7.0 OPERATING CONSIDERATIONS

As discussed in Section 1.2.1, there are specific issues that must be addressed in Forest Service reclamation and bonding packages with regard to operating considerations. These issues are addressed below.

7.1 Interim Operations and Maintenance

Operational and maintenance controls necessary to ensure the integrity of the facilities at Rosemont, whose failure could potentially endanger human health and the environment, are limited with this Project. In general, the layout of the operating facilities is internal to the waste rock and tailings storage areas and/or they are confined to a limited area. This reduces the opportunity for endangering human health and simple security measures such as fencing ensure human safety.

The anticipated layout and design of the facilities also helps to protect the environment. Process ponds associated with the leach facility are sized with sufficient freeboard and operating volumes to manage process flows and storm runoff volumes. The process ponds are double-lined to ensure protection of surface and groundwater sources. An emergency diesel generator will also be available in the pond area in case of power failure.

7.2 Hazardous Materials

Hazardous or toxic materials used at Rosemont will be limited and will comply with the waste management plan and sustainable waste practices associated with the Project. The following is a list of some of the materials that may be encountered at the facility that meets the definition of hazardous or toxic.

- Gasoline, diesel, and other petroleum products;
- Sulfuric acid associated with the leaching process;
- Process solutions associated with the leaching process;
- Process solutions associated with the solvent extraction and electrowinning processes;
- Lead anodes and associated flake;
- Blasting agents including ANFO, prills, and sodium nitrite;
- Lab wastes or chemicals; and
- Wastes associated with facility or equipment maintenance.

Facilities will be designed to isolate these substances either in tanks, ponds, or in other operational structures. In the event these substances will be managed by a third party, the following general management strategy would apply:

- Gasoline, diesel, and other petroleum products can be disposed of as product to the distributor and picked up in bulk trucks. Used oils and greases are also considered a product. Recycling these materials would be handled the same as during operations, i.e. greases managed in 55-gallon drums or other bulk containers and used oil pumped into bulk containers.
- Sulfuric acid will be delivered in bulk shipments to the facility. Storage of this product will also be in bulk containers that can be emptied for resale. On-site neutralization or treatment of sulfuric acid for disposal is not anticipated.

- Solutions associated with the leaching process can be managed in several ways. Solutions can be tested and, if they meet quality requirements, can be sold to other mining operations. If this method is deemed inappropriate by the Forest Service, solutions can be recycled through the leach pad and evaporated. Solutions may also be neutralized in the ponds. This method, however, would create a sludge that may require special handling or off-site disposal.
- Process solutions associated with the solvent extraction and electrowinning processes can also be sold. These solutions have value due to their high copper and acid concentrations.

  On-site neutralization of the electrowinning solutions would be the least favorable option to managing these residual solutions. The electrowinning cells and the solvent extraction tanks are not suited for large volume sludge removal and would create a waste requiring off-site disposal.

  Solutions associated with the solvent extraction process are petroleum based and could be incinerated or sold. Incineration would be an unfavorable option due to the overall value of these solutions.
- Lead anodes and associated flake from the electrowinning process are recyclable at several locations around the country.
- Blasting agents, including ANFO, prills, and sodium nitrite, would all be managed by the blasting contractor for Augusta. It is assumed that the blasting contractor would remove these products and any associated storage facilities.
- It is anticipated that there will be a limited amount of waste materials generated at the Rosemont site that meet the toxic or hazardous waste definition. Such wastes may include aerosol cans and laboratory chemicals. If such wastes exist, there will be management systems to ensure proper disposal.

Waste management is discussed further in the Waste Management Plan (Tetra Tech, June 2007).

7.3 Demolition

Demolition of the infrastructure associated with the processing and support facilities at the Rosemont site is discussed in Section 13.0.

7.4 Facility Design

Facility design components are discussed in the Mine Plan of Operations as well as in the following stand-alone reports:

- Geotechnical Study Report (Tetra Tech, June 2007)
- Dry Tailings Design Report (Tetra Tech, June 2007)
- Leaching Facilities Design Report (Tetra Tech, June 2007)

7.5 Water Quality

The Rosemont Project will be covered under the Arizona Aquifer Protection Permit (APP) program. Under this program, facility design and operation are guided by the protection of groundwater resources. Localized stormwater controls, as well as revegetation and other reclamation techniques, will be used to ensure that downstream surface water quality is not impacted. Design components related to the protection of groundwater and surface water

quality are summarized in Sections 8.0 and 9.0. These summaries are taken from the Mine Plan of Operations and associated stand-alone reports:

- Groundwater Protection Plan (Tetra Tech, June 2007)
- Site Water Management Plan (Tetra Tech, June 2007)

7.6 Landform

At closure, the prominent landforms will be the open pit and Rosemont Ridge. The development of the Ridge was covered in previous sections of this report.

7.7 Stability

Stability issues have been addressed for the plant site, tailings and waste storage areas, and the open pit. Information on the plant site foundation design criteria and tailings stability can be found in the *Geotechnical Investigation Report* (Tetra Tech, 2007). Call and Nicholas Inc. reviewed pit slope stabilities for Augusta during the Feasibility Study phase.

7.8 Revegetation

Revegetation is being addressed through plant testing at the University of Arizona's School of Natural Resources (see Section 11.0).

Provisions for retreatment/reseeding or noxious weed control have been considered in this reclamation plan. However, because concurrent reclamation will be employed at the site, the requirement for this management activity is considered minimal.

7.9 Mitigation

Mitigation requirements associated with the Project are anticipated to be fully developed during the Environmental Impact Statement (EIS) process as the NEPA documents are written. Mitigation requirements will be incorporated into the final reclamation plan.

7.10 Monitoring / Maintenance

Monitoring will include:

- Water quality sampling and analysis downstream of the waste rock and tailings storage facilities throughout the life of the mine and into the closure period.
- Groundwater sampling at strategically placed point of compliance wells downgradient of the facility. Sampling and analysis will be regulated under the requirements of an aquifer protection permit.
- Quality control sampling of waste rock materials to ensure proper management of potentially acid generating materials.
- Vibrating wire piezometers may be installed at the base of the dry tailings stack to monitor phreatic head build-up during placement.

7.11 Safety

Closure and reclamation requirements under the Arizona State Mine Inspector are primarily focused on making a site safe and stable. Safety at this site will be achieved by removing facilities, preparing post-mining landforms to have stable slope angles of 3H:1V or flatter, and restricting access to the open pit area.

A plan for site security and access roadways has been included in the Mine Plan of Operations.

7.12 Permitting

Permitting requirements for closure of the Rosemont site have not been fully developed, though as described above, additional permitting under the APP program may be required at closure. Updates to this reclamation and closure plan will be made, as needed, once the EIS process is complete and the record of decision has been issued.