Tr. vol. 6, p. 1500, ll. 14-22.

217. The Proposed Rule requires only that *one monitoring well* be installed to monitor contamination for a particular mine unit. If NMED determines there should be more than one well for monitoring, it would have to require such wells as an "additional condition." Brown Test. Tr. vol. 4, p. 751, ll. 5-12.

218. There is no requirement that, during operations, water quality standards be met at places of withdrawal. *See* 20.6.7.21, -22, -23, -28 NMAC [NMED].

219. Rather, the Proposed Rule establishes a "point of compliance" regulatory system for determining compliance with ground water quality standards. Under the Proposed Rule, standards must be met at the designated monitoring wells outside the surface drainage area and downgradient of the mine units and their associated capture and interceptor systems. The Proposed Rule does not require that ground water quality standards be met within the surface drainage area or beneath or adjacent to the mine units and the monitoring well. Travers Direct Test., p. 10; Travers Test. Tr. vol. 7, p. 1547, ll. 7-18; p. 1567, l. 20 to p. 1568, l. 4; p. 1569, ll. 1-12; Olson Direct Test., pp. 18-20.

8. Corrective Action and Abatement

220. If monitoring and further confirmation indicate that standards are exceeded or the extent or magnitude of existing contamination is increasing, the mine operator must submit a corrective action plan to NMED for approval. 20.6.7.30.A(1) NMAC [NMED].

221. However, the abatement requirements in the Proposed Rule are unclear. The Proposed Rule does not require that corrective action result in meeting ground water standards. Travers Test. Tr. vol. 7, p. 1562, ll. 12-21.

222. If implementation of a corrective action plan does not remediate the contamination, NMED "may" – or may not—require the mine operator to submit and implement an abatement plan. 20.6.7.30.A(2) NMAC [NMED]. "Even if standards are exceeded *outside* the point of compliance system, the Proposed Rule does not require abatement of the contamination to water quality standards." Travers Direct Test., p. 12 (emphasis in the original); *see also* Travers Test. Tr. vol. 7, p. 1562, l. 12 to p. 1563, l. 5.

9. Closure and Post-closure

223. There is no requirement that, upon closure, water quality standards be met at places of withdrawal. *See* 20.6.7.33, -34, -35 NMAC [NMED].

224. There are very few requirements in the closure and post-closure sections regarding meeting (or not meeting) water quality standards. The provisions related to compliance (or not) with standards are:

- During closure, standards do not have to be met within the area of hydrologic containment if the open pit is a hydrologic evaporative sink or a flow-through pit that is pumped. If a flow-through pit is not pumped, the open pit water must meet standards at a designated monitoring well. 20.6.7.33.D NMAC [NMED].

- At closure, a cover system must be installed on mine units that have the potential to cause an exceedance of standards "at monitoring well locations specified by 20.6.7.28 NMAC . . . ." 20.6.7.33.F NMAC [NMED].

- During closure and post-closure, the permittee must monitor pursuant to 20.6.7.28 NMAC. 20.6.7.33.L, -35.B NMAC [NMED].

225. There are varying and conflicting views from the parties' experts as to where standards must be met or abated to during closure and post-closure. *See* Section IX.B.10 *infra.*

C. <u>Copper Mines Are Places of Withdrawal under the WQA</u>

1. Copper Mines Are Places of Withdrawal Absent a Demonstration Otherwise

226. Any new or existing copper mine is a place of withdrawal absent a demonstration, based on the criteria developed by the Commission, that a portion or portions of a copper mine is not a place of withdrawal. Olson Rebuttal Test., pp. 5-6; *see* Comm'n Decision, COL ¶ 11 (discharger must demonstrate discharge will not exceed standards at place of withdrawal).

2. The Tyrone Mine

227. The Commission has concluded that that "the regional and alluvial aquifers underlying portions of the Tyrone Mine site are places of withdrawal," and that there are numerous specific places of withdrawal within the Tyrone Mine. The Commission based its determination on several hundred factual findings. *See* Comm'n Decision, FOF ¶¶ 87-332, COL ¶¶ 33, 39, 40, 46-50.

228. In the opinion of the ISC in 2007, ground water at the Tyrone Mine is a reasonably foreseeable future water supply for southern New Mexico. Roepke Test., pp. 7-8.

229. In the opinion of Tyrone's general manager in 2007, it was "foreseeable" that ground water treated from the Tyrone Mine upon closure could be used for domestic and agricultural purposes if treated for those purposes. Mohr Test., p. 360 [AGO Ex. 41]; Comm'n Decision, FOF ¶¶ 249-50.

230. There was no evidence presented during the Copper Mine Rule hearing to contravene the Commission's finding or the opinions of ISC or Tyrone's general manager. *See generally* Tr.

231. In the opinion of Dr. Thomson, a leading expert on New Mexico water resources, the volume of water at Tyrone available upon closure "would satisfy most of the anticipated future demand in Grant and Luna Counties and in my opinion constitutes a reasonably foreseeable future use of water." Thomson Direct Test., p. 3.

232. In the opinion of Mr. Olson, a leading state expert in the interpretation and implementation of the WQA and Commission Regulations, the Tyrone Mine is a place of withdrawal. Olson Direct Test., pp. 15, 20. Specifically, Mr. Olson believes the water to be treated from the main pit at Tyrone has a reasonably foreseeable domestic and agricultural use. Olson Test. Tr. vol. 9, p. 2110, l. 22 to p. 2111, l. 24.

233. In the opinion of Ms. Travers, a Stanford-trained hydrogeologist with 25 years of experience, the Tyrone Mine is a place of withdrawal. Travers Direct Test., pp. 18-20.

234. The total number of wells within a four mile radius of the Tyrone Mine site increased more than four-fold from 1972 to 2006, from 84 to 349 wells. *Compare* AGO Exhibit 26 (map of 1972 wells) with AGO Exhibit 27 (map of 2006 wells); *see also* Travers Test. Tr. vol. 7, p. 1554, l. 25 to p. 1556, l. 6.

235. Upon closure, portions of the Tyrone Mine will be used for industrial purposes, including shops and commercial facilities, according to Tyrone's Closure/Closeout Plan ("CCP") filed with the Mining and Minerals Division ("MMD") of the Energy, Minerals and Natural Resources Department. Tyrone must supply the water required for such purposes. Tyrone CCP (2007), pp. 52-55, 75, 88 & Tyrone Permit Revision (2004) [AGO Ex. 40]; *see also* Comm'n Decision, FOF ¶¶ 206-16.

236. As stated above, upon closure, Tyrone will construct a treatment plant to treat the contaminated ground water. Treated water from Tyrone is a potential drinking water supply for Silver City, Deming, Hatch and Las Cruces. *See* Section II.E *supra*.

3. The Chino Mine

237. The purpose of the Chino Closure Permit, issued by NMED, is to protect ground and surface water for actual and potential future use as a domestic and agricultural supply and other uses. Chino Closure Permit, DP-1340, p. 1 [FMI Ex. Shelly 3].

238. Similar to Tyrone, upon closure, the Chino Mine will construct a water treatment plan to treat contaminated ground water. Chino Closure Permit, DP-1340, cond. 40 [FMI Ex. Shelly 3].

239. Similar to Tyrone, upon closure, portions of the Chino Mine will be used for industrial purposes, including shops and commercial facilities, according to Chino's CCP filed with MMD. Chino must supply the water required for such purposes. Chino CCP, pp. 62, 64-65 (2007) [AGO Ex. 40].

240. One of the Chino Mine operational permits in evidence, DP-376, for the Lampbright Leach System, finds that the area covered by the permit is a potential place of

withdrawal, unless Chino Mine demonstrates otherwise. Lampbright Leach System, DP-376, Finding 4 [NMED Ex. 17].

241. NMED has determined that ground water within the Chino Mine Santa Rita Pit "represents a place of withdrawal of water for present and reasonably foreseeable future use pursuant to section 74-6-4(E)(3) of the WQA." NMED Resp. to Pet., p. 2 [NMED Ex. 24]. The Santa Rita Pit is approximately 1.8 miles in diameter and 0.3 miles deep, and covers approximately 2,560 acres. Chino Closure Permit, p. 1.

242. In the opinion of Mr. Olson and Ms. Travers, the Chino Mine is a place of withdrawal. Travers Direct Test., pp. 18-20.

243. It is Chino's burden to demonstrate that the ground water underlying the mine is not a place of withdrawal of water for present or reasonably foreseeable future use. 20.6.2.3109.C NMAC; Comm'n Decision, COL ¶ 11; Olson Direct Test., pp. 5-6.

244. There was no evidence presented during the Copper Mine Rule hearing to demonstrate that the Chino Mine is not a place of withdrawal. *See generally* Tr.

245. Chino Mine is a place of withdrawal under the WQA. AGO FOF ¶¶ 237-44.

4. The Cobre Mine

246. NMED has determined, as set forth in the Cobre Closure Permit, that the Cobre Mine is a "place of withdrawal for present or reasonably foreseeable future use." Cobre Closure Permit, DP-1403, Findings 2 & 4 [FMI Ex. Shelly 4]; Olson Sur-rebuttal Test., pp. 9-10.

247. It is Cobre's burden to demonstrate that the ground water underlying the mine is not a place of withdrawal of water for present or reasonably foreseeable future use. 20.6.2.3109.C NMAC; Comm'n Decision, COL ¶ 11; Olson Direct Test., pp. 5-6.

248. There was no evidence presented during the Copper Mine Rule hearing to demonstrate that the Cobre Mine is not a place of withdrawal. *See generally* Tr.

249. Cobre Mine is a place of withdrawal under the WQA. AGO FOF ¶¶ 246-48.

D. <u>The Proposed Rule, on Its Face, Allows Standards to Be Exceeded through a Point of Compliance System Regardless of Whether the Area Is a Place of Withdrawal</u>

250. The Proposed Rule, on its face, allows contamination above standards within the area of hydrologic containment and the surface drainage area, beyond the surrounding mine units and their capture systems, and up to the designated monitoring well or wells, the point or points compliance. *See* Section IX.B.8 *supra.*

251. The Proposed Rule does not require an evaluation or determination of whether ground water beneath or downgradient of mine facilities is a place of withdrawal for present and reasonably foreseeable future use. The Proposed Rule allows mining companies to degrade ground water quality, in excess of water quality standards, beneath and downgradient of mine units to a point or points of compliance, regardless of and without consideration of the potential for this ground water to be withdrawn and used now or in the future. Travers Rebuttal Test., p. 2 [AGO Ex. 24].

252. As stated by Mr. Olson:

> *As proposed by the Department, the Copper Mine Rule adopts a point of compliance concept that allows a permittee to create new cases of extensive pollution of ground water by rule.* According to the Department proposed rule, waste rock and tailings would be placed in unlined facilities and allowed to deliberately cause ground water contamination in excess of Commission standards as long as ground water pollution is intercepted and pumped out of the aquifer downgradient of the disposal unit. Compliance with the water quality standards would then be measured even further downgradient of the ground water interceptor system. Unlined copper leaching facilities and waste rock

> stockpiles would be allowed to intentionally cause ground water pollution by rule.

Olson Direct Test., p. 4 (emphasis added).

253. Mr. Brown admitted that the Proposed Rule does not require an evaluation or take account of all the criteria developed by the Commission to determine place of withdrawal. Brown Test. Tr. vol. 3, p. 607, l. 20 to p. 612, l. 22.

254. He admitted that NMED conducted no analysis as to whether contamination above standards is allowed under the Proposed Rule where the hydraulic conductivity at a mine site is at least 0.05 feet per day and capable of producing water to support beneficial use. *Id.* p. 980, ll. 4-25; *see* Comm'n Decision, COL ¶ 51.

255. There are mine sites with drinking water wells within the site, and it is not possible to ensure that within an area of hydrologic containment, in particular, there are no places of withdrawal. Kuipers Test. Tr. vol. 10, p. 2376, ll. 1-9.

256. The Proposed Rule, on its face, violates Section 74-6-5(E)(3) of the WQA by allowing ground water contamination above standards beneath and downgradient of mine units up to a point of compliance at any new or existing mine without a demonstration, based on the criteria developed by the Commission, that the area is not a place of withdrawal. *See* Sections VI.E, IX.B.8, IX.C *supra*.

E. The Proposed Rule in Fact Allows Contamination above Standards at Places of Withdrawal

1. Exceedances of Standards Are Allowed at the Tyrone Open Pits Which Are Places of Withdrawal

257. Under the Proposed Rule, ground water may be contaminated above standards within the area of open pit hydrologic containment during operations and upon closure. 20.6.7.24.A(4), -33.D(2) NMAC [NMED].

258. At the Tyrone Mine, the open pits and areas around the open pits are places of withdrawal. Comm'n Decision, COL ¶¶ 40, 41, 49, 50, FOF ¶ 125(e).

259. Under the Proposed Rule, ground water may be contaminated above standards at the open pits and areas around the open pits, which are within the open pit hydrologic containment area and which are places of withdrawal, as determined by the Commission. Travers Test. Tr. vol. 7, p. 1552, l. 23 to p. 1554, l. 24; Travers PowerPoint, p. 13 [AGO Ex. 45].

260. Mr. Brown acknowledged that he did not know whether NMED had analyzed whether places of withdrawal at the Tyrone mine, as determined by the Commission, were located within areas where standards could be exceeded under the Proposed Rule. He admitted that NMED did not know whether, under the Proposed Rule, standards could be exceeded at places of withdrawal as determined by the Commission. Brown Test. Tr. vol. 4, p. 902, ll. 4-15, p. 905, l. 21 to p. 907, l. 2.

261. The Proposed Rule in fact violates Section 74-6-5(E)(3) of the WQA by allowing ground water contamination above standards at the Tyrone open pits and areas around the open pits.

2. Exceedances of Standards Are Allowed at the Tyrone Mine underneath the Surface Drainage Area, Surrounding Mine Units, and Interceptor Systems, and up to the Monitoring Point, which include Places of Withdrawal

262. Under the Proposed Rule, ground water may be contaminated above standards within the surface drainage area, beyond the mine units surrounding the surface drainage area and those mine units' associated capture systems, and up to the designated monitoring wells for the relevant mine units. *E.g.,* 20.6.7.28 NMAC [NMED].

263. The Tyrone mine site consists of approximately 9,000 acres. Of that acreage, approximately 2,000 acres comprise the open pits; approximately 2,800 acres comprise the leach piles and waste rock piles; and approximately 2,300 acres comprise the tailings impoundments. These mining facilities therefore total approximately 7,100 acres. Tyrone Closure Permit, DP-1341, pp. 1-2. The leachate and solution capture and containment systems for these systems would surround these 7,100 acres of facilities at some distance. The result is that water quality may be exceeded under the vast majority of the Tyrone mine site. Travers Direct Test., p. 12; *accord* Brown Test. Tr. vol. 4, p. 923, ll. 16-19 (acknowledging that a substantial portion of the Tyrone Mine central mining area would be located with the monitoring well network where standards may be exceeded); p. 924, ll. 15-22 & AGO Ex. 38 (Brown drawing of monitoring well network around Tyrone Mine surface drainage area and surrounding mine units).

264. The surface drainage area at the Tyrone Mine site is depicted on AGO Exhibit 44 and in a map of the Tyrone Mine attached to the Tyrone Settlement [Olson Ex. 11].

265. The surface drainage area of the Tyrone Mine includes open pits, leach stockpiles and waste rock stockpiles. Surrounding and adjacent to the surface drainage area are leach stockpiles and waste rock stockpiles. *See* AGO Ex. 44; Olson Ex. 11.

266. Mr. Brown and FMI witness Neil Blandford each marked the map of Tyrone Mine surface drainage area to show the approximate location of the designated monitoring well system under the Proposed Rule that would surround the surface drainage area and the stockpiles surrounding the surface drainage area. *See* AGO Exs. 38 (Brown depiction) and 39 (Blandford depiction).

267. The area within which ground water may be contaminated above standards under the Proposed Rule depicted by Mr. Brown and Mr. Blandford encompasses a significant portion of the Tyrone Mine Central Mining Area, and is approximately 3 miles by 3 miles, or approximately 9 square miles. Blandford Test. Tr. vol. 6, p. 1500, l. 23 to p. 1501, l. 6.

268. The area within which contamination would be allowed comes close to the Tyrone Mine boundary. Brown Test. Tr. vol. 4, p. 927, ll. 4-9.

269. The Commission's 2009 determination of various places of withdrawal at the Tyrone mine site includes places that are located within the area within which contamination above standards is allowed under the Proposed Rule. These places of withdrawal include but are not limited to:

- South of the Gettysburg Pit,
- West of the Gettysburg Pit along the 1C Stockpile,
- East of the 3B Waste Stockpile,
- South of the 5A Waste Rock Pile and,
- The open pits, and areas around the open pits.

Travers PowerPoint, p. 13 [AGO Ex. 45]; Travers Test. Tr. vol. 7, p. 1552, l. 23 to p. 1554, l. 24; AGO Ex. 25.

270. Under the Proposed Rule, ground water underneath these established places of withdrawal at the Tyrone Mine would be allowed to be contaminated above standards. Travers Test. Tr. vol. 7, p. 1552, l. 23 to p. 1554, l. 24.

271. The Proposed Rule in fact violates Section 74-6-5(E)(3) of the WQA by allowing ground water contamination above standards underneath the Tyrone surface drainage area, surrounding mine units and associated capture systems, and up to the designated monitoring wells, which include places of withdrawal.

3. Exceedances of Standards Are Allowed at the Chino and Cobre Mines underneath the Surface Drainage Areas, Surrounding Mine Units, and Interceptor Systems, and up to the Monitor Point, which include Places of Withdrawal

272. The analysis for Tyrone, set forth above, applies to the Chino and Cobre Mines. *See* Travers Direct Test., p. 12.

273. The Chino and Cobre Mines are places of withdrawal. Furthermore, specific areas within the Chino Mine have been determined to be places of withdrawal, *i.e.,* the Santa Rita Pit and Lampbright Leach System. *See* Sections IX.C.3 and -4 *supra.*

274. Under the Proposed Rule, contamination above standards is allowed underneath the surface drainage areas, surrounding mine units, and interceptor systems, and up to the capture systems at the Chino and Cobre Mines. *See* Section IX.B.8 *supra.*

275. Mr. Brown was not aware of any analysis conducted by NMED to determine whether the Proposed Rule allows contamination above standards at places of withdrawal at the Chino and Cobre mines. Brown Test. Tr. vol. 4, p. 903, ll. 9-14.

276. The Proposed Rule in fact violates Section 74-6-5(E)(3) of the WQA by allowing ground water contamination above standards underneath the Chino and Cobre Mines surface drainage area, surrounding mine units and associated capture systems, and up to the designated monitoring wells, which include places of withdrawal.

F. Ground Water Contamination Can Escape the Area of Hydrologic Containment, the Surface Drainage Area, and the Mine Units' Capture Systems

277. NMED and FMI witnesses support the relaxation or elimination of ground water protections within the area of hydrologic containment and surface drainage area and up to the mine units' capture systems based on the concept the assumption that ground water within the hydrologic containment area and surface drainage area and the capture and containment systems surrounding the mine units will *fully* capture ground water contamination and that contamination will not migrate outside these areas. *See, e.g.,* Brown Test. Tr. vol. 4, p. 551, ll. 15-19.

278. However, in the fractured rock environments that are often present at mine sites, including the vast majority of those in New Mexico, contaminated ground water can easily escape detection and capture. Travers Direct Test., p. 3; Travers Test. Tr. vol. 7, p. 1557, ll. 18-24.

279. Adequately characterizing ground water flow and movement of contaminants in a fractured rock system is difficult. Travers Direct Test., p. 16; Travers Test. Tr. vol. 7, p. 1558, l. 16 to p. 1559, l. 1.

280. Ground water monitoring is imperfect, because preferential flow paths and gradients cannot be completely characterized in complex hydrogeological systems. This is particularly true in the fractured rock environments present at most mine sites. Travers Direct Test., p. 16; Travers Test. Tr. vol. 7, p. 1557, ll. 18-24; p. 1558, l. 16 to p. 1559, l. 1; p. 1582, l. 23 to p. 1583, l. 15.

281. An EPA report states, "Relative to most unconsolidated deposits, characterization of contaminant migration in fractured rock usually requires more information to provide a similar level of understanding." *The State-of-the Practice of Characterization and Remediation of Contaminated Ground Water at Fractured Rock Sites*, p. 4 [AGO Ex. 14].

282. EPA, in *A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems,* p. 3 (EPA 2008), states that "few sites, if any, begin the process with sufficient field data to evaluate and confirm hydraulic containment" (i.e., capture). Travers Direct Test., pp. 16-17.

283. EPA, in *Getting up to Speed: Ground Water Contamination,* p. C-2 (EPA 2013), states that "fractured rock presents a unique problem in locating and controlling contaminants because the fractures are generally randomly spaced and do not follow the contours of the land surface or the hydraulic gradient. Travers Direct Test., pp. 16-17.

284. Hydrologic containment of an open pit is based on many factors including the factures and faults in the area, inflow, evaporation and precipitation. Predictions of whether an

open pit will be a hydraulic sink have a lot of uncertainty. The determination of the extent of hydrologic containment and of the pollution itself is subject to error and misjudgment, the breakdown of containment systems, and poor location of monitoring wells, resulting in a failure to ground water pollution. There are a number of examples where an open pit was predicted to be a hydraulic sink, but where ground water escaped through faults and fractures. Kuipers Test. Tr. vol. 10, p. 2364, l. 14 to p. 2366, l. 16; Kuipers Direct Test., p. 6.

285. Furthermore, withdrawal of water from outside the hydrologic containment area has the potential to shift the hydrologic divide of the hydrologic containment area. Kuipers Test. Tr. vol. 10, p. 2367, l. 16 to p. 2368, l. 8.

286. Ground water capture by interceptor wells is imperfect, particularly in the fractured rock environments present at most mine sites. Travers Direct Test., p. 16.

287. The sources of ground water contamination at copper mine sites – the leach stockpiles, waste rock stockpiles and tailings impoundments – are permanent. Even though pumping can be theoretically contained indefinitely, it is doubtful that pumping will be maintained for as long as the sources of pollution exist. Kuipers Direct Test., p. 6.

288. Mr. Kuipers has been involved with or is aware of approximately 50 different sites with waste rock stockpiles that have capture systems that attempt to capture the pollution. Capture systems are not necessarily successful. In most of these cases, there is acknowledgement that the waste rock stockpiles should have been lined in the first place to prevent ground water contamination. Kuipers Test. Tr. vol. 10, p. 2360, l. 20 to p. 2361, l. 5; p. 2360, ll. 14-15.

289. Failure of capture systems has occurred at the Chino and Tyrone Mines. Ore stockpiles at the mines are leached by applying a sulfuric acid solution to the top of the stockpiles. This solution percolates through the piles to form a high-copper pregnant leach solution ("PLS"), which is collected at the bottom of the stockpiles so that the copper can be recovered. Final Restoration Plan, pp. 2-11. Although the majority of the PLS from the unlined ore stockpiles at the Chino and Tyrone mines is captured, some PLS escaped capture and contaminated ground water in Oak Grove Wash at the Chino Mine and in the upper Mangas Wash and Deadman Canyon at the Tyrone Mine. *Id.* pp. 3-4; Travers Test. Tr. vol. 7, p. 1558, ll. 1-4.

290. NMED technical staff substantiates this view. NMED technical staff testified that the open pit at Tyrone cannot be contained by pumping because faults act as barriers and the alluvial aquifer has fingers that act as a conduit for contamination offsite and into the regional aquifer. Marshall Test. (2003), pp. 1278-79 [AGO Ex. 12].

291. NMED technical staff testified that the Gettysburg Pit at Tyrone cannot be contained with pumping, that there is no clear evidence there is an open capture zone even with pumping. Marshall Test. (oral 2007), Tr. vol. 13, p. 3222 [AGO Ex. 49].

292. Contamination is more difficult to capture in deeper aquifers. The shallow systems are connected to the deeper systems, i.e., alluvial systems are connected to the regional systems. As contamination migrates deeper down hundreds of feet into the regional aquifer, it becomes harder to detect where the contamination has migrated. The flow paths tend to be slower and longer, and it can take more years before contamination is detected. It is harder to

capture contamination at depth because the same remediation options are not available as for the alluvial systems, such as trench systems. Travers Test. Tr. vol. 7, p. 1583, l. 16 to p. 1584, l. 11.

293. NMED technical staff testified that contamination from the Tyrone Mine within the regional aquifer was not being contained. Marshall Test. (2003), pp. 1269, 1270-71, 1277 [AGO Ex. 12].

294. The regional aquifer underneath the Tyrone Mine is approximately 500 feet deep. *Id.* p. 1268.

295. The regional aquifer underneath the Tyrone Mine is not fully mapped. *Id.* p. 1272.

296. According to NMED technical staff, NMED did not understand the source of contamination in the regional aquifer underlying the Tyrone Mine because of the complexity of the hyrdrogeologic system. *Id.* pp. 1269-71, 1273.

297. As stated, AGO Exhibit 27 shows there were 346 wells within a four mile radius of the Tyrone Mine in 2006. AGO Exhibit 30 are two maps prepared by Phelps Dodge Tyrone's expert, Mr. Shomaker, showing that virtually all areas surrounding and contiguous to the mine property boundary are capable of supporting a well, that is, are places of withdrawal.[16] One risk of the Proposed Rule is that a well that is located just outside the mine permit boundary, in a place of withdrawal, can draw water from inside the permit boundary. If ground water inside the boundary is contaminated, a well can pull water from underneath the boundary. Relying on a capture and containment system creates a risk of on- and off-site excursions and

[16] Mr. Shoemaker did not evaluate whether places within the Tyrone permit boundary were capable of supporting a well. Travers Test. Tr. vol. 7, p. 1557, ll. 1-2.

exceedances of water quality standards. Travers Test. Tr. vol. 7, p. 1557, ll. 3-24; AGO Exs. 27 & 30.

298. Even in relatively new mines, hydrogeological characterization techniques for designing ground water capture zones are not failsafe. At the Buckhorn Mountain Mine in Washington, ground water capture of mine-related contaminants failed within only a few years after the initiation of mining in 2007, resulting in contamination of both ground water and surface water. Travers Direct Test., p. 17.

299. Mr. Brown acknowledged that the gradient of the hydrologic containment area can be influenced by the pumping of a well off-site. He acknowledged if there a survey error could result in a mistaken assessment of gradient of the containment area. He acknowledged that the determination of gradient is a matter of professional judgment, and there can be disagreements among professionals. He acknowledged that the area of hydrologic containment is a determination based in part on professional judgment. He acknowledged the area of hydrologic containment can extend beyond a mine's property boundary. Brown Test. Tr. vol. 3, p. 631, ll. 20-24; p. 632, l. 5 to p. 633, l. 9; p. 636, ll. 3-5.

300. Mr. Brown, NMED's expert technical witness, acknowledged that capture of contamination from waste rock stockpiles is not feasible in bedrock downgradient of the pile "due to low permeability and ineffectiveness of extraction systems to capture a significant portion of the groundwater." Brown Direct Test., p. 23 [NMED NOI].

301. Mr. Brown acknowledged that capture systems will not contain all contamination and that, in fact, all systems are "guaranteed" *not* to capture all contamination. *Id.* p. 588, ll. 9-

22; p. 590, ll. 9-16.[17] He acknowledged that a hydrologic sink, whether an evaporative sink or pumped, is not 100% effective, and that containment could fail because there is not a complete three dimensional head. He further acknowledged full capture is more problematic in fractured rock. *Id.* vol. 4, p. 883, l. 5 to p. 885, l. 10. He acknowledged that, with respect to capture systems, they are not 100% effective, and that their effectiveness is reduced where there is a high permeability zone. *Id.* p. 886, l. 9 to p. 887, l. 1.

302. FMI witness Mr. Blandford states that the ground water contamination that migrated offsite from the Tyrone Mine is due to sources that "would be prevented from occurring in the future by the Proposed Rule requirements," referring to *leach stockpiles* outside the area of hydrologic containment, that will be required to be lined under the Proposed Rule. As an example, Mr. Blandford cites to the ground water contamination that ran through Oak Grove Draw. Blandford Rebuttal Test., p. 7.

303. However, Mr. Blandford admitted during cross-examination that the 1C *waste rock stockpile* contributed to the ground water contamination off-site through Oak Grove Draw. Blandford Test. Tr. vol. 6, p. 1507, ll. 13-22.

304. NMED technical staff testified regarding the ground water contamination caused by the 1C *waste rock stockpile* at Oak Grove Draw. The 1C waste rock stockpile was never leached. It is located at south of the mine site. Ground water contamination from this waste rock stockpile contributed to the contamination of Oak Grove Draw, where there was a 3 ½ mile

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[17] Q. In your experience, can an interceptor system be guaranteed to capture all the contamination?
A. No. Indeed, I think it -- in any containment system can be *guaranteed not to contain absolutely* all of the impacted water.

Brown Test. Tr. vol. 3, p. 588, ll. 18-22 (emphasis added).

excursion offsite. Travers Test. Tr. vol. 7, p. 1558, ll.10-15; Marshall Test. (2003), pp. 1249-51 [AGO Ex. 12]; Marshall Test. (written 2007), p. 11 [AGO Ex. 13]; Marshall Test. (oral 2007), p. 2946 [AGO Ex. 49].

305. The 1C waste rock stockpile did have a collection system, but it did not capture all the contamination in ground water. Ground water contamination resulted even though there was a collection system. Marshall Test. (2003), p. 1250 [AGO Ex. 12].

306. The Commission found that the 1C waste rock pile contaminated the alluvial and regional aquifers within and along Oak Grove Draw. Comm'n Decision, FOF ¶ 37.

307. Under the Proposed Rule, new waste rock stockpiles located outside the surface drainage area are not required to be lined even if though the required material characterization predicts they will cause ground water contamination above standards. They must only be subject to an interceptor system. 20.6.7.21.B & -C NMAC [NMED].

308. Mr. Blandford's rebuttal testimony is not accurate because waste rock stockpiles with collection system have caused ground water contamination offsite, and such stockpiles would not be required to be lined outside the surface drainage area under Proposed Rule. This same situation that caused ground water contamination above standards offsite would still be allowed under the Proposed Rule. AGO FOF ¶¶ 303-07.

G. <u>Ground Water Contamination Can Be Expensive or Technically Infeasible to Clean Up</u>

309. Once contaminated, ground water is expensive to control and clean up. Ground water cleanup at mine sites may cost tens of millions of dollars. *Costs of Remediation at Mine Sites,* § 2.2.1 (EPA 1997) [AGO Ex. 15]; Travers Direct Test., p. 17.

310. The Global Acid Rock Drainage Guide, authored by the International Network on Acid Prevention, of which FMI is a member, states:

> The ARD process can continue to produce contaminated drainage from mining and other sulfide-bearing rock for decades or even centuries after mining has ceased. The cost of ARD remediation . . . has been estimated in the tens of billions of US dollars. Individual mines can face postclosure liabilities of tens to over a hundred million dollars for ARD remediation and treatment if the sulfide oxidation process is not properly managed during the mine's life.

Travers Test. Tr. vol. 7, p. 1576, l. 21 to p. 1577, l. 1; p. 1577, l. 22 to p. 1578, l. 8.

311. Often remediation systems may have to be operated for generations, or essentially in perpetuity. An example of this is the Tyrone Mine open pit, which will be pumped for at least 100 years. Travers Test. Tr. vol. 7, p. 1575, l. 23 to p. 1576, l. 7.

312. In many cases, it may be technically infeasible to restore the ground water to pre-release conditions. Travers Direct Test., p. 17.

313. From a minerals process engineering perspective, it is more effective to treat to treat a smaller volume of highly concentrated contamination, *i.e.,* 5 to 10 gallons per minute, from a lined waste rock pile, for example, than to try to capture thousands of gallons per minute of a very dilute concentration "somewhere downstream." Kuipers Test. Tr. vol. 10, p. 2361, l. 17 to p. 2362, l. 2.

H. Greater Concentrations of TDS and Sulfate within the Surface Drainage Area Will Result in a Greater Loss of the Resource

314. The major constituents of TDS and sulfate are difficult to treat and are also relatively mobile in ground water. With few exceptions, removing TDS and sulfate can only be accomplished by some form of filtration or desalination process, such as reverse osmosis or distillation. Thomson Direct Test., p. 10.

315. Dr. Thomson, who has co-authored a summary of saline water considerations in New Mexico,[18] identified four problems with these processes:

- They are very expensive and have both high capital and operating costs. The costs depend on several variables, especially the TDS concentration and the chemical composition of the feed water. The treatment costs for inland desalination plants are from two to four or more times greater than that for conventional drinking water treatment.

- Desalination is very energy intensive. These costs will increase as the price of energy increases. In southern New Mexico most of the state's energy is produced from fossil fuels which results in a very high carbon footprint for a desalination plant, a factor that may be an important consideration in the future.

- Desalination wastes a lot of water in the form of a concentrate or brine solution that contains all of the salts that are removed from the purified water. For example the Kay Bailey Hutchison desalination plant in El Paso, Texas only recovers about 50% of the water pumped to the plant. Thus, only 50 gallons of pure water will be recovered for every 100 gallons of contaminated ground water treated. The rest must be disposed of.

- Desalination separates purified water from the salts. The salts are retained in the concentrate and must be disposed of. Concentrate from the Kay Bailey Hutchison Plant is piped over 20 miles to a deep well injection field. Concentrate management and disposal for inland desalination facilities can constitute half of the total cost of the facility.

Thomson Direct Test., pp. 10-11.

316. Measures taken to minimize leachate from copper operations will, in the long run, be far more cost effective and more protective of the environment than allowing contamination today and future treatment in the future. Thomson Direct Test., p. 11; Thomson PowerPoint, pp. 13-15 [AGO Ex. 46].

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[18] Thomson, B., Howe, K. (2009). Saline Water – Considerations for Future Supply in New Mexico, Water, Natural Resources and the Urban Landscape – Decision-Makers Field Guide 2009, Price, L.G., Bland, D, Johnson, P.S, Connell, S.D. editors, NM Bureau of Geology and Mineral Resources, pp. 120-126. *See* References (attached to Thomson Testimony) [AGO Ex. 16].

I. Establishing a Point of Compliance System for Copper Mines Sets Bad Precedent for All Other Discharge Sites in the State

317. Adopting a point of compliance system for discharge sites increases the risks to ground water for the reasons set forth above, *i.e.,* contamination can migrate beyond the point of compliance. Under a point of compliance system, discharges from industrial facilities such as impoundments for wastewater facilities, power plants, large capacity septic tank leach fields, commercial land farms for treatment of contaminated soils, food processing plants, and power plants would not be required to meet ground water quality standards beneath or adjacent to the facilities, or upgradient of a point of compliance. Ground water in large areas beneath, adjacent to, and downgradient of these facilities would be allowed to be contaminated such that standards were exceeded, regardless of whether the ground water has a current or future use. The Proposed Rule thus sets a precedent for allowing widespread ground water contamination at industrial facilities throughout New Mexico. Travers Direct Test., pp. 17-18.

318. If this proposed rule is approved for copper mines, the approximately 900 other NMED facilities receiving discharge permits. This includes discharge permits for molybdenum mines, uranium mines, dairies, municipal waste water treatment plants, industrial facilities, power plants, large scale domestic waste systems, the federal laboratories including Los Alamos National Laboratory, and the Waste Isolation Pilot Plant. Olson Direct Test., p. 25.

319. In addition, it is possible that oilfield facilities receiving discharge permits issued by OCD will seek equal treatment. These facilities include oil refineries, natural gas processing plants, natural gas compressor stations, oilfield service companies, brine wells, and geothermal facilities. *Id.* pp. 25-26.

320. Expansion of pollution by rule and point of compliance concepts to other discharge permits would greatly increase the amount of lost ground water resources. *Id.* p. 26.

321. NMED's policy representative, Tom Skibitski, acknowledged that adopting a point of compliance system for copper mines could set precedent for all other discharger in the state – including uranium and molybdenum mines, the federal labs, waste water treatment plants – to request equal treatment. Skibitski Test. Tr. vol. 2, p. 346, l. 16 to p. 347, l. 19.

J. The WQA Requires *Prevention* of Water Pollution and Consideration of Best Available Technology

322. The purpose of the WQA is "to abate and *prevent* water pollution." *Bokum Resources Corp,* 93 N.M. at 555, 603 P.2d at 294 (emphasis added); Comm'n Decision, COL ¶ 1 (same).

323. Section 74-6-4(E) of the WQA authorizes the Commission to promulgate regulations to "*prevent* or abate water pollution in the state . . . ." (Emphasis added.)

324. Similarly, Section 74-6-4(K), requiring the Commission to promulgate regulations for the copper industry, requires the Commission to "specify in regulations the measures to be taken to *prevent* water pollution and to monitor water quality." (Emphasis added.)

325. There are also, of course, provisions in the WQA prohibiting exceedances of standards. *See* NMSA 1978, § 74-6-5(E)(3) (prohibiting contamination above standards at places of withdrawal); NMSA 1978, § 74-6-12(F) (prohibiting degradation of water quality if water quality standards are exceeded).

326. Section 74-6-4(E) provides that:

> Regulations may specify a standard of performance for new sources that reflects the *greatest reduction in the concentration of water contaminants* that the commission determines to be achievable through application of the *best available demonstrated control technology*, processes, operating methods or other alternatives, including where practicable a standard permitting *no discharge of pollutants*.

(Emphasis added.)

327. Section 74-6-4(K) provides that in promulgating the copper industry rules the Commission "shall consider" "the best available scientific information," in addition to other statutory factors.

328. The WQA directs the Commission in promulgating regulations:

- To *prevent* -- not allow -- water pollution at places of withdrawal, and
- To consider the *best available technology* to eliminate or reduce pollution based on the best scientific information in order to prevent water pollution.

See also Kuipers Test. Tr. vol. 10, p. 2363, ll. 6-18 (WQA requires leach piles, waste rock piles and tailings inside and outside hydrologic containment area to be lined in order to prevent ground water contamination).

K. <u>Best Practice Is to Prevent Ground Water Contamination</u>

329. Preventing contamination, rather than allowing it, is a basic principle of environmental regulation. It is a fundamental concept that it is more efficient to prevent contamination than to allow it to occur and to attempt to control it, for example, through a capture system. Travers Test. Tr. vol. 7, p. 1576, ll. 13-20.

330. The Global Acid Rock Drainage Guide states:

> Prevention should occur at or as close to the point where the deterioration in water quality originates, i.e., source reduction, or through implementation of measures to prevent or retard the transport of ARD to the water resource.

> Prevention is a proactive strategy that obviates the need for a reactive approach to mitigation.

Travers Test. Tr. vol. 7, p. 1576, l. 21 to p. 1577, l. 6.

331. The Proposed Rule allows contamination of ground water above standards. It does not require liners or alternative mitigation measures to prevent contamination; rather it relies upon on interceptor wells to capture and contain contaminated ground water. As stated, capturing contaminated ground water can be difficult and uncertain, especially given the challenges characterizing contaminant migration in the fractured rock environments present at most mine sites. There is a significant risk that contaminated ground water will migrate beyond the interceptor systems. The basis of the Proposed Rule does not represent best practice. Travers Direct Test., pp. 14-15; *accord* Kuipers Test. Tr. vol. 10, p. 2363, l. 19 to p. 2364, l. 4 (best practice is not to unnecessarily pollute ground water, but to prevent ground water contamination).

332. Allowing ground water to become degraded beneath and downgradient of facilities, without consideration of site-specific factors that may make it difficult to intercept and detect contamination migrating offsite, is not best practice. The Proposed Rule allows ground water beneath leach piles, waste rock piles and tailings impoundments, and up to some, undefined distance downgradient of facilities and their capture systems, but upgradient of monitoring well, to be contaminated above ground water quality standards. Allowing such widespread contamination is not best practice. Travers Direct Test., p. 15.

333. Not requiring clean up to standards -- even to outside the points of compliance -- is not best practice. Ground water, once contaminated by releases from mine facilities, is likely

to remain so for the foreseeable future unless ground water clean-up actions are taken. This reduces the potential for the ground water to be available for any beneficial future use. Furthermore, lack of stringent clean-up requirements results in less incentive to safeguard ground water quality in the first place. *Id.*

334. Mr. Brown acknowledged that it is preferable to prevent ground water contamination rather than to clean it up after it has occurred. Brown Test. Tr. vol. 3, p. 594, ll. 18-21.

335. In sum, the Proposed Rule allows ground water contamination above standards underneath the vast majority of all copper mine sites in New Mexico. Best practice requires more protective pollution prevention measures and more stringent clean-up requirements. Travers Direct Test., p. 15.

L. Prevention of Pollution and Best Practice Require That All New Leach Stockpiles Be Synthetically Lined

336. The process of leaching of ore stockpiles with sulfuric acid to recover copper ore, combined with the leaching caused by precipitation, will result in contamination of ground water above standards. Travers Direct Test., pp. 5-6.

337. Leach stockpiles have caused ground water contamination above standards at the Tyrone, Chino, and Cobre Mines, and contamination that has migrated off-site. AGO Exs. 34-36.

338. The Proposed Rule requires new leach stockpiles outside the surface drainage area to be synthetically lined, but does not require new leach stockpiles inside the surface drainage area to be lined. 20.6.2.21.A(1)(f) NMAC [NMED].

339. The process of leaching copper from unlined ore stockpiles is referred to as "dump leaching." "Heap leaching" refers to leaching copper from geomembrane-lined ore stockpiles. Dump leaching is being phased out of the copper industry. As Mr. Kuipers observes, there has been a "progression" from "downstream capture to actually putting a liner underneath the pile so that we can more effectively capture the solution." Kuipers Test. Tr. vol. 10, p. 2356, l. 25 to p. 2357, l. 11.

340. According to Ms. Travers, it is best practice to line all leach stockpiles. Travers Direct Test., pp. 14-15.

341. According to Mr. Brown, the synthetic liner system in the Proposed Rule "provides excellent ground water protection if there are no defects in the liner . . . . " He further stated that, "the resulting ground water concentrations will likely not be in excess of water quality standards of Section 20.6.3103 NMAC when measured at the downgradient toe of the leach stockpile." Even if there are leaks at the "upper end of the literature range," Mr. Brown calculates water quality standards will still be met at the toe of the stockpile. Brown Direct Test., p. 18.[19]

342. It is standard industry practice to synthetically line stockpiles leaching copper ore. A principal reason for doing so is economic. Copper companies' economic goal is to capture all the copper possible in the leach solutions, so they ore can be processed and sold. Lining the bottoms of leach stockpiles is the most effective method by which to capture the copper ore and prevent its loss. *See* Grass Test. Tr. vol. 8, p. 1864, ll. 10-19.

[19] If there were "total failure" of a liner, the liner would be subject to contingency requirements, which include repair. Brown Test., p. 19.

343. New leach stockpiles inside the surface drainage area should be lined to prevent contamination of clean water inside the surface drainage area, prevent further contamination of polluted water inside the surface drainage area, and prevent migration outside the surface drainage area.

344. FMI's principal witness on liners was Michael Grass. Mr. Grass is employed by Golder Associates, Inc., and has a Masters in Science in Geological Engineering from the Mackay School of Mines. Grass Resume [FMI Ex. Grass 1]. Mr. Grass has been the senior engineer for copper leach stockpile design and construction projects, including construction level design of a 600 foot high geomembrane-lined leach facility for FMI at Safford, Arizona. This liner system served as the model project for the provisions in the Proposed Rule on leach stockpiles. Grass Test., p. 1 [FMI NOI].

345. The 600 foot high ore pile in Safford is approximately 7,700 feet in length and 3,500 feet in width, or approximately 750 acres. Grass Test. Tr. vol. 8, p. 1904, ll. 1-4. When all ore is placed, the pile will weigh approximately 450 pounds per square inch. *Id.* p. 1860, ll. 1-6. Process solution of approximately 20,000 gallons per minute is sprayed on it over approximately 10 million square feet at a time. *Id.* p. 1904, ll. 9-17. The drainage system is designed to carry 30,000 gallons per minute; it has contingency capacity in case it rains or a pipe breaks. *Id.* p. 1904, ll. 18-24.

346. To make sure a liner can withstand the anticipated load, engineers run tests on the underliner material -- the geomembrane liner -- and the overliner material --the drainage layer made up of gravel -- to see if it can withstand a load 50% greater than the liner will actually bear. They also test the liner with "worst case rock fragments" to see if the liner will

puncture. *Id.* p. 1860, l. 17 to p. 1861, l. 6; *see also* Brown Test. Tr. vol. 4, p. 881, l. 10 to p. 882, l. 10 (discussing how companies effectively address potential leaks and problems with liners).

347. During construction, they use "100 percent observation" to make sure there are no manufacturing holes and, if so, they are patched. After installation, they use geophysical methods and electric leak detection to detect leaks. If a hole is encountered, it is repaired. *Id.* p. 1862, l. 14 to p. 1863, l. 16. To maintain integrity after ore begins to be placed upon the liner, they do not disturb the liner. *Id.* p. 1864, ll. 4-9.

348. The liner system is designed to prevent clogging of the drain system. *Id.* p. 1886, l. 3 to p. 1887, l. 10.

349. According to Mr. Grass, liners will withstand rocks the size of a "f." He has designed liners to withstand 20 million tons of ore and 600 million tons of ore. *Id.* p. 1903, ll. 3-20.

350. Geomembranes, according to Mr. Grass, are anticipated to last 30 years. *Id.* p. 1901, ll. 2-12.

351. Mr. Grass testified that *all* leach stockpiles are lined presently; he is not aware of any recent leach stockpile that is not lined. *Id.* p. 1864, ll. 20-25. According to him, it is standard industry practice to line leach stockpiles. *Id.* p. 1896, ll. 19-22; p. 1909, ll. 10-23. It is also "environmental practice." *Id.* p. 1909, ll.18-23.

352. According to Mr. Grass, in Arizona, for example, even though unlined leach stockpiles are allowed, it is doubtful an proposal not to line would get through the system, it

would be rejected. "And in practice nowadays, leach stockpiles will have a liner system, even if there's provisions that will let you not." *Id.* p. 1909, ll. 7-13.

353. According to Mr. Grass,

> On my own, [regardless] of regulation, if I were to ever design a new heap leach stockpile in New Mexico, I wouldn't design it without a liner system. I – as an engineer – it's not the standard of practice. It's -- I wouldn't do it.

Id. p. 1909, l. 23 to p. 1910, l. 3.

M. Prevention of Pollution and Best Practice Require That New Waste Rock Stockpiles That May Cause Exceedances of Standards Be Lined

354. Leaching of metals in waste rock stockpiles through precipitation may result in contamination of ground water above standards. To determine whether waste rock stockpiles may contaminate above standards, waste rock should be first characterized, as required by the Proposed Rule. *See* 20.6.7.21.A NMAC [NMED].

355. Waste rock stockpiles – that have not been leached with sulfuric acid -- have caused ground water contamination above standards at the Tyrone, Chino, and Cobre Mines, and contamination that has migrated off-site. AGO Exs. 34-36.

356. Under the Proposed Rule, new waste rock stockpiles are not required to be synthetically lined if inside the surface drainage area. Waste rock piles located outside the surface drainage area that "would" result in exceedances of standards are required only to be subject to an interceptor system that would attempt to capture the contamination and they are not required to be synthetically lined. 20.6.7.21.B NMAC [NMED].

357. New waste rock stockpiles that "may" result in exceedances of standards, based on material characterization, should be synthetically lined if they are inside or outside the

surface drainage area in order to prevent contamination of clean water inside the surface drainage area, prevent further contamination of polluted water inside the surface drainage area, and prevent migration outside the surface drainage area. Travers Direct Test., pp. 15-16; Olson Direct Test., pp. 22-23.

358. In Mr. Kuipers' experience, there has never been a mine designed with interceptor wells as part of the original design for a waste rock stockpile. The only circumstance of which he is aware is when interceptor wells have been installed when contamination has occurred and the mine is required to capture that contamination. Kuipers Test. Tr. vol. 10, p. 2386, ll. 1-12.

> But as a part of a design feature, I've never seen in my career a waste rock pile that was designed to actually have interceptor wells below the toe as part of a, if you will, design capture system. I've seen many of them put in as mitigation or other measures after pollution has been discovered.

Id. p. 2386, ll. 7-12.

359. According to Mr. Kuipers, for many of the 50 waste rock stockpiles he is involved in or is aware of that have capture systems, there is an acknowledgement that the stockpiles should have been lined to prevent ground water contamination. *Id.* p. 2359, l. 20 to p. 2360, l. 5.

360. Within the last 4 to 5 years, there has been an evolution with respect to protection of ground water as a result of waste rock stockpiles. Mine facilities are now lining new waste rock stockpiles because it is a more effective means of capturing acid generation than trying to capture it "somewhere downstream." Mr. Kuipers identified three mines – the Hollister Mine and Mount Hope molybdenum mine in Nevada and the Black Lumbridge Mine

in Idaho – as examples of mines that have lined or intend to line waste rock piles. *Id.* p. 2360, l. 5 to p. 2361, l. 16.

361. The trend is to line waste rock stockpiles that will degrade ground water:

> The main trend is this: if you recognize you have an issue and you know you're going to be generating leachate from waste rock that's going to be an issue, why not construct a liner and capture efficiently rather than allow it to go into groundwater and then you have to capture a whole bunch of additional water from upstream, you have dilution that's occurred, and you have a much more difficult time even treating that effluent.

Kuipers Test. Tr. vol. 10, p. 2361, ll. 7-16.

362. NMED and FMI witnesses testified that installing a synthetic liner for waste rock stockpiles is more difficult technically than for leach stockpiles for reasons that include that liners leak, emplacement of larger waste rock can damage a liner, and placement of a liner is more difficult on steep slopes often used for waste rock. *See, e.g.,* Brown Rebuttal Test., pp. 2-3.

363. However, FMI's expert engineer on liners, Mr. Grass, testified that, "the liner systems are the same, so there's no real difference" between engineering a liner for a leach stockpile and engineering a liner for a waste rock stockpile. Grass Test. Tr. vol. 8, p. 1865, ll. 7-11.

364. As to the leakage issue, all liners, including those under leach stockpiles leak. However, liners are used for leach stockpiles (as acknowledged and supported by NMED and FMI witnesses), waste rock stockpiles and tailings impoundments, and leakage can be addressed for all three mine units. Kuipers Test. Tr. vol. 10, p. 2371, l. 14 to p. 2371, l. 7.

365. Engineers address potential leaks through a number of methods, including installing a redundant liner system with "low-head" so that it is less likely to leak and to "reduce the head" on liners so they do not leak. Kuipers Test. Tr. vol. 10, p. 2371, l. 24 to p. 2372, l. 7.

366. Mr. Grass testified that larger rocks found in waste rock stockpiles did not represent an impediment to lining waste rock stockpiles. Indeed, given the strength of synthetic liners in use, a boulder the size of a "Volkswagen" could be placed on such a liner. Grass Test. Tr. vol. 8, p. 1903, ll. 3-20.

N. Prevention of Pollution and Best Practice Require That New Tailings Impoundments Be Designed and Engineered Not to Contaminate

367. Tailings impoundments cause contamination of ground water above standards. Travers Direct Test., pp. 5-6.

368. Tailings impoundments have caused ground water contamination above standards at the Tyrone, Chino, and Cobre Mines. AGO Exs. 34-36. During the *Tyrone* litigation, NMED technical staff testified about the water pollution caused by the Tyrone Mine tailings. Marshall Test. (2007), p. 10 [AGO Ex.13]. The Commission issued findings of fact determining that leachate from these tailings had polluted ground water in excess of standards. Comm'n Decision, FOF ¶¶ 25, 30-32.

369. Under the Proposed Rule, new tailings impoundments are not required to be synthetically lined or and are not subject to other requirements that would prevent ground water contamination in the first instance. Rather, tailings impoundments are permitted to contaminate ground water in excess of standards, and an interceptor system would then attempt to capture the contamination. 20.6.7.22.A(4) NMAC [NMED].

370. It is economically and technically feasible to *prevent* ground water contamination from tailings impoundments – and not rely on downgradient capture systems -- based on at least three methods: lining tailings impoundments, making "dry stack" tailings, and making "paste" tailings. Kuipers Test. Tr. vol. 10, p. 2384 to p. 2386, l. 14.

371. Lining tailings impoundments has been the most commonly used method until recently. There are many lined tailings impoundments, including many that are very large, that are being successfully and safely operated throughout the United States and elsewhere in the world. Kuipers Test. Tr. vol. 10, p. 2370, ll. 9-15.

372. The trend in preventing ground water contamination from tailings is moving to dry tailings. The overwhelming opinion of professional engineers "using the state-of-the-art, rather than state-of-past-practice" technologies is to do away with wet tailings deposits, and use the dry tailings technologies. Dry stack or paste tailings conserve water, do not result in ground water contamination, do not raise the issues liners do, and do not require perpetual maintenance as do dammed wet tailings. Kuipers Test. Tr. vol. 10, p. 2373, ll. 19-25; p. 2374, ll. 12-18; 2385, ll. 3-6, 18-22; p. 2385, l. 23 to p. 2386, l. 14; *see* A. Robertson, "Tailings: Dammed, Damned or Damless?" [GRIP/Turner Ex. JK-1].

373. For example, dry stack tailings have been planned for the last 5 years for use at the Rosemont Copper Mine in Arizona, a new, very large mine, similar in size to the copper mines in New Mexico. Rosemont Copper Company Filter Tailings Dry Stacks Current State of Practice Report [GRIP/Turner Ex. JK-2]. The molybdenum mine in Questa, New Mexico, also a very large mine, has decided to convert to paste tailings even though its tailings impoundment has another 15 years of capacity. Kuipers Test. Tr. vol. 10, p. 2384, l. 15 to 2385, l. 17.

374. New Mexico Copper is the only copper mine proposing new facilities in New Mexico. New Mexico Copper participated as a member of the CRAC and its technical subcommittee. Deichmann Test. Tr. vol. 8, p. 2065, ll. 7-11

375. New Mexico Copper proposes a liner system for its tailing impoundment as a feasible and economic means to prevent water pollution while conducting copper mining activities. *Id.* p. 2073, l. 23 to p. 274, l. 1.

376. New Mexico Copper has filed a discharge permit application with NMED and a Copper Flat Mine Plan of Operation with the United States Bureau of Land Management that contains a conceptual design report with engineering plans for a liner system for a tailing impoundment of 530 acres. Deichmann Test. Tr. vol. 8, p. 2077, ll. 20-22; p. 2078, l. 21 to p. 2080, l. 4; Olson Ex. 12.

377. New Mexico Copper provided and discussed this liner system with NMED as a means of preventing pollution under a discharge permit during copper mining. New Mexico Copper also made a presentation regarding this plan to the CRAC technical committee during the rule development meetings. Olson Sur-rebuttal Ex. 1, p. 22 & Drawing #6; Olson Test. Tr. vol. 8, p. 2035, l. 2 to p. 2037, l.8.

378. In addition, New Mexico Copper on July 18, 2012 filed a mine permit application for the Copper Flat Mine with MMD. The mine permit application proposes to construct a new lined tailing facility, which contains detailed engineering design plans for the liner system. NMED considers information submitted in mine permit applications for MMD as design information for discharge permits to avoid duplication. Olson Sur-rebuttal Ex. 1, p. 22 & Drawing #6; Olson Test. Tr. vol. 8, p. 2035, l. 2 to p. 2037, l.8.

379. NMED and FMI witnesses testified that installing a synthetic liner for tailings impoundments is more difficult technically than for leach stockpiles for reasons that include that liners leak, pore water pressure on the liner increases because there is no drainage creating instability, and collection of drainage fluid that has be treated will result. *See, e.g.,* Brown Rebuttal Test., p, 2.

380. First, potential leakage is an issue that can be addressed for tailings impoundments, as it is for leach stockpiles. Kuipers Test. Tr. vol. 10, p. 2371, l. 16 to p. 2373, l. 1.

381. Second, drainage is a potential that can and has been addressed. Whether tailings are lined or unlined, they must be drained. Drainage systems at tailings have been improved over time. If drainage is an issue, there are mitigation measures that can be put into place. Drainage "does not represent a real technical issue of substance to installing lined tailings impoundments." *Id.*

382. Third, a goal is to collect the seepage from the tailings. This concentrated seepage in small volumes can be effectively treated, and is easier to capture and treat than the larger volumes of ground water from unlined tailings. *Id.* p. 2373, l. 4 to p. 2374, l. 10.

383. Fourth, there are other technically feasible methods, such as dry stack and paste tailings, that will not result in ground water contamination. *See* Section IX.N *infra.*

O. <u>The Area of Hydrologic Containment Does Not Require a Blanket Exemption from Standards: Copper Oxide Mines Do Not Necessarily Result in Ground Water Contamination</u>

384. There are open pit copper mines that reside in oxide. The oxide portions of the deposit means that the sulfide minerals, which have the potential to release metals, have already

oxidized. An oxide pit would tend not to have the same problem with ARD in the oxide zone. Travers Test. Tr. vol. 7, p. 1579, l. 19 to p. 1580, l. 18.

385. A copper mine operating in an oxide zone may not degrade water beneath the pit and may not cause exceedances of water quality standards. Travers Test. Tr. vol. 7, p. 1581, ll. 2-11.

386. In this circumstance, an unlined heap leach or waste rock stockpile could run the risk of contaminating ground water more than the open pit itself. *Id.* p. 1581, ll. 12-21.

387. Copper oxide mines tend to reside in different deposits than copper sulfide mines, and they do not necessarily result in acid rock drainage and ground water contamination. Kuipers Test. Tr. vol. 10, p. 2354, l. 22 to p. 2355, l. 9.

388. As such, the exemption from standards in the area of hydrologic containment, during operations and upon closure, is not necessarily required for copper oxide mines. *Accord id.*

P. Variances Are Required to Exceed Standards and Do Not Present a Genuine Risk to Copper Operations

1. The WQA Requires a Variance to Exceed Standards

389. The WQA has a mechanism that allows dischargers flexibility based on site-specific circumstances to vary from the Commission's regulations. Obtaining a variance, after a public hearing before the Commission, is the lawful method by which the WQA allows exceedances of standards upon a showing that a regulation imposes an "unreasonable burden" upon a lawful business. Abatement, however, must be effected within a reasonable period of time. NMSA 1978, § 74-6-4(H); *see also* Travers Direct Test., pp. 20-22.

390. Alternative abatement standards are a type of variance. As stated above, the Commission has already determined that if it is not technically feasible for water quality standards to be met underneath a mine, the appropriate remedy for the mine operator is to seek alternative abatement standards. Comm'n Decision, COL ¶ 52.

2. Obtaining Variances Does Not Pose a Genuine Risk to FMI

391. FMI argues strenuously that a requirement to obtain a variance to exceed standards during operations and upon closure poses an unacceptably high "political" risk to its continuing operations. FMI also claims a requirement to obtain a variance will deter investment in New Mexico. *See* Brack Direct Test., pp. 4, 6, 18-20 [FMI NOI].

392. FMI has petitioned for and has obtained two variances from the Commission: one to conduct leaching operations within an open pit at the Tyrone Mine and one to conduct leaching operation with the open pit at the Chino Mine. *See* NMED Exs. 22-25.

393. NMED supported the variance petition, with conditions to protect ground water. There was no opposition from any party to either variance. *See id.*

394. All parties in this proceeding who oppose portions of the Proposed Rule support the continuation of copper mining in New Mexico and do not oppose the granting of variances by the Commission for continued operations consistent with WQA requirements.

395. As set forth above, FMI agreed to petition for variances for the Tyrone Mine for new and existing mine facilities that result in exceedances of standards during operations and to petition for alternative abatement standards to exceedances standards during closure. FMI further agreed that NMED would include in the petition for this copper rule proceeding variance procedures for copper mines. Tyrone Settlement, ¶¶ 35, 37, 38, 42, 43, 45.

396. FMI's voluntary agreement to obtain variances and alternative abatement standards demonstrates that FMI does not believe that a requirement to obtain such variances or alternative abatement standards represents too great a risk to its operations.

3. Mr. Brack's Testimony that the "Political Risks" of the Permitting Process and Obtaining Variances Will Effect Investment in New Mexico Is Not Credible

397. FMI's principal witness on the variance issue, John Brack, manager of FMI's New Mexico operations, states:

> Regulating through variances and depending on receiving them, when they are subject to *the whims of ever changing administrations that can be and often are highly influenced by outside entities*, are not an effective way to provide certainty and foster long term investment to occur.

Brack Direct Test., pp. 19-20 (emphasis added).

398. Mr. Brack acknowledged that, when referring to "ever changing administrations," he referred to the fact that New Mexico elects a new governor every four years. Brack Test. Tr. vol. 1, p. 107, ll. 16-25.

399. Mr. Brack acknowledged that, when referring to the influence of "outside entities," one of the processes he referred to was the public hearing process before the Commission to obtain a variance. He acknowledges that such an outside influence is a "legitimate influence." *Id.* p. 109, l. 16 to p. 110, l. 6.

400. Mr. Brack has had no personal experience with the variance process before the Commission. He did not know how many variances FMI had requested or how many the Commission had granted. *Id.* p. 110, ll. 7-11. He did not initially know whether NMED had supported the two variance petitions filed by FMI. *Id.* p. 111, ll. 10-13. He later acknowledged

that NMED supported the variance petitions and that there was no opposition from "outside influences" such as citizen or environmental groups. *Id.* p. 113, ll. 13-21. He did not know under which gubernatorial administration the two variances were granted. *Id.* p. 111, l. 24 to p. 112, l. 6.[20] He did not know whether the two variances that were granted were subject to any influence or the "whims" of the gubernatorial administration in place at the time. *Id.* p. 112, ll. 7-12. Mr. Brack, in the end, admitted that he was not aware of any history to substantiate his claim that variances were subject to the "whims of ever changing administrations." *Id.* p. 112, l. 17 to p. 113, l. 12.

401. Mr. Brack testified that,

> Moreover, investments in mine expansion currently run into hundreds of millions of dollars, funding that is difficult to obtain without reasonable regulatory certainty. In its current form, *the permitting process is constantly in flux, subject to an ever-changing political landscape with changing policies. The resulting uncertainty makes investment in New Mexico relatively risky.*

Brack Direct Test., p. 6 (emphasis added).

402. FMI's 2012 Form 10-K has a section entitled "Development Projects and Exploration," which sets forth FMI's near-term development projects that will require additional substantial investment. FMI 2012 Form 10-K, p. 26 [AGO Ex. 31]; Brack Test. Tr. vol. 1, p. 140, l. 23 to p. 141, l. 6.

403. Mr. Brack reviewed "every aspect" of the 2012 Form 10-K related to New Mexico operations. Brack Test. Tr. vol. 1, p. 115, ll. 17-19; p. 123, ll. 23-24.

[20] The Commission can take administrative notice that the 2007 variance granted to Chino Mine and the 2012 variance granted to Tyrone Mine occurred during the Richardson administration.

404. It is very important that a company's Form 10-K is accurate because it is submitted to the Securities and Exchange Commission and investors use it to make investment decisions. Brack Test. Tr. vol. 1, p. 114, l. 18 to p. 115, l. 8.

405. Mr. Brack acknowledged that FMI's 2012 Form 10-K does not identify *any* FMI plans to make any additional investments in its New Mexico mines. *Id.* p. 141, ll. 11-14 & p. 146, ll. 4-7; FMI Form 10-K, p. 26.[21]

406. One purpose of a Form 10-K is to inform investors of all potential materially adverse risks to the company, and not to omit any such risks. Brack Test. Tr. vol. 1, p. 115, ll. 20-23; p. 116, ll. 8-20. FMI's 2012 Form 10-K has a section entitled "Risk Factors." FMI Form 10-K, pp. 42-59.

407. FMI's 2012 Form 10-K does not identify obtaining a variance from the Commission or the NMED permitting process in the state as a risk. *See* FMI Form 10-K, pp. 42-49; Brack Test. Tr. vol. 1, p. 141, ll. 11-14.

408. FMI's 2012 Form 10-K includes a one paragraph discussion on New Mexico Environmental and Reclamation Programs. The Form 10-K discusses the 2009 Commission Decision in *Tyrone* and the Tyrone Settlement. *The Form 10-K acknowledges that the Tyrone Settlement required the Tyrone Mine to obtain alternative abatement standards.* It does not identify any risk associated with being required to obtain such standards. The Form 10-K identifies the requirement in the settlement for the promulgation of new permit rules for copper mines. It does not identify any risk of a requirement to obtain variances or alternative abatement standards associated with the new rules. In sum, the discussion in FMI's Form 10-K

[21] FMI has plans for additional investment in two Arizona mines ($1.4 billion), and in mines in Indonesia ($7.8 billion), Peru ($4.4 billion) and Chile. FMI Form 10-K, p. 26.

of the interrelated legal proceedings – the Commission's *Tyrone* Decision, the Tyrone Settlement, and this copper mine rulemaking -- identifies *no risks* to FMI. FMI Form 10-K, pp. 158-59.

409. Chino Mine operations had been shut down due to "economic conditions," and were restarted in late 2010/early 2011; ramp up activities are continuing. Brack Test. Tr. vol. 1, p. 139, ll. 15-17; p. 141, ll. 15-17; FMI Form 10-K, p.12.

410. Chino Mine was restarted *after* FMI entered into the Tyrone Settlement Agreement with NMED. Brack Test. Tr. vol. 1, p. 142, ll. 7-14; p. 142, l. 24 to p. 143, l. 9. As stated, the Tyrone Settlement requires FMI to obtain variances for the Tyrone Mine for new and existing operations that result in exceedances of standards and alternative abatement standards upon closure to exceed standards. Section IV.G *supra.*

411. The decision to restart the Chino Mine was made independent of whether the Proposed Rule was promulgated or not. Brack Test. Tr. vol. 1, p. 142, ll. 2-6.

412. Identified in FMI's 2012 Form 10-K, for example, are the following "political, social and geographic risks of doing business in foreign countries":

- Renegotiation, cancellation or forced modification of existing contracts,
- Expropriation or nationalization of property,
- Changes in a foreign country's laws, regulations and policies, including those relating to labor, taxation, royalties, divestment, imports, exports, trade regulations, currency and environmental matters,
- Political instability, bribery, extortion, corruption, civil strife, acts of war, guerrilla activities, insurrection and terrorism,
- Foreign exchange controls, and
- The risk of having to submit to the jurisdiction of a foreign court or arbitration panel or having to enforce the judgment of a foreign court or arbitration panel against a sovereign nation within its own territory.

FMI Form 10-K, p. 44.

412. FMI's Grasberg Mine in Indonesia is a gold and copper mine, and is FMI's most profitable venture. FMI 2012 Form 10-K, p. 45; Brack Test. Tr. vol. 1, p. 121, ll. 1-7. The political, social and economic risks associated with the Grasberg Mine are extreme. They include but are not limited to:

- Between July 2009 and February 15, 2013, there were 37 shooting incidents in and around the Grasberg minerals district, including along the road leading to FMI's mining and milling operations, which resulted in 15 fatalities and 57 injuries.

- During 2011, there was an eight day work stoppage in July and an approximate three-month strike of approximately 8,000 laborers that concluded in December. The strike involved civil unrest, transportation blockades, sabotage of important operating facilities and violence.

- There are several separatist groups in the province where the Grasberg Mine is located; there have been attacks on civilians by separatists and conflicts between separatists and the Indonesian military.

- FMI mines in Indonesia subject to a Contract of Work ("COW") which expires in 2021. Proven and probable reserves at the Grasberg Mine are estimated to be recovered through 2041. There is no assurance the Indonesian government will extend the COW because of a 2009 mining law that makes less certain FMI's ability to continue to mine.

- FMI could be subject to increased royalty payments, beyond that required in the COW; FMI has already agreed to pay increased royalty payments beyond what had been required in the COW, which totaled 93 million in 2012.

- FMI employs Indonesian government forces to provide security, at a cost in 2012 of $22 million, and internal security, at a cost in 2012 of $52 million.

- Large numbers of illegal miners operate along the river used to transport the tailings from the mill to the lowlands. The illegal miners have clashed with police. In 2006, the illegal miners temporarily blocked the road leading to the Grasberg mine and mill in protest, and FMI temporarily suspended mining and milling operations.

- The Grasberg Mine is located in steep mountainous terrain in a remote area. In April 2011, two FMI employees died due to uncontrolled muck flow, and the area was temporarily shut down. In March 2006, a mud/topsoil slide of approximately 75,000 metric tons of material killed three contract workers. In October 2003, a slippage of material occurred in the Grasberg open pit, resulting in eight fatalities.

- FMI disposes of its tailings by using a river system near the mine to transport the tailings to an engineered area in the lowlands. The rivers and wetlands "inundated with waste were now 'unsuitable' for aquatic life." where the tailings and natural sediments are managed in a deposition area. The Indonesian government has questioned this environmental practice.[22]

FMI Form 10-K, pp. 19, 31, 45-46, 50, 55, 164 & "Political Shareholder Woes Trip Up Mining Giant in Indonesia, *Jakarta Globe* (Jan. 15, 2013); "Freeport-McMoran Faces Indonesian Government's Efforts to Extract Higher Royalty Fees," *Trefis Team* (Sept. 20, 2012); "Below a Mountain of Wealth, a River of Waste," *The New York Times* (Dec. 27, 2005) [AGO Ex. 32].

413. The risks posed by the Grasberg Mine are reported in FMI's Form 10-K and have been reported internationally through publications that include *The Wall Street Journal, Forbes, The New York Times,* and *Time*. Investors have been made aware of these significant risks. *See* AGO Ex. 32 (attaching over 50 articles reporting political, economic, security, labor, environmental and other risks at Grasberg mine between 2002 and 2013).[23]

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[22] Mr. Brack acknowledged that transporting tailings down a river is not done in the United States. Brack Test. Tr. vol. 1, p. 136, ll. 10-13.

[23] The articles include "Political, Shareholder Woes Trip Up Mining Giant in Indonesia," *Jakarta Globe* (Jan. 15, 2013); "Freeport-McMoran Faces Indonesian Government's Efforts to Extract Higher Royalty Fees," *Trefis Team* (Sept. 20, 2012); "Indonesia Presses Freeport on Royalties, Stake Sale," *The Wall Street Journal* (July 23, 2012); Labor Disruptions Force Freeport to Lower Outlook," *Forbes* (Mar. 20, 2012); "Political Risks Weigh on Freeport, Vale & Other Mining Companies," *Forbes* (Mar. 14, 2012); "Indonesia to Pare Foreign Investors' Mining Stakes," *The Wall Street Journal* (Mar. 7, 2012); "Gunmen Attack Helicopter Carrying Mine Workers in Indonesia," *The New York Times* (Dec. 17, 2011); "Freeport McMoran Grasberg Strike Could Cause Earnings Miss, Stock Worth $41," *Forbes* (Nov. 11, 2011); "Freeport Struggles to Restart Indonesian Mine amid Strike Unrest," *Forbes* (Oct. 31, 2011); "Hit by Strikes, Freeport-McMoRan's Net Falls 11%," *The Wall Street Journal* (Oct. 20, 2011); "Shooting Near Freeport Mine in Indonesia Kills 3," *The Wall Street Journal* (Oct. 16, 2011); "Striker Is Killed in Clash at Freeport Mine in Indonesia," *The Wall Street Journal* (Oct. 11, 2011); "Strikers Vow Grasberg Shutdown If Hourly $1.50 Is Not Upped 8-fold," *mining.com* (Oct. 7, 2011); "Indonesian Miners Strike Another Blow for Freeport at Grasberg, *Forbes* (July 8, 2012); "Gunmen Kill 2 at Freeport's Gain Grasberg Copper-Gold Mine in Indonesia, *Mineweb* (April 8, 2011); "Strike Closes Indonesian Copper Mine," *The New York Times* (April 18, 2007); "Freeport Shareholders on the War Path," *Asia Times* (June 23, 2004); "Murder at the Mine," *Time* (Feb. 10, 2003). *See* AGO Ex. 32.

414. In the face of extreme political, labor and security risks, FMI will continue to invest heavily in a mine if profitable. *See* FMI 2012 Form 10-K, p. 29 (projecting $7.8 billion of investment in Grasberg mine in Indonesia), pp. 44-50, 54-55 (identifying risks associated with FMI's Indonesia Grasberg mine), pp. 110-12 (setting forth revenues from Indonesia operations). *Accord* Brack Test. Tr. vol. 1, p. 139, ll. 7-13 ("In order to make an investment where there is higher potential risk, you have to expect to get a higher return."); p. 139, ll. 10-13 ("The Grasberg . . . is one of the world-class ore bodies . . . . With a world-class ore body, the potential benefit allows you to take additional risk.").[24]

415. Compared to the real, substantial and ongoing risks FMI faces at other mines sites, FMI's claim that New Mexico's democratic and lawful processes – electing a new governor every four years and requiring a public hearing before the Commission to obtain a variance – create too much risk for FMI in New Mexico and will deter investment (when FMI in fact has no plans to invest in New Mexico) has *no credibility.* Section IX.P.2 & -3 *supra.*

Q. <u>The Proposed Rule's Corrective Action and Abatement Requirements Do Not Protect Places of Withdrawal from Exceeding Standards</u>

416. As stated, under the Proposed Rule, if implementation of a corrective action plan does not remediate confirmed ground water contamination above standards, NMED "may" require the mine operator to submit an abatement plan for cleanup to standards, but NMED is not required to do so. 20.6.7.30.A(2) NMAC [NMED]; Travers Test. p. 13; Travers Test. Tr. vol. 7, p. 1562, l.12 to p. 1563, l. 5.

[24] Mr. Brack further state that, "In New Mexico, we don't have world-class ore bodies." Brack Test. Tr. vol. 1, p. 139, ll. 14-15.

417. Exceedances of water quality standards only violate the Proposed Rule if standards are not met at the point of compliance monitoring wells located at some distance outside the mine units and their associated capture systems. Even if standards are exceeded outside the point of compliance system, the Proposed Rule does not require abatement of the contamination to water quality standards. Travers Direct Test., p. 13; Travers Test. Tr. vol. 7, p. 1562, l.12 to p. 1563, l. 5.

418. Not requiring clean up underneath a pollution source and up to a designated monitoring point, and not requiring clean up beyond the monitoring point does not require abatement of ground water pollution at any place of withdrawal of water for present or foreseeable use violates Section 74-6-5(E)(3) of the WQA and the Commission's Abatement Regulations. *Id.*; *see* 20.6.2.4101.A(1) NMAC (a purpose Abatement Regulations (20.6.2.4000 to 20.6.2.4115 NMAC) is to abate pollution of subsurface water so that all ground water of the State with a background concentration of 10,000 mg/L or less TDS is either remediated or protected for use as domestic and agricultural water supply); 20.6.2.4103(B) NMAC (ground water pollution at any place of withdrawal for present or reasonably foreseeable future use, where the TDS concentration is 10,000 mg/L or less, shall be abated to conform to the standards of 20.6.2.3103 NMAC).

R. <u>The Proposed Rule Does Not Require Standards to Be Met at Places of Withdrawal during Closure and Post-closure</u>

419. Aside from the provision exempting from water quality standards during closure open pits that are hydrologic evaporative sinks and flow-through pits that are pumped, there is

nothing express in the closure or post-closure requirements in the Proposed Rule as to whether and where standards must be met at the remainder of a mine site. *See* Section IX.B.10 *supra.*

420. Nonetheless, Mr. Brown testified that, "Upon closure all groundwater is protected as domestic or agricultural use as the present or reasonably foreseeable future use." Furthermore, he put forth the novel theory that, while certain locations were not places of withdrawal during operations, "They can however again <u>become</u> places of withdrawal after mine closure . . . . " Brown Rebuttal Test., p. 4 (emphasis in original) [NMED Rebuttal NOI].

421. Ms. Travers testified that,

> . . . as far as the rest of the mine site, in looking through the rule and trying to understand where standards need to be met at closure and after closure, the only section that I can find is that it needs to be done in accordance with this Section 28, which is the monitoring section, *which implies to me that monitoring -- that standards need to be met at points of compliance*, which are monitoring wells, at closure and postclosure, but not upgradient of those.

Travers Test. Tr. vol. 7, p. 1570, ll. 9-17 (emphasis added).

422. Mr. Kuipers testified that the Proposed Rule is not clear where standards must be met upon closure. Kuipers Test. Tr. vol. 10, p. 2376, l. 15 to p. 2377, l. 2.

423. Mr. Skelly testified that, as to the rest of a mine site, standards must only be met at the designated compliance monitoring wells provided for in 20.6.7.28 NMAC and not upgradient of those compliance wells. Skelly Test. Tr. vol. 5, p. 1128, l. 5 to p. 1129, l. 15.

424. Mr. Blandford testified that, as to rest of a mine site, that standards would have to be met at a designated monitoring well under Section 20.6.7.28 NMAC. Blandford Test. Tr. vol. 6, p. 1517, l. 17 to p. 1518, l. 6.

425. Even NMED's other witness, Mr. Skibitski, contradicted Mr. Brown's testimony, and testified that under the Proposed Rule, during closure, standards would be required to be met at the designated monitoring well network and not upgradient of the network. Skibitski Test. Tr. vol. 2, p. 367, ll. 5-15.

426. The provisions in the Proposed Rule governing closure and post-closure do not require that standards be met at places of withdrawal and do not require any evaluation whether standards are met at places of withdrawal. *See* 20.6.7.33 NMAC (closure requirements); 20.6.7.34 NMAC (implementation of closure); 20.6.7.35 NMAC (post-closure requirements).

S. <u>The Commission Should Not Rely on the Testimony of NMED's Witnesses</u>

1. Tom Skibitski

a. Qualifications, background and experience

427. Mr. Skibitski was Acting Director of the NMED Resource Protection Bureau, a position he had held for four months. He does not have formal education in any environmental science such as hydrology or in environmental policy. He has not worked for or managed an NMED regulatory bureau, such as the Ground Water Quality Bureau. He has no direct or personal experience in the NMED discharge permitting process; no experience reviewing, preparing or enforcing ground water discharge permits; no experience making decisions regarding place of withdrawal or compliance with ground water standards under sites; no experience with the *Tyrone* litigation; no experience regulating discharges to ground water from copper mines; no experience regulating abatement of ground water contamination from copper mines or any other site. Mr. Skibitski did not participate in the legislative process to develop the 2009 amendments to the WQA or in the development of the Proposed Rule. *See* Skibitski

Direct Test., pp. 1-2 [NMED NOI]; Skibitski Resume [NMED Ex. 1]; Skibitski Test. Tr. vol. 2, p. 261, ll. 5-15; p. 262, ll. 8-16; p. 262, l. 23 to p. 263, l. 1; p. 294, ll. 12-16; p. 362, ll. 24-25 (had not read Tyrone Settlement) ; p. 369, l15 to p. 372, l. 24; p. 378, ll. 11-14 (could provide no technical testimony in support of Proposed Rule).[25]

428. Mr. Skibitski was not familiar with the development of the Proposed Rule. *E.g.*, *id.* p. 340, ll. 9-14 (did not know whether New Mexico Copper participated in CRAC or its committees); *id.* p. 352, l. 24 to p. 353, l. 4 (did not know whether NMED technical staff approved the August 2012 Draft); *id.* p. 354, ll. 22-24 (did not know that FMI submitted its Sept. 5, 2012 FMI Comments); *id.* p. 355, ll. 21-23 (did not know whether NMED technical staff approved the Sept. 7, 2012 NMED Internal Draft); *id.* p. 355, l. 24 to p. 356, l. 3 (did not know whether the Sept. 7, 2012 NMED Internal Draft adopted the Sept. 5, 2012 FMI Comments); *id.* p. 374, ll. 2-9 (did not know which NMED technical staff (aside from Mr. Vollbrecht) had involvement in developing the Proposed Rule).

429. Mr. Skibitski nonetheless provided the principal testimony for NMED on the NMED discharge permitting process prior to the 2009 amendments, compliance with ground water quality standards under sites, the *Tyrone* litigation, the 2009 amendments to the WQA, development of the Proposed Rule, and the objectives of the Proposed Rule. *See generally* Skibitski Test.; Skibitski Rebuttal Test. [NMED Rebuttal NOI].

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[25] After establishing Mr. Skibitski's general lack of experience and qualifications, he was asked:

Q. Okay. And is there a particular personal experience that you have that you're asking the Commission to consider when it decides whether or not to adopt this rule?
A. No.

Skibitski Test. Tr. vol. 2, p. 372, ll. 20-24.

430. Mr. Skibitski's testimony on the subject matters identified above was not based on personal or direct knowledge, but was based on what others had told him. Skibitski Test. Tr. vol. 2, p. 263, l. 2 to p. 264, l.

431. NMED has employees who have formal education in an environmental science such as hydrology and who have worked for or held management positions in the Ground Water Quality Bureau. NMED has employees who have direct and personal experience in the NMED discharge permitting process; experience reviewing, preparing or enforcing ground water discharge permits; experience making decisions regarding place of withdrawal and compliance with ground water standards under sites; experience with the *Tyrone* litigation; experience regulating discharges to ground water from copper mines; and experience regulating abatement of ground water contamination from copper mines. *See, e.g.,* Marshall Test. (2007), pp. 1-2; Sept. 7, 2012 email from B. Olson to D. Martin, NMED, p. 1 [AGO Ex. 13] (outlining concerns with proposed copper mine rule of Mr. Olson and Kurt Vollbrecht, NMED GWQB); Skibitski Test. Tr. vol. 2, p. 357, l. 16 to p. 358, l. 5.

b. Place of withdrawal

432. In discussing the interpretation of the phrase "place of withdrawal," Mr. Skibitski opined,

> . . . I would say that interpreting the phrase "a place of withdrawal" may be interpreted as any theoretical place of withdrawal, or it may be interpreted as an actual place of withdrawal . . .

Skibitski Test. Tr. vol. 2, p. 249, ll. 14-17.

433. Mr. Skibitski did not know whether, as a matter of policy, NMED agreed with the Commission's determination in the *Tyrone* matter that a place of withdrawal "is not limited

to a place on the ground, but extends into the aquifer underlying an area on the ground surface; it need not be a well." *Id.* p. 334, l. 25 to p. 335, l. 16.

434. When asked whether Mr. Skibitski agreed with Mr. Olson's interpretation of the WQA -- that standards must be met at all places unless the discharger demonstrates the location is not a place of withdrawal -- Mr. Skibitski replied:

> So I think that in the context of the bottom of an open pit, *the determination that that location is not a place of withdrawal has been made and that those determinations have been made through the granting of a variance*, and so that would be the exception where it is not considered a place of withdrawal at that point, the bottom of the pit, for example, and therefore the standards did not need to be met at that point.

Skibitski Test. Tr. vol. 2, p. 252, l. 18 to p. 253, l. 1 (emphasis added).

435. The Commission, however, in 2009, determined otherwise, and found that the open pits and areas around the open pits at the Tyrone Mine are places of withdrawal. Comm'n Decision, FOF ¶ 125(e), COL ¶¶ 40, 41, 49, 50.

436. NMED does not disagree, as a matter of policy, with the Commission's identification of places of withdrawal at the Tyrone Mine, according to Mr. Skibitski. Skibitski Test. Tr. vol. 2, p. 334, ll. 16-24.

437. Furthermore, variances were required for leaching within the Santa Rita Pit at the Chino Mine and within the Savannah Pit at the Tyrone Mine precisely because those locations were determined by NMED to be places of withdrawal. NMED's Resp. to Variance Pet., pp. 2-3 [NMED Ex. 22]; NMED's Resp. to Variance Pet., p. 2 [NMED Ex. 24].

438. When asked again in follow up whether Mr. Olson's interpretation is consistent with the WQA, Mr. Skibitski replied, "Yes." Skibitski Test. Tr. vol. 2, p. 253, ll. 2-6.

439. Later, during cross-examination, Mr. Skibitski backtracked again:

> A. The Department -- through the variance process, the Department has recognized that those places that were *not* considered a place of withdrawal were allowed -- permitted or otherwise were able to exceed the groundwater quality standards.
>
> Q. Wasn't the variance required because those places *were* considered places of withdrawal and therefore a variance was required in order to exceed standards?
>
> A. I could agree with that statement.

Skibitski Test. Tr. vol. 2, p. 272, l. 20 to p. 273, l. 4 (emphasis added).

440. Mr. Skibitski stated in his testimony that NMED historically "had taken the position that ground water standards must be met at all points underneath a discharge site . . . ." Skibitski Direct Test., p. 8.

441. Upon cross-examination, he was asked whether a more accurate representation of NMED's historical position was that ground water standards must be met be met at all points under a discharge site *unless the discharge site was not a place of withdrawal*. Tr. vol. 2, p. 268, ll. 14-20.

442. Mr. Skibitski had trouble understanding and answering the question. *See* Tr. vol. 2, p. 268, l. 14 to p. 275, l. 24. Finally, with direction from the Hearing Officer, Mr. Skibitski, answered that he did not know. Skibitski Test. Tr. vol. 2, p. 275, ll. 23-24.[26]

443. Mr. Skibitski admitted that:

- Water quality standards must be met at places of withdrawal, *id.* p. 253, ll. 7-14;

[26] When a Commissioner questioned the length of cross-examination on this point, the Hearing Officer stated, "I think we're spending time on this because Mr. Skibitski has yet to offer a straightforward answer about this." Tr. vol. 2, p. 275, ll. 6-8. (The Hearing Officer offered she thought Mr. Skibitski was trying to be responsive. *Id.* p. 275, ll. 8-9.)

- Under the Commission's Regulations, ground water with 10,000 mg/L TDS or less is protected for present and future use, *id.* p. 255, l. 13 to p. 256, l. 3;

- The same protection is given to present and potential future uses of water, *id.* p. 256, ll. 4-18;

- There is a 46 year history in New Mexico of protecting ground water with 10,000 mg/L or less TDS, *id.* p. 259, ll. 15-25;

- Drawing a "bright line" of protecting ground water with 10,000 mg/L TDS or less was easy to understand, *id.* p. 257, ll. 6-9;

- NMED had no disagreement with the criteria developed by the Commission in the *Tyrone* proceeding to determine place of withdrawal, *id.* p. 412, ll. 4-10.

444. Later, Mr. Skibitski testified that water quality standards could be exceeded at places of withdrawal during operations, but not during closure. However, he didn't know where authority in the WQA for that proposition existed. *Id.* p. 323, l. 11 to p. 327, l. 15.

445. He then changed his testimony, again, and stated that water quality standards could not be exceeded at a place of withdrawal absent a variance. *Id.* p. 328, ll. 12-14.

446. He then changed his testimony, again, stating that water quality standards could be exceeded at a place of withdrawal without a variance. *Id.* p. 329, l. 24 to p. 331, l. 6.

447. Mr. Skibitski stated in his written testimony that the Proposed Rule does not change the concept of place of withdrawal. Skibitski Direct Test., p. 8. However, he admitted during cross-examination that allowing contamination above standards during operations at places of withdrawal, as allowed by the Proposed Rule, does change the concept. *Id.* p. 323, l. 11 to p. 331, l. 6.

448. In the end, Mr. Skibitski fully admitted that the Proposed Rule allowed contamination above standards at places of withdrawal. *Id.* p. 331, l. 23 to p. 322, l. 22.[27]

c. Point of compliance system

449. Mr. Skibitski stated in his testimony:

> The Department's proposed Copper Mine Rule represents a change from the permitting approach previously employed by the Department. Previously, the Department had taken the position that groundwater standards must be met at all points underneath a discharge site, *rather than in designated monitoring wells designed to monitor groundwater quality downgradient of a contamination source.*

Skibitski Direct Test., p. 8 (emphasis added).

450. Upon cross-examination, Mr. Skibitski was asked whether such a system, requiring ground water standards to be met at "'designated monitoring wells designed to monitor groundwater quality downgradient of a contamination source,' is often referred to in regulatory terms as a point-of-compliance system." Tr. vol. 2, p. 276, ll. 6-11.

451. Mr. Skibitski, again, had difficulty answering the question. In wide-ranging and non-responsive testimony on the point, Mr. Skibitski denied that the Proposed Rule established a point of compliance regulatory system. *See* Tr. vol. 2, p. 279, l. 3 to p. 289, l. 25.

452. Finally, however, Mr. Skibitski conceded that NMED sought to establish a point of compliance regulatory system through the Proposed Rule.[28] Skibitski Test. Tr. vol. 2, p. 290,

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[27] A. That under the proposed rule an allowance -- that by rule the Department would allow for exceedances to be exceeded at a place of withdrawal? Is that –
Q. That standards would be allowed to be exceeded at a place of withdrawal.
A. Yes.

Skibitski Test. Tr. vol. 2, p. 332, ll. 16-22.

[28] Q. Let's -- for clarity's sake, for the record, when you -- when I refer to a point-of-compliance system, here's what I'm referring to, . . . I'm going to refer to a system where there are points around a source of contamination that

l. 1 to p. 291, l. 24. He acknowledged that was a significant policy change from NMED. *Id.* p. 344, ll. 16-20.[29]

453. Mr. Skibitski had "limited" familiarity with the Commission's 2009 *Tyrone* Decision. He did not know that the Commission had determined the WQA does not establish a point of compliance system. Skibitski Test. Tr. vol. 2, p. 294, l. 12 to p. 295, l. 22.

d. Discharge permits "allowing" contamination

454. Mr. Skibitski stated in his testimony that, "The actual practice of the Department was to issue permits without requiring all groundwater at all locations within a mine site meeting groundwater standards." Skibitski Direct Test., p. 8.

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have monitoring wells, and upgradient of those monitoring wells, water quality standards do not have to be met by law, and downgradient of the point of compliance, they do.
A. Okay.
Q. So the point of point of compliance is to determine compliance with standards. They have to be met downgradient, not met upgradient. Is that clear?
A. Yes.
Q. . . . So then are you saying -- in this sentence that the Department had taken the position that groundwater needed to be met under the site, rather than in designated monitoring wells to monitor groundwater quality downgradient of a contaminant source, are you saying that the Department has changed its position under the rule so that compliance -- so that water quality standards have to be met at designated monitoring wells downgradient of the source? Is that what you're saying in that sentence?
A. Yes.
Q. And the monitoring wells that you're talking about where water quality standards have to be met are the monitoring wells identified in Section 28 of the rule, which provide for a monitoring system that is around the interceptor system or capture system of the mine units; that is, the leach piles, waste rock piles and tailings. Is that correct?
A. The monitoring -- the monitoring well system is downgradient from those capture systems that you described, yes.
Q. So you've got the source -- . . . ..-- at the mine units. . . . You've got their interceptor/capture systems.
A. Yes.
Q. And then under Section 28, you've got the monitoring well systems, the designated monitoring wells, and it's at those points that under your rule the standards have to be met downgradient and upgradient standards do not have to be met. Correct?
A. Yes.

Tr. vol. 2, p. 290, l. 1 to p. 291, l. 23.

[29] Mr. Skibitski, although the policy representative of NMED, did not know how that policy had been changed or who was responsible for the policy change. Skibitski Test. Tr. vol. 2, p. 344, l. 24 to p. 345, l. 17.

455. Mr. Skibitski conceded, however, that he was not aware of any discharge permit ever issued by NMED that expressly allowed exceedances of ground water standards, except the two variances issued to FMI. Skibitski Test. Tr. vol. 2, p. 308, l. 1 to p. 310, l. 13. He conceded he was not aware of any modifications or renewals of discharge permits to copper mines that did not require abatement of contamination if there was contamination. *Id.* p. 313, l. 3 to p. 314, l. 22. He acknowledged that his knowledge with respect to discharge permits for copper mines was "limited." *Id.* p. 313, l. 9. And, he clarified his testimony to state that the *only* "general practice" of NMED issuing discharge permits that allowed contamination were the two examples of variances issues to FMI variances issues to FMI. Skibitski Test. Tr. vol. 2, p. 316, ll. 712; p. 317, l. 11 to p. 319, l. 3.[30]

456. Mr. Skibitski was asked whether the general course of conduct for 30 years showed that NMED considered the ground water underneath the Tyrone site subject to protection of the WQA; Mr. Skibitski replied that he did not know. *Id.* p. 319, l. 13, to p. 320, l. 5.

457. He was asked whether NMED allowed the copper mines that had contaminated ground water to continue to operate, not terminate their discharge permits, and worked with the mines to abate the contamination; Mr. Skibitski did not know. *Id.* p. 321, l. 22 to p. 322, l. 4.

458. Mr. Skibitski could not controvert the testimony from the *Tyrone* hearing that, "Over the many years that Tyrone has applied for and received discharge permits from the

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[30] Q. So you're referring to two examples, but not the practice of the Department, the general practice over the course of 30 years?
A. This statement is applicable to those two instances.

Tr. vol. 2, p. 318, ll. 3-7.

Department for its mining operation, Tyrone repeatedly represented that groundwater quality underneath the mine site would not be impaired by the discharges for which it sought permits to operate." *Id.* p. 267, l. 17 to p. 286, l. 2.

e. Miscellaneous

459. In support of the Proposed Rule, Mr. Skibitski testified that, "Industry specific rules may also serve to reduce costly, resource intensive lawsuits between the Department and permit applicants." Skibitski Direct Test., p. 8. However, aside from the 10 year litigation initiated by Phelps Dodge and continued by FMI, Mr. Skibitski knew of no other litigation by permit applicants against NMED. Skibitski Test. Tr., p. 336, l. 19 to p. 337, l. 22.8.

460. Mr. Skibitski acknowledged that the Proposed Rule does not specify that ground water standards must be met during closure at places of withdrawal. Skibitski Test. Tr. vol. 2, p. 363, l. 25 to p. 364, l. 4.

461. Mr. Skibitski mistakenly believed there were two closure periods under the Proposed Rule, and 30 period and 100 year period. *Id.* p. 365, ll. 7-22.

462. Mr. Skibitski states in rebuttal, "The proposed rule attempts to apply the lessons learned from decades of regulatory activities at mines in a manner that is both transparent and predictable." Skibitski Rebuttal Test., p. 4.

463. However, according to Mr. Olson,

> The proposed rule is contrary to the historical precedent of the Commission and its constituent agencies in the implementation and enforcement of Commission rules and the WQA. The proposed rule is also inconsistent with years of Commission litigation on place of withdrawal litigation at the Tyrone Mine and its final settlement.
>
> The 35-year historical precedent of the Commission and the constituent agencies has been clear, transparent and predictable. The proposed rule is not

> clear, transparent and predictable on application of standards and place of withdrawal, as evidenced in the oral testimony of the Department witnesses to this hearing.
>
> The proposed rule is also inconsistent with other Commission rules in 20.6.2 NMAC . . . .

Olson Test. Tr. vol. 8, p. 2023, l. 24 to p. 2024, l. 15.

464. Mr. Skibitski's testimony was not credible. Section IX.S.1 *supra*.

2. Adrian Brown

a. Reliance on testimony

465. Mr. Brown served as NMED's only technical expert witness. He was an independent contractor to NMED. He did not assist in drafting the Proposed Rule. Mr. Brown did not have authority to speak on behalf of NMED, and his interpretations of the Proposed Rule do not bind NMED. Brown Test. Tr. vol. 3, p. 595, ll. 24-25; p. 596, ll. 20-22; p. 599, ll. 6-17.

466. In his experience, Mr. Olson knew of no other rulemaking or adjudicatory hearing before NMED or the Commission in which NMED technical staff did not provide technical testimony. Olson Test. Tr. vol. 9, p. 2112, ll. 15-25. Mr. Skibitski did not know why Mr. Vollbrecht, NMED's principal technical staff member responsible for development of the rule, was not made available to testify. *See* Skibitski Test. Tr. vol. 3, p. 375, ll. 3-9.

b. Place of withdrawal

467. Throughout Mr. Brown's direct testimony, he testified repeatedly that water quality would be protected for present and future use. Brown Direct Test., pp. 3, 4, 5, 12, 14, 20, 21, 23, 24, 26, 28, 29, 30, 31, 32, 41, 42, 43.

468. Mr. Brown admitted, however, the Proposed Rule does not specifically require a determination as to whether locations at a mine site are places of withdrawal for present and future use. *Id.* vol. 3, p. 576, ll. 3-9.

469. Mr. Brown was not familiar with the criteria developed by the Commission to determine whether a location or aquifer is a place of withdrawal. *Id.* p. 606, ll. 7-11.

470. Mr. Brown was not familiar with the locations at the Tyrone Mine site that the Commission had determined were places of withdrawal. *Id.* vol. 4, p. 895, l. 11 to p. 897, l. 17; p. 901, l. 21 to p. 902, l. 3; p. 905, l. 11 to p. 906, l. 20.

471. He admitted he was not aware of any analysis conducted by NMED to determine whether such places at the Tyrone Mine were located within the area where contamination above standards is allowed under the Proposed Rule. *Id.* p. 902, l. 25 to p. 903, l. 8.

472. There are, however, locations within the Tyrone Mine that, according to the Commission, are places of withdrawal where contamination above standards is allowed, including but not limited to south of the Gettysburg Pit, west of the Gettysburg Pit along the 1C Stockpile, east of the 3B Waste Stockpile, south of the 5A Waste Rock Pile and, as noted above, the open pits, and areas around the open pits. Travers PowerPoint, p. 13; Travers Test. Tr. vol. 7, p. 1552, l. 23 to p. 1554, l. 24; AGO Ex. 25.

473. At the Tyrone Mine, the open pits are places of withdrawal, according to the Commission. Mr. Brown did not know the basis of the Commission's determination that the open pits at the Tyrone Mine were places of withdrawal. *Id.* p. 897, l. 24 to p. 898, l. 2.

474. He admitted he was not aware of any analysis conducted for the Chino or Cobre mines to determine whether contamination above standards is allowed under the Proposed Rule at places of withdrawal at those mine sites. *Id.* p. 903, ll. 9-14.

475. Mr. Brown was not aware of the Commission's determination that the effect of mine discharges into ground water could be measured where the hydraulic conductivity is at least 0.05 feet per day and capable of producing water to support beneficial use. *Id.* p. 908, ll. 5-14.

476. He admitted that he did not know the locations of such places at the Tyrone Mine and that he was not aware of any analysis conducted by NMED to determine whether such places at the Tyrone Mine were located within the area where contamination above standards is allowed under the Proposed Rule. *Id.* p. 908, ll. 4-22.

477. Mr. Brown claimed repeatedly in his rebuttal testimony and during his oral testimony that, under the Proposed Rule, during closure, "*all groundwater* is protected as a domestic and agricultural use as the present or reasonably foreseeable future use," including ground water within an open pit, despite the Proposed Rule's express and unequivocal exemption from standards for open pits. *E.g.,* Brown Rebuttal Test., p. 4 (emphasis added); Brown Test. Tr. vol. 3, p. 556, ll. 21-25; 20.6.7.24.A(4) NMAC.

478. Mr. Brown put forth the novel theory that locations at mine sites are *not* places of withdrawal *during operations*, but that *all* locations *become* places of withdrawal *during closure*:

> A: So I see the rule as distinguishing between places within the mine units as -- during operation as not being places of withdrawal and the rest of the world

being places of withdrawal, potential -- present and potential future places of withdrawal for domestic and agricultural purposes.

Q. And what about at the time of closure?

A. At the time of successful closure, then *all of the areas go back to being places of withdrawal*, all of the areas even within the units.

Brown Test. Tr. vol. 3, p. 556, ll. 15-24.

479. He further testified that certain locations at a mine site are *not* places of withdrawal during operations, but "[t]hey can, however, again <u>become</u> places of withdrawal after mine closure . . . . " Brown Rebuttal Test., p. 4.

480. Under cross-examination, Mr. Brown could point to nothing in the WQA that exempted water pollution caused by mining during operations. Brown Test. Tr. vol. 3, p. 592, l. 17 to p. 593, l. 6.

481. Neither the WQA nor the Commission Regulations treat present and future use of water differently. *See* NMSA 1978, § 74-6-5(E)(3); 20.6.2.3101.A NMAC. Indeed, as the Commission has observed and NMED's predecessor agency observed in 1977, "the same protection" is given "to present and potential future uses of ground water." 1987 EID Ltr., attached memo, p. 4; *see also* Comm'n Decision, FOF ¶ 62.

482. Mr. Brown had no factual, technical or regulatory basis for his claim that the Proposed Rule ensures that water quality standards are met at places of withdrawal during operation or closure. AGO FOF ¶¶ 467-81.

c. Point of compliance

483. Mr. Brown claims that the designated monitoring system in the Proposed Rule does *not* establish a point of compliance regulatory system. Brown Rebuttal Test., pp. 5-6.

484. As Mr. Olson put it:

> There is no basis in fact for this statement. A point of compliance concept is a system that permits pollution of groundwater under a source of pollution and up to a point some distance away from the source of the pollution.
>
> The rule as proposed allows a permittee to intentionally pollute groundwater underneath and downgradient of a new waste rock stockpile or tailing impoundment. The pollution is allowed to travel downgradient to an interceptor system at some undefined distance away from the source of pollution.
>
> This pollution is allowed by rule as long as the groundwater pollution does not reach a monitoring well some further distance downgradient of the interceptor system, where it is monitored for compliance with water quality standards. The discharge interceptor and monitoring system contained in the rule exactly describes the point of compliance system.

Olson Test. Tr. vol. 8, p. 2015, ll. 3-20.

485. Mr. Brown's denial that the Proposed Rule establishes a point of compliance system is belied by his own representation, in AGO Exhibit 38[31], of where the monitoring well network would be established outside the Tyrone Mine surface drainage area.

> Q. So then -- Mr. Brown, is then the black marker line that you drew around there -- *is that the point beyond which standards may not be exceeded and within which standards may be exceeded under the proposed rule, without there being a violation of regulation or statute*?
>
> A. *It's an attempt to do that*, but the -- I don't know from this where those containment facilities are. I have made the presumption that they are -- to the extent they exist that they are at the toe of the -- of each facility, which would be a requirement under the rule.

Brown Test. Tr. vol. 3, p. 924, l. 15 to p. 925, l. 1 (emphasis added).

486. Even FMI's principal expert hydrologist Mr. Blandford acknowledges the Proposed Rule allows such contamination up to a point of compliance. Mr. Blandford drew his own representation of the area within which contamination above standards would be allowed

[31] AGO Exhibit 38 was previously numbered AGO Exhibit 33a.

under the Proposed Rule at the Tyrone Mine. His representation, which is similar to Mr. Brown's, represents a 9 square mile area approximately. *See* AGO Ex. 39.[32]

487. Mr. Brown's denial that the Proposed Rule establishes a point of compliance system is not credible. AGO FOF ¶¶ 483-86.

d. Exceedance of standards by rule versus variance

488. Mr. Brown claims that allowing exceedances of standards by rule versus allowing them by variance is a "distinction without a difference." He claims that the requirements for a variance are the same as those under the Proposed Rule. Brown Rebuttal Test., pp. 6-7.

489. Yet, Mr. Brown did not know whether under the Commissions Regulations a variance is necessary for a discharger to exceed standards at a place of withdrawal. Brown Test. Tr. vol. 4, p. 899, l. 22 to p. 900, l. 3.

490. Mr. Brown has never participated in a variance proceeding before the Commission under the WQA or Commission Regulations. *See* NMED Exs. 22-25.

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[32] A. . . . my understanding is that the standards do not have to be met within the hydrologic containment area of open pits. Correct?
A. Right. Yes.
Q. There is no monitoring required within the surface drainage area. Correct?
A. Yes.
Q. Therefore, if there is no monitoring required, there is no requirement that standards be met, is there?
A. No.
Q. And then standards do have to be met at the designated monitoring wells that are around the mine units -- i.e., the leach piles, waste rock pile, tailing impoundments -- and then around the interceptor systems; correct?
A. That's correct.
Q. And so does this -- is this a rough depiction [AGO Ex. 38 done by Mr. Brown], in your opinion, of *where that designated monitoring well system would be around the central mining area of Tyrone where water quality -- groundwater quality standards would have to be met?*
A. *I believe -- I believe this is a rough depiction.*

Blandford Test. Tr. vol. 6, 1494, l. 20 to p. 1495, l. 22.

491. The granting of a variance requires a public hearing before the Commission. The applicant must demonstrate that compliance with standards is an unreasonable burden on a lawful business. The applicant must abate the contamination within a reasonable time. NMSA 1978, § 74-6-4(H). These requirements are not required in the Proposed Rule.

492. The variance is granted based upon a site-specific analysis in which the applicant demonstrates that it will minimize pollution. This showing is not required in the Proposed Rule. Travers Direct Test., p. 3.

493. The Commission has granted two variances for copper mining operations; both were for new leaching operations *within* existing open pits, which were highly contaminated from prior operations. These were the Savannah Pit at the Tyrone Mine and the Santa Rita Pit at the Chino Mine. NMED Ex. 22-25.

494. NMED's Proposed Rule, on the other hand, proposes to allow pollution in excess of standards in many locations throughout a mine site, including pollution from new waste rock stockpiles and tailing impoundments *outside* open pit areas where ground water may not be polluted. Olson Test. Tr. vol. 8, p. 2017, ll. 13-23.

495. The discharge systems and locations of the discharges in the Proposed Rule are different from those in the variances that have been granted and raise different issues and concerns. *Id.*

496. The requirements set forth in the variances granted differ from those in the Proposed Rule. These differences include but are not limited to:

- For the Savannah Pit variance, NMED determined that, "ground water at the Tyrone Mine is a place of withdrawal of water for present or reasonably foreseeable future use."

NMED Ex. 22, p. 2. The Proposed Rule does not recognize that an open pit and other areas of a mine are places of withdrawal.

- The Commission approved the Savannah Pit variance based the condition that Tyrone monitor the discharge's effects on ground water within the pit. NMED Ex. 23. The Proposed Rule does not require monitoring of ground water within the open pit.

- The Commission approved the Savannah Pit variance based on the condition that Tyrone abating water pollution within the Savannah Pit upon completion of mining operations. NMED Ex. 23. The Proposed Rule does not require abatement of pollution within an open pit (unless the pit is a flow-thru pit that is not pumped, which is not the case at Tyrone).

- For the Lee Hill variance, NMED determined that, "the ground water within the Santa Rita Pit is protected under the WQA and the WQCC Regulations, 20.6.2 NMAC, and specifically that the ground water represents a place of withdrawal of water for present and reasonably foreseeable future use under 74-6-5.E(3) of the WQA." NMED Ex. 24, p. 2. The Proposed Rule does not recognize that an open pit and other areas are places of withdrawal.

- The Commission approved the Lee Hill variance based on the condition that Chino monitor ground water impacts related to the Lee Hill Leach Stockpile. NMED Ex. 25. The Proposed Rule does not require monitoring of ground water within the open pit.

- The Commission approved the Lee Hill variance based on the condition that Chino abate water pollution within the Santa Rita Pit upon completion of mining operations. NMED Ex. 25, p. 5. The Proposed does not require abatement of pollution within an open pit (unless the pit is a flow-thru pit that is not pumped, which is not the case at Chino).

Olson Test. Tr. vol. 8, p. 2018, l. 5 to p. 2021, l. 6; NMED Exs. 22-25.

497. Mr. Brown was not familiar with the variance proceedings that had occurred. For example, he testified that, during the variance hearings, "all witness testimony related to requirements of the Rule with respect to waste rock and tailings impoundments, and whether they should be lined." Brown Rebuttal Test., p. 6. However, the variance petitions sought variances for leaching operations in open pits; the petitions and hearings thereon had nothing to

do with lining waste rock piles and tailings impoundments. *See* NMED Exs. 22-25; Olson Test. Tr. vol. 8, p. 2021, ll. 16-18.

498. Mr. Brown's testimony -- that there is no substantive difference between allowing contamination above standards through an individual variance proceeding before the Commission and allowing it by rule -- is not based on the records from the variance proceeding, is not factually accurate, and is not credible.

e. Lining waste rock stockpiles

499. Mr. Brown did not know whether FMI's leaching operations resulted in ground water contamination in excess of standards. Brown Test. Tr. vol. 3, p. 617, ll. 1-7.

500. Mr. Brown testified that that the synthetic liners required in the Proposed Rule for leach stockpiles provide "excellent groundwater protection . . . ." He testified that, even with anticipated defects, synthetic liners will protect ground water quality. Brown Direct Test., pp. 18-19 [NMED NOI].

501. Mr. Brown testified that there are tests and methods to address potential problems with liners, such as leaks. Brown Test. Tr. vol. 4, p. 881, l. 10 to p. 882, l. 10.

502. In his written rebuttal testimony, Mr. Brown testified, however, that lining waste rock stockpiles is problematic for a number of reasons, although he not explain why lining waste rock stockpiles is more problematic than lining leach stockpiles. Brown Rebuttal Test., pp. 2-3 [NMED Rebuttal NOI].

503. Mr. Grass, FMI's principal expert on liners, testified there is no technical difference between lining these two types of stockpiles. AGO FOF ¶ 363.

504. At hearing, Mr. Brown testified that the strategies employed to address problems with liners for leach stockpiles could be applied to waste rock stockpiles with "a lot more difficulty" because of the location of waste rock piles. However, he acknowledged that, in New Mexico, there is not much difference between the location of leach stockpiles and waste rock stockpiles. Brown Test. Tr. vol. 3, p. 882, l. 14 to p, 883, l. 4.

505. Mr. Kuipers effectively rebutted Mr. Brown's testimony – supporting liners for leach stockpiles but opposing them for waste rock stockpiles and tailings impoundments – by explaining, from an engineering perspective why Mr. Brown's concerns with lining waste rock stockpiles and tailings impoundment could be addressed. He concluded by observing:

> So I actually -- so in my opinion, either Mr. Brown is contradicting himself relative to heap leach piles throughout his statements or he's simply not recognizing the advantages and only looking at the disadvantages.

Kuipers Test. Tr. vol. 10, p. 2371, l. 2 to p. 2374, l. 10.

f. Use of best available technology

506. Mr. Brown testified, that, "The WQA is silent on the subject of how groundwater protection that would prevent pollution will be achieved, and does not require 'state of the art' method to be applied." Brown Rebuttal Test., p. 1.

507. Mr. Brown is not accurate. Under the WQA:

> Regulations may specify a standard of performance for new sources that reflects the *greatest reduction in the concentration of water contaminants that the commission determines to be achievable through application of the best available demonstrated control technology,* processes, operating methods or other alternatives, including where practicable a standard permitting no discharge of pollutants.

NMSA 1978, § 74-6-4(E) (emphasis added).

508. Furthermore, the WQA requires that when promulgating regulations for the copper industry to "prevent water pollution", "[t]he Commission *shall* consider . . . the *best available scientific information.*" NMSA 1978, § 74-6-4(K) (emphasis added).

509. The WQA, therefore, requires consideration of best available technology to prevent pollution.

X. JOINT PROPOSAL

510. The parties' Joint Proposal adopts to a large extent NMED's August 17, 2012 Draft, which represented the work of the CRAC. *Compare* Joint Proposal with August 2012 Draft.

511. The August 2012 Draft represented the best scientific technology designed to prevent ground water contamination:

> The engineering design requirements included in the original NMED staff draft of August 17, 2012 and which we propose to re-instate in the rules was the product of those discussions and was an exemplary product of the collaboration process undertaken by the technical committee. It was primarily based on input from FMI's consultants and staff together with input from other stakeholders and represents the state-of-the-art in such regulations incorporating rules and guidance from other states and agencies including Arizona, Nevada and the Bureau of Land Management.

Kuipers Direct Test., p. 7.

512. The parties' Joint Proposal also adopts as a framework the Tyrone Settlement. *Compare* Joint Proposal with Tyrone Settlement.

513. The objective of the Joint Proposal is to put forth a proposed rule that complies with the WQA, is consistent with the Commission's Regulations, and allows copper mining to

continue profitably in New Mexico. The Joint Proposal represents a balanced approach that promotes copper mining undertaken in an environmentally responsible manner.

514. The following sets forth the provisions in the Joint Proposal, and support in the record for those provisions:

- Protects places of withdrawal from contamination above standards, 20.6.7.10.J NMAC; Sections II, III.E, IV.B, VI.E, IX

- Places the burden on the discharger to demonstrate that an area is not a place of withdrawal, 20.6.7.10.J NMAC; Sections II, IV.E

- Requires lining of new leach stockpiles within the surface drainage area, 20.6.7 NMAC, 20.6.7.20.A(1) NMAC; Sections IV.A, IX.B.5, IX.C, IX.F, IX.H, IX.J, IX.K, IX.L

- Requires lining of new waste rock stockpiles if they may result in exceedances of standards, 20.6.7.21.B(1) NMAC; Sections IV.A, IX.B.5, IX.C, IX.F, IX.H, IX.J, IX.K, IX.M

- Requires lining of new tailings impoundments or employing other preventative measures, which as dry stacking or paste tailings, 20.6.7.22.A(4), -(5) NMAC; Sections IV.A, IX.B.5, IX.C, IX.F, IX.H, IX.J, IX.K, IX.N

- Establishes a variance procedure that allows a discharger to exceed standards through a variance under certain circumstances after a public hearing, 20.6.7.31 & -32 NMAC; Sections II, VI.E, IX.PI, IX.S.2.d

- Does not establish a point of compliance system, but requires a sufficient monitoring network as close as practicable to mine units, 20.6.7.28.B NMAC; Sections II, IX.B.8, IX.C, IX.D, IX.I

- Requires abatement to standards or to alternative abatement standards if corrective action does not result in abatement, 20.6.7.30.A NMAC; Sections II, VI.E, IX.B.9, IX.Q

- Requires standards to be met at all places of withdrawal during closure and post-closure, 20.6.7.33.D, -35.B NMAC; Sections II, VI.E, IX.B.10, IX.C,IX.R

515. In addition, the Attorney General hereby refers to Mr. Olson's Statement of Reasons, setting forth a detailed Justification for Joint Proposal Rule Amendments for each provision of the parties' Joint Proposal.

XI. STATUTORY FACTORS FOR PROMULGATION OF REGULATIONS

516. Pursuant to the WQA, the Commission is authorized to promulgate "regulations to *prevent* or abate water pollution in the state . . . ." NMSA 1978, § 74-6-4(E) (emphasis added).

517. Pursuant to the WQA, the Commission "shall specify in regulations the measure to be taken to *prevent* water pollution and to monitor water quality" for particular industries, including the copper industry. NMSA 1978, § 74-6-4(K) (emphasis added).

518. The Proposed Rule does not prevent water pollution. Under the Proposed Rule, water pollution above standards is intentionally allowed at places of withdrawal. *E.g.,* Sections VIII.D, IX.B – F *supra.*

519. Furthermore, under the Proposed Rule, there is a high risk that the water pollution above standards that is intentionally allowed will migrate on- and off-site to places of withdrawal. Section IX.F *supra.*

520. The Joint Proposal prevents water contamination above standards at places of withdrawal. *See* Section X *supra.*

521. Pursuant to the WQA,

> Regulations may specify a standard of performance for new sources that reflects the *greatest reduction in the concentration of water contaminants* that the commission determines to be achievable through application of the *best available demonstrated control technology*, processes, operating methods or

> other alternatives, including where practicable a standard permitting *no discharge of pollutants*.

Id. (emphasis added).

522. Pursuant to the WQA, in promulgating regulations for the copper industry, the Commission "shall consider . . . the best available scientific information." *Id.*

523. The Proposed Rule is not based on technology designed to achieve the greatest reduction of concentration of water contaminants through the best available demonstrated control technology. It does not include where practicable technology designed to achieve no discharge of pollutants. It is not based on the best available scientific information. Section IX.F & L-O *supra.*

524. Under the Proposed Rule, leach stockpiles within the surface drainage area do not have to be synthetically lined. This is not standard industry practice or environmental practice, according to Ms. Travers, Mr. Kuipers, and FMI's principal witness on liners, Mr. Grass. According to Mr. Grass, he would not recommend constructing a leach ore stockpile in New Mexico without a liner. Section IX.L *supra.*

525. Under the Proposed Rule, waste rock stockpiles with the potential to cause exceedances of standards do not have to be synthetically lined. The Proposed Rule, instead, relies on a capture and containment strategy through the hydrologic containment area and interceptor systems that are at high risk of not capturing all contaminants given this technology and the fractured rock systems at the New Mexico copper mines. This technology is not designed to achieve the greatest reduction of concentration of water contaminants through the

best available demonstrated control technology. It is not based on the best available scientific information. Section IX.M *supra.*

526. According to Mr. Grass, lining waste rock stockpiles uses the same technology as lining leach stockpiles. AGO FOF ¶ 253. There was no demonstration that such technology was not technically or practically feasible.

527. Under the Proposed Rule, tailings impoundments with the potential to cause exceedances of standards do not have to be synthetically lined or dry stacked or turned into a paste. The Proposed Rule, instead, relies on a capture and containment strategy through interceptor systems that are at high risk of not capturing all contaminants given that technology and the fractured rock systems within which they operate. This technology is not designed to achieve the greatest reduction of concentration of water contaminants through the best available demonstrated control technology. It is not based on the best available scientific information. Section IX.N *supra.*

528. New Mexico Copper, the newest proposed copper mine in New Mexico, intends to line its tailings impoundments. There was no demonstration that the available technologies – lining or making the tailings into dry stacks or a paste – are not technically or practically feasible. *Id.*

529. The Joint Proposal requires all leach stockpiles and all waste rock stockpiles that have the potential to contaminate above standards to be synthetically lined. It requires all tailings impoundments to be lined or made into dry stacks or paste. These technologies are designed to achieve the greatest reduction of concentration of water contaminants through the

best available demonstrated control technology. They are based on the best available scientific information. Section IX.K to –N *supra.*

530. Pursuant to the WQA,

> In making regulations, the commission shall give weight it deems appropriate to all relevant facts and circumstances, including:
>
> (1) character and degree of injury to or interference with health, welfare, environment and property;
>
> (2) the public interest, including the social and economic value of the sources of water contaminants;
>
> (3) technical practicability and economic reasonableness of reducing or eliminating water contaminants from the sources involved and previous experience with equipment and methods available to control the water contaminants involved;
>
> (4) successive uses, including but not limited to domestic, commercial, industrial, pastoral, agricultural, wildlife and recreational uses;
>
> (5) feasibility of a user or a subsequent user treating the water before a subsequent use;
>
> (6) property rights and accustomed uses; and
>
> (7) federal water quality requirements; . . . .

NMSA 1978, § 74-6-4(E).

531. The Proposed Rule allows contamination above water quality standards at places where ground water has a current or reasonably foreseeable future use. Ground water in New Mexico is a public resource. Furthermore, ground water subject to contamination under the Proposed Rule may include that used by right by persons and entities other the copper mines. The Proposed Rule will result in a substantial injury to and interference with health, welfare, environment and property. NMSA 1978, § 74-6-4(E)(1).

532. The Joint Proposal does not allow contamination above water quality standards where ground water has a current or reasonably foreseeable future use. The Joint Proposal will

not result in substantial injury to or interference with health, welfare, environment and property. NMSA 1978, § 74-6-4(E)(1).

533. Ground water is a public resource in New Mexico. The public interest is best served by preventing ground water contamination, not allowing ground water contamination. There was no demonstration that preventing ground water contamination, as proposed in the Joint Proposal, would injure the economic value of the copper industry. The public interest, therefore, is best served through adoption of the Joint Proposal and rejection of the Proposed Rule. NMSA 1978, § 74-6-4(E)(2).

534. The technical practicability and economic reasonableness of reducing or eliminating water contaminants from the sources involved and previous experience with equipment and methods available to control the water contaminants involved supports adoption of the Joint Proposal and rejection of the Proposed Rule. *See* Section IX.G, -H, -J to –N *supra.* NMSA 1978, § 74-6-4(E)(3).

535. The Proposed Rule may interfere with and injure successive uses of ground water from copper mines, including potentially but not limited to domestic, commercial, industrial, agricultural, and recreational uses. The Proposed Rule will allow contamination above standards at copper mine sites and potentially off-site. Water quality standards are designed to protect domestic and agricultural uses. All FMI copper mines intend to use their property for industrial and commercial purposes upon closure. Such uses require drinking water, which will be interfered with if water quality standards are not met. Similarly, the extent to which contamination migrates off-site, other persons' and entities' enjoyment of their water

rights may be interfered with. The Joint Proposal protects successive uses by protecting ground water from contamination above standards. NMSA 1978, § 74-6-4(E)(4).

536. The Proposed Rule, which allows greater concentration of contaminants in ground water, has the potential to decrease the amount of water available after treatment. Therefore, the Proposed Rule makes less feasible the use of subsequent use of treating water than the Joint Proposal, which protects against greater concentration of contaminants in ground water. NMSA 1978, § 74-6-4(E)(5).

537. The Proposed Rule risks migration of ground water contamination off-site and may interfere with persons' and entities' right to use ground water. The Joint Proposal protects against such migration off-site, and does not interfere with the copper mines' use of water. NMSA 1978, § 74-6-4(E)(6).

538. Establishing a state point of compliance system could result in the establishment of a point of compliance system under the federal hazardous waste program or the federal cleanup program, the Comprehensive Environmental Response, Compensation and Liability Act. Olson Direct Test., p. 26. NMSA 1978, § 74-6-4(E)(7).

PROPOSED CONCLUSIONS OF LAW

1. The purpose of the WQA is to "*prevent* or abate water pollution." *Bokum Resources Corp.,* 93 N.M. at 555, 603 P.2d at 294; Comm'n Decision, COL ¶ 1 (emphasis added).

2. Pursuant to the WQA, the Commission is authorized to promulgate "regulations to *prevent* or abate water pollution in the state . . . ." NMSA 1978, § 74-6-4(E) (emphasis added).

3. The Commission has authority to adopt regulations "to *prevent* water pollution and to monitor water quality" for the copper industry. NMSA 1978, § 74-6-4(K) (emphasis added).

4. In promulgating regulations, the Commission must act within its statutory authority, and may not act in excess of that authority. *In re Proposed Revocation of Food and Drink Purveyor's Permit for House of Pancakes,* 102 N.M. 63, 66, 691 P.2d 63, 67 (Ct. App. 1984).

5. In promulgating regulations, the Commission's decision will be set aside if it is arbitrary, capricious or an abuse of discretion; not supported by substantial evidence in the record; or not in accordance with law. NMSA 1978, § 74-6-7(B).

6. In administrative hearings, such as this one, the standard of proof is a preponderance of the evidence. *Matter of D'Angelo*, 105 N.M. 391, 393, 733 P.2d 360, 362 (1986); *Foster v. Board of Dentistry*, 103 N.M. 776, 777, 714 P.2d 580, 581 (1986).

7. The Commission is bound to follow its prior determinations in the 2009 Commission Decision in the *Tyrone* matter. Pierce, Adm. Law Treatise, vol. 2, § 13.4, p. 1145, § 13.5 (2010); C. Koch, West's Fed. Adm. Practice, § 7867, pp. 37071 (3rd ed. 2001) (the doctrines of collateral estoppel and res judicata are applicable to administrative proceedings when an agency is acting in an adjudicatory capacity), § 7868, p. 371 (collateral estoppel applies to an administrative agency's own prior decisions, as well as to courts reviewing the administrative agency's decisions).

8. Pursuant to the WQA, discharges may not result in exceedances of ground water quality standards at places of withdrawal of water for present or reasonably foreseeable future use. NMSA 1978, § 74-6-5(E)(3).

9. Pursuant to the WQA, reasonable degradation of water quality is permitted for beneficial use, but such degradation may not result in exceedances of water quality standards. NMSA 1978, 74-6-12(F).

10. The WQA does not authorize or allow a "point of compliance" regulatory system whereby standards may be exceeded between a source of contamination and the point(s) of compliance downgradient of the source. Rather, water quality standards must be met at all places of withdrawal. NMSA 1978, § 74-6-5(E)(3); Comm'n Decision, COL ¶¶ 27, 28.

11. Pursuant to the WQA, water quality standards may only be exceeded through an "individual variance" approved by the Commission. NMSA 1978, § 74-6-4(H).

12. A variance may be granted only after a public hearing before the Commission and upon a showing that the Commission's regulation imposes an unreasonable burden upon a lawful activity. The variance must be conditioned on the discharger abating ground water contamination within a reasonable time. *Id.; see also* 20.6.2.1210 NMAC.

13. Under the Commission's Regulations, water quality standards must be met in ground water with 10,000 mg/L or less TDS at places of withdrawal of water for present or reasonably foreseeable future use. *E.g.,* 20.6.2.3103, -3103 NMAC; Comm'n Decision, COL ¶¶ 7-9.

14. Present and future use of water are given the same protection under the WQA and Commission Regulations. NMSA 1978, § 74-6-5(E)(3); 20.6.2.3103, -3103 NMAC.

15. The burden is on the discharger to demonstrate that a location is not a place of withdrawal. NMSA 1978, § 74-6-5(E)(3); 20.6.2.3109.C(2) NMAC; Comm'n Decision, COL ¶ 55.

16. An aquifer or a portion of an aquifer may be a place of withdrawal. A place of withdrawal does not need to be a well. Comm'n Decision, COL ¶ 32.

17. In order to demonstrate that a location is not a place of withdrawal, the following factors must be considered: site hydrology and geology, quality of water prior to discharge, past and current land use in the vicinity, future land use in the vicinity, past and current water use in the vicinity, and population trends in the vicinity. Comm'n Decision, COL ¶¶ 15-21.

18. The Proposed Rule establishes a point of compliance regulatory system under which water quality standards may be exceeded between a source of contamination and the designated point of compliance, i.e., designated monitoring wells.

19. The area within which contamination above standards is allowed under the Proposed Rule during operations and closure/post-closure includes within and underneath:

- The open pit hydrologic containment area;
- The mine units, including leach stockpiles, waste rock stockpiles, and tailings impoundments, and their associated capture systems, up to the designated monitoring well(s); and
- The open pit surface drainage area, the surrounding mine units and their associated capture systems, up to the designated monitoring well(s).

20. All of the areas identified above within which contamination above standards is allowed are places of withdrawal absent a demonstration otherwise. NMSA 1978, § 74-6-5(E)(3); 20.6.2.3109.C(2) NMAC; Comm'n Decision, COL ¶ 55.

21. The Proposed Rule violates the WQA on its face because it allows contamination above water quality standards without regard to and without an evaluation as to whether an area, such as those areas identified above, is a place of withdrawal of water for present or reasonably foreseeable future use. NMSA 1978, § 74-6-5(E)(3).

22. The Proposed Rule violates the WQA on its face because it establishes a point of compliance regulatory system that allows contamination above standards between a source of contamination up to a point(s) of compliance without regard to and without an evaluation as to whether an area is a place of withdrawal of water for present or reasonably foreseeable future use. NMSA 1978, § 74-6-5(E)(3); Comm'n Decision.

23. The Commission has determined "the regional and alluvial aquifers underlying portions of the Tyrone Mine site of places of withdrawal of water for present and reasonably foreseeable future use pursuant to Section 74-6-5(E)(3)." *Id.* ¶ 33.

24. The Commission has determined that the Tyrone Mine site has many specific locations that are places of withdrawal. These locations include, but are not limited to: two drinking water wells, the Fortuna Wells; six parcels within the mine site not owned by Tyrone or affiliates; the north side of the mine around the Mangas Valley Tailings Impoundment; the area west and to the east of the 1A Tailings Impoundment; an area immediately south of the 1A Tailings Impoundment; an area to the southeast of the 3A Stockpile and to the east of the 3B Waste Rock Pile; open areas around the pits; the area on the east side of the mine south of the 5A Waste Rock Pile; an area south of the Gettysburg Pit; areas on the southwest corner of the mine; an area to the west of the Gettysburg Pit, along the 1C Stockpile; areas on the southeast

side of the mine along and within Oak Grove Draw; an area on the east side of the mine to the southeast of the No. 1 Stockpile; areas in the southeast corner of the mine, around the reclaimed Burro Mountain Tailings; and areas on the west side of the mine in Deadman Canyon. *Id.* COL ¶¶ 46-49, FOF ¶ 125.

25. The area within which contamination above standards is allowed at the Tyrone Mine site under the Proposed Rule includes the surface drainage area, and surrounding leach stockpiles and waste rock stockpiles and their associated capture systems, up to the designated monitoring well(s). This area includes locations that are places of withdrawal that include but are not limited to south of the Gettysburg Pit, west of the Gettysburg Pit along the 1C Stockpile, east of the 3B Waste Stockpile, south of the 5A Waste Rock Pile and, as noted above, the open pits, and areas around the open pits. Travers PowerPoint, p. 13 [AGO Ex. 45]; Travers Test. Tr. vol. 7, p. 1552, l. 23 to p. 1554, l. 24; AGO Ex. 25.

26. The Proposed Rule in fact violates the WQA because it would allow contamination above standards at locations at the Tyrone Mine that have been determined by the Commission to be places of withdrawal. NMSA 1978, § 74-6-5(E)(3); Comm'n Decision, COL ¶¶ 46-49, FOF ¶ 125.

27. The Santa Rita Pit and the Lampbright Leach System at the Chino Mine are places of withdrawal. NMED Ex. 24, p. 2; Lampbright Leach System, DP-376, Finding 4.

28. The area within which contamination above standards is allowed at the Chino Mine site under the Proposed Rule includes the hydrologic containment area of the Santa Rita Pit at the Chino mine and the area of the Lampbright Leach System. 20.6.7.20.B(2), -24.D(4) NMAC [NMED].

29. The Proposed Rule in fact violates the WQA because it would allow contamination above standards at the Santa Rita Pit and the Lampbright Leach system at the Chino Mine, places of withdrawal. NMSA 1978, § 74-6-5(E)(3); NMED Ex. 24, p. 2; Lampbright Leach System, DP-376, Finding 4.

30. The Cobre Mine is a "place of withdrawal for present or reasonably foreseeable future use." Cobre Closure Permit, DP-1403, Findings 2 & 4 [FMI Ex. Shelly 4]; Olson Sur-rebuttal Test., pp. 9-10.

31. The area within which contamination above standards is allowed at the Cobre Mine site under the Proposed Rule includes open pits, as well as leach stockpiles, waste rock stockpiles, tailings impoundments and their associated capture systems, up to the designated monitoring well(s). *See* Cobre Closure Permit, DP-1403, pp. 1-3 & Figs. 1-3.

32. The Proposed Rule in fact violates the WQA because it would allow contamination above standards at the Cobre Mine, a place of withdrawal. NMSA 1978, § 74-6-5(E)(3); Cobre Closure Permit, DP-1403, Findings 2 & 4.

33. In order to contaminate above standards at places of withdrawal, the WQA requires a discharger to obtain an individual variance from the Commission. NMSA 1978, § 74-6-4(H); *see also* 20.6.2.1210 NMAC.

34. The Proposed Rule violates the WQA by allowing copper mines to contaminate above standards at places of withdrawal as part of copper mining operations without requiring the discharger to obtain a variance. NMSA 1978, §§ 74-6-5(E)(3), -4(H); *see also* 20.6.2.1210 NMAC.

35. Pursuant to the WQA and Commission Regulations, existing exceedances of water quality standards at discharge sites must be abated to meet standards. NMSA 1978, §§ 74-6-5(E)(3), -4(E); 20.6.2.4101 – 4110.

36. If it is not technically feasible for water quality standards to be met underneath a mine site, the appropriate remedy is to seek alternative abatement standards under the Commission Regulations at section 20.6.2.4103.F NMAC. Comm'n Decision, COL ¶ 52.

37. The Proposed Rule violates the WQA because it allows contamination above standards at places of withdrawal during operations and during closure/post-closure without requiring a discharger to abate to standards or to obtain alternative abatement standards from the Commission. NMSA 1978, §§ 74-6-4(E), -5(E)(3); 20.6.2.4101 – 4110; Comm'n Decision, COL ¶ 52.

38. The WQA requires the Commission to promulgate regulations that prevent water pollution. The Proposed Rule violates the WQA because the regulation as proposed does not prevent pollution above standards, but authorizes pollution above standards at places of withdrawal. NMSA 1978, §§ 74-6-5(E)(3), -4(E) & (K).

39. Pursuant to the WQA,

> Regulations may specify a standard of performance for new sources that reflects the *greatest reduction in the concentration of water contaminants* that the commission determines to be achievable through application of the *best available demonstrated control technology*, processes, operating methods or other alternatives, including where practicable a standard permitting *no discharge of pollutants*.

NMSA 1978, § 74-6-4(E) (emphasis added).

40. Substantial evidence supports the finding that the best available technology to prevent pollution from copper mines includes the use of synthetic liners for all leach stockpiles, the use of synthetic liners for waste rock stockpiles that may result in exceedances of standards, and the use of synthetic liners, dry stack tailings or paste tailings for tailings impoundments. Sections IX.L, -M, -N *supra*.

41. Substantial evidence in the record supports adoption of the Joint Proposal because it will result in the greatest reduction in the concentration of water contaminants achievable through application of the best available demonstrated control technology and process, and includes where practicable a technology permitting no discharge of pollutants. *Id.*

42. Pursuant to the WQA, in promulgating regulations for the copper industry, the Commission "shall consider . . . the best available scientific information." NMSA 1978, § 74-6-4(K).

43. Substantial evidence in the record supports adoption of the Joint Proposal because it is based on the best available scientific information. Sections IX.J to IX.N *supra*.

44. Pursuant to the WQA,

> In making regulations, the commission shall give weight it deems appropriate to all relevant facts and circumstances, including:
>
> (1) character and degree of injury to or interference with health, welfare, environment and property;
>
> (2) the public interest, including the social and economic value of the sources of water contaminants;
>
> (3) technical practicability and economic reasonableness of reducing or eliminating water contaminants from the sources involved and previous experience with equipment and methods available to control the water contaminants involved;
>
> (4) successive uses, including but not limited to domestic, commercial, industrial, pastoral, agricultural, wildlife and recreational uses;

(5) feasibility of a user or a subsequent user treating the water before a subsequent use;
(6) property rights and accustomed uses; and
(7) federal water quality requirements; . . . .

NMSA 1978, § 74-6-4(E).

45. Substantial evidence in the record supports adoption of the Joint Proposal considering the factors set forth in Section 74-6-4(E) of the WQA. Section XI *supra.*

46. Mr. Skibitski did not have personal knowledge of the matters to which he testified and, therefore, he was not competent to testify on those matters. Section IX.S.1 *supra*; *see* NMRA Rule 11-602; Procedural Order, § 401.A; Guidelines for WQCC Regulations Hearings, § 402.B; Procedural Order, § 402.B.

47. Mr. Skibitski's testimony was hearsay, and may not be relied upon by the Commission to support its decision. Section IX.S.1 *supra*; *see* NMRA 11-801.C; Procedural Order, § 401.A.

48. Mr. Skibitski's testimony was not credible, and may not be relied upon by the Commission to support its decision. Section IX.S.1 *supra.*

49. Mr. Brown's testimony was not credible, and may not be relied upon by the Commission to support its decision. Section IX.S.2.

Conclusion

For the reasons set forth herein, and based on the record in this matter, the Attorney General respectfully requests the Commission to adopt the Joint Proposal as the Copper Mine Rule and to reject NMED's Proposed Rule.

Respectfully submitted,

GARY KING
ATTORNEY GENERAL OF NEW MEXICO

Tannis L. Fox
Assistant Attorney General
Water, Environmental and Utilities Division
Office of the New Mexico Attorney General
P.O. Box 1508
Santa Fe, New Mexico 87504
T 505.827.6695
F 505.827.4444
tfox@nmag.gov

Counsel for the Attorney General

Certificate of Service

I certify that the following were served with the foregoing pleading by email on August 22, 2013:

Andrew Knight
Kathryn Becker
Assistant General Counsels
Office of General Counsel
New Mexico Environment Department
P.O. Box 5469
Santa Fe, New Mexico 87502-5469

Dalva Moellenberg
Anthony J. Trujillo
Gallagher and Kennedy, P.A.
1233 Paseo de Peralta
Santa Fe, New Mexico 87501-2758

Bruce Frederick
Staff Attorney
New Mexico Environmental Law Center
1405 Luisa Street, #5
Santa Fe, New Mexico 87505-4074

Tracy Hughes
High Desert Energy + Environment Law Partners, L.L.C.
P.O. Box 8201
Santa Fe, New Mexico 87504

Louis W. Rose
Montgomery & Andrews, P.A.
P.O. Box 2307
Santa Fe, New Mexico 87504-2307

John J. Indall
Comeau, Maldegen, Templeman & Indall LLP
P.O. Box 669
Santa Fe, New Mexico 87504-0669

William C. Olson
14 Cosmic Way
Lamy, New Mexico 87540

Sean Cunniff
Assistant Attorney General
Civil Division
Office of the New Mexico Attorney General
P.O. Box 1508
Santa Fe, New Mexico 87504

Tannis L. Fox