

These comments are respectively submitted regarding the "**Copper Flat Copper Mine Draft Environmental Impact Statement.**"

The comments are submitted by the Hillsboro Pitchfork Ranch L.L.C.. The Hillsboro Pitchfork Ranch L.L.C. is a family owned ranch and has been within the family since 1906. The "Ranch" is located adjacent to the proposed Copper Flat Mine, and as such will be the private land most effected by mine development and operation.

These comments are being sent by, Certified Mail, Return Receipt Requested, and electronically to the Bureau of Land Management (BLM), Las Cruces District Office.

Hillsboro Pitchfork Ranch L.L.C., Kathy McKinney and Bob Cunningham Owners



Kathy McKinney s/s



Bob Cunningham s/s

Note to Reviewer.

The document is formatted as follows, to facilitate review:

Text in **Black** is taken from the "Copper Flat Copper Mine Draft Environmental Impact Statement", to provide context to the comments and ease reviewers' task.

Text in **Red** are comments provided by the Hillsboro Pitchfork Ranch L.L.C., to the Draft Environmental Impact Statement (EIS).

Text *Italicized* is meant to convey importance.

Executive Summary

We submit the "Copper Flat Copper Mine Draft Environmental Impact Statement", contains significant flaws. These errors or omissions are so numerous and large in magnitude, that the draft is fatally flawed. *We recommend the draft be withdrawn and the flaws corrected.* Once corrected, the draft should be reissued by the Bureau of Land Management for public review and comment.

The Draft is flawed in at least the following areas:

- EIS Significance Criteria
- Surface Water
- Ground Water
- Wildlife and Migratory Birds
- Vegetation, Invasive Species and Wetland
- Land Ownership and Use
- Lands and Reality
- Range and Livestock
- Noise and Vibrations
- Cumulative Impacts
- Environmental Consequences
- Mitigations to include: Best Management Practices (BMP's)

The following comments identify and demonstrate flaws in the Draft EIS and support our contention that the draft be withdrawn and corrected, before resubmission to the public for review.

CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

3.1 INTRODUCTION,

3.1.1 Copper Flat EIS Significance Criteria,

Page 3-1,

Paragraph 3 and 4

Similar projects and documentation were reviewed to ascertain the activities associated with mining that could potentially cause environmental impacts, and the types of impacts they could cause. Research was supplemented by professional judgment concerning impacts of typical concern for any large project. Criteria were defined as a means of measuring the size of the impact and its significance. A structured framework is required to support conclusions concerning the significance of each of these effects and to systematically integrate individual resource assessments. For example, construction projects generally require some grading and soil disturbance. This disturbance of the soil could be important in and of itself, and it could also affect air quality (by creating fugitive dust), water quality (through erosion of the bare soil and sediment deposition in the surface water), terrestrial resources (through the removal of vegetation and wildlife habitat), and land resources (such as through the removal of prime agricultural soils).

The significance was determined systematically by assessing four parameters of environmental impact: magnitude (how much), extent (sphere of influence), duration, and likelihood of occurrence. Each parameter was divided into three levels as follows:

Magnitude:

- major -
- moderate -
- minor -

Duration:

- long term
- medium term (intermittent)
- short term

Extent:

- large
- medium (localized)
- small (limited)

Likelihood:

- probable
- possible
- unlikely

For each type of impact identified, definitions of each of the terms were prepared. These are summarized for individual resources in Appendix A. The method of analysis for each impact was as quantitative as possible, given the amount of reliability of the data and the apparent importance of each issue. Given the definitions of magnitude, duration, extent, and likelihood for each type of impact, plus the assessments of the impact at each site, the significance of the impact at each site was determined by comparing the significance definitions to the predetermined definitions. The overall significance of the impact was then determined by referring to the guidelines shown below. (See Table 3-1.) For example, any impact that conformed to the definitions of major magnitude, medium extent, long-term duration, and probable likelihood was judged to be a significant impact. The following table lists the definitions of the parameter for each type of impact.

Appendix A: EIS Significance Criteria is referenced in the following comments.

We contend the levels associated with three parameters of environmental impact, in the above text table, are flawed. These levels do not accurately describe the impact of: Duration, Extent, or Likelihood and are difficult, if not impossible, for the public to understand, and comment to in a meaningful way. Specifically we contend the following changes should be made to the levels within the *Duration, Extent and Likelihood* parameters.

In the comments to this section of the Draft EIS, we will cite examples of flaws of the levels, in that they are used arbitrarily within the parameters for the various impacts. In our additional comments to the Draft EIS, we site additional evidence which support our concerns about this section.

Duration:

The Duration parameter must include the level "*Permanent*". The level descriptor "Long Term" is not the same as "Permanent", as defined by Merriam-Webster Dictionary. Effect to Cultural Resources are listed as *Permanent*. Effects to Air Quality, Water Quality, Surface Water Use, Ground Water Use, Mineral and Geological Resources, Biological Resources, Lands and Realty, and Range and Livestock, are also *Permanent*, but are listed as *Long Term*.

As an example page 3.55, 3.5.2.1 paragraph 1 states: "The Proposed Action is expected to result in significant impacts, with *long-term* minor to moderate adverse effects." The effect to surface water is *permanent*, not long term. How can the public comment to the draft EIS in any meaningful way when permanent effects are described as long term?

Extent:

The Extent parameter, Level Definitions: must be consistent within the Draft EIS.

Reviewing, Water Quality, Surface Water Use, Ground Water Use , Soil Erosion, Biological Resources, Land Use, Lands and Realty, Range and Livestock each Level Definition is substantially different.

Example Impact: Surface Water Use, Extent, Parameter, Level Definitions, page A-5, are described by a *specific geographic area* descriptor. Ground Water Use, Extent, Parameter, Level Definitions, page A-6, are described by *square miles* impacted.

Likelihood:

We contend that under each of the Impacts documented in Appendix A of the Draft EIS, that an addition level of "*Certain*" and a Definition, be included in the tables, under the *Likelihood* parameter. The simple definition of *Certain* is "*not having any doubt about something: convinced or sure*" The highest probably level term used in the Draft EIS is "*Probable*". The simple definition of the word *Probable* is, "*likely to happen or to be true but not certain*". These definitions are taken from the Merriam-Webster Dictionary.

Appendix A, page A-6 identifies impact to ground water use. Under the Likelihood Term, *Probable* is used to describe the term, however under the Definition column the definition is "*Intended consequence will occur*".

Another example where the Significance Criteria differs from language contained in the body of the Draft EIS is on page 3-96 and 3-97 under the heading, Significance Impacts .

"Impacts to the regional water budget, including flows of the Rio Grande, would be *significant*. These impacts would be large in magnitude, long-term, and *certain*. Water budget impacts would begin to reduce once mining ends. Impacts to water levels caused by the supply well field would be *significant*. These impacts would be *certain*, but the magnitude would be moderate in comparison to the thickness of the aquifer. Regional drawdown impacts would begin to reduce once mining stops. Impacts to water levels caused by the pit would also be *significant*. These effects would be large in magnitude, *permanent*, and *certain*, but small in areal extent.

The words, *significant*, *certain*, and *permanent* are not defined or used in the Significance Criteria, but are used in the body of the text to describe effects to ground water from mining operations. There is a disconnection between the Significance Criteria and the body of the Draft EIS and this must be corrected.

A final example of flaws in the Significance Criteria is found on page A-5, Impact: Surface Water Use; the definition of Extent and Likelihood level definitions are the same. *How can Extent and Likelihood level definitions be the same?* The Draft EIS is using the same level definition to describe *Extent*, meaning a geographic area, and *Likelihood*, probability of an impact occurring.

In conclusion to our comments to this section, we contend the **Significance Criteria** is flawed to such a degree that it is difficult, if not impossible, for the public to understand. The Significance Criteria must be revised to reflect valid Criteria. These changes to the Significance Criteria should then be reflected in the body of the Draft EIS. The Draft EIS should then be reissued for public review.

3.4 Water Quality

3.4.1.3 Description Affected Environment,

Page 3-21,

Paragraph 1, 2, and 3

The existing pit lake has a surface area of approximately 5 acres and a maximum depth of approximately 35 feet. The pit lake contains approximately 60 acre-feet (AF) of water (20 million gallons). The water level in the pit lake varies seasonally, and generally ranges from approximately 5,435 to 5,450 feet above mean sea level (amsl), with a corresponding range in surface area of 5 to 14 acres (JSAI 2013). Pit lake water levels are generally highest in the winter and are relatively lower in the summer (Intera 2012).

The presence of a perennial lake in the semi-arid climate present at the Copper Flat mine suggests that the pit lake is in hydrologic communication with groundwater, and that inflows of groundwater into the pit lake provides a source of water to the lake. Inflows of water to the pit lake include discharges of groundwater from the crystalline bedrock aquifer and periodic inflows of storm water runoff. The outflows are primarily due to evaporation, because the pit lake does not discharge to surface water. Five groundwater monitoring wells are present in the area of the pit lake. The general direction of groundwater flow can be estimated by evaluating the water level in the monitoring wells in relation to the elevation of the water surface in the pit lake. Measurements of monitoring well water levels presented in the baseline design report (Intera 2012) show that groundwater was flowing into the pit lake in fall of 2011. In general, it is thought that groundwater flows into the pit lake throughout the year and is subsequently evaporated, creating an evaporative sink or “terminal lake”. This conclusion is supported by the evaluation of evaporation versus precipitation in the area and results of groundwater modeling (JSAI 2012)

3.4.2 Environment Effects,

3.4.2.1 Proposed Action,

Pages 3-30-3-31

Pit Lake Water Quality: Under the Proposed Action, the existing open pit would be enlarged to facilitate production of 96 million tons of ore, 37 million tons of waste rock, and 19 million tons of low-grade ore. In total, approximately 152 million tons of rock would be excavated from the open pit over approximately 16 years. *The enlarged open pit would be approximately ½ mile in diameter and 900 feet deep.* Reclamation at the open pit would consist of mitigating unstable pit walls by blasting or other safe methods, selective placement of soil on the benches above the anticipated water elevation of the post-mining pit lake, construction of water bars within the pit to mitigate erosion, and construction of fences or other barricades to limit public access to the area.

A pit lake is expected to re-form in the open pit after mining is complete as a result of inflows from groundwater and precipitation. Groundwater is expected to flow into the pit lake continuously after mining ceases. Periodic inflows of surface water would also occur when runoff from highwalls and slopes surrounding the open pit flows into the pit lake after major precipitation events. The pit lake is expected to form slowly over a period of decades to centuries, because of the semi-arid environment in the area. The inflow rate from groundwater would be highest in the initial decades after mining is complete when the gradient causing ground water to flow into the pit is the highest. As this gradient decreases over a period of decades, the groundwater inflow rate would also decrease, but groundwater would continue to flow into the pit lake. Ultimately, the water level of the pit lake would be controlled by the balance between inflows from groundwater and surface water and outflows from evaporation.

3.4.2.1 Proposed Action,

Pages 3-32,

Paragraph 2

The existing pit lake water quality does not meet its current designated uses of warmwater aquatic life, livestock watering, or wildlife habitat. This empirical data suggests that there is potential that the new pit lake may not meet water quality standards in the future.

3.4.2.1 Proposed Action,

Page 3-33,

Paragraph 7,

Page 3-34,

Paragraph 1

The following modifications will be made to the proposed MPO prior to BLM approval:

- The proponent shall modify the MPO to include appropriate mitigations to protect pit lake water quality.
 - The proponent shall provide a preliminary pit lake water quality management plan, which describes reclamation, water quality management, and monitoring activities that would be conducted to facilitate compliance with applicable water quality standards during the post-mining monitoring period.

The following terms and conditions of approval shall be stipulated for the proposed MPO:

- The pit lake water chemistry shall meet applicable water quality standards during the post-mining monitoring period, which is defined as 30 years after completion of reclamation at the Copper Flat mine.
- At least 1 year prior to mine closure, the proponent shall update the pit lake water quality management plan and provide this final plan to the BLM for review and approval. The final plan shall detail reclamation, water quality management, and monitoring activities that would be conducted to facilitate compliance with applicable water quality standards during the post-mining monitoring period.
- The proponent shall provide a cost estimate for implementation of the pit lake water quality management plan for BLM review and approval.
- The proponent shall provide a trust fund or other long-term funding mechanism in accordance with 43 CFR 3809.522(c), which will be sufficient to fund implementation of the pit lake water quality management plan for a period of at least 30 years.

There are no specific comments to the above section on Water Quality. The references are included as they reflect upon issues identified in the sections on, Surface Water Use and Ground Water Resources.

Surface Water Use

3.5.1 Affected Environment

Figure 3-5 Surface Water Features and Drainage Basin Areas, Page 3-51.

Figure 3-5 appears to be incomplete in the fact that it does not include areas of perennial reach in North Percha Canyon, Warm Springs Canyon and Cold Springs Canyon.

3.5.1.1 Greenhorn Arroyo Drainage Basin, Page 3-54, Paragraph 2 and 3.

This section is silent on the effect the Mine Pit Lake cone of water depression would have on surface water, to the west up drainage of the Mine Pit location. In specific no information is provided on the following areas of concern. 1. Effect of surface water reduction on two Private land Livestock water wells located just to the west of the Pit Lake in Grayback Arroyo. 2. Effect of surface water reduction to two Private Livestock water wells on Bureau of Land Management land located to the south of the Pit Lake in ReadyPay and Wicks arroyo's. 3. Effect on riparian areas located on private land located in Grayback arroyo, to the west up drainage from the Mine Pit Lake. Effect to wildlife, bird and mammal species who occur on private land and public land to the west, up drainage of the Mine Pit lake.

3.5.1.3 Perch Creek Drainage Basin, Page 3-54, Paragraph 2 and 3.

Several springs have been identified in the Percha Creek drainage basin (Intera 2012). Springs exist in Warm Springs and Cold Springs canyons and the Percha Box. (See Figure 3-5.) Warm Springs and Cold Springs canyons are tributary drainages to Percha Creek and are located northwest of the Percha Box. Between 2010 and 2011, surface water flow rates at springs in these canyons ranged from 0 cfs (0 AFY) (i.e., stagnant water or dry conditions) to 0.75 cfs (540 AFY), with the highest flow rates recorded in August (Intera 2012). The flow rate at a spring monitored within the Percha Box was nearly constant, ranging from 0.41 to 0.64 cfs (300 to 460 AFY) (Intera 2012), and exhibited little seasonal variability. Springs are also present at the eastern terminus of Percha Creek.

We believe the flow rates for the springs identified in Warm and Cold Springs canyons are incomplete and or inaccurate. Two primary permanent springs exist in this area Warm Springs located in Warm Springs Canyon and Cold Springs located in Cold Springs Canyon. Each of these springs flow at a constant rate and cause permanent surface water flow in the canyons downstream from the springs. In addition *wet lands and riparian areas* are associated with these springs.

Water resources within the Percha Creek drainage basin are used for domestic purposes, livestock, and irrigation (Intera 2012). Many of the residents of Hillsboro and the surrounding area have shallow alluvial wells (NM OSE 2014). Some residents also divert surface water for irrigation. Ranches east of Hillsboro obtain stock water from shallow alluvial wells or diversion ditches when surface water is available. The shallow wells are generally located in the alluvium along Percha Creek.

This paragraph is silent on the private stockwater well at Ready Pay arroyo on public land within the Animas Uplift. The area described to be effected by the mine pit water cone of depression.

3.5.2 Environmental Effects,

Page 3-54,

Paragraph 1

The following subsections discuss expected environmental effects associated with the Proposed Action and alternatives, including the No Action Alternative. *The evaluation of environmental effects is based primarily on predictive groundwater flow modeling.* JSAI (2013 and 2014) developed a calibrated numerical groundwater flow model of the Copper Flat area that simulates groundwater/surface water interactions along portions of Las Animas and Percha Creeks and the Rio Grande upstream and downstream of Caballo Dam. This model was used to predict impacts to surface water resources caused by groundwater pumping associated with the proposed operation of the Copper Flat mine (JSAI 2014a and 2014b). These impacts consist of a reduction in groundwater discharge to Las Animas Creek, Percha Creek, and the Rio Grande, including Caballo Reservoir. Tables 3-15 and 3-16 summarize expected surface water depletions due to predicted reductions in groundwater discharge. Reductions in groundwater discharge to these surface water features were estimated by comparing groundwater modeling simulation results for the Proposed Action and two mining alternatives to simulation results without mining; the simulation without mining is intended to represent background conditions (JSAI 2014).

Table 3-15 and 3-16,

Page 3-55,

In prior Section 3.5.1.1 Greenhorn Arroyo Basin was identified as a Drainage Basin.

In tables 3-15, 3-16 page 3-55 the Greenhorn Arroyo Basin is not included. Understanding that the primary impact to surface and subsurface water will be within this basin, we believe this is a serious omission. Without specific information on the impacts to surface water within the approximately 35,000 acre Greenhorn Arroyo Basin the draft EIS is incomplete. More specifically, information needs to be collected on the mine effect to the Grayback Arroyo upstream to the West of the mine pit.

3.5.2.1 Proposed Action,

Page 3-55,

Paragraph 1,

The Proposed Action is expected to result in significant impacts, with long-term minor to moderate adverse effects. *The Proposed Action, to process ore at a nominal throughput of 17,500 tpd, is predicted to reduce groundwater discharge to Las Animas and Percha Creeks, Caballo Reservoir, and Rio Grande below Caballo Dam, decreasing the amount of water available for surface water flow and plant evapotranspiration. The predicted depletions are not expected to have substantial impacts to the surface water flow characteristics at or vegetation along Las Animas and Percha Creeks; the reductions are relatively small and the majority of the creeks' reaches within the Palomas basin, where most of the depletions occur, are ephemeral.* However, the predicted reductions in groundwater discharge are expected to have a more notable effect on the Rio Grande, reducing surface water flows and potentially the amount of water stored behind Caballo Reservoir. Tables 3-15 and 3-16 report predicted depletion rates and cumulative depletion volumes, respectively, at the surface water features at the end of mining.

Again this analysis is incomplete. There is no discussion as to the reductions in surface and ground water within the Greenhoe Arroyo Basin or any information provided to the effects upon vegetation, to include riparian areas, as well as livestock and wildlife within Grayback Arroyo upstream to the west of the pit mine.

3.5.2.1 Proposed Action,

Page 3-56,

Paragraph 2

Except for springs located in the immediate vicinity of the open pit, impacts to springs located west of the Animas Uplift (e.g., Warm Springs) are not expected based on predicted drawdown of the groundwater flow model. Some of the bedrock seeps and springs in the immediate vicinity of and at the open pit could be impacted, possibly going dry during mining operations as the open pit is dewatered; however, bedrock seeps at the open pit that only flow in response to precipitation events are not expected to be impacted by mining operations.

Locations of springs impacted by mine development and operations is poorly described. What does the term "*Except for springs located in the immediate vicinity of the open pit*", mean in an "Environmental Impact Statement"? Does the term mean within the mine pit area, within a 1,000 yards of the mine pit area, with 2 miles of the mine pit area?

5.2.1.1: Mine Development and Operation

Page 3-56,

Paragraph 6,

Page 3-57,

Paragraph 1 through 5

The pumping of groundwater at the open pit and well field would affect existing surface water conditions in the *Greenhorn Arroyo*, Las Animas Creek, and Percha Creek drainage basins. A 5.2-acre lake currently exists within the open pit. During mining operations, this pit lake would be pumped down, and the open pit would be continually dewatered to facilitate safe mining operations. The existing pit lake would be reduced to a much smaller operational sump, where water flowing into the pit would be managed. *Sources of water to the open pit would include groundwater inflow and stormwater runoff.* Water removed from the open pit would be used for dust suppression on roads. (See Table 3-17).

The analysis in the previous paragraph is incomplete, in that it does not identify the amount of surface or ground water that would be lost in Grayback Arroyo upstream, to the west of the mine pit site. Note that in the following paragraph predictions are made on the reduction in ground water in the Las Animas and Percha Creek basins, but again no data is provided on the effect to Grayback Arroyo within the Greenhorn Arroyo basin.

Pumping of groundwater from the well field is expected to minimally reduce groundwater discharge to both Las Animas and Percha Creeks, resulting in a slight decrease in the amount of water available for perennial surface water flow and plant ET. Under the Proposed Action, maximum depletion rates of 12 and 18 AFY are predicted for Las Animas Creek and Percha Creek, respectively, at shortly after the end of mining. (See Table 3-15.) The majority of the impacts from the Proposed Action would be to the lower portions of the creeks (i.e., within the Palomas Basin). Estimated existing flow and ET rates to lower portions of Las Animas and Percha Creeks are 4,848 and 2,630 AFY, respectively (See Table 3-20a); therefore, the predicted maximum depletions reduce groundwater discharge rates by only 0.3 and 1.0 percent, respectively. These small reductions are not expected to have substantial impacts on vegetation or surface water flows, as the majority of the creeks' reaches within the Palomas Basin are ephemeral. Predicted maximum depletions for the Proposed Action to upper Las Animas Creek and at the Percha Box are 1 to 2 AFY. These depletions are not expected to impact Warm Springs or any springs west of the Animas Uplift based on predictions of where drawdown is simulated. Springs along the alluvial valleys are considered perched discharges and not directly connected to regional groundwater. Bedrock seeps in the immediate area of the mine could be impacted and possibly go dry.

Predicted maximum depletion rates at Caballo Reservoir and Rio Grande below Caballo Dam are 807 and 657 AFY, respectively (JSAI 2012). (See Table 3-15.) These maximum depletion rates occur shortly after the end of mining. The total predicted maximum depletion rate (1,464 AFY) is 12 percent of the estimated groundwater discharge rate (11,795 AFY [JSAI 2014]) from the Copper Flat mine study area to the Rio Grande and Caballo Reservoir. This would likely reduce surface water flows in the Rio Grande and potentially the amount of water stored behind the Caballo Reservoir.

Changes in water balance components are anticipated due to groundwater pumping associated with the mine, including depletions at Caballo Reservoir, the Rio Grande, and Las Animas and Percha Creeks. (See Figure 3-6.) The depletions steadily increase during mining, peak at the end of mining, and then decline once mining ceases.

The analysis in the prior paragraph is incomplete in that it does not address the effect of groundwater pumping in Grayback Arroyo upstream to the west of the mine pit location. As stated by the hydrologist contracted by NMCC, in the public meeting in Hillsboro New Mexico on December 16, 2016 that the effect of ground water depletion within a two mile radius of the mine pit location would be in perpetuity. The cumulative effects of the loss of surface and ground water with the two mile radius to the environment and private landowners is not addressed. These effect will be forever.

**3.5.2.1.2 Mine Closure/Reclamation,
Page 3-58,
Paragraph 2.**

The existing Greyback diversion channel would be left in place at closure and would continue to divert stormwater flows around the southern perimeter of the mine area. In addition, stormwater diversions at the waste rock disposal areas would remain, and if necessary, be lined with riprap to prevent erosion. The mine would *attempt to maintain the existing riparian area* located in the Greyback Wash east of the mine area during both mine operations and at closure.

There is no reference to the existing riparian area in Grayback Arroyo, upstream to the west of the mine pit lake. In addition the phrase" attempt to maintain the existing riparian area" is vague and does not seem appropriate in an EIS.

**Figure 3-6 Change in Water Balance Components Due to Proposed Action,
Page 3-58**

Figure 3-6 does not include any information on the Greenhorn Arroyo Basin. The draft EIS must include surface and ground water impact to the Greenhorn Arroyo Basin and specifically Grayback Arroyo in order to a valid Environmental Impact Statement.

**3.5.2.1.2 Mine Closure/Reclamation,
Page 3-58,
Paragraph 3.**

Dewatering of the open pit would cease at closure. Groundwater inflow and stormwater runoff from within the perimeter of the pit would begin to form a pit lake. The expected size of the pit lake after mining would be larger than the existing one, as mining would expand the area and depth of the open pit. The pit lake is expected to eventually cover 18.6 surface acres and be approximately 200 feet deep. The size of the lake would fluctuate annually and seasonally depending on climatic conditions, such as precipitation and air temperature. *The estimated maximum water loss from the pit lake would be about 100 AFY, assuming an average evaporation rate of 65 inches per year.*

In table 3-17 page 3-56, pit dewatering is shown to be 39 AFY. In the paragraph above the mine pit lake water loss is described to be 100 AFY. This is a 61 AFY discrepancy. Either mine pit dewatering

calculations are not accurate, or water loss from the mine pit lake after mine closure is not accurate. It is critical that the EIS accurately describe the amount of water that will flow into the mine pit lake from surface and ground water sources and what will ultimately happen to that water. Understand that all surface and ground water which will be collected in the mine pit lake, will come from the Greenhorn Arroyo Basin and specifically from Greyback Arroyo upstream to the west of the mine pit lake.

3.5.3 Mitigation Measures, Page 3-60

No mitigation measures for potential surface water depletions are proposed.

Given the significant impact to the environment and public and private land income mitigation measures for potential surface water depletions must be identified.

3.6 Groundwater Resources

Figure 3-9 Hydrologic Features in Project Area , Page 3-61

Figure 3-9 shows selected riparian area habitat locations, to include one riparian area within the Copper Flat mine area. It does not include the riparian area west of the mine area in Grayback Arroyo or its tributary Arroyos. These omitted riparian areas are on both BLM and Hillsboro Pitchfork Ranch L.L.C. private land. In addition there are riparian areas Warm Springs and Cold Springs canyons on the Hillsboro Pitchfork Ranch that are not indicated in Figure 3-9. *Note that the alluvial materials present in these areas is close enough to the riparian root zone, so as to negatively affect vegetative growth if ground water levels decrease.*

3.6.1.1 Regional Hydrogeology, Page 3-61, Paragraph 2.

Except near the mine, data on water levels are sparse, making it difficult to accurately map the water table.

The above sentence is an admission by NMCC that they have conducted an incomplete analysis of effects of the proposed mining operation on groundwater resources. The effects on groundwater will have an impact on Federal and State Public Lands and well as to private lands such as the Hillsboro Pitchfork Ranch L.L.C as well as other private land owners.

3.6.1.5, Hydrogeology of Alluvial Valleys in the Vicinity of the Mine and Well Field, Page 3.63, Paragraph 1

The alluvial valleys potentially affected by the Copper Flat mine and well field are those streams and arroyos that drain the area near the mine and supply wells: Las Animas Creek, Percha Creek, Greyback and Greenhorn Arroyos, and the Rio Grande including Caballo Reservoir.

Note that in the paragraph above the word "potential" is used. Given the amount of data provided by NMCC regarding the negative effects to water quality, and surface and ground water quantity: given the data is incomplete, the word "Potentially" should be deleted from the paragraph.

**3.6.1.5, Hydrogeology of Alluvial Valleys in the Vicinity of the Mine and Well Field,
Las Animas Creek,
Page 3.65,
Paragraph 1**

In the area near the project well field, the valley of Las Animas Creek is locally underlain by alluvial materials in the range of 20-60 feet thick. *The materials contain shallow groundwater that is generally close enough to the land surface to be within the riparian root zone.*

**3.6.1.5, Hydrogeology of Alluvial Valleys in the Vicinity of the Mine and Well Field,
Arroyos,
Page 3.65,
Paragraph 1**

Alluvium is found along Greyback and Greenhorn Arroyos and consists primarily of sand and gravel; thickness varies between 5 and 50 feet (Intera 2012). Alluvium in Greyback Arroyo may be locally and seasonally saturated in the vicinity of the mine. Hydrologic conditions in arroyos near the supply wells have not been defined. No wells are known to obtain their supply from arroyo alluvium.

Note that no statement is made in the paragraph on Grayback and Greenhorn Arroyos concerning the riparian-root-zone. The alluvial materials are similar in thickness in both Las Animas Creek and Greyback Arroyo and that alluvium may be locally and seasonally saturated in the vicinity of the mine.

No discussion is provided regarding the negative effect to riparian area vegetation if the mine pit lake reduces shallow ground water flow. The negative impact to riparian area vegetation to the west of the mine pit lake location is not acknowledged. These negative impact would be on BLM public lands and private lands owned by the Hillsboro Pitchfork Ranch L.L.C. The negative impacts will effect grazing and wildlife forage.

**3.6.1.5, Hydrogeology of Alluvial Valleys in the Vicinity of the Mine and Well Field,
Springs,
Page 3-66,
Paragraph 1 and 2.**

Springs: Numerous springs are known to occur in the vicinity of the proposed mine and supply well field. (See Figure 3-9.) In this area, spring flows can originate in several ways.

Most springs occur along the main creeks upstream of the well field where groundwater discharges from perched horizons, or from the emergence of shallow groundwater that overlies low permeability materials (e.g., Percha Box).

Several small seeps and springs are located in the area of the mine pit (Intera 2012). These are higher in elevation than the regional water table and are interpreted as discharge from local perched water.

Springs in Warm Springs Valley (including Warm Springs itself) are understood as an emergence of water due to the barrier effect of the Animas Uplift. Consequently, the generally eastward flow of groundwater in the valley is diverted around the low permeability rocks in the uplift, south to toward Percha Creek and north toward Las Animas Creek. Upflow of deep geothermal water along faults is an additional source of spring flow (Kelley et al. 2013).

Many of the springs have been observed to be dry at times; flow is thus often intermittent or ephemeral. However, limited data on “NWS” spring on Las Animas Creek indicate a measured flow of 0.7 to 1.1 cfs (Intera 2012). None of the published reports identify any springs that discharge from groundwater that is

in direct hydrologic communication with the NMCC supply wells, pit lake, or TSF. Water from NWS spring is warmer than in other local springs and is believed to have a deep source.

No detailed information on flow rates identified for major springs ie., Warm Springs and Cold Springs on the Hillsboro Pitchfork Ranch L.L.C., within the Warm Springs Valley. In particular the Warm Springs is a signification hydrological, ecological and historic feature and has been poorly studied. Reduced flow rates will impact the environment to include wildlife, grazing and the associated ecological and economic impacts.

3.6.2, Environmental Effects, Identification of Potentially Significant Impacts:

Page 3-67,

Paragraph 2 subsection 1 and 3.

Removal of water from storage and the resulting drawdown at wells, including community supply wells (e.g., Hillsboro), stock and domestic wells (e.g., Ladder Ranch), artesian irrigation wells (e.g., along lower Las Animas and Percha Creeks);

Understanding that the Hillsboro Pitchfork Ranch L.L.C. is the private land owner to be most greatly affected by the dewatering/cone of depression of the Mine Pit Lake., reference should be made to the ranch and address the cone of depression.

Other potential water table effects, such as reductions in discharge of individual springs and lowering of water levels in riparian corridors, especially in locations that provide important wildlife habitat.

Again understanding that the Hillsboro Pitchfork Ranch L.L.C. is the private land owner to be most greatly affected by the dewatering of the Mine Pit Lake/cone of depression. Riparian corridors in Grayback Arroyo will be impacted by dewatering/cone of depression should be identified on appropriate maps or figures and addressed.

3.6.2, Environmental Effects, Description of Groundwater Model,

Page 3-67,

Paragraph 1 and 2

JSAI used a modified version of the USGS MODFLOW code. The JSAI model has 4 layers, with a grid of 87 rows and 109 columns. (See Figure 3-11.) Layer 1 represents the shallow alluvium along lower tributaries and in the Rio Grande valley. Layers 2 through 4 primarily represent bedrock in the uplifts, and the Santa Fe Group aquifer elsewhere.

Mine-related pumping occurs largely in layer 2 of the model, which is the shallowest aquifer in all areas of the model except along the major streams near the Rio Grande. Layer 2 is 1,000 feet thick in most areas of the model and is the part of the model where pumping impacts will be concentrated. (See Figure 3-12.)

Figure 3.11, appears to combine the four layers described above into 1 graphic. In order to fully understand the model and its' associated layers and the corresponding impact to groundwater, each layer should be presented in a different graphic and a description of the groundwater draw down effect identified for each layer.

3.6.2, Environmental Effects, Evaluation of Groundwater Model,

Page 3-71,

Paragraph 2

Specific confirmation of model construction for the entire study area is not possible due to the scarcity of existing data. For example, data do not exist to confidently map the regional water table except at a gross scale, hence calibration of the model to match regional water gradients was necessarily approximate. The model is calibrated to the general direction of groundwater flow and the overall regional water table gradient. Model inputs are consistent with what is known about the geology and hydrology of the rock units found in the area, especially near the wellfield.

The most dramatic and permanent effects to surface and ground water will be from the mine pit lake dewatering/cone of depression. This model does not provide detailed ground and surface water depletion data related to the dewatering/cone of depression. In particular the model construction does not have adequate data related to the Warm Springs Valley and associated springs.

3.6.2, Environmental Effects, Evaluation of Groundwater Model,

Page 3-71,

Paragraph 3, subparagraph, 1

1) One sensitivity scenario assumed that the fault between the proposed mine pit and the Percha Box would not impede groundwater flow. *This was done to test if the model construction might be underestimating impacts to Hillsboro and the Percha Box.* The results confirmed that construction of the model is appropriate and did not indicate potential impacts significantly greater than reported in this EIS.

Reference Appendix F: Model Sensitivity Analyses

Page F-10:

To: Katie Emmer, THEMAC Resources kemmer@themacresourcesgroup.com

New Mexico Copper Corporation

From: Michael A. Jones, Principal Hydrologist

Date: 04 August 2014

Subject: Copper Flat model sensitivity to fault conductance.

The JSAI Copper Flat model was run assuming no resistance to flow across the south-bounding fault of the andesite, between Copper Flat and Percha Creek. *The change resulted in too-low simulated water levels north of Percha Creek, as much as 200 feet below the measured levels.*

Figure 1 shows projected flow changes, due to the Copper Flat project, for EIS Alt 2. Figure 2 shows projected end-of-mining drawdown for EIS Alt 2. Both drawdown and flow changes are about the same as with the calibrated model.

To the best of our knowledge little if any measurements have been made by NMCC on wells or springs on private lands of the Hillsboro Pitchfork Ranch L.L.C. Given the ranch will suffer permanent impact from mine pit dewatering/cone of depression, we question the statement " *The change resulted in too-low simulated water levels north of Percha Creek, as much as 200 feet below the measured levels.*

3.6.2, Environmental Effects, Application of Groundwater Model,

Page 3-71,

Paragraph 1

The hydrologic principle of predicting mine impacts is that the volume of water pumped for pit dewatering and mine operations must be balanced by water removed from aquifer storage as reflected in a decline in the water table, by reduced discharge to streams or vegetation, or by increased flow across a model boundary. *Thus, the primary application of the model is to quantify the character, location,*

magnitude, and timing of effects to storage or flow, for both the time while pumping occurs and after mining ceases.

Mine pit dewatering/cone of depression will be the most damaging and long lasting of the mine operations. Although overtime the mine well field area will recover, the effects of mine pit dewatering/cone of depression are permanent.

We strongly recommend that Ground water modeling, water budgets and all associated information to include Tables and Figures be separated into two categories: Ground water effects associated with *mine pit dewatering/cone of depression* and ground water effects associated with the *mine well field*. The information can then be recombined to provide an overall view. The information as presented in its current format is confusing, inconsistent and may well be misleading in that it does not address full effects of mine pit dewatering/cone of depression in perpetuity.

Reference Table 3-19 Factors Used In Groundwater Modeling of Mining Scenarios, page 3-72

The data provided by NMCC in Table 3-19 does not account for the permanent reduction in up gradient groundwater caused by mine pit dewatering/cone of depression.

The average pit dewatering rate is calculated (after initial 4.5 months) to be 27 (GPM), for proposed action and is not calculated in AFY. Based on other data contained in the table, the total of the pit dewatering/cone of depression would be 673 AF. When 673 AF is divided by 15 years and 8 months = 42.6 AFY, during the proposed life span of the mine.

Cumulative volume removed from aquifer as of end of mining (AF)	60,278
Total supply pumping for mine duration (AF)	59.605
Cumulative volume minus Total supply pumping (AF)	673
673 AF divided by 15.8 years equals AFY removed by pit dewatering/cone of depression	42.6

The calculations we determine using what data is available in Table 3-19 show an impact of 42.6 AFY. This is in conflict with the statement at the bottom of page 3-73 which states: *Table 3-20a does not include the flow resulting from pit deepening and dewatering/cone of depression. That impact is modeled at 21 AFY at the end of mining.*

3.6.2, Environmental Effects, Application of Groundwater Model, Page 3-73, Paragraph 2

Model results could potentially include thousands of maps, graphs, and tables, such as drawdown graphs for every single model cell. For this EIS, model outputs have been selected to provide a useful representation of impacts over space and time. Impacts are presented first for the Proposed Action, with a focus on the largest impacts. The subsequent discussion of impacts from Alternatives 1 and 2 is abbreviated, because the alternatives have almost the same effect as the Proposed Action. Appendix E provides additional detail in the form of drawdown graphs for locations receiving less impact than the locations discussed in the body of the EIS.

Two observations regarding drawdown graphs located in the body of the EIS and Appendix.

Three wells used for wildlife and livestock purposes are not included in the drawdown graphs. Two of these wells are located on private land of the Hillsboro Pitchfork Ranch L.L.C. One well owned by, to include water rights, is located on BLM land for which the ranch as a grazing permit. Drawdown graphs

need to be produced for these well as they are located in the area that will be impacted by mine pit dewatering/cone of depression.

Rogers Mill: located 0.5 miles west of GWQ-4 in Grayback Arroyo

Ladder Mill: located in Warm Spring Valley

Wicks Mill located south of the mine pit just north of State Highway 152.

Secondly it is not clear how the existing drawdown graphs depict drawdown. Is the, Above Mean Sea Level (AMSL) elevation for current water levels calculated at the top of the well casing, the bottom of the well or well casing or is it an accurate figure of the water level at a point in time. Wells located on lands owned or leased by the Hillsboro Pitchfork Ranch L.L.C. have not be measured by NMCC in a number years, if at all. In any case a description of how projected well water levels are derived, must be included in the EIS.

3.6.2.1, Proposed Action, Mine Development and Operation, Water Budget

Page 3-73,

Subparagraph 3 and 5,

Page 3-74,

Subparagraph 1.

The second column in Table 3-20a quantifies the same effects as the first column, but calculated as of 100 years after mining ceases. The table indicates that after mining is over, the aquifer would recover and the effects from mining would eventually disappear.

The above statement is incorrect in the fact that although the aquifer may recover from the mine well field pumping, the aquifer would not every recover from the dewatering and cone of depression associated with the mine pit.

Table 3-20a does not include the flow resulting from pit deepening and dewatering. That impact is modeled at 21 AFY at the end of mining,

Table 3-20b quantifies the model results for the cumulative volume of water that is removed from storage or depleted from streams and flowing wells during the life of the mine. The storage term includes 672 AF of drainage to the pit. Under the Proposed Action, NMCC is projected to withdraw 60,278 AF from groundwater. (See Table 3-19.) Table 3-20b indicates that the model results account for the volume change of 60,224 AF. This is 54 AF less than the amount simulated as pumped by wells or drained to the pit, a difference of less than 0.1 percent.

Various amounts of water associated with the pit dewatering can be calculated from the EIS. 21 AFY is identified in paragraph 1 above. Hillsboro Pitchfork Ranch L.L.C. calculations based on the data contained in Figure 3.19 indicate an AFY reduction to the aquifer of 42.6 AFY. Calculations based on the data contained in paragraph 2 above, indicate a reduction to the aquifer of 42.9 AFY.

In summation, the effect of the mine to ground water needs to be broken into two categories. One category will include impacts to the mine well field. The second category will be impact to the aquifer associated to mine pit dewatering/cone of depression. Understand the effect to the aquifer from mine pit dewatering will be permanent in effect. In perpetuity is a long time.

**3.6.2.1, Proposed Action, Mine Development and Operation, Drawdown,
Figure 3-13a., Map of Water Level Declines in Layer 1 at End of Mining,
Page 3-75**

The map does not show any riparian vegetation in Grayback Arroyo and its tributaries. We believe riparian areas are present in the arroyo and have not been identified or discussed. Based on the information proved by NMCC the cone of depression associated with the mine pit dewatering and mine pit lake will permanently damage or destroy these riparian areas.

**3.6.2.1, Proposed Action, Mine Development and Operation, Drawdown
Page 3-75 and 3-76**

Much larger impacts are predicted to occur in layer 2 (Figure 3-13b). The impacts in layer 2 are summarized below.

As a general concept, the regional direction of groundwater flow (from the western uplands eastward toward the Rio Grande) would be modified near the pit (bedrock aquifer) and well field (Santa Fe Group aquifer). In those locations, flow would divert toward the center of the cone of depression formed by NMCC pumping, even to the point that in areas east of the pumping centers, the flow direction could be completely reversed.

A deep (>700 feet) and steep-sided cone of depression is predicted to occur in the andesite bedrock aquifer at the mine as the pit is progressively excavated and continually dewatered. The depth of the cone would slightly exceed the depth of the pit, which must be pumped dry for safe mining. Based on the model results, effects would not reach the area of Hillsboro because the areal extent of the drawdown impact is limited by the low hydraulic conductivity of the bedrock. Compared to drawdown at the existing pit, the impact would be deeper, and larger in areal extent. The pit would be occupied by a lake simulated to have an area of 18.6 acres and an annual evaporation loss of about 100 AFY. The lake level would stabilize at an elevation at which groundwater inflow plus runoff and direct precipitation offsets lake evaporation. *The evaporation loss would act in a manner equivalent to ongoing pumping, so that a deep but narrow drawdown cone at the pit would be permanent and continue to slowly expand over time, even after mining has ceased.*

The above paragraph again shows that a separate and detail analysis of the groundwater depletion effect of the mine pit be included in the final EIS. The statement from above, "*The evaporation loss would act in a manner equivalent to ongoing pumping, so that a deep but narrow drawdown cone at the pit would be permanent and continue to slowly expand over time, even after mining has ceased.*", speaks for itself. These permanent and every expanding effects have not been fully analyzed or described in the Draft EIS. Again understand the lands most greatly affected will be private lands of the Hillsboro Pitchfork Ranch L.L.C. and BLM public lands up stream to the west of the pit.

A much smaller and shallower (<20 feet) cone of depression is shown along Greyback Arroyo about 2 miles east of the pit. This is the simulated result of groundwater flowing beneath the arroyo being intercepted by the pit, and is an impact that would grow over time. Field data do not exist to confirm such subflow, but to the extent the impact does occur, it would be localized. *If the subflow does not actually exist then the water level decline at the pit could be slightly larger than is currently simulated.*

The paragraph above is another example of the need for a more detailed analysis of the mine pit cone of depression and its associated impacts. If the smaller cone of depression does exist then there will be a greater impact to the Greyback Arroyo system located to the west of the pit on private and public lands.

A regionally extensive cone of depression is predicted to occur in the Santa Fe Group aquifer around the supply wells. The maximum impact is within the area of the well field at the end of mining and is on the order of 45 feet. Drawdowns inside the pumping wells would be larger. The cone of depression would be elongated north-south due to the effect of faults to the west of the supply wells and clays in the aquifer to the east. For example, the contour that shows a water level decline of 10 feet at the end of mining extends more than 3.5 miles east toward the Rio Grande and about 5 miles to the north and south of the well field. *The extent, if any, to which such drawdown's may impair existing wells would be determined by the New Mexico OSE.*

In the paragraph above there is no mention of the drawdown to wells on lands to the west and south of the cone of depression associated with the mine pit. These land are either private or BLM public lands. The New Mexico-OSE should determine the drawdown on those wells.

The hydrograph for GWQ11-26 is for a location near the edge of the mine pit. With excavation and dewatering of the nearby pit, water levels in the andesite bedrock unit at this location would fall nearly 300 feet. *After cessation of pumping, continued evaporation from the permanent pit lake would have an ongoing effect on the surrounding area, such that water levels at this location would recover only slightly. (See Figure 3-14a.)*

Figure 3-14a., is not a useful map, it is difficult to understand the area and the depth of groundwater drawdown associated with the mine pit dewatering. A more usefully way to depict potential area and dept of groundwater would be to product maps for each well within the area of the drawdown. The maps would show a vertical slice from each affected well to the center of the mine pit. The map should depict current ground water elevation at each well and at the pit center, for existing conditions, conditions at the end of mining, and conditions 100 years after the mine is closed.

Figure 3-13b does not show the Rodgers windmill or have any projected water level graphs developed to show effect to this well from the mine pit cone of depression. This well is located on private lands of the Hillsboro Pitchfork Ranch L.L.C. The well is located approximately .5 mile to the west of NMCC well number GWQ-4 and is located approximate .75 mile to the west of the center of the mine pit. The Rodgers well is located in the bottom of Greyback Arroyo within a signification riparian area.

Again the effects of the mine pit cone of depressions are poorly understood and poorly documented. A separate analysis of the effect to groundwater needs to be conduction on the mine pit.

3.6.2.1, Proposed Action, Mine Development and Operation, Drawdown

Page 3-80,

Paragraph 1

Impacts to individual private wells, other than artesian wells, are not simulated in the model. Drawdowns can impact pumping costs and well yield. Measurable impacts to well yield would be expected only to wells that: a) *draw their water from the Santa Fe Group aquifer*; b) are close enough to the production wells that impacts to water levels might be measured in tens of feet; and c) are so shallow such drawdown would impede production (i.e., penetrate only several tens of feet into the aquifer). *At this time, the BLM has identified no such wells.*

Again the above paragraph does not address the impact to wells from the mine pit dewatering/cone of depression. The paragraph in section: a. indicated wells in the Santa Fe Group aquifer will be effected. The last sentence says no such wells have been identified.

The Hillsboro Pitchfork Ranch L.L.C. has 5 wells within the Santa Fe Group or the Animas Uplift that will be impacted by mine pit dewatering. Figure 3-23. Geologic Map Of Project Area, page 3-100.

3.6.2.1, Proposed Action, Mine Development and Operation, Impacts on Other Components of the Water Budget

Pages 3-81 and 3-82 ,

Paragraphs 1 through 4

The groundwater model simulates a small subflow in the alluvium along Greyback Arroyo. The simulated impact of the mine pit would be to deplete about 20 AFY of this flow, which in effect would be a permanent reduction in recharge to the Santa Fe Group aquifer.

The cumulative impact of the reduction of 20 AFY in Greyback Arroyo is not well documented in the EIS. As an example scale used Figure 3.15b, hides the impact of this reduction in flow.

ET is a water balance term that represents shallow groundwater directly taken up by riparian or wetland vegetation. Shallow groundwater in riparian areas is often sustained by recharge from streamflow. Riparian vegetation in the model area is at least partly dependent on this groundwater supply and associated streamflow. Areas of such vegetation are shown in green on Figure 3-13a and are largely limited to the Rio Grande corridor, Las Animas Creek, and the upper reaches of Percha Creek in and above Percha Box.

Riparian vegetation exists in the Grayback Arroyo system up drainage from the mine pit, it is not depicted on any maps in the EIS. Another significant riparian area exists in North Percha drainage adjacent to and upstream from Hillsboro New Mexico. It is not depicted in maps or the damage to riparian area documented in the EIS.

Mine operations (primarily the production wells) are simulated as causing a small reduction (maximum of 30 AFY) in ET and streamflow in areas of riparian vegetation (See Table 3-20a). Impacts to flow in Upper Las Animas Creek and to Percha Box are each estimated to reach a maximum of 1 to 2 AFY. The lack of impact in riparian areas is further illustrated by flat hydrographs for a location in Percha Box and for a location along Las Animas Creek where Arizona sycamores are found. (See Appendix E.) Additional small ET impacts would be expected to occur along lower Percha Creek, but the model simulates the creek as flowing in that location, and thus calculates impacts as a reduction in streamflow.

Again no information is provided on the impacts to riparian vegetation in the Greyback Arroyo system upstream from the mine pit.

The model does not simulate existing spring discharges nor does it compute potential changes to those discharges. Based on predictions of where drawdown is simulated to occur, no impacts are predicted to Warm Springs or any springs west of the Animas Uplift. Springs along the alluvial valleys are understood as perched discharges, that is, the local geology is such that the springs are not directly connected to the deep groundwater. Consequently, impacts to such springs are not expected. Bedrock seeps in the immediate area of the mine could be impacted, potentially to the point that flow ceases permanently.

We object to the fact the model doesn't not simulate existing spring discharge or potential impacts to spring(s) discharge. The ecosystems associated with springs are very diverse and not studied or documented in the Draft EIS. The final EIS must quantify existing flow from springs potentially effect by mine pit dewatering and document both short, long term, and permanent effects to the spring flows and dependent ecosystems.

3.6.2.1.2 , Proposed Action, Mine Closure/Restoration

Page 3-82 ,

Paragraph 1

Water level recovery would occur after mining ceases. *Recovery in the bedrock near the mine pit would be limited.* Recovery in the Santa Fe Group would eventually (over decades) be essentially complete. The post-mining water budget is quantified in Table 3-20a, column entitled “Decrease from no mine, 100 yrs after mining” and post-mining water levels are illustrated (along with changes during mining) in Figure 3-14. (See also Figure 3-22.)

Other statements in the Draft EIS would lead the reader to believe there would be no recovery in bedrock near the mine pit.

We submit that the Draft EIS is incomplete in that it does not adequately describe the permanent reduction in the ground water table associated with the mine pit dewatering. Based on the information contained in the Draft EIS we would challenge anyone to quantify the amount of water loss to the environment caused by the mine pit dewatering. The data in the Draft EIS comingles the effects of the mine pit dewatering and the mine well field, to the degree that it is impossible to understand the effect of the mine pit dewatering. The final EIS must breakout the two sources of water deplete and quantify the amount and effects for each of the two sources.

3.6.2.1.2 , Proposed Action, Significance of Impacts

Page 3-96 and 3-97,

Paragraph 1

Impacts to the regional water budget, including flows of the Rio Grande, would be significant. These impacts would be large in magnitude, long-term, and certain. Water budget impacts would begin to reduce once mining ends. Impacts to water levels caused by the supply well field would be significant. These impacts would be certain, but the magnitude would be moderate in comparison to the thickness of the aquifer. Regional drawdown impacts would begin to reduce once mining stops. *Impacts to water levels caused by the pit would also be significant. These effects would be large in magnitude, permanent, and certain, but small in areal extent.*

The effects are indicated to be " large in magnitude, permanent, and certain, but small in areal extent". The effects have not been studied or described in the Draft EIS. We also believe the areal extents of these effects is large not *small*. We calculate the areal extent of the effects to over 7,500 acres. The acres are on BLM public land and private land of the Hillsboro Pitchfork Ranch L.L.C.

3.6.3 Mitigation Measures,

Page 3-97,

Paragraph 2 and 3.

The NMED already requires monitoring in the area of the mine pit, primarily for purposes of water quality abatement. OSE already has access to a USGS monitoring program for the Las Animas Creek area, which provides periodic measurements of water levels in scattered wells. NMCC gathers data from its own monitoring wells near the pit and supply well field. *Both State agencies are expected to require NMCC to conduct additional monitoring, but no specifics on such future monitoring are currently available.*

Both the NMED and OSE have the authority to require mitigation of impacts that are judged unacceptable in accordance with New Mexico regulations. The BLM intends to rely on the State agencies to exercise their statutory authority in determining which impacts exceed allowable limits, and what mitigation measures may be required. *At this time, no permitting decisions have been made, and there are no draft proposals regarding mitigation that may be required by the State of New Mexico.*

We submit the Draft EIS is incomplete in that it does not adequately describe the permanent reduction in the ground water table associated with the mine pit, water cone of depression. Based on the information contained in the Draft EIS we would challenge anyone to quantify the amount of water loss to the environment caused by the mine pit, water cone of depression. The data in the Draft EIS comingles the effects of the mine pit, water cone of depression and the mine well field, to the degree, that it is impossible to understand the effect of the mine pit cone of water depression. The final EIS must breakout the two sources of water deplete and quantify the amount and effects for each of the two sources.

We believe that a well monitoring program for public and private lands potentially effected by mine pit dewatering must be implemented and a minimum of 5 years of data collected before a final EIS is published.

We believe a mitigation program must be designed by the NM OSE and agreed to by affected public and private landowners, damaged by mine pit dewatering. This process must be completed prior to the issuance of a final EIS.

3.8 Soils

3.8.2 Environmental Effects, 3.8.2.1 Proposed Action, 3.8.2.1.1 Mine Development and Operation, Page 3-111, Paragraph 4

Mining operations would involve the drawdown of groundwater. However, none of the hydric soils at the mine site or elsewhere in the action area would be affected by that drawdown. Hydric soils in the *wetlands* along the site's arroyos, streams, and creeks do not rely on groundwater but have an alternative source of water, such as flooding or a perched water table. Neither of the two wetlands at the mine site would experience hydric soils changes. Hydric soils of the small cattail wetland adjacent to the pit lake would be removed since pumping of the pit lake would be necessary prior to mining and continuously throughout the life of the mine with bedrock water drawdown in this area greater than 100 feet. (See *Figure 3-13.*) This small wetland would be mined out when the pit is deepened to 900' below the current surface, so no surface soils would remain. *The second wetland area near the main mine entrance, would not be affected by drawdown associated with the Proposed Action because it would be outside of the drawdown area. (See Figure 3-13.)* This area overlies the andesite bedrock of the Animas Uplift. As a result, there is no aquifer underlying the surface.

The Draft EIS does not contain a figure 3-13, it does contain figures 3-13a and 3-12b. Figures 3-13a and 3-13b do not show any wetland areas. In prior sections of the Draft EIS the term riparian is used. *A definition of the terms riparian and wetlands is required in the Draft EIS so the public can understand what is meant by these terms and consequently the negative effect to these areas from mining operations.*

3.8.2 Environmental Effects, 3.8.2.1 Proposed Action, 3.8.2.1.1 Mine Development and Operation; Page 3-111, Paragraphs 5 and 6, Page 3-112, Paragraph 1

There would be no effects to any hydric soils at Percha Creek near Hillsboro as no water drawdown is expected where they occur. The downstream end of Percha Creek, where drawdown of groundwater in the shallow alluvium could be 0.5 to 1.5 feet by the end of mining, is dominated by upland soils and vegetation. Groundwater drawdown that could affect the shallow alluvium of Percha Creek would not occur in any area of the creek that supports riparian vegetation or hydric soils.

Perched alluvial groundwater under Las Animas Creek has limited hydraulic connection to the main aquifer that would be directly impacted by pumping of the supply wells. Hydrology within the perched layer reflects localized conditions such as seepage from irrigation canals and irrigated fields, and pumping of small capacity private wells. The groundwater model predicts drawdown in the shallow alluvium along Las Animas Creek to be less than 1 inch (see Section 3.11, Vegetation and Non-native Invasive Species and Table 3-29 for an explanation of calculations) after mining ceases. Because the groundwater drawdown of the shallow alluvium (12 AFY) would be so small relative to depletion of groundwater and the existing flow plus ET of the vegetation (4,848 AFY) there would be no change to the riparian plant community or any hydric soils adjacent to Las Animas Creek.

The two paragraphs above describe the potential drawdown effects to the hydric soils in Percha and Las Animas Creek. There is no reference or discussion as to the effect to hydric soils in the Warm Springs Valley area, specifically the wetlands associated with Warm and Cold Springs located on the Hillsboro Pitchfork Ranch L.L.C. Warm and Cold Spring(s) each support a signification wetland and associated hydric soil. An analysis of the potential effects of the mine pit watering to these springs must be conducted and published in the final EIS.

This is another example of why the data in the Draft EIS comingles the effects of the mine pit dewatering and the mine well field, to the degree that it is impossible to understand the effect of the mine pit dewatering. The final EIS must breakout the two sources of water and quantify the amount and effects from each of those sources.

3.8.3 Mitigation Measures,

Page 3-113,

Paragraph 1

Page 3-114,

Paragraph 2 and 3

BMPs would be used to limit erosion and reduce sediment in precipitation runoff from proposed project facilities and disturbed areas during construction, operations, and initial stages of reclamation. BMPs that would be used during construction and operation to minimize erosion and control sediment runoff would include:

- Surface stabilization measures – dust control, mulching, riprap, temporary and permanent revegetation/reclamation, and placing growth media;
- Runoff control and conveyance measures – hardened channels, runoff diversions; and
- Sediment traps and barriers – check dams, grade stabilization structures, sediment detention, sediment/silt fence and straw bale barriers, and sediment traps.

Revegetation of disturbed areas would reduce the potential for wind and water erosion. Following construction activities, areas such as cut and fill embankments and growth media/cover stockpiles would be seeded as soon as it is practicable and safe. Contemporaneous reclamation would be maximized to the extent practicable to accelerate revegetation of disturbed areas. All sediment and erosion control measures would be inspected periodically and repairs performed as needed.

Since NMCC acquired the mine property, it is assumed that they also acquired the responsibility to reclaim the environment that was damaged by Quintana Corporation. We see no reference in the Draft EIS which talks to reclamation of environmental damage caused by Quintana Corporation during their open pit mining operations. In specific we see no reference to mitigation measures to reclaim the diversion structure, located to the west and south of the current pit location, or to surface and ground

water resources . *We believe the final EIS should specifically include the responsibility of NMCC to mitigate the damages caused by prior open pit mining operations at the Copper Flat site. Reference Groundwater Use page 4-9, paragraph 4 where the impact to groundwater from Quintana Corporation activities, are described.*

3.10 Wildlife and Migratory Birds

3.10.1 Affected Environment

Page 3-123,

Paragraph 1

The wildlife species found within a given area reflect the habitat characteristics of that location, such as vegetation. Vegetation and habitat are described in Section 3.11, Vegetation, Invasive Species and Wetlands. *Parametrix, Inc. was contracted by NMCC to complete a wildlife assessment that included three target areas: 1) within the Copper Flat mine area; 2) in off-site reference areas; and 3) in the surrounding riparian habitats along Las Animas Creek and Percha Creek.* The wildlife assessment included surveys for special status species; birds; large, medium, and small mammals; bats; and reptiles and amphibians. The original survey was expanded in 2014 to include 11 more sites (THEMAC 2015). The 11 sites include nine millsite claims plus two potential alternative sites under evaluation for electrical substation construction. The impact area of the proposed substation would be 30 acres. Threatened, endangered, and special status species are discussed in Section 3.12, Threatened, Endangered, and Species Status Species. The Parametrix report was completed in August 2011 and is also included as Chapter 5 of NMCC's Baseline Data Report (Intera 2012). This section presents the findings of that report as well as regional information from State and Federal land management agencies. *Complete information about survey methodology and findings can be found in Parametrix, 2011. (See Appendix G.)*

We believe Section 3.10 Wildlife and Migratory Birds of the Draft EIS is incomplete and inaccurate in its analysis of the mine impact to wildlife on public and private land. Additional studies of mine affects to Wildlife and Migratory Birds must be conducted and public comments considered, prior to publishing a Final EIS and Record of Decision.

The Parametrix-2011 Report "Biological Resources Survey Report Copper Flat Pipeline and Well Sites Sierra County, New Mexico" is specific to the short term effects to wildlife associated with well field and associated infrastructure. It is limited in its' scope and does not address long term affects to wildlife and migratory birds within the Animas Uplift or the Warm Springs Valley.

The Parametrix-2011 Report "Biological Resources Survey Report Copper Flat Pipeline and Well Sites Sierra County, New Mexico" and Chapter 5 of NMCC's Baseline Data Report (Intera 2012), both state "off-site reference areas" were included in the Wildlife and Migratory Birds survey. A review of both documents found no map or figure which shows the location of all off site reference areas. The maps or figures are referenced in the documents but not included. The maps or figures must be made available to the public for review and comment prior to the Draft EIS being finalized.

The ecosystem within the Animas Uplift is the area that will be most affected by the mine pit dewatering. The large majority of the area within the Animas Uplift will be dewatered in perpetuity. Wildlife must have access to water in order to survive. The primary water sources available to wildlife in the Animas Uplift are stock water wells on public and private lands. Surface water, springs and seeps are also important water sources. Collectively the water sources will be lost or greatly reduced by the cone of depression associated with mine pit dewatering. No analysis on the affects to wildlife populations by the loss in available water sources is made in the Draft EIS or its 'supporting documentation. The Draft EIS must include a detailed analysis of the affect to wildlife by the permanent loss of water due to the mine pit dewatering.

Appropriate habitat is critical to wildlife and migratory birds. There is no assessment of the riparian areas to the west of the mine pit in the Grayback Arroyo ecosystem and associated Wildlife and Migratory Birds in the area, upstream of the Grayback Arroyo ecosystem, to the west of the mine pit. The ecosystem within the Warm Springs valley is unique in that it contains riparian areas and wet lands where hydric soils exist.

The Draft EIS must include a detailed analysis of the affect to wildlife habitat within the Animas Uplift and Warm Springs Valley by the potential permanent loss of water due to the mine pit dewatering.

3.10.1.1, Fisheries, Aquatic Invertebrates, and Aquatic Plants,

Page 3-124,

Paragraph 1

The Baseline Data Report describes all wildlife surveys and includes a brief qualitative analysis of some of the seeps and springs in the area surrounding the mine area (Intera 2012). No fish surveys were included in the Sampling and Analysis Plan that drove baseline data collection (Intera 2012) because no fish habitat was located within the mine area. An attempt was made during summer 2011 to complete a qualitative wildlife habitat assessment at each of the springs that had been previously visited by hydrologists. *At that time, private landowners did not grant the biologists permission to access the springs near Animas Creek or the cluster of springs near Warm Springs and Cold Springs Canyons. Permission to access the springs near Warm Springs and Cold Springs Canyon was later granted (May 2013), so a field biologist completed a qualitative resource survey at these sites,* and also visited springs that were identified by hydrologists on public land just west of the mine permit and along Percha Creek. Biologists did not observe amphibians or fish within or near any of the springs, though an unidentified fish species was common in portions of Percha Creek (Intera 2012).

The above paragraph states: "*At that time, private landowners did not grant the biologists permission to access the springs near Animas Creek or the cluster of springs near Warm Springs and Cold Springs Canyons. Permission to access the springs near Warm Springs and Cold Springs Canyon was later granted (May 2013), so a field biologist completed a qualitative resource survey at these sites*". The Hillsboro Pitchfork Ranch L.L.C. are the owners land and the water rights of the cluster of springs in Warm Springs and Cold Springs Canyon. We as owners of the Hillsboro Pitchfork Ranch L.L.C. have no recollection of, or documentation of any party associated with NMCC asking for permission to conduct a qualitative wildlife habitat assessment on ranch lands.

Regardless of whether a habitat assessment was made on ranch lands in the Warm Springs Valley, the Draft EIS is silent on any results. We believe Warm Springs and Cold Springs support a varied, unique habitat for wildlife and migratory birds. The habitat associated with these springs include: wetlands, marshes, riparian areas and hydric soils. The National Resource Conservation Service (NRCS) has contracted with the Hillsboro Pitchfork Ranch L.L.C. to conserve wetlands associated with Warm Springs. A complete analysis of effects to wildlife habitat within the Warm Springs Valley must be conducted and published. This process must be completed prior to the issuance of a final EIS and Letter of Declaration.

3.10.1.2, Birds, Including Migratory Species,

Page 3-124,

Paragraph 1

Forty-six species of birds were identified on the assessment transects during the breeding season, and 8 additional species were encountered during other work and a winter bird survey (Parametrix 2011). The number of bird species recorded in the Parametrix study was 39 in the Arroyo habitat, 15 in the creosote

rolling uplands, 38 in the grass mountain, 4 in the pit lake habitat, and 21 in the disturbed areas/waste rock pile habitat (Parametrix 2011). Thirty-four species were recorded during the millsite surveys (THEMAC 2015). *The table below lists both the bird species recorded during the Parametrix surveys and the potential species based on the habitat present. (See Table 3-25.)*

Table 3-25 does not include the Grayback Arroyo system or the Warm Springs Valley as specific areas studied. Each of these areas are environmentally significantly different from the Copper Flat Mine Area and Las Animas/Percha Creeks. As an example Scaled Quail, Gambel's Quail and Montezuma Quail use these habitats during all seasons of the year. A complete analysis of affects to wildlife habitat within the Grayback Arroyo system and the Warm Springs Valley must be conducted and published. This process must be completed prior to the issuance of a final EIS and Letter of Declaration.

3.10.1.3, Mammals, Page 3-130 and page 131, Paragraph 1

Mule deer (Odocoileus hemionus) signs were encountered on 16 of the 30 (53 percent) transects read. Most of the signs were in the western half of the mine area, in the grass mountains habitat, though signs were found in all parts of the mine. Deer were frequently observed in the Greyback Arroyo and other arroyos on the site. Desert cottontail (Sylvilagus audubonii) signs were found on 29 of 30 (97 percent) of the transects, black-tailed jackrabbit (Lepus californicus) signs were found in 23 of 30 (77 percent) of the transects, and predator or other signs were found on 4 of 30 (13 percent) of the transects. In addition, one pronghorn (Antilocapra americana) was encountered during walking the transects on the southeastern portion of the Copper Flat mine area. Also, signs of collared peccary (Pecari tajacu) mountain lion (Puma concolor), bobcat (Lynx rufus), coyote (Canis latrans), and fox (likely gray fox [Urocyon cinereoargenteus]) were noted during field work. Other large to medium mammals are likely present in the Copper Flat mine area but were not encountered. (See Table 3-26.) The list of these mammals was developed by consulting range maps and species lists in published reports, and by consulting with local experts (Parametrix 2011).

A total of 86 individuals of 8 species of small mammals were trapped at the Copper Flat mine area: brush mouse (*Peromyscus boylii*), desert cottontail, Merriam's kangaroo rat (*Dipodomys merriami*), Northern grasshopper mouse (*Onychomys leucogaster*), Mearn's grasshopper mouse (*Onychomys arenicola*), rock pocket mouse (*Chaetodipus intermedius*), white-footed mouse (*Peromyscus leucopus*), and white-throated woodrat (*Neotoma albigula*) (Parametrix 2011). Diversity of small mammals was highest in creosote rolling uplands, where six species were trapped. The greatest number of animals trapped per effort was in the Arroyo site, followed by the creosote rolling uplands and grass mountain sites. Diversity overall, however, was greatest in the creosote rolling uplands habitat, followed by the grassland and arroyo habitats. Although a relatively high density of individuals was trapped in the Arroyo, only two species were encountered: brush mouse and one unknown (escaped) species. Six species of small mammals were trapped in the creosote rolling uplands and five in the grass mountain.

Mule Deer are a declining species, State wide surveys in New Mexico suggest long-term declines in mule deer populations throughout most of the state. Ryan Darr, New Mexico Department of Game and Fish, from "RANGE-WIDE STATUS OF BLACK-TAILED AND MULE DEER - 2015", Mule Deer Working Group. Western Association of Fish and Wildlife Agencies. The area immediately to the west of the mine site in the area of the Grayback Arroyo System is identified as an area of critical Mule Deer Fawning habitat, by New Mexico Game and Fish Biologists.

The Hillsboro Pitchfork Ranch L.L.C. has an agreement with the State of New Mexico Department of Game and Fish (NMG&F) to conduct Mule Deer habitat improvements on the ranch to include the area of the Animas Uplift and Warm Springs Valley. The improvements include rejuvenation of Mountain

Mahogany (*Cercocarpus*) and the removal of Honey Mesquite (*Prosopis glandulosa*) to improve Mule Deer Habitat. To date the Hillsboro Pitchfork Ranch has treated 640 acres Honey Mesquite and over 100 acres of Mountain Mahogany on private land to improve Mule Deer Habitat.

The Hillsboro Pitchfork Ranch L.L.C., is under contract with the National Resource Conservation Service to develop water within the Grayback Arroyo system for wildlife.

The area upstream of the mine pit in the Animas Uplift is a significant Mule Deer fawning area. Surveys conducted by the Hillsboro Pitchfork Ranch L.L.C. and verified by wildlife biologists from the NMG&F confirm the importance of this Mule Deer fawning habitat.

Table 3-26 does not include the Grayback Arroyo system or the Warm Springs Valley as specific areas studied. Each of these areas are environmentally, significantly different from the Copper Flat Mine Area and Las Animas/Percha Creeks. As an example is, Mountain Mahogany (*Cercocarpus*). Mountain Mahogany is a common vegetative species found adjacent to the mine pit and is a primary Mule Deer browse. *It is worth noting, a review of the Draft EIS, its' appendices, and the Copper Flat Baseline Data Characterization Report, does not contain even one reference to Mountain Mahogany.* The absence of any meaningful analysis of the affects of mine pit dewatering/cone of depression to Mule Deer habitat and populations is a grave error within the Draft EIS. A complete analysis of affects to wildlife habitat within the Grayback Arroyo system and the Warm Springs Valley must be conducted and published. This process must be completed prior to the issuance of a final EIS and Letter of Declaration

3.10.2, Environmental Effects, 3.10.2.1 Proposed Action,

Page 3-136,

Paragraph 1 and 2

Impacts from mining activities would result largely from: 1) the conversion of habitat and forage areas and 2) noise and light disturbances from mining activities. Habitat conversion can result in either: 1) adverse impacts from the loss or degradation of habitat or from fragmenting large sections of habitat; or 2) habitat enhancement from maintenance and reclamation activities that focus on providing natural and native habitat for wildlife species. Habitat fragmentation is the process by which habitat loss results in the division of large, continuous habitats into smaller, more isolated remnants (Didham 2010). This fragmentation reduces the total amount of usable habitat for wildlife species and disrupts movement among habitat areas. In addition, habitat fragmentation causes the isolation of less mobile species, a decline in habitat specialists, and facilitates invasion by generalist species (Marvier et al. 2004). Habitat alteration occurs when surface-disturbing activities directly or indirectly change the composition, structure, or functioning of the habitat. Habitat loss is caused by surface-disturbing activities or other activities that degrade or remove habitat. Habitat displacement occurs when land-use activities force wildlife or special status species to move into other habitats, thereby increasing stress on individual animals and increasing competition for habitat resources. Any surface-disturbing actions could lead to habitat alteration, fragmentation, displacement, or loss; limit the amount of usable habitat for special status species and wildlife; and restrict movement among habitat areas.

This section covers species that are not considered Special Status, meaning federally or State threatened or endangered. *It covers species that are generally common; as such, if individual members of these species are killed, displaced, or if their habitat is altered, it is unlikely that the species or populations would be significantly impacted as a whole.* Impacts to wildlife special status species are reviewed in Section 3.12, Threatened, Endangered, and Special Status Species. *However, both direct and indirect impacts to wildlife species are expected to result from minerals development, construction activities, and from traffic changes on the coal haul transportation route, all of which could affect individuals, populations, or habitat conditions.*

Paragraph 1 above states, " Impacts from mining activities would result largely from: 1) the conversion of habitat and forage areas and 2) noise and light disturbances from mining activities." The negative effects of mine pit dewatering/cone of depression in perpetuity to surface and ground water within the area of the Animas Update are not specifically addressed. The negative effect of direct surface damage, caused by mine activities is insignificant, when weighted against the permanent affect to wildlife habitat caused by mine pit dewatering/cone of depression.

Paragraph 2 above states, " However, both direct and indirect impacts to wildlife species are expected to result from minerals development, construction activities, and from traffic changes on the coal haul transportation route, all of which could affect individuals, populations, or habitat conditions." Obviously this statement is a cut and paste statement by the NMCC contractor, from a prior coal mine assessment. This is another example of the flawed Wildlife assessment provided in the Draft EIS. Just Saying!

A complete analysis of affects to wildlife habitat, to include the negative effect to wildlife habitat from mine pit dewatering/cone of depression within the Grayback Arroyo system and the Warm Springs Valley must be conducted and published for public review. This analysis must be completed prior to the issuance of a final EIS and Letter of Declaration.

**3.10.2, Environmental Effects, 3.10.2.1.1 Mine Development and Operation,
Page 3-136,
Paragraph 1**

Mine construction would take 2 years and operations would occur for 16 years. *It is probable that small to large medium- and long-term minor adverse effects would be expected under the Proposed Action. Most of these impacts would be due to habitat loss and may be reversed during mining reclamation.* The Copper Flat project site would be reclaimed to achieve a self-sustaining ecosystem appropriate for the climate, environment, and land uses of the area. Because reclamation includes the entire mine area and 52 percent of the area consists of previously disturbed land, conversion to natural habitat would have long-term minor and beneficial impacts to wildlife and migratory birds due to the increase in potential habitat and habitat connectivity. These beneficial impacts would not occur until after the completion of reclamation, but would be long-term starting at that point. *Common species are expected to return to the mining area in the long term after reclamation occurs*

The sentences italicized in the paragraph above, again indicate the inadequate assessment of negative wildlife habitat impacts to the mine pit dewatering. There is no quantitative analysis of affects to wildlife habitat. Statements such as "*It is probable that small to large medium- and long-term minor adverse effects*" have no meaning or quantative value to understanding the negative affects to wildlife from the mining operation.

Statements such as "*Common species are expected to return to the mining area in the long term after reclamation occurs*" do not address the larger area affected by the mine pit dewatering and associated adverse affect to wildlife habitat.

**3.10.2, Environmental Effects, 3.10.2.1.2 Mine Closure/Reclamation,
Page 3-137 and 138,
Paragraph 3**

Contemporaneous reclamation of disturbed surface areas would be an integral part of the mining operation. Both public and private land would be reclaimed. At the completion of mining activities, the site would be restored to conditions and standards that meet approved post-mining land uses. These uses would include native plant communities similar to surrounding undisturbed areas for wildlife habitat, and

grazing land potentially suitable for livestock. *Once reclamation is successfully completed, wildlife populations would be expected to return to existing (i.e., pre-mining operation) levels.*

The above italicized sentence speaks specifically to the mine site. Give the permanent reduction in the water table associated with the mine pit dewatering/cone of depression, wildlife populations will and cannot return to existing levels within the Animas Uplift.

**3.10.2, Environmental Effects, 3.10.2.1.2 Mine Closure/Reclamation,
Page 138,
Paragraph 4**

Losses of mammals, birds, or wildlife in general are not expected to be significant as a result of the project. Proposed project activities may cause minor disruptions to foraging, migratory movement, or breeding behavior of some species. A few animals may be killed during these activities because they are driven out of their foraging territories and are made more susceptible to predation, but these losses would not be expected to impact the species as a whole. *There is currently a vast amount of undeveloped land in nearby areas where wildlife can temporarily relocate for cover and foraging.*

The italicized sentence above does not take into account the loss of wildlife habitat, due to the permanent loss of water associated with the mine pit dewatering/cone of depression. *Indeed NMCC is suggesting that adjacent public and private land owners shoulder the responsibility, for the negative consequences to wildlife, of mine development. Mitigation measures need to be identified for this concern.*

**3.10.3, Mitigation Measures,
Page 139**

The following BMPs would be required and implemented for activities associated with the Proposed Action.

Fencing: As part of the proposed action, NMCC would construct BLM-approved barbed wire fencing to prevent livestock from entering the pit, WRDFs, and TSFs including the seepage collection pond. Wildlife fences would be constructed around the lined ponds. In addition to wildlife fencing, to the extent practicable, NMCC would investigate and utilize other mitigation actions, such as exclusionary devices. These devices could include, but are not necessarily limited to, bird balls and netting to minimize the potential for avian wildlife contacting process pond waters that contain elevated chemical constituents in excess of ecological risk levels. Pending monitoring information, either gates or cattle guards or both would be installed along roadways within the proposed mine area as appropriate.

The mitigation measures are brief and talk to fencing. *The cumulative effects of mine development to wildlife are permanent within the Animas Uplift and the Warm Springs Valley. The scope of the Draft EIS to wildlife is limited, in that it address only issues within the mine area. The Draft EIS is flawed in that it does not account for the cumulative effects to wildlife.*

A complete analysis of affects to wildlife habitat, to include the negative effect to wildlife habitat from mine pit dewatering/cone of depression within the Grayback Arroyo system and the Warm Springs Valley must be conducted and published for public review. This analysis must be completed prior to the issuance of a final EIS and Letter of Declaration.

3.11 Vegetation, Invasive Species, and Wetlands

3.11.1 Affected Environment,

Page 3-140,

Paragraph 3

Vegetation data within the proposed mine boundary, pipeline boundary, Percha Creek, and Las Animas Creek were collected and described by Parametrix, Inc. within the 2010 and 2011 growing seasons. Both a noxious weed survey and wetland survey were also conducted. However, because the 2010 growing season was wetter than average, the vegetation cover and production results could be inflated (THEMAC 2011). *Information gathered during these surveys provides the baseline data for the proposed mine area, Las Animas Creek, and Percha Creek.*

No vegetative surveys were conducted in the Animas Uplift, to the west of the mine pit, in the Grayback Arroyo system. The area of the Animas Uplift contains both public and private lands. No vegetative surveys were conducted in the area of the cluster of springs, located on private lands of the Hillsboro Pitchfork Ranch L.L.C., located within the Warm Springs Valley. Thus no baseline vegetative data has been compiled for these areas. *These areas will be drastically and permanently affected by mine pit dewatering.* A complete analysis of affects to vegetation, to include the negative effect to wildlife habitat and livestock grazing from mine pit dewatering within the Grayback Arroyo system and Warm Springs Valley must be conducted and published for public review. This analysis must be completed prior to the issuance of a final EIS and Letter of Declaration.

3.11 Vegetation, Invasive Species, and Wetlands

3.11.1.1, Mine Area Boundary,

Figure 3-26, Land Cover Map of the Proposed Mine Area

Page 3-142,

Figure 3-26 depicts an almost continuous Arroyo/Riparian zone through the proposed mine area. Other figures in the Draft EISA omit or do not show this riparian area. A number of other Figures i.e. Figure 3-9, 3-13a, 3-16a, as well as other figures in the Draft EIS depict different riparian areas, omit or include different riparian areas. It is impossible from the Draft EIS for the public to gain a comprehensive understanding of the riparian areas affected by the down effect of the mine well field and mine pit dewatering/cone of depression. In particular the Hillsboro Pitchfork Ranch L.L.C., contend that an expansive riparian area exists upstream to the west of the mine pit within the Greyback arroyo system, of the Animas Uplift. This area has not be studied as to the impacts to vegetation, by the permanent reduction in surface and ground water, caused by mine pit cone of water depression.

A complete analysis of affects to riparian areas, to include the negative effect to wildlife habitat and livestock grazing from mine pit dewatering/cone of depression within the Grayback Arroyo system and must be conducted and published for public review. This analysis must be completed prior to the issuance of a final EIS and Letter of Declaration.

In review of the Draft EIS, its' appendices, and referenced contractor studies, no definition of Riparian Areas exists. In conversation with several staff of the Bureau of Land Management (BLM), Las Cruces District Office, they were not able to provide a definition of Riparian Area, as used within the Draft EIS.

A definition of the terms riparian and wetlands must be provided in the Draft EIS so the public can understand what is meant by these terms and consequently the potential negative effects to these areas from mining operations.

3.11 Vegetation, Invasive Species, and Wetlands

3.11.1.1, Mine Area Boundary,

Page 3-140,

Paragraph 1,

Thru Page 3-147,

Paragraph 5

The entire Section 3.11.1.1, Mine Area Boundary is convoluted. Is the Mine area boundary, as depicted in figure 3.26, or is the area as discussed in the text of the section? A better title for the section is: *Land Area Affected by Mine Development*. In particular, the section discusses Las Animas Creek and Percha Creek but does not discuss the expansive riparian area upstream to the west of the mine pit within the Greyback arroyo system, of the Animas Uplift. Paragraph 5, Page 3-147 discusses treatment of creosote bush (*Larrea tridentata*) within the Copper Flat Allotment No. 160.79. It does not discuss partnership between the National Resource Conservation Service and the New Mexico Game and Fish, with the Hillsboro Pitchfork Ranch L.L.C. to improve habitat conditions, upstream of the mine pit in the Grayback Arroyo system, on private land.

3.11 Vegetation, Invasive Species, and Wetlands

3.11.2, Environmental Effects, 3,11,2,1, Proposed Action,

Page 3-147

Medium-term and long-term minor to moderate adverse effects to primarily upland vegetation would be expected under the Proposed Action. Impacts would be of medium extent (localized) and the likelihood of impacts is probable. Medium-term effects would be due to vegetation disturbance in the course of surface activities; however, ongoing reclamation activities would allow most of this vegetation to recover. Longer-term effects would occur due to vegetation removal for the duration of the project. Impacts on wetland and riparian vegetation communities caused by deep groundwater drawdown would either not occur or would be negligible because of the minimal effect that drawdown in the deep aquifer would have on surface water or the shallow alluvial aquifers.

The above paragraph must be revised to reflect the potential environmental effects from mine development for both the area within the Mine Area Boundary area as depicted in figure 3.26, and the greater area that would be impacted permanently by mine pit dewatering/cone of depression. As currently written it is impossible to determine the potential effects of the mine pit dewatering/cone of depression to the Grayback arroyo system upstream of the mine pit. As an example the sentence, "*Impacts on wetland and riparian vegetation communities caused by deep groundwater drawdown would either not occur or would be negligible because of the minimal effect that drawdown in the deep aquifer would have on surface water or the shallow alluvial aquifers.*", does not tell the reader if the effect are inside or outside the Mine Area Boundary

3.11 Vegetation, Invasive Species, and Wetlands

3.11.2, Environmental Effects,

3,11,2,1, Proposed Action,

3.11.2.1.1 Mine Development and Operation,

Page 3-149,

Paragraph 2,

Estimates of the change in creek hydrology from mining drawdown in the deep aquifer are listed in Table 3-29.

Table 3-29 does not contain water drawdown information for the Greenhorn Basin. Specifically there is no information in the table which speaks to water drawdown with the Greyback Arroyo system, within the Animas Uplift, to the west of the mine pit. This area is geologically different and has not been studied.

**Page 3-149,
Paragraph 2 and 3
Page 3-150,
Paragraph 1 and 2.**

There would be no effects to riparian vegetation at Percha Creek as no water drawdown is expected where riparian vegetation occurs. The downstream end of Percha Creek, where drawdown of groundwater in the shallow alluvium could be 0.5 to 1.5 feet by the end of mining, is dominated by burro bush and honey mesquite, both upland species. Groundwater drawdown that could affect the shallow alluvium of Percha Creek would not occur in any area of the creek that supports riparian vegetation.

Information in text box on Page 3-149, Estimated depth of shallow aquifer drawdown in Las Animas Creek was computed as follows:

12 AFY/4848 AFY x 15 ft (180 in) ET depth = 0.45 in

Perched alluvial groundwater under the middle reach of Las Animas Creek (see Figure 3-10, Zone 2) has extremely limited hydraulic connection to the deep aquifer that would be directly impacted by pumping of the supply wells. Instead, the hydrology within the perched layer reflects localized flow conditions, such as seepage from irrigation canals and irrigated fields and pumping of small capacity private wells. An estimate based on the groundwater modeling predicts that direct drawdown in the shallow alluvium underlying Zone 2 of Las Animas Creek would likely be less than 1 inch (see text box) after mining ceases. (See Table 3-29.) Because the groundwater drawdown of the shallow alluvium in the upper and middle reaches (12 AFY) would be so small relative to the ET of the vegetation (4,848 AFY), there would likely be no change or an imperceptibly small change to the vigor and composition of the existing riparian tree community adjacent to Las Animas Creek. Although the streamflow effect of reduced recharge was not an explicitly modeled part of the hydrologic modeling, it is highly unlikely that drawdown in the deep aquifer would cause any measurable reductions in streamflow, spatially or temporally, that would impact shallow-rooted plants and seedling establishment in and along the creek in Zone 2.

In the lower reach of Las Animas (Zone 3), as noted in the groundwater analysis described in more detail in Section 3.6, ancillary calculations and site inspection have indicated that water from the artesian wells does not create surface creek flows in the lower reach, but is consumed in pond and irrigation ET and subsurface alluvial recharge, which eventually flows into Caballo Reservoir. This is because the artesian wells have been employed for crop irrigation purposes by landowners along the lower reach where the well water is retained in a number of irrigation ponds or otherwise seeps back into the subsurface alluvial flows to Caballo Reservoir. Because artesian water is captured to such a great extent in this system, surface creek flows occur only immediately after substantive rainfall events.

The above paragraphs speak to potential groundwater drawdown within Las Animas and Percha Creeks. We contend, based on geologic information provided in the Draft EIS, the geology of the Grayback Arroyo system, upstream of the mine area, within the Animas Uplift, is significantly different from the geologies of Las Animas and Percha Creeks. As such the calculations and assumptions related to ground water drawdown, provided in the preceding paragraphs, are not valid for the Grayback Arroyo system west of the mine pit. Effects to the environment from groundwater drawdown, within the Grayback Arroyo system west of the mine pit, have not been studied, calculated or described in the Draft EIS.

Given the different geology of the Grayback Arroyo system to the west of the mine pit, a complete analysis of effects of groundwater drawdown, must be conducted and published for public review. This analysis must be completed prior to the issuance of a final EIS and Letter of Declaration.

3.11 Vegetation, Invasive Species, and Wetlands

3.11.3, Mitigation Measures,

Page 3-151 and Page 3-152,

All paragraphs

To prevent the introduction and minimize the spread of nonnative vegetation and noxious weeds, mitigation measures would be implemented during project activities, including:

On-site biological monitoring in areas of noxious weed concern or presence would be conducted before, during, and after project activities. NMCC would be responsible for providing the monitoring.

Vehicle and equipment parking would be limited to within construction limits or approved staging areas.

Heavy equipment would be cleaned and weed-free before entering a mine area.

Monitoring and follow-up treatment of exotic vegetation would occur after project activities are completed.

All gravel and fill material imported on-site must be source-identified to ensure that the originating site is noxious weed free.

During the reclamation phase of the project, all areas disturbed by construction would be reseeded with a BLM-approved seed mix.

The mitigation measures identified above are specific to sites directly associated with mining operations. No mitigation measures are identified outside those sites. A comprehensive set of mitigation measures need to be identified and published prior to issuance of a Final EIS and Letter of Declaration.

3.12 Threatened, Endangered, And Special Status Species

3.12.1 Affected Environment,

Page 3-153,

Paragraph 3

One State-listed sensitive species, the loggerhead shrike (*Lanis ludovicianus*), was detected during the millsite and substation survey (NMCC 2015). Potential habitat may be present in the mine area for 17 species described as sensitive or threatened by the State. Four of these species are also considered species of concern by the USFWS. The millsite and substation areas do not support potential habitat for any Federally-listed threatened or endangered species. *Several sensitive bat species were detected in the Copper Flat mine area during BDR surveys and it is likely that those same species would be detected in the millsite and substation areas (particularly near the livestock watering tank identified in the survey as MS-9); however, a formal bat survey would be required to confirm that.*

The Hillsboro Pitchfork Ranch L.L.C. has been contracted by the National Resource Conservation Service (NRCS) to retrofit all watering facilities on the ranch for wildlife escape. Bats are one of the mammal species this conservation practice is intended to enhance and protect.

Bat species were not studied on the Hillsboro Pitchfork Ranch L.L.C., in the area of ranch land adjacent to and upstream of the mine pit in the Grayback Arroyo System, by NMCC. If wells on the Hillsboro Pitchfork Ranch L.L.C. are dewatered permanently by the mine pit cone of water depression, bat species considered Sensitive in Status, by the State of New Mexico and the BLM will be negatively affected by the loss of water.

**3.13 Cultural Resources,
3.12.2 Environmental Effects,
Criteria of Adverse Effects,
Page 3-170 Paragraph 5 and Page 3-171,
Paragraphs 1, 2, and 3.**

Section 106 of the NHPA requires Federal agencies to take into account the effects of their actions on any district, site, object, building, or structure included in, or eligible for inclusion in, the NRHP.

Implementing regulations for Section 106 provide specific criteria for identifying effects on historic properties. Effects to historic properties listed, or eligible for listing, on the NRHP are evaluated with regard to the Criteria of Adverse Effects.

“An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property’s eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative.” (36 CFR 800.5[a][1]).

Under Section 106 and its implementing regulations, types of possible adverse effects include:

- Physical destruction of or damage to all or part of a property;
- Physical alteration of a property;
- Removal of a property from its historic location;
- Change in the character of a *property’s use* or of physical features within a property’s setting that contribute to its historic significance;
- Introduction of visual, atmospheric, or auditory elements that diminish the integrity of a property’s significant historic features;
- Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance; and
- Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of a property’s historic significance (36 CFR 800.5[a][2]).

The BLM applied the Criteria of Adverse Effect to the activities proposed for mine development, operation, and reclamation to identify potential effects to historic properties identified within the APE.

A Wooden Windmill Tower, known locally as the Rodgers Windmill, exists approximately .25 miles west of the existing mine pit, in the Grayback Arroyo System. This windmill is located on private land of the Hillsboro Pitchfork Ranch L.L.C. The wooden windmill tower was constructed in approximately 1910. The windmill is in working condition and supplies water to livestock and wildlife.

Based on our review of the Draft EIS and APPENDIX H: NATIONAL HISTORIC PRESERVATION ACT SECTION 106 COMPLIANCE CORRESPONDENCE, no survey of this historic structure has been conducted.

We contend the windmill is an historic structure and that it will be harmed due to mine activities, to include vibration damage to the structure, and loss of ground water, making the windmill non functional.

An analysis of effects to the windmill must be conducted and included in the Cultural Resource Section of the Draft EIS.

Page 3-180, Page 3-181, Page 3-182

Photographs taken by Meghan Edwards 2012 were taken in 2012 after N.M.C.C. had actively excavated the project and do not depict a clear understanding of the site prior to excavation. Photographs are misleading and should be replaced with photographs prior to excavation.

3.15 Landownership and Land Use

3.15.1 Affected Environment,

Page 3-186,

Paragraph 1

For purposes of analysis within this resource section, *the Copper Flat site is defined as the area within the boundary of the proposed mine. In addition to the Copper Flat site, the APE includes the proposed wells, the pipeline, and the NM-152 highway corridor extending to I-25.*

Within this section of the EIS, discussion includes land ownership within the State of New Mexico, Sierra County, Grant County and the Copper Flat site, and the APE is compared.

The analysis is initially limited to the APE to include the proposed mine site, proposed wells, the pipeline and NM-152 highway corridor extending to I-25. The APE is immediately amended to include discussions of land ownership within the State, County to include *Grant County* and the Copper Flat site. The Scope of Work is so limited in the APE delineation it provides a superficial analysis limited only to the proposed mine site without giving consideration to the immediate area to include adjacent land ownership. *The Scope of Work could be redefine, as it is defective.* Scope of work should be expanded to include the APE as well as those of adjacent property owners to include private land owners.

We contend the affected Environment of the NMCC mine development is much greater than is described in the above paragraph. This section of the Draft EIS contains various statements to impacts to lands outside the Area of Potential Effect (APE). "Major land uses occurring *in the vicinity* of the project site are mining, grazing, wildlife, watershed, and recreation." Reference Page 3-192 3.15.2.1.2 Mine Closure/Reclamation paragraph 2.

In addition the use of the APE in this section to describe the area of analysis is in conflict with the EIS Significance Criteria for the, Impact: Land Use, under the Term, Parameter, Extent criteria, as described in Appendix A, Page A-16.

Page 186, Section 3.15.1.3 –Sensitive Land Use Near Copper Flat Mine

Per the significance criteria outlined in Section 3.1 the magnitude of impacts to land use are evaluated based on conflicts with existing land use plans. *Several types of land uses near the Copper Flat Mine may be sensitive to changes in nearby land use* in and around the Copper Flat mine area and have the potential to create land use conflict. ...Military land uses can be affected by surrounding land use... White Sands Missile Range is 33 miles east of the APE boundary. Similarly, airports are impacted

by other land uses...The nearest airport is 18 miles northeast of the APE and 22 miles northeast of the Copper Flat mine area boundary..

“Several types of land use near the Copper Flat Mine may be sensitive to change in nearby land uses”, referencing military land at a distance of 33 miles and nearest airport at 18/22 miles. According to Page 3-188 Table 3-33 approximately 25% of the land use in Sierra County being private land following the BLM with 28% of land ownership. No discussion/analysis/consideration is given to the private land adjacent to the selected perimeter of the APE though it was mentioned land use near the mine may be sensitive to changes in land use. A detailed analysis should be provided on the historical decrease in land value as a direct result of proximity to the proposed mine site.

Page 3-187 Section 3.15.1.3 Sensitive Land Use Near Copper Flat Mine

Some wildlife and wildlife-related recreation are sensitive to nearby land use, San Andres NWR (National Wildlife Refuge) is the closest NWR at 43 miles southeast of the APE and 53 miles southeast of the Copper Flat mine area boundary (USGS 2011). Impacts to listed species are analyzed in Section 3.12, Threatened Endangered, and Special Status Species.

The Affected Environment is delineated as those within the boundary of the proposed mine as well as the proposed wells, pipelines and NM-152 to I-25. Noting that wildlife and wildlife recreation is sensitive to nearby land use, reference is then applied to a National Wildlife Refuge 43 to 53 miles away from the APE. Yet, no analysis is applied to the Affected Environment of Wildlife and Wildlife Recreation within the APE nor to the adjacent properties being private, state or BLM land. No specific wildlife analysis has been conducted in the Grayback Arroyo system, within the Animas Uplift, adjacent up gradient of the mine site. Affects to adjacent Wildlife Habitat and Wildlife Recreation, on both private and public lands, should be analyzed and documented in the EIS.

3.15.1.4, Land Management Guides, Page 3-190, Paragraph 1

The BLM will work cooperatively with surface owners and mineral operators in recognizing rights on *split-estate land*. In the absence of a surface owner agreement and in mining development of the Federal mineral estate on a non-Federal surface, the *BLM will take into consideration surface owner mitigation requests from predevelopment to final reclamation*.

3.15.1.4, Land Management Guides, Page 3-190, Paragraph 7

Sierra County’s Assessor Office has use codes for assessing land for tax purposes. The Copper Flat mine has been designated as “miscellaneous,” which is the code for raw land not currently utilized. *The same code is given for the land surrounding the mine (Whitney 2012)*.

The Hillsboro Pitchfork Ranch L.L.C., contends the above italicized sentence is incorrect. In conversation with the Sierra County Assessor, Keith Whitney, he explains the lands on the Hillsboro Pitchfork Ranch L.L.C., adjacent to the Copper Flat mine, are assessed as Agricultural Lands.

The Draft EIS, must be revised to include this revision, as it expresses an incomplete description of assessing land for tax purposes.

Page 3-190

Paragraph 6

Private land in Sierra County is guided by the *Interim Land Use Policy of Sierra County of 1991*. This policy document covers land disposition, water resources, agriculture, timber and wood products, cultural resources, recreation, wildlife and wilderness, mineral resources, access and transportation, and monitoring and compliances. The policy states that the intent of Sierra County land use planning is “to protect the custom and culture of County citizens through protection of private property rights, the facilitation of a free market economy, and the establishment of a process to ensure self-determination by local communities and individuals”. (Sierra County 2006)

In keeping with the Interim Land Use Policy of Sierra County of 1991 the intention and continual omission of environmental affects to the Warm Springs Canyon, Cold Springs Canyon, Grayback Arroyo and Animas Uplift is evident throughout the Environment Impact Study. This draft EIS must be withdrawn and these devastating concerns addressed.

3.15.2, Environmental Effects,

Page 3-191,

Paragraph 2

The following is a list, by resource category, of potential impacts to land use from mining activities. However, 52 percent of the proposed mine area has been used previously for mining activities, so these impacts would be expected to be negligible. These impacts relate to changes in land use due to impacts to the soil, water, or changing land use options during or after mining activities. More details on impacts to soil and water resources are found in Sections 3.8, 3.5, and 3.6.

Soils

- Change in soil productivity limiting future land use;
- Change in soil productivity impacting vegetation limiting future land use;
- Stockpiled mining materials causing soil contamination that limits future land uses; and
- Trucks carrying materials causing dispersion of fine grain particulates and soils changing mine closure liability and remediation requirements.

Water

- Spills/solubility causing groundwater contamination that limits future land use opportunities;
- Reduction in water availability from mine’s water use, foreclosing other land uses for a time;*
- Reduction in water availability from mine’s water use, impacting other land uses such as ranching;
- Attraction of wildlife to discharge tailing pond, causing interference with surrounding land uses; and
- Degradation of water quality from leaking tailing ponds, impacting future land use opportunities.

Potential land uses

- Limit land use options during mining
- Loss of appeal of area from change in character
- Limit land use opportunities from degradation of air quality from stockpile
- Climate change reducing water availability in rivers and wells causing foreclosure of other future uses *for a time and impacting other land uses;*
- Change in post-mining land uses from having reclamation for the existing site (pit)
- Provide more opportunities for future land use due to reclamation
- Limit land use opportunities from land degradation, which may limit residential development or other development; and
- Change in post-mining land uses for the existing site’s surface facilities.

We take issue with the italicized statements above, in that they state land uses are foreclosure, "*for a time*". There is ample evident presented by NMCC, in preceding sections of the Draft EIS, that effects to ground and surface water will be permanent from the mine pit water/cone of depression.

This section needs to be revised to reflect the permanent effects associated with the mine development and operations.

Page 3-192, 3.15.2.1 Proposed Action
3.15.2.1.1 Mine Development/Operation
Paragraph 1

Mining activities would follow BMPs to prevent soil or water impacts as described in Sections 3.8, 3.5 and 3.6. Any changes to soil or water conditions are unlikely to impact the mining area to the point where potential land use would conflict with land management plans by preventing planned land uses or permitting within or *nearby* the APE. Impacts to land use from changes to soil (Section 3.8) would be expected to be less than minor due to lack of conflict with local, regional, State or Federal land use plans.

As indicated previously, The Scope of Work is so limited in the APE delineation it provides a superficial analysis limited only to the proposed mine site without giving consideration to the immediate area, to include adjacent land ownership. The above referenced paragraph would indicate changes in soil or water conditions would not prevent planned land uses or permitting within or nearby the APE. **Page 3-190** *Interm Land Use Policy of Sierra County of 1991* states the intent of Sierra County Land use planning is "to protect the custom and culture" ranching "of County Citizens through protection of *private property rights*, the facilitation of a free market economy, and the establishment of a process to ensure self-determination by local communities and individuals". Draining of water sources into perpetuity would likely conflict with land management plans by preventing planned land uses nearby the APE. Consideration should be given in the Mine Development/Operation plan to prohibit dewatering up gradient water sources into perpetuity.

3.15.2.1, Proposed Action,
3.15.2.1.2, Mine Closure/Reclamation,
Page 3-192,
All paragraphs
Page 3-193,
Paragraph 1

The Copper Flat project site would be reclaimed to achieve a self-sustaining ecosystem appropriate for the climate, environment, and land uses of the area. *Careful consideration would be given to neighbors regarding their land use requirements including cattle grazing, alternative energy generation infrastructure such as wind and solar, and reestablishment and enhancement of original botanical and zoological species habitats.* The project is designed to meet, without perpetual care, all applicable Federal and State environmental requirements following closure.

Phrases such as *Careful consideration* have no meaning in the context of a Draft EIS. Either this statement should be rewritten to reflect responsibility on the part of NMCC to mitigation negative effects caused by the mine operation or the sentence should be deleted from the Draft EIS.

Major land uses occurring in the *vicinity* of the project site are mining, grazing, wildlife, watershed, and recreation. Following completion of mine closure and all reclamation activities, the mine area would continue to support these uses to a lesser degree. *Proposed reclamation of the site should result in a successful program to restore the area to the productive land uses discussed above.* All post-closure land

uses would be in conformance with BLM 1985 White Sands RMP, and the Sierra County Comprehensive Land Use Plan, or their successor plans.

The above paragraph talks to the *vicinity* of the project site and then to proposed reclamation efforts for the mine site. Proposed reclamation is to be successful but there is no discussion as to reclamation/mitigation on lands in the vicinity of the project site. How are lands in the vicinity of the project site, to be made hole again, given the proved negative effects of mine development and operations.

The Draft EIS must address this concern in a meaningful way.

Following closure, the pit would partially fill with water from subsurface flow resulting in a permanent TSF (SRK 1995). Hydrogeologic and geochemical modeling indicates the post-closure pit lake water quality should be similar to that of the current pit lake (SRK 1995). Possible post-closure uses for the pit include a water reservoir for agricultural and grazing purposes.

Reclamation and revegetation efforts would return some areas of soil disturbance to a productive state following construction, thereby reducing the duration and magnitude of impact. Although the original physical structure of the landscape post-mining may be irreplaceable, the Copper Flat project site would be reclaimed to achieve a self-sustaining ecosystem appropriate for the climate, environment, and land uses of the area. Impacts to land use from changes to water quality (Section 3.4) are also expected to be less than minor due to lack of conflict with local, regional, State, or Federal land use plans. While there are still some uncertainties regarding impacts to water quality (described in Section 3.4), the land use of the area would be unlikely to change due to any changes in water quality. NMCC would develop a pit lake management plan in order to comply with water quality regulations and monitor changes in water quality to the pit lake.

Land uses in and around the mining area would not be changed until after reclamation and the final land use would be congruent with previous land use. Throughout the life of the mine, nearby land uses would be affected, but after reclamation these nearby areas should return to their original condition. Although the land use would change from inactive to active mining, the land use category would not change. In addition, permitting requirements would assure compliance with existing land use regulations. Because the land use category would not change and land use regulations would be followed impacts would be expected to be short- and medium-term, less than minor, and adverse during the life of the mine and reclamation activities under the Proposed Action. Impacts from reclamation activities may be beneficial due to enhancement of the area, though these impacts would comply with existing land use plans and would therefore be less than minor in magnitude.

Again we take issues with the italicized sentences in the paragraph above. Land uses in and around the mining area will be changed during *development and operation of the mine*. Loss of surface and ground water resources around the mine site will begin, *when mine development begins and increase in magnitude through the production stage of the mine*.

We also do not believe that nearby areas will return to their original condition after the mine is closed, because of the mine pit water cone of depression.

We believe impacts to Land Ownership and Land Use will be permanent, beginning with development of the mine. Impact in the above paragraph is described as; *short and medium term, less than minor and adverse* during the life of the mine and reclamation activities. This does not take into account the negative effects of the mine development that will continue to exist after mine closure and reclamation. These negative effects will last forever.

3.15.3, Mitigation Measures,

Page 3-193

No mitigation measures for land ownership and land use beyond BMPs and regulatory requirements described in the Proposed Action have been identified for any alternative.

Given the substantial permanent effect to Land Ownership and Land use by the mine development, we believe meaningful, measurable mitigation measures must be identified and published from public review prior to a Final EIS being published.

The Scope of Work is so limited in the APE delineation it provides a superficial analysis limited only to the proposed mine site without giving consideration to the immediate area to include adjacent land ownership. Scope of work should be expanded to include the APE as well as those of adjacent property owners to include private land owners.

3.16 RECREATIONAL

Section 3.16.1.2

Page 3-197,

Paragraph 1,

HUNTING: Small game and big game hunting is allowed in the APE on the BLM and State Trust land properties in Sierra County. The BLM manages 16,708 acres and the New Mexico State Land Trust manages 2,563 acres within the APE.

Though Figure 3-38 located on Page 3-197 reflects Area of Potential Effect, the area does not address the adjacent private property to the west with a common fence line. The APE is once again configured in such a manner to be misleading. With the BLM working closely with the New Mexico Department of Game and Fish (NMG@F) the APE should be revised to include those areas of 21B. An analysis should be conducted of the history of both in-state and out of state hunting license for all categories in area 21B. This analysis to include deer inventories, projection of future deer inventories as well as revenue streams derived to the State of New Mexico and surrounding area as well as the potential loss in such revenue streams as a result of loss in big game, varmints and upland birds in area 21B as a direct effect of the proposed Copper Flats Project.

3.18 Lands and Realty,

Page, 3-205, Section 3.18.1 Affected Environment

For the purposes of analysis within this resource section, the Copper Flat site is defined as the area within the boundary of the proposed mine. In addition to the Copper Flat site, the APE includes the proposed wells, the pipelines and the NM-152 Corridor.

As indicated in Section 3.15, Landownership and Land Use; The Scope of Work is so limited in the APE delineation it provides a superficial analysis limited only to the proposed mine site without giving consideration to the immediate area to include adjacent land ownership. Scope of work should be expanded to include the APE as well as those of adjacent property owners to include private land owners. This is further supported by the inclusion of NM-152 Corridor with which Merriam-Webster defined a "Corridor" as an area or stretch of land identified by a specific common characteristic. The EIS again steps out of the boundaries of the APE by inclusion of the local context up to and including the Bosque Del Apache National Wildlife Refuge approximately 62 miles north in Socorro County.

Page 3-207 Figure 3-43 Rows in Copper Flat Mine Area

Page 3-208 Table 3-34 ROW Grants in the Copper Flat Mine Area

No roads are depicted within Figure 3-43 or within Table 3-34 which show any easements, prescriptive or otherwise through the mine site.

Page 3-210 Section 3.18.2.1.1 Mine Development/Operation

The BLM's approval of the MPO and continued ROW grant administration would authorize NMCC to utilize the subject property for mining purpose, but this would not preclude the BLM's discretionary authority to allow non-mine uses, so long as those uses do not conflict with mining operation. BLM would also retain discretionary authority to make adjustments to land tenure.

Affirmation is required of an ingress/egress road easement access to adjacent private land through the mine site, which has previously granted, through prescriptive easement.

Page 3-210 Section 3.18.2.1.2 Mine Closure/Reclamation

After reclamation is complete, impacts may be beneficial due to enhancement of the area, though these impacts would be congruent with existing plans or permitting and would be therefore be less than minor in magnitude.

Statement should be removed as no evidence has previously been provided the impacts may be beneficial due to enhancement of the area.

3.18.1.1, Right of Way Grants,

The Hillsboro Pitchfork Ranch L.L.C. contends that a Prescriptive Easement exist through NMCC, Copper Flats property to the Hillsboro Pitchfork Ranch L.L.C. This prescriptive easement has been in existence since at least 1955. The prescriptive easement is essential for the ranch to conduct its' business. Business activities include; access to the Rodgers Windmill for essential repairs requiring heavy equipment, cattle management activities, and wildlife habitat improvements.

The Right of Way Grants described in this Draft EIS are silent on the existence of this Right of Way, and must be amended, prior to the issuance of the final EIS.

3.19 Range and Livestock

3.19.1 Affected Environment,

Table 3.35, Grazing Allotments in Copper Flat Mine Project Site.

Page 3-211,

Table 3.35 miss represents BLM Grazing Allotments on the Hillsboro Pitchfork Ranch L.L.C., Warm Spring Ranch allotment. The table shows an allotment of 3 cattle for the allotment. However Footnote 3, identifies the allotment number does not take in to account the private land associated with the allotment. *The actual number of livestock grazed within Grayback Arroyo system, to the west of the mine site, on private and public land is significantly larger than indicated.*

3.19.2 Environmental Effects, 3.19.2.1 Proposed Action,

Page 3-213,

Paragraph 1,

The Proposed Action would have *probable adverse impacts of long-term duration with minor to moderate magnitude on grazing use of BLM land within the allotments in the project site. Impacts would be of small (limited) extent.* Vegetation removal would have long-term impacts for the duration of the project; the loss

of forage available for grazing on BLM land would be small, but could possibly require a reduction in permitted AUMs. For these reasons, the impacts are considered significant.

The above statement does not take into account the cumulative effects to grazing. Effects to grazing would extend well outside the mine site, to public and private lands in the Grayback Arroyo System of the Animas Uplift.

Given the above paragraph does not account for, reduction in surface water and permanent loss of ground water within the Animas Uplift, due to the cone of water depression associated with the mine pit, animal reduction numbers will of Major magnitude and catastrophic to the Hillsboro Pitchfork Ranch L.L.C..

3.19.2 Environmental Effects, 3.19.2.1.1 Mine Development and Operation,

Page 3-213,

Paragraph 3,

Page 3-214,

Paragraph 3,

The 20 acres of the Warm Springs Ranch allotment that intersects with the west edge of the proposed mine area were previously disturbed during past mining activities. The loss of 20 acres of BLM land amounts to approximately 13 percent (20/151) of the public land within the Warm Springs Ranch allotment; however, this allotment is much larger because it consists predominantly of private land. *Because of the limited amount of new surface disturbance proposed, an adjustment (reduction) to permitted AUMs and authorized animal units on these allotments is not anticipated.*

The reduction in allotment AUM's on the Warm Springs Ranch is primarily a function of the lost of livestock water, due to the cone of water depression associated with the mine pit. This effect is not recognized in the above paragraph. AUM reductions will be *Major* on both public and private lands of the Warm Springs Allotment, of the Hillsboro Pitchfork Ranch L.L.C. This ecological and economic effect must be recognized in the EIS process.

Drawdown of groundwater from the *shallow alluvium of Las Animas Creek and Percha Creek* may occur during operation of the mine and *pumping of water supply wells*. However, the drawdown would be negligible compared to the overall depth of the evapotranspiration layer of the alluvial groundwater so that no change to riparian plant community vigor and composition is expected (as discussed further in Section 3.11, Vegetation, Invasive Species, and Wetlands). *Any grazing use of areas outside the mine area but within the drawdown contours would not be affected by any change in plant communities associated with mining operations.*

We take great issue with the information presented in the above paragraph. The paragraph does not speak to the geology of the Animas Uplift, reference Page 3-100. The geology of the Animas Uplift, as described in prior sections of this draft EIS, is completely different from the geology of Las Animas and Percha Creek. The effects of evapotranspiration in the Animas Uplift have not been studied and described in this Draft. Given the depth of the alluvial groundwater in the Animas Uplift is much nearer the surface, we contend there will be *major negative changes to riparian and upland land plant communities in the Animas Uplift.*

Surveys and an analysis of the effects of evapotranspiration the Animas Uplift must be conducted. Effects to Range and Livestock, biological resources to include wildlife must be quantified. This Draft EIS must be withdrawn and these concerts addressed.

3.19.3 Mitigation Measures,

Page 3-215

Paragraph 1,

The proposed mine area would be fenced to prevent injury or loss of livestock from mining operations. The location of the boundary fence would maintain connectivity for livestock movement throughout the Copper Flat Ranch allotment. Health and safety training of mine workers would include the provision of information on livestock open range and operation of vehicles to minimize the risk of collisions with livestock.

The mitigation measures identified above are inadequate. Give the magnitude of the negative impacts to Range and Livestock, mitigation measures must be identified for the impacts described above.

3.21 Noise and Vibrations,

3.21.1.2 Existing Noise,

Page 3-226,

Paragraph 1, and Table. 3-47 Closest Noise-Sensitive Areas

Existing sources of noise near the proposed Copper Flat project include light traffic, high-altitude aircraft overflights, and natural noises such as wind gusts and animal and bird vocalizations. The areas surrounding the site can be categorized as rural or remote. *There are no nearby noise-sensitive receptors (churches, schools, hospitals, or residences) in the immediate vicinity of the proposed Copper Flat project.* Existing noise levels (DNL and Leq) were estimated for the areas associated with the proposed Copper Flat project using the techniques specified in the *American National Standard Quantities and Procedures for Description and Measurement of Environmental Sound Part 3: Short-term Measurements with an Observer Present* (ANSI 2013). (See Table 3-47.)

We contend the above paragraph overlooks effects to wildlife. Wildlife are sensitive to noise as been sited in numerous wildlife studies. Mule Deer are particularly sensitive to noise, " Human activity can impact habitat suitability in 3 ways: displacing wildlife through habitat occupation (e.g., construction of buildings), reducing habitat suitability by altering the physical characteristics of that habitat (e.g., habitat damage resulting from off highway vehicle use), or displacing wildlife by altering wildlife perception of the suitability of the habitat through other than physical alteration (e.g., noise, activity). Reference page 27, paragraph 1, HABITAT GUIDELINES FOR MULE DEER SOUTHWEST DESERTS ECOREGION, Mule Deer Work Group, Western Association of Fish and Wildlife Agencies.

The area immediately to the west of the mine site in the area of the Grayback Arroyo System is identified as an area of critical Mule Deer Fawning habitat, by New Mexico Game and Fish Biologists.

3.21 Noise and Vibrations,

3.21.2 Environmental Effects,

3.21.2.1 Proposed Action,

Page 3-226,

Paragraph 1

Short- and medium-term minor adverse effects would be expected under the Proposed Action. Short-term effects would be limited to heavy equipment noise during site preparation and reclamation, while medium-term effects would be due to blasting during mineral extraction, use of rock crushers, and operation of heavy equipment during mine operations. The Proposed Action would not contribute to a violation of any State, Federal, or local noise or vibration regulation.

We contend adverse effects are *Long Term in Duration*, 15 to 20 years for the preferred alternative. We also contend the *Magnitude of the effects would be Moderate*, as noise levels will effect wildlife and therefore create an incompatible land use in undeveloped, and agricultural areas. Although Extent is not discussed in the above paragraph we contend *Extent would be Large*, given that noise would be audible for several miles, as described in Impact Noise, Page A-22, Appendix A: Significance Criteria. As such we conclude that in Table ES-3 Summary of Impacts, Page ES-9, the Proposed Action for Noise and Vibration be changed from *Not Significant to Significant*.

3.21 Noise and Vibrations,

3.21.2 Environmental Effects,

3.21.2.1.1 Noise from Mine Development and Operation,

Page 3-227,

Paragraph 2

SoundPlan 2.0 noise model was used to estimate noise levels surrounding the proposed mining activities. SoundPlan takes into account spreading losses, ground and atmospheric effects, shielding from barriers and buildings, and reflections from surfaces. The ISO 9613 standard *Acoustics -- Attenuation of Sound During Propagation Outdoors* was used in the assessment (ISO 1989). No credit was taken for absorptive ground cover or intervening foliage – factors that would otherwise act to reduce sound levels. Notably, the mine itself would be in a depressed topographical area and surrounded by natural berms which act as sound barriers. Areas that are likely to have a DNL above 65 dBA during operation under the Proposed Action are shown below. (See Figure 3-46.) *These contours display the sound levels of heavy equipment, crusher, and trucks associated with operations.* Areas with DNL above 65 dBA are within the proposed mine area. The area is remote and approximately 4 miles from the nearest town. Normal operation of the mine would not create noise that was incompatible with surrounding land uses.

What is not clear, in the italicized sentence above, is if the contour lines in Figure 3-46 "Estimated Noise from the Proposed Action", is cumulative to all mining equipment that is likely to be in operation at any one time, or do the contour lines represent one piece of mine equipment activity at one time?

Clarification in the Draft EIS needs to be provided this question.

3.21 Noise and Vibrations,

3.21.2 Environmental Effects,

3.21.2.1.1 Noise from Mine Development and Operation,

Noise from Blasting:

Page 3-228,

Paragraph 2,

Page 3-229,

Paragraph 1

Noise generated from the use of explosives is a common cause of complaint among people near surface mining operations. As mentioned above, land use compatibility due to steady-state noise is typically assessed by averaging noise levels over a protracted period. This approach can be misleading because it does not assess community noise effects due to relatively infrequent, yet loud, impulsive noise events. *For example, for a surface mining operation at which several hundred charges are detonated each year, peak pressure levels can exceed 140 dB in areas where annual DNL values indicate that noise is recommended for residential land use.* The peak noise levels provide the absolute maximum sound level for an individual acoustical event, not an average over several events or over a period of time like the DNL. *Although not a good descriptor of the overall noise environment like the DNL, peak levels relate well to the level of concern and possibility of complaints among people living nearby after an individual*

blast event. Level of concern guidelines that use peak noise levels exist for impulsive noise and the distances these effects would take place after a blasting event. (See Table 3-49.)

The first italicized sentence in the paragraph above makes no sense. Is the author stating that a level of 140 dB is recommend for residential land use areas?

The second italicized sentence is silent on the effects to wildlife in the Animas Lift.

The above paragraph does not state how many blasting events are expected to be conducted with a given timeframe. *Without an approximate frequency of blasting events, it is impossible for the public to quantify the effects of blasting.* This issue must be addressed in the Draft EIS.

During each event, the 130-dBP peak noise levels would extend 556 feet from the point of detonation. This area of high concern and complaint would remain entirely within the mine area, and no nearby NSAs would be exposed to these levels of noise. *The 115-dBP peak noise levels would extend 2,344 feet from the point of detonation.* The level of concern and complaints associated with individual acoustical events would be moderate within this area. Although this area of moderate concern and complaint may extend beyond the mine area, there are no residences within this distance. Depending on meteorological conditions, blasting activities may be heard by residences and others as much as several miles from the site. However, these events would best be characterized as "audible but distant" and would not be appreciably intrusive. *Due to the limited frequency of the loud acoustical events and the distance to the nearest nearby residents, these effects would be minor.*

We contend the analysis of noise as presented in this section of the Draft EIS is incomplete, in that it does not provide the public with a true analysis of the effects of noise.

Reference Table 3-47 Closest Noise-Sensitive Areas, where DNL is shown to be 42 (dBA)
Reference Figure 3-46 Estimated Noise from the Proposed Action
Reference Table. 3-49 Risk of Noise Concern and Complaints from Blasting

Each of the above references infers a somewhat different effect, from noise associated with mine operations. The cumulative effects from noise associated with mine operation is not described or depicted. In the interest of public understanding and comment to the Draft EIS a better analysis of the effects of noise and a better depiction of the effects must be included in the Draft EIS.

The recommendation is to analyze the effects of noise to include effects to wildlife. Depict in a graphic form the cumulative effect of noise from mine operation. The graphic should show existing sound levels (dBA) as shown in Tabel-47, against the proposed mine action sound level in a manner similar to Figure 3.46.

This will allow the public to fully understand the noise effects of mine operations, weighted against existing conditions.

3.21 Noise and Vibrations,

3.21.2 Environmental Effects,

3.21.2.1.2 Vibrations from Mine Development and Operation,

**Table 3-50, Critical Distance for Human Response and Structural Damage from Vibration,
Page 3-230**

In the above aforementioned statements we believe the effects to wildlife have been overlook in this analysis. The tables above do not identify wildlife as a response or condition that can be effected by

vibrations associated with mine activities. We contend that wildlife should be included in the analysis of vibration produced by mine activities and that until such analysis is completed the Draft EIS is incomplete and inadequate.

There is no discussion of impact to Rodgers Windmill, located on private lands of the Hillsboro Pitchfork Ranch L.L.C., located approximately 1,300 feet from the mine boundary. The vibration effects to this historic structure have not been studied and the effects to the well which supplies water to wildlife and livestock have not been studied. No consideration has been given to this effect, in the analysis.

We insist the analysis of vibration attributed to mine operations have not be fully analyzed. Before a Draft EIS is finalized an analysis as to the effects to wildlife and the Rodgers Windmill must be completed.

3.21 Noise and Vibrations,

3.21.3 Mitigation Measures,

Page 3-234,

Paragraph 1

Due to the remote location and the overall minor impacts, no mitigation would be required. Although the overall effects would be less than significant, the following BMPs are proposed to minimize the potential for blasting noise and vibration impacts:

- Coordinate with local authorities regarding the movement of oversized loads or heavy equipment;
- Ensure proper hearing protection would be worn at all times;
- Below-grade level rock crushing equipment and production facilities; and
- Notification to nearby townships and residents who may experience blast noise.

The mitigation measures are inadequate and incomplete, give that there is no comprehensive information provided to the effect of Noise and Vibration associated to mine activities. No reference or weight is given to wildlife impacts.

Best Management Practices (BMP's) are a poorly defined practice and no clear or concise definition exist. Mitigations to Noise and Vibration must be identified by and agreed to by NMCC prior to the issuance of a final EIS.

3.22 Socioeconomics,

3.22.1 Affected Environment,

Page 3-235,

Paragraph 1

The analysis of socioeconomic resources identifies aspects of the social and economic environment that are sensitive to changes and that may be affected by the proposal to conduct mining operations *for a period of approximately 11 to 16 years*. The Proposed Action would consist of construction and operation activities associated with a poly-metallic mine and processing facility at the Copper Flat site. The analysis specifically considers how the proposed and alternative actions might affect the individuals, communities, and the larger social and economic systems of Sierra County, the surrounding region; and the State of New Mexico.

We contend the negative socioeconomic effects of mine development are permanent in duration, given that depletion of surface and ground water in the Grayback Arroyo System, within the Animas Uplift are permanent.

3.22 Socioeconomics

3.22.1.3, Earnings,

3.22.1.3.2 Industry Compensation,

Page 3-241,

Paragraph 3

Sierra County's main economic drivers are *agriculture*, healthcare, and tourism. *The agriculture industry consists primarily of cattle ranching (NMWC 2013).* Government and government enterprises accounted for a total of \$49,705,000 (about 50 percent) of the annual compensation of employees in 2010. Sierra County, the City of Truth or Consequences, and the Truth or Consequences Public Schools are some of the largest employers in Sierra County. (See Table 3-62.)

The above paragraph states that agriculture, primary cattle ranching, is an important economic activity in Sierra County New Mexico. Table 3.62 page 3-242, identifies Farm (crops, livestock, and dairy) to be the 6th largest source of employee compensation in the county.

What is missing in this social economic analysis is any information as to the negative economic effects of the mine construction and operations. It has been clearly described in the Draft EIS that ground water impacts caused by the mine pit water cone of depression associated with the Deeping of the mine pit will be permanent in duration. *No analysis as to the cost of this negative effect, or any negative effect, is described in the Draft EIS.*

The Draft EIS must include an analysis of the negative social economic effects of mine construction and operations.

3.27 Short-Term Uses And Long-Term Productivity,

Page 3-304,

Paragraph 1 through 5

In describing the appropriate content of an EIS, NEPA Section 102(C)(iv) requires that an EIS consider "the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity". In its declaration of national environmental policy found within NEPA Section 101, Congress establishes the goal of creating and maintaining conditions for productive harmony between man and nature, charging the Federal government with responsibility for using all practicable means and measures to achieve this harmony.

The primary existing productivity of the Copper Flat mine area features vegetation growth suitable for grazing by livestock (cattle) and other ruminants, as well as other general wildlife habitat. Previous mining activity at the site in the 1980s with the reclamation and restoration standards required at that time may have made the site less productive than what was present prior to mining operations. The site is not used for timber growth or harvest, farming, or any aquatic productivity uses as the existing pit lake is not usable and there is little or no other usable water on the site.

The Copper Flat mine area would be mined for copper and other locatable minerals such as gold, silver, and molybdenum. Through proposed contemporaneous reclamation efforts to be performed during mining operations and final activities performed at closure of the mining phase, the project site would be

reclaimed and restored in accordance with a reclamation plan required and approved by the BLM and the MMD.

Once reclaimed, the site productivity would return to the same uses of the mine area that occur at present, with the exception that the expansion of the pit lake area leaves slightly less available productive area. These uses would include open range cattle grazing, low-density recreational uses such as hunting, and wildlife habitat. *Modern reclamation and restoration requirements, including increased soil cover requirements introduced by the recent adoption of the Copper Rule in New Mexico, would likely result in an overall productivity increase in affected land that could meet or exceed levels of productivity present at the site prior to mining activities performed in the 1980s.*

Therefore, development of this site for a mine would not eliminate the potential for long-term productivity of this land. *No significant impacts to long-term productivity are expected to occur from the proposed project.*

We take great exception to the premise of the above section.

The first italicized sentence above states, "*In describing the appropriate content of an EIS, NEPA Section 102(C)(iv) requires that an EIS consider "the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity"*". We contend the effects of mine construction will permanently harm the long-term productivity of lands surrounding the mine site. This permanent effect is a direct consequence of the mine pit water cone of depression caused by mine pit dewatering, and then the continuing flow of ground water into the pit/cone of depression, once mining operations have ended.

The second italicized sentence above states, "*The primary existing productivity of the Copper Flat mine area features vegetation growth suitable for grazing by livestock (cattle) and other ruminants, as well as other general wildlife habitat*". The area of influence, of the mines effects is described as Copper Flat mine area. What is the definition of the area effect by mine construction and operation in the Draft EIS. At times in the document the area effected is described as, at the mine site to include well fields, utility sites and right-of-ways. At times in the document the effect area is described as Copper Flat mine area or proposed project or in some other vague and or subjective manner.

The third italicized sentence above states, "*Modern reclamation and restoration requirements, including increased soil cover requirements introduced by the recent adoption of the Copper Rule in New Mexico, would likely result in an overall productivity increase in affected land that could meet or exceed levels of productivity present at the site prior to mining activities performed in the 1980s.*" We believe the affected land is much greater in area than the *site*.

The forth italicized sentence above states, "Therefore, development of this site for a mine would not eliminate the potential for long-term productivity of this land. *No significant impacts to long-term productivity are expected to occur from the proposed project*" We again contend there will be significant permanent negative impacts, from mine construction and operations. That these impact extend well beyond the mine site and will negatively effect both public lands and the private lands of the Hillsboro Pitchfork Ranch L.L.C.

Given the inaccurate way in which areas impacted are described in the Draft EIS and given that impact will be significant and permanent in nature, we insist the Draft EIS be withdrawn. Once complete and accurate studies of the effects of mine construction and operations are documented then the Draft EIS should be reissued for public comment.

3.28 Irreversible and Irretrievable Commitment of Resources,

Page 3-305,

Paragraph 5 and 7

Some water used for processing and smaller mining-related uses, although extensively recycled, is not renewable and represents an irreversible use of resources. Recovery in the bedrock near the mine pit would be limited. Recovery in the Santa Fe Group would eventually (over decades) be essentially complete.

The above statement is misleading in that it does not clear state that water recovery in the bedrock near the mine pit will not recover as water will continue to flow into the mine pit lake forever.

A small amount of terrestrial wildlife habitat would be lost long term due to the expansion of the pit area. Waterfowl *would use* the expanded pit lake area, but a small amount of terrestrial habitat at the rim of the current pit area would be excavated with the pit expansion.

The above statement is misleading in that it does not account for ground and surface water loss in perpetuity due to water continuing to flow in the mine pit lake after mine closure.

Page3-21 The existing water quality in the pit lake exceeded applicable surface water quality standards for aluminum, cadmium, copper, lead, manganese, selenium, and zinc in at least one of the baseline water samples collected during 2011 through 2012. The pit lake water quality exceeded surface water quality standards for cadmium, copper, manganese, and selenium during all baseline surface water sampling events. Based on this data, the existing pit lake does not meet the water quality standards for the designated uses of warm water aquatic life, livestock watering, or wildlife habitat.

Chapter 4. Cumulative Impacts,

Page 4-1,

Paragraph 3

When describing the affected environment of cumulative impacts, *natural boundaries should be used*. When determining the environmental consequences of cumulative impacts, additive, opposing, and synergistic effects should be addressed. Also considered should be the sustainability of resources, ecosystems, and human communities. *The analysis should look beyond the life of the Proposed Action.*

We believe the above paragraph identifies two signification flaws in the Draft EIS.

First natural boundaries are not used in several sections of the Draft EIS to describe the geography extent of negative impacts. In many cases the draft uses the area of the mining pit area and ancillary facilities to describe the affected area. Reference Chapter 3, Sections: 3.5 Surface Water Use, 3.6 Ground Water Resources, 3.10 Wildlife and Migratory Birds and 3.19 Range and Stock, and 3.21 Noise and Vibration. In these section and several others in the draft the studies conducted and conclusion reached are specific to mine sites. As a natural boundary example, the Grayback Arroyo System within the Animas Uplift is poorly studies and conclusion reached as to impact from mining operations are broad-brush or nonexistent.

Secondly the Draft EIS in many respects speaks only to negative environment impact through mine closure. In conflict to the second italicized sentence in the above paragraph.

Chapter 4. Cumulative Impacts, 4.3.1 Proposed Action, Surface Water Use

Page 4-8,

Paragraph 1

The Proposed Action and alternatives would reduce groundwater discharge to Caballo Reservoir and the Rio Grande, decreasing surface water quantities there. This impact is expected to have a long-term, large-extent, and probable cumulative effect on these surface water resources. *The cumulative magnitude of the effect can only be determined through a comprehensive mid-basin study of Caballo Reservoir and the Rio Grande.*

We content the above italicized sentences is an admission that the study of mine construction and operation effects is incomplete in its cumulative study of surface water. One smaller scale study that could be conducted would be study the effects on surface water and evapotranspiration within the Grayback Arroyo system of the Greenhorn Basin. The geology of the Grayback Arroyo system upstream of the mine site is significantly different than the areas studied in Las Animas and Percha Creeks.

Groundwater Use

Page 4-9,

Paragraph 1

Impacts to groundwater levels close to the mine pit would be permanent and thus cumulative to any future pumping that may occur in this area. There are currently no reasonably foreseeable future actions in this location identified in Section 4.2 that would require pumping of this nature. There is currently a lowered groundwater level that is a residual permanent effect for groundwater levels in the area of the existing pit resulting from previous mining activities at Copper Flat in 1982. The previous duration of mining operations was relatively short and the difference between current groundwater levels and historic levels is likely to be very small except in close proximity to the pit. The cumulative impact from the Copper Flat mine would incorporate the prior effect, and since the groundwater impact under all three alternatives evaluated in Chapter 3 is a significant impact, the cumulative impact would also be significant.

Reasonably-foreseeable future actions identified in Section 4.2 do not take into account the current and continued existence of the Hillsboro Pitchfork Ranch L.L.C.. Our family ranch currently has five wells, within the area, that will be permanent dewatering by mine activity. These wells supply seven livestock and wildlife water facilities.

The ranch has had initial conciliation with the BLM, to development additional wildlife and livestock watering facilities on public and private lands with the area of the Grayback Arroyo system of the Animas Uplift. This option would be precluded if the ground water in the Grayback Arroyo system of the Animas Uplift is permanent dewatered.

Wildlife and Migratory Birds,

Page 4-10,

Paragraph 1

The overall cumulative impact of proposed activities on wildlife includes short-term detrimental impacts and *long-term improvements to habitats. Surface disturbance associated with mineral development and forage use by livestock would result in cumulative effects over a larger area than is analyzed in this document.* The combined surface disturbance of past, present, and future development would be detrimental to wildlife species due to fragmentation and destruction of habitat.

Reviewing the Draft EIS we see no long term improvements to habitats, in other than correction of negative effects from prior attempts at copper production in the Copper Flat Area site. Please note the

mine site accounts for less than 1% of the land area environmentally effected by proposed mining operations.

The sentence, " *Surface disturbance associated with mineral development and forage use by livestock would result in cumulative effects over a larger area than is analyzed in this document.*", discounts the fact that the primary impact to Wildlife and Migratory Birds, is associated with mine construction and operation and that in particular surface and ground water depletion, in perpetuity, is not recognized or quantified, regarding Wildlife and Migratory Birds.

Vegetation and Non-native Invasive Species,

Page 4-10,

Paragraph 1

Adverse vegetation impacts associated with the Proposed Action and the action alternatives would be small compared to cumulative past, present, and foreseeable future effects. The cumulative impact on vegetation from past, present, and future actions would be adverse and moderate. *Implementing the Proposed Action would contribute minor adverse cumulative impacts on vegetation.*

We conclude the Proposed Action will have major, permanent effects to vegetation outside the mine site. No significance studies have been conducted regarding negative effects within the Grayback Arroyo System, within the Animas Uplift, to the west up gradient of the mine pit, regarding impact to vegetation. Again effects to riparian vegetation have been studied in Las Animas and Percha Creeks, but no studies have been conducted in an area that contains significantly different geology.

Range and Livestock,

Page 4-12,

Paragraph 1

Range conditions and available forage in the area surrounding the Copper Flat Mine and near Hillsboro, New Mexico have been and continue to be changed for mining, livestock grazing and ranching activities, road construction, and rural development. These activities involve disturbance of vegetation and potential for introduction of invasive species, which could impact availability and quality of forage for livestock. Rangeland conditions are assessed periodically against the New Mexico Standards and Guidelines and permitted use of BLM land for grazing is adjusted accordingly. These assessments and adjustments facilitate long-term maintenance of the range resources for multi-use management. *As a result, there would be a negligible cumulative effect on range and livestock assets.*

Regarding livestock, there will be a significant cumulative effect to public and private lands within the Animas Uplift, to the west of the mine pit. *Without water livestock cannot exist.* No ground water will exist within this area and surface water will be significantly reduced. Effects to forage are not analyzed or quantified within the Draft EIS, regarding surface water depletion within this area, but the assumed reduction in available surface water will negatively affect livestock forage.

Noise,

Page 4-12,

Paragraph 1

The Copper Flat project would introduce medium-term *minor* increases to the noise and vibration environments from the use of mining and mineral processing equipment, general heavy equipment use, drilling, and blasting. Due to the remote location of the site these increases would be less than significant. No other projects have been identified that, when combined with the Proposed Action, would have greater than significant effects. *As a result, the Copper Flat project would have a negligible cumulative effect on the overall noise environment.*

We contend that wildlife are an important component of the effected environment. Effects of noise associated with the mine development and operations are not fully described in the Draft EIS. In particular noise associated with mining activities are depicted, in the Draft EIS, to be isolated within the mine site location. Given that the Draft EIS is lacking in its analysis and description of noise associated with the mine development and operation the effects to wildlife are not accurate.

This concludes public comment to the "Copper Flat Copper Mine Draft Environmental Impact Statement", by the *Hillsboro Pitchfork Ranch L.L.C.*, owners *Kathy McKinney and Bob Cunningham*.