

APPENDIX X

Wildlife Management Plan



General Plan of Operations

Wildlife Management Plan

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1. INTRODUCTION

Resolution Copper Mining, LLC (Resolution Copper) submitted a General Plan of Operations (Plan), dated November 2013, to the Tonto National Forest (TNF) for authorization to construct an underground mine, ore processing operation, and associated facilities and infrastructure near Superior, Pinal County, Arizona. These components are collectively identified as the Resolution Copper Project (Project). The proposed location for the Project is referred to as the General Project Area (GPA) as defined in the submitted Plan.

The main sites and associated primary project elements within the GPA include:

- East Plant Site (EPS) – Underground mine and attendant shafts and surface support facilities;
- West Plant Site (WPS) – Ore and development rock stockpiles, Concentrator (ore processing facilities), and administrative facilities;
- Tailings Storage Facility (TSF) – Tailings storage area and associated Tailings Corridor (distribution pipeline and access roads);
- The Magma Arizona Railroad Company (MARRCO) Corridor (existing and future pipelines); and
- Filter Plant and Loadout Facility

Resolution Copper would implement a Wildlife Management Plan to discourage wildlife from entering active mining areas at the East Plant Site (EPS), West Plant Site (WPS), Tailings Storage Facility (TSF) and Filter Plant and Loadout Facility. The plan would provide guidance to Resolution Copper personnel on the management of wildlife that may be attracted to the tailings decant pond, non-contact and contact water catchments, and process water ponds. Resolution Copper would employ the application of the least aggressive management practices to deter and prevent wildlife from gaining access to these areas.

The goal of the Wildlife Management Plan would be to reduce the potential for wildlife injury and mortality at active mining facilities. The plan would continue to evolve and would be periodically modified within an adaptive management framework aimed at improving the efficacy of wildlife protection measures. A final Wildlife Management Plan would be developed as the Project advances through National Environmental Policy Act (NEPA).

The following sections provide a brief description of the facilities and areas that would require implementation of wildlife protection measures (**Section 2**) and the types of wildlife protection measures and protocols that would be implemented by Resolution Copper for the Project (**Section 3**).

2. FACILITY DESCRIPTIONS

This section describes the process water ponds and the non- contact and contact water basins at the EPS, WPS, TSF and Filter Plant and Loadout Facility that would require monitoring and implementation of protection measures to prevent wildlife from gaining access to these areas. Details on facility design

and existing site conditions for the proposed facility locations (e.g. existing facilities, infrastructure, and environmental setting) are contained within the submitted Plan.

2.1. EAST PLANT SITE

The EPS is approximately 68 miles east of Phoenix and 2 miles east of Superior. The EPS encompasses the proposed underground mine, associated shafts and ore handling systems, and surface support facilities. The existing mine and related surface support facilities are on private lands, and during mine operations, would largely expand onto private lands. The support facilities, some of which already exist, are in a previously disturbed area and include a mine site where Shaft 9 was constructed in the 1970s. Additional area encompassed by the EPS includes the land surface above the ore body, comprised of unpatented mining claims on the Tonto National Forest and Arizona State Trust lands administered by the Arizona State Land Department (ASLD).

Facilities that would be monitored for wildlife at EPS include three contact water basins (E1, E2, and E3). Contact Water Basins E1 and E2 would be constructed at the eastern edge of the EPS. The basins would be sited at low points in an existing drainage to capture the majority of the stormwater flows from the newly developed mine area. These basins would be emptied after each storm event, and contact water would be reused in the process water supply or the underground mine operations. Contact Water Basin E3 would contain flows from the existing and new mine facilities. This basin would be in the area of an existing sump, which would be deepened and widened to catch all contact flow from these areas. This basin would be lined to prevent surface water infiltration.

2.2. WEST PLANT SITE

The WPS is approximately 65 miles east of Phoenix and 1 mile north of Superior on Resolution Copper private property and the Tonto National Forest. The WPS encompasses facilities associated with past mining activity and facilities that are currently in operation either to support new development or for closure of legacy facilities. New features at WPS would include rail facilities, development rock stockpiles, new ore processing facilities (the Concentrator Complex), conveyor systems, and associated surface infrastructure (including administration buildings) to support the underground development and mining occurring at the EPS.

Facilities at WPS that would be monitored for wildlife include a process water pond and contact water basins. Process water for WPS use would be stored in the 50-million-gallon (190,000-m³) Process Water Pond. This pond would receive water from the CAP well field and CAP canal, filtrate from the Filter Plant, reclaim water from the TSF and contact water pumped from the local contact water ponds. Overflow water from the tailings, copper, and pyrite thickeners would drain or be pumped to the Tailings Thickener Overflow Tank for pumping back to the Process Water Pond where it would be recycled.

Contact water basins (W1, W2, W3, W4, and W5) would be built to act as storage facilities for contact stormwater from the WPS. These basins would provide stormwater management for the following facilities:

- Development Rock and Intermediate Rock stockpiles;
- The Concentrator Complex, which includes the process water pond, ore stockpile facility, tailings thickeners, copper molybdenum and copper concentrator thickeners, and the molybdenum plant;

Non-Contact water basins (W6, W7, W8, and W9) would be built to act as storage facilities for stormwater that falls in the Ancillary Facilities catchment areas. Ancillary Facilities include the administration building, contractor and warehouse laydown yards, and construction and employee parking. No mining activity would occur within the Ancillary Facilities area.

2.3. TAILINGS STORAGE FACILITY

The TSF would be situated west of the WPS and north of Queen Station, within the TNF. The TSF would consist of the tailings storage area and associated Tailings Corridor (distribution pipeline and access roads). Tailings would arrive at the TSF from the WPS via a pipeline that traverses the intervening area (along with other infrastructure) along the Tailings Corridor.

Facilities at the TSF that would be monitored for wildlife include the tailings decant pond, seepage collection ponds, and stormwater catchment basins. The stormwater that falls directly on the TSF, or downstream of the diversion channels in early stages of tailings construction, would be contained within the TSF. This water would directly offset supply water needs for tailings void fill and water lost to evaporation. The stormwater that seeps through the tailings would be collected in a series of rockfill underdrains to report to one of 11 seepage collection dams.

2.4. FILTER PLANT AND LOADOUT FACILITY

The Filter Plant and Loadout Facility would be constructed near Magma adjacent to the existing Magma Arizona Railroad Company (MARRCO) right-of-way. The Filter Plant and Loadout Facility would consist of a copper concentrate filtration plant and facility to load concentrate onto trains for shipment.

Contact water from the Filter Plant and Loadout Facility would be contained on site in contact water basins (F1 and F2) and recycled back into the process water circuit. Drainage from the Concentrate Filter Plant, Conveyor, Concentrate Loadout, Clarifier, Ancillary Facilities, an SRP Substation, a helipad, and a parking area would flow to Contact Water Basin F1. The runoff from the Filter Plant Site, CAP Water Pump Station, and CAP Water Tank would flow to Contact Water Basin F2.

3. WILDLIFE PROTECTION MEASURES

3.1. MONITORING

3.1.1. AVIAN SPECIES

Monitoring for wildlife would generally include daily, routine inspections at the EPS, WPS, TSF and Filter Plant and Load out Facility for avian species. Inspections would occur at the tailings decant pond,

non-contact and contact stormwater catchments, and process water ponds and would likely be conducted from a designated vehicle inspection route and/or pedestrian inspection walkway. During these inspections, a trained staff member would use binoculars to scan the ponds and vicinity looking for birds or bird sign. Any observations of birds made during these inspections would be documented in a field log. If a bird is encountered, the trained staff member would employ the appropriate deterrence method in accordance with the bird hazing program to be developed for the Project as described in **Section 3.5**. An inspection frequency and schedule would be determined for the final Plan.

3.1.1. SONORAN DESERT TORTOISE

The Sonoran desert tortoise, a US Forest Service Sensitive Species and Candidate for listing under the ESA has the potential to occur in the vicinity of the proposed TSF. In general, a biological monitor would: 1) pre-survey the activity areas that include the known elevation range and habitat requirements of the Sonoran desert tortoise before ground disturbing activities start, 2) investigate the area for Sonoran desert tortoise shelter sites and, 3) monitor the excavation of any shelter sites. Any individuals encountered would be avoided and allowed to move out of the way prior to ground disturbing activities. If encountered near an activity area, work would stop at the area until the tortoise vacates to a safe distance. Guidelines for handling desert tortoise¹ published by Arizona Game and Fish Department (AGFD) would be used if absolutely necessary to move individual tortoises. A biological monitoring report would be submitted to the TNF.

3.2. DETERRENT METHODS

Non-lethal harassment techniques would start with implementation of the least invasive techniques (preventative measures and vegetation management). Effectiveness would be observed for a period of time by site staff during routine non-formal daily observations of the tailings storage facility, process water ponds, and contact and non-contact stormwater ponds and would ramp up to harassment, scare measures, floating covers or balls, and lastly the use of netting until wildlife use is diminished. Non-lethal harassment techniques listed in the plan would be adjusted or discontinued based on the observations in order to maximize effectiveness.

Ongoing deterrent efforts are being conducted by Resolution Copper and can be used to help determine the most effective deterrence strategies for the Project which would be incorporated into the final Wildlife Management Plan.

¹ Arizona Game and Fish Department (AGFD) 2007. Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects. Phoenix, Arizona. <http://www.azgfd.gov/hgis/pdfs/Tortoisehandlingguidelines.pdf>

3.3. PREVENTATIVE MEASURES

Fencing, where possible due to topographic constraints, would be installed around the perimeter of each site. The fence would act to prevent and block mammals from entering the sites. Additional barriers that may be used include floating balls, strategically mounted artificial predatory birds and decoys, or cover and netting on the tailings impoundment and process water ponds.

3.4. VEGETATION MANAGEMENT

Vegetation growth within the contact and non-contact stormwater catchment basins and process water ponds would be monitored and periodically removed as often as necessary to further discourage the presence of wading birds.

3.5. HAZING PROGRAM

Some additional non-lethal harassment and scare devices to deter and disperse wildlife from the tailings decant pond, non-contact and contact stormwater catchment basins and process water ponds may also be considered and could include: plastic ball covers, vehicle lights and horns, motion sensor lights, flags, perch deterrents, shell crackers, bird bangers, screamers, distress cries/electronic noise systems, bird scare balloons, propane cannons, and mylar scare tape.

A bird hazing protocol would be developed for Resolution Copper employees and would include a combination of harassment techniques. Additional hazing techniques may be adjusted or added as necessary based on field observations and ongoing research efforts. The protocol would include an inspection schedule, acceptable harassment techniques, a field log procedure, and incident reporting procedures. Resolution Copper staff responsible for implementing the bird hazing program would be trained on the protocol prior to its initiation.

3.6. PREVENTATIVE MAINTENANCE

During operations, the tailings decant pond, non-contact and contact stormwater catchment basins, and process water ponds would be routinely inspected as part of an operational and preventative maintenance program. Additionally, maintenance and/or operations personnel would be present on a daily basis to ensure prompt repair of the site fencing and other preventative or harassment/scare devices to discourage wildlife from the facility.

3.7. REPORTING

Resolution Copper documents all wildlife sightings and would report to the necessary agencies if any sick, injured, or deceased wildlife are observed on site. If a bird injury or mortality is observed during inspections, Resolution Copper staff would report the incident to the Environmental Manager who would then notify a wildlife rehabilitation expert in the case of an injury or U.S. Fish and Wildlife Law Enforcement or AGFD authorities in the case of mortality. A final reporting procedure would be developed for the final General Plan of Operations.