STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES
MINING AND MINERALS DIVISION

IN THE MATTER OF THE APPLICATION BY NEW MEXICO COPPER CORPORATION FOR A MINE PERMIT FOR THE COPPER FLAT MINE, SIERRA COUNTY, NEW MEXICO, PERMIT NO. SI027RN

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MINING & MINERALS DIVISION

HEARING OFFICER REPORT

Introduction

Applicant New Mexico Copper Corporation ('Applicant' or 'NMCC') submitted to the Energy, Minerals and Natural Resources Department (EMNRD) an application for a mine permit for the Copper Flat Mine, a new mining operation approximately five miles northeast of Hillsboro in Sierra County, New Mexico.

The permit application is comprised of many documents submitted between 2010 and 2018, including the following:

a. A Sampling and Analysis Plan, submitted in 2010, and an Addendum submitted in 2016;

b. A Baseline Data Report initially submitted in 2012; with six addendums of supplemental information submitted between 2013 – 2017. The addendums include additional information on additional geochemical characterization, vegetation studies, wildlife studies, updates to groundwater flow models; and

c. A Mining Operation and Reclamation Plan, submitted in 2012, with an Updated plan submitted in 2016, and Revision 1 to that Updated plan submitted in 2017, and Supplemental information on the plan submitted in 2017 – 2018.

A Draft Environmental Evaluation was prepared by MMD in July 2018, in accordance with 19.10.6.604 NMAC. Based on its review of the technical information submitted by NMCC for the Copper Flat Mine application, the Mining and Minerals Division deemed the application technically approvable in accordance with 19.10.6.605.E NMAC, pending public participation through a public hearing.

NMCC submitted a Proposal for Financial Assurance in August 2018, and a revised Proposal in December 2018, which is currently under review the by Mining and Minerals Division, the New Mexico Environment Department (NMED) and the Bureau of Land Management (BLM). These agencies continue to discuss aspects of the financial assurance proposal with New Mexico Copper Corporation.

All of these documents and many more relevant documents have been posted on the MMD webpage. Additional procedural history is evident in the record and will not be set out in this Report.

On October 23 and 24, 2018, the undersigned Hearing Officer accepted testimony and public comment in the Albert J. Lyons Event Center in Truth or Consequences, New Mexico as part of continued information gathering necessary for the Director of the EMNRD Mining and Minerals Division (MMD) to reach a decision on the permit application under Section 19.10 NMAC.

The hearing was conducted pursuant to Section 19.10.9.905 NMAC, Hearing Procedures. All comment was taken under oath and subject to questioning by others present. Written comment and testimony was also submitted and accepted. The hearing, which was recorded and transcribed by Denise Kopan of Kathy Townsend Court Reporters, started at 9:00 a.m. each day and ended at 7 p.m. each day, including lunch and other breaks. More than fifty people signed in; not everyone who was present is reflected on the sign-in sheets. EMNRD staff distributed a Fact Sheet with information about the mine and permitting process. NMCC had a number of site-specific posters at the back of the room on easels; images of each poster are included in NMCC Exhibit A.

Counsel present for NMCC included Stuart Butzier of Modrall, Sperling, Roehl, Harris and Sisk. Counsel present for the Turner Ranch Properties and Hillsboro Pitchfork Ranch (the Ranches) included Charles de Saillan of the New Mexico Environmental Law Center.

Notice of the hearing and opportunity to provide comment was sent by mail, email, and posted on the EMNRD webpage. The Hearing Officer also announced that following the hearing, written comment would be accepted by the Division through midnight October 26, 2018.

The Director did not request a recommendation for action from the Hearing Officer under Section 19.10.9.905.A(3) NMAC. This Report includes only a review of written and oral comments submitted before, during and after the hearing; it does not include a review of any other part of the Department's administrative record.

Hearing Testimony for Applicant NMCC

Joseph Smith, NMCC chief operating officer, offered testimony about the New Mexico Mining Act, NMCC, the Copper Flat Mine, the Mine permit application, major mine units, and mine reclamation and closure as he proceeded through a PowerPoint presentation, marked as NMCC Exhibit C.

The New Mexico Mining Act was enacted in 1993 to promote responsible utilization and reclamation of lands affected by exploration mining or the extraction of minerals vital to the welfare of the state. The Act requires all mining operations to obtain permits and to meet certain requirements. Copper Flat is considered a new mine under the Act. Requirements for a new mine permit include collecting 12 months of environmental baseline data, applying best management practices to design and operations to avoid or minimize acid drainage and other impact to ground and surface water, erosion controls, contemporaneous reclamation, and minimizing change to the hydrologic balance. Tr. pp. 14-16.

New Mexico Copper is the owner of the project assets at Copper Flat, and will be the operator of the Copper Flat Mine. NMCC was organized as a New Mexico domestic profit corporation in 2010. It is a wholly owned subsidiary of THEMAC Resources Group. The majority shareholder in THEMAC is the Tulla Group, an Australian family investment group. Tulla has other mining investments, including Norseman Gold, Australia's longest continuously running gold mining operation. Tulla is fully funding the Copper Flat Project and has invested more than $55 million to date. Tr. pp. 16-17.

NMCC plans are designed to meet or exceed health, safety, and environmental regulatory requirements. NMCC is committed to developing a long-term relationship with its neighbors in Sierra County and dedicated to providing the local community with significant opportunities for employment and economic development. Tr. p. 17.

The Copper Flat Mine is located 20 miles southwest of Truth or Consequences, four miles northeast of Hillsboro. The history of the property dates back to 1877; placer gold mining occurred in the area. In 1980 to 1983, the copper mining facility was built by Quintana Minerals. The property totals 4,741 acres and within that property is a 2,190-acre permit area. The property is a mix of private property and unpatented mining claims on public land administered by the BLM. Tr. pp. 17-18.

The production method will be open-pit mining with a conventional flotation mill to produce a saleable mineral concentrate. The reserves at Copper Flat include 675 million pounds of copper; 20 million pounds of molybdenum, gold, and silver. The project is designed for a two-year construction period, followed by 12 years of production, followed by reclamation and closure. A Project Feasibility Study has been prepared by M3 Engineering with a positive result. Federal EIS and State permits are progressing following a common Mine Operation and Reclamation Plan. Tr. p. 18.

Slide 7 of Exhibit C shows the location of the Copper Flat Project. A large number of copper mines extend from Arizona into Southwestern New Mexico called the "Arizona-New Mexico Porphyry Copper Belt," one of the world's most prolific copper mining regions. The area is served by rail, highway, and established infrastructure. Tr. pp. 18-19.

The mine permit application started in September of 2010, when NMCC submitted a Sampling and Analysis Plan to MMD. Between 2010 and 2012, baseline data was collected at the site for analysis and use in the permitting process. In July of 2012, NMCC submitted a Permit Application Package to MMD. In August of 2012, MMD deemed the Permit Application Package to be administratively complete, which started the Agency technical review period. Between 2012 and 2018, NMCC responded to agency comments and requests for additional information. NMCC was also updating plans to reflect engineering progress and synchronization with plans provided to other agencies, which led to the common mine plan that is now the basis of all permit applications. A Draft Environmental Evaluation was prepared by MMD pursuant to 19.10.6.605.D NMAC. In July 2018, the NMCC Permit Application Package for the Copper Flat Mine was deemed to be technically approvable by MMD. Tr. p. 19.

The major mine units covered by the permit application package are shown on Slide 10 of Exhibit C and include:

--an open pit on the west side of the mine property located primarily on private ground owned by NMCC;

--a process facility, with contained and lined facilities that utilize existing foundations and existing grading located east of the open pit;

--the tailings storage facility, synthetically lined and located southeast of the process facility; with solution underdrain and collection and a process water recycling system. Recovered water will be reused for mineral recovery as part of the water conservation plan. The facility will comply with OSE dam safety regulations;

--mine waste rock stockpiles located east of the open pit on low-permeability andesite bedrock;

--HDPE-lined ponds and impoundments are located adjacent to the waste rock stockpiles, the process area, and the tailings storage facility. The ponds and impoundments are designed to include capacity for stormwater events; and

--Roads and administrative areas graded and maintained for stormwater management, including a waste water package treatment facility that will discharge to the tailings storage facility. Tr. pp. 20-21.

Engineering for the reclamation and closure plan has been completed, and plans have been submitted with the Mining Operation and Reclamation Plan. Growth media will be salvaged ahead of construction and stored for reuse at reclamation. Mine rock stockpiles and the tailings facility will be covered with the growth media and revegetated. Shortly after mining ends, the open pit will be filled with fresh water to the equilibrium level of the hydraulic sink, and the pit will be partially revegetated to limit oxidation of the pit walls. Water of the tailings facility will be removed through evaporation, and the surface will be regraded, covered, and revegetated. The TSF liner will be left in place to ensure long-term protection of the groundwater. Buildings, pipelines, and other surface structures will be removed; concrete foundations will be broken and removed or buried as appropriate. Ponds and trench liners will be removed, and the excavations will be backfilled and revegetated except as needed for ongoing water management. Tr. pp. 21-22.

As to compliance with reclamation standards, the mine operation and closure plans have been designed using the most appropriate technology and the best management practices. Plans are designed to return the area to a post-mining land use that is compatible with lands uses that currently exist at the site and in the surrounding area: wildlife habitat, livestock grazing, and recreation. The operation is designed to meet without perpetual care all applicable environmental requirements of the Act and other laws following closure. Contemporaneous reclamation is included in the operating and reclamation plan. The operations have been designed to minimize change to the hydrologic balance in both the permit and potentially affected areas. Reclamation is designed to result in a hydrologic balance similar to pre-mining conditions. Plans incorporate measures to limit the formation of acid or other toxic drainage during the operation and following reclamation to prevent releases that cause federal or State standards to be exceeded. The reclamation plans are designed to provide a self-sustaining ecosystem. Success will be determined through comparison of ground cover, productivity, and diversity to approved reference areas. Tr. pp. 22-23.

New Mexico Copper engaged a team of highly qualified experts in different disciplines to contribute to plans and designs, including Juan Velasquez, Todd Stein, Golder Associates, Albuquerque, New Mexico; Steven Finch from John Shomaker & Associates; Mike Jones, principal hydrologist with John Shomaker & Associates; Amy Prestia, senior geochemist with SRK North America, and Katie Emmer, NMCC's environmental and permitting manager. Tr. p. 24.

Mr. Smith proceeded though Mr. Velasquez' PowerPoint presentation in his absence. See NMCC Exhibit B, setting out the contents of NMCC's permit application package; in particular, the contents of the Mine Operation and Reclamation Plan (MORP). Copper Flat will be the first new mine permit under the Mining Act since its passage in 1993. Prior to 1993, some New Mexico mining operations were not required to have operation and reclamation permits or operation and reclamation plans. Some mines located on federal lands had requirements under an approved federal plan of operation; others on State or private lands did not. After 1993, all mines operated in New Mexico, existing or new, were required to meet the Mining Act requirements. NMCC is interested in protecting the environment and ensuring clean water quality and water resources. They have worked to earn the confidence of the regulatory agencies and expect that they will gain the confidence of the local community also. Tr. pp. 25-28.

Slide 5 of Exhibit B shows the location of the Copper Flat Mine zoomed in to see Highway 152, the permit area, and the mine location. I-25 and the Rio Grande are approximately 11 miles east of the property. The site is accessed by New Mexico State Highway 152. The well field which will supply water to the site is located about eight miles east, and water will be transported through a pipeline. Tr. p. 28.

The Permit Application Package contains detailed information about NMCC, the Baseline Data Report (BDR), a list of all other permits required for the Copper Flat Mine; a detailed description of the proposed operations in the MORP. NMCC will reclaim conditions that currently exist from the previous operations that took place prior to current more protective environmental regulations. Some reclamation work will begin

when the operations start. The entire Copper Flat Mine project will be reclaimed after operations cease, and the area will be regraded to blend into surrounding topography to the extent possible. Reclamation will include recontouring of disturbed areas, placement of the thick soil growth media cover, and reseeding with native vegetation to support the post-mining land uses, the wildlife habitat, livestock grazing, and assure ongoing protection of surface water and groundwater. Tr. p. 29.

Performance and reclamation standards are set out in 19.10.6.6.603 NMAC, including the permit area being reclaimed to a self-sustaining ecosystem; contemporaneous reclamation being performed to the extent practicable; and wildlife and habitat protection requirements during operation and after reclamation necessary to minimize impacts. Cultural resources require inventory and protection. Mine operation must minimize change, result in a hydrologic balance similar to pre-mining conditions, and ensure protection of water resources. The site is to be stabilized and configured to minimize future impact to the environment and protect air and water resources, and designs need to include erosion control through land shaping, water diversion, mulching, riprap protection, and revegetation. All of these elements are contained in NMCC's designs. Tr. p. 30.

Slide 8 of Exhibit B is an engineering drawing from the MORP that shows the site at final build-out. The major units of the mine are shown. Grayback Arroyo starts at the west end of the property; it's been diverted south of the pit area, then back to the natural channel, and runs through the permit area to the east. Tr. pp. 30-31.

The regulations prescribe the content of the MORP in Section 19.10.6.602.D(15), including a type and methods of mining. NMCC operations must meet the requirements of all other State and federal agencies, including TSF dam safety requirements of the New Mexico Office of the State Engineer, environmental protection regulations from the New Mexico Environment Department, federal NEPA requirements, U.S. Fish & Wildlife, and BLM requirements. Slide 11 provides a visual perspective of what the site will look like when in operation. Tr. pp. 32-33.

In the context of the Mining Act, "reclamation" means the employment during and after the mining operation of measures designed to mitigate the disturbance of affected areas and permit areas and, to the extent practicable, provide for the stabilization of the permit area following closure that will minimize future impact to the environment from the mining operation and protect air and water resources. The NMCC reclamation proposal includes the following measures to meet or exceed this requirement: In conformance with 19.10.6.602.D(15)(g), mine facilities, including the waste rock stockpiles, are designed to operate for closure. During operations, certain existing waste rock stockpiles will be reclaimed. These are the stockpiles that exist on-site today, and their intent is to reclaim a portion of those during construction of the facility. Growth media will be salvaged ahead of construction and stored for reuse during reclamation at the end of mining. Shortly after mining ends, the open pit will be rapid-filled with clean water. The waste rock stockpiles and the tailings storage facility will be regraded, recontoured, covered with growth media, and revegetated. Processed water from the tailings storage facility will be evaporated, the surface will be regraded,

covered, and revegetated. Buildings, pipelines, and other surface structures will be removed. Concrete foundations will be broken and removed or buried as appropriate. Trench liners will be removed, pond liners will be ripped and folded over, and pond excavations will be backfilled and revegetated. Ancillary facility areas will also be reclaimed. Certain legacy waste rock stockpiles will be reclaimed during mine site development. These will be recontoured, graded, covered with three feet of growth media, and revegetated. These areas will be utilized as vegetation test plot areas to help determine the types of native vegetation that is best suited for use for long-term success, and will provide NMCC with the ability to evaluate the effectiveness of the cover materials regarding drainage, storage, and release. Other legacy areas will be reclaimed after mining ceases. Tr. pp. 33-35.

Slide 14 of Exhibit B shows the legacy waste rock stockpiles that exist on the site today. Existing Waste Rock Stockpile 1 and a portion of Existing Waste Rock Stockpile 2 will be reclaimed during construction of the facility. A small portion of Existing Waste Rock Stockpile 4 will also be reclaimed to provide clean water runoff flowing to Grayback Arroyo. Existing Waste Rock Stockpile 3, the north portion of Existing Waste Rock Stockpile 4, and Existing Waste Rock Stockpile 2 will be reclaimed at the end of mining. Slide 15 is an engineering drawing showing reclamation designs for the pit. The rapid-fill is the blue area in the center of the pit; Grayback Arroyo is depicted at the west side of the pit. Grayback runs through the Grayback Diversion that was constructed in the early 1980s to the south of the pit and then returns to the existing channel just southeast of the pit. Shortly after mining is complete, the pit will be rapid-filled with

fresh water, and certain areas of the pit walls will be revegetated to limit the amount of oxidation that can occur in the pit over time. The rapid-fill will fill the pit to an elevation just below the 4900 foot elevation, where the water body surface will reach equilibrium; evaporation matches the inflows that would come from either groundwater or surface water. Areas of the pit perimeter that are disturbed by mining surrounding the pit will be ripped, recontoured, covered with growth media material, and revegetated. The pit haul road leading down into the pit will also be ripped and covered with material and, to an extent, revegetated. A portion of the haul road will be used to provide a stormwater ditch to control storm water flow into the pit and lead water draining to the pit down into the pit lake, in a controlled fashion, and to prevent water from washing over the sides and eroding the sides of the pit. Certain flat areas of the pit will be reclaimed. Areas around the top edge of the pit, the crest of the pit, and the large flat area will be covered with growth media and revegetated. Water control channels will be constructed to provide stormwater control and prevent erosion of pit walls, all leading to the top of the ramp, where it will flow down into the pit. Tr. pp. 35-37.

Slide 16 is a cross-section of the pit that shows what it will look like at the end of mining with the rapid-fill pit lake in the bottom of the pit. This top surface is the existing surface that exists there today, showing a small pit lake after mining. The pit is a hydrologic sink today and will continue to be a hydrologic sink in the future. During operations, they will pump out water from the pit, complete mining, and then allow water to flow back in after the end of mining. The purpose of rapid-filling the pit is to fill the pit with clean water to the equilibrium level much faster than would occur naturally,

thus minimizing the effects on the water quality in the pit water body. NMCC's studies have shown that pumping good-quality water into the pit will result in water quality in the future that is similar to the water which exists today. Tr. pp. 37-38.

Slide 17 is a drawing of Waste Rock Stockpile 1 at reclamation. Waste Rock Stockpile 1 will be located inside the open pit surface drainage area. This area gets reclaimed at the end of mining. Surface water running from Animas Peak and other areas towards Waste Rock Stockpile 1 will be intercepted into a channel and diverted away to take the fresh water away and put it back into a natural drainage. Water falling onto the surface of the reclaimed area will be channeled through control channels that are constructed and flow and eventually lead to the channel running down the ramp to the bottom of the pit. Armoring is placed on the water channels to prevent erosion in the future. Tr. pp. 38-39.

Slide 18 is a drawing of Waste Rock Stockpiles 2 and 3. These stockpiles will be recontoured, the outslopes reconfigured to three-to-one slopes. The surface will be covered with three feet of growth media and revegetation. Surface water run-on will be intercepted, surface water runoff will be prevented from run-on by intercepting with ditches and then directed away to natural channels. Water falling onto the surface of the reclaimed area will be directed to several channels and taken to down channels to lead back to Grayback Arroyo. All of these down channels are armored to prevent erosion. A growth media stockpile located there before reclamation will be reclaimed as the material is removed and used to cover the stockpiles. Tr. pp. 39-40.

Slide 19 is a drawing of the tailings facility at reclamation. The tailings storage facility will be recontoured, the outslopes configured to minimum three-to-one slopes covered with three feet of growth media and revegetated. The top surface of the tailings storage facility will be graded to a nominal one percent slope, and top channels constructed to control erosion and route clean, direct precipitation off the top in a controlled manner back to Grayback Arroyo. The top channels will direct stormwater falling onto the top surface of the facility back to the north and into Grayback Arroyo. The top will also be covered with three feet of growth media and revegetated. The tailings facility is located in a natural basin. It is surrounded on three sides by a ridge which will prevent stormwater from flooding into the tailings storage facility and eroding it. A growth media stockpile is located west of the tailings storage facility, a second stockpile to the east of the storage facility. This material is removed during the construction of the facility and stockpiled for use during reclamation. During reclamation, the material is removed from the stockpile and used for the three feet of cover that goes across the tailings storage facility waste rock stockpiles, the process area, and other reclaimed areas. When the stockpiles are removed, those areas are scarified, ripped, and revegetated. Tr. pp. 40-42.

The tailings storage facility will continue to drain processed water through the underdrain collection system for several years. NMCC has developed a water management system to actively remove the processed water through evaporation for five years after mine operation ceases. The top of the tailings storage facility will not be fully reclaimed while this active evaporation is ongoing. Once active evaporation ceases,

the top surface will be fully reclaimed. Active evaporation will cease when the processed water coming from the toe of the tailings facility reaches a drain-down level that can be managed through passive evaporation. At that time, an evaporation pond will be constructed at the toe. The pond is sized to contain the outflow of solution plus any stormwater precipitation that falls directly on it. The pond will be lined, which will allow water to drain down and continue to evaporate over time. NMCC's engineers project that the processed water will be removed from the tailings storage facility over a 25-year period, which includes the five years of active evaporation and 20 years of passive evaporation based on drawdown current projections. When that is complete, and the pond is no longer necessary, it will be fully reclaimed. Tr. pp. 42-43.

Slide 22 is an engineering drawing of the reclaimed plant area and Existing Waste Rock Stockpiles 3 and 4. Buildings, pipelines, and other surface structures will be removed; concrete foundations will be broken and removed or buried as appropriate. Trench liners will be removed and pond excavations will be backfilled. The southern banks of the plan area will be sloped to three-to-one, and in certain areas where the banks are too close to Grayback to push down, the banks will be pulled back to provide the three-to-one slope without encroaching on Grayback. After reshaping, after removal of all the buildings, the pipelines, the trenches, and reshaping, the entire area will be covered and revegetated. Potential erosion will be controlled by constructing runoff control channels to collect clean water and routing it to Grayback Arroyo. Reclamation of Existing Waste Rock Stockpile 4 will also be completed at this time. Following mining, when it's no longer needed, the area will be final graded, recovered

with three feet of cover, and revegetated. Slide 23 is a rendering that provides a visual perspective of what the site will look like following reclamation. It has two different perspectives on it, one view looking from south to north; the second view is looking east to west. Included with this are photographs of reclaimed areas that show what the area will look like after revegetation is complete. Tr. pp. 43-45.

Returning to Exhibit C, Slide 15: NMCC will post financial assurance for the reclamation and closure of Copper Flat, and the financial assurance will be held jointly by New Mexico Environment Department, MMD, and the BLM. NMCC's proposal is based on the estimated cost of reclamation and closure as if it were performed by a third-party contractor under agency management as required by 19.10.12 NMAC. The financial assurance proposal also includes a closure water management plan as required by 20.6.7.33.H NMAC, which is administered by NMED. The estimated cost of reclamation and closure was prepared by SRK Consulting using the Copper Flat Reclamation and Closure Plan prepared by Golder Associates. This estimate includes the application of estimating standards and practices that are accepted by a wide range of regulatory agencies and jurisdictions. The financial assurance estimate prepared by SRK totals nearly $56 million. This total includes costs for contractor performance of the work, mobilization and demobilization, agency management, contract administration, closure water management, and monitoring. Documentation of SRK's cost estimate is provided on the MMD website. The cost calculations require approval by three agencies: NMED, MMD, and BLM. The Copper Flat estimate was submitted for agency

review on August 9, 2018. Discussion with the agencies regarding the basis and the calculations are ongoing today. Tr. pp. 45-46.

Mr. Smith described the community benefits that will come from the Copper Flat Mine. During construction, nearly 1200 jobs will be generated, including direct, indirect, and induced jobs in the state of New Mexico. Construction and economic impact to the state are significant. The project will add $55.6 million to statewide labor income and will add $79.6 million to the value of materials and goods that are produced within the state. Construction expenditures will total $45 million for Sierra County and $49 million in the state. During the operation phase, the mine will require 270 full-time jobs at the mine with individual wages that range from $35,000 to $60,000 per year plus benefits. In total, nearly 400 jobs will be generated, including direct, indirect, and induced jobs. The mine will pay a significant amount of federal and State taxes, $175 million during the life of the mine. This includes ad valorem, severance, income taxes, and gross receipt taxes. Following mining, there will still be a need for jobs, which will provide wages and tax benefits during the two decades of reclamation and closure phase. These statistics were generated by the Arrowhead Center, which is located at New Mexico State University in Las Cruces. Tr. pp. 46-47.

Slide 17 provides a breakdown of the money that's been invested into the project by Tulla. Tulla has invested $55 million in the project to date. Of that total, $39 million, or 70 percent, has been directed to New Mexico. In Sierra County spending, it's $4.3 million to date. This includes salaries, rent, vehicle maintenance and fuel, hotel and restaurants, banking services, contractors, the power co-op, land payments, and

property taxes. Mr. Smith offered his conclusions: the operating and reclamation designs and plans that we have developed for the Copper Flat Mine meet or exceed the very rigorous requirements for a new mine permit that was established by the New Mexico Mining Act of 1993. The reclaimed operation will achieve a self-sustaining ecosystem that is appropriate for the life zone of the surrounding area. All environmental requirements can be met without perpetual care. The designs and plans for the Copper Flat Mine will provide a post-mining land use that is similar to the existing lands, use of wildlife habitat, livestock grazing, and recreation. The proposed reclamation plan is economically and technically feasible. Tr. pp. 47-48.

On questioning, Mr. Smith testified that THEMAC is a Canadian company, and that NMCC currently has no operating mines, or any other assets in New Mexico. He agreed that the cost estimate that was prepared for the Copper Flat Mine assumes that 25 years after closure, NMCC will be able to cease all monitoring, maintenance, and water management at the mine. The mine plans to operate 24 hours a day, seven days a week. Tr. pp. 49-52.

The dump trucks to haul the waste rock and ore from the excavation of the open pit will be 100-ton trucks similar to a Cat 777; the trucks will be running 22 hours a day. The milling facility is designed and scheduled to run essentially on a 24/7 operation. The crusher will likely not need to run for that 24/7. It will build a stockpile and then shut down for some portion of the day. It will be a daily cycle. To operate at night, the mine will use light plants for illumination. The mine will employ blasting to excavate the open pit; blasting will be required when mine operations begin and continue through the full

life of the mine, estimated to be 12 years. Blasting frequency will vary; Mr. Smith's estimate is one blast per day, three times a week, each time for a third of a full week's production. Tr. pp. 52-55.

The concentrate trucks transporting the product away will turn left at Highway 152 and head east to the interstate. NMCC will have to buy chemicals for the processed water; they will need reagents for flotation, and Mr. Smith does not know the quantity that will be necessary. Standard flotation chemicals will be used to separate the mineral from the non-mineral rock and cause it to float to the surface or sink. There are other reagents, such as lime, that will be used to adjust the pH. Tr. pp. 56-57.

Mr. Smith clarified that the growth media is native material that exists on the site today primarily in the area where the tailings facility will be constructed. There is also some over at the Waste Rock Stockpile 3. It doesn't meet the definition of "topsoil," but it will support plant growth; it's the material that the plants are growing in today. The same process has been successfully used at other operations. If it does not support plant growth, NMCC will have to determine what amendments would be required to return it back to a condition that is useful. The Copper Flat Mine is on the easternmost edge of the Arizona-New Mexico copper belt. No other copper mines are in the Rio Grande drainage. The Mining Act of 1993 requires a financial assurance, a bond, essentially, to be put into place under the control of the state agencies that fully cover the reclamation. It will be calculated to cover 100 percent of the requirements of the regulations that are in place. The mining regulations do address standby, or temporary closures, and there are time limits on that. Tr. pp. 58-61.

There is water in the small pit lake now, and it's easily pumped out. That water will be evaporated, or if the quality meets the standard, NMCC could use it for dust control in the pit area. Evaporation would be a forced evaporation, with a machine that sprays the water up in the air. The water does not currently meet the State specifications, but there is an area called the "open pit surface drainage area," and it's possible that that water is of sufficient quality to use in that area. It would have to be sampled and tested to see if it's possible to use it there. After reclamation the tailings pile will be approximately 250 to 300 feet tall covering 547 acres, with an embankment that's constructed to hold it in place. At the toe of the embankment, there is a drainage collection network used to pull water out of the tailings and report to the pond there. It is constructed to force water to the back away from the embankment. Tr. pp. 62-66.

The majority of the liner for the 547-acre tailings facility will go down at one time, with later expansion phases. It will take several months to place the liner. It will take a year to 18 months to construct the base of the tailings facility, do the excavation, shape it, grade it so it all flows properly, do all the preparation in order to place the liner. And then the liner will take several months to place. As they place the liner and do quality control on the sections that are placed, they cover it with several feet of material as fast as they can to protect it from the wind and punctures. Dump trucks and bulldozers operate on a very thick layer of material that protects the liner, alluvial material, or a very fine gravel pushed out in front. Before it can be covered and completely buried, there are weights that are put on, oftentimes sandbags. Tr. pp. 66-69.

Generally, the chemicals used in the mining processes are not flammable. There will be flammable materials, such as diesel fuel and gasoline. The reagents are not flammable, and the tailings concentrate is not flammable. As to the blasting materials, the blasting supplies are required to be stored in very specifically designed and approved magazines, fire-retarding storage facilities. Caps and boosters are stored separately, and must be transported separately. They are very controlled. If a fire does start, NMCC has an emergency response team that responds immediately and addresses the fire. The team consists of a group of very highly trained individuals that meet on a regular basis and train in fire and safety and emergency procedures. They are specifically designated to take care of these issues. There is an alert system at the mine through radio and other communication networks. Everybody is trained as soon as they see an emergency like that starting to develop, call "Mayday." That goes out over the radio, everything stops, and the team of trained employees address the situation. They could be diesel mechanics, truck drivers, or engineers. They work there, and they work in the community as volunteer fire people and emergency services. NMCC values these people and wants them on staff to protect people, equipment, property, and the community. They are spread throughout all the crews. NMCC does have a fire truck, or large water trucks that can spray water a long way. Tr. pp. 70-73.

NMCC will be communicating with the local emergency services so they know what's stored in the mine warehouse if they come out. Responders might come from Truth or Consequences or Hillsboro. NMCC does not yet have an agreement with these departments, but that will come. The training will include training specific to the

materials, including chemicals, stored at the site. Travel from Truth or Consequences would take 30 minutes, in the meantime, NMCC has the people, equipment, and training to control the situation. Tr. pp. 73-75.

The 1993 New Mexico Reclamation Act does not permit self-bonding; the reclamation fund is similar to an escrow fund. There are several instruments that are allowed by the Mining Act and the regulations. It has to be funded up-front by the company for the full amount of the estimated reclamation costs. Tr. pp. 76-77.

The purpose of the HDPE liner under the tailings storage facility is to form a barrier between the processed water that's contained in the tailings and the groundwater below. It is not a fiber liner, it's a manufactured liner similar to thick plastic or rubberized material, 80 mils thick. It comes in large rolls that might be 40 feet long, and then unrolls to a 300- to 500-foot length. It's laid out in a very specified manner, and the material is overlapped just like shingles on a roof. The two pieces are welded together, and then that seam is vacuum tested to show that the weld is complete. There is no liner underneath the tailings storage from the Quintana Minerals operation. The material that is there from the Quintana operation will be used in the construction of the tailings facility and used as part of the liner system. Tr. pp. 78-80.

There is no specific agreement with Sierra County as to numbers or percentages of employment, but it is Mr. Smith's objective to provide employment from the County to the maximum extent. NMCC will need people who can pass the drug screen and come to work every day. If they can meet that criteria, NMCC will train them and put

them to work. As to the Jicarilla, no numbers are specified, NMCC has agreed that if they have people that meet the criteria, NMCC will employ them, as well. Tr. pp. 81-82.

Testimony on Behalf of Turner Ranch and Hillsboro Pitchfork Ranch

Mr. de Saillan offered opening remarks summarizing the Ranches' anticipated testimony: The Ladder Ranch borders the Copper Flat Mine permit boundary immediately to the north and to the east, and the Hillsboro Pitchfork Ranch borders the Copper Flat permit mine boundary immediately to the west and the southwest. These ranches oppose the issuance of the mining permit for the Copper Flat Mine in its current form. They are not against copper mines, but they fear the consequences that copper mining at this location will have on the environment, on their businesses, and on their way of life. Both ranches are in the business of raising livestock. The Ladder raises bison; the Hillsboro Pitchfork Ranch raises cattle. Both ranches organize and guide hunting trips, and the Ladder Ranch organizes ecotourism trips, which includes bird-watching, game viewing, and mountain-biking. The Ladder Ranch is also implementing several recovery programs for imperiled species. These businesses depend, for their success and viability, on a pristine and untarnished environment. First of all, they depend on clean water: Groundwater aquifers and surface water and creeks and streams, yet mining operations are likely to pollute groundwater and surface water. Particularly vulnerable is the Avant Pasture, on the Ladder Ranch immediately downgradient of the mine facilities. Mine operations, particularly the open pit, will lower the water table beyond the permit area boundary, which is likely to affect private wells on neighboring property. One of the attractions of the ranches is the spectacular,

dark, star-filled skies in the area. The Copper Flat Mine, if permitted, will operate 24 hours a day, seven days a week. Nighttime work will be conducted under bright lights. These lights will be easily visible from the ranch property. The lights will obscure the once spectacular night skies. The ranches also depend for their livelihood on clean air. Fugitive dust from mining operations will have the tendency to foul that clean air. Another attraction of the ranches is their peace and quiet. Copper Flat Mine, if permitted, will destroy it. The mine will employ blasting to excavate the open pit, and operate heavy equipment, such as dozers and large dump trucks, 24 hours a day, seven days a week. It will operate a mill to crush the copper ore. Noise from mine operations will affect wildlife. Man-made noise can hinder animals' ability to hear approaching predators and to locate mates. Noise can also adversely affect livestock. Eco-tourists react very negatively to anthropogenic noise. Section 19.10.6.603.A provides that a hard rock mine must use the most appropriate technology and best management practices. This requirement applies not only to mining reclamation, but to mine operation. This provision authorizes the Director of MMD to address these issues through permit conditions. The Ranches urge the Director to impose conditions to restrict blasting, and to limit light pollution, noise pollution, and air pollution from fugitive dust. The Ranches also ask that the permit provide that the Ranches and other members of the local community be allowed to participate in developing plans to address noise pollution, dust pollution, and light pollution.

Fundamental flaws with the permit application must be addressed before a permit can be issued. Section 19.10.602.D.13(g) requires that a permit application

include a determination of the probable hydrologic consequences of the operation and the reclamation. The NMCC application fails to address the effects that the pit dewatering and long-term drawdown will have on groundwater and other resources. The application also fails to address the effects of long-term water quality in the pit lake, and fails to address the effects on groundwater of seepage from the waste rock piles, leaks from the tailings facilities, and releases from other facilities at the mine. Section 19.10.6.603 requires that a mine be reclaimed to achieve a self-sustaining ecosystem. The permit application fails to meet this requirement because the pit lake created after mine operations cease ultimately will not meet surface water quality standards. Section 19.10.6.1201.A requires that an applicant submit a financial assurance proposal to MMD. The NMCC financial assurance proposal is deficient in several ways: the proposal is based on the assumption that no more than 25 years of monitoring and maintenance will be necessary, and does not follow agency guidelines in estimating indirect costs, resulting in a significant underestimate of the costs of reclaiming the mine. The proposal does not identify the form of financial assurance that will be proposed, and the public will not be given the opportunity to comment on the form of financial assurance to be proposed. Finally, Section 19.10.6.606.B.7 requires that reclamation be designed to meet all environmental requirements without perpetual care. The Copper Flat Mine reclamation, because it relies on source controls to protect groundwater, will need monitoring and maintenance virtually in perpetuity. Tr. pp. 84-91.

The Ranches exhibits number 1 through 24, in addition to the written statements submitted by each of their witnesses. Apart from the resumes and slide presentations

identified for each witness below, the exhibits included many documents relied upon by Mr. Kuipers in his testimony, including guidance and other literature on best management practices in mining and the calculation of financial assurance.

Stephen J. Dobrott is currently the Ambassador for Ted Turner Expeditions, a New Mexico ecotourism business. After working as a wildlife specialist and refuge biologist, he managed the Ladder Ranch for 24 years. His testimony at hearing was consistent with his written statement. The slides projected during his testimony are in Ranches Exhibit 1 and his resume is Ranches Exhibit 2. Tr. pp. 92-95.

The management of the Ladder Ranch is based on its mission "To manage and enhance Turner lands in an economically sustainable and environmentally sensitive manner while emphasizing the conservation of native species and habitats." The Ladder Ranch is in Western Sierra County, just north and east of the Copper Flat Mine. The mine production well fields bound the ranch on the south. Most critical is the four-mile stretch of boundary adjacent to the mine pit due to its close proximity to the Ladder Ranch headquarters. Another critical area is the Avant Pasture, which livestock and wildlife use for grazing and browsing, and which is immediately to the east and hydrologically downgradient of the proposed waste rock piles and other mine facilities. What makes The Ladder Ranch sustainable from a business perspective is the diversity and quality of rangelands, the wildlife, and water resources that occur there. The ranch consists of 157,000 acres of private land, 100,600 acres of National Forest and wilderness lands, 20,079 acres of State lands, and 11,480 acres of BLM lands, totaling 289,159 acres, or 451.81 square miles, all within Sierra County. Its proximity to the Black

Range watersheds and elevations from 4500 feet to 10,000 feet provide a suite of biological life zones unmatched on any one property in New Mexico. The biological diversity on the ranch is highly regarded by biologists and ecologists alike. Tr. pp. 95-96.

Surface water: The ranch is incised by five semi-perennial creek systems: From north to south, the Cuchillo Creek, Palomas Creek, Seco Creek, Cave Creek, and Las Animas Creek that drain into the Rio Grande Basin. Each contributes greatly to the biological richness of the ranch. Of the five creeks, Las Animas is the most notable for its biodiversity and importance to the Ladder Ranch. The Las Animas and Cave Creek stream system is crucial and is the life blood of the ranch. Its surface and groundwater supply pristine, dependable water for central ranch operations, including administrative facilities, employee and guest housing, livestock, farm irrigation, wildlife, imperiled species programs, all within three to four miles of the Copper Flat Mine. Las Animas Creek has been nominated as one of New Mexico's scenic waterways, and its environmental importance has been documented in scientific publications and the book "River of Spirits, a Natural History of New Mexico's Las Animas Creek," which Mr. Dobrott co-authored. Tr. pp. 96-97.

The riparian corridor has also been designated as an Important Bird Area by the Audubon Society. One of the creek's most unique features are the ancient Arizona sycamores that occur only on this creek within the entire Rio Grande Basin. Las Animas Creek provides streamside, or riparian, vegetation and food used by waterfowl and migrating and breeding bird populations unique to the Southwest, and connects migrating birds along the Rio Grande with upper reaches of the Black Range. Food cover

and good quality water are used by many bird species, including the Yellow-billed Cuckoo and the Southern Bald Eagle, currently listed as threatened species by the U.S. Fish & Wildlife Service. Las Animas Creek currently supports four native fish species: the Rio Grande chub, the Rio Grande sucker, the Rio Grande Cutthroat Trout, and the Long-fin Dace. These species depend on pristine water for reproduction and production of macro-invertebrate food sources made possible by these waters. Within the area nearest to the Copper Flat Mine are several natural springs along Las Animas Creek: Animas Warm Spring, the Manager House Spring, Garden Tank Spring, Myers Animas Spring, along with several unnamed springs and seeps. Tr. pp. 97-99.

Groundwater resources: Within the area closest to the Copper Flat Mine are five livestock wells, three irrigation wells, and three domestic wells. These are, west to east, Myers Well, John Cross Well, Wanda Well, Evans Well, and Feedlot Well. The irrigation wells are, from east to west, Shipping Pens Well, Higgins Well, and Orchard Well. The domestic wells are also at headquarters. In the Avant Pasture in the southeast section of the ranch, along with the Evans Well, it is used to supply "drinkers" for quail and stock tanks used by bison and large game for drinking. It also provides water to two important conservation facilities: The endangered Bolson tortoise facility, where young tortoises are raised, and the Feedlot steel rim water storage that is used for maintaining threatened Chiricahua Leopard Frogs. These water sources are an important component of the Ranch's ecotourism program due to the variety of visible wildlife that they provide. Tr. pp. 99-100.

Wildlife abounds on the Ladder Ranch. Healthy populations of elk, mule deer, Coues whitetail deer, pronghorn, javelina, black bear, mountain lion, turkey, and three species of quail occur there. Fifty-seven species of mammals and over 250 species of birds have been recorded on the Ranch, listed in Ranch Exhibit 3. Each suite of species is considered a biological treasure and an economic asset to the ranch. Bison are managed as livestock and coexist with other wildlife species ranch-wide. Achieving a balance between conservation and sustainable businesses has been a goal for 25 years. Specific habitat conservation programs have been developed at the Ladder Ranch in accordance with its Mission Statement. The non-profit Turner Endangered Species Fund partners with U.S. Fish & Wildlife Service and the New Mexico Game and Fish Department in imperiled species restoration projects like the federally listed Chiricahua Leopard Frog, the Mexican gray wolf, the Bolson tortoise, and the Yellow-billed Cuckoo. Its mission is "To conserve and restore imperiled species, with an emphasis on promoting wild, working landscapes." Additionally, the Turner Biodiversity Division works to restore less imperiled species like the Rio Grande Cutthroat Trout and other native fish to the Las Animas Creek stream system. The propagation of the threatened Chiricahua Leopard Frog depends upon pristine and reliable groundwater. Pristine water is essential for the frog propagation facility at headquarters, and the water storage facility supplied by water from the Feedlot Well. Pristine water quality and reliable flow is also important to this species in the wild on Cave and Las Animas Creeks. The captive endangered Bolson tortoise also relies on pristine, reliable groundwater.

The threatened Yellow-billed Cuckoo depends on pristine, reliable surface water in the Las Animas Creek for its habitat. Tr. pp. 100-101.

Business enterprises of The Ladder Ranch: Since 1992, the Ladder Ranch has been raising and selling bison meat commercially in markets and restaurants. The Ranch conducts big-game hunts for mule deer and elk through Turner Ranch Outfitting. The Ranch is a popular destination for guests of Ted Turner Expeditions, an ecotourism enterprise based in Truth or Consequences. Guests who visit the Ranch for the day stay at a sister property, the Sierra Grande Lodge, an 18-room historic hotel in Truth or Consequences. Each enterprise depends on healthy and well-managed environments to operate successfully and to accomplish their objectives in concert with each other. All of these businesses contribute to the economy of Sierra County through taxes and purchases of goods and services. The Ladder Ranch has been doing this on a sustainable basis for 25 years, and it will continue to do so for the foreseeable future. Community outreach and youth development: For 25 years, the Ladder Ranch has hosted numerous programs for local and region-wide youths, such as the Native American Natural Resource Management Practicums that focus on preserving tribal connections with the land and wildlife and encouraging youth to stay in school and go on to higher learning. To date, over 500 Native American youths from Southwest tribes have spent time on the Ranch learning about its conservation programs. Through the Turner Youth Initiative, the Ranch has been a focal point for opportunities for local youth, such as high school biology classes and the Boys and Girls Club of T or C. Last Friday, 30 students from Socorro and their teachers visited the ranch to experience the vast landscapes,

historical sites, and wildlife. The landscapes, the riparian environments, are tremendous outdoor classrooms that offer youth a chance to connect with nature. Las Animas Creek is high on the list for providing a sense of connectivity to the importance of water and the resulting habitats and wildlife it can support for future generations. Tr. pp. 102-103.

The Ladder Ranch has several concerns about the Mine. According to the BLM's Draft Environmental Assessment, Copper Flat Mine will pump about 7,000 acre-feet per year of groundwater, almost 2 billion gallons, threatening water supplies on the Ladder Ranch, adjacent ranches, Hillsboro, and downstream users along the Rio Grande. Hydrologists project that the mine will eventually reduce the flow in Las Animas Creek at some point after mining begins and potentially eliminate the flow entirely after mine closure. The mine will dump over 100 million tons of polluted waste into a 500-acre pond just over 11 miles west of Caballo Reservoir. Contaminants from the mine could leak into the ground or into the groundwater or pollute Ladder Ranch and reach the Rio Grande, threatening drinking water supplies as far south as El Paso. Blasting will be heard and felt at the Ladder Ranch, disrupting the ranch's solitude, affecting the ecotourism business, and potentially damaging its historic buildings and pipelines. The experience of overnight ecotourist guests will be disrupted from the sound of blasting from the mine just three miles distance from the guesthouse. The ranch biking tours will also hear the blasting. Nearby captive animals within conservation program facilities may be sensitive to the effects of blasting. The prevailing southwest winds will bring dust to the Ladder Ranch headquarters three miles directly downwind of the mine. The resulting drift of airborne pollutants could harm imperiled species conservation

programs. The Ranch's remarkable dark skies will be lit up by the mine's lights, damaging one of the region's best star-gazing and photographing locations. Mine lights will adversely affect the quality of experience offered through the ecotourism business. Ladder Ranch and neighboring watering wells adjacent to and downstream of the mine will also see significant drawdown and static water levels, resulting in hardship for the Ranch and lower Las Animas water users. One of New Mexico's last remaining populations of Chiricahua Leopard Frog listed by the U.S. Fish & Wildlife Service as threatened will be at risk due to the projected drawdown of Las Animas Creek. The lowering of the water table caused by the cone of depression from constant groundwater pumping during operations and evaporation of the pit lake after mine closure will be devastating to the Ladder Ranch and to its important biodiversity. Native fish and frogs and riparian obligate species, such as the federally listed Yellow-billed Cuckoo that depend on the cottonwood gallery forest, will be jeopardized. Any impairment in the quality or depletion in water quantity, quantity or quality, derived from Ranch domestic livestock and irrigation wells and springs would significantly impact these business enterprises and wildlife. Tr. pp. 103-106.

Any drawdown of the water table from the projected "cone of depression" emanating from the mine pit, or potential contamination of the water resources from mine facilities, in this area would be a disaster. Ladder Ranch businesses and established programs could potentially collapse. Without reliable and sufficient clean water, bison ranching on the southern portion of the ranch would be seriously compromised. The habitats of native fish and rare wildlife found along Las Animas Creek could be lost.

Without abundant game within this area, their outfitting business would be significantly affected. Without a healthy vibrant ecosystem to show guests, the Ladder Ranch ecotourism business would be significantly affected. The Ladder Ranch urges MMD to consider the projected and irreversible impact that the Copper Flat Mine will have on the Ladder Ranch, its neighbors, local ranchers and farmers, and all downstream water users in the lower Rio Grande. Issuing this permit flies in the face of those who understand the importance of limited groundwater resources and potential costs of pumping 7,000 acre-feet per year of groundwater from the aquifer, especially during this time of uncertain precipitation, of continuing drought conditions in the Southwest, and of change in climate. Issuance of this permit would potentially forever alter Las Animas Creek. It would be at the expense of that already existing remarkable ecosystem. The Ladder Ranch understands the importance and complexities involved in managing self-sustaining natural ecosystems. It is doubtful that the Copper Flat Mine would ever achieve a sustainable ecosystem, as required by the New Mexico Mining Act, without massive and perpetual expenditure for reclamation and restoration. Therefore, the Ladder Ranch stands opposed to the issuance of the permit. If the permit is issued and the Copper Flat Mine is allowed to operate, the Ranch's water, unique environment, quiet and scenic open spaces, clean air, dark skies, its historic buildings, its diversity of wildlife, bison, hunting, ecotourism, its conservation programs, could all be affected in ways that would be devastating and irreversible. Tr. pp. 106-108.

On questioning, Mr. Dobrott stated that Mr. Turner bought the Ladder Ranch in 1992, and Mr. Dobrott went to work immediately thereafter as the manager. At the

peak of production on the Ladder Ranch, they had almost 2,000 calves; once they got into a cow/calf operation, the adult cows went down to about 700 cows. Hunting has occurred at the Ranch for several years. Ecotourism is their newest business. Their businesses are quite diversified, and it's all very important. State lands are 20,000 acres. Turner Enterprises does not have any direct management responsibilities or decision-making authority on those acres. Indirectly, they participate in using those lands through hunting agreements with the State, and they lease those lands for grazing and other activities. Tr. pp. 184-188.

Robert Cunningham, with his sister, Kathy McKinney, owns and manages the Hillsboro Pitchfork Ranch, owned by their family since 1906. Mr. Cunningham's testimony was consistent with his written statement; his slides are Ranches Exhibit 4, and his resume is Ranches Exhibit 5. He worked for the U.S. Forest Service for 34 years, retiring in September of 2009 as a supervisory fire management technician, having managed complex aviation operations for large wildland fire and hazard incidents. Mr. Cunningham grew up on the family ranch, learned to rope, ride, brand, fix windmills and fences. He learned about cattle and care for and improvement of the land. He returned to the ranch often to assist his father in running the ranch. In 2003 he and his sister became the fourth-generation owners and caretakers of the family ranch and legacy. Specific responsibilities include business and financial management; care and improvement of land, cattle, and game management; hunt guiding, wildlife habitat improvement, and facilities management. He negotiates leases, maintains and upgrades facilities, maintains financial documents, pays the bills and taxes. He and his

sister and have been personally involved in the hunting and guiding aspect of the business for over 30 years. The primary responsibility of any ranching family is to understand, monitor, and foster the ecology of the land and its care. A unique understanding of the native vegetation, including grasses such as black grama, side oats and vine mesquite, shrubs such as sumac and mountain mahogany, and tree species such as the Rio Grande cottonwood and the black walnut is key to the successful stewardship of the land. As with any business enterprise, economic success comes from the care and improvement of the land. Tr. pp. 190-194.

Having spent considerable time on the family ranch during the late 1970s and early 1980s, Mr. Cunningham observed firsthand the initial development of the mine and saw the negative environmental effect on the Grayback Canyon ecosystem. When NMCC first proposed to reopen the Copper Flat Mine approximately nine years ago, maps and documents from various State and federal agencies, as well as from THEMAC, became available, and Mr. Cunningham began to research how the proposed Copper Flat Mine might affect the family ranch. He reviewed documents and maps from the Draft Environmental Impact Statement prepared by the Bureau of Land Management dated November 2015, among other filings. They submitted 50 pages of comments to the BLM regarding the Draft EIS. BLM has not issued a final EIS regarding the Copper Flat Mine project. Geographically, the ranch is adjacent to the west property boundary of the proposed Copper Flat Mine. The physical distance from the ranch property boundary to the existing mine is approximately 1,680 feet. Grayback Canyon is located on the eastern portion of the Hillsboro Pitchfork Ranch, bounded on the north by the

Ladder Ranch and on the east by the Copper Flat Mine. The headwaters of Grayback Canyon are primarily on lands owned by the Hillsboro Pitchfork Ranch. Generally, the drainage system of the Grayback Canyon system is upgradient of the proposed Copper Flat Mine, and flows down toward the mine and the pit that will be a hydrologic sink. The approximate area upgradient of the Copper Flat Mine that is privately owned by the Hillsboro Pitchfork Ranch is about 1254 acres, but of equal importance are the public lands of approximately 493 areas that will also be affected by a potential mine development. Mr. Cunningham has spent much time in Grayback Canyon, ridden horseback, walked on foot, and ridden in vehicles in the Grayback Canyon area. He has worked cattle, hunted and guided, improved wildlife habitat, built fences, and installed solar-powered water pumping systems, drinking troughs, and pipelines in the Grayback Canyon area. There are natural sources of water in Grayback Canyon, intermittent streams, springs, and seeps in the canyon system. They do not flow all the time; commonly, they flow after a rainstorm or other significant precipitation event. These intermittent water sources within the Grayback Canyon help to support native vegetation for wildlife and livestock forage and provide a supplemental source of drinking water for wildlife and livestock. Tr. pp. 194-198.

The Hillsboro Pitchfork Ranch relies on groundwater sources along the eastern property downward of the ranch to maintain its economic viability and to maintain the ecosystem of a family ranch and adjacent private and public lands. The Pitchfork Ranch owns and operates two groundwater wells near its eastern property boundary. The first well is the Rodgers Well, operated by an old, wooden windmill tower known as the

"Rodgers Mill." Based on historic records, they believe this well was developed around 1900. The depth of the well is 150 feet below the ground surface. The well provides drinking water to livestock and wildlife. The second well is the Grayback Well. It was originally developed in 1950 by his father. Its depth is 200 feet below the ground surface. The Grayback Well utilizes a solar-powered pumping system, numerous water lines, storage tanks, and drinking troughs that have been installed and supplied water to remote areas of the Grayback drainage. This water source is used for drinking water for livestock and wildlife. The Rodgers Well is approximately 3,270 linear feet upgradient from the proposed Copper Flat pit lake. The Grayback Well solar pumping system is approximately 8,074 linear feet upgradient from the proposed pit lake. The existing open pit lake is immediately to the east/northeast of the Grayback Canyon on the ranch. It is important for MMD to understand where Grayback Canyon is located at its termination from its natural channel to the mine diversion channel and to the existing pit lake. Grayback Canyon was diverted in the late 1970s and the late 1980s in the previous mining attempt. A diversion channel was created to divert the natural flow around the proposed copper pit, and it flows around the mine site and eventually regains the natural channel. Tr. pp. 199-201.

The proposed open pit at the Copper Flat Mine would be hydrologically immediately downgradient of the Grayback Canyon area of the Hillsboro Pitchfork Ranch and public lands administered by BLM. Mr. Cunningham displayed a slide to provide information on well depths in relationship to the bottom of the proposed pit mine for the Rodgers and Grayback Wells, noting that the X and Y axis are not to scale.

Given the groundwater gradient and the proximity of the Pitchfork Ranch to the proposed open pit, groundwater from beneath Grayback Canyon system will be drawn into the hydraulic sink and associated pit lake from the Copper Flat Mine development, lowering the water table. Their ranch wells may produce less water, or go dry. The intermittent streams and seeps in the Grayback Canyon will most certainly be affected. Their flow will be reduced, or they may go dry. Without a plentiful supply of water, the ecosystem of the Grayback Canyon will be harmed. Vegetation will change, less water will be available for game and livestock for forage and livestock purposes. They will be forced to reduce cattle numbers. Wildlife, including game species, will become less abundant. The resulting loss of income will result in less money available to maintain and improve the ranch and its lands, less tax revenue to local, state, and federal governments, loss to local businesses, and gross receipts, and a loss of income to those employees and contractors utilized for ranch operations. Tr. pp. 201-203.

Noise generated by the proposed Copper Flat Mine can affect wildlife and livestock operations on the ranch, including both private and public lands. Game animals are public property in New Mexico, which should be considered in any permitting decision related to the Copper Flat Mine. In general, noise acts as a signal to wildlife. An unusual noise is perceived by a mule deer and other wildlife species to be a sign of danger, signaling, for example, the approach of a predator. Studies show that each time a mule deer hears an unusual noise, it ceases feeding until it can identify the noise as non-threatening. Mule deer, being a small animal, must consistently high-quality browse to maintain their health. Repeated noises can greatly affect mule deer

feeding success. Given the Copper Flat Mine operation will require hundreds, if not thousands, of explosive detonations over a period of ten to 15 years, the effects on mule deer and the elk populations in the Grayback Canyon system will be profound. These detonations can exceed peak pressure levels of 140 decibels. Several hundred charges will be detonated each year. 140 decibels is about the noise level of an active aircraft carrier flight deck. It's pretty loud noise. A 30-decibel level is considered normal for a quiet rural area. See Table 3.47, taken from the Draft EIS, which described the closest noise-sensing areas to the proposed mine area. The noise level is estimated to be 42. See also the "Risk of Noise Concern and Complaints from Blasting" table, which appears to show human concerns and complaints about the noise from potential blasting activities. The risk-of-noise concern ranges from low to high, and peak noise levels from less than 150 dB down to 130 to 140 dB. It does not address wildlife or livestock reactions to loud or sustained noise. The map does not include an analysis of peak noise levels, or how far the noise might be transmitted. It emits the effect of mine noise on livestock and wildlife on adjoining private and public lands. Slides H, J, and K describe how blasting or other mine-generated noise affects people and some types of infrastructure. Each table in the Draft EIS uses different metrics to describe noise generated by mining activities. These tables do not provide an accurate overview to the public or permitting agencies as to how loud or how far these noises may travel. The tables are silent in every case on effects to livestock and public wildlife by mine-generated noise. Analysis of how noise affects livestock and wildlife is missing in the Draft EIS and other documents. This should be addressed by MMD prior to issuing any

Copper Flat Mine permit. Over time, public wildlife populations in the Grayback Canyon area will be greatly reduced by development of the mine. This decrease will be caused by a reduction in surface and groundwater, as well as adverse effects of noise. Livestock in the area will be adversely affected for the same reasons. Not only will this affect the economic condition of the Hillsboro Pitchfork Ranch, but, also, the value of adjoining private and public lands and public wildlife in the Grayback Canyon area. Tr. pp. 204-210.

The development of the Copper Flat Mine would have a profound negative ecological and economic impact to the Hillsboro Pitchfork Ranch. These impacts will extend to other private and public lands in the Grayback Canyon system to the west of the proposed mine. He requests MMD not issue a permit for the Copper Flat Mine. If MMD issues the permit, he requests that MMD place conditions in the permit to protect water sources, livestock, wildlife, and the environment. The conditions should restrict blasting at the mine. They should limit light and dust. Any permit issued should ensure existing ground and surface water resources in the Grayback Canyon system will not be impacted by the mine development. Tr. pp. 210-211.

On questioning, Mr. Cunningham acknowledged that he could not say how much vertical exaggeration there was on the Y axis in his graph labeled "Above-elevation Change from Bottom of Ranch Wells to Bottom of Proposed Pit." He agreed that the gradient shown was not accurate; he does not know the gradient. Mr. Cunningham agreed that there is some adaptive mechanism in many wildlife species, but based on a study in the area of Teton National Park, they observed that loud noise, over time, could

have a significant effect on feeding habits and the amount of food that they consumed. Tr. pp. 211-216.

Kathy McKinney owns and operates the Hillsboro Pitchfork Ranch with her brother Bob Cunningham. Ms. McKinney's testimony was consistent with her written statement, her slides are in Ranches Exhibit 6, and her resume is Ranches Exhibit 7. Being a fourth-generation rancher on the Pitchfork Ranch, her education started at a very young age. They were raised with a strong work ethic and to be good stewards of the land. The ranch has been a way of life. She has spent many hours in the saddle checking waters, building fence, and moving cattle. She has worked on windmills, helped install solar systems, and handled brush control. She has been involved with the State of New Mexico Conservation Stewardship Program for the last nine years, personally hunted deer and quail on the ranch for 20 to 25 years, conducted wildlife surveys, guided mule deer and elk hunts. They are currently one of the only ranches in Southern New Mexico to acquire a Level 3 incentive hunt due to land stewardship and dedication to enhancing the quality and quantity of the mule deer population. Her purpose is to preserve the family legacy as they groom and move forward to a fifth generation of heirs. She is also speaking as a member of the public as to the potential impact of the permitting of the proposed Copper Flat Mine. She will discuss the economic impact of hunting and fishing in the state of New Mexico, as well as in Sierra County, and the potential impact to private and public lands. Tr. pp. 217-221.

In 2013, the New Mexico Department of Game and Fish commissioned a study of fishing, hunting, and trapping to estimate statewide and County-level activity and to

determine the contribution that fishing, hunting, and trapping activities make to the State's economy and to present results for selected species to estimate their individual share of the total economic contribution to hunting. The goal was to communicate the magnitude of spending by sportsmen and their associated contributions to the State's economy and to inform discussions among legislators, agency personnel, and other stakeholders to assist with strategic decision-making associated with wildlife resources. The economic contributions associated with recreational fishing, hunting, and trapping can be a powerful economic engine for the communities across New Mexico, generating additional spending, supporting and creating jobs, and building future investment in open spaces and wildlife area. According to the study, the State was host to more than 160,000 anglers, with these anglers spending $268 million in fishing and related activities, while in 2013, there were over 86,000 hunters in the state of New Mexico, spending $342 million in hunting-related activities. This comes to a total of $610,085,000. A total of 7,891 full and part-time jobs were created. Total labor income, including salaries, wages, and benefits paid to employees and business proprietors, was $110,408,000. The State GDP, which represents the total value-added contribution of the economic output made by industries being impacted by State participation, was $451,417,000. The tax revenue, being State- and federal-generated, was a combined sales tax revenue of $105,881,000. According to Alexandra Sandoval, Director of the New Mexico Game and Fish Department, there are currently 87,000 hunters and 160,000 anglers spending approximately $613 million. Their fees pay for ongoing projects such as the Desert Bighorn Restoration Program. They have paid for

restoration of 132 miles of streams, ten lakes, and one reservoir for our State fish, the Rio Grande Cutthroat Trout. The New Mexico Game and Fish Department, as a part of the study, also commissioned a study of fishing and hunting on a County level to determine the contribution made to each of the 33 counties in the state. In Sierra County, hunting activity for deer was 1,144,000, and elk was 1,363,000. Just the deer and elk have a combined total of $2,507,000 annually. Combined with a balance of large game animals, being bear, cougar, javelina, turkey, and other species, total spending was $3,451,000. That, combined with small game, bring the total hunting to $4,357,000 in Sierra County. The total jobs estimated was 56. Labor, with the same criteria as previously, was paid $1,192,000. The state GDP income is going to be $2,867,000 generated. The tax revenue, federal, State, and local, was a combined total of $689,000, which is a pretty substantial contribution that hunting is making in Sierra County. Tr. pp. 221-225.

Ms. McKinney then discussed the potential impacts the permitting of the Copper Flat Mine could inflict on the Pitchfork Ranch, as well as the hunting opportunities in Area 21B, a specific hunting area on the ranch and BLM lands designated by the New Mexico State Game and Fish for public hunts. Cattle ranching is a primary activity on the ranch. The ranch is a cow-and-calf operation, running about 210 head of cows. They utilize a pasture rotation system and supply supplemental feeding as necessary to maintain good cattle condition. They manage and improve grazing lands to ensure good range conditions for today and improve ranching conditions for future years. Regarding the Grayback Canyon in terms of its water resources, its plants, animal life, and the

ecosystem: The intermittent springs, seeps and streams in Grayback Canyon support a varied natural ecosystem, habitat for wildlife, and forage area for livestock. The canyon has particularly good grasses, including side oats and black gramma. Livestock feed on these grasses. It also has an abundance of forbs and gamble oak, with thick concentrations of mountain mahogany. Wildlife feed on these forbs, with mountain mahogany being the preferred forb for mule deer. Both livestock and wildlife utilize the area year-round due to good forage, thermal cover, and access to plentiful water from the Grayback Canyon, the Rodgers Well and other water sources. Because the deep canyons make the area very secluded, and because the canyon has good feed and good water, the area has become a premium mule deer habitat. Tr. pp. 225-227.

Slide 7-E shows a drain drinker, and water to the drinker is provided by the Grayback Well. It's a piped system in the northern northeast corner of the ranch, and many game trails lead to the water across the flats. Cattle have a boundary; they are bounded by fences. Game doesn't have a boundary; it roams wherever it wants to go. Representatives of the New Mexico Department of Game and Fish refer to this section of the ranch as the "nursery," because a substantial number of mule deer grow, live, and fawn here. She has seen herds in excess of 20 head in the area. Many of the doe are replenishing the deer inventory on the BLM lands. Over the previous nine years, they have partnered with the National Resource Conservation Service to implement improvements to the ranchlands for livestock and wildlife and their habitat. The practices include, but are not limited to, such programs as comprehensive monitoring of key grazing areas, implementation of safety features for wildlife, to include riparian

areas, as well as solar facilities such as those utilized in the Grayback system. Hunting is another primary activity of the ranch. Hunting species include mule deer, elk, dove, and two varieties of quail, Gambel's and Mearns. She has guided hunting trips in the Grayback Canyon for 29 years, providing big-game hunting experiences for over 100 individuals. She and her brother are greatly honored to host their first Wounded Warrior Hunt, where they donate a big-game hunt to a service member who has suffered injuries while defending our country. Tr. pp. 227-229.

In their effort to improve the mule deer quantity and quality to achieve financial goals, they have worked with the New Mexico Game and Fish Department over the previous ten years to achieve a Level 3 incentive hunting opportunity through the State of New Mexico Game and Fish Department, being one of the only ranches in Southern New Mexico to achieve that level. Level 3 habitat management includes maintaining wildlife, putting up fences around riparian areas, maintaining and continuing the treatment of mesquite, with 937 acres hand-treated as of May 2018. The property owner is to maintain and continuing hand-trimming of mountain mahogany, with 128 acres of mountain mahogany hand-trimmed so far, with the majority of the habitat management taking place in the Grayback and Rodgers area of Grayback drainage. The fourth criteria is to continue the existing hunting strategy and to provide a relatively conservative harvest level of legal bucks. Mule deer population have experienced a steady decline over most of the species traditional range, reflecting declines in New Mexico populations have been halved in less than 30 years. Mule deer habitat is subject to an extensive and expanding range of external pressures, resulting in the loss of

approximately 2500 acres of suitable mule deer habitat every day. The core component of mule deer habitat are water, food, and cover. In general, mule deer habitat requirements include forage, vegetation, and land forms that provide hiding, thermal cover, and accesses to sources of water. In the Southwest, most mule deer herd are non-migratory, though they may move in response to changes in vegetation and moisture conditions. Field studies have shown that mule deer home range patterns are closely associated with water availability between a mile to a mile-and-a-half, with the mule deer requiring approximately a gallon-and-a-half of water per day for an average-sized animal. Human activity has caused the lowering of the water table in many areas, which has resulted in the disappearance of springs, cienegas, artesian wells, and entire rivers. Although mule deer may not be completely dependent on free water every day, they do shift their area of activity within their home range or even move out of their home range when sources dry up. This comes from the Wildlife Habitat Management Institute, “Habitat Guidelines for Mule Deer: Southwest Deserts, Ecoregion.” In a study conducted at Fort Stanton in Southern New Mexico, deer densities fluctuated in conjunction with the availability of water. According to the deer and pronghorn biologist for the New Mexico Department of Game and Fish, "Without a viable source of water, mule deer will move out of the area." Tr. pp. 229-232.

The Grayback Canyon is upstream from the existing mine pit, and is a primary mule deer hunting area for both the ranch and the public who hunt on the adjacent BLM areas. Ms. McKinney displayed a photograph showing the Grayback drainage area the proximity of their ranch to the mine; many of their hills overlook the mine site, which is

critical from both the sound perspective as well as the lighting. They are concerned for their views and for the experience of their hunters. The photograph also shows the Caballo Mountain Range, and Caballo Lake. There is a potential for substantial drawdown in permanent water sources in the Grayback Canyon and for drinking purposes. If so, thy will be forced to reduce cattle numbers; and wildlife, including game species, will be less abundant. The loss of water and the loss of habitat will result in a decrease in the number of game animals, resulting in a loss of income to the Pitchfork Ranch, but it will also decrease the hunting opportunities for the general hunting public and the game area of 21B on public lands and State land. Decreases in the number of cattle will result in the loss of income to the Pitchfork Ranch, making less money available to maintain and improve the ranch and its land area. This will result in less tax revenue to local, State, and federal government, losses to local businesses, and the loss of income to those employees and contractors that utilized in the ranch operation. She asks MMD to consider the short-term income stream to the proposed Copper Flat Mine as opposed to the substantial economic loss that will be suffered into perpetuity not only by Sierra County, but by the State of New Mexico, as well. Tr. pp. 232-234.

James Kuipers noted that he would be presenting a number of recommendations specific to the Mining Act, and he began with a summary of issues and his professional qualifications. Mr. Kuipers' resume is Ranches Exhibit 11. His written statement is consistent with his testimony at hearing. The slides Mr. Kuipers presented as he spoke are compiled in Ranches Exhibit 10. Tr. pp. 248-251.

This is the first new mine proposal that's gone to this point in the permitting process. The New Mexico Mining Act, unlike other Western states and most of Canada, makes a clear distinction between existing mines and new mines with two key provisions. The first is that new mining operations must be designed and operated using the most appropriate technology and the best management practices, which is very forward-looking. A second provision assures protection of human health and safety, the environment, wildlife, and domestic animals. The rules implementing the Mining Act contain a list that the applicant is required to address. NMCC has addressed the items on the list within the MORP. The Ranches want to address some of those issues, like fugitive dust, noise, lights and traffic, with additional recommendations that supplement what's in the rules. There are requirements in the Act that don't just pertain to the mine when it's reclaimed, and MMD has a responsibility to address these matters during operations and not just as part of reclamation. Tr. 252-254.

Wildlife protection: according to the MORP, NMCC will construct the operations and reclamation phases of the project such that they will not impact critical habitat for wildlife based on wildlife studies conducted on the site. Essentially, what they address are the physical disturbances on the mine site itself. Wildlife isn't just limited to the mine site, it also exists outside the mine site. The hazards may be different, they might not be direct physical hazards like going into a pond or being hit by a haul truck, but there are larger-picture disturbances to wildlife. The Act requires measures to be taken to minimize adverse impacts on wildlife and important habitat, and that should be based on site-specific characteristics, such as restricting the access of wildlife and

domestic animals to toxic chemicals; minimizing harm to wildlife habitat during mining, and then reclaiming areas of wildlife habitat if not in conflict with the approved post-mining land use. Here, MMD should require the applicants to further demonstrate that the mining operations will not impact wildlife outside the proposed area. We suggest they need to at least provide some mitigation measures outside the permit area, particularly with respect to lights, noise, blasting, and traffic. Tr. pp. 254-256.

Lights: the MORP does not address the potential impact from lights in a way that assures the protection of the environment and wildlife. There hasn't been a lot of focus on these type of impacts in the literature. Those who work around mine sites can provide anecdotes. He can discuss times when it seemed like the mine site became a wildlife refuge. At other sites, where wildlife had disappeared, they came back. We can spend time arguing; ideally, MMD will say "Let's make sure, to the extent that it's reasonable to do so, that we mitigate these impacts if we have a mine." There are plans out there to address lights, such as the light plan at the Rosemont Copper project in Arizona, located in an area with a number of observatories that depend upon dark skies. They put together a "Light Pollution Mitigation Plan," and it goes through steps such as assessing the baseline night sky condition. Then they looked at technology, which can provide answers to some of these issues that are raised, with LED lights, targeting lights, dimming switches, motion detectors, and color rendering. The Director should require NMCC to demonstrate that the mining operation will not result in environmental light impacts, and if the permit is issued, they should require the permittee to employ best

management practices, to submit a Light Monitoring and Mitigation Plan and look to find the effective ways to mitigate impacts. Tr. pp. 257-260.

Noise: Most of us are used to thinking about noise that could potentially damage folks' hearing with large decibel impacts. What we have not emphasized enough is "nuisance noise." He worked on a mitigation plan for a tailings storage facility in Montana, and got a call from a neighbor that vehicle backup alarms were very annoying, especially in the middle of the night. It turned out the operator was going down and having to back up about a 100-yard road. All they needed was a turnaround at the end of the road so he didn't have to back up any longer, and it eliminated that background noise. It's not always that simple, but sometimes it is. If you don't have any kind of a plan or approach, you won't have that opportunity to do that type of thing. The Mining Act recognizes that if we have technologies and we have the ability to mitigate impacts, then that's part of what we should be looking to do. What can we do about the concerns expressed by the Turner Ranch Properties and the Hillsboro Pitchfork Ranch? We can put together a "Noise Management Plan." Noise Management Plans are a part of nearly every mine in Australia. They ensure that environmental noise from operations is minimized and appropriately controlled. There are all kinds of source controls for noise, from muffling to different ways of directing the sound, so that impacts on surrounding residents are minimized. Tr. pp. 260-264.

The Ranches' third recommendation on this issue is that NMCC keep the local community and the regulators informed of activities, where required, and respond quickly and effectively to issues or complaints. The mining company would have a

phone number that the community folks can call, and if they have a concern, they have somebody whose job it is to respond. That is being done at a lot of different places, including Freeport-McMoRan. They also want to see regular monitoring to ensure compliance, not from an occupational standpoint, but monitoring of ambient noise. Wind is a huge factor, when the wind is blowing in one direction, noise can be heard quite clearly, but when it isn't blowing, may not be heard at all. There is a whole list of measures, including environmental education, the purchase of equipment that meets relevant noise standards, and maintaining plant machinery in good working condition. One of the key things in the Mining Act is for MMD to encourage the use of best practices. These are things that ideally need a more thorough environmental risk assessment. In the Draft EIS, BLM was focused in just one area, and it really needed to look beyond just the mine site itself. Tr. pp. 264-267.

Blasting: Most mines develop a blasting plan, and they eventually arrive at a common time for blasting. At many of the mines Mr. Kuipers worked at, they blasted at noon as a matter of policy, just when everybody was taking a break for lunch. That was the best time, with the pit and everything else cleared out, to go in and do the blasting. They let everybody know that noontime was when they would blast, so when they felt the vibration, or heard something, they knew what it was. That's a simple example of a practice they want to recommend. MMD is familiar with blasting plans, and requiring companies to submit a blasting plan that provides some key information to folks is a standard practice in many places. Their recommendation is that the Director require a detailed blasting plan, including things like preblast surveys, blast design limits, and the

potential for flyrock. It should include identification and application of protective measures and mitigation consistent with current best management practices. Those mitigations should be intended to reduce the potential impacts to both property and the environment, including humans, wildlife, and domestic animals. Tr. pp. 267-269.

Fugitive dust: The MORP does address dust control throughout. It describes things like water space in the primary crusher pocket, dust controls within the open pit, dust control as a surface stabilization measure, and unpaved haul roads and other disturbed areas, but they have not actually submitted a Dust Control Plan. He suggests development of a formal Dust Control Plan as part of the application package, or as a permit condition. Best management practices can address these things. First, they need to take into account the identification and classification of fugitive dust initiation sources. Normally, there is a long list of items that can create fugitive dust at a site, and there is a start of that list; ideally, it would be a more complete list, along with mitigations for each one. Beyond identification is fugitive dust characterization. It's important to collect and measure dust that comes off mine sites, have analysis done, and be able to show people that the dust generally is not highly contaminated material. This is fugitive dust that tends to blow around because the particles are light, particles primarily of sand, not metal. A Best Management Practices Plan can address fugitive dust, with practices like employees paying attention to when they see dust and calling for a water truck. The Ranches recommend that they develop a formal Dust Mitigation Plan. There are good examples out there, including a Fugitive Dust Best Practices Manual from the Centre for Excellence in Mining Innovation. Tr. pp. 269-271.

Stream and stormwater diversions: Section 19.10.6.603.C(5) NMAC requires that "When streams are to be diverted, the stream channel diversion shall be designed, constructed, and removed in accordance with the following: (A), unless site-specific characteristics require different measures to meet the performance standard and are included in the approved permit, the combination of channel, bank, and flood plain configurations shall be adequate to safely pass the peak runoff of a ten-year, 24-hour precipitation event for temporary diversions, a 100-year, 24-hour precipitation event for permanent diversions." Mr. Kuipers' focus is on the 100-year, 24-hour event, from a long-term reclamation and closure standpoint. Assuming that we had total confidence in the stormwater predictions by the National Oceanic and Atmospheric Association (NOAA), if we did have an event that exceeded a 100-year storm, it would actually cause damage to a diversion structure designed for only a 100-year storm. There is a general recognition today that all metals mines require some level of source controls, which also means that there will be some level of long-term operation and maintenance. At this site, the Grayback Arroyo diversion, and all the stormwater features at reclamation are critical features intended to prevent erosion of covers installed to decrease the amount of pollution that would enter groundwater. Anthropogenic climate change means extreme events are happening more frequently, and are larger. Over the last 20 years, we know that NOAA's predictions are not correct. The Questa site in Northern New Mexico has had four storm events that exceeded 100-year events in the 20 years he has been involved there. There are very few mine sites he has worked at in the last 20 years that have not experienced 100-plus year storm events. In Montana, to make sure dams

and tailings storage facilities are designed properly, they put together the "Montana Critical Stream Storm Working Group." That group has taken the data that's available, and put in place its own stormwater standards as an interim requirement. The MORP references the sections that are intended to deal with this. The Grayback Arroyo diversion must be properly maintained to ensure that it will continue to bypass stormwater around the open pit and through the site indefinitely in the future. Maintenance is also required for the tailings storage facilities, the stormwater channels, and the three-foot source control covers. Their recommendation concerning stormwater features is that the Director include permit conditions to require, at a minimum, that all permanent diversion and stormwater control structures be designed to meet a 500-year storm event; and that all other diversions and stormwater-controlled structures be designed to meet the 200-year storm event. Engineering firms are recommending that companies go to a 200-year storm event where just a 100-year storm event design is required, which is typically maybe only 15, 20 percent greater than the 100-year storm event, but we are making an investment in these features and want to protect that investment. Tr. pp. 271-278.

Perpetual care: until recently, New Mexico's provision that you cannot have perpetual care and maintenance was the only such requirement in any Mining Reclamation Act in the United States. In the past year, Montana and Colorado have proposed similar requirements as initiative ballots, pertaining only to water treatment. Basically, "You can't have a mine if it requires a perpetual water stream." That's a much lower bar than perpetual care and maintenance. Care and maintenance includes things

like monitoring, and maintenance on roads and other facilities. The mining industry looks at that as meaning that if you're not going to allow water treatment, you can't have hard rock metal mines. It's similarly very hard not to reach that same conclusion with the New Mexico Mining Act. The Act requires that the mine be designed to meet, without perpetual care, all applicable environmental requirements of the Act and other laws following closure. A mine such as the Copper Flat Mine requires source controls or other measures to protect water quality. They can't walk away after 20 years, as they have suggested. BLM has been dealing with this idea of perpetual care for some time now, and they have come to realize that there is no such thing as a walk-away mine with a major metals mine. The BLM Handbook requires post-reclamation monitoring maintenance to be performed indefinitely to protect the reclamation and closure features. They basically require a 500-year period for estimation of the financial assurance. 500 years reflects a closer amount for perpetuity than 100 years. A good example is the Phoenix Copper Mine, a relatively new copper mine, its financial assurance went out for 500 years for the long-term monitoring maintenance. The Ranches recommend that although the Mine Operation and Reclamation Plan proposes to rely on source controls and other measures to protect groundwater quality in the long term, it does not describe or provide for monitoring and maintenance that will be necessary for the continued performance of those source control measures into the foreseeable future. The Director could require the permittee to include a long-term monitoring and maintenance plan in the MORP, but that would be an apparent violation of the Mining Act's prohibition on perpetual care. It would appear that the Director

must deny the permit application because the proposed reclamation plan requires perpetual care. Tr. pp. 279-283.

Environmental evaluation: the Mining Act did anticipate that some of these mines might not be on federal land. Neither the Act nor the rules address whether one could or should use an existing environmental analysis. There is guidance that makes it clear that you can use it, but the Ranches' concern is that the analysis relies upon BLM's analysis, which is preliminary. It's a Draft Environmental Impact Statement. A large volume of public comments were submitted on that Draft Environmental Impact Statement. It's been over two years, and there is no Final Environmental Impact Statement. Their main concern is that MMD can rely upon a document that the BLM cannot rely upon to issue a permit at this time. Before MMD can issue a permit here, it must prepare its own environmental analysis or wait until BLM's has undergone all the different appeals and can be relied upon. Tr. pp. 283-285.

Financial assurance: Mr. Kuipers complimented the company on the use of the Standard Reclamation Cost Estimator program (SRCE), as a reasonable way for engineers to calculate costs. He is not questioning their calculations, but their assumptions for the cost estimate. The MORP describes a total of 25 years drain-down management from the tailings storage facility, five years of active water management and 20 years of passive water management. The first 25 years is a pretty standard approach at a lot of mine sites today at storage tailings facilities. The first priority is getting rid of the water on the pond, and active evaporation is a very effective way to do it. Once the water is off the pond, the risk of a catastrophic failure drops by orders of magnitude. In Nevada,

they oftentimes then convert it from active evaporation to more passive evaporation, such as is described in the MORP. The difference is, Nevada doesn't stop at 25 years. Nevada typically has replacement periods that range anywhere from 30 years to 100 years for passive water management features. Drain-down management becomes a real issue if we assume things will be fine after 20 years when they may not be. The Ranches recommend that the cost of continuing the passive management be carried out for at least 100 years. In Nevada BLM requires 500 years, to maintain the passive water treatment requirements. Tr. pp. 285-291.

The pit rapid-fill is not a bad idea. If you have the water and other things are equal, it's a good idea to mitigate the potential for additional metals to end up in the pit. His concern is the mine going bankrupt. Mining is a risky business. If the mining company goes bankrupt, they don't necessarily continue to have the water rights even if those water rights are adequate. The bankruptcy trustee will view those water rights as an asset, and is likely to try to sell them. If the State wants to use them, the State may need to be in the position to buy them. That's why they believe that the agency needs to address the potential purchase costs of the water. Financial assurance is negotiated. He is not clear on their plans for reclamation and maintenance because the MORP doesn't address the monitoring and maintenance of that reclamation. The plan describes the bulk of reclamation on the site in the waste rock facility's years 15, 16; contouring at the tailings storage facilities in years 17 through 19, and then passive or minimal maintenance from years 20 through 40. But the schedule of costs under financial assurance show all costs occurring in year 22. Tr. pp.291-293.

The number of groundwater wells drops, from 25, to 24, to 22, and then the last ten years, to 20 wells, and after that last ten years, zero. There wouldn't even be a groundwater well to assure that the remedy that might have been effective after 20 years or 25 years continued to be effective. We do see delayed impact in mine sites in some cases. Rarely do we see a situation where, in year 25, we just walk away from the site and assume everything will be fine in the future. The same assumptions inform sampling frequency. Initially, it is quarterly, then biennially, and then annually. Reduced frequency is based on an assumption that there were no problems, an ideal scenario. As for surface water, there are five samplings stations for five years, and then zero. It's too quick a presumption after five years that we no longer need to sample surface water. The estimated costs for that sampling for a 25-year period is 1.9 million. Theoretically, quadrupling that to extend the sampling over 100 years, it would be about $7 million. There is no basis, in terms of best practice, for only requiring monitoring for a 25-year period. There are no costs, in addition, for vegetation, erosion, wildlife, monitoring of the pit lake, or sidewall stability for the tailings storage facility, for example, required now as part of best practices for tailings storage facilities. He doesn't believe the Office of the State Engineer has bonding capacity within its office to ensure that. This is basically a shortfall on the monitoring side. In terms of maintenance, the mine plan assumes that they walk away at the end of year 25 after reclamation, and we can't tell whether there is any maintenance being done after year seven. The estimate of the cost of reclamation and maintenance is $686,000. But there is no basis for cutting it off. He suggests that maintenance needs to be continued similar to what

Nevada and the major mine sites in New Mexico do, extending it to a 100-year period, or as BLM does, to a 500-year period. No costs are included for road maintenance, stormwater maintenance, tailings storage facility, or other maintenance, and there are no costs for long-term pit lake mitigation. Tr. pp. 293-297.

Not counting the mobilization/demobilization, NMCC ended up with about 26 percent indirect costs. MMD has developed draft guidance, and they suggest a considerably higher cost, 46 percent. BLM ended up with about 32 percent. If the financial assurance is intended to meet, at the minimum, both agencies' requirements, then it should have similar direct or indirect costs to that of BLM, 32 percent, not 26 percent. MMD's guidance is draft, but it's very well-intended, particularly with respect to concern about needing to run these mine sites. We don't have a lot of experience in the United States with mine site reclamation and closure being done by state and federal agency folks. Mine sites have gone bankrupt in Montana, Nevada, Idaho, and New Mexico, the amount of experience that agency folks gain directly in terms of that cleanup is limited. Indirect costs are very difficult to estimate. Each site has its own unique qualities. The Ranches suggest that in terms of indirect costs, the estimate should, at a minimum, reflect that of the BLM, and there should be consideration given to it meeting the MMD requirements. This site is not without a history, and ignoring that history would be a mistake. Tr. pp. 297-300.

An ideal outcome is the mining company proceeds to mine as planned, and gets to the end. Financial assurance guidance calls for funds to cover "maximum reclamation requirements," because mining companies typically leave before the end of the last day.

Financial assurance should cover the greatest area of disturbance, or the greatest area requiring final grading, topsoil placement, and revegetation. Mr. Smith provided a table Mr. Kuipers can use as a pro forma cash flow analysis, showing the projected annual copper production and percent copper grade for each of the 12 years of mining. In the first five years, they are mining relatively high-grade ore, which allows them to potentially make more profit, pay back their capital, and hopefully be able to afford to operate for the next six to seven years lower-grade ore. It's dependent upon there being a good copper price when they are producing the relatively high quantity initially. If that doesn't happen, their debt could drag the company down; his concern is at the end of year six, when the ore grade goes down, that's the greatest risk of bankruptcy; things might happen in the marketplace that they have no control over. He suggests that the agency require the proponent to consider if the mine closed down in year six, especially since the materials with high leaching potential would be mined during the first five years, and will be segregated into a repository within the waste rock piles. If they didn't get all the way to closure, it actually might be more expensive to reclaim the waste rock than if it was just halfway constructed. This is even truer of tailings storage facilities. If the pit is not mined as deep as planned, then the water level may be higher than was projected and could encroach on public lands, which then changes the potential water quality standards. They recommend that the Director require the applicant to develop the plan for mine year six, if that is the highest-cost year, and that reclamation and closure amount should be required at least through year six. Tr. pp. 300-306.

It's very important that the agency require a cash form of financial assurance in this case; they may need it. Any discussion of a corporate or self-guaranty would be inappropriate. The State of New Mexico has used a five-year period for renewal of financial assurance, but it's not getting done in five years. In states where financial assurance is working and being renewed appropriate to the regulations, they are doing it every one to three years. For a mine that will be sensitive to the economics, he suggests a minimum three-year renewal and it may be a good idea to require an annual estimate of the financial assurance. It's important to allow the public the opportunity to comment on the form of financial assurance, as it's a matter of general concern that the public has with any mine, even if that input isn't explicitly allowed. Tr. pp. 306-310.

On questioning, Mr. Kuipers stated that mine lights should have been addressed in the MORP; he would not say it was clearly an absolute requirement. To his knowledge, the Mining Act regulations do not include a requirement to collect baseline data for anticipated light usage. His experience in how the industry addresses lights is that it varies from not addressing it to addressing it to an extreme. He agrees that it just wouldn't be practical to try to develop a regulatory system that includes every single requirement; best practices evolve largely from industry-driven practices over time. Still, NMCC's plans around lighting should be in their MORP. As to noise, Mr. Kuipers believes the permit application and MMD's environmental evaluation considered occupational noise; it's the nuisance-type and offsite noise he is concerned about. The Noise Management Plans he found in use in some Australian operations are not specifically required by the Mining Act or regulations. He suggested not that NMCC try

to determine what the impacts from noise will be, but just employ best management practices that are available to minimize an impact regardless. Tr. pp. 311-317.

Mr. Kuipers agreed that the key stormwater diversion at the site is the diversion of the Grayback Arroyo at the upper end of the mine, which was analyzed for a 500-year-plus storm event. It was cut during the Quintana period back in the early '80s, and is still an effective diversion, although the last time Mr. Kuipers saw it, in 2003, it was in need of maintenance, as it appeared to have erosion and sediment collecting in it. His recommendation to design for 200-year storm events based on anthropogenic climate change was one that he made as part of the Copper Rule working group, but it was not adopted as part of the Copper Rule. Tr. pp. 317-320.

As to perpetual care, he did conclude that if there are source control elements to a mine's long-term closure plan, that is going to require perpetual care, and, therefore, it's not possible to permit a new mine in New Mexico where source control measures are necessary as part of the closure. He has attempted over the last years to talk with people involved in the development of the Mining Act, and it’s hard for him to say what the legislature intended. Those who developed the Act interpret it one of two ways: One is that there was an acknowledgment, kind of a trade-off, that existing mines, particularly Phelps Dodge, would get a license to operate, but it would be nearly impossible for any new future mines to exist in the state. The other thing he has heard is that folks were simply naive back then, and the intention was that if best management practices were employed, they could walk away from the mine. This was 25 years ago; today, best management practices recognize that you don't walk away

from these type of mine sites. Mr. Kuipers is not opposed to future mining. He does not agree that any mine that operates and is reclaimed under the Mining Act is going to include cover of a waste rock pile or a tailings storage facility at the end of operations as part of closure. At the US Hill Mine he was involved in reclaiming, for example, they weren't installing source controls; the only purpose of the cover was to promote vegetation because the underlying materials were not a source of potential groundwater contamination. If you're not using source control to address groundwater contamination, he anticipates that a mine may be able to achieve the requirements of the Mining Act. This essentially precludes the vast majority of metal mining in the future. Mr. Kuipers believes that we do need to mine metals in the future, as they can be a very important part of dealing with climate change, we will have to allow for mines that would have perpetual treatment in order to supply the demands of society, and he would support eliminating the perpetual-care prohibition in the Act. Tr. pp. 320-325.

Regarding the BLM requirement for 500 years of care, Mr. Kuipers' exhibit includes examples of mining operations where BLM has had that requirement. BLM developed a one-page guidance document in Nevada as they started to close numerous gold-mining operations in the state. The facilities listed specifically were lined cyanide heap-leach facilities and tailings facilities. The Phoenix Copper Mine at Battle Mountain is a large copper mine and one of the first heap-leach copper mines; they are placing the copper ore on a geosynthetic liner, and treating it much like a gold-mining operation by sprinkling an acidic solution on it. Mr. Kuipers agrees that that's not going to be occurring at the Copper Flat Mine as proposed. Mr. Kuipers was not aware that the

environmental evaluation performed by MMD is still a draft environmental evaluation. Mr. Kuipers was part of a group that assisted in the development of the SRCE program. He credits Jeff Parshley with designing the SRCE program over the last 20 years; Mr. Parshley is with SRK, the consultant hired to do the financial assurance analysis in this case. Mr. Kuipers acknowledged that financial assurance is commonly something that's negotiated, and that that negotiation is ongoing in this case. He is aware that there is a Joint Powers Agreements addressing financial assurance among three agencies, MMD, NMED, and BLM. Tr. pp. 325-334.

The phrase "maximum reclamation requirements" is in MMD's financial assurance guidance for existing mines, from maybe 1998. He does not know whether NMCC has taken those factors into account in its proposal; he reviewed the proposal, but did not see a year six cost estimate, just an end-of-mine-life cost estimate. The tailings storage facility he referred to that was only 50 percent completed, resulting in a significantly higher cost for reclamation, was the Pony Mills site in Montana. Mr. Kuipers does include within his reference to "cash" for financial assurance surety bonds, irrevocable letters of credit, and commercial deposits; he objects to self-bonding, which is not even allowed under the Mining Act. The Act does allow for a corporate guaranty, which they would be concerned about, given the fact that the parent corporation, either THEMAC or Tulla Group, doesn't exist in the U.S. Mr. Kuipers does not support corporate guaranties from any corporation because, in his experience, it has been a piece of paper that, under the rules, if the company no longer qualifies for corporate guaranty, the agency would then go to the company and say, "You need to replace that

with a more legitimate form." The problem is the rules say that you cannot go to the company and request that until they have already been on the verge of bankruptcy, and there is no ability to get that cash. There has never been an example where an agency has been able to go to a company that suddenly has a BBB-minus or lower rating and say, "Oh, by the way, we want some of your cash." It doesn't work that way. Mr. Kuipers agreed that both BLM and MMD have specifically listed the kinds of financial assurance mechanisms that are permissible under each of those programs; and a number of letters make it explicit that no federal agency may allow any type of corporate or self- or third-party guaranty. BLM does not allow for collateral financial assurance, either, although it is allowed by MMD. Tr. pp. 334-346.

Dr. Tom Myers is a hydrologic consultant based in Reno, Nevada. He has a Ph.D. in hydrogeology, about 25 years of experience consulting work in hydrogeology, and 35 years overall specializing in mining issues and natural gas development issues. His specialty in hydrology has been groundwater modeling and transport and hydrogeology. He has published two peer-reviewed journal articles specific to mining on groundwater modeling and contaminant transport. Dr. Myers' CV is Ranch Exhibit 9, and the slides projected during his presentation are in Ranch Exhibit 8. His clients have included quite a few governmental organizations, conservation groups, and other entities. Dr. Myers' testimony was consistent with the written testimony submitted. Tr. pp. 392-393.

A lot of his focus is on the concept in the regulations of hydrologic balance, for which he, like NMCC, did not find a definition in the regulations. He thinks of hydrologic balance in terms of water balance, quantity issues, amounts of water in and out, and the

specifics of the water quality documents. Most of the numbers in his presentation come directly from NMCC reports. He will address pit dewatering and drawdown at the pit, which will have a huge impact on the hydrologic balance of the groundwater in the area. Pit dewatering will also dry the alluvium in the Grayback Arroyo, and production pumping for the mine will substantially decrease water inflow into the Caballo Reservoir portion of the Rio Grande and decrease flow in Las Animas Creek and from flowing wells near Las Animas Creek and Percha Creek. The long-term water quality in the pit lake will violate surface water quality standards and will be too poor a quality for wildlife and aquatic life beneficial uses, which is planned for the pit lake in the long term. The lack of a liner system under the waste rock piles, which is based on the largely unsupported assumption that the underlying andesite bedrock is very low permeability, will allow potentially contaminated seepage into the groundwater, and the failure to consider leaks from the tailings storage facility ignores the potential for large amounts of contaminated seepage into the groundwater. These factors will significantly impact the Ladder Ranch and the Hillsboro Pitchfork Ranch. Tr. pp. 393-395.

From a hydrologic perspective, there are two sections of the project area. A large portion of the mine is developed in bedrock, but the tailings facility is developed over Santa Fe Group, and the production water that will be used at this facility comes from four production wells approximately six miles east of the mine site, and approximately one mile from Las Animas Creek. The water gets pumped and moved up to the mine site for production. [Dr. Myers then identified the features shown in color on Slides 3 and 4.] Slide 5 is from the Probable Hydrologic Consequences Report, and it shows the

projected drawdown due to mine dewatering, which is centered on the west end of the mine permit boundary. The drawdown is approximately four miles north to south, and about three miles east to west. This projection is based on numerical modeling; if the andesite area were modeled with a slightly higher conductivity, the dewatering cone could go further north and south away from the mine pit. None of the documents show the projected water table in the future, so he superimposed two slides. Some of the area north of the mine will continue to slope away from the mine even though it experiences a drawdown. The slope toward Las Animas Creek will be decreased somewhat substantially, if the slope of the groundwater table is decreased, the flow towards Las Animas Creek will also decrease. It would be really nice to see a drawing of what drawdown will look like 100 years out, a thousand years out. Evaporation from the pit lake is lost to the aquifer, and lost to the hydrologic balance. The existing pit lake loses an estimated 20 acre-feet per year. The future pit lake will lose about 93 acre-feet per year. Essentially, the additional loss from the aquifer into perpetuity is 70 acre-feet per year due to that large increase capture zone. Water currently flowing east to west down into the Palomas Basin and towards the Caballo Reservoir is being drawn toward the pit, and ultimately, the discharge point is evaporation from the pit lake. To his knowledge, NMCC has not attempted to minimize this loss. The only way to get rid of this loss would be to backfill the pit. Tr. pp. 395-400.

Dewatering of the pit and development of the pit lake will divert groundwater flow from Las Animas Creek and Percha Creek. The water table will be hundreds of feet lower around the mine, it will be lower for some distance, and it will not be reversed.

The gradient toward Las Animas Creek and toward Percha Creek on the south will be lessened, and there will be less flow going in that direction. It's a simple application of Darcy's law, meaning that the flow will go down as a result of the gradient going down; that 73 acre-feet has to come from somewhere, and some of it will be lost to Las Animas and to Percha Creek. Summarizing, drawdown will vastly expand the capture zone and decrease groundwater flow to the Palomas Basin and Caballo Reservoir. Pit lake evaporation will cost the basin an additional 73 acre-feet per year, and dewatering will divert flow from Las Animas Creek and Percha Creek. Tr. pp. 400-401.

Dewatering will affect groundwater flow through the Grayback Arroyo alluvium, thereby dewatering hydric soils and limiting water for riparian vegetation. A figure from one of the 2013 abatement reports shows that existing groundwater levels in the underlying andesite are higher than in the alluvium of the Grayback Arroyo. Dewatering the andesite will lower the water table at that point, and decrease the discharge or any flow that could be occurring from andesite into the Grayback Arroyo. Tr. pp. 400-402.

Project water supply pumping will significantly reduce groundwater flow to the Rio Grande system. Projected water supply pumping would remove almost 74,000 acre-feet of groundwater over 25 years for construction, startup, operations, the rapid-fill of the pit, and for reclamation. The majority of this water would be used for production during the 11.5 years of operation, with production pumping exceeding 6,000 acre-feet per year, and approximately 2200 acre-feet would be used during six months of rapid-fill. Reviewing two tables from the Probable Hydrologic Consequences Report, the pumping will upset the balance of groundwater flow in the Palomas Basin and discharge into the

Caballo Reservoir. The ten-foot drawdown extends about ten miles north/south. Most of the water is drawn from aquifer storage, but pumping also draws some flow from north of the Palomas Graben, and there is a significant reduction in discharge from the aquifer, with the major impacts occurring over 30 years. Overall discharge is reduced by a little over 3,000 acre-feet after approximately 14 years. The amount drawn from the north peaks at about 600 or 700 acre-feet per year, and then it takes about 30 years after pumping for things to be back to normal. The water comes from three different places: a decrease in groundwater discharge to the Rio Grande above Caballo, a reduction in groundwater discharge to the Rio Grande below Caballo, and a reduction in the flowing well discharge that is some artesian wells on the downstream ends of both Las Animas and Percha Creek. This makes up the overall loss discharge. Overall, pumping substantially changes the hydrologic balance in the Rio Grande system. Total cumulative change from mining through three months after the rapid pit refill, would be approximately 74,000 acre-feet. The reduction to groundwater in storage is 42,800 acre-feet. The cumulative discharge reduction and flow to the Rio Grande above Caballo dam is about 8,878 acre-feet. Below Caballo dam, about 7,504 acre-feet, with a reduction to the flowing wells of a little over 9,000 acre-feet. What was not included in the Probable Hydrologic Consequences Report was what effect that has on the river itself. Considering that the total annual discharges to the Rio Grande system from the overall project area averages about 19,373 acre-feet per year, at the peak, the loss to the system is about 3,000 acre-feet, or about 15 percent of the discharge to surface

water from the project area, a substantial impact to surface flows in an over-appropriated basin. Tr. pp. 402-406.

Dr. Myers has seen no evidence that the agreement with the Jicarilla Apache Nation would adequately offset this loss. His understanding is the plan would involve putting water into the river at a rate that's been determined by the existing groundwater model, but they need to go several steps further and verify that those flows are what's actually happening. Tr. pp. 406-407.

The pit lake water quality will exceed standards for some parameters. Dr. Myers showed time-series plots of sulfate and total dissolved solids. Pumping the pit does make for better water quality initially, but it will continue to get worse, and they have only modeled that up to 100 years. Evapoconcentration will cause these values to get worse and worse. Projected values in the pit lake at 100 years exceed a lot of the surface water quality standards, including Cadmium, selenium, and mercury. This pit lake is not going to be suitable as wildlife habitat based on these numbers. The application seems to suggest that the appropriate standard for comparison is the existing pit lake, which is 70 acre-feet, plus or minus, covering five acres. The future pit lake will be 31 times larger than the existing pit lake, which should not be used as a baseline for the future, especially in a mine considered a new mine. Tr. pp. 407-409.

The tailings storage facility and waste rock stockpiles will be a source of contamination. There is no discussion of the potential for leaks or estimates of leak rates. The Probable Hydrologic Consequences Report has estimates of flow through pinhole leaks, but significant tears and leaks have been observed to occur frequently;

the application does not estimate the amount of potential leaks or consider their fate at this site. NMCC proposes not to use a liner under the waste rock, claiming that the andesite permeability affecting seepage into the ground is less than ten-to-the-minus-six centimeters per second. Dr. Myers has six reasons to suggest that may not be correct. First, there was a pressure injection test that shows low permeability may have been misinterpreted and it's not representative; second, there are seven supply wells in the area that were developed in andesite, indicating that conductivity could be high enough to produce a water supply; third, one of the wells shows changes in chemistry that could only occur with substantial groundwater flow; fourth, the mine dewatering during the 1982 operation showed the conductivity of the central bedrock core is 66 to 110 times the rate assumed for bedrock; fifth, scale effects of conductivity measurements suggest that the conductivity would be three orders of magnitude higher. Sixth, the waste rock seepage reaches the ground surface in a manner more conducive to infiltration than occurs during natural events. [Dr. Myers proceeded through a slide for each point, each point is also further elaborated in his written testimony.] Tr. pp. 409-416.

Fracture flow: the effect of conductivity increases as the scale of a measurement increases from the laboratory scale to the regional scale. Heterogeneities control the scale dependency of K. A large formation is not just a solid rock, or not just a solid gravel; there are variations. All fractured rock, even andesite, has preferred flow pathways that are more frequently encountered as you consider a larger block of the subsurface. When 99 percent of the rock is unfractured, chances that a single boring will hit a fracture is very low, but in a much larger area, you have a chance of eventually

encountering that fracture. Conductivity in an area is an average of the conductivity in the fracture and in the unfractured rock. Fractures are both the primary fluid pathways and the storage locations for water and contaminants in the system. Fracture flow systems have the largest variability of conductivity with measurement volume. [See slides.] Scale effects need to be considered. The area beneath the waste rock pile would include numerous preferred pathways and a much higher conductivity than one borehole, or than four boreholes. The seepage under a waste rock pile has a much greater chance of recharging. Precipitation enters unreclaimed waste rock, it flows through to the ground surface. The seepage through the waste rock reaches a ground surface at a rate much more uniform than natural precipitation, and it would pond, maybe an eighth of an inch, and then start flowing laterally. The seepage either enters the ground due to that ponding, or it flows laterally to a zone with a higher infiltration capacity, or eventually reports to the edge of the waste rock. Thus, the average infiltration for waste rock area based on area average, which should be based on area average, would be highly affected by a few fracture/higher conductivity zones. The stormwater ditches, especially around Waste Rock Storage Pile Number 3, are not lined, and they are potential sources of contaminants to groundwater. At some point, contaminated groundwater will cross andesite and hit a zone that's more apt to allow water to seep into the groundwater. The contaminants from both the waste rock and tailing sources could reach the Ladder Ranch boundary due to dispersion due to fractures less than half a mile downgradient. Any north-trending fractures will increase

the flow toward the ranch. The pit lake would draw groundwater from surrounding private lands, away from the creeks, and away from the ranches. Tr. pp. 416-421.

On questioning, Dr. Myers agreed that if the company were to acquire water rights to retire, the New Mexico State Engineer would consider whether the effects to the Rio Grande are offset; if he does it perfectly, the effect would be minimal. Dr. Myers explained his slide on the pressure injection test results. He disagrees that it shows zero permeability. He does not believe the report is calibrated to the historic flow of the pit because it did not appear that the calibration was set to discharge. He has not pump-tested any of the Ranches' andesite wells to confirm his ideas about the conductivity of the andesite; that should have been part of the company's application. The only evidence of regional flow through the andesite he has seen is in that one slide that shows the change in chemistry. He is not onsite. If the model is calibrated to the historical pit inflows, and the model were to increase the simulated permeability of the andesite by 33 to 100 times, inflow to the pit lake would increase. He agrees Grayback Arroyo is an ephemeral wash. Tr. pp. 422-429.

Other Public Comment

Jim Paxon is a Sierra County Commissioner. Personally and as a member of the Sierra County Commission he supports the Copper Flat Mine. The current Commission is unanimously in favor of the mine proposal and the benefits that it will bring to Sierra County. The General Mining Law of 1872 is still the foundational federal law regarding the exploration of, filing for, and protection of private entities' claims and rights for the extraction of locatable minerals, to include gold, silver, copper, lead, zinc, molybdenum,

and others. The 1976 Federal Land Policy and Management Act revised the 1872 Mining Law, and requires reclamation of lands mined, financial guaranties and bonds to reclaim federal land, and applicable state permits to operate extensive, detailed plans of operations, and, preparation of an Environmental Impact Statement to disclose potential environmental impacts. The New Mexico Mining Act of 1993 added to those environmental protections by requiring action to protect the environment. In today's era of advanced technology, mining can be accomplished and the environment protected at the same time. New Mexico Copper Corporation has indicated a willingness to comply with all applicable laws, rules, and regulations. Other agencies, such as the Environmental Protection Agency, Alcohol, Tobacco, and Firearms, Fish & Wildlife Service, Army Corps of Engineers, Federal Mine and Safety Health Administration, all have stringent permit requirements and strict processes for approvals that must be met before the mine can begin operation. Sierra County would be involved in issuing New Mexico Copper Corporation a business license, and they will monitor the mining activities. Mining today is very closely examined and monitored. Tr. pp. 110-113.

NMCC filed in December 2010 to reestablish a mine and processing facility previously operated by the Quintana Minerals Corporation. NMCC has spent nearly $40 million in New Mexico and more than $55 million in total preparing and revising their Plan of Operations, conducting continued exploration, environmental studies, water studies, engineering studies, and more. NMCC has shown determination to be in Sierra County long-term and to contribute to the welfare of citizens and communities. The old Quintana mine infrastructure can be reused with minimal modernization and changes to

meet the new mine's production, and thus limit the initial disturbance and environmental impacts associated with the construction of a totally new operation. The BLM Draft EIS notes that 47 percent of the mine is on BLM land, and 53 percent of the mine is on patented ground that NMCC owns. 90 percent of the ore removal would be from private lands. There is no toxic use of chemicals, such as cyanide leaching; they are using flotation processes and reagents. The BLM's Draft EIS stated that the impact of hazardous materials and solid waste and waste disposal was not significant in Table ES-3, Summary of Impacts. Concerns for human health and public safety were deemed not significant. 72 percent of the total water needed for the mining operation would be on-site processed water, recycled from storm catchment, existing ponds, pit lake dewatering, watering the rock that's being processed. This seems to be efficient use of water. It's still going to demand considerable pumping, and it's up to the mining company to obtain the water rights they will need to continue mining. BLM talks about the pit lake not being usable by wildlife, but he saw deer and javelina tracks all around the pit lake to the water's edge, and several birds in the area. There were no carcasses or animal bones near the pit lake. Tr. pp. 113-115.

NMCC will provide a trust fund to maintain water quality management of the pit lake for a minimum of 30 years after cessation of all mining activities. Grayback Arroyo is currently diverted by a major ditch around the mine pit and the pit lake that prevents any mine water from getting out of the operating area and flowing downstream into Grayback Arroyo. That diversion would be reinforced and maintained as needed to be kept functional. The current Plan of Operation would reclaim 910 acres of land

impacted by the previous Quintana mine that has not been reclaimed. One great improvement is a new tailings storage facility with an impervious geotextile liner that would be laid out in sections, welded and covered over with the existing tailings from the operation and that in the 1980s. This structure would serve to capture any liquid residues and keep them from flowing into Animas Creek, Grayback Arroyo, Greenhorn Wash, Percha Creek, or, most importantly, Caballo Lake and downstream into the Rio Grande. Planned and financed reclamation will return the area to a more natural self-sustaining ecosystem than at present, and that will benefit wildlife and perhaps range livestock, as well. This includes 50 percent of the area that was never reclaimed by the Quintana operation when they ceased. Growth media will be collected and retained for use along with fertilizers and seed as needed to revegetate the area impacted by mining. NMCC is committed to having a $56 million surety bond to assure that the reclamation work will be done even if they are not around to do it. The Copper Flat Mine would provide opportunities that are not available in Sierra County right now. He and his wife have been in Sierra County a long time and have many adult grandchildren, only one of whom has been able to find a local employment opportunity. Several of them have skills and experience that are applicable to the mining operation, welding, construction, heavy equipment operation, bookkeeping, and administration, they all fit very well in with the potential skills needed at the Copper Flat Mine. Mr. Paxon has looked at the evidence from both sides, the plans, facts, and evaluations by technical specialists, conclusions from analysis by government agencies, and those far outweigh the influence of the fear of the unknown and the nebulous "what if" arguments. Hillsboro exists as a

community because of mining. At one point, it was Sierra's County seat, and it still sees considerable hobby prospecting and some mining. NMCC is a good neighbor and the operation of the Copper Flat Mine will benefit all Sierra County citizens, as well as New Mexicans, through the diversity to a dire economic situation. Tr. pp. 115-119.

Greg Koontz represents Matrix Service, an industrial contractor in oil and gas, mining, and power. If they have the opportunity to work for Copper Flat, they have employment opportunities that start with entry-level and college-educated people they teach to grow in the business. Any contractor that comes in to work for Copper Flat is going to be looking for the local people. They want to train them. They don't want to pay subsistence. They want the people there to be involved in their community, to educate them in a new job. They will have transferable skills, and they will provide opportunities that will stay with them the rest of their life. The employment opportunities that this mine will open up to the community is something that they can build for the future with. Tr. pp. 120-121.

Tom Stroup is the Vice President of the Board of Directors for Sierra Electric Cooperative, and a full-time resident since 2006. Sierra Electric was established in 1941, one of the first cooperatives in New Mexico with 3200 members, serving about 4,000 meters. Challenges of an electric co-op in Southern New Mexico include declining membership because of declining population in the area; one of the poorest counties in New Mexico, with a stagnant-to-declining economy, and little industrial electrical load; aging infrastructure with constant need for replacement and upgrading and modernizing. They have nearly 900 miles of power lines and almost 3,000 miles of line,

over 14,000 wooden power poles, 3300 transformers, 600 regulators, capacitors, and sectioning devices. They have two major substations where we purchase all power from Tri-State, plus all the specialized vehicles, equipment, and safety gear. Approximately 80 percent of their customers are residential, the type of base for which it is the most difficult to sustain infrastructure and service without continually raising rates. Part of their mission is to serve customers with reliable and affordable power; that's getting so hard to do with a declining membership and difficulty finding skilled workers. They try to hire bright, energetic locals and provide professional training to try to retain them, but an eight-year employee left last week because her husband has to leave the state to find employment he is qualified for. In an economically challenged county they cannot pay what some of the large co-ops pay their employees. Electric co-ops, like mining operators, rely on professionals to design and construct infrastructure. Sierra Electric has ongoing requirements to replace aging infrastructure. For large capital projects, after they are professionally designed, it goes to bid, it is constructed by a licensed professional specializing in electrical projects. Once construction is complete, their own highly trained and specialized linemen and support crew monitor and maintain the system, conduct maintenance, and new-scale construction. NMCC has done the same thing with their design of the mining facilities, including their Mine Operation and Reclamation Plan, and a $56 million reclamation plan. It's been designed by professionals with extensive experience in such operations and facilities. These professionals rely on their designs and constructed facilities working to protect the environment in order to stay in business, as will NMCC. Tr. pp. 121-124.

Sierra Electric is a working example of how, when good opportunity for good employment is available, local youth and talented individuals from other areas who would like to live in a small town seek those jobs working through intensive and professional training programs, improve themselves, and build careers. This results in growth to the County, which is what Sierra Electric needs to sustain and improve service to its members. While tourism is a very important component of the future of Sierra County, it cannot carry the County on its own, as Sierra County's current economy illustrates. Tourism jobs tend to be seasonal, temporary, with little or no benefits, while copper plant jobs would be full-time benefits, training, health, and a future. Tourism in Sierra County centers primarily around Elephant Butte Reservoir. The lake level is now at three percent, as low as it's been in 50 years. With ever-increasing high water-use crops being planted, desert and riparian lands being converted to cropland, the issue of water with Texas and Mexico, will Elephant Butte ever again be a lake that is the engine of tourism for Sierra County? Copper Flat Mine has been designed with the most advanced and proven technologies known and will use the most advanced and proven materials to protect the environment while providing jobs, training, and opportunity to our local youth and working people and economic stimulus to Sierra County. NMCC has followed a path that federal and state regulations require. They have engaged highly trained, experienced, professional teams to design a comprehensive project that will protect the environment, generate much-needed opportunity and economic benefits to Sierra County, and reclaim the land to a condition probably better than what it is today. It's time to approve this project for those in Sierra County who want to work, who want

to see their kids stay in Sierra County and work, and who want a county that is economically sustainable. Tr. pp. 124-126.

Ted Caluwe is a resident of Sierra County. To draw a visual picture of 7,000 acre-feet, imagine a wall of water ten feet wide and ten feet high. In the first year, that wall would extend from Caballo Lake to Silver City. By the end of operation, that wall would extend all the way to the Pacific Ocean. That is the volume of water it's going to take to operate the mine. Historically, copper mines have a very poor track record with their tailing ponds, dam breaches, and failures are all too common. NMCC's tailing ponds and the dam are built to minimal specifications as allowed by law. By their own admission, they do not have an emergency action plan in place in the event of a dam failure or breach. In looking at NMCC's website, they bill themselves as an "exploratory and developmental company." They do not currently operate, nor have they ever operated, a mine. They have no experience in operating a mine. Their misplaced trust and dependence upon the dam and a lack of emergency action plan only expresses how dangerous a lack of experience can be. For these reasons, he asks that the operating permit be denied. Tr. pp. 126-128.

Harry Trueblood is a resident of Elephant Butte. Perhaps Quintana mine did not fail through no problem of theirs; the market fell apart. It may very well have continued to operate through today. There would be no need for this process because they would have continued to operate under the permits that were in existence then, and they would have had to follow them. One of the benefits of having that mine work and fail is it provides us with the opportunity as a laboratory to see what kind of environmental

impact it would have had. Copper Flat people have been monitoring the site for years, they have all the information they need as to what the environmental impact of an operational copper mine is, and their information is available to anybody who would like to study it. There should be no unanswered questions about impact. Sierra County needs jobs. There are certain things that were supposed to be happening, but they have not yet. The Spaceport may, it hasn't happened yet; a NASCAR track; other things have been promised, but have not come to fruition. This is one of the brightest promises we have seen in quite some time. Tr. pp. 128-129.

Candace Browne noted that the trucks that will be carrying the ore will go down Highway 152 to Interstate I-25. She has read that the highway is not set up for the weight of the trucks that will be used, and it will probably deteriorate. There are not very good edges on the highway now, and deterioration of the highway could cause accidents for the public or for the ore trucks. If the trucks are on a schedule to meet trains and they are running 24/7, night or day, there can be storms. Ms. Browne is concerned about storms and the safety on the highways when there are storms. In the mining Plan of Operation, as far as truck safety goes, NMCC simply says that the trucking companies will be responsible for accidents and spills along the transport routes. Copper concentrate is known to be a toxic substance with adverse health effects related to inhalation of copper-concentrated dust and other concerns. It's listed in the United States TSCA inventory as hazardous under hazard communication standards and the CERCLA Section 103, Hazardous Substances. NMCC needs to be adequately bonded for the cleanup of any accidental spills on the highway involving their trucking and hauling

and any transportation of any hazardous or toxic materials because they have to bring those in on the highway, too. The trucking of the ore is a chemical, and if it gets spilled on the highway, there needs to be a rapid response. The response for a toxic spill is not meant to be handled just by NMCC staff. She believes it's supposed to be handled by specific departments in the state and maybe in the nation. There is a possibility of fire even with an ore spill because if it creates dust, there are ways that that can generate fire. The site is far away from any rapid responders. NMCC does have a "Spill Contingency Plan," but it says they can only contact a long list of people in their chain of command and go to the next person if he or she is not available. She is concerned if it takes that long to just let somebody know that there is a problem. Tr. pp. 130-134.

Patrick Madden addressed the issue of funding for reclamation of the mine site when it finally shuts down if it is approved to begin operations. Often, government allows corporations to give assurances that do not prevent taking steps to avoid payment of debt not already funded by cash. These reclamation costs may not be secured by any property or assets the corporation owns. If a bankruptcy occurs, reclamation costs may be treated like unsecured debt. As a result, when a corporation declares bankruptcy, these funds are not available for reclamation purposes, leaving taxpayers on the hook for millions of dollars of cleanup costs. The estimated reclamation costs for this particular mine, if approved, is about $56 million by the company's own estimates. That amount may be accurate or may be very low. Mr. Madden suggests that if mine operations begin, as part of each year's operating total costs, not profits, a set percentage of operating costs be set aside in actual dollars in an

escrow or other fund controlled by the State for eventual reclamation purposes. This would be a more dependable form of corporate surety so that over a period of years, perhaps ten years or less, a fully cash-funded escrow or other account controlled by the State is established for reclamation purposes. Tr. pp. 135-136.

Dan Lorimier is a 40-year plus resident of Sierra County. The first hydrologic studies about the impacts of the Copper Flat project predicted a fairly huge cone of depression that would have affected his shallow residential well. A subsequent study more or less discounted the idea of a huge cone of depression around the well field for this project. Earlier studies also described several opportunities for connectivity between the aquifer that was being exploited by the well field and the Animas Creek Aquifer, which has been described as a perched aquifer. The mine now has studies that contend the connectivity between Animas Creek and the aquifer being pumped is non-existent. Mr. Lorimier finds it disconcerting to see the correlation between the price of copper and the connectivity of the Animas Creek watershed to the aquifer that's being pumped. These are the kinds of reasons that science is under attack in America. MMD sees itself, rightly so, as a permit facilitator for mines. Somewhere in that process, though, they should be certain to apply the precautionary principle in order to fulfill the part of their mission that calls on them to protect the environment and New Mexico citizens. An example of their ability to apply this would be through conditions in the permit such as requiring 100-year coverage of remediation at the mine site rather than 25 years. A 25-year reclamation period is not long at all. He asks MMD, on his own behalf and for other citizens in Sierra County, to please protect them. Tr. pp. 136-138.

Charles McMath has lived at Elephant Butte Lake for 30 years. His grandparents homesteaded on the head of the Animas in the late 1800s and early 1900s; they had a cattle ranch there. They went broke during the depression and had to leave. Currently he serves as secretary to the Board of Trustees for the Sierra Electric Co-op, and is a member of the Board for the Middle Rio Grande Economic Development. Both of these entities support the copper mine totally. This copper mine means a lot to this community. On the Board of Directors at the co-op, they looked to what the copper mine will generate in revenue for the co-op. With this revenue, they can pay off or increase payments on long-term notes and rebuild some of the infrastructure, reaching out generations into the future. Then they can put into the hospital, which has been struggling for 30 years. Maybe this mine can put it on a sound financial basis. It will increase population in the County, and Dona Ana County will get part of it. It's a win/win situation for the county and the city. If they are wise, the city will invest the money into 55-plus housing for snowbirds, and in city infrastructure, and in things that can promote commerce. There are a lot of things that this money could bring not for today, but for generations to come. Tr. pp. 138-140.

Allyson Siwik is the Executive Director of the Gila Resources Information Project (GRIP). GRIP's mission is to promote community health by protecting the environment and natural resources in Southwestern New Mexico. They facilitate public participation and natural resources decisions that will have profound and long-lasting impact on the region's environmental and economic health. They have worked on mining issues in New Mexico for the past 20 years. According to the Mining Act, the purpose of the new

mine operation permit is the protection of human health and safety, the environment, wildlife, and domestic animals. If this is the goal under the Mining Act, they don't see how the Copper Flat Mine operation, as currently described in NMCC's application, can be permitted when its proposed consumptive use would cause impairment to streams and springs, negatively impacting wildlife, including threatened and endangered species, and to groundwater use for domestic and agricultural water supplies, and reduce flow to the Rio Grande, exacerbating the situation for the Texas lawsuit. Secondly, a self-sustaining ecosystem won't be achieved since the mine will produce a pit lake that exceeds quality standards, creates a perpetual hazard to wildlife, and financial assurance is inadequate. The operator proposes monitoring and maintenance for 25 years post-closure when we know that a perpetual liability will be created at the Copper Flat Mine. The permit should require monitoring and maintenance for at least 100 years. 100 years post-closure for monitoring maintenance is assumed at Freeport Mine in Grant County, and there should be no shortcuts taken up with the State and public at risk for long-term impacts. Moreover, we have not seen yet the proposal for the form of the financial assurance. GRIP is strongly opposed to a corporate guaranty for the Copper Flat Mine. GRIP would like to see the results of the financial soundness test if a third-party guaranty is proposed. Additionally, GRIP would like to be able to review and comment on the proposal for the form of the financial assurance once it's available because that would be very critical. Tr. pp. 140-142.

GRIP is also very concerned that best management practices for mine operations are not proposed as part of the mine application. Given their experience with Grant

County copper mines, most recently with the reopening of the Cobre-Continental Mine, it is critical that the new mine operation permit address the impacts from Copper Flat's mining operations. There will be dust, light, and noise impacts from Copper Flat's operations. MMD needs to place permit conditions requiring the most appropriate technology and best management practices to limit impacts from blasting, dust, light, and noise, as well as other impacts to the surrounding community, such as increased traffic and road damage from mine haul trucks. Road damage is a big issue for local communities. Road damage caused by increased heavy truck traffic poses a safety issue. The Draft EIS for the Copper Flat Mine states that the reduction in life expectancy of road pavement due to increased truck traffic on Highway 152 is 53 to 70 percent. Additionally, the Sierra County Road Superintendent stated in the Draft EIS that the level of heavy traffic at Gold Mine Road "would destroy the roadway." Because the public sector pays the cost of road repair, already stressed local and State budgets often can't handle the cost of increased maintenance from mine truck traffic. Copper Flat should set aside dollars to offset the increased cost of road maintenance rather than push the costs off onto the public. Mitigation of this public safety issue should also be included in the operation permit. What is lacking is a plan for how impacts from mining operations will be mitigated to protect public health and safety and how NMCC is going to respond to community concerns about impacts when they arise. This is a significant deficiency right now in the mine operation application. Tr. pp. 143-144.

Denise Barrera is the general manager of Sierra Electric Cooperative headquartered in Elephant Butte, New Mexico. Sierra Electric is a member-owned rural

electric cooperative serving over 3200 members with 4200 meters. They serve Sierra County, excluding the City of T or C, Catron, Socorro, and Luna Counties. 99 percent of their meters are in Sierra County, with a density of 4.65 meters per mile. Rural cooperatives honor seven cooperative principles, one being concern for community, one of the highest concerns for Sierra Electric, including the economic needs of the members and County residents. The Copper Flat Mine provides a unique opportunity for growth and sustainability to Sierra County, surrounding counties, and the State of New Mexico. It will offset the economic conditions the county is currently facing. It will allow local companies to provide additional employment opportunities and local governments the resources to improve sustainable critical services for its citizens. In 1982, when Quintana mine came on line for just a few months, Sierra Electric purchases went from 18.2 million kilowatt hours in '81 to 47.5 million, a 63 percent increase in sales. NMCC, estimating of a 40-megawatt load at 90 percent load factor, would increase Co-op purchases from 65.4 million kilowatt hours to 263 million kilowatt hours a year, a 75 percent increase, which would benefit economic and financial conditions for Co-op members by reducing the burden on current rate payers, who are 81 percent residential. It would allow the Co-op to maintain and upgrade its infrastructure without having to increase rates or borrow loan funds. It would help reduce debt, and open up opportunities for additional economic development projects. The Sierra Electric Board of Trustees adopted a Board resolution in February 2016 supporting NMCC for its investment and efforts in the development of the Copper Flat Mine. More than two

years later, the Board continues to strongly support this unique opportunity for the growth and sustainability in Sierra County and the State. Tr. pp. 145-147.

Ms. Barrera has lived in Sierra County practically her whole life, graduated from Hot Springs High School, and started her career at Sierra Electric. She left in 1987 for the same job with better pay. The last 22 years of 36 years in the electric cooperative business, she drove every day to Deming to work, and never left Sierra County. She has served on numerous boards and committees, including 12 years on the local school board. She handed out hundreds of diplomas to graduating students knowing the majority of these kids were going to leave Sierra County for better career opportunities, and those who remain in Sierra County are faced with higher costs of living and lower wages. Her son and his classmates live in other places. NMCC has demonstrated their commitment to Sierra County. They have already invested millions of dollars in this project. Please grant them the operations permit. Tr. pp. 145-148.

Harvey Chatfield has lived here all his life. His dad called it "Sorry County," because everything was so doggone poor, you couldn't do anything. He said, "We will get some of that government money to make Sierra County liveable." Mr. Chatfield worked at Copper Flat, and thinks that they should be able to operate. They don't have any jobs. The kids are all going somewhere else. Now with some private enterprise funds and people that want to do something, we ought to let them do it. Tr. pp. 148-149.

Bruce Swingle is the Sierra County Manager, speaking on behalf of the Sierra County Board of County Commissioners. The Sierra County Commission continues to support Copper Flat Mine. In determining whether to support the mine as a matter of

public policy, County leadership relied on much data and information presented by many credentialed professionals, professionals with extensive mining hydrology, geochemistry, and environmental experience. After assessing New Mexico Copper Corporation's business model and environmental safeguards, the County Commission has approved two resolutions of support for the mine. The City of Elephant Butte and Village of Williamsburg have also approved resolutions of support. The vast majority of Sierra County residents support the mine. NMCC is trying to reopen a mine that has been operating on and off for generations in an area where mining of copper and other precious metals has been a part of the community since the 1880s. Mining, particularly at the Copper Flat site, is culturally and historically connected to Sierra County. Hillsboro was originally selected as Sierra's County seat because of the mine and the mining population that resided there at the time. New Mexico's economy has always struggled, but economic decisions and policy over the last few decades is truly defining where we are, who we are, and where we are going as a state. According to an article published by 24/7 Wall Street on March 5, 2018, New Mexico has the third worst economy in the country. New Mexico has the second worst unemployment rate, and the second worst poverty rate in the country. New Mexico has the worst property crime rate in the country, and the second worst violent crime property rate. New Mexico has the second worst drug overdose mortality rate, and the worst high school graduation rate and college readiness rate. New Mexico is experiencing an exodus in its population. An article published in the Albuquerque Journal dated January 29, 2017, titled "Exodus: New Mexico's population stagnant as people leave in unprecedented

numbers" indicated that in 2010 to 2016, we lost over 37,000 residents in population. They have migrated out of the state. New Mexico's population has declined, .01 percent in 2013 and '14, and showed zero population growth in 2015. We are experiencing this out-migration of our population while surrounding states are experiencing substantial growth in population. The Santa Fe New Mexican published an article on November 18, 2017, indicating that of the people leaving New Mexico, the largest group are the professionals, and they are taking their children with them. New Mexico is experiencing a Brain Drain. New Mexico's poverty rate is 20.4 percent; the national poverty rate is 12.7 percent. Sierra County's poverty rate is over 22 percent, and Truth or Consequences is even worse at 27.6 percent. Sierra County's per capita income is a meager $20,495, while the national rate is over twice that at $58,030. Sierra County is truly one of the poorest counties in one of the poor states in the country. The County's household median income is $29,679, substantially lower than the New Mexico rate of $46,748. The national median household income rate is over $59,000. The median property value in Sierra County is $89,900, compared to New Mexico's at $167,500. Properties are not selling; they are decreasing in value. It's very difficult to convince people to buy and support the community when they know that their property values are going to decline and have been declining for some time. And there is no new construction occurring in Sierra County. As of March 2018, Sierra County's unemployment rate was 8.8 percent, compared to the State's rate at 5.6 percent. The national rate is 3.9 percent. To compound the issue, Sierra County is losing its population, as well. The County's population has declined 19 percent since 2000. That

is a significant number when these are the professionals, the people that are capable of working who are leaving the community. Currently, the youth are leaving the community for jobs; the skilled work force is leaving the community for jobs. They have got to have a job, and they have got to receive a reasonable wage for that job.

From a public policy perspective, the only thing worse than the out-migration of residents is that residents capable of working are staying, and they are going to remain unemployed or underemployed while they stay in Sierra County. Ultimately, they end up on some form of government assistance or social assistance program. New Mexico has to change its practice and take advantage of job and revenue opportunities when they present themselves. The State must recruit and support business and industry. We must welcome industry such as Copper Flat Mine. If we don't become a business-friendly state and take advantage of the resources available in this state, the data and our trajectory are painfully clear. Sierra County and the State of New Mexico need Copper Flat Mine. Copper Flat Mine can single-handedly change the economic landscape of Sierra County and vastly contribute to New Mexico's economy without compromising the environment. Copper Flat Mine will provide a significant economic boost to Sierra County and New Mexico through job creation and tax revenues. The mine will create approximately 1300 direct, indirect, and induced jobs. The mine is expected to create 275 direct jobs, which will make it the largest employer in Sierra County. The estimated taxes paid over construction and life of the mine is approximately $175 million. Property taxes alone are projected to exceed $6.5 million in a county that collects approximately $8.3 million a year. These taxes will equate to

improved services. It will improve the quality of life for residents and provide much-needed revenue for schools, hospitals, and service organizations. The entire state will benefit from Copper Flat Mine. As of February 2018, New Mexico Copper Corporation has spent $38.8 million in New Mexico. Of that, 3.4 million was spent in Sierra County, 12.6 million in Albuquerque, and 22.8 million around other parts of the state.

We all want to protect our environment. It sustains our resources, our way of life, and our quality of life in this region. Mining is accomplished all over the United States without harming the environment. NMCC is implementing reasonable safeguards to protect the environment. After decades of regulations, State and federal oversight, and scientific and technological advancements, a win/win scenario can be achieved. Based on the plan articulated by NMCC, the Sierra County Commission believes the mine meets every reasonable and relative standard and regulation. Sierra County is in a crisis. The mine will stimulate population growth, improve employment rates, increase earnings per capita, positively affect the housing market, improve the quality of life of every area resident, and affect other key industries in the area: recreation, health care, arts, and tourism. The Commission implores MMD to make a reasonable decision, make the right decision for Sierra County and the State of New Mexico and approve Copper Flat Mine's permit and environmental evaluation. Tr. pp. 150-158.

Catherine Wanek has lived in Kingston for 34 years. Mining is a historical industry in Sierra County. Kingston was founded in the 1880s, and it's a former mining town. There were thousands of miners there, they built many buildings. They say there were 26 saloons and one church. When the silver played out and the price dropped, the

town died. They went from thousands to the dozens of people who there are now. However, it's a beautiful life, and when she hears the dire statistics that have been cited by many, she doesn't recognize them. They have a wonderful quality of life in Sierra County, and are very rich. There may be some economic issues, but they have a rich life in a beautiful place with wonderful neighbors. For her, the number one issue is the "cone of depression" of the water that would be pumped out of the aquifer, which is going to impact her neighbors in Animas Creek and very possibly the water system in Hillsboro. With the technology that exists today, and the appropriate financial assurances, she is sure that mining could take place in a way that would mitigate the issues. But drinkable water is increasingly precious in the whole world, and we know now that Elephant Butte is down to three percent of its historical potential. The farmers downstream said, "We farmers have no money. The mining company has lots of money." Increasingly, their allotment of water is decreasing, and they are not being allowed to pump water out of the ground, and yet this particular industry will be pumping 7,000 gallons per minute, 24 hours a day, seven days a week. That would be enough water for a city of 70,000 people. We don't have that many people up and down the Rio Grande, and the possibility of impacts to the wells of our neighbors down in Animas Creek is very high over the lifetime of the mine, which is predicted only to be 12 years. If this mine is supposed to rescue Sierra County from poverty, it will be very much like what Kingston experienced back in the 1880s, a robust economy which is not a long-term or sustainable economy. New Mexico is not a dire place. New Mexico is a place with a terrific quality of life. Netflix is coming to New Mexico. That's going to be

billions of dollars in a very clean industry, and it will bring lots more jobs and lots more people, and maybe some of those will trickle down to Sierra County, too. The economic drivers of Sierra County are currently tourism, agriculture, and health care. All of those things are compatible with the new industry that's coming to our state, and could hardly be better news for New Mexico. Tr. pp. 158-161.

Ms. Wanek drives Highway 152 every day, recently repaved, and it's a total pleasure to drive these days, but it doesn't have the road base to support the weight of large ore trucks. The road will have to be rebuilt, at a cost of tens of millions of dollars. It doesn't have a shoulder, and it's a cross-country bicycle route known as the "Southern Tier;" thousands of bicyclists come from all over the world over the Black Range, and to Silver City. There is no place for those bicycles to be, and no bike lane. With large trucks, she is concerned for the safety of these visitors to New Mexico. It should be part of the permit, improving the road so that it will support bicycle traffic. Leaving New Mexico does not have to be a terrible thing. She grew up in Las Cruces and had an opportunity to travel and live in many different places. She returned and found a beautiful life in Sierra County. If she had not seen the world, she would never be so happy as she is today. People can come back to Sierra County with skills that are just not going to be available here, and they could be entrepreneurs. Lately in Truth or Consequences entrepreneurs are starting new businesses and are bringing more people and tourism dollars into the community, in the health industry, and exploring the Hot Springs. Those are very sustainable kinds of industries. Not that mining can't be sustainable. She hopes that those who are looking at the permits will make sure that all

is correct, but that's not the only salvation to economic issues. Salvation lies within us, and the solutions are here. Much of the water rights are being leased from the Jicarilla Apache Reservation, which is in Northern New Mexico, not in the lower Rio Grande Basin. Water rights should be secured within the Rio Grande Basin. Water will be more precious than gold at some point, and perhaps more precious than copper. Tr. 162-165.

Hans Townsend is with the Chamber of Commerce and the Desert View Inn. Anybody who lives and works here know how difficult it is to survive. New Mexico is not a very business-friendly environment, and some places are a little more unfriendly than others. Expenses like utilities are very high because of the very warm environment. Before there was Sierra County, or New Mexico, mining was the main trading source of the area by the Spanish, the Native Americans, and the inhabitants long before them. Sierra County grew up on mining because it was blessed with an abundance of underground resources. We still mine today; there are more mines than you can imagine in the hills around us. We have had mining here for many, many hundreds of years, and it's still a beautiful place to live. The rules weren't the same before; they weren't enforced the way they are now. The restrictions have all been increased. Consider the water that a pecan orchard uses, how much economic impact it has, and compare it with the mine. The mining industry has changed greatly. Technology advancement over the recent years affects every aspect of the industry, especially the ability to operate a successful mine that is also ecologically responsible in its operations. The mine will need several hundred employees, and although local labor will have the chance to be trained for some of the jobs needed at the mine, most of the labor will

have to move here because we have little to offer in the way of employment. The children move away. Sierra County is considered by a lot of people to be a retirement community. If the mine employs 200 workers from elsewhere, and that's a low figure, it will mean about 600 new residents, including spouses, children, and other relatives. This is a ten percent population increase for T or C and a six percent increase for the County. These are not retirees. These are mostly young people of working age. That will be 400 who do not work at the mine, and some will have skills needed in this community. This will also help bring other businesses to the area, because one of the drawbacks has been a shortage of labor, especially skilled labor. Having a larger labor pool would draw more business to our area. It will also improve the growth opportunities for our already-established businesses and be a magnet for other businesses. New residents will shop, buy gas, and use services in Sierra County, including doctors, hospitals, and clinics. They will go to the cinema, the brewery, and they will need houses and apartments. This would be a catalyst. If we kept our young adults, we would have a balanced community, and, of course, the children who would then grow up and restart the cycle. Sierra County is very poor, and that's not going to change unless we help it to change, and this is the best chance. Tr. pp. 166-174.

James Morgan is from a small business family in that's been in the community for almost 70 years. He joined the United States Navy at 17, went to college at Western New Mexico University, and returned home to become a police officer, recently retired after 23 years of service. He remembers when the mine was open before; there were jobs, because there were businesses that could afford to be open. There were quite a

few people around that were his age, less nowadays. He is from a family of a five kids, and the only one still in the community. All of them have college degrees, but they can't work here; there are no jobs. A 20-year career doesn't exist unless you work for what little government there is left. As for the roadway, there has been an agreement with the New Mexico Department of Transportation to upgrade 152 to handle the heavy trucks. If we don't approve this mine, we are going to be starving. Tr. pp. 175-178.

Richard Shetter has a farm in Las Palomas, and grew up here. His family has been here since the early 1900s. There used to be all kinds of businesses and activities in town. We need the mine for the growth, and have got to have jobs here. He works for the County, which gets less than $1 million a year to maintain 700 miles of roads. All the locals need to speak up about this. Take the community back, then we can get jobs coming in here. Tr. pp. 179-180.

Clay Spears has lived in Sierra County since '01 permanently, and had an extremely difficult time making a living here. This would be a tremendous asset. The growth of the mine will help Sierra County flourish with homes, grocery stores, convenience stores, fuel depots. It would be a tremendous asset for roads in the County. He has had to leave this county many times working construction jobs and other things to make a living. This mine will help us all make a living. There was a mention of Gold Mine Road. It is up to the Sierra County Road Department and NMDOT to keep up all roads to their standards. There will be no roads being demolished or tore up. Sometimes they may get rough, but they get plans, and they put them back together. We need the growth for Sierra County. This would be a good start. Tr. pp. 180-182.

Andrew Harley is a Ph.D. geochemist, and has made a very good living looking at environmental reports and chemical reports associated with mining activities. He and his tech and looked at the reports on this project last week, and can say that those reports are excellent. The findings are sound. The sampling done has been excellent. The analysis has been excellent. The interpretation would have been the interpretation that he would have done. There is a minimal amount of waste, but the waste appears to be encapsulated in silica material. He doesn't think it's going to weather through any geological time, it's going to be quite stable. Tr. 182-183.

Joe McEnaney knows the benefits of mining projects having been on the ground at a startup in a rural community in Nevada, a project that started in 1975 and is still going 40 years later. Mining provides opportunities that are not available in other industries and certainly are scarce in Sierra County. He started in the industry as an unskilled laborer on a drilling rig in 1979, and learned the industry alongside more experienced co-workers and mentors over the years. He has worked in gold, copper, silver, coal, and industrial minerals, and held positions in exploration, operations, sales, and senior management. He has traveled to over 25 countries, doing business across languages and cultures, and made lasting friendships all over the world while working in the industry. Mining is very much a hands-on, on-the-job, training industry where anyone who works hard, wants to advance, and shows initiative can pretty much become what they want. Mines invigorate communities. Jobs become plentiful, skilled, well-paid jobs, and, also, unskilled jobs, but the unskilled workers can learn higher skills, and learn an industry which provides critical raw materials to basic and high-tech

industries throughout international markets. Everything we have is either farmed or mined. Mining is an essential industry, and the U.S. mining sector is perhaps the most heavily regulated industry in the world. Skilled workers bring more skilled trades. As communities grow behind mines, plumbers, electricians, roofers, and remodelers follow. Choices ensue, and the benefits of competition accrue to the community. Mines bring direct follow-up jobs and services that offer benefits to the entire community. Young people can stick around with the prospect of good-paying jobs. Marginalized people will have real options and can embark upon a path of a productive future. Families can stay together, communities are uplifted. The future becomes promising. Funds become available, and community projects can be realized. It's jobs that funds these projects or benefits, and mines bring jobs this county needs. The longer this project is unnecessarily delayed, the longer the County stays in stagnation. Tr. pp. 237-239.

Michael Bowen is the Executive Director of the New Mexico Mining Association. The Mining Association currently has about 18 operator members who explore, mine, produce, and refine sand and gravel and other aggregates, coal, copper, humate, industrial minerals, molybdenum, potash, precious metals, and uranium in New Mexico. The Association has over 70 associate members who provide consulting, construction, engineering, drilling, laboratory, legal, reclamation, equipment, fuel, power, chemicals, and other supplies to the New Mexico mining industry. The Association serves as a spokesman for the industry and is active in representing its members and keeping them informed concerning legislation and regulatory developments. It also serves its members on a wide variety of subjects, such as taxation, environmental quality, public

lands, health and safety, and education primarily through the expertise of our members and member companies. According to the latest Annual Report published by the Energy, Minerals and Natural Resources Department, in 2016, the mining industry in New Mexico reported production values of more than $1.7 billion. New Mexico ranges first in the United States in potash production, second in copper production, and 11th in coal production. New Mexico was once a leader in the production of uranium, and still has large uranium resources that may be mined in the future, market conditions permitting. Total employment in 2016 was just under 5,000, with total payrolls over $433 million. Mining jobs are typically some of the highest-paying and sought-after jobs, particularly in rural areas. Mining creates many additional jobs in the community, as illustrated by the goods and services provided by associate members and other local goods and services to mine employees. Since most mining operations are located in rural areas, these jobs are critical to the local economies where the mine is operated. Minerals are vital to everyday life. All electrical energy is supported by mineral production, including electric power generated from coal, uranium, oil and gas, as well as renewable power, such as wind and solar. Potash and other fertilizers are essential to produce food and roads, and building for homes and businesses cannot be constructed without aggregates. If these essential minerals are not being produced in New Mexico, they must be produced somewhere else. New Mexico might as well enjoy the economic benefits of mineral production, as well as the everyday benefits that consume minerals.

As the legislature said in the Mining Act, the exploration, mining, and extraction of minerals is vital to the welfare of New Mexico. I am impressed by NMCC's plans for

the Copper Flat project. NMCC has worked tirelessly to satisfy the requirements of multiple federal and State agencies, including the BLM, the U.S. Fish and Wildlife Service, NMED, and MMD. The mine plans reflect the need to comply with a myriad of environmental protection laws. These plans have taken years to come to fruition at a tremendous cost, representing New Mexico Copper's investment in the development of New Mexico's mineral resources. Development of New Mexico's mineral resources provides many local and statewide economic benefits and employs many local residents. Issuance of a mining permit for the project will be a great step forward to realizing the important benefits this project will provide in terms of employment, revenue for local and New Mexico businesses, and substantial contributions to State and local tax revenues to support our schools, roads, and other government services. Many years have been spent, and countless dollars spent, for experienced engineers, scientists, and other experts to develop the plans for the Copper Flat project. These plans must comply with a myriad of federal and State laws and regulations imposed on mining projects to ensure protection of public health and safety and the environment. Approving this mining permit will be good for the state and local communities and will send the right message to mining companies that are willing to invest significant resources in promising projects such as the Copper Flat Mine. On behalf of the New Mexico Mining Association, Mr. Bowen urges the approval of the mining permit after considering all relevant testimony and comment. Tr. pp. 366-370.

Lee Newman has a tree farm right below the proposed mine, and according to the mine's own documents, his tree farm is going to dry up. It is a matter of life and

death for his award-winning tree farm that he has been developing for 25 years. It's a solar-powered drip irrigation tree farm that produces about 75,000 trees, with annual sales of close to $1 million. Overall employment is about 35 well-paid employees, many of whom have worked there for more than 35 years. The amount of water that the mine is going to consume is extraordinary at six million gallons a day. The proposed tailings dam of 640 acres would require a four-mile hike just to walk around. The dam will hold over two billion gallons of poisoned water per foot. From his calculations, if breached it will reach the Rio Grande and El Paso. It will taint the Rio Grande if they have a breach, and lose a foot of water, a foot isn't really that much. The dam is not a protective dam with cement spillways. It's a dam of crushed, deleted, rock-bearing material that is like talcum powder. He worked on Animas Minerals, helped repair it, and worked for many of the mining companies. Mining companies put him through college. He worked for Atlas Minerals, Homestake, and Heckland, as did all of his friends, and he grew up with mining engineers, but he has to speak against the mine; he has to fight for their farm. The drawdown on their domestic wells is 40 feet, and they can live with that, but in Animas Creek, the water table is very shallow, and their commercial wells will drop between 15 and 30 feet. That will end the artesian water, and the whole program of building a durable irrigation system made to last 50, 100 years. He overbuilt the relays himself, and put in long-term durability pumps. He wants kids on a field trip to visit the control room 50 to 100 years from now and find everything working. The mine will operate only 11 years, and is in such conflict with recreation. Tr. pp. 371-374.

In Moab, Utah, a mine dump from the Atlas Minerals Mill is right on the Colorado River. When the big water spills came down the Colorado, the 100-year storm in '81, it took out part of the tailings dam and spread uranium and radioactive radiation all the way down the Colorado, to the Sea of Cortez, and into Los Angeles. At that point, the mill was closed. They took the mill down and removed the tailings pond, and the town committed itself. The town was dead after the mines closed in the '70s; it had been booming. New people came along. New administrators and new elected officials teamed up with the Department of Interior to build recreation facilities. They put their money into recreation, and it paid off -- the town is wealthy now. 11 years is just time for the high school kids to get married and maybe have some kids before the mines abandon them. This happened in Moab, Utah; Grand Junction, Colorado; Cobalt, Idaho; and Grants, New Mexico. When the mines closed, they were allowed to leave their tailings ponds and every community had trouble with it. Do we need to make the same mistakes here? Mining is important, but not if it's going to spoil recreation that has a much higher dollar value. Their charts show the effect of the mine on the flows and wells of Animas Creek for 100 years. The flows of Animas Creek in 100 years will decrease by 136 acre-feet a year. His whole farm uses under 40 acre-feet of water a year through the drip systems. 100 years from now, they are going to be depleting the canyon more than all of the farms in the canyon. What is the value of all the water that they will be appropriating and taking? What is the value of shutting down the farms? Don't do this to the community or to Animas Creek. Tr. pp. 374-376.

Billy Chappell is 56 years old and bought a place in Caballo 20 years ago. He works for Animas Nursery. With the water tables dropping, what's going to happen to his job and the other people working for him? What's going to happen to Animas Creek, which has always been a hidden paradise? People are amazed by the trees and everything that's growing down there. It's a whole different environment. He doesn't want to see Animas Creek disappear because someone wants to make more money. He doesn't want to see poison going to the groundwater, which goes downstream; he will be drinking that. Their water is already bad enough. He wants to see Animas Creek stay as a hidden paradise, and thinks the copper mine is going to destroy it. Tr. pp. 376-377.

Don Steinnerd lives in Socorro, and comes regularly just to partake in recreational activities. He supports the proposed mine, and believes the mine will have a positive impact on the area. It is prudent to develop domestic mineral resources and reduce dependence on foreign sources. The proposed mining operation will not bring any harm to the environment. He trusts NMCC will operate in a responsible manner, in accordance with the government requirements, with no harm to human life or the environment. He hopes that the appropriate federal, state, and local agencies will all expeditiously review the permits and comments everybody has given, and that this will get approved and this mine will go in operation as soon as possible. Tr. pp. 378-379.

Nolan Winkler Is an artist who has lived in Hillsboro for over 25 years, and is currently the vice president of the Hillsboro Mutual Domestic Water Consumers' Association. His concern is water. The mine's claims that they will need 7,000 acre-feet of water annually or more would seriously damage Sierra County and those south along

the Rio Grande. This 7,000 acre-feet of water usage is actually enough for the annual needs of more than 25,000 residents, which would be a much better way to make revenue and get jobs. The county is in a major drought, and has been for years, and is expected to continue to be. Giving the mine access to 7,000 acre-feet of water annually would seriously drain and damage the water and farming supplies in places like Hillsboro, Kingston, Animas Creek, Arrey, Garfield, Hatch, Salem, and every community south along the Rio Grande into Texas and Mexico. Pollution and lack of water kills, and we don't want to take the risk for the few jobs and the few years it might be open. 7,000 acre-feet annually would damage the inflow to the Rio Grande and affect the Interstate Compact between New Mexico and Texas, which is in litigation. Besides water, there is the issue of pollution to groundwater surrounding the mine and on down and into the Rio Grande. This is not a good solution for local jobs, the environment, or their lifestyle. New Mexico deserves more than to have an out-of-country corporation trying to reopen this mine, coming in to pollute the water and lives for their profit. He hears that the next country interested in purchasing the mine from the current Australian-based corporation is in China. He urges those with the power to deny this reopening of a questionable mine. It is premature to grant this permit, until the mine has all the water they need in place. Until New Mexico's issues with Texas have been litigated, the water is too precious to grant for this endeavor. Tr. pp. 379-381.

Robert Byrd is a retired engineer from Las Cruces with family from the old Hot Springs area, now T or C, and his father graduated from the New Mexico School of Mines. He was afforded his own educational opportunities in great part due to his

father's work in mining in Magdalena and Grants. Opportunities for today's youth in Southern New Mexico are seriously limited by a lack of good-paying jobs that invest in the communities, which, in turn, affects the abilities of communities to adequately fund education and pay for infrastructure upkeep. A deadly cycle. Farming is important, but work is generally seasonal and low-paying. Government jobs are good, but may be relocated as political winds shift. New Mexico, with its low education rating, unfortunately, cannot attract its share of high technology. Wind and solar energy may be the future, but how many people does a solar or wind farm actually employ? Tourism, service industry jobs are overwhelmingly minimum wage, and local attractions subject to climate change. The Spaceport, manana. It seems meanwhile, new Spaceport projects are springing up in neighboring states, and even Canada. So why not modern mining? We have the resources that other states don't have, we have access to institutional excellence at New Mexico Tech, we have a willing work force that needs high-paying jobs, and we have opportunities in this project to help strengthen and diversify the local and State economies. Modern mining is entirely compatible with tourism, farming, ranching, and high tech. Because we are fortunate to be mineral resource rich in New Mexico, it makes sense to include modern sustainable mining as a lively component to our economic development. The Fraser Institute, a top-ranked independent Canadian Think Tank, publishes an "Investment Attractiveness Index," which rates states, countries, and regions based on a multi-point survey of mining companies to perceived attractiveness to investment. In other words, places that will focus on activities that may lead to significant investment and job creation. Its latest

report in 2017 ranks Finland as the most mining-investment friendly. That Finland, well-known for its high quality of life and educational excellence, earned the top score means that they understand that mineral resource exploitation is a desirable component in their economic development, particularly in the sparsely populated North, where good jobs are also scarce. That Finland is at the forefront of technological innovation also speaks to their understanding and trust in the management of mining, metallurgical, and environmental processes. Environmental awareness in Finland is supported by a highly educated population and clear, concise legislation. For comparison, New Mexico ranked 43rd in this survey, lagging behind such "welcoming" jurisdictions as Russia. Guatemala was in last place. Modern mining is investment-intensive, and countries around the world vie for it. That NMC is planning to spend over $360 million to put a modest-sized mine in operation is a testament to the quality of the project and their faith in the community that supports them and this state. Let's take advantage of this opportunity for the future of our region. He strongly supports approval of the necessary permits for the Copper Flat Mine. Tr. pp. 381-385.

Taylor Streit lives in Caballo. He lived in Taos for 50 years, and was very involved with fighting the Questa Mine, which was the second-largest molybdenum mine in the world, and has been closed for a while. When they were fighting the mine, there weren't many people around. Taos wasn't a happening place, and there wasn't much opposition. That's a big factor here, too, there are no people around so things can happen. You wouldn't get this mine to happen in Northern New Mexico now. There has been little press about this mine, which reflects the fact that it's isolated. In 1981, the

mine in Questa went underground, and it made a huge push, a pipeline broke, among other things, and it pretty much devastated the Red River. He had a fly fishing business in Taos, but it pretty much went under during that period, or at least fishing in the Red River near the Rio Grande did. The mine has been closed for 20 years or so, but there are still effects from that which can be seen where the Red River meets the Rio Grande west of Questa: to this day, the larger trout are above the confluence with the Red River because the toxic buildup in organs only allowed the trout to live about four years, although it's better than it was. The Animas Creek up above the Ladder Ranch has Rio Grande Cutthroat Trout, probably the southernmost population of Rio Grande Cutthroat Trout in the world. When the water starts coming out of the system of the aquifer, it will affect even the upper portion of the creek which now has Rio Grande Cutthroat Trout. We hope that that stream has a chance, because in the fire, they died; these fish were reintroduced. Then, of course, there is the Animas. He lives just a mile from the Animas, and he considers it a paradise. He can go cat-fishing, hunting, it's fabulous. It is an oasis, five degrees cooler, with huge, incredible trees. The trees are there because they suck water out of the ground that's just a few feet away, but he is pretty sure that would go away if you start drawing water out. Tr. pp. 385-388.

Sandra Ficklin lives in the canyon of Animas Creek among the huge, unique sycamore trees, together with many other deciduous trees, including cottonwoods, all of which are dependent on a constant shallow source of water. If the four large production wells are allowed to be continuously pumped, there could be a drawdown in the Animas Alluvial Aquifer significant enough to destroy those shallow-rooted trees.

The sycamores are a constant draw for tourists and birders, who come to study them and provide another source of revenue to the county. Unfortunately, she has a rather shallow well which almost certainly will be affected. According to the EIS study for Alta Gold in 1999, the aquifer is quickly drawn down by up to 20 feet. Alta even offered to drill new wells for whomever was affected. A guest editorial in The Herald on January 17th, 2018, asked the rhetorical question several times, "Who needs this water? Who needs this water? Who needs this water?" They are talking about Animas Creek. Her response is, all of those who reside in the Animas Creek area, from Caballo Reservoir west to Hillsboro. For most of them, it is their only source of water, and it is critical to their survival, as well as the survival of all wildlife in the area.

Ms. Ficklin then read written comments submitted by her husband, Joseph K. Ficklin: Our house and well are situated on the north side of Animas Creek. Directly across the creek from our house, there are three mining company monitoring wells on what was, in 2012, known as the "Gaya property." In the summer of 2012, New Mexico Mining Corporation did a test pumping of the production wells situated less than a mile south of our house to determine if there was an anomaly in the monitoring wells during the pumping. He asked a company rep for a copy of the log from those wells taken during the pumping. The rep said that that was proprietary information and that he would have to obtain permission to give us those logs and that he would get back to him one way or another. They never heard from him again. Earlier testimony stated that there were hundreds of mines in that part of Sierra County, but this is a strip pit mining operation, more damaging to the environment than all of those underground mines.

The EIS reported that the level of the Palomas Basin Aquifer may be lowered by 20 feet. That aquifer underlies the Animas Alluvial Aquifer. Their concern is what effect that drawdown of the Palomas Basin Aquifer might have on their well, which is in the Animas Alluvial Aquifer. Will that drawdown deny water to the sycamores on the Animas, effectively killing them? Tr. pp. 388-391.

Jason Garcia is 45 years old, a lifelong resident of Sierra County, a 1991 graduate from Hot Springs High School, and one of the very few that have been able to come back to his hometown and find employment so that he can support his family in the area. THEMAC and Copper Flat Mine have gone above and beyond as far as what they are bringing, and the positive ripple effect is going far beyond Sierra County. Socorro has New Mexico Tech, which is the School of Mining and Technology. Those folks can look for jobs down this way, as well as Sierra County residents. This can better the lives of people in the area, and bring people to the area to make it more of a viable. It's a beautiful town, and a great place to live and raise a family. For his children to have a future, they need this type of industry here. Jobs are hard to come by. The whole southern portion of New Mexico needs this. He doesn't have any doubt that THEMAC has been straightforward about what they are doing and will do. Tr. pp. 430-432.

Martin Mijal: To mine or not to mine, that is the question. Is it nobler to leave the copper in the ground, since any extraction is an insult to the earth, or is the problem of poverty in Sierra County more important? On one hand, the county is one of the poorest in the United States, the mine offers short-term jobs ne immediately, the mine presented compelling evidence that they will not discharge pollution, the ore body is

surrounded by impervious volcanic bedrock, the mine that operated 40 years ago has very limited pollution which is not spreading to the Rio Grande watershed. On the other hand, the Ranches and Elephant Butte present information that the above data does not look at the big picture, the engineers may not be putting their probes and test wells in the right spot, there may be more pollution that hasn't been found, the data doesn't include common errors in a massive industrial project, history shows that disasters happen. Another factor to consider is the shocks to the volcanic bedrock from the mining operations. The 1980 mine removed 1.1 million tons of material in three months. The new mine plans to go about 780 feet deep and remove 100 million tons in the 12 years of mining. The math is 52 weeks a year, for 12 years, three times a week, which is 1,872 blasts causing lots of shock and vibration. His concern is that the shock and vibration will affect the bedrock. Small cracks will get larger, and new cracks can occur. This bedrock is impervious, but it does have a water table, which means rough fissures and cracks are already in it. Mine pollution can get into the invaluable watershed. The 1980 mine did not blast long enough to encounter this problem. Water and pollution love to disperse; the cracks could lead to Animas Creek watershed and the adjacent ecological areas, as well as the Rio Grande watershed. When we notice a pollution leak, it will be too late to stop it.

The mine feels 25 years is plenty of time, energy, and money to devote to restoration, and they will be done. Imagine 100 years into the future. They promise their well-designed and well-constructed dams are perfectly intact despite 100 years of nature's violent monsoons, high winds, flash floods, and seismic events. Do you feel

confident that the dam holding back toxic tailings next to Grayback Arroyo is still sound? Imagine returning 200 years after mine remediation. Usually, man-made structures do not have a long life without consistent maintenance. The desert is the most changeable ecoregion on the planet, with scarce vegetation and minimal roots to hold sand, earth, and rocks in place. The mine is telling us a fantasy. Nature loves to disperse and scatter, which is not good in the case of toxic mine tailings. What will this site look like in 300 years? The mine claims no maintenance is needed. It will not be pristine for cattle and wildlife. The mine has two unique ecological ranches as neighbors; both restore wildlife. This is a precious and unique area, why jeopardize it? Mule deer don't respond well to man-made industrial scale insults. Sierra County benefits greatly from hunting, and the jobs and money it brings. Space Center jobs, NASCAR prosperity, new housing and factories from Florida--all a fantasy. Sierra County is desperate and vulnerable to con men because they feel the jobs will be real. This mine may be the most feasible source of 15 years of jobs, yet the precious birthright of prime nature is at high risk.

Opening the mine is premature. Technology is developing at a dizzying rate. Current copper extraction is extremely crude; we are on the cusp of learning how to get metals out without all the damage to the environment. In the future the price of metals will probably also be higher. The 1993 Mining Bill states that any mine must be vital to the people of New Mexico. Opening the mine is not vital. We pay too high a price for these mine jobs. Once New Mexico is ruined even more, we can't duplicate God's exquisite creation. Sierra County has a history of boom and bust from the 1880s. He opposes the mine with the current technology. Tr. pp. 433-441.

Michael Skidmore: New Mexico is 49th in economy in the United States; only Mississippi is poorer. Sierra County is the sixth worst county out of 33 in New Mexico. The average salary is $16,000 a year. Imagine the economic boom and prosperity for the county if it had 387 full-time jobs that paid three times that amount per household. THEMAC has repeatedly shown their willingness to comply with all environmental regulations, most of which they have already met and are willing to exceed. Sierra County has a history of mining since the 1880s. Look at Hillsboro and Kingston, which grew at the time when mines had no regulations of any kind; the land is healed, the grass is doing well, water is restored, everything is fine. Today, EPA can monitor things completely and continuously, and if any problems develop, they can shut the mine down. He moved 35 years ago to Sierra County, and lived there ever since. His children graduated from school there, and moved away to find employment. The mine operated once before, and it can do so again. The environment was safe at that time. Let the operations begin again for the sake of the County's children and for the citizens. It would be a huge blessing to the community. Tr. pp. 441-442.

Nicole Trushell from Kingston, is a biologist, and has lived in the Southwest all of her life. As a resident of Kingston, the project is not in her backyard. She cares because if the new Copper Flat Mine permit is granted, there will be stunning quantities of unreclaimable water used, toxic chemicals released from the soils, and life-supporting waterways threatened. Groundwater would likely be impacted, as would Animas Creek, a unique perennial ribbon of life running from the Black Range through the dry landscape. The lives and farms of local people, many of whom have lived along the

Animas for decades, could be irreparably damaged. The Animas flows into the Rio Grande. Deciding in favor of this permit is wrong for three reasons: One, the toxicity of the massive amount of waste material and its permanence. How can long-term management of a liner be assured? Who truly understands the effects of this on the underlying geology? Who will monitor this area and the potential for devastating contamination for generations to come? Who monitors it now? Where are those reports? Who will respond when system failures do inevitably occur? Who will pay the cost for long-term care? Two, the monumental and toxification of precious water. The amounts of water proposed for operational needs are preposterous in a dry environment. 2.3 billion gallons of water was requested by NMCC for yearly operations. Unlike municipal water, this water will never directly recharge the groundwater. It cannot. This amount of water alone would supply a city of 50,000 people for a year. Third, the economic benefit is short-term and questionable, at best. It is hard to make a living in Sierra County. However, a plan that takes water and ultimately jobs of farmers and successful tree-producing business, as well as tourism opportunity of the neighbors, cannot be a just solution to the struggling economy of Sierra County. Jobs promised are intermittent, short-term really, and many are already promised to the Jicarilla Apaches. The job argument feels like a con, given the fact that the real economic benefit is to a foreign company, not to New Mexico, in the long run. Allowing this project is a decision with stunningly negative effects long into the future. The true cost to water and to the environment of Sierra County is too great. No permit. Tr. pp. 443-446.

Steve Morgan is a landscape architect, and lives in Kingston, New Mexico. He also does living history performances of Aldo Leopold, considered by many as the most important conservationist of the 20th century, and as the "father of the national wilderness system." He wrote the first book on wildlife management for many federal agencies, established the science of ecological restoration, and authored The Sand County Almanac in 1949, which still inspires many to see the natural world as a community to which they belong. Quoting Mr. Leopold, "We must quit this thinking about decent land use as solely an economic problem. Instead, we should look at each problem in terms of what is ethically and aesthetically right, as well as economically expedient. For a thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community, and it's wrong when it turns otherwise." Someone else who was very strong on environmental policy was responsible for a lot of the expansion of National Forests was Theodore Roosevelt. Quoting President Roosevelt, "The nation behaves well if it treats the natural resources as assets which it must turn over to the next generation increased and not impaired in value." He strongly believes that if these men were aware of current issues, they would remind us that the total cost of this kind of economic destruction is never fully complete, or fully revealed until after the fact. It's our responsibility to make sure that this type of decision is not made based on something very short-term, but with very long-lasting consequences. The amount of New Mexico water that's involved, the possibility of catastrophic flooding and the resulting environmental and economic destruction downstream should heavily outweigh the short-term economic benefit to a foreign country. He opposes the

permit for NMCC, and asks MMD to truly look long-term. There are much better ways to do economic development without incredible destruction to natural resources; that's where our focus should be, more on natural resources, and sustainable economic development, like tourism. Tr. pp. 446-449.

Jeff Cullum is a resident. He went to Silver City College in in 1979, and after two years entered a program in vocational technologies (CETA) with a number of other people who had been laid off from the mines. He started building homes in the early 1980s, and although business started out slow, but it picked up, young families and retired people. He hired young people and taught them housing trades, and started hiring more and more subcontractors. Housing was really taking off. It turned out copper went up, the mines were opened back up, and there were jobs. A lot of the people were related to the mine in some way, or had family that worked in the mine. They had nonstop work. By 2004, he had sold almost everything. Being close to the mine was the best possible thing that could have happened to his business. In 2004, his wife was offered a job in T or C and they moved. He has not built a single new home since, and he works in Grant County now. He would like his kids and grandkids to be able to stay and have a good life. Opening this mine is probably the best chance the community has to get the ball rolling there. It would mean a lot for their future. Tr. pp. 449-458.

Gerald LaFont is a businessman, a City Councilor from Elephant Butte, and 100 percent for business. He was raised in Prewitt, New Mexico, and a local Navajo found uranium. The uranium mines in the Grants area were quite an economic boost. Even today, Grants is a bigger town. There are no uranium mines anymore. He has been a

resident of Elephant Butte for 22 years, and they need businesses. He wants his children and grandchildren to have an ability to make a living, even if the mine won't hire them, but the whole area grows when things happen. He knows that the company will take care of the groundwater. Tr. pp. 458-459.

Susan LaFont moved to the county in 1996, and had the hotel in Elephant Butte for 22 years until this June. It was very difficult so many years because the economic base fluctuated quite a bit. They still have the Elephant Butte Lake RV Resort, and has seen very good business from the copper company. She has seen many of their reports and knows that they have spent millions of dollars in fulfilling the very stringent requirements of the State of New Mexico. They hired many experts, and they have submitted things in exactly the way they were supposed to over the years. There have been many hearings, as well. The mining authority will take all of this information, and they have got to put some trust in them, too, that regulations that were put into place, that they will look at all the information that NMCC has put together and will make a wise decision. They want this to be environmentally sound. It will be a very good thing in their poor, little county. They are 100 percent for the mine. Tr. pp. 459-462.

Mandy Lilla grew up in South Dakota in a very small community that still depends highly upon farming, hunting, and fishing, just as in Sierra County. There are still no other opportunities in that community. She would love to go back and live, but there are no jobs there. Hunting and fishing are very seasonal. Most of the full-time residents are retired. The part-time residents stay for a couple weeks out of the year, and don't bring income to the community other than during those few weeks. Their

houses get run-down, and become an eyesore. She wishes that community had other opportunities like Copper Flat is trying to bring to Sierra County. She has worked in the mining industry for over 14 years, and speaks as a member of Grant County and New Mexico. Mining can be done safely while protecting the environment. Tr. pp. 462-464.

Klaus Wittern is very much in support of the mine. All issues that are still pending can and should be resolved through settlement negotiation, rather than protracted litigation. The issues of bankruptcy, water rights, and the price of copper can be addressed in an open discussion, and a lot of education is necessary. Best practices, such as the dry-stacking to preserve water employed at the Rosemont Mine near Tucson, have not been addressed. We have less than three years to forge a settlement before the evidentiary hearing in the U.S. Supreme Court matter. A settlement with the Lower Rio Grande Association, Texas, and the City of Las Cruces is essential, otherwise the State Engineer can't avoid litigation. Water, at some point in time, will be more valuable than oil, and we just need to come to grips with the needs that that entails. Tr. 465-473.

Nathan LaFont is a local business owner and sits on the Planning and Zoning Commission for the City of Elephant Butte. He has a family and has been part of the community since 1996. He supports the Copper Flat Mine project. This community needs growth and economic drivers, a project for the community that will allow it to grow again and stop the loss of residents who have to leave because of lack of opportunity. This project, and others like it, need to be developed correctly in New Mexico. We cannot keep relying on foreign projects to be provide all the minerals that the state and country need. We need to be able to do it in a responsible manner, and

Copper Flat Mine is doing its part to develop a project in New Mexico. It is a good project to be able to help the community to grow, and he supports it. Tr. p. 474.

Gay Skidmore is for the mine. It has been trying to get it here for over 20 years, and in the meantime, the town is dying. When they first arrived in 1985, they started a painting business, and did one new house after another for years. In the past three years, they have had one new house, and the economy has gone down. The people who moved into the downtown area are killing it. They need it for the young people, for the old people, for everybody to be able to make a decent income. There is a Wal-Mart, and a hospital, but they are probably not going to stay very long if things don't pick up. It's not going to hurt anything to get it going again. Tr. p. 475.

Dale Skidmore of Skidmore Painting, has been a resident for 33 years. He had five professional employees once, but no longer has enough work to keep a crew. Business plummeted after 9/11. This town needs employment. He can't say that the environmental impact affected the deer population much, maybe the hunters did, but the deer seemed to thrive at the mine site. He has not seen a decline in javelina at all. In Sierra County, the worst environmental impact is from forest fires. There are mines in the area that nobody could see until the forest fire exposed them. The trees were vibrant. The creeks run when it's wet, and they are dry when it's not wet. There are regulations, laws, and inspectors to assure that the mining companies follow the law, including the laws protecting the environment. Sierra County is in desperate condition for employment. He supports the mine. Sierra County is all about farms, ranches, and mining. He would say recreation, but the lake is almost gone. There are mines all over

the Caballo, from Lake Valley all the way up the mountain chain. The United States Forest Service map shows existing mines that have been there for over 100 years, and we have not had an environmental catastrophe from those mines. They took care of that up in Kingston. As an employer who is no longer an employer because there is no longer any work, he is for the mine. Tr. pp. 476-482.

Written Comments

Comments on the Timing of the Hearing

Written requests to hold the hearing scheduled for August 21-22 at a later date to allow for the review of additional informational and additional preparation were made by Kim Skinner of Geronimo Trail National Scenic Byway; Robert Sanchez Langston; Jason Rose, Susie Bussmann, Bill Bussmann, Sandra Sunderlage, Margie Gibson, Linda Seebach, Steve Dobrott, Susan Christie, Satwant Singh and Jaswant Khalsa, Susan Lynch, William Lindenau, Lara Nock, Deb Nicoll, Veronique de Jaegher, Stan Brodsky, Anke Ewerbeck, Rebecca Speakes, Joseph and Sandra Ficklin, Charles Barrett, John Cornell, R.W. and Nolan Winkler, Allyson Siwik for GRIP, Pat Gordon, Rio Grande Compact Commissioner, Gary Esslinger for EBID, Dennis Dunnum, Denise Boman, Robert Cunningham, and Robin Tuttle (who also asked that one day of hearing be held in Hillsboro).

Written requests to proceed with the August hearing date and approve the permit without delay were received from Ted, Letha, and Tim Kuzdrowski, Mike Potia, Alan Kuhn, Bruce Swingle, Deb Stubblefield, Travis Day, David Miller, Teri Cates, Bob Martinez, George Byers, and Serina Bartoo.

Comments in Support of Permit Approval

Written comments in support of mine permit approval were received from several of those providing verbal testimony at the hearing and from Michelle Romero of First Savings Bank; C. Earl Greer of Plaza Realty; Scott Terry of the Silver City Grant County Chamber of Commerce; Ana Rebecca Bartoo of T or C Schools; Mike Potia of State Farm Insurance; John Bokich of Elephant Butte; Steve Detloff of Hillsboro; Diane Quinones of Williamsburg; Carl Brown of Bank of the Southwest; Janice Gray of Adobe Hacienda Real Estate; Bruce Cosper of Hillsboro Black Range Construction; Angela Detloff of Hillsboro; Dan Maxwell; Robert Middleton of T or C; KeliKay Hopkins of T or C; Tami Garrett of Sierra County; Bernard Quinones; Kathryn Pape and Ted Pape of Sierra County; Gale Perry-Crawford of Caballo; Lynda Thompson; Deb Stubblefield, Mayor of the Village of Williamsburg; Ted Kuzdrowski of Elephant Butte; Caballo Soil and Water Conservation District Board; John Bokich and the Board of Sierra Electric Cooperative; Glenn Hamilton, Sierra County Sheriff; Mario diGesu of T or C; Eunice Kent, Mayor of Elephant Butte; and Paul Tooley, T or C Fire Chief.

Reasons cited for support of mine permit approval included economic boon in a very poor area; jobs; tax payments that will improve schools and Sierra County infrastructure; scientific and legal issues already addressed by the applicant; the applicant's financial investment to date; the applicant's commitment to operate in a lawful and environmentally protective manner; southern New Mexico's long history as a mining area; aging fire department volunteers; the oversight of mining operations by

multiple local, state and federal agencies; and the fact that mine operations will not include cyanide leaching.

Comments Opposing Permit Approval

Written comments in opposition to the mine permit approval were received from several of those providing verbal testimony at the hearing and from Bill Bussmann of Caballo; Debora Nicoll of Hillsboro; Marilyn Gendron of San Lorenzo; Mary Cavett; Catherine McDonald of Caballo; William Brown of T or C; Susan Christie of T or C; Elise Curtin of T or C; Stan Brodsky of Hillsboro; Susan Lynch and James Jacobsen of T or C; Shelby Schue; Melody Sears of Hillsboro; Diane Schmidt of Corrales; Joel Matthews, a local resident; Dulcie Ford of Silver City; Mary Ann Ciancia of Hillsboro; Jack Noel; Lara Clement of T or C; Richard and Gloria Spellman of Hillsboro; Jan Haley of Hillsboro; Rick Burns of Caballo; Don Avery and Mary Cardyn of Hillsboro; Rebecca Summer and Richard Ducotey of Silver City; Hilario Romero, former New Mexico State Historian; Ella Joan Finoglio of Albuquerque; Doug Abbott of Intellimetrix; Dianne Urey, who owns retirement property in the area; Susan Selbin of Albuquerque; Susan Binneweg and Owen Jones of Hillsboro; Rebeca Hallgarth of Hillsboro; Barbara Fix of Santa Fe; Rebeca Speakes of T or C; Karon Morgan of Morgan Marine in Sierra County; Sharon Eastvold of T or C; Fiona van Reisen; John and Linda Glova; Sharon Sprague; Sandra Sunderlage; Margie Gibson of Caballo; Linda Seebach of Hillsboro; Carol Pittman of Datil; Dr. Barbara Mahler and Dr. Peter Van Metre of Kingston; Ben Lewis and the Hillsboro Mutual Domestic Water Consumers Association; 195 signatories to a petition titled “Deny the Copper Flat New Mine Operation Permit;” Pat Gordon, Rio Grande Compact

Commissioner; Charles Barrett of Hillsboro; Satwant Singh and Jaswant Khalsa of T or C; Veronique de Jaegher of Hillsboro; Linda Seebach of Hillsboro; James and Teresa Harthun; Lynn Uphus of T or C; and Max Yeh of T or C.

Reasons cited for opposition to mine permit approval included aquifer pumping that will negatively affect existing supply wells for residences, farms, and nearby riparian ecosystems; insufficient water rights; a reclamation plan that will not lead to a self-sustaining ecosystem as required by the Mining Act; dust, light, noise, and a failure to propose best management practices that will limit dust, light, noise and protect human health, safety, the environment, wildlife, and domestic animals as required by the Mining Act; insufficient financial assurance to cover the costs of long-term monitoring and maintenance of site reclamation; the narrowness and inability of Highway 152 to handle heavy ore trucks; increased traffic; the possibility of fires and toxic spills; harm to wildlife from the pit lake and the blasting; threat of additional litigation with Texas over water appropriation; threat of water contamination in Caballo Reservoir; the short-term length of the jobs planned by the mine, and that job preference, among other things, has been promised to the Jicarilla Apaches in exchange for water rights; impacts on neighboring properties; the inadequacy of the NMED water quality discharge permit to protect water; the accrual of financial benefit to a foreign company; environmental impact to Animas Creek watershed, including rare sycamores; damage to local eco-tourism; contradictory information in the applicant's engineering reports; the quality and quantity of water delivered by New Mexico to Texas under the Rio Grande Compact; impacts from dynamite blasting; the operation not developing New Mexico's

resources for 'the maximum benefit of the people" as required by the state Constitution; an inadequate and flawed draft Environmental Impact Statement (EIS) by BLM, and an inadequate Environmental Evaluation by MMD based on that EIS.

Proposed Special Permit Conditions

Many special permit conditions were suggested in the written public comment [in addition to those set out by the Ranches' witnesses and GRIP, among others, in verbal testimony]. These included scaling back the scope of the operation to preserve water; making employment contingent upon union membership, providing job training that includes access to drug counseling and therapy; financial assurance for businesses and individuals downstream who are likely to be affected by the mine; water quality measurements and treatments for downstream wells; dark skies lighting; financial assurance for county and state roads; irrigation of seeded areas during reclamation; identification of exact seed mixtures to be used; increased financial assurance for reclamation; funding for the NMSA plant and environmental sciences department; testing for soil pathogens; regular meetings with local residents to address issues in a timely manner; and additional site evaluation and characterization.

Written Comments of Those Providing Verbal Testimony

Written comments consistent with verbal comments made at hearing and already set out above were received from Jim Paxon, Tom Stroup, Nolan Winkler, Martin Mijal, Catherine Wanek, Charles and Betty McMath; Candace Browne, Jeff Cullum, Nicole Trushell, Steve Morgan, Sandra Ficklin, Joseph Ficklin, Taylor Streit, Robert Byrd, Lee Newman, and Denise Barrera.

Other Written Comment

A written comment in which neither support nor opposition was expressed, but questions were posed about the applicant's safety record, water resources, and leaks, was received from Tim Reed.

Additional Comment from NMCC

After the hearing, Mr. Butzier submitted into the MMD record portions of the NMED record relating to the issuance of DP-1840, specifically the 5-volume transcript of the September 2018 hearing and the PowerPoint slides used by its experts on direct and rebuttal presentations. All of NMCC's exerts in the DP-1840 hearing were recognized as such within their relevant fields, and a brief summary of the experts' conclusions is below. The transcript has not otherwise been summarized or discussed in this Report; in the event the Director wishes a further summary or discussion of the transcript, the Hearing Officer will submit a supplemental report.

Jeffrey Smith, P.E.: Mr. Smith's testimony in support of the issuance of DP-1840 was similar and consistent with his testimony at the MMD hearing.

David Kidd: Mr. Kidd discussed the design of the Copper Flat tailing storage facility (TSF). The TSF must meet requirements in numerous regulations which are bulleted in Mr. Kidd's slides, and be approved by the Dam Safety Bureau of the Office of the State Engineer. NMCC continues to work with the Dam Safety Bureau toward approval, and the TSF is designed to provide optimal environmental protection.

Steven Finch: Mr. Finch described the hydrogeologic setting for the mine, the aquifer evaluation, and the conceptual model developed based on many years of

geologic and hydrologic data. He explained how the ground water under the site would be hydrologically contained by pumping or evaporation from the open pit surface drainage area. He described the open pit dewatering, the rapid fill reclamation with clean water, and the eventual steady-state condition for maintaining an evaporative sink after mining ceased. He described the storm water diversions, ground and surface water monitoring at the site, and the projected leakage from the TSF liner, which he characterized as insignificant, and which, if it percolates to ground water, will blend or remain beneath the TSF for hundreds of years.

Ruth Griffiths and Rob Bowell: Dr. Griffiths and Dr. Bowell discussed the geochemical characterization of waste rock, tailings and pit walls and their predictions as to the potential for acid rock drainage and metal leaching at the site. They concluded that the future pit lake will be moderately alkaline; and that constituent concentrations will be within the range of variation seen in the existing pit lake. They predict an increase in total dissolved solids (TDS) over time due to evapoconcentration, similar to trends in the existing pit lake. Acid wall seep events are not anticipated for the future pit lake, and water quality is predicted to be superior to the existing pit lake, particularly with the planned rapid refill. Changes to the hydrologic balance of the future pit will be nil or minimal, similar to existing conditions.

Further, they concluded that 96% of the waste rock shows a low potential for acid generation and metal release; the 4% transitional material with greater potential will be managed by encapsulation within the waste rock stockpile and represents low

risk to ground or surface water. Ground water impacts from the waste rock stockpile or TSF are not predicted to occur.

Todd Stein: Mr. Stein discussed reclamation and closure at the Copper Flat site. The Mine Closure and Reclamation Plan meets or exceeds requirements in the Copper Rule and is designed to re-establish a self-sustaining ecosystem that conforms to the planned grazig and wildlife habitat post-mining land use (PMLU). NMCC has committed to concurrent reclamation of legacy stockpiles and proposed WRSP-3 during operations. NMCC has further committed to concurrent reclamation of legacy disturbances along Grayback Arroyo during operations. Finally, reclamation cover material test plots ill be constructed and monitored on one o the reclaimed existing waste rock stockpiles to demonstrate suitability of the reclamation cover material at Copper Flat.

No other comment, testimony or exhibits were offered. The transcripts, slide presentations, other exhibits, hearing sign-in sheets, and written public comment submitted during the hearing have already been delivered to the Division.

Respectfully submitted,

-original signed by-
Felicia L. Orth, Hearing Officer