

EXECUTIVE SUMMARY

In June 2006, Round Mountain Gold Corporation (RMGC) submitted an amendment to its current Plan of Operations (POO) (NVN-072662) for the proposed Round Mountain Mine Expansion Project (Proposed Action) to the Bureau of Land Management (BLM) Tonopah Field Office of the Battle Mountain District, in compliance with Title 43 Code of Federal Regulations (CFR), subpart 3809 (43 CFR §3809), as amended, and State of Nevada regulations governing the reclamation of mined lands (Nevada Administrative Code [NAC] 519A.010-635). A revised POO Amendment for the Proposed Action was submitted in May 2008, and in April 2009.

The proposed project area is located east and southeast of the Town of Carvers, in the Big Smoky Valley, in northern Nye County, Nevada. The Proposed Action would include the expansion and development of facilities in the existing Round Mountain Area and construction of new facilities in the Gold Hill Area, located approximately 1.5 miles north of the existing Round Mountain Mine. The two operating areas would be connected by a Transportation/Utility Corridor.

Proposed activities in the Round Mountain Area would include the expansion of the existing Round Mountain Project Boundary; and expansion of the Round Mountain open pit, North Waste Rock Dump, mill facility, tailings impoundment, growth media and ore stockpiles, stormwater control and diversion structures, dewatering operations for the open pit, west and south dedicated leach pads, reusable pad, and process facilities. New facilities would include the development of the North Dedicated Leach Pad, lime silos, and surface installations and portal entry for an underground mine located at the bottom of the Round Mountain Pit. Exploration for additional gold ore reserves would be conducted within the Round Mountain Area. In the Gold Hill Area, new mining facilities would be developed including an open pit, two new waste rock dumps, new heap leach facility, Merrill-Crowe precipitation plant, retort and refinery, haul roads and secondary roads, production water wells, rapid infiltration basins, and ancillary facilities. Exploration for additional gold ore reserves also would be conducted within the Gold Hill Area. The proposed project would include the construction of a 1.1-mile-long Transportation/Utility Corridor between the Round Mountain and Gold Hill areas, which would include a haul road, electric transmission line, water pipeline, and communication lines.

The Proposed Action would require new surface disturbance of approximately 4,698 acres, including 4,581 acres of public land administered by the BLM and 117 acres of private land owned by RMGC. If approved, the anticipated pit mine life would be approximately 13 years, followed by ore processing, reclamation, site closure activities, and post-closure monitoring.

Geology and Minerals

Direct impacts of the Proposed Action on geologic and mineral resources would include the generation and permanent disposal of approximately 992 million tons (Mt) of waste rock and 998 Mt of processed ore in the Round Mountain Area, and up to 144 Mt of waste rock and 48 Mt of processed ore in the Gold Hill Area.

The East Smoky Valley Fault Zone, a set of range-front faults that pass through the western part of the proposed project area, has some potential for earthquake-induced ground motion in the event of an earthquake generated from fault movement. U. S. Geological Survey ground motion hazard maps indicate that there is a low probability that ground motion due to movement on these faults presents a hazard in the study area. There are no identified geologic conditions that would be exacerbated by proposed project activities and result in geologic hazards. Geotechnical monitoring of the pits would be conducted in order to

EXECUTIVE SUMMARY

optimize pit design and monitor slope stability for the protection of mine workers. Monitoring of geologic structures through mapping, groundwater monitoring, and slope stability analyses, would be conducted during active mining to assist in optimizing the final pit designs. Pit walls, waste rock dumps, and heap leach pad slopes would be constructed to conform to regulatory standards to minimize instability.

A geotechnical study addressed the stability of the proposed tailings impoundment facilities, waste rock dumps, and leach pads that would be developed under the Proposed Action. This study concluded that the expected peak ground acceleration due to an earthquake within 20 miles of the proposed project area would be 13 percent of gravity and would have a 10 percent chance of occurring during the operational life of the proposed project with a recurrent interval of 500 years. Movement on the Toiyabe Range Fault would be the most likely cause of an earthquake with this expected ground acceleration in the proposed project area. The basin analysis also assumed a 6.5 magnitude earthquake 12 miles from the site. Based on this analysis, leach pads were designed with a static safety factor of 1.76 and would be capable of withstanding a ground acceleration of 24 percent of gravity. The waste rock dumps would have a static safety factor of 1.51 to 1.56 and be able to withstand a ground acceleration between 30 and 40 percent of gravity. The proposed West Dedicated Leach Pad, with a height of 450 feet, would have a static safety factor of 1.5 to 1.8 and be able to withstand a ground acceleration in the range of 15 to 26 percent of gravity. The maximum foundation settling under the full load of the leach pad would be 5.3 feet near the center of the pad. Another study showed that the existing tailings impoundment facilities in the Round Mountain Area would have a maximum embankment settling of 16 inches under the expected maximum credible earthquake event. The studies of both concluded that there are no stability concerns for tailings impoundment facilities, waste rock dumps, or leach pads at Round Mountain or Gold Hill related to the maximum expected peak ground acceleration from an earthquake.

Existing geologic information and condemnation drilling results indicate the proposed project would not preclude access to other ore-bearing rock. The geothermal resource, located within the Round Mountain Area and under lease to RMGC, would not be affected by the Proposed Action. Other mineral resources, such as oil and gas, have a low potential for occurrence within or near the proposed project area and would not be affected by the Proposed Action.

Residual **impacts** would include the generation and permanent disposal of up to 1,136 Mt of waste rock and overburden and up to 1,046 Mt of processed ore.

Water Quality and Quantity (Surface and Ground) and Water Use

Round Mountain Area

The Round Mountain Pit would be deepened from the currently permitted bottom elevation of 5,065 feet to a final pit bottom elevation of 4,610 feet, requiring additional dewatering of the Round Mountain Area bedrock and alluvium in order to lower the bedrock water levels by 455 feet and alluvial water levels by 40 to 70 feet. This would result in an increase in the maximum dewatering rate for the Round Mountain Pit from the current range of 5,875 to 7,175 gallons per minute (gpm) (average of 6,200 gpm) to a dewatering range of 6,225 to 7,525 gpm.

The Round Mountain Area contains five principal hydrostratigraphic units: 1) Quaternary alluvium, 2) Tertiary Stebbins Hill lacustrine sediments, 3) Tertiary volcanics, 4) Paleozoic metasedimentary rocks, and 5) Cretaceous granite on the east wall of the pit. The Quaternary alluvium is currently dewatered by

wells near the west wall of the pit at a rate around 3,000 gpm; dewatering at a rate of 4,500 to 5,800 gpm would be required for the expanded pit to lower the water level in the alluvium by 40 to 70 feet to a target elevation of 5,460 feet. Dewatering of the Stebbins Hill unit would continue at a rate of about 25 gpm to maintain slope stability; this rate may decline with time. The Stebbins Hill unit acts as an aquitard between the Quaternary alluvium and the underlying volcanic bedrock. Dewatering of the Tertiary volcanic bedrock and the Paleozoic metasedimentary bedrock would be increased by 300 gpm to a target rate of 1,300 gpm. The volcanics and the metasedimentary rocks act as a single hydrologic unit during dewatering due to an interconnection caused by extensive fracturing in the Round Mountain Area. The volcanic and metasedimentary bedrock is dewatered through in-pit wells and from the exploration decline in the Round Mountain Pit. Dewatering of the granite would increase by about 50 gpm to around 400 gpm during the pit expansion to maintain slope stability in the east pit wall.

Water Quantity Impacts

Groundwater Impacts at End of Mining (2018). Water levels at the end of mining suggest that groundwater in the alluvial aquifer would flow from the basin alluvium to the pit at the end of mining, with the 5,700-foot elevation contour being located in the vicinity of State Road 376 west of the Round Mountain Area. Bedrock groundwater would flow into the pit area within a radius of about 5,000 feet from the center of the pit. Groundwater drawdown of 20 feet or more in the alluvial aquifer would be limited to the proposed project area at the end of mining. Drawdown around the pit in the bedrock would be approximately 300 feet on average with 500 or more feet of drawdown in the central part of the pit area.

Impacts to the valley alluvial aquifer, up to 2.5 miles west of the Round Mountain Pit, would range from 10 to 20 feet of drawdown at the end of mining. Wells and springs within the 10-foot groundwater drawdown isopleth may experience a decline in **groundwater** levels between 10 to 20 feet. To the east of the pit area in the bedrock of the Toquima Range, drawdown would be up to 10 feet within about 2 miles of the pit center. Most of this drawdown would be in the Tertiary granite. No springs or wells in the bedrock to the east of the Round Mountain Pit would be affected by drawdown of 10 feet or greater at the end of mining.

Maximum Groundwater Impacts. The **predicted** maximum extent of groundwater drawdown in the alluvial and bedrock aquifers within and to the east of the Round Mountain Area would occur approximately in Year 2048, about 30 years after the cessation of dewatering. The **predicted** maximum drawdown would be the result of dewatering at both the expanded Round Mountain Area and the proposed Gold Hill Area.

The 20-foot groundwater drawdown isopleth in the alluvial aquifer would extend slightly beyond the proposed project area to the west of the Round Mountain Area. The estimated extent of the 10-foot groundwater drawdown isopleth indicates the drawdown would extend across the Northern Big Smoky Valley to the Toiyabe Range and would encompass most of the southern half of the model domain, which would be about the southern 10 percent of Northern Big Smoky Valley, and a small part of the northern third of Tonopah Flat. Any wells or springs in the basin alluvial aquifer falling within the area encompassed by the 10-foot groundwater drawdown isopleth may experience 10 to 20 feet of drawdown by Year 2048.

For the bedrock aquifers within and to the east of the Round Mountain Area, the **predicted** maximum drawdown indicates that the 50-, 20-, and 10-foot groundwater drawdown isopleths would extend eastward beyond the Round Mountain Area. The 10-foot groundwater drawdown isopleth would extend about 1 mile east of the proposed project area into the Toquima Range. Most of the drawdown would occur in the Cretaceous granite. **Although Healy and Ink House springs occur approximately 0.5 mile outside of**

EXECUTIVE SUMMARY

the 10-foot groundwater drawdown isopleth, the model predicts there would be 5 to 10 feet of groundwater drawdown in the groundwater levels at the springs. Whether spring flows would be impacted would depend on hydrologic conditions at each site. Although the lower reaches of Jefferson Creek would fall within the **predicted** maximum 10-foot drawdown isopleth, the drawdown would be confined to the bedrock unit and would not affect flow because Jefferson Creek is fed by precipitation runoff. Drawdown in the Round Mountain Pit area would be approximately 500 feet.

Groundwater in the alluvial aquifer would flow from the central part of the basin toward the Round Mountain Pit. The groundwater elevation contours also suggest that bedrock groundwater within about a 5,000-foot radius of the center of the Round Mountain Pit would flow into the pit from the east, north, and south. Overall, groundwater flow patterns in the basin alluvial aquifer and the bedrock aquifers would be similar to flow patterns at the end of mining. Only the extent of drawdown would increase in both the basin alluvial aquifer and the bedrock aquifers east of the proposed project area.

Impacts to Water Rights. Drawdown west of the project boundary in the alluvial aquifer of Northern Big Smoky Valley would range from 10 to 20 feet at the time of maximum groundwater decline. Water rights that occur within the **predicted** maximum 10-foot groundwater drawdown isopleth west of the proposed project area may be affected. These water rights may experience some decline in water quantity. The **predicted** maximum extent of the 10-foot groundwater drawdown isopleth east of the proposed project area would include the private water rights held for Johnson springs 1 and 2. Healy and Ink House springs lie just outside the **predicted** maximum extent of the 10-foot groundwater drawdown isopleth and may be affected by 5 to 10 feet of groundwater drawdown. The water rights for these springs may be affected. No Public Water Reserves No. 107 ("PWR 107") occur within the **predicted** maximum extent of the 10-foot groundwater drawdown isopleth. Additionally, within the same area, no springs or water holes that could potentially meet PWR criteria occur.

Groundwater Impacts at Pit Recovery. As groundwater flows into the expanded Round Mountain Pit after cessation of mining, a pit lake would form and gradually increase in elevation and size until evaporation from the pit lake matches surface and groundwater inflow. The pit lake is expected to reach about 99 percent of its final size 200 years after cessation of mining. At this time, evaporation from the pit lake would act as a permanent groundwater "pump" removing about 764 gpm of groundwater for an indefinite period of time. Bedrock groundwater would contribute about 200 gpm, and alluvial basin groundwater would contribute the rest. This long-term loss of groundwater would create drawdown in both the basin alluvial aquifer and the bedrock aquifers.

The estimated 10-foot groundwater drawdown isopleth in the basin alluvial aquifer would extend west of the pit but should remain within the proposed project area. The 50-, 20-, and 10-foot groundwater drawdown isopleths in the bedrock aquifers would extend east of the proposed project area into the Toquima Range. The 20-foot isopleth would extend about 1 mile east of the proposed project area and the 10-foot isopleth would extend about 2 miles east of the proposed project area. No major springs in the Toquima Range would be affected. The permanent drawdown in the pit area would be 100 to 150 feet with a maximum of approximately 300 feet near the center of the pit.

Alluvial groundwater would flow into the pit at a rate of about 564 gpm under the base case modeling scenario. This water would come from the basin alluvial aquifer in the southern part of the Northern Big Smoky Valley. Bedrock groundwater would flow to the pit from an area within a radius of about 5,000 feet of the pit center. The estimated groundwater inflow rate for the base case modeling scenario is about

200 gpm. This loss of groundwater from both the basin alluvial aquifer and the bedrock aquifers to the east, south, and north of the expanded Round Mountain Pit would continue indefinitely.

Water Quality Impacts

Water quality impacts for the expanded Round Mountain Pit would be related to formation of a pit lake and potential seepage from the waste rock dumps, leach pads, and tailings impoundment facility after cessation of mining and reclamation of the mine site. Each of these potential sources of water quality impacts is addressed in this section.

Predicted Pit Lake Water Quality. The base case scenario is the expected pit filling scenario for the expanded Round Mountain Pit. Under the base case scenario, groundwater inflow would dominate the pit refilling and would decline from an initial value around 1,806 gpm to a final inflow rate of about 764 gpm at 200 years after mining. Flow from the Quaternary alluvium would dominate the groundwater inflow and would range from an initial value of approximately 1,650 gpm to a final value of approximately 190 gpm. Under the high groundwater inflow case, groundwater inflow would range from an initial value of 2,196 gpm to a final value of 656 gpm, with flow from the Quaternary alluvium ranging from an initial value of 2,100 gpm to a final value of 385 gpm. Groundwater from the alluvium would constitute 75 to 80 percent of the groundwater inflow and thus would dominate the chemistry of the pit lake.

The predicted water quality in the expanded Round Mountain Pit lake under the base case scenario would be dominated by sodium, calcium, and alkalinity (i.e., bicarbonate), making the water a sodium-calcium-bicarbonate water throughout the filling of the pit and in the final pit lake at 200 years. The pH would be approximately 8.0 standard units, and sulfate would be below 200 milligrams per liter (mg/L). The total dissolved solids (TDS) would not exceed 500 mg/L until year 200, when the value would reach 575 mg/L as a result of evapoconcentration. Fluoride would range from 7.6 to 9.6 mg/L and exceed Nevada drinking water, irrigation water, and stock water standards. Arsenic would range from 0.08 to 0.20 mg/L and would exceed Nevada drinking water and irrigation water standards. The TDS at 200 years would be slightly above Nevada drinking water standards. Alkalinity would reach 247 mg/L by year 200 and exceed Nevada water quality standards for wildlife propagation. All other constituents would not exceed Nevada water quality standards.

Overall, the water quality predicted for the expanded Round Mountain Pit lake would be within Nevada water quality standards for all constituents except TDS, sulfate, fluoride, arsenic, and alkalinity. ***Constituents that do not adsorb to ferrihydrite (iron oxyhydroxide) would not be removed from the pit lake water along with the precipitation of ferrihydrite, and would thus continue to increase in the pit lake water over time due to evapoconcentration.***

Waste Rock Dumps. The North Waste Rock Dump would be expanded by 700 acres to accommodate the expected additional waste rock. The expansion of this facility would follow the currently approved and permitted design for the North Waste Rock Dump. Following mine closure, the waste rock dump would be reclaimed in accordance with the revised Waste Rock Management Plan for the Round Mountain Area. Reclamation would include regrading of the surface of the waste rock dump and covering with growth media as needed. The waste rock would not be capped with an infiltration barrier.

Waste rock has existed on site at the Round Mountain Area for the past 15 to 30 years without any seepage of leachate water being recorded from the base of the waste rock dumps. A field study of the waste rock

EXECUTIVE SUMMARY

showed that no wetting front has been established in the waste rock due to infiltration of rainfall. The high evaporation rate (46.5 inches per year) coupled with the low precipitation rate (6.65 inches per year) at the Round Mountain Area limits the potential for infiltration of precipitation. In addition, the amount of dedicated waste rock (potentially acid-generating [PAG] waste rock) generated at the Round Mountain Area is very low and is expected to continue to be low during the mining of the expanded pit. In addition, the expanded North Waste Rock Dump would be reclaimed in accordance with the Waste Rock Management Plan. For these reasons, seepage of acidic leachate or leachate elevated in metals from the expanded North Waste Rock Dump is not expected.

Leach Pads. A North Dedicated Leach Pad would be constructed and would encompass approximately 538 acres. The West Dedicated Leach Pad would be expanded by approximately 38 acres and the Reusable Pad would be expanded by approximately 8 acres. Dedicated leach pads in the Round Mountain Area contain two liners including a high density polyethylene (HDPE) synthetic liner over a compacted liner consisting of low permeability material. The Reusable Pad has a three-layer asphalt liner system.

Following mine closure, the leach pads would be drained and reclaimed in accordance with the approved Reclamation Plan. ***Reclamation would include regrading and revegetation to effectively manage precipitation. Should infiltration of precipitation through the leach pad occur, the water would be captured on the existing leach pad liner system and properly managed.***

Tailings Impoundment Facilities. Up to three additional cells may be added to the existing tailings impoundment facility in the Round Mountain Area. This would include an additional 886 acres of tailings. The current tailings impoundment facility at Round Mountain is constructed in accordance with NAC 445A. The additional cells would be constructed under the existing approved design and permit. The tailings impoundment facility at Round Mountain is lined and would be drained following mine closure. The impoundment is designed as zero discharge and therefore, is not expected to have the potential for seepage after mine closure and reclamation. No impacts to water resources are anticipated.

Water Quantity Impacts

Gold Hill Area

Water quantity impacts at the proposed Gold Hill Area would consist of groundwater drawdown in the Quaternary alluvium and Tertiary bedrock volcanics due to pit dewatering, and long-term groundwater drawdown in the bedrock aquifers caused by evaporation from the post-mining pit lake. In addition, the proposed rapid infiltration basin (RIB) system would add water to the Quaternary alluvium during mining. ***Actual impacts to individual seeps, springs, or stream reaches would depend on the source of groundwater that sustains the perennial flows and the extent of mine-induced drawdown that occurs in the area. The interconnection (or lack of interconnection) between the surface water and the deeper groundwater source is controlled by the specific hydrogeologic conditions that occur at each site.***

Groundwater Impacts at the End of Mining. Drawdown in the pit area is expected to be approximately 300 feet with a drawdown in bedrock water levels of approximately 150 feet surrounding the pit perimeter. ***The model indicates there would be 10 feet of drawdown in the groundwater levels at the sites of Johnson springs 1 and 2. To the west, the 10-foot groundwater drawdown isopleth would not extend beyond***

the proposed project area in the Quaternary alluvium. ***Whether spring flows would be impacted would depend on hydrologic conditions at each site.***

Groundwater in the bedrock volcanics is expected to be at an elevation of approximately 5,675 feet in the pit center and 6,000 feet to the west of the pit. East of the pit in the volcanic bedrock of the Toquima Range, groundwater levels would be approximately 6,400 feet. Flow toward the pit would come from the bedrock over a radius of about 1,000 to 1,500 feet from the pit center.

Although there may be approximately 10 feet of potential drawdown in bedrock water levels near Johnson springs 1 and 2, a reduction in flow is not expected except possibly during the dry season, when flows are around 1 to 2 gpm from groundwater seepage, rather than from infiltrating precipitation.

Maximum Groundwater Impacts. Maximum groundwater impacts would occur around Year 2040. ***The predicted maximum groundwater drawdown at Johnson springs 1 and 2 would be 20 feet of drawdown, and the 10-foot groundwater drawdown isopleth would approach Healy and Ink House springs, suggesting the possibility for 5 to 10 feet of drawdown at these springs. Drawdown in the pit area would be approximately 150 feet. The 10-foot groundwater drawdown isopleth would not extend beyond the proposed project area to the west in the Quaternary alluvium.***

Water levels in the bedrock of the pit area would be approximately 5,900 feet and to the west of the pit water levels in the alluvium would be comparable. To the east of the pit, water levels in the volcanic bedrock would be approximately 6,010 feet. Groundwater in the bedrock volcanics would flow toward the pit within a radius of about 2,000 feet of the pit center.

The estimated 20 feet of bedrock groundwater drawdown at Johnson springs 1 and 2 may result in a reduction in flow, especially during the dry season. Although the source of water for these springs should not change, the potential reduction in groundwater gradient may lead to a reduction in flow during the period when the springs depend on groundwater seepage alone.

Groundwater Impacts at Pit Recovery. When the pit lake in the Gold Hill Pit has reached about 99 percent of its final volume, approximately 200 years after the cessation of mining, drawdown in the pit area would be approximately 150 feet compared to current water levels. The permanent drawdown in the area of Johnson springs 1 and 2 would be in the range of 10 to 20 feet, possibly resulting in a reduction in flow during the dry season. The 10-foot groundwater drawdown isopleth west of the pit would not extend beyond the proposed project area in the Quaternary alluvium.

Water levels in the pit area would be approximately 6,000 feet. West of the pit, water levels would be around 5,900 feet and east of the pit in the bedrock volcanics, the groundwater level would be approximately 6,020 feet. West of the pit in the bedrock volcanics, the groundwater elevation would be approximately 5,850 feet at pit recovery. ***The model predicts that the proposed Gold Hill Pit initially would be a terminal pit with groundwater flowing into the pit from all directions in the bedrock. When the pit lake approaches its final elevation, about 200 years after cessation of mining, the pit lake could become a flow-through pit lake with groundwater in the bedrock volcanics flowing into and through the pit from east to west with an approximate gradient of 0.07 feet/feet. The final pit lake elevation is expected to be below the bedrock/alluvial contact, thus limiting any potential flow through the pit to the volcanic bedrock along the west wall. The monitoring and revised groundwater modeling discussed in Section 2.5, RMGC's Environmental Protection Measures, would assist the BLM in***

EXECUTIVE SUMMARY

re-evaluating the expected nature of the post-mining pit lake. The monitoring network for the Gold Hill Pit would 1) evaluate the impact of drawdown in the bedrock and alluvial aquifer from dewatering of the Gold Hill Pit, 2) provide additional geologic structure information, and 3) serve to determine the potential of a post-mining flow-through pit lake after the pit lake water level reaches approximately steady state. Based on the geologic information and hydrologic modeling that is presented in Section 4.3 of the EIS, it is not expected that waters of the state would be degraded by the Gold Hill Pit Lake and BLM has determined that additional mitigation is not required. However, additional monitoring is warranted to refine available information and confirm that conclusion. BLM, in coordination with NDEP, would continually evaluate the monitoring data and analysis through the life of the project, including the post-mining stage, to further understand the groundwater surface water hydraulics and any potential impacts to waters of the State. Re-evaluation of the groundwater model would occur periodically throughout the life of the project as more data becomes available. Based on further monitoring and evaluation, additional mitigation measures and bonding requirements can be implemented at any time during the life of the project if conditions warrant. RMGC would remain financially responsible for any additional mitigation that might be required.

RIB System. Up to three RIBs are proposed to accommodate surplus water from Gold Hill Pit dewatering. The expected maximum discharge to the RIB system would be approximately 500 gpm. The average discharge would be approximately 250 gpm. RIB 1 would have an area of 6,250 square feet and an average hydraulic conductivity in the alluvium of 496 feet per day. RIB 2 would have an area of 32,000 square feet and an average hydraulic conductivity of 27 feet per day. RIB 3 would comprise 23,000 square feet and have an average hydraulic conductivity of 49 feet per day. The hydraulic conductivity values for each basin are geometric means of vertical infiltration studies using test basins in the areas proposed for the final RIB system. Any water that is discharged to the Gold Hill RIB system would eventually replenish a portion of the groundwater in the Quaternary alluvium removed by dewatering in the Round Mountain Area. During mining, discharge of water to the RIB system could be expected to generate a groundwater mound beneath the RIB system. Modeling conducted for the Round Mountain RIB system showed that with a discharge of up to 3,000 gpm and averaging about 320 gpm from 1996 to 2006, a groundwater mound extending about 1,000 feet to the west of the center of the RIB system would be generated by year 2015. Discharge to the proposed Gold Hill RIB system would be considerably less than that for the Round Mountain system, so that the expected groundwater mound should be considerably less in areal extent than the Round Mountain RIB system mound. The Gold Hill RIB system would be expected to add about 250 gpm of discharge water to the alluvial aquifer during mining operations. The discharge to the RIB system would be expected to cease around year 2018 and the groundwater mound developed beneath the RIB system would be expected to dissipate within 1 to 2 years.

Water Quality Impacts

Water quality impacts in the proposed Gold Hill Area would be associated with the pit lake that would form in the mine pit after cessation of mining, potential seepage from the proposed waste rock dumps, potential seepage from the proposed heap leach pad, and potential impacts to groundwater quality from discharge to the RIB system during pit dewatering.

Predicted Pit Lake Water Quality. The pH would be in the range of 8.0 to 8.2 standard units. The alkalinity would range from 158 to 236 mg/L, which would exceed the Nevada wildlife propagation maximum of 130 mg/L. Chloride levels would range from 61 to 359 mg/L and would continue to increase beyond year 200 due to evapoconcentration. Sulfate levels would range from 156 to 934 mg/L and would exceed Nevada

drinking water standards by year 200. Antimony levels would range from 0.03 to 0.17 mg/L and would exceed Nevada drinking water standards. Arsenic levels would range from 0.03 to 0.15 mg/L and would exceed Nevada drinking water and irrigation water standards. Boron levels would range from 0.53 to 3.21 mg/L and would exceed Nevada irrigation water standards. Fluoride levels would start around 0.95 mg/L and reach 5.75 mg/L by year 200, exceeding Nevada drinking water, irrigation water, and stock water standards. Manganese levels would reach 1.23 mg/L by year 200 and exceed Nevada drinking water and irrigation water standards. TDS would range from 472 to 2,159 mg/L at year 200 and exceed Nevada drinking water standards. The pit lake water would be alkaline sodium bicarbonate water and the alkalinity would increase after year 200 due to evapoconcentration. Fluoride, antimony, manganese, and boron are derived mainly from the bedrock groundwater that flows into the pit. The arsenic primarily originates from the pit wall flushing during pit filling and pit wall runoff.

Because volcanic bedrock groundwater chemistry dominates the final pit lake water quality of the Gold Hill Pit and also because there is very little variation in groundwater quality in the monitoring well GHB-03-04 that was used for the influent groundwater chemistry, the results of the other modeling scenarios are similar to those of the base case scenario. For the high TDS scenario, TDS can range up to 2,262 mg/L at year 200 and sulfate has a maximum of 1,126 mg/L. Other constituents have a similar range as the base case scenario. The low TDS scenario has a TDS at year 200 of 2,123 mg/L with sulfate having a maximum of 811 mg/L. The low groundwater inflow scenario has TDS at 1,512 in year 200 and sulfate at a maximum of 629 mg/L. Exceedences of Nevada water quality standards identified in the base case scenario predictions were also predicted in each of the sensitivity analysis scenarios.

Waste Rock. The two waste rock dumps in the proposed Gold Hill Area would be designed in a manner similar to the existing waste rock dumps in the Round Mountain Area. The designated waste rock (i.e., PAG waste rock) would be encapsulated within the waste rock dumps with a cover and base of alluvial material approximately 20-feet thick. The outer slopes of the waste rock dumps would have an average of 24 feet of non-designated cover over the designated waste rock. Approximately 70 Mt of designated waste rock would be encapsulated by 42 Mt of alluvial material or non-designated waste rock. Infiltration modeling has indicated that the 20-foot alluvial cover proposed for the Gold Hill waste rock dumps **would** be sufficient to prevent infiltration of precipitation under the most probable range of precipitation events. However, this infiltration model has not been **calibrated to field-measured values**. Therefore, a field infiltration test of the proposed alluvial cover for the Gold Hill waste rock dumps would be conducted to **obtain the field data needed for model calibration**. A field pilot test of infiltration into the proposed alluvial cover for the waste rock dumps would be conducted over a period of 5 years prior to the end of mining.

A study of the existing North and South Waste Rock dumps in the Round Mountain Area has shown that the average gravimetric moisture content is 5 to 7 percent and that no wetting front is present in either waste rock dump. The historic data on the Round Mountain waste rock dumps cover a 30-year period and have no recorded evidence of seepage from the waste rock dumps. The reclaimed waste rock dumps would be covered with growth media where needed.

Leach Pad. The proposed leach pad in the Gold Hill Area would be constructed in a manner similar to the leach pads currently in use and also proposed for the expanded Round Mountain Area. The double liner consisting of synthetic HDPE and a compacted base of low permeability material would significantly reduce the potential for seepage. Closure and reclamation activities would be completed, which would further reduce the chance for seepage from the leach pad.

EXECUTIVE SUMMARY

RIB System. The proposed Gold Hill RIB system would consist of up to 3 rapid infiltration basins that would receive an average of about 250 gpm of discharge from the dewatering of the Gold Hill Pit. The maximum expected discharge to the basins would be about 500 gpm. The discharge water quality would be similar to that currently found in the volcanic bedrock of the Gold Hill Area. About 70 percent of the discharge water is expected to come from the Tertiary Sinter unit, with the other 30 percent coming from the remainder of the volcanic bedrock.

Except for antimony, boron, lithium, molybdenum, sodium, sulfate, chloride, and TDS, the water quality of the Tertiary Sinter unit (70 percent of the discharge water) and the remaining Tertiary volcanic bedrock is similar to that of the alluvial groundwater west of the Gold Hill Pit area and in the area of the proposed Gold Hill RIB system. Water discharged to the Gold Hill RIB system may be slightly elevated in the constituents, but this elevation in concentration is slight when compared to the range in mean water quality for the alluvial aquifer. Thus, no impact to alluvial water quality is expected from infiltration of discharge water in the Gold Hill RIB system.

Residual impacts would result from the long-term drawdown in groundwater levels caused by evaporation from the pit lakes in the proposed expanded Round Mountain Pit and the proposed Gold Hill Pit, along with the water quality in the pit lakes that would remain indefinitely.

Cultural Resources

Based on the results of the Class III inventories conducted in the study area, the BLM has determined that seven National Register of Historic Places (NRHP)-eligible sites would be directly affected by the Proposed Action. The seven NRHP-eligible sites include four prehistoric lithic scatters, one historic mill complex, the Toquima Shaft, and Gold Hill Mine and Mill.

Between May 11 and 27, 2004, Western Cultural Resources Management, Inc. conducted treatment of the Gold Hill Mine and Mill and Toquima Shaft. Treatment was conducted at these sites in order to mitigate any adverse effects to these resources as a result of the Gold Hill *Exploration* Project (**BLM NVN-75204**) and to preserve their historical values. Although these mitigation measures previously were conducted at the Gold Hill Mine and Mill and Toquima Shaft, both sites need to be re-evaluated to determine if the previous mitigation is adequate relative to the Proposed Action.

A treatment plan to mitigate effects to all of the NRHP-eligible sites would be developed by the BLM in consultation with the State Historic Preservation Officer (SHPO). The treatment plan would satisfy Section 106 requirements regarding adverse effects to the NRHP-eligible sites. ***After consultation and implementation of the treatment plan, adverse effects under the NHPA and direct and indirect impacts under the NEPA would be mitigated.***

If unanticipated cultural resources are discovered on BLM-administered land during construction of the mine facilities, construction would be halted in the area of the discovery, and the BLM Authorized Officer would be contacted to evaluate the find. If the site is evaluated as eligible for the NRHP, effects would be mitigated through a data recovery program or appropriate mitigation measures developed by the BLM in consultation with the Nevada SHPO.

Native American Traditional Values

No direct effects to cultural resources are anticipated as a result of the Proposed Action. Indirect effects to areas of concern to the tribes could occur during construction and operation activities. These types of effects include illegal collecting of artifacts and inadvertent damage to areas of tribal concern due to increased numbers of people in the proposed project area. Native American coordination regarding potential effects to these areas and the development of appropriate mitigation measures is ongoing between the BLM Tonopah Field Office and **Western Shoshone Descendants of Big Smoky Valley**, Timbisha, Duckwater, and Yomba tribal representatives, and interested tribal individuals. No surface disturbance would occur within or immediately adjacent to the boundary of an area of **known** tribal concern. **Ongoing** consultation required by law **would result in the development and** implementation of mitigation measures **and/or operating procedures** to address effects to **any previously unidentified** resource **of concern**.

The potential for the inadvertent discovery of human remains during construction activities exists within proposed disturbance areas and could result in adverse effects. If construction or other project personnel discover what they believe to be human remains, funerary objects, or items of cultural patrimony on Federal land, construction would cease within the vicinity of the discovery and the BLM Authorized Officer would be notified of the find. Any discovered Native American human remains, funerary objects, or items of cultural patrimony found on Federal land would be handled in accordance with NAGPRA (Section (3)(d)(1)). Construction would not resume in the area of the discovery until the BLM Authorized Officer has issued a notice to proceed.

Hazardous Materials and Solid Waste

The proposed project would require the transport, handling, storage, use, and disposal of materials classified as hazardous under various regulatory frameworks. All hazardous materials would be shipped to and from the proposed project area in accordance with applicable U. S. Department of Transportation (USDOT) hazardous materials regulations. All shipping containers and vehicles would be USDOT-approved for the specific materials.

There would be a low probability of an accident involving the release of hazardous materials during the peak operational period of the proposed project. The potential for releases of sodium hydroxide and sodium cyanide would be 0.02 and 0.07 releases per accident during the life of the project, respectively. The number of fuel releases that potentially would occur over the life of the project is project to be less than 0.07 releases per accident.

RMGC's Spill Response Plan (SRP) describes the required level of containment and safety measures associated with storage, handling, and spill clean-up of oil (includes but is not limited to petroleum, fuels, sludge, used oil, and mineral oil). Operations conducted in accordance with this plan would ensure that impacts from spills would be minimized and the spilled materials contained and removed.

Hazardous substances would be handled in accordance with applicable Mine Safety and Health Administration or Occupational Safety and Health Administration regulations (Titles 30 and 29 of the CFR). The hazardous materials to be used for the proposed project would be handled as recommended on the manufacturer's Material Safety Data Sheets. Based on the facility's design features and the operational practices in place, the probability of a major release occurring in the proposed project area during the life of the proposed project is considered to be low.

EXECUTIVE SUMMARY

The procedures for storage, containment, transportation, and handling of hazardous waste and solid waste would be in accordance with applicable rules governing the generation, accumulation, transportation, and disposal of such materials.

Non-hazardous solid waste would be disposed in the proposed or existing waived Class III landfills. Petroleum-contaminated soils would be managed at existing bioremediation facilities or in accordance with a Nevada Division of Environmental Protection (NDEP)-approved petroleum contaminated soil plan.

Operation in accordance with the facility's SRP, and prompt cleanup of potential spills and releases, would minimize the potential of residual **impacts** due to an accidental spill or release of hazardous materials. Reagents such as sodium cyanide can be acutely toxic, but do not persist in the environment for long periods of time. Modern regulations that govern the transportation, storage, use, and disposal of hazardous materials have greatly reduced the potential for residual effects due to hazardous materials.

Proper disposal of non-hazardous solid waste in the waived Class III landfills according to standards would minimize residual **impacts** with regard to such materials.

Air Quality

Air quality in the study area would be affected by both construction and operation of mining facilities. Construction activities associated with mine development would cause an increase in fugitive and gaseous emissions in the local area. Dust generated from these open sources is termed "fugitive" because it is not discharged to the atmosphere in a confined flow stream (e.g., stack, chimney, or vent). Increases in local fugitive dust levels would result in temporary localized air quality impacts.

In addition to fugitive dust, the proposed expansion would cause fugitive hydrogen cyanide (HCN) emissions from new leach facilities, including leach pads, process ponds, tailings disposal, reagent storage, and a carbon adsorption facility. HCN emissions from these new activities and all existing activities have been quantified and are below 10 tons per year (tpy).

No individual hazardous air pollutant (HAP) (including mercury) would be emitted in a quantity greater than the major source limit of 10 tpy. Also, the combined HAP emissions would be less than the major source limit of 25 tpy. Therefore, the proposed project would not constitute a major HAP source.

In general, all surface-disturbing activities in the proposed project area would be conducted using best practical methods to prevent particulate matter from becoming airborne. Best practical methods include, but are not limited to, paving, chemical stabilization, watering, phased construction, and re-vegetation. **Based on PM_{2.5} modeling results, total maximum impact levels for pollutants would not exceed air quality standards.**

Control of mercury air emissions would be provided by the installation of controls that would be **approved by** NDEP as part of the permitting process pursuant to the Nevada Mercury Control Program (NMCP). Controls installed would meet the Nevada Mercury Control Program (NVMACT) standard.

Greenhouse gases (GHG) emissions associated with the proposed project primarily would be associated with the consumption of energy for mining and ore processing over the 13-year mine life. During peak

production, the proposed project would emit approximately 275,000 tpy of GHGs, or approximately 0.0034 percent of the national annual emissions.

RMGC would be required to comply with all applicable controls on capital diesel particulate matter. Where required, pollution control devices installed by equipment manufacturers would control combustion emissions. Thermal processing units with the potential to emit mercury at levels above de minimis levels would be permitted by NDEP. Emissions from these units would be subject to the NVMACT evaluation process as required by the NMCP. Pollution control equipment would be installed, operated and maintained in good working order to minimize emissions.

Mining activities would control fugitive dust in accordance with the Fugitive Dust Plan submitted on April 10, 2003. RMGC proposes to revise its Class II Operating Permit (AP1041-0444.01) to expand existing operations in the Round Mountain Area and to develop mining and leaching operations in the Gold Hill Area.

Paleontological Resources

No impacts to paleontological resources would occur as a result of ground-disturbing activities associated with the Proposed Action.

Social and Economic Values

Simultaneous Development Scenario

Workforce. A construction work force of approximately 300 contract workers would be employed: 200 at Round Mountain for relocation of crushers and construction of the mill, leach pads, tailings impoundment facilities, and infrastructure; and 100 at Gold Hill for construction of processing facilities and infrastructure. An additional 110 direct employees would be hired for development and implementation of underground operations. Existing employees would continue working at the Round Mountain operations through the construction phase, which would be completed by the end of 2011 or earlier. At completion of construction, the 300 contract construction workers would be replaced by approximately 100 permanent operations employees for the Gold Hill Operations (depending on skill sets of the workers, some of the “construction” workers may transition to operations). The existing total employment level of approximately 730 workers would grow to a maximum of 1,140 during construction, would range between 760 and 940 through completion of surface mining in 2016, when it would begin a gradual decline to approximately 340 for continued processing of ore and reclamation activities through 2017. Total employment would decline to approximately 40 to 80 workers from 2018 through 2021 as closure and final reclamation activities are completed. It is expected that the proposed project would terminate at the end of 2021.

Population. In-migrating construction workers and their families would include approximately 280 persons. This increase represents a 10 percent increase over the 2007 population estimated at approximately 2,738 for the Round Mountain-Carvers-Northern Big Smoky Valley communities in the study area most likely to be affected by project-related population. If Tonopah’s population is added to the base, the construction-related population would represent a 5 percent increase over the 2007 population.

Adding in the population increase attributable to underground mining operations, which would occur concurrently, produces a total in-migrating population during the construction period of approximately 423 persons.

EXECUTIVE SUMMARY

Following completion of construction activities, the project-related population effect would decrease from 423 to 274, corresponding to a drop in new employment to 210 workers, all of which would be mine employees rather than contractors. Total employment would drop from 1,140 to 940 workers.

Income and Employment. The direct work force increase during the construction period would be approximately 300 contract construction workers, plus 110 underground operations employees for a total of 410 workers. Indirect employment generated by the activity is projected at 141 additional jobs, raising the temporary impact to 551. Local labor is expected to meet 30 percent of the direct project construction jobs, 60 percent of the direct underground jobs, and 70 percent of the indirect jobs, resulting in a demand for 296 workers from outside the local area.

The direct employment effect during the construction period would represent a 3.3 percent increase over total employment in Nye County (4th quarter 2007), and 2.1 percent of the county's total labor force. The total employment effect would be 4.4 percent of existing total employment and 2.8 percent of the county labor force.

Direct payroll to new workers during the construction period, not including the value of benefits, is projected to be approximately \$27 million on an annual basis. A substantial portion of this amount would be spent locally for items such as food, clothing, fuel, and rent, which would stimulate the local economy.

After completion of construction, direct employment (over and above levels for existing operations) would be approximately 210 workers, raising total operations employment to approximately 940 workers. Indirect employment generated by operations activity is projected at 155 additional jobs, raising the total project operations-related employment to 365 workers. Approximately 60 percent of new surface and underground related workers are expected to come from the local labor force; 70 percent of the indirect jobs also are projected to be filled by local workers. The resulting demand for non-local workers is projected at approximately 131.

The total new employment of 365 operations-related employees would represent a 2.9 percent increase over total employment in Nye County, and 1.9 percent of the county labor force. Hypothetically, if the necessary skills were available in the unemployed portion of the county work force, the unemployment rate could be reduced from the July 2008 rate of 9.3 percent to 7.4 percent.

The estimated annual payroll for the proposed operation, not including benefits, would be approximately \$14 million. Each \$1.00 in local earnings would indirectly generate \$0.37 in earnings to other workers in the local economy. Consequently, the annual indirect impact on earnings would be approximately \$5.2 million, yielding a combined impact of \$19.2 million. This would be an increase in income earnings over current levels and would constitute an economic benefit accruing from the proposed project to the local economy.

Public Finance. During the construction phase, the principal revenue change for Nye County would result from an increase in sales and use tax revenues. It is estimated that capital expenditures for the proposed project would be approximately \$168.2 million and there would be approximately \$48.0 million worth of additional equipment purchased. Under this scenario, essentially all of these expenditures would occur in the approximate 1-year construction period. This would generate nearly \$14.6 million in sales and use tax revenue for affected state funds and for Nye County.

Under this scenario, RMGC estimates the proposed Round Mountain Expansion Project would make local purchases of taxable materials ranging from an average of approximately \$216 million per year in peak years (2012 to 2017) to an average of approximately \$61 million per year in waning years of the project. At the Nye County sales tax rates of 6.75 percent, the proposed project would pay approximately \$14.6 million per year in peak year sales and use taxes and \$4.1 million per year in sales and use taxes in declining years.

RMGC would continue to pay net proceeds taxes on mine production and property taxes on the assessed value of the mining property. Both would be expected to increase under the proposed project because production would increase and the anticipated \$216 million in capital expenditures would be expected to increase the assessed value of the property. Assuming the entire amount of capital expenditures would accrue to assessed valuation, it would increase Nye County's total assessed valuation (exclusive of net proceeds of mines) by approximately 18 percent. The effect on county revenues would depend on the tax rates applied during the life of the mine.

The proposed project would increase the school age population in the study area by an estimated 48 students during the construction period and 55 students during project operations under this scenario. Assuming the new population would locate in approximately the same locations proportionally as current employees, this would increase enrollment in Round Mountain schools by 10.8 percent during construction and 12.3 percent during operations. Tonopah schools would see increases of 0.9 percent during construction and 1.0 percent during operations. Subsequent construction in the Gold Hill Area would increase the number of project-related students by approximately 6 individuals, which would increase Round Mountain school enrollments by approximately 1.3 percent.

Housing. Demand for housing is estimated at 287 units during the construction period, 209 of which would be for contract construction workers – presumably short term, mostly transient housing – and 78 of which would be for underground mine workers and new indirect worker households – presumably more permanent. Although data are not available to accurately determine the current availability of housing in the study area, it would be expected that this level of demand would stretch the capacity of the local housing market during the approximately 12- to 24-month-long construction period. There would undoubtedly be some doubling up in housing units, but construction workers, in particular, may be forced to locate in Tonopah or other outlying communities and endure long daily commutes. It is anticipated that there are sufficient motel rooms in Tonopah to accommodate the increased demand for short-term construction worker housing. With excess demand for housing, there may also be problems with unauthorized long-term camping on public lands in the vicinity, although there are some available recreational vehicle spaces in Carvers and Hadley.

Upon completion of construction, the demand for short-term housing would largely disappear, but the need for more permanent housing would increase to an estimated 121 units. This level of demand would likely exceed the number of units available in the Round Mountain-Carvers-Northern Big Smoky Valley area and would continue to strain the local housing market.

Sequential Development Scenario

Workforce. Under this sequential development scenario, a construction work force of approximately 200 would be contracted for approximately 12 to 24 months, beginning in 2010, to relocate the crushers and construct leach pads, mill, tailings impoundment facilities, and associated infrastructure at Round Mountain.

EXECUTIVE SUMMARY

At the same time, or perhaps slightly sooner, approximately 110 employees would be hired for underground mining operations. Subsequently, in about 2014, approximately 100 construction workers would be contracted to construct Gold Hill processing facilities and infrastructure. No additional surface mine operations employees would be hired under the sequential development scenario. Since Gold Hill would not begin operations until Round Mountain operations were scaling down, operations workers would be shifted from Round Mountain to the Gold Hill operation. Under this scenario, the maximum employment would be 1,040 during the construction period at Round Mountain, followed by 6 years ranging from 800 to 940 during operations at Round Mountain. Construction at Gold Hill would temporarily raise the total to 940, but it would decrease to 800 the following year and would gradually decline to 140 in 2019 when mining would be completed at Gold Hill. Total employment would range from 40 to 90 workers for closure and final reclamation activities from 2020 through 2023.

Population. Under this scenario, approximately 200 contract construction workers would be needed, which would bring a total of approximately 186 new people to the area. In addition, 110 underground mine employees would be added, bringing 144 people for a total population increase of 330 during the year of construction. This would represent a 13 percent increase over the Round Mountain-Carvers-Northern Big Smoky Valley 2007 population, or a 6 percent increase over the combined local and Tonopah population.

At the end of construction in the Round Mountain Area, the 186 people associated with the construction workers would be expected to depart, leaving a population increment of 144 over the 2007 population level. This would represent increases of 6 percent over the local population, or 3 percent over the combined local and Tonopah population.

When surface mining in the Round Mountain Area nears completion in approximately 2014, a construction crew of 100 workers would be contracted for approximately 12 months to initiate the Gold Hill portion of the proposed project. This activity would bring a temporary population increase of 93 people in addition to the 144 already in the area associated with the underground operations for a total project related increment of 237 people. Assuming the earlier population increase would be assimilated by the time of the Gold Hill construction activity, 93 people would represent a 3 percent increase over the local population level (2007 plus the Round Mountain operations-related population), or 2 percent over the combined local and Tonopah population.

At the end of construction in the Gold Hill Area, the 100 construction workers, with an associated population of 93, would be expected to depart, but they would be replaced by 100 operations workers. The population associated with 100 operations workers is estimated at 131 people; however, these workers would be existing employees in the Round Mountain Area, which would be ramping down production at approximately the same time. Consequently, although the 131 people would be associated with the proposed project, the total population in the study area would be only slightly above the 2007 level and would begin to decline in following years.

Income and Employment. The first component of the Sequential Development Scenario would be expansion of the Round Mountain Mine. The direct work force increase during construction in the Round Mountain Area under the Sequential Development Scenario would be approximately 200 contract construction workers, plus 110 underground operations employees for a total of 310 workers. Indirect employment generated by the activity is projected at 121 additional jobs, raising the temporary increase to 431 workers. Local labor is expected to meet 30 percent of the direct project construction jobs, 60 percent of the direct

underground jobs, and 70 percent of the indirect jobs, leaving a demand for 220 workers from outside the local area.

The direct employment effect during the construction period would represent a 2.5 percent increase over total employment in Nye County (4th quarter 2007), and 1.6 percent of the county's total labor force. The total employment effect would be 3.4 percent of existing total employment and 2.2 percent of the county labor force.

Direct payroll to new workers during the construction period, not including the value of benefits, is projected to be approximately \$21 million on an annual basis. A substantial portion of this would be spent locally for items such as food, clothing, fuel, and rent, stimulating the local economy.

After completion of construction, direct employment (over and above levels for existing operations) would include the underground work force of approximately 110 workers, raising total operations employment to approximately 840 workers. Indirect employment generated by operations activity is projected at 81 additional jobs, raising the total new operations-related employment from the Sequential Development Scenario to 191 workers. As previously noted, approximately 60 percent of new underground workers and 70 percent of the indirect jobs are expected to come from the local labor force. The resulting demand for non-local workers is projected to be approximately 68. The total 191 operations-related new employment would represent a 1.5 percent increase of total employment and 1.0 percent of the labor force in Nye County.

The estimated annual payroll for the proposed operation in the Round Mountain Area, not including benefits, would be approximately \$7.3 million. Each \$1.00 in local earnings would indirectly generate \$0.37 in earnings to other workers in the local economy. Consequently, the annual indirect impact on earnings would be approximately \$2.7 million, yielding a combined impact of \$10 million. This would be an increase in income earnings over current levels and would constitute an economic benefit accruing from the proposed project to the local economy.

The second part of the Sequential Development Scenario would be the development of the Gold Hill Area, which would not occur until surface mining at the Round Mountain Pit was nearing completion. The direct work force increase during construction in the Gold Hill Area would be approximately 100 contract construction workers. Indirect employment generated by the activity is projected at 20 additional jobs, raising the temporary impact to 120 jobs. Local labor is expected to meet 30 percent of the direct project construction jobs and 70 percent of the indirect jobs, resulting in a residual demand for 76 workers from outside the local area.

The direct employment effect during the construction period would represent a 0.8 percent increase over total employment in Nye County (4th quarter 2007), and 0.5 percent of the county's total labor force. The total employment effect would be 1.0 percent of existing total employment and 0.6 percent of the county labor force.

Direct payroll to new workers during the construction period, including the value of benefits, is projected to be approximately \$6.6 million on an annual basis. A substantial portion of this would be spent locally for items such as food, clothing, fuel, and rent, stimulating the local economy.

EXECUTIVE SUMMARY

After completion of construction, the total project work force would revert to approximately 800 employees who had been working at the Round Mountain Mine. Up to 100 of these workers would be transferred to the Gold Hill Area to conduct surface mining and processing activities. Project-related payroll and indirect earnings would revert to the levels previously described for the Round Mountain portion of the Sequential Development Scenario.

Public Finance. Under this scenario, capital expenditures of \$134.8 million and equipment purchases of \$44.9 million would take place during the construction year at Round Mountain, generating approximately \$12.1 million in sales and use tax revenue at that time. Approximately 4 years later, during construction at Gold Hill, there would be additional capital expenditures of \$33.5 million and equipment purchases of \$3.1 million, generating sales and use tax revenues of approximately \$2.5 million.

RMGC estimates total purchases of taxable materials would be about the same under the Sequential Development Scenario as under the Simultaneous Development Scenario, but the amounts would vary somewhat during continuation and expansion of the Round Mountain Pit and would be lower during operation of the Gold Hill Pit. It is estimated that the annual sales tax generated would be approximately \$13.4 million per year from 2012 through 2015, would rise to approximately \$14.9 million per year for 2016 and 2017, would then decline to approximately \$4.3 million per year through 2019 and, finally, would decline approximately \$2.9 million per year through the end of the project.

RMGC would also continue to pay net proceeds taxes on mine production and property taxes on the assessed value of the mining property. Both would be expected to increase under the proposed project because production would increase and the anticipated \$216 million in capital expenditures would be expected to increase the assessed value of the property. Assuming the entire amount of capital expenditures would accrue to assessed valuation, it would increase Nye County's total assessed valuation (exclusive of net proceeds of mines) by approximately 18 percent. The effect on county revenues would depend on the tax rates applied during the life of the mine.

There would be approximately 42 new students during the construction phase in the Round Mountain Area, an estimated 35 of whom would attend Round Mountain schools, increasing enrollment at Round Mountain schools by 9.5 percent. Project operations under this scenario would generate 28 new school-aged youth, increasing Round Mountain school enrollments by 6.3 percent. Project-related enrollment increases in Tonopah schools would be less than 1 percent under all time periods during this scenario.

Housing. Demand for housing during the construction period is estimated at 213 units, of which 139 would be for contract construction workers and 74 would be for underground mine workers and new indirect worker households. It would be expected that this demand, though lower than for the Simultaneous Development Scenario, would nevertheless strain the capacity of the local housing market during the construction period. Similar issues with long commutes and unauthorized camping would be expected.

Upon completion of construction, the demand for short-term housing would disappear, and the need for permanent housing would decline to an estimated 63 units. The majority, if not all, of this demand would likely be accommodated by available units and vacant lots in the Round Mountain-Carvers-Northern Big Smoky Valley area.

During the construction phase in the Gold Hill Area, there would be a need for approximately 74 mostly short-term housing units. This need would likely strain the local housing market, although not as severely as the Simultaneous Development Scenario.

Recreation

The proposed project area for the Round Mountain and Gold Hill areas and the Transportation/Utility Corridor, would encompass a total of approximately 15,379 acres, of which approximately 13,744 acres (89 percent) are BLM-administered public land, 516 acres (3 percent) are Toiyabe National Forest lands, and 1,119 acres (7 percent) are RMGC-owned private lands. The total area would encompass the existing project boundary area of 7,263 acres plus an additional 8,116 acres, including 8,057 acres of BLM-administered public lands. Total new proposed surface disturbance would include approximately 4,698 acres, of which approximately 4,581 acres (98 percent) would occur on public land. The new surface disturbance would be in addition to the 5,928 acres of previously approved disturbance, which would be an increase of approximately 80 percent.

The Proposed Action would deter access to Jefferson and Shoshone Canyons to some degree due to construction and use of the Transportation/Utility Corridor between the Round Mountain and Gold Hill areas. However, public road access would be maintained on County Road (CR) 875 throughout the project life, since the road provides the only access to Round Mountain, which is still occupied by several families. CR 875 also provides access from Big Smoky Valley to the Alta Toquima Wilderness, which would remain available via very rough two-track "roads". However, other access to designated trails in the wilderness is available from several miles north of the proposed project area via Forest Road 008 or from Monitor Valley to the east.

A modest increase in regional population may occur as a result of the Proposed Action. The new residents would increase the demand for recreation resources and opportunities in the region, but the increase would be very small in the context of the existing population base. Ample public land is available in the region to accommodate dispersed recreation needs of the increased population. Minor effects to parks and other developed recreation facilities may occur in the communities where the increase in population would reside, primarily Round Mountain, Hadley, Carvers, and, to a small extent, Tonopah.

Effects on recreation resources that would occur as a result of the Proposed Action would be minor since there is an ample supply of alternative land for dispersed recreation activities in the vicinity of the proposed project, and no unique recreation resources would be impacted.

Residual impacts would include the permanent loss of approximately 351 acres of multiple use lands available for recreation associated with the expansion of the Round Mountain Pit and development of the Gold Hill Pit.

Wilderness

Direct effects to the Arc Dome Wilderness or Alta Toquima Wilderness would not occur from the proposed project. Indirect noise effects on the Alta Toquima Wilderness would occur that could degrade the sense of solitude for wilderness users. This effect would be most pronounced in the western reaches of the wilderness, which are infrequently used by the public because of difficult access. During periods of low background noise, the effect may extend to the Mount Jefferson Trail at lesser intensity; it would not affect

EXECUTIVE SUMMARY

the eastern slope of Mount Jefferson or the eastern half of the wilderness because the mountain ridge would be a barrier to sound transmission. During windy periods, when background noise is higher, noise from the proposed project would be effectively masked by the background noise.

Haul truck and mine traffic on the Transportation/Utility Corridor may discourage access to the western side of the Alta Toquima Wilderness, but access on the county road to Round Mountain would remain open throughout the life of the proposed project so the effect would be very low. Overall, the effects of the proposed project on wilderness resources in the study area would be low.

Visual Resources

Development and expansion of the Round Mountain Area would minimally heighten visual contrast between existing, previously permitted, mine-related facilities and the natural landscape character, and would not substantially increase the visual impact from the currently permitted levels. Development of the proposed project to the south of existing development in the Round Mountain Area would cause moderate to strong visual contrast between mine-related facilities and the natural landscape character. Development of the proposed Gold Hill Area would cause moderate to strong visual contrast between mine-related facilities and the natural landscape character.

Visual analysis and photography were conducted for 9 Key Observation Points (KOPs). The visual effect would be greatest on views from KOP 2 because the extension would be in the immediate foreground as motorists approach from the south. The relatively low profile of the proposed tailings impoundment facility would help subordinate it to the higher backdrop of waste rock dumps backed by the even higher Toquima Range. The east-west extent of the project would not change noticeably for views from KOP 1. Views from KOP 1 would be moderately to strongly affected by the proposed project; the Gold Hill development would increase the overall north-south extent from this perspective 2 miles to the north. Views from KOPs 3 through 7 would include the greatest north-south expansion of the project. The proposed expansion of the tailings impoundment facility would extend the south side of the disturbance area by almost 1 mile, or approximately 25 percent.

Prior to final reclamation and mitigation, the proposed project would not meet the Visual Resource Management Class IV management objectives, particularly the stipulations relative to “minimizing disturbance” and “repeating basic elements” (i.e., form, line, color, and texture). However, the objectives also indicate “major modification” would occur and that “visual dominance” can be accommodated in Class IV areas.

Residual **impacts** to visual resources would be minimized through implementation of reclamation and mitigation measures.

Soils and Watershed

The proposed expansion of the Round Mountain Area and development of the Gold Hill Area would result in approximately 4,698 acres of disturbance to soil resources. The pit alluvium from the Round Mountain Area and suitable alluvium from the Gold Hill Area would be salvaged and stockpiled **for use as growth media** in subsequent reclamation.

Revegetation monitoring and ongoing maintenance and inspection of best management practices during the required reclamation monitoring period would facilitate successful control of accelerated erosion. Such monitoring and any necessary corrective practices would be implemented as described in an approved Reclamation Plan.

Hydric soils associated with riparian areas may be affected as a result of drawdown effects associated with pit dewatering activities.

The groundwater drawdown effect from pit dewatering may result in reduced stream flows and have drying effects on seeps, springs, and ephemeral creeks and the hydric soils associated with these areas.

Residual impacts would include the permanent loss of soil quality and vegetative productivity from about 351 acres associated with the development of the Gold Hill Pit and expansion of the Round Mountain Pit.

Vegetation

Mine development and operation would disturb approximately 4,698 acres through surface disturbance. From this area, approximately 4,690 acres of vegetation (4,689 acres of shrub-dominated communities and **1.4 acres** of barren cover) would be disturbed or removed; developed land occupies approximately 8 acres and does not support vegetation. Project-related activities would result in the conversion of shrub-dominated vegetation cover types to grass/forb-dominated vegetation cover types in the short term. Over the long term, shrubs would become re-established and increase in abundance within the majority of disturbed areas as a result of reclamation and natural re-colonization.

The loss of shrub-dominated vegetation communities would represent a long-term impact as it would take up to 25 years following reclamation for mature shrub species to re-establish. A permanent loss of approximately 351 acres from the development of the Round Mountain and Gold Hill pits would occur under the Proposed Action. This permanent loss would include approximately 343 acres of shrub-dominated communities and less than 1 acre of barren cover.

Approximately 0.6 acre of riparian vegetation associated with Jefferson and Shoshone creeks would be removed or disturbed as a result of surface disturbance from the Proposed Action. Within the extent of the surface disturbance area, both drainages would be covered by mine facilities. The loss of riparian vegetation would be compensated at a 2:1 ratio (i.e., for every acre of riparian vegetation degraded or lost as a result of project-related impacts, 2 acres of riparian vegetation would be enhanced).

Reclamation would be completed on approximately 4,348 acres (approximately 93 percent) of the total proposed surface disturbance area. Residual impacts to vegetation resources would include the permanent loss of vegetation from approximately 344 acres from the expansion of the existing Round Mountain Pit and the development of the Gold Hill Pit.

It is anticipated that mine-related groundwater drawdown would not result in direct impacts to upland vegetation within the 10-foot groundwater drawdown isopleth. Black greasewood and other shrubs roots do not extend below 20 to 25 feet, and most grass roots would not extend below 7 feet. The water table in the proposed project area for upland areas is greater than 50 feet below the soil surface, and therefore, these upland plants would not be affected by the lowering of the water table.

EXECUTIVE SUMMARY

Potential impacts to riparian vegetation could occur where gaining stream flow is sustained by groundwater sources within the **predicted** mine-related 10-foot groundwater drawdown isopleth. A measurable decrease in groundwater baseflow of gaining stream reaches is not anticipated where the groundwater drawdown is **predicted** to be 10 feet or less; therefore, impacts to the **riparian** vegetation associated with these reaches are not anticipated.

Groundwater drawdown within the predicted mine-related 10-foot groundwater drawdown isopleth may potentially affect seeps, springs, and perennial and intermittent creeks. Reduced flows may result in the partial loss of herbaceous riparian vegetation. Approximately 39 areas of riparian vegetation may experience decreased flows during summer and fall. Riparian vegetation associated with Ink House and Healy springs that occurs approximately 0.5 mile east of the 10-foot groundwater drawdown isopleth may be impacted from groundwater drawdown. Groundwater flows to springs and seeps should recover in 50 to 100 years following initial drawdown. Based on monitoring results of riparian vegetation within and adjacent to the 10-foot groundwater drawdown isopleth, the loss of riparian vegetation would be compensated at a 2:1 ratio (i.e., for every acre of riparian vegetation degraded or lost as a result of Project-related impacts, 2 acres of riparian vegetation would be enhanced).

Noxious Weeds and Invasive Species

Project-related activities associated with the Proposed Action would remove or disturb approximately 4,698 acres, of which 351 acres are associated with the Round Mountain and Gold Hill pits and would not be reclaimed.

Implementation of RMGC's Reclamation Plan would reduce the potential for noxious weeds and invasive species to become introduced or spread within the study area. However, minor populations of weedy annual species (e.g., halogeton, cheatgrass) may become established in localized areas.

Successful reclamation of mine-related disturbance areas would result in the establishment of a permanent vegetative cover, which would minimize the potential establishment of noxious weeds and invasive species in the long term. Although the proposed Round Mountain and Gold Hill pits would not be reclaimed, noxious weeds and invasive species would not likely become established in these areas due to the absence of soil and the formation of pit lakes in the long term. Seed mixes and mulches used for reclamation would be certified weed-free. If noxious weeds become established in project-related disturbance areas, a weed removal or spraying program would be implemented in accordance with State of Nevada and BLM regulations. Weed control practices would be implemented during reclamation phases to limit the growth and spread of noxious weeds and invasive species and facilitate successful revegetation with the approved seed mix. Weed control practices would be implemented in coordination with the BLM Tonopah Field Office to minimize the potential for the introduction and spread of noxious weeds and invasive species within the study area.

Implementation of RMGC's Reclamation Plan would minimize impacts associated with the introduction or spread of noxious weeds and invasive species in areas that would be reclaimed.

Range Management

Under the Proposed Action, perimeter fences would be erected along the proposed project area and Transportation/Utility Corridor. Perimeter fences would exclude livestock from an additional 6,577 acres of rangeland for the duration of the project. Part of the 8,116 acres (1,539 acres) of the proposed expansion was previously removed from the Smoky Allotment, which would amount to 68.4 animal unit months (AUMs). Perimeter fences on the south end of the proposed project area would be phased in as development progresses. This would temporarily reduce the AUMs excluded from grazing until development is complete.

Reclamation would be completed on approximately 4,348 acres (approximately 93 percent) of the total proposed disturbance area (4,698 acres). As discussed in Section 2.6, Reclamation, approximately 351 acres associated with the development of the Round Mountain and Gold Hill pits would not be reclaimed. Satisfactory revegetation of mine-related disturbance areas (i.e., assuming the primary goal of soil stabilization through presence of adequate plant cover) is anticipated to occur approximately 10 to 15 years following reclamation. After 25 years, the reclaimed plant communities would likely consist of adequate herbaceous plant cover with sufficient diversity to provide forage for use by livestock. When the re-establishment of vegetation cover would be considered capable of supporting grazing, perimeter fences would be removed. Livestock grazing could be resumed following successful revegetation, recovering 273 of the 288 AUMs from mine-related activities.

A temporary loss of 6,226 acres and 273 AUMs would occur during the 13-year life of the project. A permanent loss of approximately 351 acres and 16 AUMs within the Smoky Allotment would occur as a result from the development of the Round Mountain and Gold Hill pits. This reduction could limit the future expansion of the current grazing operation and would be considered during the formal allotment evaluation process. The permanent loss of 16 AUMs would represent less than 1 percent decrease of the active grazing preference associated with the Smoky Allotment. No permanent exclusion areas would be located within the San Antone Allotment. Surface disturbance-related activities are not proposed within the Francisco Allotment. Therefore, no direct impacts to this allotment would occur.

The increased mine development and operational activity may affect the distribution of cattle within the Smoky and San Antone allotments. The effects to livestock distribution also would affect the utilization of forage in upland and riparian areas in the long term. Two box-culvert underpasses would be installed along the Transportation/Utility Corridor to allow the passage of livestock within the Smoky Allotment. No direct impacts are anticipated for range improvements (e.g., cattle guards, fences).

Water management-related impacts to range resources, as a result of groundwater drawdown within the **predicted** mine-related 10-foot groundwater drawdown isopleth, could include the reduction of groundwater levels for 2 water-related range improvements (i.e., the Upper Rogers Well and the Francisco Well) within the Smoky and Francisco allotments, respectively. It is anticipated that mine-related groundwater drawdown would not result in direct impacts to upland vegetation within the 10-foot groundwater drawdown isopleth.

Residual impacts for range resources would include the permanent loss and exclusion of livestock grazing on approximately 351 acres associated with areas that would not be reclaimed (i.e., the Round Mountain and Gold Hill pits). This would result in the permanent loss of 16 AUMs within the Smoky Allotment.

EXECUTIVE SUMMARY

Wildlife and Fisheries Resources

Surface Disturbance

Wildlife Habitat. The proposed project would result in the long-term reduction of approximately 4,346 acres and the permanent loss of 344 acres of wildlife habitat (i.e., salt-desert shrublands, sagebrush shrublands, pinyon-juniper woodlands, invasive annual grassland, barren land, and less than 1 acre of riparian habitat [approximately 0.6 acre]) from the development of the Gold Hill Pit and expansion of the Round Mountain Pit. Woody species such as sagebrush would require up to 25 years to reach maturity. The disturbance associated with the proposed project, excluding open pits, would be reclaimed following completion of mining activities.

Game Species. Direct impacts to mule deer would include the incremental long-term reduction of potential forage and the incremental increase of habitat fragmentation from vegetation removal associated with the proposed project. The project would disturb approximately 128 acres of mule deer winter range, consisting primarily of sagebrush shrublands habitat. In addition, approximately 174 acres associated with the Gold Hill Pit would not be reclaimed. This anticipated loss of habitat would result in a small, incremental reduction in the amount of available habitat and is expected to have negligible effects on the deer population in the study area. Although approximately 729 acres of mule deer winter range occurs in the eastern portion of the proposed project area, no important mule deer movement corridors or seasonal habitats would be directly impacted from project activities. As a result, impacts to deer populations from the proposed project would be low.

Impacts to pronghorn would be similar to those discussed above for mule deer. Direct impacts would include the incremental long-term reduction of approximately 4,346 acres and the permanent reduction of approximately 344 acres of pronghorn range from the development of the Gold Hill Pit and expansion of the Round Mountain Pit. However, no important pronghorn seasonal ranges would be directly impacted from project activities. As a result, impacts to pronghorn populations from the proposed project would be low.

Direct impacts to small game species (e.g., chukar, mourning dove, pygmy rabbit, and black-tailed rabbit) would include the incremental long-term reduction of approximately 4,346 acres and the permanent reduction of approximately 344 acres of potential habitat from the development of the Gold Hill Pit and expansion of the Round Mountain Pit. Impacts also would include displacement from the disturbance areas and increased habitat fragmentation, until reclamation has been completed and vegetation is re-established. In most instances, suitable habitat adjacent to disturbance areas would be available for use by these species. However, displacement would increase competition and could result in some local reductions in wildlife populations if adjacent habitats are at carrying capacity. Potential impacts also could include nest and burrow abandonment or loss of eggs or young. However, potential effects to small game from mine development are expected to be low. These temporary losses would reduce productivity for that breeding season.

Potential effects to upland game birds from mine development are expected to be low. The lack of known breeding sites (e.g., greater sage-grouse leks) and water sources that would support brooding birds limit the overall habitat quality for greater sage-grouse, mourning dove, and chukar.

Impacts to Breeding Birds. Direct impacts to bird species would include the incremental long-term loss of approximately 4,346 acres and the permanent reduction of approximately 344 acres of potentially suitable

breeding, roosting, and foraging habitat associated with the Gold Hill Pit and expansion of the Round Mountain Pit. However, this temporary loss is expected to have little effect on local bird populations based on the amount of suitable breeding and foraging habitat in the surrounding area. Potential direct impacts to breeding birds would be minimized through the clearing of vegetation outside of the breeding season, to the extent possible, and the implementation of breeding bird surveys and appropriate mitigation, as needed, in coordination with the BLM and Nevada Division of Wildlife (NDOW).

Human Presence and Noise. Increased noise and human presence associated with mine development and operation is expected to result in negligible to low impacts to wildlife species. Although there would be an increased potential for wildlife/vehicle collisions along the Transportation/Utility Corridor, potential impacts would be minimized through the implementation of RMGC's committed environmental protection measures.

Cyanide Effects. Fences, wildlife exclusion devices (e.g., netting, pond covers, or floating "bird balls"), and piping would be installed to minimize access of wildlife to cyanide solutions. In addition, weak acid dissociable cyanide concentrations in the tailings impoundment facility would be maintained at non-lethal levels. As a result, the potential for impacts to wildlife resources from cyanide ingestion would be low.

Potential Impacts to Wildlife Associated with Dewatering Activities. Dewatering activities would result in groundwater drawdown potentially impacting 2 springs (Johnson springs 1 and 2) and associated riparian habitat that occurs within the 10-foot groundwater drawdown isopleth. **Approximately 39 acres of riparian habitat may experience decreased flows during summer and fall.** In addition, riparian vegetation associated with Ink House and Healy springs that occurs **approximately 0.5 mile** east of the 10-foot groundwater drawdown isopleth may be impacted from groundwater drawdown. However, impacts to regional wildlife populations from the reduction of surface water and riparian vegetation are expected to be low.

Potential impacts to Wildlife Associated with Pit Lake Water Quality. A screening-level ecological risk assessment using conservative assumptions was conducted to evaluate potential impacts to wildlife as a result of exposure to pit lake water from the development of the Gold Hill Pit and expansion of the Round Mountain Pit. Exposure to higher trophic order receptors was evaluated in accordance with U.S. Environmental Protection Agency guidance based on predicted (modeled) pit lake water quality and applied conservative exposure assumptions and toxicity data (i.e., no observed adverse effect level-based toxicity reference values) to develop risk estimates for representative species. The results of the evaluation indicated that it is unlikely that adverse effects would occur as a result of wildlife exposure (via direct contact and biota uptake) to the chemicals of concern in the proposed post-mining pit lakes.

Potential for Hazardous Materials Spill Effects to Wildlife. The potential for impacts to wildlife in the event of a hazardous materials spill would be highest if spilled material entered aquatic/riparian habitats. However, the probability of a spill event into aquatic/riparian habitats would be highly unlikely.

Residual impacts would include the permanent reduction of approximately 344 acres of habitat associated with the Round Mountain and Gold Hill pits. Other residual impacts would include the incremental habitat loss and displacement of wildlife species. Increased human presence would continue to affect the overall distribution of wildlife. Residual **impacts** also would result from the possible long-term or permanent loss of surface water (springs and seeps) and associated riparian habitat due to mine dewatering.

EXECUTIVE SUMMARY

Special Status Species

Bats. Direct impacts would include the long-term reduction of foraging habitat, including approximately 3,816 acres of salt-desert shrublands and 530 acres of sagebrush shrublands habitat. Impacts also would result in the permanent reduction of approximately 164 acres of salt-desert shrublands and 180 acres of sagebrush shrublands habitat from the development of the Gold Hill Pit and the expansion of the Round Mountain Pit. Impacts to bat habitat would result from the loss of 15 mine workings within the Gold Hill Area and **20** mine workings within the Round Mountain Expansion Area. It is anticipated that an additional 4 workings in the Gold Hill Area and 2 workings in the Round Mountain Expansion Area would become unsuitable as potential bat habitat as a result of project-related activities. Based on implementation of the RMGC's environmental protection measures, potential impacts to these bat species as a result of the proposed project would be considered low.

Pygmy Rabbit. The proposed project would result in the long-term reduction of approximately 530 acres and the permanent reduction of approximately 180 acres of potentially suitable sagebrush habitat (big sagebrush-dominated habitats) associated with development of the Gold Hill Pit and expansion of the Round Mountain Pit. This impact would be considered low to moderate, considering the small amount of potentially suitable habitat located within the study area. However, project construction may result in the direct mortalities of individual rabbits, if present. Indirect impacts associated with mine-related noise and human presence would continue under the proposed project in the Round Mountain Area. Development of the Gold Hill Area would result in an incremental increase in mine-related noise and human presence. The loss of individual pygmy rabbits (a game species in Nevada) would not result in population-level effects.

Desert Bighorn Sheep. The project would result in the long-term disturbance of approximately 216 acres and the permanent loss of approximately 236 acres of desert bighorn sheep range associated with the Gold Hill Pit and expansion of the Round Mountain Pit. This anticipated loss of habitat would result in a small, incremental reduction in the amount of available habitat and is expected to have little impact on the existing desert bighorn sheep population that occurs in the project vicinity. Although approximately 1,160 acres of desert bighorn sheep range occurs in the eastern portion of the proposed project area, no important desert bighorn sheep movement corridors or seasonal habitats would be directly impacted from project activities. Therefore, impacts to desert bighorn sheep populations are expected to be low.

Golden Eagle. No golden eagle nest sites occur within the proposed project area. However, potential nesting habitat (e.g. exposed rocky outcrops) occurs within the study area. Potential direct impacts to breeding eagles as a result of mine-related activities could include abandonment of a breeding territory or nest site or the potential loss of eggs or young, which would reduce productivity for that breeding season, if present. However, based on RMGC's environmental protection measures, including nesting raptor surveys and implementation of mitigation measures, as applicable, impacts to breeding birds would be minimized. Direct impacts also would include the long-term reduction of approximately 4,346 acres and the permanent reduction of approximately 344 acres of potential foraging habitat associated with development of the Gold Hill Pit and expansion of the Round Mountain Pit. Indirect impacts associated with mine-related noise and human presence would continue under the proposed project in the Round Mountain Area. Development of the Gold Hill Area would result in an incremental increase in mine-related noise and human presence. Based on implementation of the RMGC's environmental protection measures, the lack of existing nest sites within the project boundary, and the existing level of activity at the mine site, potential impacts to this species as a result of the proposed project would be considered low.

Short-eared Owl. This species was documented in the proposed project area during the 2001 and 2006 biological surveys. Direct impacts to breeding birds would be the same as discussed above for golden eagles. However, based on RMGC's environmental protection measures, including nesting raptor surveys and implementation of mitigation measures, as applicable, impacts to breeding short-eared owls would be minimized. Direct impacts also would result from the long-term reduction of approximately 4,346 acres and the permanent reduction of approximately 344 acres of potential foraging habitat in association with the development of the Gold Hill Pit and expansion of the Round Mountain Pit. These impacts would be considered negligible based on the overall availability of suitable habitat in the vicinity of the study area. Indirect impacts would be the same as discussed above for golden eagle. Based on implementation of the RMGC's environmental protection measures and the existing level of activity at the mine site, potential impacts to this species as a result of the proposed project would be considered low.

Burrowing Owl. Although no burrowing owl nest sites have been documented within the proposed project area, salt-desert shrubland and sagebrush shrubland vegetation that would be disturbed as a result of the proposed project would be suitable habitat for foraging birds within the study area. If present, direct impacts to breeding birds would be the same as discussed above for golden eagles. However, based on the RMGC's environmental protection measures, including nesting raptor surveys and implementation of mitigation measures, as applicable, impacts to breeding burrowing owls would be minimized. Direct impacts to this species would include the long-term reduction of approximately 4,346 acres and the permanent reduction of 344 acres associated with the development of the Gold Hill Pit and expansion of the Round Mountain Pit. Indirect impacts would be the same as discussed above for golden eagle. Based on implementation of RMGC's environmental protection measures and the existing level of activity at the mine site, potential impacts to this species as a result of the proposed project would be considered low.

Ferruginous Hawk. ***No ferruginous hawk nest sites have been documented within the project area. However, potential nesting habitat occurs in the study area.*** Based on the RMGC's environmental protection measures, including nesting raptor surveys and implementation of mitigation measures, as applicable, impacts to breeding birds would be minimized. Direct impacts would include the long-term reduction of approximately 4,346 acres and the permanent reduction of approximately 344 acres of potential foraging habitat associated with development of the Gold Hill Pit and expansion of the Round Mountain Pit. However, this impact would be considered negligible based on the overall availability of suitable foraging habitat in the vicinity of the study area. Indirect impacts would be the same as discussed above for golden eagle. Based on implementation of the RMGC's environmental protection measures, the lack of existing nest sites within the proposed project area, and the existing level of activity at the mine site, potential impacts to this species as a result of the proposed project would be considered low.

Greater Sage-grouse. No greater sage-grouse lek sites have been identified within the proposed project area. As discussed in Section 3.18, Special Status Species, the nearest lek site occurs approximately 7 miles north of the proposed project area. As a result, no impacts to breeding greater sage-grouse would be anticipated from project activities. Although the greater sage-grouse could nest in upland habitats within the study area, it is anticipated that nesting and brooding activity would be low, ***since the majority of greater sage-grouse tend to nest within 2 miles of lek sites.*** Potential direct impacts would include the incremental long-term reduction of 1,408 acres of occupied winter, spring, and brood-rearing habitat. In addition, approximately 222 acres of occupied winter, spring, and brood-rearing habitat associated with the development of the Gold Hill Pit would be permanently lost. ***These*** impacts would be considered negligible based on the RMGC's environmental protection measures and the overall availability of suitable habitat in the study area.

EXECUTIVE SUMMARY

Prairie Falcon. No prairie falcon nest sites have been documented within the study area. However, potential nesting habitat (exposed rocky outcrops) occurs within the proposed project area. Direct impacts to breeding birds would be the same as discussed above for golden eagles. However, based on the RMGC's environmental protection measures, including conduct of nesting raptor surveys and implementation of mitigation measures, as applicable, impacts to breeding birds would be minimized. Direct impacts also would include the long-term reduction of approximately 4,346 acres and the permanent reduction of approximately 344 acres of potential foraging habitat associated with development of the Gold Hill Pit and expansion of the Round Mountain Pit. Indirect impacts would be the same as discussed above for golden eagle. Based on the implementation of the RMGC's environmental protection measures, the lack of existing nest sites within the proposed project area, and the existing level of activity at the mine site, potential impacts to this species as a result of the proposed project would be considered low.

Peregrine Falcon. No impacts to breeding birds as a result of proposed mine-related activities would be anticipated based on the lack of potentially suitable breeding habitat (e.g. tall cliffs) in the proposed project area. Direct impacts to this species would result from the long-term reduction of approximately 4,346 acres and the permanent reduction of approximately 344 acres of potential foraging habitat in association with the development of the Gold Hill Pit and expansion of the Round Mountain Pit. These impacts would be considered negligible based on the overall availability of suitable foraging habitat in the vicinity of the study area. Indirect impacts would be the same as discussed above for golden eagle.

Pinyon Jay. Based on the presence of marginal habitat (i.e., sagebrush shrublands) within the study area, direct impacts to breeding pairs as a result of proposed mine-related activities could include abandonment of a breeding territory or nest site or the potential loss of eggs or young, which would reduce productivity for that breeding season. To minimize these impacts, RMGC has committed to avoiding habitat removal, to the extent possible, between March 1 and July 31 or, alternately, conducting breeding bird surveys and implementing appropriate mitigation in coordination with the BLM and NDOW as discussed in Section 2.5, RMGC's Environmental Protection Measures. Direct impacts to this species would result from the long-term reduction of approximately 530 acres and the permanent reduction of approximately 180 acres of potential foraging habitat in association with the development of the Gold Hill Pit and expansion of the Round Mountain Pit. Indirect impacts would be the same as discussed above for golden eagle. Based on the implementation of the RMGC's environmental protection measures, the overall availability of suitable habitat in the vicinity of the study area, and the existing level of activity at the mine site, potential impacts to this species as a result of the proposed project would be considered low.

Loggerhead Shrike. Based on the presence of potentially suitable breeding habitat, direct impacts to breeding pairs as a result of proposed mine-related activities and the applicable environmental protection measures to minimize these impacts would parallel those described above for the pinyon jay. Direct impacts to this species would include the long-term reduction of approximately 4,346 acres and the permanent reduction of approximately 344 acres of breeding and foraging habitat in association with the development of the Gold Hill Pit and expansion of the Round Mountain Pit. Indirect impacts would be the same as discussed above for golden eagle. These impacts would be considered negligible based on implementation of the RMGC's environmental protection measures, the overall availability of suitable habitat in the vicinity of the study area, and the existing level of activity at the mine site.

Sage Thrasher. Based on the presence of potentially suitable breeding habitat, direct impacts to breeding pairs as a result of proposed mine-related activities and the applicable environmental protection measures

to minimize these impacts would parallel those described above for the pinyon jay. Direct impacts to this species would include the long-term reduction of approximately 530 acres and the permanent reduction of approximately 180 acres of breeding and foraging habitat in association with the development of the Gold Hill Pit and expansion of the Round Mountain Pit. Indirect impacts would be the same as discussed above for golden eagle. These impacts would be considered negligible based on implementation of the RMGC's environmental protection measures, the overall availability of suitable habitat in the vicinity of the study area, and the existing level of activity at the mine site.

Brewer's Sparrow. This species was documented within the proposed project area during biological surveys. Based on the presence of potentially suitable breeding habitat, direct impacts to breeding pairs as a result of proposed mine-related activities and the applicable environmental protection measures to minimize these impacts would parallel those described above for the pinyon jay. Direct impacts to this species would include the long-term reduction of approximately 530 acres and the permanent reduction of approximately 180 acres of breeding and foraging habitat in association with the development of the Gold Hill Pit and expansion of the Round Mountain Pit. Indirect impacts would be the same as discussed above for golden eagle. These impacts would be considered negligible based on implementation of the RMGC's environmental protection measures, the overall availability of suitable habitat in the vicinity of the study area, and the existing level of activity at the mine site.

Columbia Spotted Frog. No Columbia spotted frogs have been identified within the proposed project area. No impacts to this species as a result of proposed mine-related activities would be anticipated based on the lack of potentially suitable habitat (e.g. permanent water sources) in the proposed project area.

Big Smoky Wood Nymph. This species has not been identified within the proposed project area. No impacts to this species as a result of proposed mine-related activities would be anticipated based on the lack of potentially suitable habitat (e.g. grassy alkaline flats) in the proposed project area.

Big Smoky Valley Tui Chub, Lahontan Cutthroat Trout, Northern Big Smoky Valley Speckled Dace. These species have not been identified within the proposed project area. No impacts to these species as a result of proposed mine-related activities would be anticipated based on the lack of potentially suitable habitat (e.g., permanent water sources) in the proposed project area.

Eastwood's Milkweed. Habitat evaluations and species-specific surveys were conducted in 2006 throughout the central portion of the proposed project area for the Eastwood's milkweed. No Eastwood's milkweed individuals were identified. Therefore, no impacts to Eastwood's Milkweed are anticipated as a result of mine-related activities.

Sanicle Biscuitroot and Nevada Dune Penstemon. Based on habitat requirements and known distribution, suitable habitat for the sanicle biscuitroot or Nevada dune penstemon may occur in portions of the proposed project area. However, no sanicle biscuitroot or Nevada dune penstemon were found during surveys. Therefore, impacts to sanicle biscuitroot and Nevada dune penstemon would not occur as a result of mine-related activities.

Cacti, Evergreen Trees, and Members of the Yucca and Agave Genera. In 2003 and 2006, presence/absence surveys were conducted within the Round Mountain and Gold Hill areas for state-protected cacti, evergreen, and members of the *Yucca* and *Agave* genera. Numerous cacti species were encountered within these areas; however, Nevada Revised Statute states that only the commercial

EXECUTIVE SUMMARY

harvest, possession, or transportation of such species would be regulated. Based on the Proposed Action, these actions are not anticipated and as such direct impacts would not be anticipated for these species. However, if these actions would occur, landowner permission must be obtained prior to activity commencement.

Water management-related impacts to special status species as a result of the Proposed Action would be the same as described above for vegetation, and wildlife and fisheries resources. No additional impacts to special status species are expected.

Access and Land Use

The proposed project area encompasses a total of approximately 15,379 acres, of which 13,744 acres (89 percent) are BLM-administered public land, 516 acres (3 percent) are Toiyabe National Forest lands, and 1,119 acres (7 percent) are RMGC-owned private lands. The total area would encompass the existing project boundary area of 7,263 acres plus an additional 8,116 acres associated with the proposed mine expansion. As currently planned, total new surface disturbance would be approximately 4,698 acres, of which approximately 4,581 acres (98 percent) would be on public land. The new disturbance would be in addition to the previously approved disturbance of 5,928 acres, which would be an increase of approximately 80 percent.

The Proposed Action is consistent with BLM plans and policies that designate land use within the proposed project area as open for mineral exploration and development, as described in the Tonopah Resource Management Plan. Although Nye County does not have jurisdiction to regulate land use on Federal lands, the proposed project would be consistent with the county's preference for "multiple use" management and retention of existing mining areas as expressed in the 1985 Policy for Public Lands. The proposed project expansion would not occur on National Forest land. Therefore, the Proposed Action would comply with adopted plans and policies of potentially affected governmental entities.

New project-related fenced area (8,116 acres) would reduce the amount of land available for livestock grazing and dispersed recreation, although the loss would be very small relative to the overall area, particularly considering the limited current use levels. The 8,116 acres of fenced area would constitute about 6.5 percent of the 125,247-acre Smoky Grazing Allotment where most of the proposed project area would occur. A small fraction of the area would take place in the 442,555-acre San Antone Allotment. None of the proposed new fenced area or surface disturbance would occur on currently irrigated cropland. Therefore, a loss of hay production would not occur as a result of the Proposed Action.

The proposed construction of the Transportation/Utility Corridor between the Round Mountain and Gold Hill areas would result in a point of conflict between surface traffic on CR 875 and haul road traffic primarily made up of large haul trucks. Although traffic levels on CR 875 remain very low and standard traffic controls (e.g., signage, **crossing gates**) would be in place at the intersection, there would be an increase in risk of accidents at the intersection and a minor increase in travel times on CR 875 compared with existing conditions.

Development of the proposed project would not adversely affect highway traffic in the project vicinity. Roadway safety conditions would be slightly degraded; the degree would depend partially on the level of traffic through the CR 875/Transportation/Utility Corridor intersection.

An additional access consideration related to the proposed project would be the constraint to National Forest access resulting from construction of the Transportation/Utility Corridor between the Round Mountain and Gold Hill areas. Access to Jefferson and Shoshone canyons would remain open with only minor delays, but some recreationists who are not familiar with a Transportation/Utility Corridor may find it intimidating.

Based on the analysis, the effects of the proposed project on land use and access in the project vicinity would be considered minor.

Residual impacts would include a permanent loss of approximately 351 acres of multiple use lands associated with the expansion of the Round Mountain Pit and development of the Gold Hill Pit, which would not be reclaimed. There would be very minor increases in traffic delays and accident risk.

Noise

For purposes of the analysis, assumptions were made regarding the roster of equipment that would be operating at each activity center and noise levels were calculated for each of 6 potential noise sensitive receptors: the Carvers community, Round Mountain, Hadley, a ranch approximately 1.0 mile west of the Gold Hill Area, a ranch approximately 2.7 miles north-northwest of the Gold Hill Area, and a rural residence approximately 1.5 miles northeast of the Gold Hill Area. Based on the equipment distribution scenarios developed for the project activity centers, and the assumptions previously described, projected noise levels at 4 of the 6 sensitive receptors, including both project-related noise and background noise, would be below 50 decibels on the A-weighted scale (dBA). The estimated levels would range from 44.3 dBA at the north-northwest ranch to 48.1 dBA at the northeast rural residence. The projected level at the ranch just west of the Gold Hill Area would be slightly higher at 50.4 dBA. The highest level calculated would be 61.0 dBA at Round Mountain. The projected levels would be loud enough to be heard at the rural locations during periods of low background noise, for example at night when there is very little wind. At times of low noise, the incremental increase over background levels may be sufficient to be an annoyance to some individuals. Background noise, even during quiet periods, is somewhat higher at Carvers, and Hadley. Consequently, the likelihood of annoyance at those communities is lower. During windy periods, it is likely that background noise would mask project-related noise unless the wind was blowing from mine activity toward a receptor.

Background noise levels at Round Mountain are notably higher than at other parts of the study area due to its close proximity to existing mining operations. The higher projected noise level would occur during the early stages of the Round Mountain Pit expansion, when drilling and excavation equipment would be operating at or near the surface. As the pit work continues, the equipment would be working progressively lower into the pit, which would result in a barrier effect from the pit wall that would gradually reduce the noise levels in the community. It is likely, however, that noise levels would remain at or above current levels during pit operations in close proximity to the Round Mountain community.

Project-related noise levels at the nearest point (i.e., the southwest boundary) in the Alta Toquima Wilderness were calculated at 47.9 dBA, which would be noticeable during periods of low background noise, as it would for other rural locations. Noise at the Mount Jefferson Trail, approximately 3 miles farther from the project boundary, was calculated at 42.9 dBA, or 5 dBA lower. This level would be perceived as almost half as loud as at the wilderness area boundary.

EXECUTIVE SUMMARY

The calculated maximum noise level noise levels from blasting at either the Round Mountain Pit expansion areas or the proposed Gold Hill Pit would be below 67 dBA at 5 of the 6 sensitive receptor locations. Noise at Round Mountain from blasting at the proposed Round Mountain Pit expansion was calculated at 82.5 dBA. The highest level at the other 5 sensitive receptors would be just under 67 dBA at the northeast residence from blasting at the Gold Hill Pit. Levels at other receptors would range from a low of 56.9 dBA at the northwest ranch to slightly over 64.6 dBA at the west ranch.

Blasting noise was calculated at 60.4 dBA and 65.8 dBA at the wilderness boundary and 57.4 dBA and 59.9 dBA at Mount Jefferson Trail from the Round Mountain Pit and the proposed Gold Hill Pit, respectively. Brief blasting noise at these levels would be noticeable in the wilderness and may be an annoyance to some people.

Environmental Justice

The initial analysis indicates that the potential effects of the Proposed Action would not be expected to disproportionately affect any particular population. There is no indication of a meaningfully larger percentage of a minority population near the proposed project area. While there are likely households under the poverty threshold near the proposed project area, there also are many mine employees with above average household incomes. Environmental effects that may occur either in close proximity to the proposed project area, or at a greater distance, such as noise, visual, or air impacts, would affect the area's population equally, without regard to race, ethnicity, age, or income level.