

**STATE OF NEW MEXICO
WATER QUALITY CONTROL COMMISSION**



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

No. WQCC 12-01(R)

**New Mexico Environment Department,
Petitioner.**

**WILLIAM C. OLSON
NOTICE OF INTENT TO PRESENT TECHNICAL REBUTTAL TESTIMONY**

Pursuant to section 303 of the Guidelines for Water Quality Control Commission Regulation Hearings and section 302.B of the Procedural Order issued by the Hearing Officer in this matter, I hereby file this Notice of Intent to Present Technical Rebuttal Testimony.

1. Identify the person or entity for whom the witnesses will testify: William C. Olson, representing myself as an independent member of the public interested in protection of New Mexico water resources.

2. Identify each technical witness the person intends to present and state the qualifications of that witness, including a description of their education and work background:
William C. Olson intends to present technical rebuttal testimony. A description of my education and work background is set forth in my written direct testimony in WCO Exhibit #1 and in my resume in WCO Exhibit #2 as previously filed with the Commission on February 22, 2013.

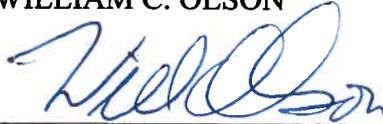
3. Attach the full direct testimony of each technical witness, which shall include an express basis for all expert opinions offered: My full written rebuttal testimony is contained in exhibit **WCO Rebuttal #1**.

4. Include the text of any recommended modifications to the proposed regulatory change: I do not propose any modifications to the proposed rule with this rebuttal testimony. The text of my recommended modifications to the New Mexico Environment Department's October 30, 2012 proposed Copper Mine Rule are contained in my written direct testimony in WCO Exhibit#3 as filed with the Commission on February 22, 2013.

5. Identify and attach all exhibits to be offered by the person at the hearing: Exhibits **WCO Rebuttal #1** and **WCO Rebuttal #2** are offered for the consideration of the Commission and are attached to this Notice of Intent to Present Technical Rebuttal Testimony.

Respectfully submitted,

WILLIAM C. OLSON



William C. Olson
14 Cosmic Way
Lamy, New Mexico 87540
505-466-2969
billjeanie.olson@gmail.com

Certificate of Service

I certify that the following were served with the foregoing pleading by mail or hand delivery on March 15, 2013:

Andrew Knight
Kathryn Becker
Assistant General Counsel
Office of General Counsel
New Mexico Environment Department
1190 St. Francis Dr.
Santa Fe, New Mexico 87502-6110
Dalva Moellenberg

Anthony J. Trujillo
Gallagher and Kennedy, P.A.
1233 Paseo de Peralta
Santa Fe, New Mexico 87501-2758

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

Bruce Frederick, Staff Attorney
Doug Meiklejohn
Jon Block
Eric Jantz
New Mexico Environmental Law Center
1405 Luisa Street, #5
Santa Fe, New Mexico 87505-4074

Tracy Hughes
High Desert Energy + Environmental Law Partners
P.O. Box 8201
Santa Fe, New Mexico 87504

Louis W. Rose
Montgomery & Andrews
P.O. Box 2307
Santa Fe, New Mexico 87504-2307

Jon Indall
Comeau, Maldegen, Templeman & Indall
P.O. Box 669
Santa Fe, New Mexico 87504-0669

Sean Cunniff
Assistant Attorney General
Civil Division
Office of the New Mexico Attorney General
P.O. Box 1508
Santa Fe, New Mexico 87504



William C. Olson

**STATE OF NEW MEXICO
WATER QUALITY CONTROL COMMISSION**

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

No. WQCC 12-01(R)

**New Mexico Environment Department,
Petitioner**

WRITTEN TECHNICAL REBUTTAL TESTIMONY OF WILLIAM C. OLSON

My name is William C. Olson, and I am testifying as an independent private citizen interested in the protection of New Mexico's water resources. I am presenting this written rebuttal testimony in New Mexico Water Quality Control Commission (Commission) rule-making hearing Case No. WQCC 12-01(R) as part of the hearing record related to the New Mexico Environment Department (Department) October 30, 2012 petition for copper mine industry specific rules.

I. INTRODUCTION

Pursuant to the Commission Hearing Officer's November 21, 2012 Procedural Order, the following is my written rebuttal testimony in response to the Department February 22, 2013 pre-filed testimony and the Department "*Notice of Amended Petition*" filed with the Commission on February 18, 2013. As I have testified previously, I support the need for the adoption of the Copper Mine Rule and the majority of the content of the rule as presented. However, I do not support the Department proposed language that effectively creates a point of compliance concept that would allow a copper mine permittee to intentionally cause pollution of ground water by rule. This issue is discussed in detail in my February 22, 2013 written direct testimony.

The purpose of my rebuttal testimony is to provide the Commission with information to

clarify the prior history of Department permitting actions referenced in the Department's pre-filed written direct testimony. **WCO Rebuttal #2** is an exhibit that contains additional information submitted in support of my rebuttal testimony. I also present some rebuttal testimony related to specific proposed rule language contained in the Department's February 18, 2013 "Amended Petition".

My testimony as contained in exhibits marked **WCO Rebuttal #1 and 2** constitutes my written rebuttal testimony on the Copper Mine Rule.

II. REBUTTAL TESTIMONY TO THE DEPARTMENT'S PRE-FILED DIRECT TESTIMONY OF TOM SKIBITSKI

Mr. Skibitski testifies on pages 8-9 of his February 22, 2013 written direct testimony that the Department is changing its permitting approach to protection of ground water pollution. Mr. Skibitski states that up until today "*the Department had taken the position that ground water standards must be met at all points underneath a discharge site, rather than in designated monitoring wells designed to monitor ground water quality down gradient of a contamination source*" (emphasis added). This is consistent with my February 22, 2013 written direct testimony on historical ground water protection in New Mexico under the New Mexico Water Quality Act (WQA) and Commission rules. However, in the following sentence Mr. Skibitski testifies that "*The actual practice of the Department was to issue permits without requiring all ground water at all locations within a mine site meet ground water standards*". Further, in discussing the Department proposal to effectively create a point of compliance to allow ground water pollution to occur by rule up until the contamination reaches a designated monitoring point, Mr. Skibitski testifies that "*This approach is also consistent with the past practice of the Department...*" and "*The proposed Copper Mine Rule codifies existing practices ...*" These last

three statements are contradictory to the first statement and not correct. As follows, I provide information to clarify the past practice of the Department in applying ground water quality standards in implementing and enforcing the WQA and Commission rules.

Mr. Skibitski's statements are directly related to the statutory requirement of the WQA in 74-6-5.E(3) NMSA 1978 that requires that the Department deny a discharge permit 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 future use*". As I discussed in detail in my written direct testimony, the WQA explicitly prohibits approval of a discharge permit that allows ground water to be contaminated above water quality standards at "*any place of withdrawal of water for present or reasonably foreseeable future use*". As I also discussed in my written direct testimony, the historical practice of the Department regarding where within an aquifer to apply Commission ground water quality standards was the subject of extensive testimony during many years of litigation at two separate Commission hearings over the closure permit for the Freeport McMoran Inc. Tyrone Mine. As a result, the practice of the Department on the issue of "*place of withdrawal*" is well documented. The July 9, 2007 Commission hearing testimony of Department witness Mary Ann Menetrey, Program Manager of the Ground Water Quality Bureau's Mining and Environmental Compliance Section, details the application of water quality standards during the discharge permitting and water pollution abatement history of the Tyrone Mine since the adoption of Commission rules in 1977 (**See exhibit WCO Rebuttal #2**). In preparation for the 2007 Commission hearings on the Tyrone mine, Ms. Menetrey reviewed all of the Department permitting files for Tyrone discharge permits going back to the early days of discharge permitting by the Department and its predecessor agency, the New

Mexico Environmental Improvement Division. Ms. Menetrey's 2007 Commission testimony was prepared under my direct supervision when I was the Bureau Chief of the Ground Water Quality Bureau of the Department. Her testimony as found in exhibit **WCO Rebuttal # 2** contains details on:

- The relationship between the Tyrone operational discharge permits and the closure discharge permit;
- The Tyrone operational permits and their pollution prevention and abatement requirements;
- The discharge permit closure plans for the Tyrone mine;
- Examples of the Department's history of protection of ground water at the Tyrone mine; and
- Potential effects on the Tyrone operational discharge permits and ground water quality in New Mexico if ground water beneath the Tyrone mine is not protected.

All of the discharge permits issued since adoption of the Commission rules in 1977 require prevention of water pollution. The purpose of each permit is to prevent pollution of ground water underneath and around permitted areas of the mine, and to require abatement of ground water pollution if it has occurred. There are many conditions in the permits to ensure that ground water quality is protected underneath the entire Tyrone mine site. The discharge permits have also contained closure requirements specific to the facilities covered by the permits. The closure requirements are and have been intended to ensure that ground water quality underneath the entire Tyrone site is protected. Exhibit **WCO Rebuttal # 2** also contains specific examples of where the Department, over the course of permitting the Tyrone mine, has indicated that ground water beneath the mine site is protected under the WQA and Commission rules and

where Tyrone has represented that it would not pollute ground water beneath the mine site in excess of Commission water quality standards.

The Commission recognized the past permitting history of the Department in its February 4, 2009 Decision and Order on Remand (**See WCO Exhibit #10, Page 7 of my direct testimony**). In Finding of Fact #18 the Commission found that “*None of the operational permits authorizes Tyrone to contaminate ground water in excess of ground water standards; none of the operational permits authorizes any form of natural attenuation as a treatment, containment or mitigation measure; and none of the operational permits defines or mentions a place of withdrawal of water for present or reasonably foreseeable future use.*” Consistent with the Department past permitting history, the Commission also concluded in Conclusion of Law #32 of its February 4, 2009 Decision and Order on Remand (**See WCO Exhibit #10, Page 81 of my direct testimony**) 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.*”

The above documented practice of the Department and the findings and conclusions of the Commission are also consistent with my experience in this matter. From 1986 to 2011, I worked on implementing and enforcing the WQA and Commission rules for prevention and abatement of water pollution for both the New Mexico Oil Conservation Division and the Department. I also served as a Department expert witness at Commission rule-making and adjudicatory hearings on discharge permits. In addition, I served for 13 years on the Commission as the designee of the Director of the New Mexico Oil Conservation Division. In all of this time, ground water has been treated as a public resource of the state in all permitting and abatement actions for all types of industries under both constituent agencies of the Commission. All ground water underneath each discharge site was protected from

contamination from discharges of water contaminants unless the applicant or permittee could demonstrate that the water does not have a present or foreseeable future use. This agency permitting and abatement interpretation was followed throughout my 25-year career until my retirement as Bureau Chief of the Ground Water Quality Bureau of the Department in 2011.

In summary, it is clear that the practice of the Department since the adoption of Commission rules in 1977 has been to protect all ground water underneath a discharge permit site, including ground water at a mine site that is underneath waste rock piles and tailings impoundments. To date, this practice has been consistently used by the Department in the prevention and abatement of water pollution under discharge permits and abatement plans pursuant to the statutory requirements of the WQA and Commission rules.

III. REBUTTAL TESTIMONY TO THE DEPARTMENT FEBRUARY 18, 2013 AMENDED PETITION

On February 18, 2013, the Department filed a “Notice of Amended Petition” that contains extensive amendments to the Department’s October 30, 2012 proposed Copper Mine Rule. In its “Notice of Amended Petition”, the Department states that the changes were made for clarity and consistency, correction of typographical errors and reorganization of Sections 21 and 22. However a review of the Department’s Attachment 2 containing the redline strikeout form of the amended petition shows that there are new substantive changes to the proposed rule including:

- 1) New definitions in 20.6.7.7 NMAC;
- 2) Changes to the Department review timeframes in 20.6.7.10 NMAC;
- 3) A change in the liner requirements for non-impacted stormwater impoundments in 20.6.7.17.D(5) NMAC that exempts certain areas;

- 4) New engineering design requirements for waste rock stockpiles in 20.6.7.21.B(1) NMAC;
- 5) New operational requirements for waste rock stockpiles in 20.6.7.21.D NMAC;
- 6) New engineering design requirements for tailing impoundments in 20.6.7.22.A(4) NMAC;
- 7) Deletion of monitoring provisions in 20.6.7.28.B(1)(d) NMAC and 20.6.7.28.B(5)(b) NMAC;
- 8) New timeframes for installation of monitoring wells in 20.6.7.28.B(6)(a) NMAC;
- 9) Modification of the ground water quality sampling parameters in 20.6.7.28.I NMAC;
- 10) New monitoring requirements for process water, tailings slurry, seeps and springs in 20.6.7.28.N NMAC;
- 11) New monitoring report requirements in 20.6.7.29.B & C NMAC;
- 12) Elimination of timeframes for completion of corrective actions in 20.6.7.30.J & K NMAC;
- 13) New closure requirements for open pits in 20.6.7.33.D NMAC; and
- 14) Elimination of an exemption for impoundments in 20.6.7.33.I(6) NMAC

There is no direct testimony from the Department in support of these substantive amendments and therefore lacking actual testimony it is not possible to evaluate the rationale or need for these amendments. Therefore, if the Department provides testimony justifying these amendments, I reserve the right to provide surrebuttal of these amendments at the Commission hearings or provide additional amendments in post hearing submittals as warranted.

Regardless of the lack of testimony on specific amendments listed above, the Department proposed amendments do not address the major deficiency in the proposed rule discussed in my

written direct testimony whereby the Department proposes to allow pollution by rule under a point of compliance concept. This concept is inconsistent with the WQA, other Commission rules, the Commissions orders in the Tyrone litigation and historical precedent of the Department and Commission. Therefore the Department proposed amendments do not affect my recommended modifications to the rule as shown in **WCO Exhibit #3** of my direct testimony, including:

- Removal of language related to the point of compliance concept and maintaining the monitoring language consistent with current monitoring practice approved under existing discharge permits;
- Adding requirements for lining of waste rock stockpiles and tailing impoundments unless the applicant seeks a variance; and
- Adding a new section on variances to provide for a clear and transparent public process for consideration of site specific factors and designs such that approvals can be granted for the operational life of the facility.

IV. CONCLUSION

The above testimony in this exhibit (**WCO Rebuttal #1**) and the information contained in exhibit **WCO Rebuttal #2** constitutes my rebuttal testimony. In conclusion, I continue to support the Copper Mine Rule except as I have identified in my written direct testimony and exhibits.

Thank you. That concludes my rebuttal testimony.

I, William C. Olson, swear that the foregoing is true and accurate to the best of my knowledge.



William C. Olson

**STATE OF NEW MEXICO
WATER QUALITY CONTROL COMMISSION**

**IN THE MATTER OF)
APPEAL OF SUPPLEMENTAL DISCHARGE)
PERMIT FOR CLOSURE (DP-1341) FOR)
PHELPS DODGE TYRONE, INC.,)
)
)
Petitioner.)
_____)**

**Docket Nos.
WQCC 03-12(A)
WQCC-03-13(A)
(Consolidated)**

WRITTEN TESTIMONY OF MARY ANN MENETREY

My name is Mary Ann Menetrey, and I am the Program Manager of the Mining Environmental Compliance Section of the Ground Water Quality Bureau (GWQB) of the New Mexico Environment Department (Department). I am presenting this written testimony on behalf of the Department in the proceeding on the appeal of the Supplemental Discharge Permit for Closure, DP-1341 (Closure Permit or DP-1341) for the Phelps Dodge Tyrone, Inc. (Tyrone) open-pit copper mine (Tyrone Mine) located in Grant County, New Mexico. The matter is before the New Mexico Water Quality Control Commission (Commission) on remand from the New Mexico Court of Appeals. My written testimony is marked as NMED Exhibit 11.

I. Educational Background and Work Experience

I have held the position of Program Manager of the Mining Environmental Compliance Section since May 2000. As Program Manager, I oversee all aspects of ground water discharge permitting under the Water Quality Act (WQA or Act) and Commission Regulations, 20.6.2 NMAC, for mining operations, including the review of discharge permit applications, issuance of discharge permits, approval of closure plans, abatement of contaminated ground water, and enforcement of the Act and Commission Regulations. I am therefore very familiar with the requirements of the WQA and the Commission's Regulations. The Mining Environmental Compliance Section has responsibility for approximately 50 discharge permits issued to mine

WCO
Rebuttal #2

sites in the State. My duties as Program Manager also include overseeing and administering Administrative Orders on Consent for mine sites which have been proposed to the United States Environmental Protection Agency's National Priorities List of Superfund Sites. These sites include the Chino Mine, Questa Mine, Terrero Mine, and Blackhawk Mine. Investigation and cleanup of these mine sites is being conducted in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). I am also the Mining Act Team Leader for the Department, and am therefore responsible for coordination of the Department's role implementing the New Mexico Mining Act (Mining Act). I have provided technical review of permit applications and reclamation plans submitted pursuant to the Mining Act for over 60 mining and mining exploration operations to ensure that reclamation activities are protective of water quality. I supervise a staff of 11 persons, including 10 technical staff.

Prior to my current position, I worked in the Ground Water Pollution Prevention Section of the GWQB for over six years as a Surface Mining Reclamation Specialist providing review and oversight of ground water discharge permits, including closure plans, for numerous mining operations, including the Tyrone Mine. In addition to evaluating mine closure and reclamation plans, I evaluated the hydrogeologic and geochemical aspects of site characterization, reviewed monitoring plans and conducted environmental sampling. I supervised technical staff and interacted regularly with other state and federal agencies, the public and industry representatives. Prior to that position, I worked for three years as a Geologist and Water Resource Specialist and Supervisor in the Superfund Oversight Section of the GWQB. In that capacity, I was responsible for overseeing and conducting complex environmental and hydrologic investigations under CERCLA; prepared and reviewed environmental reports and reviewed technical reports regarding restoration of Superfund sites; and conducted extensive field sampling. I also worked

six years as a project manager and soil scientist for an environmental consulting firm. In that capacity, I was responsible for project management and performance of environmental investigations and remediation of soil, surface water, and ground water contamination and for erosion and dust control studies.

I have a Bachelor of Science degree in Soil Science from California Polytechnic State University, and was a Master's candidate in Soil Science at the University of California at Davis.

A copy of my resume is NMED Exhibit 12.

II. Summary of Testimony

The purpose of my testimony is to provide a history of the operational permits issued to Tyrone by the Department, and to explain the interrelationship between the Tyrone operational permits and the Closure Permit. In my testimony, I will describe the approximately 30 year history of permitting the Tyrone Mine under the Water Quality Act, and explain how that history shows that the Department has treated the ground water beneath the site as protected under the WQA and Commission Regulations. The operational permits all require pollution prevention measures and abatement of contaminated ground water, and there are many conditions in the permits to ensure that ground water quality is protected underneath the entire Tyrone Mine site. As well, the operational permits contain and have contained closure requirements specific to the facilities covered by the permit. The closure requirements are and have been intended to ensure that ground water quality underneath the entire Tyrone Mine site is protected. Thus, the general course of conduct of the Department for almost 30 years shows that the parties have treated the ground water underneath the entire Tyrone Mine site, including ground water underneath leach stockpiles, as protected under the WQA and Commission Regulations.

In my testimony, I will describe the potential effect on the Tyrone operational permits if

the ground water underneath the mine site is found not to be protected: in that case, the ground water in and around the site will become more heavily contaminated than it already is. I will also describe the potential effect on ground water in the State: in that case, ground water that currently meets water quality standards is likely to become contaminated and existing contamination would not be cleaned up.

III. Discharge Permits at the Tyrone Mine

A. Relationship Between the Tyrone Operational Permits and the Closure Permit

Two types of discharge permits are in place for the Tyrone Mine Facility: operational permits and the Closure Permit. Both types of discharge permits are issued pursuant to the WQA and Commission Regulations. The WQA and Commission Regulations do not distinguish between operational permits and closure permits, and generally a facility's operating requirements and closure plan are contained within one facility discharge permit. Tyrone, however, is a more complex site than most and, therefore, it currently has nine operational permits to address the different facilities on site. The Tyrone operational permits primarily address the operational phase of individual facilities at the Tyrone Mine, and include requirements for pollution prevention measures during operations, ground water monitoring, contingency plans, abatement of ground water contamination, and corrective action in the event of unauthorized discharges. The operational permits also include specific closure measures that are not included in the more general Closure Permit.

In accordance with Section 20.6.2.3107.A(11) NMAC, each of Tyrone's operational permits must include the required elements for a discharge plan, including a closure plan "to prevent the exceedance of standards of Section 20.6.2.3103 NMAC or the presence of a toxic pollutant in ground water after the cessation of operation" The Tyrone Closure Permit

broadly addresses closure requirements for the Tyrone Mine that will apply on a site-wide basis, including but not limited to requirements for regrading and covering of tailings and stockpiles, general closure of open pits and surface impoundments, closure of buildings and pipelines, site-wide abatement of ground water contamination and long-term water treatment, post-closure monitoring, financial assurance, and studies that need to be conducted to address certain closure requirements.

Because the Tyrone Closure Permit contains the general provisions for the closure plan for the mine site that apply to each of the facilities under the operational permits, DP-1341 is closely related to and dependent on the conditions and requirements of each of the operational permits. DP-1341 is called a "Supplemental Discharge Permit" because it supplements the requirements of all of the existing operational permits. Thus, any decisions affecting DP-1341 have the potential to significantly affect the existing terms and conditions of the operational permits, many of which have now been in place for decades. The requirements of the operational discharge permits cannot be separated from the requirements of the Closure Permit, and this should be considered in the context of what ground water is protected at the Tyrone Mine.

As I stated, for most dischargers the closure plan and the conditions relating to operations are included in the same discharge permit. This generally makes it easier to tie appropriate closure measures to the individual operational discharges covered in the permit. The permit conditions relating to operations require ground water protection measures to address the permitted discharges at the facility, and the closure plan ensures that closure measures protect ground water from those same discharges after cessation of operations. Where pollution prevention and source control measures are required for a facility during site operations, a

different standard for water quality protection should not apply for the closure plan.

For the Tyrone Mine, the Department determined that it was preferable to have a separate Closure Permit based on several factors. First, the technical aspects of determining how best to close and achieve source control for copper leach stockpiles and tailing impoundments with widespread ground water contamination are very challenging. It would have been inefficient and unwieldy for the Department to revisit closure issues at renewal of each of nine operational permits. Discharge permits must be renewed at least every five years. NMSA 1978, § 74-6-5(I).

Second, there is widespread ground water contamination throughout the Tyrone Mine site, and contamination from the various individually permitted stockpiles has commingled to a large extent. Therefore it made sense to issue a site-wide closure plan to require comprehensive source control measures to prevent further contamination after closure.

Third, following passage of the Mining Act in 1993, Tyrone was required to obtain a site-wide closeout plan for the Tyrone Mine from the Mining and Minerals Division of the Energy, Minerals and Natural Resources Department. In order to coordinate the requirements of the operational discharge permit closure plans with the Mining Act closeout plan, and to review and approve these plans more efficiently, it made sense to have one discharge permit for the entire site that dealt exclusively with closure measures.

B. Summary of Operational Permits and Their Pollution Prevention and Abatement Requirements

1. Introduction

The nine operational discharge permits for Tyrone are designated DP-166, DP-286, DP-363, DP-383, DP-396, DP-435, DP-455, DP-670, and DP-896. The boundaries of the areas covered under each these discharge permits are shown on a map of the Tyrone Mine labeled NMED Exhibit 13. A tenth operational discharge permit for the Tyrone tailing impoundments,

DP-27, was not renewed after 2003. Operational issues for the tailing impoundments are being addressed under a Settlement Agreement and Stipulated Final Order dated October 2003 (Tailings Settlement Agreement). The area covered under the Tailings Settlement Agreement is shown on NMED Exhibit 13. The operational discharge permits and the Tailings Settlement Agreement cover virtually the entire Tyrone Mine site and the area covered by the Closure Permit.

It is important to understand that the purpose of each of the operational permits is to prevent contamination of ground water underneath and around the areas of the mine that are permitted and to require abatement of ground water contamination if it has occurred. Therefore, each of the operational permits contains conditions and requirements specific to the facilities covered by the permit necessary to prevent ground water contamination and to abate any contamination which has occurred.

The first discharge permit was issued to Tyrone in 1978 and the last one was issued to Tyrone in May of this year. Therefore, beginning almost 30 years ago and continuing to the present, the Department (or its predecessor)¹ has regulated the Tyrone Mine site under the WQA and Commission Regulations so as to protect all ground water underneath and around the entire mine site.

The following is a list of the Tyrone Mine operational permits and selected pollution prevention and abatement conditions that are in place and required by those permits.

2. Former DP-27/Currently Tailings Settlement Agreement for Tyrone Tailing Impoundments; First Issued November 9, 1978

Pollution prevention and abatement conditions in place: 1. Operational discharges of

¹ The Department's predecessor was the Environmental Improvement Division within the Health and Environment Department. For purposes of my testimony, I will simply refer to the "Department" when the reference is either to the Department, as currently authorized, or the Environmental Improvement Division.

process water, waste water, and municipal sludge to tailing impoundments must be eliminated to prevent these discharges from migrating through the unlined impoundments and further contaminating ground water; 2. Existing contaminated water which is impounded on the tailings must be removed to prevent infiltration into ground water; and 3. Closure of the tailing impoundments was required, including regrading and cover to prevent future ponding of water and provide source control to prevent further ground water contamination.

3. DP-166 for No. 2 Leach System, Main Pit, Valencia Pit, San Salvador Hill Pit, Copper Mountain Pit, and SX/EW Plant; First Issued July 20, 1981

Pollution prevention and abatement conditions in place: 1. Synthetically-lined ponds are required for collection of pregnant leach solution (PLS); 2. Above ground raffinate storage tanks must be utilized to avoid leakage that could impact underlying ground water; 3. A waste rock handling plan is required to ensure waste rock is placed in a manner that limits acid rock drainage beneath stockpiles; 4. Tyrone may not expand stockpile areas and volumes beyond permit limits in order to limit the footprint over which acid rock drainage may occur; and 5. Ground water contamination beneath the leach system and the mine must be abated to ground water quality standards or pre-operational water quality.

4. DP-286 for No. 3 Leach System; First Issued January 24, 1985

Pollution prevention and abatement conditions in place: 1. Synthetically lined PLS collection ponds are required that include a leak detection system; and 2. Ground water contamination from the No. 3 Leach System must be abated to ground water quality standards.

5. DP-363 for No. 1A Leach System; First Issued February 11, 1985

Pollution prevention and abatement conditions in place: 1. An above-ground tank is required for PLS collection; 2. PLS must be collected in a synthetically-lined pond; 3. Storm

water must be collected in a clay-lined collection pond; 4. Tyrone may not expand stockpile areas and volumes beyond permitted areas; and 5. An abatement plan is required to clean up existing ground water contamination to ground water quality standards within the area of the leach system.

6. DP-383 for No. 1B Leach System; First Issued December 17, 1985

Pollution prevention and abatement conditions in place: 1. PLS must be collected in a synthetically-lined pond or an above ground tank; 2. Tyrone may not expand stockpile areas and volumes beyond permitted areas; and 3. An abatement plan is required to clean up existing ground water contamination to ground water quality standards within the area of the leach system.

7. DP-396 for No. 1C, 7A, and South Rim Pit Waste Rock Piles; First Issued July 21, 2000

Pollution prevention and abatement conditions in place: 1. Active leaching of piles through addition of raffinate or placement of additional waste rock is not permitted; 2. Seepage water must be collected in synthetically-lined ponds; and 3. Abatement of existing ground water contamination to ground water quality standards is required within the area of the waste rock piles.

8. DP-435 for No. 2A and 2B Leach Systems and 2B and 9A Waste Rock Piles; First Issued November 3, 1986

Pollution prevention and abatement conditions in place : 1. Above-ground collection tanks must be utilized for PLS collection; 2. Synthetically-lined ponds must be utilized for PLS collection and for a mine dewatering surge pond; 3. Tyrone may not expand permitted stockpile areas and volumes; 4. A waste rock handling plan is required to prevent acid rock drainage that could contaminate ground water; and 5. Abatement of existing ground water contamination to

ground water quality standards is required within the leach system and waste rock pile areas.

9. DP-455 for Gettysburg Leach System, Gettysburg Pit, and 7B Leach System; First Issued January 15, 1988

Pollution prevention and abatement conditions in place: 1. Synthetically-lined ponds must be utilized for PLS collection; 2. Fluid levels must be limited in Gettysburg Pit; 3. Tyrone may not expand permitted stockpile areas and volumes; and 4. Abatement of existing ground water contamination to ground water quality standards is required within the Leach System and Pit areas.

10. DP-670 for Savannah Pit and East Main Leach System; First Issued July 13, 1990

Pollution prevention and abatement conditions in place: 1. Tyrone may not expand permitted stockpile areas and volumes; 2. A lined sump must be utilized for PLS collection; 3. Discharges of leach solutions, leach ore, or waste rock to the Savannah Pit are not permitted; 4. Tyrone may not mine below the water table in the Savannah Pit without modifying the discharge permit to ensure protection of water quality; and 5. Abatement of ground water contamination from the East Main Leach System and Savannah Pit is required.

11. DP-896 for No. 1 Leach Stockpile and Acid Unloading Facility; First Issued May 18, 2007

Pollution prevention and abatement conditions in Place: 1. Active leaching of the stockpile through addition of raffinate is not permitted; 2. A concrete sump must be utilized for collection of wash down water and stormwater; 3. Tyrone may not expand permitted stockpile areas and volumes; and 4. Abatement of existing ground water contamination to ground water quality is required within the Leach Stockpile and Acid Unloading Facility areas.

12. Summary

As demonstrated through this listing of permits and some of their conditions, each

operational discharge permit contains requirements to protect ground water beneath all permitted facilities and areas of the Tyrone Mine. These requirements include measures such as lining of collection ponds and implementation of waste rock handling plans to prevent acid rock drainage (ARD) that could contaminate ground water. The operational discharge permits also contain extensive requirements to implement corrective actions, such as seepage interceptor systems, where pollution prevention measures have failed, and to abate contaminated ground water.

Throughout the 30-year history of permitting the Tyrone Mine site, to the best of my knowledge Tyrone has never appealed any of the operational permits or the requirements within them to prevent ground water contamination or to abate ground water contamination beneath and around the mine site.

C. Closure Plans for Tyrone

Although DP-1341 was not issued until 2003, it is important to note that closure plans or requirements for closure plans were in place in the Tyrone operational discharge permits as early as 1986. These requirements established the Department's requirements for ground water protection after closure of individual facilities. For example, the requirement previously identified for DP-166 -- to return ground water quality beneath the No. 2 Leach Stockpile and the mine to ground water quality standards or pre-operational conditions after cessation of operations -- was incorporated into DP-166 as the part of the permit's closure plan in the permit renewal dated July 20, 1986. AR, DP-166, A-76. As the potential long-term effects of ARD associated with stockpiles at the Tyrone Mine became more evident, the Department began requiring closure plans for all of the operational permits that included source control measures such as regrading and covering to protect ground water beneath permitted facilities. The current requirements of DP-1341 are therefore a continuation of permitting actions previously conducted

under each of the operational permits for over a 20-year period.

D. Examples of the Department's History of Protection of Ground Water at the Mine Site

1. Introduction

For each new discharge permit application from Tyrone, the Department has required an analysis of the site geology and hydrology and the collection of ground water analytical data in order to determine the most appropriate requirements to protect ground water beneath individual facilities within the mine site. Although DP-1341 broadly addresses the entire mine for general closure purposes, each area of the mine has been previously scrutinized under the operational permits to ensure that ground water is protected. Below are examples of where the Department, over the course of permitting the Tyrone mine, has indicated that the ground water beneath the mine site is protected under the WQA and of where Tyrone has represented that it would not contaminate ground water beneath the mine site. These examples do not represent all the instances in which this conduct has occurred, but are simply intended to be illustrative of the general course of conduct over the years.

2. No. 2 Leach Stockpile

An example is DP-166, which permits the operations at the No. 2 Leach Stockpile. DP-166 was the first discharge permit for a leach stockpile, approved on July 20, 1981. The permit required numerous ground water monitoring wells inside the perimeter of the leach stockpile area. These monitoring wells were installed to establish pre-operational ground water quality beneath the proposed leaching operation and to monitor ground water quality following initiation of active leaching to determine whether the leaching operation was causing any ground water contamination. Selected locations of these wells are shown on an enlarged map of the Tyrone Mine labeled NMED Exhibit 14. Even though most of these wells within the perimeter of the

stockpile were eventually mined out or removed due to expansion of mine operations, the Department's requirement for installation of the wells shows that the Department was concerned with the ground water quality inside the perimeter of the leach stockpile area.

Tyrone initiated the discharge of raffinate and therefore active leaching of the stockpile in 1984. In a July 25, 1985 letter, the Department notified Tyrone that there was a "serious" ground water contamination problem at the leach stockpile based on water quality data from Monitoring Wells 6-3, 6-4, and 6-5 located in between the leach stockpile and the Main Pit. The Department required that Tyrone, "Propose specific strategies for the mitigation of the ground water contamination problem at the No. 2 leach dump site." AR, DP-166, A-48² (emphasis in original). The Department further stated that, "Any renewal application must demonstrate abatement of the existing ground water contamination and the prevention of future contamination." *Id.*

In 1985, there was considerably less information available than today regarding the long-term impacts of ARD at copper mine operations and the measures necessary to provide adequate source control and cleanup of ground water contaminated as a result of ARD. It is now well understood that, without source control, ARD can continue to be generated without active leaching by mine operators, and that precipitation alone can continue to leach contaminants from stockpiles for indefinite periods of time, even for centuries.

However, based on existing knowledge at the time, consultants for Tyrone in a report dated May 27, 1986 prepared an analysis suggesting that the ground water quality beneath the No. 2 Leach Stockpile could be returned to pre-operational conditions within a relatively short time frame. The analysis presumed that seepage from the leach stockpile would "decrease over time and eventually cease" following cessation of active leaching. AR, DP-166, A-66. The

² "AR" refers to the Administrative Record in this matter.

report further indicated that the period of time following cessation of active leaching for ground water quality to "approach or reach the preleaching water quality . . . is estimated to be 4 to 30 years." AR, DP-166, A-66. In a June 13, 1986 letter, the Department informed Tyrone that it must commit to returning the ground water quality to pre-operational water quality "at the wells between the No. 2 leach dump and the mine and at the wells within the No. 2 leach dump . . ." AR, DP-166, A-73 (emphasis in original). Tyrone agreed to this requirement in a June 23, 1986 letter to the Department. See AR, DP-166, A-74. The wells that Tyrone was required to monitor to determine if pre-operational ground water quality was achieved were Wells 2-2, 2-3, 2-5, 4-1, 6-3, 6-4, and 6-5, which are located within the boundaries of the leach stockpile area and are shown on NMED Exhibit 14.

Even though Tyrone's 1986 analysis is now understood to have been faulty regarding timeframes and methodology to abate ground water contamination beneath the leach stockpiles, the important point is that the requirement to return ground water to established pre-operational water quality standards beneath the stockpile and the mine itself has been a requirement of DP-166 and of all subsequent renewals of DP-166, including the most recent renewal dated May 27, 2005. This permit requirement demonstrates that with issuance of the first discharge permit for a leach stockpile in 1981 at the Tyrone Mine, the Department required ground water to be protected and abated to water quality standards, or to pre-operational water quality, beneath permitted facilities including the leach stockpiles.

3. No. 1A Leach Stockpile

At the No. 2 Leach Stockpile and other stockpiles, the Department did not anticipate the severity of ground water contamination that would result from Tyrone's operation of the leach stockpiles, for which the Department issued operational discharge permits. In many cases,

Tyrone represented, prior to permit issuance, that degradation of ground water would be minimal or non-existent. This occurred with the No. 1A Leach Stockpile for which Tyrone represented that there was little or no ground water that would be affected by the leaching operations. See AR, DP-363, A-14; AR, DP-363, A-16; AR, DP-363, A-19; AR, DP-363, A-22; AR, DP-363, A-24; AR, DP-363, A-26.

Despite Tyrone's representation, the Department issued a discharge permit for the stockpile in 1985 to protect ground water at that site.³

4. No. 3 Leach Stockpile

On May 25, 1983, Tyrone submitted a proposed discharge plan application for the No. 3 Leach Stockpile. A report by Woodward-Clyde Consultants attached to the proposal stated that, "In summary, potential impacts of ground-water discharges from the Phelps Dodge No. 3 Copper Leach system appear to be minimal." AR, DP-286, A-1. In further correspondence to NMED regarding the discharge plan application, Tyrone stated that because compacted clay was being placed in drainages at the base of the stockpile, "we have confidence in this design's ability to achieve the seepage rate and quantity described in the discharge plan which would not cause any ground water problems." AR, DP-286, A-12. Tyrone stated further that, "With a leachate flow of 10 gpm, the mixed water [ground water and leachate] could show an increase in contaminants, of approximately 1 to 2 percent and pH may be slightly affected. If complete mixing is accomplished the contaminant increases would not be detectable." AR, DP-286, A-17. Tyrone also represented that, "The Tyrone leach dumps 1, 1A, and 3 are located upon the alkaline Gila Conglomerate; and the above-described reaction [iron salt precipitation] should occur to act to

³ By 1996, a plume of contaminated ground water containing PLS was discovered by the Department to be moving from under the No. 1A Leach Stockpile and the No. 1C Waste Rock Pile in the subsurface of Oak Grove Draw, and from under the No. 1 and No. 1B Leach Stockpiles in the subsurface of Brick Kiln Gulch. The plumes extended approximately 3.5 miles to the east of the Tyrone Mine site.

seal their bases to prevent both the loss of copper-bearing solution and any possible effect on the quality of ground water." AR, DP-286, A-18.

Although Tyrone represented that ground water would not be affected by its leaching operations, less than six months after Tyrone began leaching the No. 3 Leach Stockpile in early 1990, ground water from monitoring well P-12 exceeded ground water quality standards, and an investigation was begun. The investigation revealed contamination in the regional aquifer. By 2002, 405 monitoring and extraction wells had been installed to monitor and control the contamination, actions intended to protect the ground water in the area and prevent further contamination.

5. Summary

Over the many years that Tyrone has 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. The fact that the ground water underneath the mine site is now heavily contaminated should not be a reason to allow that contamination to continue to exist, and to "write off" large areas of ground water, when that ground water was previously considered protected under the WQA when the discharge permits were issued.

The general course of conduct for nearly 30 years shows that the Department considered the ground water underneath and around the entire Tyrone Mine site subject to protection under the WQA and Commission Regulations; that the Department required all Tyrone operational discharge permits to include pollution prevention measures and abatement requirements to protect the ground water beneath and around the site; that the Department consistently required Tyrone to clean up ground water to ground water quality standards or to pre-operational water

quality standards; that Tyrone represented repeatedly that its discharges from the mine would not contaminate ground water; that Tyrone has put into place the pollution prevention measures required by its discharge permits; and that Tyrone did not appeal the pollution prevention measures or abatement requirements under the operational permits. As such, the general course of conduct for 30 years shows, in my view, that the Department acted as though the ground water beneath and around the Tyrone Mine site was subject to protection under the WQA and WQCC Regulations.

IV. Potential Effect on the Tyrone Operational Permits and Ground Water Quality in the State If Ground Water Beneath the Tyrone Mine Is Not Protected

If the Commission were to decide that any portion of the area beneath the Tyrone Mine is not a place of withdrawal of water for present or reasonably foreseeable future use, there would be significant ramifications for the operational discharge permits already in place. Pollution prevention measures currently in place could then be deemed unnecessary for some of the current discharges at the Tyrone Mine, and the operational permits for those discharges, potentially, would no longer be necessary. Even if the operational permits remained in place, many of the conditions of the permits might no longer be enforceable, including many of the substantial pollution prevention measures described above, such as prohibiting the expansion of leaching activities at certain stockpiles and requiring liners in surface impoundments.

Additionally, while all of the operational discharge permits presently require abatement of contamination that has occurred beneath permitted facilities, it is unclear whether the Department could enforce these provisions if it were determined the ground water is not protected. Without source control and many of the existing pollution prevention measures, ground water quality beneath the mine site would likely become considerably worse than it is now. Moreover, containment strategies -- such as pit dewatering and seepage interceptor

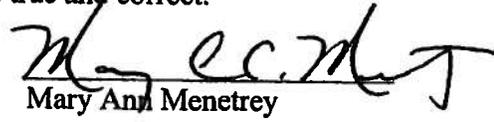
systems – if used alone would become increasingly difficult to manage and significantly more contaminated water would need to be treated.

Finally, the Department is concerned that the existing regulatory practices employed pursuant to the Water Quality Act at the Tyrone Mine may be significantly disrupted. These existing regulatory practices that protect ground water throughout the mine area have been in effect for almost 30 years under the operational permits.

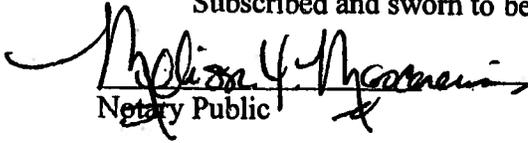
If ground water beneath any portion of the Tyrone Mine is determined not to be protected, there will be numerous dischargers from mine sites around the State that will seek to extend the same analysis to their facilities as well. The Ground Water Quality Bureau currently oversees approximately 50 discharge permits for mine sites, and approved closure plans for these mine sites consistently include implementation of source control measures to protect ground water beneath these sites, including regrading and covering of stockpiles. Any change in the Department's practices of protecting ground water at the Tyrone Mine has the potential of destabilizing many existing ground water protection activities currently in place throughout New Mexico and could result in ground water contamination in New Mexico that does not presently exist.

This concludes my direct testimony.

I, Mary Ann Menetrey, swear that the foregoing is true and correct.


Mary Ann Menetrey

Subscribed and sworn to before me this ^{9th} day of July, 2007 by Mary Ann Menetrey.


Notary Public

My commission expires:

April 3, 2011