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Forest Service

Southwestern Region

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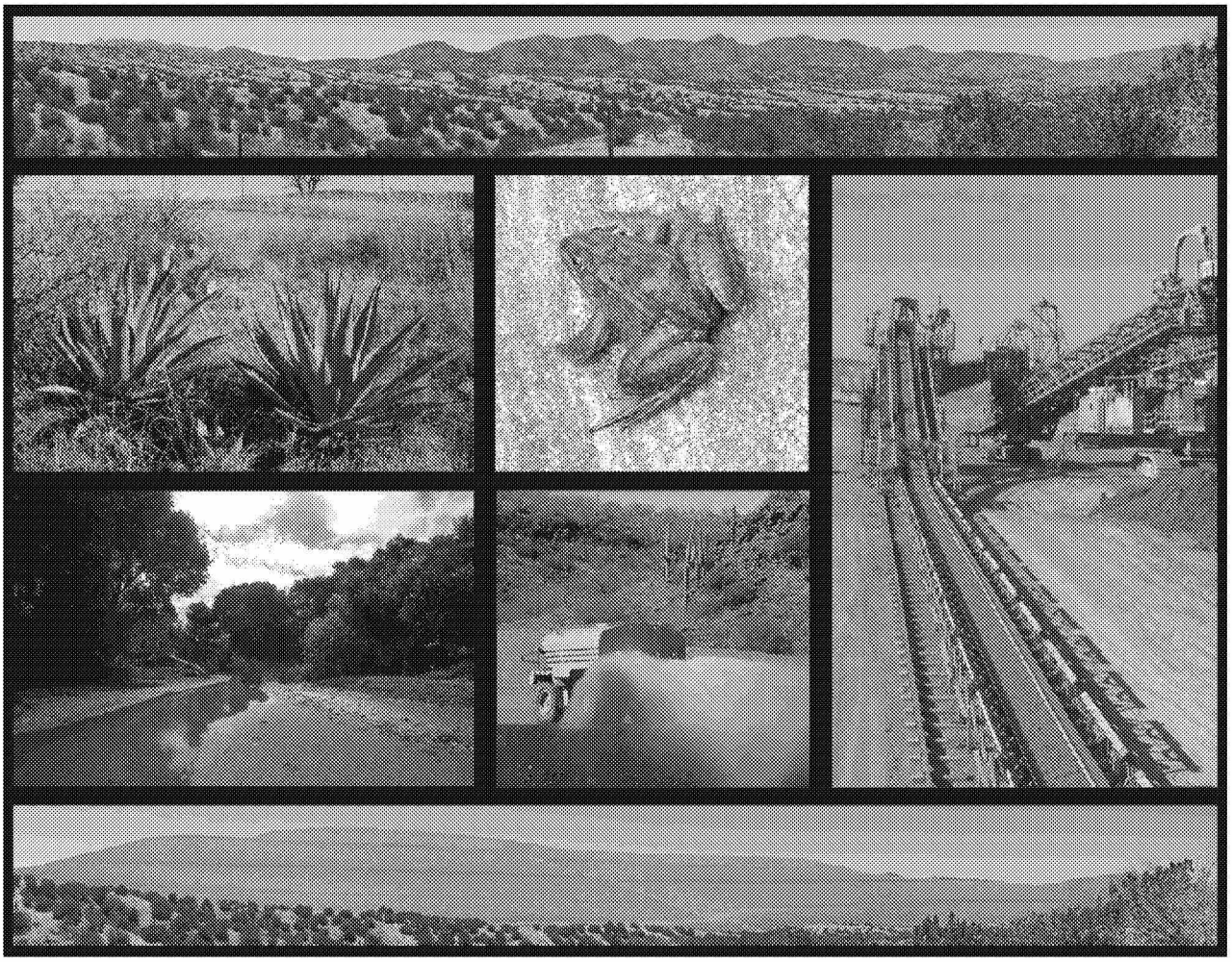
December 2013

Draft Record of Decision and Finding of Nonsignificant Forest Plan Amendment for the Rosemont Copper Project



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Contents

Acronyms and Abbreviations ..... **v**

Introduction **1**

Background of the Project **1**
- Purpose of and Need for Action 2
- Issues 4
  - Issue 1: Impact on Land Stability and Soil Productivity 4
  - Issue 2: Impact on Air Quality 4
  - Issue 3: Impact on Water Resources 5
  - Issue 4: Impact on Springs, Seeps, and Riparian Vegetation 6
  - Issue 5: Impact on Plants and Animals 6
  - Issue 6: Impact on Cultural Resources 7
  - Issue 7: Impact on Visual Resources 8
  - Issue 8: Impact on Dark Skies and Astronomy 8
  - Issue 9: Impact on Recreation 8
  - Issue 10: Impact on Public Health and Safety 8
  - Issue 11: Impacts on Social and Economic Resources 8
  - Issue 12: Impact on Transportation/Access 9

My Decision **9**
- Responsiveness to the Purpose of and Need for Action 10
- Responsiveness to the Issues 10

Decision Rationale **10**
- Conclusion – Determination of Selected Action 25

Description of the Selected Action **25**
- Connected Actions 29
  - Electrical Transmission Line 29
  - Water Supply Pipeline 29
  - Electrical Distribution Line 29
  - Arizona National Scenic Trail Reroute 29
  - State Route 83 Highway Maintenance and Improvements 29
- Mitigation and Monitoring 30

Stipulations, Mitigations, and Monitoring Programs **30**
- General Stipulations 30
- Mitigation and Monitoring Requirements 33
  - Reporting and Evaluation 33
  - Geology, Minerals, and Paleontology 34
  - Soils and Revegetation 34
  - Air Quality and Climate Change 34
  - Groundwater Quantity and Quality 34
  - Surface Water Quantity and Quality 35
  - Seeps, Springs, and Riparian Areas 36
  - Biological Resources 36
  - Landownership and Boundary Management 38
  - Dark Skies 38
  - Visual Resources 38

DRAFT

ED_002020B_00047819-00003

Recreation and Wilderness 39
Hazardous Materials 39
Transportation/Access 40
Noise 42
Public Health and Safety 42
Cultural Resources 42
Power Use 43
Community Programs 43

Permits, Licenses, and Authorizations Needed to Implement the Decision 44

Applicable Laws, Regulations, and Policies 46

Alternatives Considered 46
Alternative 1 – No Action (Environmentally Preferable Alternative) 46
Alternative 2 – Proposed Action 47
Alternative 3 – Phased Tailings 48
Alternative 5 – Barrel Trail Alternative 50
Alternative 6 – Scholefield McCleary Alternative 50

Alternatives Eliminated from Detailed Study 52

Environmentally Preferable Alternative 52

Public Involvement 52
Scoping 52
Public Review of the Draft Environmental Impact Statement 53
Consultation with Tribes and Government Agencies 54
Tribal Consultation 54
Cooperating Agency Consultation 55

Financial Assurance 56

Findings Required by Other Laws, Executive Orders, and Rules 56
National Forest Management Act 57
Finding of Nonsignificant Amendment 57
The Endangered Species Act 59
Regional Forester's Sensitive Species 61
The Migratory Bird Treaty Act of 1918 62
Water Pollution Control Act of 1972 (Clean Water Act) 62
The Clean Air Act, as amended in 1990 62
Federal Noxious Weed Act of 1974 63
National Historic Preservation Act 63
Wetlands (Executive Order 11990) 63
Floodplains (Executive Order 11988) 63
Environmental Justice (Executive Order 12898) 63
Tribal Consultation and Coordination (Executive Order 13175) 63

Procedures for Change During Implementation 64

Implementation Date 64

Contact Person 65

DRAFT

ED_002020B_00047819-00004

Appendix

A. Detailed Description of the Selected Action

Figures

Figure ROD-1. General project location and footprint of the selected action 3
Figure ROD-2. Selected action footprint 26
Figure ROD-3. Road changes under the selected action 27

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Acronyms and Abbreviations

Documents

forest plan	"Coronado National Forest Land and Resource Management Plan," as amended (U.S. Forest Service 1986)
preliminary MPO	preliminary mine plan of operations (WestLand Resources Inc. 2007)

Other abbreviations

ACC	Arizona Corporation Commission
ACHP	Advisory Council on Historic Preservation
ADA	Arizona Department of Agriculture
ADEQ	Arizona Department of Environmental Quality
ADOT	Arizona Department of Transportation
ADWR	Arizona Department of Water Resources
AGFD	Arizona Game and Fish Department
APE	area of potential effects
APP	Aquifer Protection Permit
ARS	Arizona Revised Statutes
ASLD	Arizona State Land Department
Augusta Resource	Augusta Resource Corporation
AUM	animal unit month
AZPDES	Arizona Pollutant Discharge Elimination System
BA	biological assessment
BLM	Bureau of Land Management
BMP	best management practice
BO	biological opinion
CAA	Clean Air Act
CEC	Certificate of Environmental Compatibility
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH_4	methane
CO_2	carbon dioxide
CWA	Clean Water Act
DEIS	draft environmental impact statement
EIS	environmental impact statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEIS	final environmental impact statement
FLAG	Federal Land Managers Air Quality Related Values Working Group
Forest Service	U.S. Forest Service
FSM	Forest Service Manual
GIS	geographic information system
HPTP	historic properties treatment plan

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I-	interstate
ID team	interdisciplinary team
kV	kilovolt
LED	light emitting diode
MOA	memorandum of agreement
MPO	mine plan of operations
MSHA	Mine Safety and Health Administration
NAAQS	national ambient air quality standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NFMA	National Forest Management Act
NFS	National Forest System
NFSR	National Forest System road
N_2O	nitrous oxide
NO_x	nitrogen oxides
no.	number
NRHP	National Register of Historic Places
OHV	off-highway vehicles
PL	Public Law
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns in diameter
PM_{10}	particulate matter less than or equal to 10 microns in diameter
QA/QC	quality assurance/quality control
ROD	record of decision
Rosemont Copper	Rosemont Copper Company
ROW	right-of-way
SHPO	State Historic Preservation Office
SR	State Route
SWPPP	stormwater pollution prevention plan
the Coronado	Coronado National Forest (the agency)
U.S.	United States
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
WUS	waters of the United States

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Introduction

This is the record of decision (ROD) for the Coronado National Forest's (the Coronado's) response to Rosemont Copper Company's (Rosemont Copper's) mine plan of operations (MPO) for the Rosemont Copper Project. It also includes administrative actions to incorporate amendments to the "Coronado National Forest Land and Resource Management Plan" (referred to as the "forest plan"), which will create a new forest management area for which specific standards and guidelines will be established relative to a large-scale mining operation.

An environmental impact statement (EIS) was developed to analyze the potential effects of the Rosemont Copper Project. Six alternatives were considered and analyzed. The EIS was finalized in November 2013 and made available to the public on December 13, 2013.

This ROD documents my decision, along with the rationale for the decision and alternatives considered in reaching the decision. It also includes a discussion of preferences among alternatives based on relevant factors and how those factors were considered in reaching the decision. This ROD also documents changes and additions to the preliminary MPO submitted by Rosemont Copper deemed necessary by the Coronado, an administrative unit of the U.S. Forest Service (Forest Service), to meet the requirements of the regulations at 36 Code of Federal Regulations (CFR) 228 Subpart A and comply with other applicable laws and regulations.

The decision presented in this document addresses activities proposed on lands administered by the Forest Service for which Federal decisions are required.

Background of the Project

The current preliminary MPO for the Rosemont Copper Project is the latest in an extensive history of copper prospecting and development in this area of southern Arizona. Copper production in the Santa Rita Mountains began in the 1880s and continued until the 1950s. Previous mining activity on the east side of the Santa Rita Mountains supported operation of the Rosemont smelter in the Rosemont mining district, which is located in and around the project area. Previous mining activity on the west side of the Santa Rita Mountains supported operation of the Columbia smelter at Helvetia in the Helvetia mining district. Although several exploration projects have been undertaken, there has been no recent production of copper at or near this location. The rising value of copper over the past several years has increased the economic viability of mining the Rosemont mineral deposit.

In July 2007, Rosemont Copper submitted a preliminary MPO to the Coronado requesting approval to construct, operate, reclaim, and close an open-pit mine on and adjacent to National Forest System (NFS) lands administered by the Coronado for development of the Rosemont mineral deposit. The Coronado's review of the preliminary MPO identified the need for additional information. In February 2008, a supplemental preliminary MPO was submitted by Rosemont Copper and accepted for environmental review by the Coronado.

At the request of Rosemont Copper, the U.S. Army Corps of Engineers (USACE) reviewed a preliminary delineation for potentially jurisdictional waters of the United States (WUS) submitted in accordance with regulatory guidance letter no. 08-02. The USACE has determined that potentially jurisdictional WUS are present within the proposed project area. These waters are discussed in the Final EIS (FEIS) in the "Surface Water Quality" section of chapter 3.

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The proposed mine is located on private and NFS lands in the Barrel drainage on the Nogales Ranger District, Coronado National Forest, approximately 30 air miles southwest of the center of Tucson, Arizona (figure ROD-1).There are also associated connected actions to the project, which are located as follows:

Electrical Transmission Line – Primarily located on State, private, and NFS lands. The transmission line will run from the Santa Rita South substation, located near Sahuarita, Arizona, to the Rosemont substation, to be located at the mine site.

Water Supply Pipeline – A water supply pipeline and ancillary facilities (four pump stations and electrical distribution line) will be co-located with the electrical transmission line.

Electrical Distribution Line – An existing electrical distribution line, located on NFS and private lands in the immediate vicinity of the mine site, will be relocated within the same general vicinity.

Arizona National Scenic Trail Reroute – Approximately 10 miles of the Las Colinas portion of the Arizona National Scenic Trail will be relocated from the mine area to a location on the east side of State Route (SR) 83 on NFS and private lands.

State Route 83 Highway Maintenance and Improvements – The Arizona Department of Transportation (ADOT) is requiring road maintenance activities on SR 83 from the junction of Interstate 10 (I-10) to the junction with the primary access road, consisting of pavement overlay and associated actions. This will occur within ADOT right-of-way (ROW) and will cross a variety of land ownerships.

The Rosemont Copper Project will mine copper, silver, and molybdenum from private and NFS lands, with copper being the primary metal extracted. Copper is used for a variety of commercial purposes, including construction, power generation, household plumbing and wiring, telecommunications, and components of cars and trucks. The Rosemont mine is expected to produce an estimated 5.88 billion pounds of copper, 194 million pounds of molybdenum, and 80 million ounces of silver. This represents approximately 11 percent of U.S. copper production and less than 1 percent of world copper production, based on 2011 statistics (U.S. Geological Survey 2013e).

The project will consist of an open pit, a processing plant (mill) and associated facilities, transmission lines for power and water, and waste rock and tailings facilities. Approval of the final MPO for this project will result in total surface disturbance of an estimated 5,888 acres of combined private lands, lands administered by Arizona State Land Department (ASLD), and NFS lands. This acreage includes all disturbance within the perimeter fence, the primary access road corridor; utility corridor (including the electric supply line, water supply line, and utility maintenance road); road construction and decommissioning; and the reroute of the Arizona National Scenic Trail. Refer to the description of the Barrel Alternative in chapter 2 of the FEIS for further detail.

Purpose of and Need for Action

The Coronado's overall purpose and need is to process Rosemont Copper's MPO. Rosemont Copper is entitled to conduct operations that are reasonably incidental to exploration and development of mineral deposits on its mining claims pursuant to applicable U.S. laws and regulations and is asserting its right under the General Mining Law to mine and remove the mineral deposit subject to regulatory laws.

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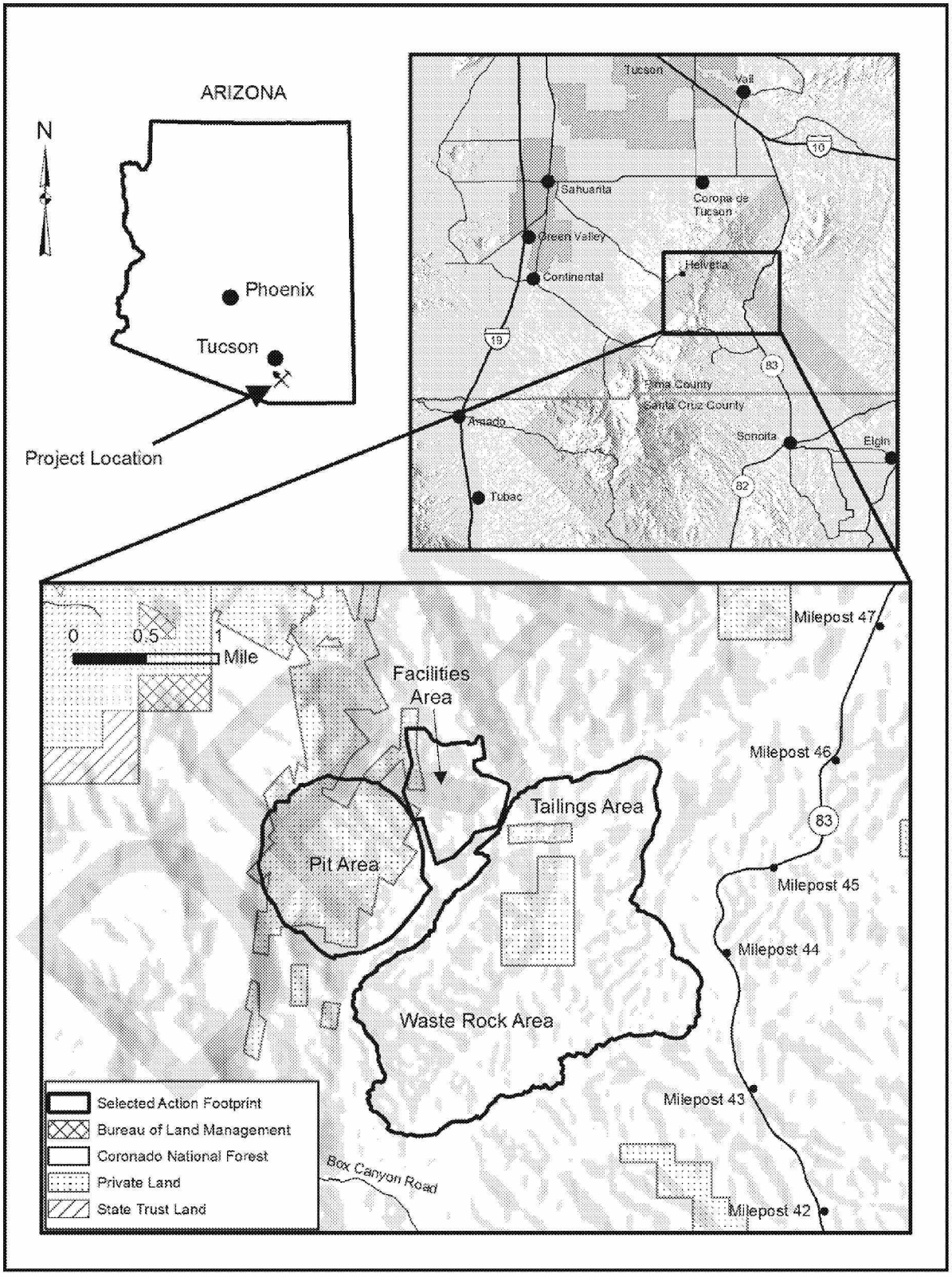

Figure ROD-1. General project location and footprint of the selected action

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From the perspective of the Forest Service, the need for action is to:

- Respond to Rosemont Copper's proposed MPO to develop and mine the Rosemont copper, molybdenum, and silver deposit;
- Ensure that the selected alternative would comply with other applicable Federal and State laws and regulations;
- Ensure that the selected alternative, where feasible, would minimize adverse environmental impacts on NFS surface resources; and
- Ensure that measures would be included that provide for reclamation of the surface disturbance.

The Coronado is evaluating the proposed action at this time in order to comply with its statutory obligations (see below) to respond to Rosemont Copper's preliminary MPO in a timely manner. An amendment to the forest plan is proposed and included in this FEIS (see "Forest Plan Consistency" in chapter 2) and addressed in this ROD (see "Finding of Nonsignificant Amendment" on p. 56).

Issues

Using the comments received during the scoping process (see "Public Involvement" in chapter 1 of the FEIS and p. 52 of this ROD) from tribes, agencies, organizations, and the public, the Forest Service developed significant issues to address in the Draft EIS (DEIS). These issues were used to help formulate alternatives to the proposed action, develop elements or components of the alternatives, develop mitigation measures, and analyze environmental effects. A summary of significant issues for this project follows.

Issue 1: Impact on Land Stability and Soil Productivity

Ground disturbance from clearing vegetation, grading, and stockpiling soils has the potential to accelerate erosion and reduce soil productivity. The tailings and waste rock facilities could be unstable over time, and reclamation may not adequately result in a stable, revegetated landscape. The geochemical composition of tailings and waste rock facilities may not support native vegetation. Soils are nonrenewable resources. Damage, disturbance, and removal of the soil resource may result in a loss of soil productivity, physical structure, and ecological function across the proposed mine site and across downgradient lands. The mining area could potentially act as a barrier to sourcing and supporting natural downslope transportation of geological material, water, and nutrients through alluvial, eolian, and fluvial processes.

Issue 2: Impact on Air Quality

Changes in air quality that could potentially occur from the mine operation were identified as a significant issue. Construction, mining, and reclamation activities at the mine and along transportation and utility corridors would increase dust, airborne chemicals, and transportation related (mobile) emissions in the affected area. The Clean Air Act (CAA) and other laws, regulations, policies, and plans set thresholds for air quality, including Class I airsheds.

The emission of greenhouse gases has been implicated in global climate change, and the policy of the Federal Government is to reduce these emissions when possible (Executive Order 13514). Greenhouse gases are those in the atmosphere that retain heat. They are natural and keep the earth from becoming too cold. The specific gases known as greenhouse gases are carbon dioxide (CO_2),

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methane (CH_4), nitrous oxide (N_2O), and fluorocarbons. CH_4, N_2O, and fluorinated gases would be emitted by the project; however, the anticipated level of emissions of these gases is much smaller than the level of CO_2 emissions associated with the project.

Issue 3: Impact on Water Resources

This group of issues relates to the effects during premining, active mining, final reclamation and closure, and postmining phases on the quality and quantity of water for beneficial uses, wells, and stock watering. The loss of water available to riparian and other plant and animal habitat is addressed in Issues 4 and 5.

Issue 3A: East Side Groundwater Availability

The proposed open-pit mine may reduce groundwater availability to private and public wells in the vicinity of the open pit. Household water availability could potentially be reduced.

Issue 3B: West Side Groundwater Availability

Water needed to run the mine facility could reduce groundwater availability to private and public wells in the Santa Cruz Valley, specifically the communities of Sahuarita and Green Valley, Arizona. Household water availability could potentially be reduced.

Issue 3C: Groundwater Quality

Construction and operation of the mine pit, waste rock, and leach facilities have the potential to exceed Arizona Aquifer Water Quality Standards. The mine pit could result in the creation of a permanent pit lake, which has the potential to concentrate dissolved metals and toxins and may lower pH levels. Likewise, disposal of waste material in surface facilities such as tailings, waste rock, and leaching operations could potentially contribute to degradation of the aquifer.

Issue 3D: Surface Water Availability

Construction and operation of the mine pit, tailings, waste rock, and leach facilities have the potential to change surface water discharge to Davidson Canyon and Cienega Creek, portions of which are designated an Outstanding Arizona Water by the Arizona Department of Environmental Quality (ADEQ). Additionally, the availability of water for stock watering tanks could be reduced.

Issue 3E: Surface Water Quality

Construction and operation of tailings, waste rock, and leach facilities have the potential to result in sediment or other pollutants reaching surface water and degrading water quality, leading to a loss of beneficial uses. If sediment enters streams, turbidity will increase, and State water quality standards could be exceeded. Downstream segments of Davidson Canyon and Cienega Creek are Outstanding Arizona Waters (Tier 3), which are given the highest level of antidegradation protection. As outstanding resource waters under the Arizona Revised Statutes (ARS), Tier 3 waters must be maintained and protected, with no degradation in water quality allowed.

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Issue 4: Impact on Springs, Seeps, and Riparian Vegetation

Potential impacts on seeps, springs, and associated riparian vegetation could result from the alteration of surface and subsurface hydrology because of the pit and other operations. Potential impacts could include reduced or eliminated flow to seeps and springs and loss of, or change in, the function of riparian areas.

Issue 5: Impact on Plants and Animals

This group of issues focuses on the effects on plant and animal populations and habitats. Many aspects of the mine operations have the potential to affect individuals, populations, and habitat for plants and animals, including special status species. This issue includes the potential for impacts on wildlife as a result of landscape alteration and as a result of light, noise, vibration, traffic, and other disturbance from the proposed mine operations.

Issue 5A: Vegetation

The pit, plant, tailings and waste rock facilities, road and utility corridors, and other facilities have the potential to permanently change vegetation, and reclamation may not restore vegetation to preproject conditions.

Issue 5B: Habitat Loss

The mine and ancillary facilities could result in a loss or alteration of habitat for numerous plant and animal species. Potential impacts could include loss of riparian habitat and fragmentation of riparian habitat and corridors, including Cienega Creek.

Issue 5C: Nonnative Species

The mine and its operations have the potential to create conditions conducive to the introduction, establishment, and/or spread of nonnative species, which may out-compete native plants and animals. Forest Service and other Federal, State, and local laws, regulations, policies, and plans contain management direction for invasive plants.

Issue 5D: Wildlife Movement

The mine and its operations could potentially modify and/or fragment wildlife habitats and/or reduce connectivity between habitats. Increased traffic could correspondingly increase wildlife mortality and injury.

Issue 5E: Special Status Species

The mine and its operations have the potential to impact habitat for special status species (see the "Analysis Methodology, Assumptions, Uncertain and Unknown Information" part of the "Biological Resources" section in chapter 3 for a description of special status species).

Issue 5F: Animal Behavior

Mine construction, closure, and operations, including drilling and blasting, may result in noise and vibrations, which could impact animal behavior and result in negative impacts on wildlife. Nocturnal and other animals may be adversely affected by the light glow in night skies.

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Issue 6: Impact on Cultural Resources

This group of issues focuses on the adverse effects of the proposed mine operations on cultural resources. Mine operations could impact historic properties as well as traditional uses and perceptions of the land for the many communities who have used it over the past centuries. Native Americans claim the area as part of their ancestral homelands. Tribes consulted as part of the EIS process perceive disruption of the physical world as causing spiritual harm to the Earth and to the people here. Ancestral human remains and sacred sites are known to exist in the project area, as are traditional resource collecting areas.

Ranching and mining communities also have attachments to the area that began in the late 19th century and continue through the present. Comments submitted during public scoping identified impacts on the historic rural landscape as an issue, as well as impacts on traditional resource collecting areas and recreation venues. Historic human burials may yet be found in areas not excavated during previous archaeological investigations.

Issue 6A: Historic Properties

Proposed mine activities, from premining through final reclamation and closure, would bury, remove, or damage historic properties, including traditional cultural properties, sacred sites, traditional use areas, archaeological sites, historical structures, districts, and landscapes. Vibrations from blasting and drilling could damage historical structures in the immediate and adjacent areas. This could also result in the loss of or reduction in the future research and public interpretation potential of known and yet-to-be-discovered sites, along with the permanent alteration of cultural landscapes important to the ongoing cultural practices of Native American tribes and other communities with cultural or historic ties to the project area.

Issue 6B: Disturbance of Human Remains

Human remains have been discovered in previous archaeological excavations of prehistoric and historical sites in the Rosemont area. Additional burials are present in previously excavated and unexcavated historic properties and may be present in as-yet-undetected historic properties. Proposed mine activities, from premining through final reclamation and closure, have the potential to disturb human remains. Native American remains on Federal lands fall under the jurisdiction of the Native American Graves Protection and Repatriation Act (25 United States Code (U.S.C.) 3001); nonnative remains on Federal lands fall under the Advisory Council's "Policy on Burial Sites, Human Remains and Funerary Objects on Federal Lands" (February 23, 2007). Arizona burial laws (ARS 41-844 and 41-865) protect human remains on State and private lands.

Issue 6C: Sacred Sites

Several Federal laws direct Federal land management agencies, to the extent permitted by law and not clearly inconsistent with essential agency functions, to accommodate access to and use of Native American sacred sites, to avoid affecting the physical integrity of such sites wherever possible, and to temporarily close NFS land for traditional and cultural purposes. Tribal consultation has identified springs, high vision points, and many natural resources in the project area as having sacred ceremonial functions. Proposed mine activities, from premining through final reclamation and closure, could preclude access to or destroy or degrade these types of resources.

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Issue 6D: Traditional Resource Collecting Areas

Native Americans and the ranching, mining, and Mexican American communities use the Rosemont area to collect and process natural resources for food, medicines, firewood, and traditional crafts. Proposed mine activities, from premining through final reclamation and closure, could preclude access to or destroy or degrade these types of resources.

Issue 7: Impact on Visual Resources

This issue focuses on the visual impacts that would result from the proposed mine pit, placement of tailings and waste rock facilities, and development and use of other facilities. The proposed mine tailings and waste rock facilities would create significant changes to the landscape. The facilities may block valued mountain views. The processing plant, roads, and utility corridor could also affect visual resources in the area. The character of the SR 83 designated scenic corridor and the views from it may change. The ability for the area to meet assigned scenic integrity objectives in the forest plan could potentially be reduced. The scenic quality of the landscape may be permanently degraded.

Issue 8: Impact on Dark Skies and Astronomy

This issue relates to the potential for the mine operation and facilities to reduce night sky visibility. Many area residents, recreationists, research and amateur astronomers, and stargazers value the current dark skies in the area. Increased light and air particulates from mine related facilities, equipment, vehicles, and processes have the potential to diminish dark skies. The increased sky glow could reduce the visibility of celestial objects, particularly the faint ones, which are often the subject of scientific study. Key observation points and the Smithsonian Institution's Fred Lawrence Whipple Observatory could be adversely affected.

Issue 9: Impact on Recreation

This issue focuses on the effects of the mine operation on recreation on NFS land, including loss of access and recreation opportunities and loss of or reduction in solitude, remoteness, rural setting, and quiet. The mine may lead to permanent changes to recreation settings (Recreation Opportunity Spectrum) and/or the type of recreation available and may result in increased pressure on public and private lands in other places to compensate for lost opportunities.

Issue 10: Impact on Public Health and Safety

This issue focuses on the hazardous materials that would be transported and the potential increase in the risk of a spill or other public safety impact. Furthermore, an increase in traffic could reduce public safety by increasing the potential for traffic accidents. Another aspect of this issue is human health risks to forest visitors if they inadvertently come into contact with mine operations, tailings facilities, or waste rock facilities. Air quality impacts resulting from the operation could potentially be harmful to public health.

Issue 11: Impacts on Social and Economic Resources

Mine operation could have both negative and positive socioeconomic impacts that could change over time. The socioeconomic stability of the area could be affected. Residents', business owners', and visitors' expectations of national forests and the historic rural landscape may not be met.

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Issue 11A: Regional Socioeconomics

The mine facilities and operation may result in changes over time to local employment, property values, tax base, tourism revenue, and demand and cost for road maintenance and emergency services. There may be costs to the alternative elements and mitigation measures that influence the present net value of the mine operations and, thus, its economic profile.

Issue 11B: Rural Landscapes

The mine operation may not conform to the quality of life expectations as expressed by the forest plan and Federal, State, and local regulations and ordinances. Commenters expressed concerns about modification of rural historic landscapes and local ranching traditions, which are important to local residents and visitors. Commenters also expressed a need to assess impacts on quality of life, including the economic nature of these rural landscapes.

Issue 12: Impact on Transportation/Access

This issue focuses on the impact of increased mine related traffic during premining, active mining, and final reclamation and closure. Transportation of personnel, equipment, supplies, oversize permitted loads, and materials related to the mine operation has the potential to increase traffic. The operations also have the potential to permanently obliterate forest roads or temporarily restrict access to forest roads and lands.

My Decision

This ROD documents my decision and rationale for the selection of "Alternative 4 – Barrel Alternative" (referred to in this ROD as the "selected action"). It also documents my finding that the proposed amendments to the forest plan are not significant (see finding on page 56 of this document). Alternative 4 (Barrel Alternative or selected action) is described in chapter 2 of the FEIS. It is also described in detail in appendix A of this ROD. My decision includes the associated transportation system, the design features, mitigation and monitoring measures (appendix B of the FEIS), and forest plan amendments (FEIS chapter 2, p. 117), as described in the FEIS. My decision allows development of the Rosemont mineral deposit in a manner that is consistent with the selected action. The selected action requires changes and additions to the preliminary MPO that are necessary to meet the requirements of regulations at 36 Code of Federal Regulations (CFR) 228 Subpart A and comply with applicable laws and regulations; these changes will be incorporated into a final MPO to be submitted to the Coronado by Rosemont Copper.

My decision is based on a thorough review of the FEIS, review of public and agency concerns received on this project, consultation with cooperating and regulatory agencies, consultation with interested tribes, and the project record. I considered relevant scientific information, public concerns and opposing viewpoints, scientific uncertainty, and risk, which are discussed in the resource sections in chapter 3 of the FEIS. I am aware that there is incomplete or unavailable information for some resource analysis (also discussed in the resource sections in chapter 3 of the FEIS). In an effort to understand scientific uncertainty and resolve professional disagreement, I have also sought out and considered the professional opinion of resource specialists from Federal agencies, private industry, and third-party consultants. I have met on numerous occasions with interested members of the public to listen to their concerns and issues to help me in formulating this decision.

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Responsiveness to the Purpose of and Need for Action

The selected action meets the stated purpose of and need to process Rosemont Copper's MPO in a timely manner while complying with applicable laws and regulations, minimizing adverse impacts to NFS surface resources and provides for reclamation of surface disturbance. It will protect resources to the extent practicable, it addresses the public's concerns, and it is consistent with applicable Federal laws and regulations. The selected action provides practicable environmental safeguards, including features designed to avoid or reduce environmental impacts; mitigation measures designed to avoid, reduce, or minimize impacts; and a monitoring plan to ensure that resulting impacts comply with applicable laws and regulations and are within the range predicted in the FEIS impacts analysis. Refer to chapter 2 of the FEIS for a description of the components of the Barrel Alternative (also contained in appendix A of this ROD) and to chapter 3 of the FEIS for a complete description of the environmental impacts predicted for the Barrel Alternative.

Responsiveness to the Issues

The selected action is responsive to the issues described in chapter 1 of the FEIS and summarized earlier in this ROD. The Barrel Alternative was developed to respond to significant issues regarding potential impacts on biological resources, cultural resources, and the surface water component of water resources. It also responds to the other significant issues through design features and mitigation measures that reduce potential environmental and social impacts. The topics presented in the section titled "Decision Rationale, Social and Environmental Benefits and Impacts" provide further information on how the selected action responds to the significant issues and how those were considered in making my decision.

Decision Rationale

The Coronado National Forest comprises outstanding landscapes, with a diversity of resource values, and a rich history of human use and visitation. The Santa Rita Mountains, in which the project area is located, provide a spectrum of ecological conditions that support wildlife and plant communities, as well as human uses such as livestock grazing. The area also provides opportunities for a variety of recreational pursuits, such as hiking the Arizona National Scenic Trail, dispersed camping, or riding off-highway vehicles (OHVs). The area represents one of the large expanses of undeveloped public land remaining on the Coronado National Forest and is home to many rare plants, animals, and a vast array of valuable cultural sites.

With these factors in mind, I did not take this decision lightly. My decision to approve the proposal is guided by Federal law. The primary guidance comes from the General Mining Act of 1872, which grants citizens the right to conduct mining activities on public lands that are open to mineral exploration. The Multiple-Use Mining Act of 1955 reaffirms the right to conduct mining activities on public lands, including mine processing facilities and the placement of mining tailings and waste rock. Although a right to conduct mining activities exists, proposals must comply with applicable Federal and State environmental protection laws, and the Forest Service can require reasonable measures, within their authority, to protect surface resources.

Conducting a mining operation of this type and size will undoubtedly impact the natural, cultural, and social resource values found on the Coronado National Forest as well as adjacent lands outside the forest. There will also be associated economic and job creation effects, as well as contributing to the worldwide demand for copper. This decision incorporates a wide array of mitigation and conservation

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measures that will be required of the proponent to mitigate and reduce effects of the proposal. In addition, a comprehensive monitoring program will be implemented to verify that effects disclosed in the FEIS are within predicted ranges and to ensure that mitigation requirements are being met.

In reaching my decision, I have considered the purpose and need for action, the issues, the forest plan and associated amendments, current policies and regulations, effects on natural and cultural resources, public and cooperating agency comments received, and the full range of alternatives. I considered the broad range of concerns expressed throughout this process. Inherent with a project of this size and magnitude will be direct and indirect impacts to natural, cultural, and social resources on the Coronado National Forest and adjacent lands. My decision allows Rosemont Copper to develop its mineral resource while requiring a wide array of mitigation and monitoring steps that will minimize or avoid impacts on NFS lands to the extent practicable. Importantly, my decision implements an alternative that will allow Rosemont Copper to comply with applicable Federal laws and regulations. The following discussion summarizes pertinent aspects of my rationale for selecting the Barrel Alternative for implementation.

1. **Decision Space.** My decision authorizes actions on NFS lands. It will also trigger connected actions, some of which are under the jurisdiction of other agencies (i.e., the utility corridor located on State land is under the jurisdiction of ASLD; the SR 83 connected action is under the jurisdiction of ADOT). Those connected actions that are not on NFS lands will require authorization by the jurisdictional agency. See chapter 2 of the FEIS for further detail.

   The role of the Coronado under its primary authorities in the Organic Administration Act, Locatable Regulations (36 CFR 228 Subpart A), and Multiple-Use Mining Act is to ensure that mining activities minimize adverse environmental effects on NFS lands and comply with all applicable environmental laws. The Coronado may impose reasonable conditions to protect surface resources but cannot materially interfere with reasonably necessary activities under the General Mining Law that are otherwise lawful. Through the Mining and Mineral Policy Act, Congress has stated that it is the continuing policy of the Federal Government, in the national interest, to foster and encourage private enterprise in:

   - The development of economically sound and stable domestic mining, minerals, and metal and mineral reclamation industries; and
   - The orderly and economic development of domestic mineral resources, reserves, and reclamation of metals and minerals to help ensure satisfaction of industrial, security, and environmental needs.

   I recognize that each of the action alternatives would result in significant environmental and social impacts and that the no action alternative is the environmentally preferable alternative (see page 46 of this ROD for further detail). However, Federal law provides the right for Rosemont Copper to develop the mineral resources it owns and to use the surface of its unpatented mining claims for mining and processing operations and reasonably incidental uses (see 30 United States Code (U.S.C.) 612). Pursuant to Federal law, the Forest Service may reasonably regulate the use of the surface estate to that minimize impacts to Forest Service surface resources, but cannot endanger or materially interfere with mining and processing operations and reasonably incidental uses (see 30 U.S.C. §612 and 36 CFR §228.1). The analysis that is disclosed in the Rosemont Copper Project FEIS concludes that the Barrel Alternative is the alternative that best achieves the minimization of impacts to Forest Service surface resources while allowing mineral operations and reasonably incidental uses.

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2. **Social and Environmental Benefits and Impacts.** When reviewing the results of the impact analyses disclosed in chapter 3 of the FEIS, I found there to be relatively few significant differences in the magnitude of impacts between the alternatives for many issues and resources. This is primarily due to the nature of the project, which resulted in practical constraints being imposed during development of the alternatives. Rosemont Copper's mineral deposit is located in a fixed location, and the mine facilities are by necessity located nearby, and such uses of unpatented mining claims is allowed by Federal law. In addition, I find it to be critically important to minimize the amount of NFS land and resources impacted by the project, which further constrained the overall footprint of the mining facilities. Therefore, the differences between alternatives tend to focus on placement and design of the tailings and waste rock facilities, the variations of which have similar impacts.

   Rosemont Copper brought forward a preliminary MPO that contained mineral processing practices (dry-stack tailings) that would result in a smaller footprint on NFS land than traditional processing methods. While an alternative that would include traditional slurry processing procedures was considered, I instructed the interdisciplinary team (ID team) to eliminate it from detailed study because preliminary assessment and past agency experience indicated that it would result in a significantly larger footprint on NFS lands and potentially greater environmental impacts than would any of the alternatives considered. Therefore, I did not consider the inclusion of this alternative to be a good investment of time or resources.

   A number of other alternative themes and components suggested by public and agency comments and Forest Service staff were evaluated for detailed consideration in the FEIS. Many were incorporated into the four alternatives to the proposed action that are considered in detail. Others were considered but eliminated from detailed study for variety of reasons. These are discussed in chapter 2 of the FEIS as well as in project record documents.

   Because there were relatively few significant differences between the overall impacts of the action alternatives, my decision came down to a few substantive differences or factors, as described below.

   A. **Air Quality** – Air quality was in issue identified during public scoping (see Issue 2). Legal compliance with air quality standards and regulations is determined by the agency with the delegated responsibility for administering the CAA, which in the case of the Rosemont Copper Project is the ADEQ. ADEQ has issued an air permit for the Rosemont Copper Project, and Rosemont Copper has the responsibility to remain in compliance with the permit. For the purposes of evaluating impacts and approving an MPO, I have a further responsibility to ensure that the proposed project as planned will minimize impacts to surface resources on Forest Service land. Those surface resources include, among other things, public use of adjoining Forest Service lands for multiple-use objectives. To ensure the minimization of impacts to those Forest Service lands and to allow the continued use and enjoyment of those lands, I have determined that the selected action must have the ability to meet National Ambient Air Quality Standards (NAAQS) as specified in the CAA at the perimeter fenceline. NAAQS were adopted by the U.S. Environmental Protection Agency (EPA) to protect public health and public welfare. The selected action is the only action alternative that demonstrated the ability to meet NAAQS at the perimeter fenceline and thus comply with standards established to protect human health.

      - The Scholefield-McCleary Alternative would not meet NAAQS at the fenceline for particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$) emissions;

- The proposed action and Phased Tailings, Barrel Trail, and Scholefield-McCleary Alternatives would not meet NAAQs at the perimeter fenceline for particulate matter less than or equal to 10 microns in diameter (PM_{10}).
- A number of additional mitigation measures were added for all action alternatives after the DEIS air analysis indicated that many alternatives would not meet NAAQS. At this time, no additional practicable onsite mitigation measures have been identified that would further improve the ability of the alternatives to meet NAAQS. The ADEQ issued an air quality permit on January 31, 2013, that provides for monitoring, reporting, and response actions. The permit will be updated following this decision to address any differences between the original permit application and the selected action.
- With the exception of the selected action, none of the action alternatives are acceptable from an air quality perspective. While it may be possible to move the perimeter fence location for the these alternatives to a location where NAAQS would be met, I do not regard this as an acceptable option due to the increased amount of NFS land that would be included within the perimeter fence and therefore unavailable for public use. The impacts to many other resources for other action alternatives are similar to or greater than the selected action. Therefore, I have determined that there are no substantive benefits of selecting these other alternatives that would offset the additional reduction of access to NFS lands.
- Regarding potential impacts to Class I airsheds, all alternatives are predicted to degrade views from Class I airsheds, including Saguaro National Park East, Saguaro National Park West, and the Galiuro Wilderness Area. This is primarily the result of fugitive dust emissions during severe weather events with high winds. The selected action has the same predicted impacts as three other action alternatives, while the Barrel Trail Alternative is predicted to impact only Saguaro National Park East and the Galiuro Wilderness Area. Mitigation measures to control fugitive dust have been developed and are required as conditions of the air quality permit, issued by ADEQ. While impacts to visibility from Class I airsheds are not desirable, this situation does not violate Federal, State, or county air quality laws or regulations. In addition, all practicable mitigation measures designed to reduce fugitive dust emissions from the project will be required. All alternatives are predicted to also increase nitrogen deposition at Saguaro National Park East, Saguaro National Park West, and the Galiuro Wilderness Area. Nitrogen deposition has already been estimated to exceed critical loads in these areas, and additional nitrogen deposition will contribute to this issue. Research indicates that responses to nitrogen deposition include alteration of species composition, specifically an increase in biomass of exotic species and decreases in native species. This, in turn, can result in management consequences, including changes in fire frequency and carrying capacity. While impacts to nitrogen deposition are not desirable, this situation does not violate Federal, State, or county air quality laws or regulations. In addition, all practicable mitigation measures designed to reduce nitrogen emissions from the project will be required.
- Guidance developed by the Federal Land Managers Air Quality Related Values Working Group (FLAG) recommends approaches for Federal land managers for protection of air quality related values like visibility and deposition. Federal land managers have an "affirmative responsibility" to protect these values, even though they have no permitting authority under the CAA. This responsibility includes

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identifying the potential for adverse effects to occur, which has been done in the FEIS, but also includes ensuring that all reasonable mitigation has been applied to the project. In coordination with other Federal agencies, I have requested that Rosemont Copper explore additional onsite mitigation, and I have determined that all reasonable mitigation has been applied to the project onsite. I also have requested that Rosemont Copper explore additional emission offsets within the airshed. This has resulted in Rosemont Copper developing additional offsite mitigation at the request of the Coronado to reduce nitrogen, such as carpooling and busing options that will reduce nitrogen emissions in the airshed. See "Air Quality and Climate Change" under "Mitigation and Monitoring Measures—Rosemont Copper" in appendix B of the FEIS for a description of the carpooling and busing option.

B. **Surface Water Flows** – Surface water availability was an issue identified during scoping (see Issue 3D). The selected action will retain the greatest amount of downstream surface water flow into Barrel and Davidson Canyons. All of the action alternatives would reduce the amount of stormwater delivery into downstream drainages. However, as a result of design modifications intended to minimize reductions in stormwater downstream of the mine site, the selected action will result in the least reduction of any action alternative (17 percent reduction in average annual volume vs. 23 to 46 percent reduction for the other action alternatives). While any reduction in downstream flows is not desirable, the selected action does a better job of providing future flows into Barrel Canyon and Davidson Canyon than any other action alternative.

C. **Water Quality** – Both surface water quality and groundwater quality were issues identified during public scoping (see Issues 3C and 3E). The selected action is similar to the other action alternatives with respect to the groundwater and surface water discharges that are planned to occur, specifically tailings seepage and stormwater runoff. For all alternatives, the seepage from the tailings facility is expected to meet aquifer water quality standards and for all alternatives stormwater runoff from the waste rock facility would not exceed applicable surface water quality standards in Barrel Canyon, except for some water quality parameters that are already observed in stormwater runoff (silver, lead, mercury). The selected action has less risk of unplanned releases due to the removal of the heap leach facility (discussed below). I recognize that protection of water quality is of great importance and that modeling and predictions have some uncertainty; therefore, I have incorporated a wide variety of monitoring measures to ensure that any unexpected changes in water quality are identified.

Portions of lower Davidson Canyon and Lower Cienega Creek, located downstream of the project, have been designated Outstanding Arizona Waters. Portions of Upper Cienega Creek located east of the project have also been designated Outstanding Arizona Waters. These waters are afforded the highest level of protection from degradation under State law. The State of Arizona has the sole authority to make a determination about whether or not the proposed project would violate State water quality regulations by degrading Outstanding Arizona Waters. The person seeking authorization for a regulated discharge to a tributary to, or upstream of, an Outstanding Arizona Water (in this case Rosemont Copper) has the responsibility to demonstrate to the State of Arizona that the regulated discharge will not degrade existing water quality in the downstream Outstanding Arizona Water. This demonstration by Rosemont Copper, and determination by the State of Arizona, has not yet been completed. Independent of this determination, the potential for degradation of Outstanding Arizona Waters was raised by the public as

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an issue of importance and therefore the Forest Service has the responsibility under NEPA to take a "hard look" at the potential for degradation. The analysis in the FEIS uses criteria developed by the Forest Service to assess this potential using available information; however, the State of Arizona will make their own determination using their own regulatory criteria and the information available to them at the time, which could differ from that used by the Forest Service for the purpose of the NEPA analysis.

I considered the effects of the project on these Outstanding Arizona Waters that will result from changes in both water quality and quantity. I consulted with the ADEQ, who has the responsibility to issue the State water quality certification as required under Section 401 of the Clean Water Act (CWA). While the water quality certification will be issued after my decision, ADEQ indicated to me that when the effects from the project were considered in light of mitigation to be applied to lower Davidson Canyon and monitoring requirements implemented by the Coronado, the antidegradation criteria required for the Outstanding Arizona Waters were likely to be met and the 401 water quality certification will be issued. I have included some monitoring requirements on lower Davidson Canyon requested by ADEQ. Ultimately, it is Rosemont Copper's responsibility to demonstrate compliance with water quality standards and acquire the 401 certification from the State prior to my approval of the final MPO.

D. **Sediment Delivery** – Sediment delivery is a component of surface water quality (see Issue 3E). Apart from the Scholefield-McCleary Alternative, the selected action has the smallest reduction in sediment delivery of all action alternatives. Maintaining sediment delivery is desirable to minimize changes, such as scour, in the geomorphology of Barrel Canyon. The Scholefield-McCleary Alternative would result in more sediment delivery into downstream drainages. However the Scholefield-McCleary Alternative does not meet the NAAQs. Refer to "Surface Water Quality" in chapter 3 of the FEIS for more information regarding sediment delivery.

E. **Subsurface Outflow** – This is a component of groundwater availability, which was identified as an issue during public scoping (see Issues 3A and 3B). The selected action will result in the smallest potential reduction in subsurface outflow to Cienega Creek. Reduction in subsurface outflow is a direct result of reductions in stormwater flow downstream. While all action alternatives would likely reduce subsurface outflow to Cienega Creek over the long term, the selected action will result in the smallest reduction of any action alternative (4.4 percent reduction, compared with 11.7 percent reduction for the proposed action). This will result in less risk of impacts to springs, seeps, riparian vegetation, and related habitat near Cienega Creek than any of the remaining action alternatives.

F. **Heap Leach Treatment Facility** – The heap leach facility is a component of several issues that were identified during scoping, including groundwater quality (Issue 3C); dark skies and astronomy (Issue 8); and public health and safety (Issue 10). Removal of the heap leach from the selected action avoids or reduces a variety of environmental impacts. In response to comments received on the DEIS, I directed the ID team and Rosemont Copper to consider geomorphic reclamation concepts in the design of the selected action. One of the restrictive conditions I placed upon this effort was for no expansion of the tailings and waste rock facility footprint. My intent for this specific restriction was to avoid impacting additional NFS lands, including nearby areas that contain cultural sites (including the prehistoric Ballcourt Site), wildlife and plant habitat (including habitat for threatened, endangered, and sensitive species and the biological

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diversity of McCleary Canyon), and WUS. As a result of these efforts, Rosemont Copper redesigned the stormwater facilities in order to route more water into Barrel and Davidson Canyons postclosure. During this redesign, Rosemont Copper determined that including the heap leach facilities within the existing tailings and waste rock footprint of this alternative would not be economical. Rosemont Copper volunteered to remove the heap leach facility and process from only the selected action, a modification I approved because it reduces or avoids a number of environmental impacts, including the following:

- Avoidance of any risk of groundwater contamination from heap leach seepage.
- Reduction of impacts to WUS. Although Scholefield-McCleary would have impacted 19.5 fewer acres of WUS, it does not meet the CAA. Of the remaining alternatives, the selected action will impact the fewest acres of WUS (68.4 acres).
- Slightly reduced sky brightness from artificial night lighting. Since the selected action eliminates the need for lighting the heap leach and associated facilities during night operations, it will have slightly reduced sky brightness, compared with other action alternatives (it eliminates approximately 105,500 lumens, for a total estimated 6.4 million lumens for the selected action). This slightly reduces the observed fractional increase in sky brightness at the Whipple Observatory; Jarnac Observatory; Corona de Tucson; SR 83; and Empire Ranch.
- Reduced risk of release of hazardous materials into the environment. Specifically, removal of the heap leach process from this alternative eliminates the need for sulfuric acid and kerosene, thereby avoiding any risk of accidental release of these materials into the environment during transportation, use, or storage.
- Reduced number of trips of hazardous materials to the mine due to the elimination of sulfuric acid and kerosene shipments. The number of trips will decrease from 157 per week to 94 per week, a reduction of 63 trips per week, or 40 percent. This will reduce potential emergency response to accidents or spills of these materials.

I chose to remove the heap leach from only the Barrel Alternative. Rosemont Copper's engineering and design team worked with the Coronado and its consultants throughout the process described above in order to provide me with recommendations regarding both the technical and financial feasibility of refined designs. In June and July 2012, Rosemont Copper undertook preparation of detailed stacking and engineering plans. On July 10, 2012, Rosemont Copper informed me that the operational sequencing required under the Barrel Alternative did not allow them sufficient time to complete the leaching process and fully recover the copper from the oxide ore materials. Because the other action alternatives did not have such a restrictive operational sequencing requirement, Rosemont Copper determined that it could complete the leaching process within the designs of those alternatives.

After reviewing the refined design of the Barrel Alternative and public and agency comments on the DEIS, Rosemont Copper informed me that both the heap leach and underdrains would need to be removed from the refined Barrel Alternative design and that doing so for the Barrel Alternative would be: (1) both technically and financially feasible, though not optimal; and (2) acceptable to the proponent. In doing so, Rosemont Copper proposed to the Coronado that the heap leach processing and associated facilities be removed from the Barrel Alternative. Rosemont Copper also had recently updated its internal mine feasibility studies with additional drilling on its private holdings and

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determined that the sulfide ore reserves were larger than originally thought. Thus, the removal of the oxide heap leaching circuit became a viable option from an economic standpoint.

I reviewed the refined design for the Barrel Alternative in light of Rosemont Copper's suggested removal of the heap leach. It is important to note that I do not have the legal authority to impose mitigation that would materially interfere with mineral operations. While the National Environmental Policy Act (NEPA) allows the consideration of reasonable alternatives that are outside the jurisdiction of the lead agency, such conflicts must be considered. I considered whether to apply removal of the heap leach process and facilities to any additional alternatives and determined that application to only the Barrel Alternative would accomplish several goals. First, I recognized that this as an opportunity to reduce impacts, respond to public and agency comments, and reduce the need for long-term maintenance of a heap leach facility that could affect NFS surface resources and groundwater quality. Secondly, by applying it only to the Barrel Alternative, it would help in more "sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public" (40 CFR 1502.14).

Ultimately, I decided to modify the Barrel Alternative by removing the heap leach processing facility as well as the underdrains from the Barrel Alternative and retaining the refinements to the Barrel Alternative design that arose out of the Coronado ID team's geomorphic reclamation process (i.e., modified stormwater structures, fewer benches, and contouring and shaping of the benches and upper portion of the landform).

G. **Disturbance Acres** – Disturbance acres are a component of most of the issues that were identified during scoping. Generally speaking, the more acres that are disturbed, the greater the likelihood of increased impacts. Disturbance acres apply to Issues 1, 2, 3, 4, 5, 6, 7, and 9.

The selected action will disturb fewer acres than the other action alternatives. The selected action will result in the smallest amount of acres directly disturbed of all the action alternatives. The constrained footprint of the tailings and waste rock facilities incorporated into the design of the selected action avoids impacts in a number of ways:

- As previously mentioned, the selected action will result in fewer acres of WUS directly impacted, compared with other alternatives that comply with applicable law and regulation.[1]
- The selected action will directly disturb the fewest acres of riparian acres of any action alternative (588 acres, compared with 631 to 686 acres for the other action alternatives). In addition, the selected action will directly impact the fewest number of springs of any of the action alternatives (5, compared with 7 to 13). Along with riparian habitat, these springs provide aquatic habitat and surface water that support wildlife and plants, including species that are listed as threatened, endangered, or sensitive.
- The fewest acres of terrestrial vegetation will be lost or modified. The project and connected actions under the selected action will directly impact or modify the fewest acres of terrestrial vegetation, which provides habitat for a number of plant and animal species, including those listed as threatened, endangered, or sensitive (5,431 acres for the Barrel Alternative, compared with 5,481 to 6,197 acres for the other action alternatives).

[1] As mentioned earlier in this section, neither the Barrel Trail Alternative nor the Scholefield-McCleary Alternative would comply with the CAA.

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- The selected action will result in the smallest amount of disturbed area that will be conducive to invasive plants. While the impacts of potential invasive plant establishment are expected to be largely mitigated through monitoring and treatment requirements, the remaining risk will be reduced with the selected action due to the fewer acres that are conducive to invasive plan establishment.
- The selected action will result in the lowest potential reduction in livestock grazing on Federal grazing allotments. The potential reduction in Annual Unit Months (AUMs) (a measurement of livestock use consisting of a cow-calf pair using the allotment for 1 month) annually over the life of the mine will be lowest with the selected action. This is primarily attributable to the location of the perimeter fence, within which the livestock grazing analysis assumes grazing will be restricted. Actual reduction in AUMs is expected to be lower than those described in the analysis because the area between the perimeter and security fences will be evaluated for grazing potential once perimeter fence construction is completed and regularly during mine operation. The reduced footprint of the waste rock and tailings facilities, and thus reduced acreage within the security fence with the selected action, will likely allow a higher number of AUMs than will the other action alternatives.

H. **Biological Resources** – Biological resources were identified as an issue during scoping (see Issue 5). I consider the selected action to have the smallest impact of all the action alternatives to biological resources, including special status species (federally listed threatened, endangered, and sensitive species, as well as some migratory birds and Forest Service management indicator species). The overall conclusions of impacts to species viability are the same for all action alternatives. However, there are differences between the action alternatives in how they respond to the issue indicators chosen to reflect impacts. I considered the following in making my decision:

- The selected action will result in the smallest amount of acres of terrestrial vegetation permanently lost or modified;
- The selected action will result in impacts to fewer acres of terrestrial and aquatic habitat for most special status species;
- The selected action will result in less overall impact in animal movement corridors and connectivity between wildlife habitats. Under the selected action, McCleary Canyon will remain largely intact, which is the most physically and biologically diverse of the nearby canyons and which harbors the rare plant Coleman's coral-root (*Hexalectris colemanii*). Due to the protection of McCleary Canyon, I consider the selected action to have the smallest impact of the action alternatives in terms of impacts to animal movement corridors and connectivity between wildlife habitats.

I. **Cultural Resources** – Cultural resources were identified as an issue during scoping (see Issue 6). I considered impacts to cultural resources carefully in my decision. Each of the action alternatives will have significant, permanent adverse impacts to cultural resources. The action alternatives differ in the number of sites impacted, and some alternatives clearly have more impacts than others. Cultural sites are resources that cannot be restored once impacted, and this project will impact several sites irrespective of which action alternative is chosen for implementation. I recognize that every site is significant, and I do not take lightly small differences in the number of sites impacted.

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- Considering the overall results of the cultural resource impact analysis, I believe that the Barrel Trail and Scholefield-McCleary Alternatives would result in the greatest impacts of the action alternatives.
- Of the remaining three alternatives, the selected action will impact the fewest sacred springs (16 for the selected action, compared with 17 for the proposed action and Phased Tailings) and will impact the fewest sites that are eligible for the National Register of Historic Places (NRHP) (84 for the selected action and Phased Tailings, compared with 86 for the proposed action).
- Of the remaining three alternatives, the selected action (and Barrel Trail) will impact the greatest number prehistoric sites known or likely to have human remains (32, compared with 31 for the Phased Tailings Alternative); and will impact the greatest amount of acres of traditional resource collection areas impacted (6,990 acres, compared with 6,073 to 6,176 acres for the other action alternatives).
- The selected action carefully avoids impacting one of the more significant cultural sites (the Ballcourt Site) because of the reduced footprint of the tailings.

I carefully considered the impacts to the *Ce:wi Duag* Traditional Cultural Property and Huerfano Butte Traditional Cultural Property, located on State land. I also recognize the cultural significance and importance of the Santa Rita Mountains to the tribes. All action alternatives would have similar impacts to the Santa Rita Mountains. In making my decision to implement the selected action, I consulted with a number of tribes, the Arizona State Historic Preservation Office (SHPO), and the Advisory Council on Historic Preservation (ACHP), which resulted in a signed memorandum of agreement (MOA) that was developed in compliance with Section 106 of the National Historic Preservation Act (NHPA) and the 2003 Region 3 First Amended Programmatic Agreement Regarding Historic Property Protection and Responsibilities with the four SHPOs and the ACHP. The MOA is incorporated with this ROD (see appendix D of the FEIS). I reviewed the sites that would be impacted by the action alternatives, the traditional resource collection areas that would be affected, and the sum of other environmental and social impacts that would result from each alternative.

I decided to select the selected action for implementation, even though it will impact more sites and acres of traditional collection resource areas than some other alternatives, for the following reasons:

- The Barrel Trail and Scholefield-McCleary Alternatives would result in substantially greater impacts to cultural resources than the other action alternatives, and for that reason, along with other environmental and social impacts, these alternatives are unacceptable to me.
- The proposed action and Phased Tailings Alternative have greater environmental impacts as described elsewhere in this ROD and are therefore unacceptable to me.

J. **Paleontological Resources** – Paleontological resources were not identified as an issue during scoping; however, they were addressed in the analysis that is disclosed in the FEIS (see "Geology, Minerals, and Paleontology" in chapter 3). I am aware that paleontological impacts are predicted to be greater with the selected action than with one or more of the other action alternatives. In making my decision, I considered the following:

- Potential impacts to paleontological resources. The selected action will result in more acres of disturbance to areas considered to have a moderate to high potential for occurrence of paleontological resources, compared with some other action

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alternatives. While no significant fossil localities were discovered within the proposed perimeter fence boundary during the paleontological resources field surveys, I have included a mitigation measure that requires ground-disturbing work in an area to stop upon discovery of a significant paleontological resource until the Forest Service can investigate and determine the appropriate steps prior to commencement of operations. Therefore, I do not consider the slight increase in risk of impacting potential paleontological resources with the selected action to be great enough to outweigh the reduced or avoided impacts previously described.

K. **Springs, Seeps, and Riparian Vegetation** – Seeps, springs, and riparian vegetation were identified as issues during scoping (see Issue 4). Stock tanks are also addressed here as well as under "Livestock Grazing" in the impact analysis that is addressed in chapter 3 of the FEIS.

The analysis of potential impacts to seeps, springs, and riparian areas is complex and relies on a number of variables. Including a summary of analysis methodology is warranted in order to all an understanding of the potential impacts from the action alternatives. A more thorough description is contained in "Seeps, Springs, and Riparian Areas" in chapter 3 of the FEIS.

Flow from seeps and springs in the analysis areas can be attributed to the following: (1) discharge of shallow subsurface fracture flow that is directly dependent on storm and runoff events and that may or may not be in direct hydraulic connection with the groundwater flow system; (2) discharge of groundwater via fractures that intersect land surface and that are in connection with the regional groundwater flow system; (3) discharge from the recent stream channel alluvium or other shallow aquifer, where it is forced to flow to land surface at bedrock constrictions; and/or (4) discharge of groundwater along low-permeability fault zones that force groundwater to flow to the land surface.

For many of the seeps and springs considered for this analysis, the exact source of groundwater is unknown. The source of water is important to predicting impacts to springs. Springs hydraulically connected to the regional aquifer are likely to be impacted by groundwater drawdown associated with the mine pit. Springs that receive water from local fractures or that are located in ephemeral stream channels may not be impacted, even when they are in close proximity to the pit. Many springs may have a mix of regional and local water sources. For springs, seeps, and perennial and intermittent stream reaches, the following qualitative thresholds were established to reflect this uncertainty and are used in this analysis:

- High likelihood of impact – The predicted changes in hydrology due to the mine would impact resource function, and the source of water can either be estimated with high certainty to be connected with the regional aquifer, or impacts would occur no matter what the source of water.
- Possible impact – Reduction in flow could occur, given predicted changes in hydrology as a result of the mine, but uncertainty exists regarding the source of the water. Springs that have not been physically located in the field are assumed to exist, and impacts are considered possible.

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- Unlikely to be impacted – Predicted changes in hydrology as a result of the mine are small enough that they are unlikely to cause a reduction in flow, regardless of the source of water, or the source of the water is local and unlikely to be affected by aquifer drawdown associated with the pit. Springs that fall beyond the modeled 5-foot drawdown contour are considered unlikely to be impacted.

The FEIS analysis made use of available data where the data were deemed sufficient to determine the source of water for individual springs. Only field observations over several years or seasons have provided this level of evidence. For springs without such evidence, springs are assumed to have the potential to be impacted.

When all springs impacts are considered (directly impacted by surface disturbance, highly likely to be indirectly impacted by groundwater drawdown, and possibly indirectly impacted by groundwater drawdown), most of the action alternatives are identical, each potentially impacting 76 springs or seeps, except for the Scholefield-McCleary Alternative, which would potentially impact 78 springs or seeps.

I recognize that seeps, springs, and riparian areas are a valuable resource and that once impacted, they are unlikely to be restored. However, there is substantial uncertainty regarding the ability to predict indirect impacts to springs. For this project, the cause of indirect impacts to seeps and springs results from predicted groundwater drawdown. Seeps and springs whose water source is not tied to groundwater (refer to the "Seeps, Springs, and Riparian Areas" section in chapter 3 of the FEIS for further information) are not likely to be affected by groundwater drawdown, and it is not feasible to determine the source of water for every spring. While the analysis disclosed in the FEIS has attempted to address this situation by considering relevant factors such as the presence of perennial water and riparian vegetation, uncertainty remains. Therefore, I consider those springs with either direct impacts or highly likely indirect impacts to be the most significant factor related to seeps and springs influencing my decision.

When considering just those springs that are directly impacted by surface disturbance or that are highly likely to be indirectly impacted by groundwater drawdown, the selected action (and Barrel Trail) impact fewer springs (16 total, with 5 springs directly impacted and 11 springs indirectly impacted). The other action alternatives impact 17 to 22 springs.

However, these impacts will be reduced somewhat through required mitigation and monitoring focused on replacing impacted water sources. Under terms and conditions of the biological opinion (BO), which are also described in mitigation measure FS-BR-05, Rosemont Copper will replace or enhance up to 30 water sources if they are impacted by the project. Because of the uncertainty of effects on springs and seeps, FS-SSR-02 is a requirement that Rosemont Copper continue to monitor 25 springs with baseline data to identify any impacts that may occur due to dewatering of the regional aquifer in the vicinity of the mine pit. Additionally, the Cienega Creek Watershed Conservation Fund (FS-BR-16) can be used for monitoring of success of replacement or enhanced water features. If springs levels decrease, mitigation can come from this fund. I consider the impacts of all action alternatives to be similar with mitigation applied.

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In addition, the selected action and Barrel Trail Alternative would result in the greatest impact to stock tanks of all the action alternatives (15 tanks directly lost and 5 indirectly impacted).

Another factor related to the seeps, springs, and riparian issue includes acres of riparian area disturbed. The selected action will impact the fewest acres of riparian area of the action alternatives (588 acres for the selected action, compared with 631 to 686 acres for the other action alternatives). Other factors analyzed for this issue include change in the function of riparian areas; and the ability to meet legal and regulatory requirements for riparian areas. There are no differences between the action alternatives for these factors. Seven criteria were developed by the Coronado and assessed for impacts to Outstanding Arizona Waters. With respect to Lower Davidson Canyon and Lower Cienega Creek, analysis suggests that several constituents, including sulfate, molybdenum, arsenic, sodium, and mercury, may be elevated in stormwater with all action alternatives. Waste rock segregation requirements are likely to reduce this potential. All other criteria will likely remain unchanged for Lower Davidson Canyon and Lower Cienega Creek. With respect to Upper Cienega Creek, predictions are mixed. Few changes are predicted in the near term (up to 50 years after closure). In the long term, some modeling scenarios suggest that intermittent or ephemeral flow conditions could occur, as could increases in the frequency of low-flow conditions, which could affect water quality. All other criteria will likely remain unchanged for Upper Cienega Creek.

With all action alternatives, hydroriparian habitat along Empire Gulch could transition to mesoriparian or xeroriparian, although this is highly uncertain. Pockets of mesoriparian habitat along Davidson Canyon (Reach 2) could transition to mesoriparian or xeroriparian with moderate certainty. Xeroriparian habitat in lower Barrel Canyon is highly certain to experience reduced vitality, extensiveness, and health and to transition to lesser quality habitat. Along Upper Cienega Creek, there is unlikely to be any transition from hydroriparian to xeroriparian habitat, although some changes could occur at the margins of the hydroriparian corridor.

Since there is no difference between the action alternatives for these two factors, they did not influence my decision.

L. **Visual Resources** – Visual Resources is an issue that was identified during scoping (see Issue 7). While there are differences between the action alternatives related to impacts to visual resources, I do not consider the differences between the alternatives to be substantial. All alternatives would result in permanent, major adverse impacts, although the Scholefield-McCleary Alternative ranks as having the greatest impacts because its tailings and waste rock facilities would be visible from the west side of the Santa Rita Mountains. The selected action generally ranks in the middle of all action alternatives for:

- area that would not meet current forest plan scenic integrity objective designations;
- change in landscape character over time;
- miles of project visibility from level 1 and 2 forest roads and trails;
- miles of SR 83 with direct views of the project; and
- miles of Arizona National Scenic Trail with views of the project.

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However, the differences between alternatives are not substantive enough to modify my overall conclusion that permanent, major adverse impacts that cannot be avoided or mitigated will occur with all action alternatives. With the exception of the Scholefield-McCleary Alternative, the minor differences between alternatives are not substantive enough to sway my decision toward or away from one alternative or another.

M. **Recreation and Wilderness Resources** – Recreation and wilderness resources is an issue that was identified during scoping (see Issue 9.) Other than the Scholefield-McCleary Alternative, which would have the greatest impacts to recreation and wilderness, there is little difference in the impacts between the action alternatives. The minor differences are:

- impacts to Recreation Opportunity Spectrum;
- percentage of hunt unit 34A affected; and
- National Forest System Roads (NFSRs) lost (i.e., roads currently available for legal public motorized use that would not be available with project implementation).

The differences in these impacts are not substantive enough to sway my decision toward or away from any of the alternatives.

The location for the Arizona National Scenic Trail was a consideration in my decision. Based upon the analysis and my personal knowledge of the area, I believe that the location on the east side of SR 83 is superior to the location on the west side of SR 83 in terms of providing a desired user experience. While the east side location is a component of the selected action, Barrel Trail, and Scholefield-McCleary Alternatives only, it is a mitigation measure that I can apply to any alternative. My decision includes relocation of the Arizona National Scenic Trail on the east side of SR 83; however, it was not a significant factor in my decision because I could choose to apply this component to any of the action alternatives.

- Impacts to public access. Scholefield-McCleary has the greatest impact of any of the action alternatives, while there is little difference between the remaining alternatives. The other four action alternatives would decommission and restrict public access on 17.5 to 18.5 miles of NFSRs that are currently open to public motorized use. This is primarily due to excluding public access within the perimeter fence. Other than the Scholefield-McCleary Alternative, I did not consider the difference between the action alternatives to be substantive enough to influence my decision toward or away from any of the alternatives.
- It is important to note that most action alternatives include new road construction designed to connect roads that will be cut off by the perimeter fence, provide turnarounds, and connect the primary access road to a NFSR network in Sycamore Canyon. Because of the geographic aspect of the perimeter fence for Scholefield-McCleary Alternative, new connector roads are not included. Overall, I consider these connector roads to be critical for reducing or compensating for the loss of public motorized access. However, other than the Scholefield-McCleary Alternative, these actions are similar between the remaining action alternatives and thus were not a major factor in my decision.

ED_002020B_00047819-00031

N. **Socioeconomics and Environmental Justice** – Social and economic resources were identified as issues during scoping (see Issue 11). Environmental justice was not identified as an issue but is addressed in the analysis that is disclosed in chapter 3 of the FEIS (see "Socioeconomics and Environmental Justice"). There would be few differences between action alternatives in terms of their socioeconomic and environmental justice effects.

- Tourism. The analysis indicated that the selected action could result in a greater reduction in tourism and recreation revenue over time than the proposed action or Phased Tailings Alternative (the Barrel Trail and Scholefield-McCleary Alternatives would result in greater impacts; refer to the "Socioeconomics and Environmental Justice" section in chapter 3 of the FEIS for further information). As noted earlier, the Phased Tailings Alternative would not attain NAAQS at the perimeter fenceline. The analysis of impacts to tourism indicates that the selected action could result in direct annual reduction in spending related to nature-based tourism of $100,000 to $400,000 greater than the proposed action; and indirect effects in output per year of $111,000 to $400,000 greater than the proposed action. While I consider any negative impacts to local economies to be important, the difference between the selected action and the other action alternatives did not rise to a level that influenced my decision toward or away from any specific alternative.
- Amenity-based relocation. The analysis indicates a 0.01 percent difference in net migration to Santa Cruz County between the alternatives (impacts range from 0.08 to 0.09 percent decrease in net migration). I did not regard this difference to be of substantial magnitude to influence my decision toward or against any specific alternative. The analysis also indicates a potential decrease in the rate of population growth in Patagonia Census County Division of between 6 to 33 percent to 6 to 38 percent. The selected action was projected at 6 to 37 percent decrease in population growth. This projection did not influence my decision toward or away from any specific action alternative for two reasons: (1) similar to predicting impacts to tourism and recreation revenue discussed above, there is considerable uncertainty in this analysis; and (2) the analysis of this issues indicates that any decrease in amenity-based migration may be offset by an increase in mine staff relocation.

O. **Astronomy Industry** – This is a component of Issue 8, "Impacts on Dark Skies and Astronomy," which was identified during scoping. All action alternatives could potentially result in some impairment to observatories near the project area. However, the night lighting mitigation plan that applies to all alternatives except the proposed action will substantially reduce potential impacts. Although the mitigation plan is not included as a component of the preliminary MPO, which is reflected in the proposed action in the FEIS, I could decide to apply it to any of the action alternatives. The selected action has somewhat less lighting required than the Phased Tailings, Barrel Trail, and Scholefield-McCleary Alternatives because of the removal of the heap leach facility and therefore will have less impact on sky brightness than the other action alternatives.

P. **Other factors** – A number of other resources were addressed in the analysis. However, in general, there were no or very minor differences between the alternatives in terms of their impacts. Therefore, the results of these impact analyses were not a substantial influence in my decision.

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Conclusion – Determination of Selected Action

After reviewing the analysis and supporting information contained in the FEIS and project record; consulting with cooperating and regulatory agencies; reviewing public comments on the DEIS; and considering the factors discussed above, I determined that the selected action is the best balance of minimizing impacts to NFS resources as well as other environmental and social values. This alternative will allow Rosemont Copper to meet applicable laws and regulations and has reduced impacts, compared with other alternatives, while allowing Rosemont Copper to develop its mineral resources in a manner that is consistent with applicable laws and regulations, and this decision.

The selected action contains a number of design features that will avoid or reduce environmental impacts, as well as a comprehensive mitigation and monitoring plan that will reduce overall impacts and ensure that impacts are within the range that are predicted by the analysis that is disclosed in the FEIS. There is no one action alternative that completely mitigates or eliminates effects on important resource values when the proposal results in the placement of 1.3 billion tons of waste rock and tailings on the landscape. The challenge is selecting an alternative that represents the best balance of mitigating effects and avoiding significant impacts to cultural, social, and resource values while allowing mining activities authorized in Federal law. It is my determination that the selected action best meets these goals.

Description of the Selected Action

The selected action is fully described in chapter 2 of the FEIS and in appendix A of this ROD. The selected action contains changes and additions to Rosemont Copper's preliminary MPO ("Alternative 2 – Proposed Action") and includes design modifications, operational components, and mitigation and monitoring plans intended to minimize the risk of adverse impacts to the environment. A summary of the major aspects of the selected action follows. Figure ROD-2 depicts the footprint and major components of the selected action.

The selected action will develop Rosemont Copper's mineral deposit using open-pit mining techniques. The mine will consist of an open pit; plant site and support facilities; waste rock and tailings facilities; and ancillary facilities, including access and maintenance roads and electrical supply and water supply lines. The pit will require 18 to 24 months to fully develop and will be between 6,000 and 6,500 feet in diameter, with a final depth of about 3,050 feet above mean sea level. The pit will disturb about 955 acres, of which 590 acres are private lands and 365 acres are NFS lands.

During the 18- to 24-month preconstruction phase, other activities will include construction of a security fence that will be located approximately 750 feet from the eventual toe of the tailings and waste rock facilities; construction of a perimeter fence to protect public health and safety (see figure ROD-2), construction of the primary access road, including its intersection with SR 83; temporary improvements of an intersection at SR 83 and NFSR 231; and improvement to NFSR 231 to allow access to the mine site while the primary access road is being constructed. The area within the perimeter fence will be closed to the public for the premining through reclamation and closure periods, totaling up to 30 years. An estimated 35 miles of NFSRs will be decommissioned and 18.5 miles of NFSRs restricted by mine operations. An estimated 3.2 miles of new roads will be constructed to connect cut-off roads, including the 2.3-mile-long Sycamore Connector Road, which will connect the primary access road outside the perimeter fence to an existing NFSR in the Sycamore Canyon area north of the mine site (figure ROD-3).

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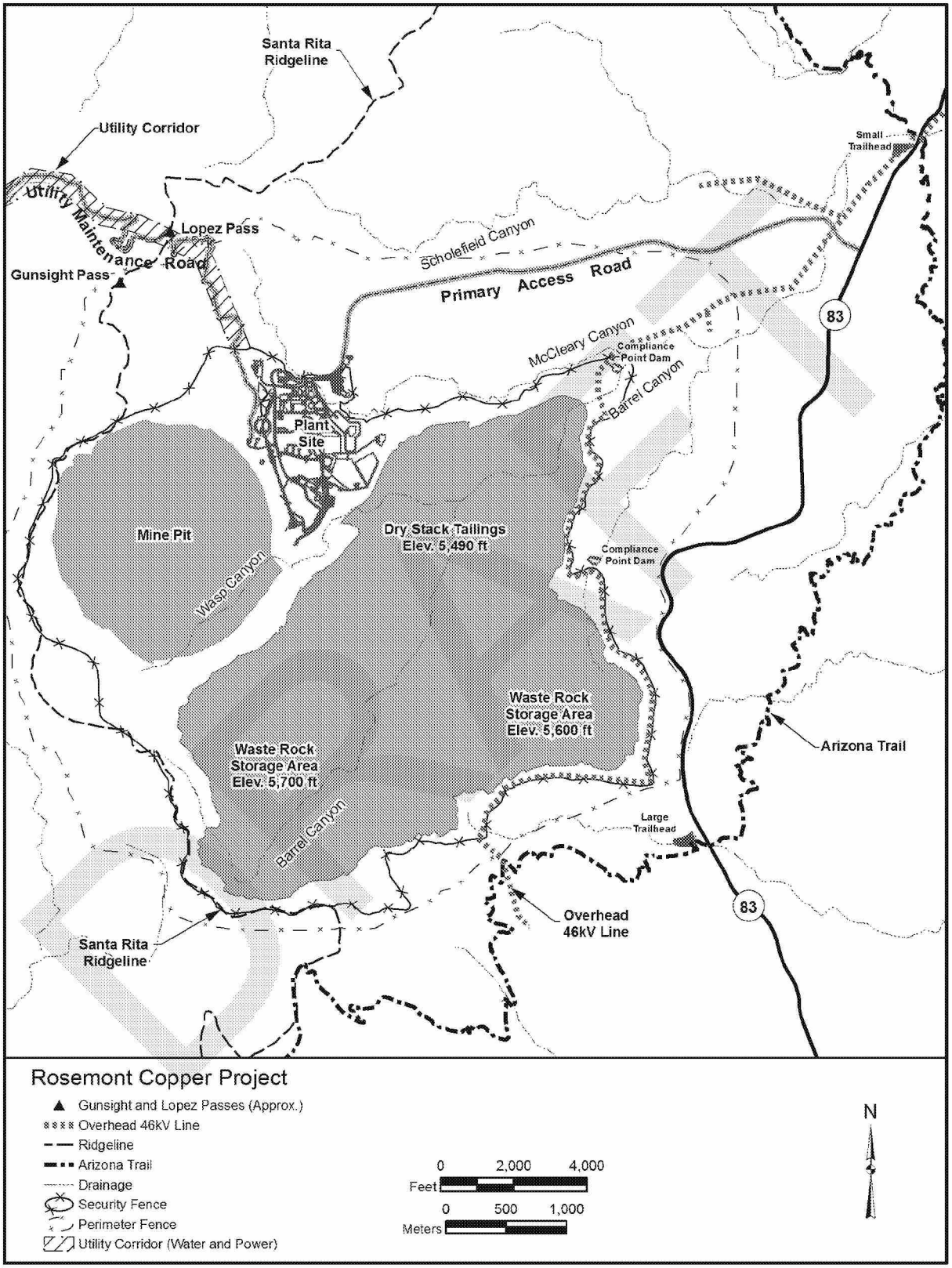

Figure ROD-2. Selected action footprint

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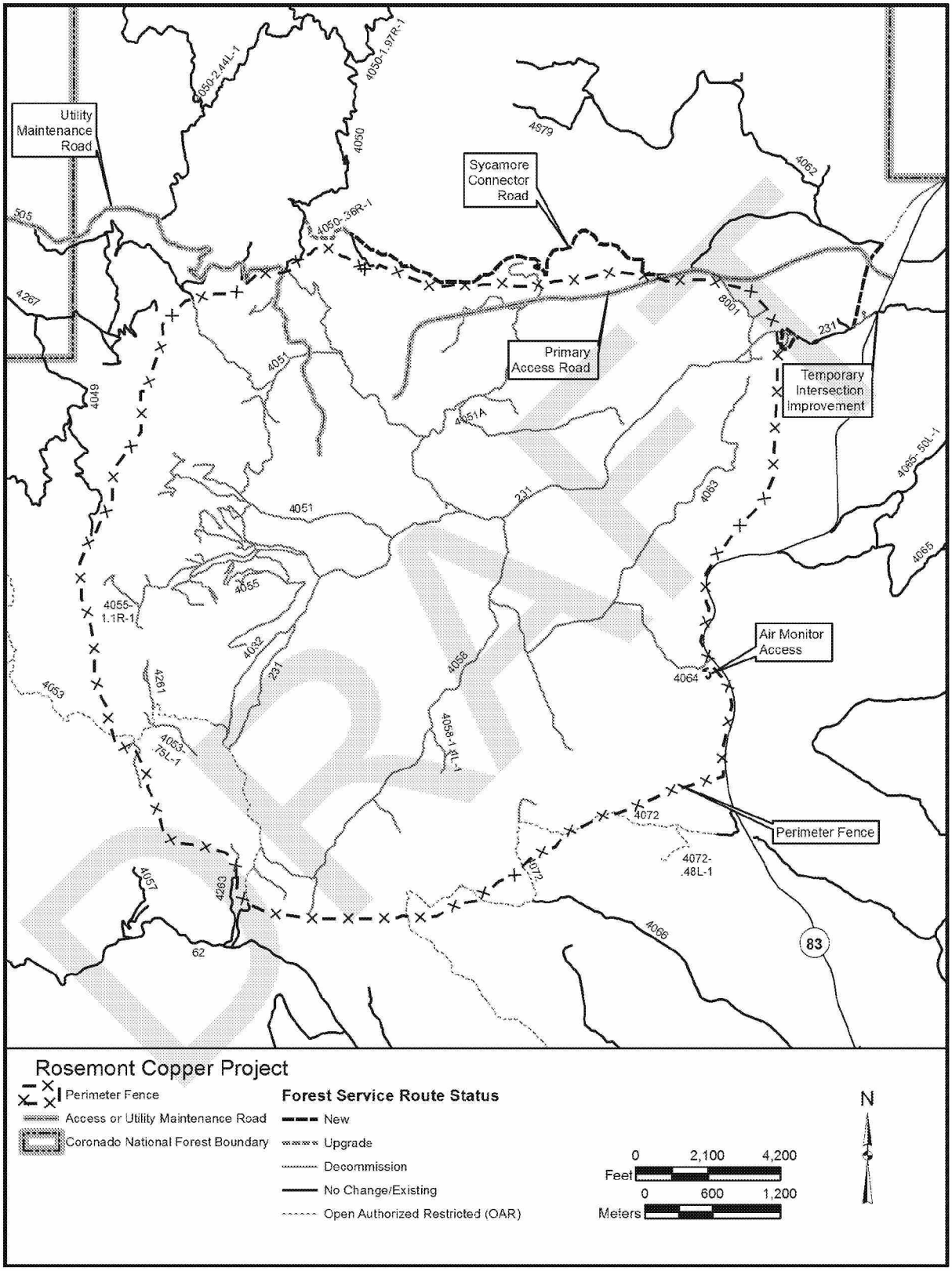

Figure ROD-3. Road changes under the selected action

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A utility maintenance road will be located within the utility corridor (see "Connected Actions," below) to serve as access to the power supply line, water supply line, and water booster pump stations. The road will consist of two discrete segments: one from the plant site, over Lopez Pass, to a major wash on private land; and another from the supply wells near Sahuarita to the other side of the major wash, generally following the electrical transmission and water line location (the wash itself will not be crossed by the utility maintenance road). Overall, this low-use road will require more than 11.5 miles of new construction and 4.5 miles of reconstruction or upgrade to an existing road. Other connected actions associated with the selected action include construction of a 138-kilovolt (kV) electrical transmission line and associated facilities; construction of a water supply line and ancillary facilities; relocation of an existing electrical distribution line; and relocation of the Arizona National Scenic Trail. See "Connected Actions" below and in chapter 1 of the FEIS for further details.

Active mining will occur for an estimated 20 to 25 years. Blasting in the pit will typically occur once per day during daylight hours. Mineral material will be transported from the pit to a crusher in mine haul trucks; following crushing, the mineral material will be transported via conveyors to the grinding and flotation unit. Dewatered tailings will be transported using a conveyor system from the dewatering plant to the tailings facility for final placement. The conveyors will transfer the tailings to a radial stacker, and the tailings will then be spread and compacted by a dozer. The compacted tailings will be encapsulated by a perimeter buttress formed of waste rock and a waste rock "cap" that will be placed by haul trucks traveling on haul roads. Over the life of the mine, it is estimated that 707,471,000 tons of sulfide ore will be processed and 1,249,161,000 tons of waste rock produced.

Reclamation will occur concurrently with active mining. This consists primarily of continuous construction of the perimeter buttresses, with revegetation activities and application of appropriate best management practices (BMPs) beginning as early as year 1, as portions of the waste rock buttress are completed. A large portion of the waste rock perimeter buttresses that surround the tailings facility and the waste rock facility itself will be concurrently reclaimed by year 10; these areas will begin to discharge water downstream as reclamation is completed. The upper benches and tops of the waste rock and tailings facilities will be reclaimed beginning in year 16 but will not be completely reclaimed until the mine is fully closed. This will help to limit erosion potential and allow noncontact stormwater runoff to discharge to sediment ponds and eventually to washes downstream of the mine site.

Final reclamation and closure is expected to take an additional 3 years, for a total mine life of 24.5 to 30 years. Reclamation and closure consists of several components, including:

- Removal of all equipment and buildings;
- Capping of the top of the tailings facility with waste rock upon closure;
- Removal of pond liners as deemed appropriate;
- Regrading and revegetation of the plant and mill site areas upon closure;
- Regrading and revegetation of any access roads requiring closure;
- Removal of electric supply line, water supply line, and related facilities from NFS lands;
- Revegetation of utility corridors where removal causes soil disturbance;
- Final reclamation and revegetation of the landform that encompasses the waste rock and tailings facilities;
- Removal of perimeter and security fencing;

- Construction of fencing and/or berms for safety considerations;
- Identification of postclosure land use;
- Establishment of postclosure access roads; and
- Reestablishment of downstream drainage and surface water flow.

Connected Actions

The selected action will result in the following connected actions, described below.

Electrical Transmission Line

A 138-kV electrical transmission line and associated facilities will be constructed from the proposed Toro switchyard to the Rosemont substation.

Water Supply Pipeline

A water supply pipeline and ancillary facilities will be constructed to convey mine supply water from supply wells near Sahuarita to the mine site. This pipeline will be co-located with the electrical transmission line and buried where possible. Ancillary facilities include four pump stations and an electrical distribution line that will run from the Rosemont substation to the pump stations on the same towers as the electrical transmission line.

Electrical Distribution Line

An existing 46-kV electrical distribution line that currently provides electrical power to Rosemont Ranch and other private lands is located in an area where tailings and waste rock facilities will be constructed. This distribution line will be relocated within the security fence where necessary.

Arizona National Scenic Trail Reroute

The Las Colinas portion of the Arizona National Scenic Trail currently runs through the project area. Approximately 10 miles of existing trail will be relocated to the east side of SR 83 in order to accommodate both the Rosemont Copper Project and continued use of the trail (see figure ROD-2). This will require constructing an estimated 12.8 miles of new construction, along with ancillary facilities such as trailheads and parking areas. Construction of ancillary facilities includes two trailheads, parking for cars and trailers, and restroom facilities, as described in chapter 2 of the FEIS.

State Route 83 Highway Maintenance and Improvements

ADOT has determined that a number of road maintenance and improvement actions will be required to mitigate increased traffic on SR 83 associated with the combination of mine activities and anticipated population growth. These actions include a 3-inch pavement overlay from the intersection of the primary access road to the junction with I-10; associated striping, raising of guardrails, and resigning; and paving of three existing pullouts to safely accommodate school buses. All actions on NFS lands will occur within the ADOT easement.

ED_002020B_00047819-00037

Mitigation and Monitoring

All mitigation and monitoring measures listed as Forest Service measures in appendix B of the FEIS are included in my decision, with the following exception:

- FS-GW-05 - Monitoring, Pumping, and Treatment of Heap Leach Drainage. The heap leach is not included in the selected action; therefore, this mitigation is not applicable.

All mitigation and monitoring in the "Forest Service" and "Other Regulatory Agency" categories in appendix B of the FEIS are within the jurisdiction of the Forest Service or other regulatory agency, are nondiscretionary, and are required to be implemented. Rosemont Copper has committed to implementing the mitigation and monitoring in the Rosemont Copper category; however, these items are not within the jurisdiction of the Forest Service or other regulatory agency. See "Stipulations, Mitigations, and Monitoring Programs" below for identification of those mitigations that will be brought forward into the final MPO and thereby required for implementation.

Stipulations, Mitigations, and Monitoring Programs

A number of modifications to the preliminary MPO, monitoring requirements, and mitigation measures will be incorporated in a revised final MPO (the "final" MPO) as identified in the selected action. The Forest Service has determined that these changes and additions are necessary to meet the purposes of the applicable regulations, including compliance with the Endangered Species Act (ESA), as set forth in the BO prepared by the U.S. Fish and Wildlife Service (USFWS), compliance with Sections 401 and 404 of the CWA, and compliance with the NHPA, as set forth in the MOA for NHPA Section 106 compliance.

General Stipulations

1. All requirements and stipulations specified in the FEIS for the selected action and in this ROD, including the stipulations and mitigation measures in this section, are binding upon Rosemont Copper and its successors, if any. These include all stipulations contained in the USFWS BO and MOA for NHPA Section 106 compliance, including the historic properties treatment plan (HPTP). Any deviation from these requirements must be approved by the Coronado in advance.
2. Rosemont Copper shall modify and amend the MPO to be consistent with development of the Rosemont Copper deposit in accordance with the selected action as described in this ROD.
3. The final MPO shall contain a final reclamation and closure plan that is consistent with the preliminary reclamation and closure plan for the Barrel Alternative (CDM Smith 2012a), including changes at the request of and approved by the Forest Service.
4. Rosemont Copper shall submit a reclamation performance bond, meeting the requirements of 36 CFR 228.13, in an amount acceptable to the Forest Service and using an instrument acceptable to the Forest Service. The bond will be maintained by Rosemont Copper and may be required to be reviewed, increased, and updated as deemed necessary by the Forest Service.

ED_002020B_00047819-00038

5. Rosemont Copper shall comply with the current USFWS BO, dated October 30, 2013, and any revised or supplemental BOs in effect for the project. Rosemont Copper shall notify the Coronado of actions that do not comply with requirements of the applicable BO. The current BO is contained in appendix F of the FEIS.
6. Rosemont Copper shall comply with all the current and future permits issues by the Arizona Department of Water Resources (ADWR), ADEQ, ASLD, Pima County, and other permitting agency; and shall comply with any revised or supplemental permits in effect for the project. Rosemont Copper shall notify the permitting agency and the Coronado of actions that do not comply with requirements of the applicable permit.
7. Rosemont Copper shall provide the Coronado with: a copy of the Arizona Pollutant Discharge Elimination System (AZPDES) multisector general permit authorization from the ADEQ, including a copy of the stormwater pollution prevention plan (SWPPP); a copy of the AZPDES construction general permit authorization and SWPPP if this permit is required by ADEQ in addition to the multisector general permit; the CWA Section 401 certification from ADEQ; a copy of the CWA Section 404 permit from USACE, including the final version of the habitat mitigation and monitoring plan; updates to the aquifer protection permit (APP) and air quality class II synthetic minor permit from ADEQ incorporating any necessary changes resulting from the decision to implement the selected action and copies of any other air permits required for construction activities from either the Pima County Department of Environmental Quality or ADEQ.
8. Rosemont Copper will provide a ROW permit from the ASLD indicating permission to construct a power line, water pipeline, and utility maintenance road across State property to the Rosemont Copper Project plant site; and ROW encroachment permits from ADOT to allow construction or improvement of intersections of NFSRs and SR 83.
9. Rosemont Copper shall prepare a construction schedule that describes the order of activities and which activities and mitigation measures are required prior to initiation of construction and submit it to the Coronado for approval prior to initiating any activities on NFS lands.
10. Rosemont Copper shall provide an annual report summarizing mining, reclamation, and monitoring activities and projecting proposed activities for the coming year. Rosemont Copper shall conduct an annual review with the Coronado to determine whether activities are in accordance with the approved MPO and whether any changes to the approved MPO or financial assurance are needed.
11. Rosemont Copper shall notify the Coronado in the event of any action, activity, or occurrence that results in deviation from the mine life as described in the final MPO.
12. At any time during operations the Forest Service may ask Rosemont Copper for a proposed modification of the MPO detailing the means of minimizing unforeseen significant disturbance of surface resources, as stated in 36 CFR 228.4(e).
13. The Rosemont Copper final MPO shall describe plans to control public access to mine areas such as fencing and posting to prohibit unauthorized entry to hazardous areas.
14. To accomplish the objective of documenting compliance with permit requirements, a system of self-monitoring and quality assurance/quality control (QA/QC) techniques will occur. To achieve this objective, Rosemont Copper will provide the Coronado with a description of how environmental protection standards contained in approved plans

ED_002020B_00047819-00039

and permits will be implemented. Rosemont Copper will specify company and consultant personnel who are responsible for performance, inspection, and approval of all work that affects the surface resources. Rosemont Copper will designate an environmental coordinator as the primary contact with the Coronado on permit compliance, monitoring, and mitigation. As directed by the Coronado Forest Supervisor, an interagency task group will be formed to assist the Coronado to administer the approved MPO. The Coronado, ADEQ, Arizona State Mine Inspector, Arizona Game and Fish Department (AGFD) Bureau of Land Management (BLM), and other regulatory and permitting agencies will be invited to participate in the task group. See "Reporting and Evaluation" below and chapter 2 of the FEIS for further details.

15. Rosemont Copper will be required to compile monitoring results into a monitoring report that will be provided to the Coronado on a quarterly basis. Any monitoring result that is not in compliance with the effectiveness criteria will be reported to the Coronado within 72 hours. After reviewing the results of these reporting requirements, the Coronado will notify members of the multiagency monitoring group should conditions warrant interim or emergency meetings.
16. In addition to quarterly monitoring reports, Rosemont Copper will submit an annual report to the Coronado and the multiagency monitoring group that contains a description of all activities conducted during the previous year and a summary of applicable information as approved by the Coronado, along with annual results of all monitoring plans in a format approved by the Coronado, including a complete data summary and any data trends, a mining status plan, and plans for the coming year.
17. Rosemont Copper has agreed to enter into a voluntary collection agreement with the Coronado to fund work performed by Coronado employees, consultants, and/or cooperators assigned to administer and monitor the project. This would include a minerals administrator; a biological monitor, whose role in overseeing monitoring activities is described in the BO (see appendix F of the FEIS); and the time spent by the forest archaeologist to oversee the implementation of the HPTP for the construction, operation, and reclamation of the project. Details regarding other Coronado positions that would be necessary for administering the project and overseeing monitoring are still being developed. The collection agreement will be in place at the time the final MPO is approved. This measure may be refined with further details once the collection agreement is finalized and approved by both parties.
18. Rosemont Copper has agreed to purchase merchantable large, woody material cleared from NFS lands during mine construction after reclamation requirements are met. Rosemont Copper will be responsible for disposal of this material, which could occur in several ways. For example, the remaining material could be made available to the public, including tribal members. In order to allow public access to firewood, previously cleared areas on NFS lands outside the perimeter fence may be used for temporarily stockpiling firewood if approved in advance by the Coronado. Some material could also be sold commercially for other uses, such as for lumber. Some woody material suitable for reclamation will likely be stored in temporary stockpiles prior to placement, but no large-scale stockpiles of wood will be maintained onsite on NFS lands. Refer to "Fuels and Fire Management" in chapter 3 of the FEIS for further detail.

ED_002020B_00047819-00040

Mitigation and Monitoring Requirements

The description of the selected action in appendix A of this ROD contains descriptions of operational requirements, design criteria, mitigation items, monitoring plans, and changes and additions to the preliminary MPO. Mitigation measures, design components, and monitoring programs that must be incorporated in the final MPO prior to Coronado approval are listed below. Where deemed appropriate, I have included clarification or additional details regarding these required mitigation and monitoring measures. Mitigation and monitoring measures identified as Forest Service measures in appendix B are requirements of this ROD and are therefore required for implementation.

Mitigation and monitoring measures identified as "Other Agency" measures in appendix B are also required; however, these measures are required by permits that are under the authority of ADEQ, ADWR, ASLD, Pima County, or other permitting agencies and are not within the authority of the Forest Service. While these measures are not specified as a requirement of this ROD, they are expected to be implemented under the jurisdiction of a permitting agency and are referenced below.

Mitigation and monitoring measures identified as Rosemont Copper measures in appendix B are not within the authority of the Forest Service or any permitting or regulatory agency; therefore, the implementation of these measures is not assured. However, Rosemont Copper has publicly committed to implementing these measures and I expect them to follow through with their commitment. Because these measures are outside the authority of the Forest Service, they are not considered to be requirements of this ROD. I have referenced these Rosemont Copper mitigation and monitoring measures below for informational purposes. Additional details for all mitigation and monitoring are described in appendix B of the FEIS.

Rosemont Copper and AGFD signed an agreement in principle on October 25, 2013 (AGFD 2013) in which Rosemont Copper agrees to provide funding to AGFD and AGFD agrees to implement certain mitigation and monitoring items. While this agreement details the relationship between Rosemont Copper and AGFD in implementing required mitigation and monitoring, it is important to note that nothing in this agreement changes or modifies the requirements of this ROD, including requirements of the BO. Rosemont Copper is responsible for implementing the project in a manner that complies with all applicable laws and regulations and meets the requirements of my decision. I consider the agreement in principle to be a working agreement in Rosemont Copper's efforts to comply with its responsibilities.

Reporting and Evaluation

The Forest Service has sole authority to approve and administer the MPO. The Forest Service will review all final designs and monitoring and mitigation plans, and written approval from the Forest Service must be obtained prior to initiation of the work outlined in the final MPO. Prior to beginning construction activities on NFS lands, an interagency task group will be formed to provide for information sharing for purposes of facilitating multiagency oversight of the Rosemont Copper Project. The Coronado will invite county, State, and Federal agencies with permitting or other regulatory authority to participate in this task group. This interagency task group will review plans and monitoring data and will facilitate information sharing for multiagency oversight of regulatory compliance related to the Rosemont Copper Project. Refer to chapter 2 of the FEIS for further detail.

ED_002020B_00047819-00041

Geology, Minerals, and Paleontology

The following mitigation measures associated with geology, minerals, and paleontology are required and will be incorporated into the final MPO. Refer to appendix B in the FEIS for details:

- FS-GMP-01 - Upon discovery of paleontological resources, suspension of operations pending Forest Service review
- FS-GMP-02 - Upon discovery of a cave or sinkhole, suspension of operations pending Forest Service review

Soils and Revegetation

The following mitigation measures associated with soils and revegetation are required and will be incorporated into the final MPO. Refer to appendix B in the FEIS for details:

- FS-SR-01 - Growth media salvage and application
- FS-SR-02 - Revegetate disturbed areas with native species
- FS-SR-03 - Concurrent placement of perimeter buttress
- FS-SR-04 - Slope stability monitoring
- FS-SR-05 - Sediment transport monitoring

In addition, the following clarification and requirement will apply to soils and revegetation mitigation and monitoring:

1. Rosemont Copper shall update the final reclamation and closure plan for inclusion in the final MPO and submit such plan to the Coronado for approval. Rosemont Copper shall conduct reclamation in accordance with an approved final reclamation plan. Refer to appendix B of the FEIS regarding the mitigation and monitoring measures above for further detail.

Air Quality and Climate Change

A number of other regulatory agency mitigation and monitoring measures associated with air quality and climate change are described in appendix B of the FEIS. Please see items OA-AQ-01 through OA-AQ-11 in appendix B for details.

In addition, Rosemont Copper has agreed to implement mitigation and monitoring measures associated with air quality and climate change. Please see RC-AQ-01 in appendix B of the FEIS for details.

Groundwater Quantity and Quality

The following mitigation measures associated with groundwater quantity and quality are required and will be incorporated into the final MPO. Refer to appendix B in the FEIS for details:

- FS-GW-01 - Monitoring of waste rock for seepage
- FS-GW-02 - Water quality monitoring beyond point-of-compliance wells
- FS-GW-03 - Additional operational waste rock and tailings characterization
- FS-GW-04 - Periodic update and rerunning of pit lake geochemistry model throughout life of mine

ED_002020B_00047819-00042

In addition, a number of other regulatory agency mitigation and monitoring measures associated with groundwater quantity and quality are described in appendix B of the FEIS. Please see items OA-GW-01 through OA-GW-08 in appendix B for details.

Rosemont Copper has committed to implement several mitigation and monitoring measures associated with groundwater quantity and quality. Please refer to RC-GW-01 through RC-GW-03 in appendix B of the FEIS for details.

The following clarifications and requirements will apply to groundwater quantity and quality mitigation and monitoring:

1. Rosemont Copper shall test water quality, waste rock, leachate, and tailings materials throughout the life of the mine to evaluate potential for acid generation and metals leaching, as specified in appendix B of the FEIS.

   Rosemont Copper shall provide a detailed sampling plan for water quality sampling and waste rock/tailings characterization plan for Forest Service review and approval that includes: (1) quality assurance protocol, (2) sampling protocol consistent with accepted scientific standards, (3) detailed analyte (chemical or contaminant) list including the contaminants of concern, (4) sampling frequency no less than monthly (tailings), quarterly (process water), every 6 months (humidity cell testing for potentially acid-generating waste rock), annually (humidity cell testing for tailings), every 250,000 tons (for potentially acid-generating waste rock), and every 5,000,000 tons (for non-potentially acid-generating waste rock), (5) criteria for defining baseline or ambient groundwater quality, (6) definition of non-regulatory water quality thresholds against which to compare results, (7) no less than annually reporting requirements, (8) proposed protocols to be followed in the event that a water quality threshold is exceeded (i.e., reporting, increased sampling frequency, other investigative approaches, and remedial action), and (9) a proposed procedure with which to review and request changes to the level of monitoring.

Surface Water Quantity and Quality

The following mitigation measures associated with surface water quantity and quality are required and will be incorporated into the final MPO. Refer to appendix B in the FEIS for details:

- FS-SW-01 - Location, design, and operation of facilities and structures intended to route stormwater around the mine and into downstream drainages
- FS-SW-02 - Stormwater diversion for Barrel Alternative designed to route more stormwater into downstream drainages postclosure

In addition, a number of other regulatory agency mitigation and monitoring measures associated with surface water quantity and quality are described in appendix B of the FEIS. Please see items OA-SW-01 and OA-SW-02 in appendix B for details.

Rosemont Copper has committed to implement a mitigation and monitoring measure associated with surface water quantity and quality. Please refer to RC-SW-01 in appendix B of the FEIS for details.

The following clarifications and requirements will apply to surface water quantity and quality mitigation and monitoring:

ED_002020B_00047819-00043

1. Rosemont Copper shall provide a final engineering design for the tailings and waste rock landform that includes:
   a. Any necessary modifications to ensure that the ultimate landform complies with this decision. The final configuration of the tailings and waste rock landform shall be such that no storage of stormwater occurs on the top of these facilities or benches. Design of these facilities shall include grading of the tops to discharge stormwater to the lower benches, which in turn shall be designed to move stormwater laterally along the benches until it reaches several concrete drop structures. The runoff from these drop structures shall be discharged into the natural washes (Barrel Canyon or a tributary) or discharged into a diversion channel that will carry runoff along the toe of the waste rock and tailings facilities and discharge that runoff into the natural washes.
   b. The thickness of waste rock material to be placed as a closure cap over the tailings facility.
2. Rosemont Copper shall provide a site water management plan that includes:
   a. Locations and design criteria for all stormwater conveyance or storage facilities.
   b. Engineering final design for conveyance channels, stormwater drop structures, and stormwater management and detention/retention basins.
   c. Phasing of stormwater management features over the mine life.
   d. Stormwater management features after reclamation and closure.
   e. Reestablishment of downstream drainage and surface water flow.
3. Rosemont Copper shall remove and reclaim compliance point dams, unless monitoring and maintenance of such structure determine the need to retain them for further monitoring. Such determination is the responsibility of the Coronado, in coordination with ADEQ.

Seeps, Springs, and Riparian Areas

The following mitigation measures associated with seeps, springs, and riparian areas are required and will be incorporated into the final MPO. Refer to appendix B in the FEIS for details:

- FS-SSR-01 - Purchase of water rights, to be used for compensating for impacts in the Cienega Creek watershed
- FS-SSR-02 - Spring, seep, and constructed/enhanced waters monitoring

Biological Resources

The following mitigation measures associated with biological resources are required and will be incorporated into the final MPO. Refer to appendix B in the FEIS for details:

- FS-BR-01 - Plant site location and design adjustments to reduce impacts to biological resources
- FS-BR-02 - Redesign of the coarse ore stockpile dome and pebble crusher/ball loading facility to avoid a subpopulation of sensitive plants
- FS-BR-03 - Measures to exclude wildlife, livestock, and the public from water ponds and other areas
- FS-BR-04 - Salvage, growing, planting, and monitoring of Palmer's agave

ED_002020B_00047819-00044

- FS-BR-05 - Construction, management, and maintenance of water features to reduce potential impacts to wildlife and livestock from reduced flow in seeps, springs, surface water, and groundwater
- FS-BR-06 - Location of the electrical power line that provides power to the pit area so that it avoids talus slopes to the extent practicable
- FS-BR-07 - Recordation of a restrictive easement on the private Helvetia Ranch Annex North Parcel to compensate for impacts to species listed as threatened or endangered
- FS-BR-08 - Recordation of a restrictive easement on the private Sonoita Creek Ranch Parcel to compensate for impacts to species listed as threatened or endangered
- FS-BR-09 - Funding to support camera studies for large predators, including jaguar and ocelot
- FS-BR-10 - Measures to reduce and rectify impacts to Pima pineapple cactus
- FS-BR-11 - Monitoring and control of actions to reduce or prevent impacts to Chiricahua leopard frog from invasive aquatic species
- FS-BR-12 - Relocation of Chiricahua leopard frogs from areas in the immediate vicinity of the project area
- FS-BR-13 - Measures to ensure relocation of lesser long-nosed bat and other bat species in the immediate vicinity of the mine
- FS-BR-14 - Measures to reduce impacts to western yellow-billed cuckoo
- FS-BR-15 - Measures to protect two occurrences of Coleman's coral-root during road decommissioning
- FS-BR-16 - Establishment of the Cienega Creek Watershed Conservation Fund, to be used for future mitigation in the Cienega Creek watershed
- FS-BR-17 - Future modification of allotment management plans
- FS-BR-18 - Predisturbance surveys for Forest Service sensitive species
- FS-BR-19 - Measures to reduce impacts to jaguar
- FS-BR-20 - Funding of NEPA analysis required for implementation of mitigation measures or changes in the MPO that affect NFS surface resources
- FS-BR-21 - Recordation of a restrictive covenant or conservation easement on private land parcels in Davidson Canyon to compensate for loss of habitat for listed species
- FS-BR-22 - Monitoring to determine impacts from pit dewatering on downstream sites in Barrel and Davidson Canyons
- FS-BR-23 - Monitoring to determine the extent of road-kill near the project area
- FS-BR-24 - Surveying and monitoring for lesser long-nosed bats
- FS-BR-25 - Surveying for bats in the vicinity of the project area
- FS-BR-26 - Annual monitoring for Chiricahua leopard frog
- FS-BR-27 - Periodic validation and rerunning of groundwater model throughout life of mine
- FS-BR-28 - Monitoring of water quality in potential Chiricahua leopard frog habitat

ED_002020B_00047819-00045

In addition, Rosemont Copper has committed to implement a mitigation and monitoring measure associated with biological resources. Please refer to RC-BR-01 in appendix B of the FEIS for details.

The following clarification and requirement will apply to biological resources mitigation and monitoring:

1. Prior to completing construction of the perimeter fence, Rosemont Copper shall coordinate with the Coronado regarding livestock grazing levels and restrictions for the permitted area between the perimeter and security fences. Grazing may be reintroduced in areas within the security fence once reclamation is completed and the land has been determined to be suitable for grazing. This could be during the active mining phase in some areas where concurrent reclamation has occurred or is occurring and livestock grazing has been determined to be suitable for specific areas. It is not known when revegetation will be established enough to reinstate grazing.

Landownership and Boundary Management

The following mitigation measures associated with landownership and boundary management are required and will be incorporated into the final MPO. Refer to appendix B in the FEIS for details:

- FS-LO-01 - Resurveying of existing survey monuments and land lines to allow reestablishment postmining
- FS-LO-02 - Reestablishment of survey monuments and surveyed land line upon completion of final reclamation

In addition, Rosemont Copper has committed to implement two mitigation and monitoring measures associated with landownership and boundary adjustment. Please refer to RC-LO-01 and RC-LO-02 in appendix B of the FEIS for details.

Dark Skies

The following mitigation measure associated with dark skies is required and will be incorporated into the final MPO. Refer to appendix B in the FEIS for details:

- FS-DS-01 - Implementation of an outdoor lighting plan that would reduce potential impacts from artificial night lighting
- FS-DS-02 - Funding of additional ground-based sky brightness monitoring

Visual Resources

The following mitigation measures associated with visual resources are required and will be incorporated into the final MPO. Refer to appendix B in the FEIS for details:

- FS-VR-01 - Color of mine related buildings blends into the natural landscape
- FS-VR-02 - Removal of unneeded facilities during closure
- FS-VR-03 - Measures to reduce color contrasts from cuts, fills, and concrete structures associated with the mine
- FS-VR-04 - Measures to reduce the visual impact of the mining pit

ED_002020B_00047819-00046

The following clarifications and requirements will apply to visual resources mitigation and monitoring:

1. Rosemont Copper shall submit plans and specifications for the final MPO detailing how the perimeter and security fence will be constructed, maintained, and removed in a manner that minimizes surface disturbance.
2. All areas will be surveyed for the presence of contaminants, and any contaminated soils, reagents, or fuels and any contaminants will be disposed of offsite at licensed facilities.

Recreation and Wilderness

The following mitigation measures associated with recreation and wilderness are required and will be incorporated into the final MPO. Refer to appendix B in the FEIS for details:

- FS-RW-01 - Relocation of a segment of the Arizona National Scenic Trail and construction of trailheads
- FS-RW-02 - Arizona National Scenic Trail: easement to allow the trail to be constructed across Rosemont Copper's private land
- FS-RW-03 - Mitigate loss of OHV use opportunities

In addition, the following clarifications and requirements will apply to recreation and wilderness mitigation and monitoring:

1. Rosemont Copper shall ensure that the relocated segment of the Arizona National Scenic Trail is pioneered and available for public use at the time the existing trail segment is closed to public use. With the intent of maintaining the trail in an open condition during the prime hiking season of March, April, October, and November, any activity that will restrict the trail to public use shall be reported to the Coronado in advance and shall not commence without the approval of the Coronado. See FS-RW-01 in appendix B of the FEIS for further detail.
2. Rosemont Copper has agreed to grant ROWs to the Coronado across its private lands for construction of a trailhead and associated facilities for the relocated Arizona National Scenic Trail; and to allow the relocated trail to be constructed across Rosemont Copper private land. ROWs will be granted prior to commencement of mine construction activities on NFS lands. See FS-RW-02 in appendix B of the FEIS for further detail.
3. Rosemont Copper has agreed to provide funding for efforts to produce a plan for developing facilities and managing OHV use that will be displaced from the project area (see FS-RW-03 in appendix B of the FEIS for details). Rosemont Copper has agreed to enter into a collection agreement to provide funding that will include $100,000 to be used for a NEPA analysis and decision process to determine where additional facilities are warranted and appropriate. Subsequent to the NEPA decision to implement OHV mitigation, Rosemont Copper has committed to contribute $700,000 to the Coronado for additional work, which could include, but would not be limited to, construction of OHV facilities; public outreach and education; management; and enforcement.

Hazardous Materials

The following mitigation measures associated with hazardous materials are required and will be incorporated into the final MPO. Refer to appendix B in the FEIS for details:

ED_002020B_00047819-00047

- FS-HM-01 - Hazardous materials containment and management
- FS-HM-02 - Maintaining of material safety data sheets in accordance with 30 CFR 47

Transportation/Access

The following mitigation measure associated with transportation and access is required and will be incorporated into the final MPO. Refer to appendix B in the FEIS for details:

- FS-TA-01 - Development of a comprehensive transportation plan

In addition, Rosemont Copper has committed to implement several mitigation and monitoring measures associated with transportation and access. Please refer to RC-TA-01 through RC-TA-03 in appendix B of the FEIS for details.

The following clarifications and requirements will apply to transportation and access mitigation and monitoring:

1. NFS Road Stipulations
   a. Rosemont Copper shall prepare a comprehensive transportation plan for inclusion in the final MPO. The plan shall address the following for all roads on NFS lands, other than temporary haul roads, including all roads to be constructed or reconstructed, or maintained, that are used for mining or related purposes. The transportation plan shall address for all roads on NFS lands used for mining and related purposes:
      i. A list of all NFSRs that Rosemont Copper intends to use for mining or related purposes, including those roads to be constructed.
      ii. Maintenance standards;
      iii. Levels of appropriate use;
      iv. Methods to maintain the roadways sufficiently to prevent washboard, rutting, and drainage problems;
      v. Commitment to replace surfacing lost to drainage;
      vi. Commitment to repair roads damaged by use;
      vii. Commitment to restore temporary roads to natural preoperation conditions during reclamation/closure;
      viii. Installation and maintenance of wildlife crossing structures (e.g., corrugated metal pipes) under the primary access road at locations of known wildlife concentration.
      ix. A transportation reduction plan for reducing traffic (i.e., carpooling, busing); and
      x. A delivery schedule plan that will indicate actions to be taken to schedule delivery traffic on SR 83 occurs outside peak traffic hours, as well as monitoring and reporting stipulations.
   b. The final MPO shall specify the conditions under which Rosemont Copper may use NFSRs. The final MPO will address the following:
      i. Access road design shall meet Forest Service specifications (to be furnished by the Forest Service) for road width, grade, alignment, surfacing, drainage, quality control, and signing. Exceptions to these standards may occur only with Coronado approval. Rosemont Copper will submit designs for road construction and improvements to the Coronado for review and approval prior to initiating construction.

ED_002020B_00047819-00048

ii. A requirement that Coronado approval must be obtained for all location or design changes for access and utility maintenance roads on NFS lands.

iii. Rosemont Copper shall be responsible for maintaining all signs, fencing, and other features deemed necessary to ensure public safety.

iv. During the construction period, Rosemont Copper shall coordinate all use of approved and alternative access routes with the Coronado.

v. Rosemont Copper shall construct or reconstruct all mine access and utility maintenance roads on NFS lands in a manner acceptable to the Coronado and will be responsible for providing "as-built" certification of all items by a licensed professional engineer. The Forest Service administrator will review the Rosemont Copper Project construction to ensure compliance with approved plans. Certification and results of tests and inspections will be forwarded to the Coronado for review and approval.

vi. Rosemont Copper and the Coronado will review all access and utility maintenance roads on NFS lands, during and after summer monsoon runoff. The purpose of this inspection will be to verify that all design features are functioning as designed and/or to identify any needed improvements or changes.

c. Rosemont Copper shall work with authorized grazing permittees to provide access to their permits in areas where road access has been cut off by mine related actions. Rosemont Copper shall provide permittees access to their adjacent allotments upon request.

d. Rosemont Copper shall construct the Sycamore Connector Road and all other new road construction on NFS lands described for the selected action within 1 year of the time that public motorized access is restricted on said road by mining or related actions (i.e., construction of the perimeter fence). All roads constructed on NFS lands will be constructed to standards that are approved in advance by the Coronado.

e. Rosemont Copper shall be responsible for road decommissioning for all NFSRs identified for decommissioning in the selected action. Rosemont Copper shall coordinate with the Coronado to determine specifically which segments of road are to be decommissioned and specifically what level of decommissioning is required for each segment. No active decommissioning shall occur on any NFSR without prior Coronado approval. Within 1 year of completion of the perimeter fence, Rosemont Copper shall complete decommissioning activities at the direction of the Coronado. Decommissioning activities that result in ground disturbance shall not occur until the Coronado has been notified and approved the activity.

f. All new roads on NFS lands, except those roads identified by the Coronado as needed for administrative purposes, will be reclaimed at mine closure.

g. Active road decommissioning will be coordinated with the Coronado archaeologist and biological monitor prior to implementation to coordinate areas to avoid due to the presence of cultural sites and sensitive plant populations.

h. Establishment of postclosure access roads will be coordinated with the Coronado prior to closure, with work conducted by Rosemont Copper.

ED_002020B_00047819-00049

Noise

The following mitigation measures associated with noise are required and will be incorporated into the final MPO. Refer to appendix B in the FEIS for details:

- FS-N-01 - Management techniques to reduce potential noise impacts from blasting
- FS-N-02 - Actions to reduce potential noise impacts from vehicles

In addition, the following clarification and requirement will apply to noise mitigation and monitoring:

1. Rosemont Copper shall submit for the final MPO details of procedures for blasting and handling of ammonium nitrate and other explosive materials to minimize loss or spillage.

Public Health and Safety

The following mitigation measure associated with public health and safety is required and will be incorporated into the final MPO. Refer to appendix B in the FEIS for details:

- FS-PHS-01 - Construction of a perimeter fence that would exclude the public
- FS-PHS-02 - Preparation of emergency response and contingency plans, including a fire plan

In addition, the following clarifications and requirements will apply to public health and safety mitigation and monitoring:

1. Rosemont Copper shall prepare an emergency response and contingency plan, including a fire plan. Prior to construction, Rosemont Copper shall conduct emergency response and contingency planning with appropriate agencies. The emergency response and contingency plan shall document the results of this consultation. These plans shall identify emergency preparedness and clear protocols for contacting emergency responders.

   The fire plan shall contain requirements for providing and maintaining fire-fighting tools onsite; precautionary requirements for blasting and welding; training of employees in fire prevention, detection, and suppression; independent actions taken by Rosemont Copper and its employees and contractors to suppress fires in the work area or vicinity; requirements for mechanized equipment to reduce the risk of fire ignition; and construction of new water sources such as a firewater storage tank.
2. Construction of fencing and/or berms for postclosure safety will be coordinated with the Coronado and other applicable regulatory agencies (i.e., Mine Safety and Health Administration (MSHA), Arizona State Mine Inspector) and installed by Rosemont Copper.

Cultural Resources

The following mitigation measures associated with cultural resources are required and will be incorporated into the final MPO. Refer to appendix B in the FEIS for details and the HPTP in appendix D of the FEIS:

- FS-CR-01 - Archaeological data recovery on sites that would be adversely affected
- FS-CR-02 - Respectful and appropriate treatment of human remains that would be disturbed by the project

ED_002020B_00047819-00050

- FS-CR-03 - Curation of archaeological collections in accordance with 36 CFR 79 and the HPTP
- FS-CR-04 - Monitoring and treatment of inadvertent discoveries
- FS-CR-05 - Limiting of ground-disturbing activity between the perimeter fence and security fence
- FS-CR-06 - Cultural resources protection training
- FS-CR-07 - Project proponent would allow tribal members access, upon 5 days' advance request, to the project area for cultural practices
- FS-CR-08 - Project proponent would organize tribal members' field visits to potentially affected springs
- FS-CR-09 - Transplanting of critical plant resources and inclusion of species within revegetation mixture
- FS-CR-10 - Interpretation of the results of the cultural resources investigations for tribal members, the Hispanic community, and the public
- FS-CR-11 - Stabilization of previously excavated historic properties between the security and perimeter fences

In addition, Rosemont Copper has committed to implement a mitigation and monitoring measure associated with cultural resources. Please refer to RC-CR-01 in appendix B of the FEIS for details.

In addition, the following clarifications and requirements will apply to cultural resources mitigation and monitoring:

1. Rosemont Copper shall provide access to tribal members to springs, vision sites, other sacred sites and resource-collecting areas within the project area, while remaining in compliance with any applicable MSHA or other regulations. The Coronado will coordinate requests with Rosemont Copper.
2. Ground-disturbing activities between the perimeter and security fences shall be approved in advance by the Coronado. Areas of disturbance in this area are anticipated to be limited to construction of compliance wells, stormwater drainage facilities, access to monitoring equipment, the perimeter fence, and active road decommissioning. Approved cultural monitors shall be present for all ground-disturbing work in this area. Cultural material discovered during monitoring shall be dealt with in accordance with the discovery plan in the HPTP.

Power Use

Rosemont Copper has committed to implement a mitigation and monitoring measure associated with power use. Please refer to RC-PU-01 in appendix B of the FEIS for details.

Community Programs

Rosemont Copper has committed to implement a mitigation and monitoring measure associated with community programs. Please refer to RC-CP-01 in appendix B of the FEIS for details.

ED_002020B_00047819-00051

Permits, Licenses, and Authorizations Needed to Implement the Decision

Federal mining laws authorize mineral exploration and development on Federal lands. State and Federal environmental laws are intended to ensure that adverse impacts are minimized and that long-term productivity of the surface resources is preserved to the extent feasible. Rosemont Copper may not commence mining operations addressed in this ROD until the Forest Supervisor approves a resubmitted, final MPO that will set forth the final specific mitigation measures necessary to minimize adverse impacts and an approved reclamation bond is posted.

The Coronado may accept certification and other approvals issued by State or other Federal agencies as evidence of compliance with similar or parallel requirements of regulations governing mining activities on the national forests. Besides the Forest Service, other agencies that require permits for the Rosemont Copper Project are: ADEQ, USACE, U.S. Department of Transportation (USDOT), the ADWR, ADOT, ASLD, the Arizona State Mine Inspector, the Arizona Corporation Commission (ACC), the Arizona Department of Agriculture (ADA), the Town of Sahuarita, and Pima County.

The plans and permits submitted to, or to be submitted to, these agencies by Rosemont Copper include the following:

1. A 401 certification must be issued by the State of Arizona. It is important to note that I cannot approve a final MPO until the Section 401 certification is issued.
2. An AZPDES multisector general permit was authorized by ADEQ (February 7, 2013). As a requirement of this permit, a SWPPP must be developed and submitted to ADEQ for review. An AZPDES permit must be obtained prior to the discharge of any pollutant, including stormwater from construction areas, to WUS. ADEQ may require a separate AZPDES construction general permit and SWPPP for temporary construction activities.
3. USACE project-specific (individual) 404 permit(s) required for the discharge of dredged or fill material into WUS. Prior to issuance of the 404 permit, the State of Arizona must complete CWA Section 401 certification.
4. USDOT hazardous materials transportation permit, which governs the transport of hazardous materials as defined by the USDOT. Requires specific employee training and security and contingency planning.
5. EPA hazardous waste identification number authorizes facilities to generate and transport offsite hazardous waste in quantities in excess of 100 kilograms per month (or those that generate acute hazardous waste in quantities exceeding 1 kilogram per month). Requires specific employee training, inspections, and contingency planning.
6. ACC Certificate of Environmental Compatibility (CEC) regulates the placement of electrical transmission lines and ensures compliance with ARS 40-360 (issued June 12, 2012).
7. ADA agriculture land clearing permit authorizes disturbance and clearing of State protected native plants, as required under the Arizona Native Plant Law.
8. ADEQ APP regulates the direct or indirect addition of pollutants to groundwater. Specifies best available demonstrated control technology (design criteria and/or operation practices) to control discharge of pollutants to groundwater and establishes aquifer water quality limits enforced at points of compliance specified for the facility. Requires monitoring, reporting, contingency planning, and financial assurance. Permit was issued on April 3, 2012, and will require updating to reflect the selected action.

ED_002020B_00047819-00052

9. Pima County air activity permits may apply to activities (such as earthmoving, trenching, road building, blasting, etc.) leading up to mining and well development.
10. ADEQ air quality class II synthetic minor permit applies to emissions from activities during operations. Requires inspection, sampling, monitoring, contingency/emergency planning, notification, reporting, and compliance certification. Issued on January 31, 2013, and will require updating to reflect the selected action.
11. ADEQ CWA section 401 water quality certification. The State must certify, waive, or deny an application for a USACE permit for discharge of dredged or fill material to WUS. To certify, the State must find that the activities proposed under the 404 permit will not result in a violation of State surface water quality standards. The 401 certification may specify conditions, including reporting requirements. The 401 water quality certification is currently under review.
12. ADEQ Hazardous Waste Management Program governs the management of hazardous waste (including transport and disposal). Requirements differ somewhat, depending on the volume and nature of hazardous waste generated; however, in general, it requires inspection, training, and contingency/emergency planning.
13. ADOT ROW encroachment permit authorizes the construction of the intersections for the primary access road in the ROW of SR 83.
14. ADWR Mineral Extraction and Metallurgical Processing Groundwater Withdrawal Permit No. 59-215979.0000 authorizes withdrawal of groundwater. Permit was issued on January 18, 2008, and is good for 20 years; at that time, Rosemont Copper must reapply.
15. ASLD ROW permit allows water and electrical supply lines to be placed within a ROW. Permit will be issued after the ACC approves the electrical supply alignment.
16. ADWR water storage permits. Augusta Resource Corporation (Augusta Resource) currently has three water storage permits with ADWR. Note that Rosemont Copper/Augusta Resource is not required by ADWR to store water, but they have elected to store water in the Tucson Active Management Area. As of December 31, 2010, their long-term storage balance was 42,593.02 acre-feet of Central Arizona Project credits.
17. The Town of Sahuarita issued a license for ROW encroachment on June 24, 2013, to allow Rosemont Copper to encroach on portions of the Town of Sahuarita's ROW for the purpose of construction, installation, operation, maintenance, and repair of a water delivery pipeline and related facilities.

Rosemont Copper must obtain required plans and permits from the State and Federal agencies described above for implementation of the project. Approval of the final MPO is required prior to beginning any surface-disturbing activities on NFS lands. Rosemont Copper will be required to change its preliminary MPO to incorporate any requirements identified in this ROD.

ED_002020B_00047819-00053

Applicable Laws, Regulations, and Policies

The FEIS was prepared in accordance with regulations implementing the NEPA (40 CFR 1500–1508). This decision is consistent with the requirement of the National Forest Management Act (NFMA) (36 CFR 219), Forest Service locatable mineral regulations (36 CFR 228, Subpart A), the 1897 Organic Administration Act (30 Stat. 11), the 1970 Mining and Mineral Policy Act (Public Law (PL) 91-631), and other applicable State and Federal statutes.

My decision is made in accordance with the requirements of 36 CFR 228 Subpart A, meets the requirements of the abovementioned State and Federal laws, and addresses the requirements of the 1872 Mining Law (30 U.S.C. 21 et seq.), and the 1955 Multiple-Use Mining Act (30 U.S.C. 612).

Alternatives Considered

The alternatives considered in the FEIS were initially developed to respond to the issues identified during public scoping. The alternatives were further modified in response to comments received on the DEIS from the public, agencies, and tribes. In addition to the selected action (presented as Alternative 4 in the FEIS), five other alternatives were analyzed in detail. They include "Alternative 1 – No Action," and Alternatives 2 through 6, which feature differing configurations of waste rock, tailings, plant site, and associated facilities. Alternatives 2 through 6 (the action alternatives) include all the common facilities, processes, and activities described under "General Overview of Mining Operations" in chapter 2 of the FEIS (also described in appendix A of this ROD as they apply to the selected action). The connected actions described under the selected action on page 29 of this ROD are also included in each of the action alternatives.

Additional alternatives include those considered in the FEIS and eliminated from detailed study (FEIS chapter 2, pp. 100 to 114).

Alternative 1 – No Action (Environmentally Preferable Alternative)

The no action alternative was developed to provide an environmental baseline with which to compare the action alternatives. The no action alternative does not meet the purpose of and need for action because it would not respond to Rosemont Copper's proposed MPO to develop and mine the Rosemont copper, molybdenum, and silver deposit. Other than issues associated with economic benefits associated with the project, the no action alternative addresses the issues identified during scoping in that it would avoid environmental impacts that are inherent in the action alternatives.

Additionally, while the Forest Service may reasonably regulate mining activities to protect surface resources, there are statutory and constitutional limits to its discretion. The Forest Service may reject an unreasonable MPO but cannot categorically prohibit mining or deny reasonable and legal mineral operations under the mining law.

If no action is taken, Rosemont Copper would not develop the Rosemont mineral deposit as described in the MPO submitted for approval (including modifications to date), and all premining exploration and environmental studies on NFS lands would be reclaimed in accordance with laws, regulations, and permits. For the most part, the project area of the Rosemont Copper Project proposed action (figure 9 in chapter 2 of the FEIS) would continue to grow and develop in accordance with generally accepted social and environmental trends. Information regarding current uses and trends in the project area are described in the "Affected Environment" parts of the resource sections in chapter 3 of the FEIS.

ED_002020B_00047819-00054

In the absence of the proposed action, current uses of the proposed project area, including the Coronado National Forest, would continue, and new future uses may be proposed. These include all forms of recreation; grazing; and minerals exploration. Traditional cultural uses of the project area would continue. Access to public land in the area would continue as governed by law, regulation, policy, and existing and future landownership constraints, the latter of which may include denial of access over private land.

The environment, population, and economy of southeastern Arizona will continue to evolve over time, whether or not the Rosemont Copper Project is implemented. Population growth in Pima County is estimated to continue, reaching 1.45 million by 2041. The Town of Sahuarita expects its population to increase to 45,597 over a 20-year planning horizon. The population of Santa Cruz County is expected to reach 60,080 by 2025, an increase of more than 26 percent from the county's 2010 population of 47,420. As populations increase, land and resource uses, including those of the Coronado National Forest, would be expected to increase proportionately. Traffic would likely increase with population growth.

Changes in the climate of the southwestern United States are expected to continue, including an increase in mean annual temperature, a more frequent drought cycle, a decrease in winter precipitation, and an increased frequency of heavy rains and flooding.

Alternative 2 – Proposed Action

The proposed action includes all the common facilities, processes, and activities described under "General Overview of Mining Operations" on p. 30 in chapter 2 of the FEIS (see figure 9 in chapter 2 of the FEIS). This alternative would meet the purpose of and need for action by processing Rosemont Copper's MPO in a manner that complies with applicable laws and regulations; and it would include measures for reclamation of surface resources. While this alternative would contain measures to minimize adverse environmental impacts on NFS surface resources, it would not do so as well as the selected action.

The proposed action reflects Rosemont Copper's preliminary MPO. It was not developed to respond to the significant issues. Rather, scoping was conducted to gather public comment on the preliminary MPO, and the issues were identified from the resulting comments.

The waste rock facility would be constructed south of the tailings facility. Reclamation of these areas would be conducted concurrently with active mining. Starting in the first year, waste rock would be placed as a perimeter buttress to partially block the view of the mining area project for travelers on SR 83 and for viewers in the surrounding area. Throughout the life of the mine, waste rock would be disposed of to the west and/or north of (behind) these berms. Waste rock would also be placed to support and armor the outer slopes of the dry-stack tailings facility. Construction of the perimeter buttress would be complete approximately 5 years after plant startup. The final elevation of the perimeter buttress would be about 5,475 feet but would step down on the northeast side to between 5,150 and 5,050 feet to tie in with the dry-stack tailings and oxide heap leach facilities. The height of the waste rock facility would vary, ranging from 100 to 400 feet above the ground surface, depending on existing topography.

Waste rock disposal would be restricted to a single surface water drainage basin, the Barrel Canyon area, which includes the tributaries of the Wasp and McCleary drainages. The tops of the waste rock facility would be sloped to direct stormwater away from the crest of the perimeter buttress. The dry-stack tailings facility would be divided into two separate units, north and south, which would be separated by a stormwater control facility (the central drain).

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The plant site would be located between the pit and the north end of the tailings facility. The coarse ore stockpile would be a rectangular building with the appropriate conveyors going to and from the building.

The central would be a rock chimney drain is designed to route excess stormwater through the tailings facility from both upstream and on top of the dry-stack tailings facility to the compliance point dam in Barrel Canyon. Stormwater from the waste rock buttresses of the dry-stack tailings facility would be combined with stormwater from the waste rock facility for reuse or discharge downstream after passing through the final compliance pond (see figure 11 in chapter 2 of the FEIS).

The central drain design is designed to allow conveyance of the 100-year, 24-hour storm event volume through the drain within 30 days. Other diversion channels around the plant site are sized to handle runoff from the 100-year, 24-hour storm event (equal to 4.75 inches of rain over a 24-hour period).

The Arizona National Scenic Trail would be realigned just outside the perimeter fence with a trailhead that would be located off of the primary access road, as shown in figure 9 in chapter 2 of the FEIS. Area roads that are outside the perimeter fence that would either be reconnected or decommissioned are shown in figure 12 in chapter 2 of the FEIS. The Sycamore Connector Road would be about 3,432 feet long.

Alternative 3 – Phased Tailings

The Phased Tailings Alternative was developed to respond to significant issues regarding potential negative effects of the proposed action on water and visual resources. Alternative 3 (see figure 13 in chapter 2 of the FEIS) contains a number of features in common with the proposed action. However, several features have been modified and designed to better respond to the issues, including:

- Reversing the phased placement of the dry-stack tailings to leave the McCleary Canyon drainage open for approximately 10 years longer;
- Refining the plant site, including redesigning the coarse ore stockpile to a dome structure and associated conveyor;
- Realigning the primary access road to avoid Scholefield Canyon; and
- Redesigning the stormwater management.

This alternative was developed to respond to the purpose of and need for action. It would meet the purpose of and need for action by processing Rosemont Copper's MPO in a manner that complies with applicable laws and regulations; and it would include measures for reclamation of surface resources. While this alternative would contain measures to minimize adverse environmental impacts on NFS surface resources, it would not do so as well as the selected action.

At the end of mine life, the final waste rock and tailings facilities would occupy the same location as the proposed action. This would reduce the short-term impact on surface water flow by allowing the McCleary Canyon drainage to remain open for approximately 10 years longer than it would under the proposed action.

The primary access road was redesigned to follow an alignment that both shortens the road and reduces its visibility from SR 83. This realignment avoids Scholefield Canyon and would reduce impacts to riparian vegetation and cultural resources. The new alignment intersects SR 83 at the same location as in the proposed action but is 3.2 miles long (see figure 13 in chapter 2 of the FEIS).

ED_002020B_00047819-00056

While the location of the plant site would be the same as that of the proposed action, the Phased Tailings Alternative relocates some facilities to address geotechnical concerns regarding differential settlement (see figure 14 in chapter 2 of the FEIS). These modifications provide secondary containment opportunities for process solutions, where possible, and add stormwater catchments. The Phased Tailings Alternative adds a double liner with a leak collection and removal system to the process water temporary storage pond and improves the containment of process water and separation of process water from stormwater. In addition, the Phased Tailings Alternative modifies the design of the coarse ore stockpile to a geodesic dome structure and associated conveyor systems to avoid encroaching on a population of the Forest Service sensitive plant species, Coleman's coral-root, a wild orchid.

A redesigned process water pond has a double liner with leak collection and removal system over a geosynthetic clay liner, and the temporary storage pond has a single liner over a geosynthetic clay liner. A settling basin upstream of the process water containment has been included to provide containment for tailings settlement, if necessary, and to allow excess water to flow into the process water pond. Additionally, the leaching system barren solution pond was relocated upgradient of the process water pond to provide containment opportunities.

This alternative includes a minimum 20-foot-thick final cap of waste rock atop the heap leach rather than the 50-foot minimum cap specified by the proposed action. A cap of 20 feet is considered sufficient as long as ponding is not occurring above the heap leach.

A series of flowthrough drains beneath the tailings and waste rock facilities would replace the central drain and attenuation pond of the proposed action. These are rock drain structures placed in the natural drainage channels designed to pass stormwater beneath the tailings and waste rock facilities. The Phased Tailings Alternative redesigns the diversion and stormwater management system to incorporate a more conservative design to reduce the potential for failure during unusually high precipitation events. During both operations and postclosure, stormwater would be stored on top and on the benches of the waste rock and tailings facilities and would not be discharged downstream except in extreme events.

The stormwater storage basins on the top and benches of the waste rock facility are designed to store the 500-year, 24-hour storm event. The stormwater storage basins on the top of the closed tailings facility are designed to store the 1,000-year, 24-hour storm event. Runoff from the plant site and the diversion west of the open pit would also be retained. This alternative would maintain flow from above the plant site by diverting it into upper McCleary Canyon both during operations and postclosure.

Because this alternative would not encroach on the McCleary drainage for the tailings facility until around year 10, those portions would not begin reclamation until reclamation of other portions of the tailings and waste rock facilities have long been underway. Therefore, the entire outer edge of the facilities would not be consistent in the reclamation phasing.

The Arizona National Scenic Trail would be realigned just outside the perimeter fence with a trailhead that would be located off of the primary access road, as shown in figure 13 in chapter 2 of the FEIS. Area roads that are outside the perimeter fence that would either be reconnected or decommissioned are shown in figure 16 in chapter 2 of the FEIS. The Sycamore Connector Road would be about 12,184 feet long.

ED_002020B_00047819-00057

Alternative 5 – Barrel Trail Alternative

The Barrel Trail Alternative (see figure 21 in chapter 2 of the FEIS) was developed to respond to significant issues regarding potential impacts on visual resources and the surface water component of water resources. This alternative incorporates gentler and more varied slopes. This alternative was developed to respond to the purpose of and need for action. It would meet the purpose of and need for action by processing Rosemont Copper's MPO in a manner that complies with applicable laws and regulations; and it would include measures for reclamation of surface resources. While this alternative would contain measures to minimize adverse environmental impacts on NFS surface resources, it would not do so as well as the selected action.

The Barrel Trail Alternative would place all tailings and waste rock in upper Barrel, Trail, and Wasp Canyons. This alternative is similar to the selected action in that it would permanently avoid placing mine waste in McCleary Canyon to reduce effects on surface water flows to Barrel Canyon. A more varied topography is proposed to more closely replicate a natural landform than the other action alternatives. However, this alternative would expand the footprint of the tailings and waste rock facilities.

The Barrel Trail Alternative would incorporate a waste rock perimeter buttress that would completely surround the dry-stack tailings. The heap leach facility would be located in the same place as for the other alternatives. The primary access road from SR 83 would be the same as for the Phased Tailings Alternative, except that the tailings conveyor system would require modification to accommodate the relocated tailings facility.

The general style for diversion and stormwater control structures would be similar to that of the Phased Tailings Alternative, except that the valley incorporated in the final mine waste landform would carry stormwater to Barrel Canyon instead of using the rock drop structures proposed under the Phased Tailings Alternative. However, engineering concepts available thus far indicate that rock drop structures and hardened channels would be required to manage the facility without incurring excess erosion (see figure 22 in chapter 2 of the FEIS). The Barrel Trail Alternative would use flowthrough drains, similar to the Phased Tailings Alternative.

With the Barrel Trail Alternative, concurrent reclamation could be delayed because of the need to rehandle material in order to form the final topography at closure. Reclamation time frame would be similar to that of the Phased Tailings Alternative.

The Arizona National Scenic Trail alignment for this alternative is located east of SR 83 (see figure ROD-2). Area roads that are outside the perimeter fence that would either be reconnected or decommissioned are the same as for the selected action (see figure ROD-3). The Sycamore Connector Road would be about 12,184 feet long.

Alternative 6 – Scholefield McCleary Alternative

The Scholefield-McCleary Alternative (see figure 23 in chapter 2 of the FEIS) was developed to respond to significant issues regarding potential impacts on cultural resources, riparian habitat resources, and the surface water component of water resources that would arise from placing the tailings and waste rock in the McCleary and/or Barrel Canyon drainages. This alternative was developed to respond to the purpose of and need for action. It would meet the purpose of and need for action by processing Rosemont Copper's MPO in a manner that complies with applicable laws and

ED_002020B_00047819-00058

regulations; and it would include measures for reclamation of surface resources. While this alternative would contain measures to minimize adverse environmental impacts on NFS surface resources, it would not do so as well as the selected action.

The Scholefield-McCleary Alternative would place all tailings and the majority of waste rock north of the McCleary Canyon drainage channel. The dry-stack tailings would occupy Scholefield Canyon and an unnamed tributary drainage. Waste rock would be placed on the northern slope of McCleary Canyon above the drainage bottom and extend to the north on top of the tailings. Some waste rock would be placed in Barrel Canyon on top of and next to the heap leach facility. A series of conveyors would be required to carry the dry-stack tailings over the ridge into Scholefield Canyon. As currently expected, these conveyors would be elevated and would run through portions of McCleary Canyon east, then north around the footprint to the tailings facility (see figure 23 in chapter 2 of the FEIS). These conveyors would require lighting and a small one-lane maintenance road.

Because of the relocation of mine waste to Scholefield Canyon, which is the site of the primary access road for the proposed action and other action alternatives, the road would be realigned, as shown in figures 23 and 24 in chapter 2 of the FEIS. The primary access road would intersect SR 83 between mileposts 41 and 42 and would be 2.8 miles long.

Diversion and stormwater control facilities would be designed to the same criteria used for the Phased Tailings Alternative, although there would not be any flowthrough drains. The heap leach facility and surrounding waste rock facility would use the same stormwater control design criteria as the Phased Tailings Alternative.

In order to maintain concurrent reclamation of final outer slopes, waste rock would initially be placed in berms along the outside edge of the waste rock facility near SR 83 and later placed behind the berms. Because of the ultimate height and slope of this alternative, it is likely that reclamation efforts would require more time to implement, resulting in longer reclamation phasing. It is also likely that reclamation efforts for this alternative would focus on slope stability and structural integrity and may be delayed or altered for safety reasons during final design.

The Scholefield-McCleary Alternative is the most problematic with respect to concurrent reclamation, with constraints caused by its having greater slopes, greater safety concerns, and less soil salvage material. The conveyor system located east of the waste rock and tailings facilities would also likely be removed and the area reclaimed during final closure activities.

The heap leach facility would be located in Barrel Canyon, as it would for the proposed action, the Barrel Trail Alternative, and the Phased Tailing Alternative. Reclamation of the heap leach pad would be similar to the Phased Tailings Alternative.

The Arizona National Scenic Trail alignment analyzed as part of this alternative is the same as for the Barrel Trail Alternative and is located east of SR 83 (see figure ROD-2).

Area roads that are outside the perimeter fence that would either be reconnected or decommissioned are the same as for the selected action (see figure ROD-3). There is no Sycamore Connector Road in this alternative.

ED_002020B_00047819-00059

Alternatives Eliminated from Detailed Study

NEPA, the CWA, Organic Administration Act, and Forest Service regulations (36 CFR 228) governing mineral development on NFS lands provide guidance regarding alternatives development. Reasonable alternatives include those "that are practical or feasible from technical and economic standpoints and using common sense, rather than simply desirable from the standpoint of the applicant." The selection of alternatives under Council on Environmental Quality (CEQ) criteria includes consideration of a reasonable range of alternatives that meet the project purpose and need and are economically and technically feasible.

I considered a number of alternatives and alternative themes that were evaluated but eliminated from detailed study. These alternatives included mining other locations; using alternate mining methods; backfilling and partially backfilling the open pit; modifying the life of the mine; changing the scheduled hours of operation; suspending operations during high wind events; using alternate water supply sources; modifying the transportation of workers, supplies, and shipments; using a natural gas pipeline instead of an electrical transmission line; performing a land exchange; downsizing the electrical transmission line; and burying the electrical transmission line. A more detailed discussion of these alternatives appears in the FEIS (chapter 2, pp. 100 to 114, under "Alternatives Considered but Eliminated from Detailed Study"), along with the rationale for dismissal. These potential alternatives were identified as a result of public participation as well as agency concerns. The six alternatives considered in the FEIS present a range of reasonable alternatives designed to address the significant issues identified by the Forest Service.

Environmentally Preferable Alternative

The identification of an environmentally preferred alternative is required by NEPA (40 CFR 1508.2(b)). The environmentally preferred alternative is the alternative that has the least impact on the physical and biological environment and that best protects, preserves, and enhances historic, cultural, and natural resources. Economic, social, technical, and agency mission factors are not considered in the identification of this alternative.

After evaluating all alternatives presented in the FEIS, I find that "Alternative 1 – No Action" is the most environmentally preferable alternative. This alternative best protects, preserves, and enhances historic, cultural, and natural resources. Each of the action alternatives would result in permanent adverse impacts to historic, cultural, and natural resources. However, the environmentally preferable alternative does not meet the agency need to process Rosemont Copper's MPO in a timely manner. Chapter 3 of the FEIS contains a more detailed evaluation of impacts associated with the various alternatives, including the no action alternative.

Public Involvement

Scoping

On March 13, 2008, the Coronado began soliciting comments on the preliminary MPO with publication in the Federal Register of a "Notice of Intent to Prepare an Environmental Impact Statement" (Federal Register 73(50):13527–13529). The Notice of Intent summarized the proposed action and stated that the impacts of the proposed action, including a reclamation plan, amendment to the Coronado forest plan, and connected actions, would be evaluated in the EIS. Six open house public meetings were held as follows: March 18, 2008 (Tucson, Arizona); March 19, 2008 (Green Valley, Arizona); March 20, 2008 (Patagonia, Arizona); April 5, 2008 (Vail, Arizona); April 22, 2008

ED_002020B_00047819-00060

(Sahuarita, Arizona); and April 23, 2008 (Elgin, Arizona). Approximately 1,000 people attended the open houses. Oral and written comments were solicited at the meetings and accepted on a toll free phone line and by mail, hand delivery, facsimile, and email throughout the initial 30-day scoping period.

On April 29, 2008, a "Corrected Notice of Intent to Prepare an Environmental Impact Statement" was published in the Federal Register (73(83):23181). This notice announced a change in the duration of the scoping comment period and provided information regarding three public hearings. The scoping comment period was extended to July 14, 2008, for a total scoping comment period of 120 days. The following public hearings were held: May 12, 2008 (Elgin, Arizona); June 7, 2008 (Sahuarita, Arizona); and June 30, 2008 (Tucson, Arizona). Both oral testimony and written comments were collected at the public hearings. Oral testimony was professionally audio-recorded and documented by a court reporter. A total of 860 people signed in at the public hearings, with 169 people presenting formal oral comments. On June 27, 2008, in response to public concerns about constraints limiting hearing attendance and participation, the Coronado hosted a toll-free phone hotline for use by the public to provide comments. A total of 302 people left recorded comments, which were transcribed for the project record.

The Coronado received 11,082 comment submittals during the scoping comment period, 70 percent of which were postcards, petitions, and form-letter submittals. Approximately 16,000 discrete comments were identified among those received. In addition, submittals received during the scoping period from March 13, 2008, through August 1, 2008, were recorded and analyzed. A systematic process referred to as content analysis was used to organize the contents of the submittals.

Twelve significant issues were identified after content analysis of the scoping comments. These issues are described in chapter 1 of the FEIS, and summarized on pp. 4 to 9 of this ROD. Consideration of these issues led, in part, to the development of alternatives to the proposed action that are considered in this FEIS (see chapter 2) and the approach used for impacts analyses reported in chapter 3 of the FEIS. Detailed records about this process are contained in the project record.

Public Review of the Draft Environmental Impact Statement

On October 19, 2011, a "Notice of Availability of Draft Environmental Impact Statement" for the Rosemont Copper Project DEIS was published in the Federal Register (76(202):64893–64894). The notice of availability began a 90-day public comment period. On January 19, 2012, with the publication of a notice in the Federal Register, the Forest Supervisor extended the formal comment period for the DEIS through January 31, 2012, because a technical problem with the electronic mail inbox for public comments resulted in the rejection of some comments for a brief period of time on January 18, 2012.

Seven open public meetings were held: November 12, 2011 (Tucson, Arizona); November 19, 2011 (Vail, Arizona); December 1, 2011 (Vail, Arizona); December 7, 2011 (Benson, Arizona); December 8, 2011 (Green Valley, Arizona); December 10, 2011 (Elgin, Arizona); and January 14, 2012 (Sahuarita, Arizona). The first six meetings consisted of both an informational and an oral comment session. The seventh meeting was an oral comment session. Coronado ID team resource specialists staffed the informational sessions to answer questions and provide information pertinent to the DEIS. Oral comment sessions allowed the public to provide oral comments directly to the Coronado Forest Supervisor, Coronado Deputy Forest Supervisor, and/or Nogales District Ranger. Oral comments were professionally audio-recorded and documented by a court reporter.

ED_002020B_00047819-00061

Oral and written comments were also accepted by mail, email, hand delivery, facsimile, and telephone recording, as well as through the project Web site, throughout the formal public involvement period. Documentation of the formal DEIS comment process is contained in the project record. Comments were received from individuals; tribal governments; Federal, State, and local agencies; organized interest groups; and businesses. The Coronado received more than 25,000 submissions during the DEIS comment period. Content analysis was used to categorize the nature of comments received by issue and concern. Appendix G of the FEIS contains a summary of Forest Service responses to comments received on the DEIS. Detailed records about this process are contained in the project record.

Comments received on the DEIS helped to inform the decision in a number of ways, including but not limited to the following:

- The issues and their measurement factors were refined and clarified;
- Analysis methodologies were modified and improved for a number of resources;
- Information provided helped to better describe existing conditions;
- The analysis of the effects of the no action alternative was broadened in response to comments;
- Several of the action alternatives were modified in response to comments and suggestions;
- Public comments and input from agencies and tribes contributed to development of a number of mitigation and monitoring measures; and
- Information provided helped to identify past, present and reasonably foreseeable actions that were incorporated into cumulative impact analysis.

Overall, changes and modifications made in response to comments and information received during the DEIS comment process led to improved analysis and disclosure of impacts that I took into consideration in making my decision. They also led to development of many mitigation measures that will reduce potential environmental impacts and monitoring measures that will be used to ensure that the project is implemented in accordance with this decision.

Consultation with Tribes and Government Agencies

Tribal Consultation

Several regulations require that Federal agencies consult on a government-to-government basis with federally recognized Native American tribes having traditional interests in and/or ties to the lands potentially affected by a proposed action and alternatives. Federal land management agencies, including the Forest Service, are required to consult with American Indian tribes not only under mandated law but also under the U.S. Government's trust responsibility to tribal nations. The Coronado commenced official consultation with 12 tribes in March 2006 upon notice of Rosemont Copper's intent to file a preliminary MPO. Another letter was sent in March 2008 giving notice that the project was continuing. Details of tribal consultation are summarized in the "Cultural Resources" resource section in chapter 3 and in appendix E of this FEIS.

The Tohono O'odham Nation maintains deep and significant cultural, spiritual, social, physical, and holy ties to the Santa Rita Mountains, known in their native language as *Ce:wi Duag*. Other American Indian tribes, including the Ak Chin Indian Community, Fort Sill Apache Tribe, Gila River Indian

ED_002020B_00047819-00062

Community, Hopi Tribe, Mescalero Apache Tribe, Pascua Yaqui Tribe, Salt River Pima-Maricopa Indian Community, San Carlos Apache Tribe, White Mountain Apache Tribe, Yavapai-Apache Nation, and Pueblo of Zuni, are also recognized as stakeholders with interest in and association to the Santa Rita Mountains. *Ce:wi Duag* has been determined by Arizona SHPO to be eligible for inclusion in the NRHP as a traditional cultural property. The Tohono O'odham Nation is often deferred to and considered the lead tribal entity with regard to activities and projects associated with the Santa Rita Mountains.

Either my staff or I met personally with tribal representatives on more than 25 separate occasions concerning the Rosemont Copper Project. These meetings consisted of field trips, formal consultation meetings, interviews, and presentations to Tribal Councils and other tribal groups. Mitigation recommendations and project concerns from the tribes were identified and integrated into the EIS (see the "Cultural Resources" section in chapter 3 of the FEIS; and mitigation measures FS-CR-01 through FS-CR-11 in appendix B of the FEIS). The Tohono O'odham Nation and Pascua Yaqui Tribe have passed formal tribal resolutions opposing the Rosemont Copper Project. Implementation of the project will be completed, to the extent feasible, with respect toward the values inherent in *Ce:wi Duag* Traditional Cultural Property and in compliance with applicable laws and regulations.

Consultation with the Arizona SHPO has been completed, and a finding was made that the project would result in adverse effects on historic properties.

Cooperating Agency Consultation

Consultation with Federal and State agencies occurred throughout the EIS preparation process. This included inviting 33 Federal, State, and local agencies to participate as cooperating agencies. Sixteen agencies ultimately accepted and participated as official cooperating agencies: Department of Defense – Air Force; USACE; Smithsonian Astrophysical Observatory, Fred Lawrence Whipple Observatory; BLM, Tucson Field Office; AGFD; Arizona Department of Mines and Mineral Resources; ADOT; ADWR; Arizona Geological Survey; Arizona State Mine Inspector; Arizona State Parks; City of Tucson; Pima County; and Town of Sahuarita. The Tohono O'odham Nation also signed an agreement to participate as a cooperating agency. The Coronado held regular meetings with cooperating agencies and solicited their review and comment at key points of the process, including prior to release of the DEIS and FEIS. In addition to interaction with cooperating agencies, the Coronado consulted with the USFWS regarding compliance with Section 7 of the ESA; and Arizona SHPO, ACHP, and others regarding compliance with Section 106 of the NHPA. The Coronado also worked closely with the USACE, EPA, and ADEQ regarding permits under their purview. In addition, the Coronado worked closely with staff from Saguaro National Park concerning impacts that could impact the park.

Information and suggestions provided by the cooperating agencies was used to clarify aspects of the alternatives; modify analysis methods to more accurately predict environmental impacts; develop mitigation and monitoring measures; and better understand divergent scientific viewpoints regarding a number of environmental issues. Overall, information provided, and changes and modifications made in response to cooperating agency contributions led to improved analysis, more thorough disclosure of impacts, and a better understanding of scientific viewpoints, which I took into consideration in making my decision.

ED_002020B_00047819-00063

Financial Assurance

The Forest Service is authorized to require an operator to furnish a bond or other financial assurance for MPOs to ensure reclamation of surface disturbances to prevent or control damage to the environment; to control erosion, landslides, water runoff and toxic materials; and to provide for rehabilitation of fish and wildlife habitat (36 CFR 228.13). In addition, bonding will include funds for mitigation of cultural sites disturbed by project activities if implementation is delayed or not completed. The Forest Service has developed guidance for calculating the amount of financial assurance required for mining projects. In developing the financial assurance amount for the Rosemont Copper Project, the Coronado will follow the 2004 guidance and include costs to remove structures, regrade and recontour the surface, replace soil, and revegetate the reclaimed land. The financial assurance will also include necessary administrative and overhead costs to complete the reclamation if the company were unable or unwilling to do so and costs for long-term treatments or monitoring, if such treatment were to be required to meet applicable laws and regulations.

The financial assurance will be required in a readily available bond instrument payable to the Coronado. In order to ensure that the bond can be adjusted as needed to reflect actual costs and inflation, there will be provisions allowing for periodic adjustment on bonds in the final MPO prior to approval. Selection of the bond period may be based on some logical stage of mine development, such as construction, certain facilities' implementation, and/or closure. Initial bond estimates are typically based on the engineering plans for construction, and it is likely that the initial bond for this project will be calculated to cover the construction period, with the first periodic review planned for 1 year after construction begins. The Forest Service process does not require calculation of the bond prior to publication of the FEIS or completion of the NEPA process.

Because this project is on both private and Federal lands, both the Forest Service and the Arizona State Mine Inspector have financial assurance and/or bonding requirements. The Arizona State Mine Inspector has expressed a willingness to work cooperatively with the Coronado to bond for the project, covering the private lands as well.

Mitigation under Section 404 of the CWA also requires financial assurance. ADEQ requires a permit and bonding as part of the APP for closure and groundwater protection. Rosemont Copper has submitted calculations in section 13 of their APP application that include all reclamation costs, including bonds for the Forest Service, Arizona State Mine Inspector, and ADEQ.

Findings Required by Other Laws, Executive Orders, and Rules

Several Federal laws and regulations apply to the Forest Service decision to approve an MPO as proposed, or require changes and additions to the preliminary MPO. As required by NEPA, an EIS describing the potential "significant environmental effects" that may result from this decision, and several alternatives, has been prepared. The scope of the action, a reasonable range of alternatives, and site-specific environmental effects were assessed in the EIS as required.

ED_002020B_00047819-00064

National Forest Management Act

NFMA requires that all permits, contracts, and other instruments for the use and occupancy of NFS land be consistent with forest land and resource management plans. My decision includes amendments to the 1986 Coronado forest plan to address the inconsistencies of the proposed project with current standards and guidelines. The forest plan amendment will create a new management area, with new standards and guidelines. The activities associated with the Rosemont Copper Project will comply with the Coronado forest plan, as amended.

Finding of Nonsignificant Amendment

Under the NFMA (16 U.S.C. 1604(f)(4)), forest plans may "be amended whatsoever after final adoption and after public notice." Federal regulations at 36 CFR 219.14 allow forests to use the provisions of the planning regulations in effect before November 9, 2000, in order to amend forest plans. These regulations state that the responsible official shall: (1) determine whether proposed changes to a land management plan are significant or not significant in accordance with the requirements of sections 1926.51; (2) document the determination of whether the change is significant or not significant in a decision document; and (3) provide appropriate public notification of the decision prior to implementing the changes.

The "Forest Service Land and Resource Management Planning Manual" (Forest Service Manual (FSM) 1926.51) provides a framework for determining whether a proposed change to a forest plan is or is not significant. An amendment is not significant when it involves:

1. Actions that do not significantly alter the multiple-use goals and objectives for long-term land and resource management.
2. Adjustments of management area boundaries or management prescriptions resulting from further on-site analysis when the adjustments do not cause significant changes in the multiple-use goals and objectives for long-term land and resource management.
3. Minor changes in standards and guidelines.
4. Opportunities for additional projects or activities that will contribute to achievement of the management prescription.

An amendment may be significant when it involves:

1. Changes that would significantly alter the long-term relationship between levels of multiple-use goods and services originally projected (see section 219.10(e) of the planning regulations in effect before November 9, 2000 (see 36 CFR parts 200 to 299, revised as of July 1, 2000)).
2. Changes that may have an important effect on the entire land management plan or affect land and resources throughout a large portion of the planning area during the planning period.

The Coronado proposes to amend its forest plan in order to address the inconsistencies of the proposed project with current standards and guidelines. The proposed forest plan amendment would create a new management area for which direction specific to copper mining would apply. The management area and its standards and guidelines apply only to the Rosemont area and would not affect activities outside the Rosemont area. This amendment would be in effect for the life of the forest plan.

ED_002020B_00047819-00065

The Forest Supervisor has evaluated the proposed changes to management direction to determine whether they constitute a significant amendment to the Coronado forest plan. This evaluation addresses the Rosemont Copper proposed action and all action alternatives. The following discussion provides the rationale for the determination of significance.

1. **Actions that do not significantly alter the multiple-use goals and objectives for long-term land and resource management.**

   The proposed amendment to the forest plan does not alter any of the multiple-use goals and objectives for long-term land and resource management. The amendment proposes changes in management direction to address mining and associated activities to occur in the Rosemont area only. Adoption of this amendment will allow activities that are inconsistent with a number of forest-wide standards and guidelines. However, these activities are restricted to the Rosemont area and will not have wide-ranging effects across the Coronado National Forest. While environmental effects could extend beyond the Rosemont area, as disclosed in chapter 3 of the FEIS, they are not expected to significantly alter the multiple-use goals and objectives of the forest plan as a whole.

2. **Adjustments of management area boundaries or management prescriptions resulting from further on-site analysis when the adjustments do not cause significant changes in the multiple-use goals and objectives for long-term land and resource management.**

   Management areas boundaries will be adjusted for management areas 1, 4, and 7 with this amendment. Management prescriptions for these management areas will not change. The changes are not expected to cause significant changes in the multiple-use goals and objectives for long-term land and resource management.

3. **Minor changes in standards and guidelines.**

   The proposed amendment to the forest plan adopts new standards and guidelines for management area 16, which is a new management area. When compared with the existing standards and guidelines for management areas 1, 4, and 7, changes go beyond what could be considered minor. However, when considered on a forest-wide basis, changes will be minor because they apply to the proposed management area 16 area only, which constitutes only 0.61 percent of the net acres of the Coronado National Forest (based on net forest acres of 1,726,514 from forest plan table 2a; and net management area 16 acres of 10,531 derived from geographic information system (GIS) data).

4. **Opportunities for additional projects or activities that will contribute to achievement of the management prescription.**

   The proposed amendment establishes a new management area and thus a new management prescription. It provides opportunities for mining and associated activities that have impacts that are both beneficial and detrimental, as described in chapter 3 of the FEIS.

Evaluation of the four examples of amendments that are not significant does not conclusively determine whether the proposed amendment is significant. Therefore, the two examples given in FSM 1926.51 as indicative of circumstances that may cause a significant change to a land management plan have also been evaluated:

1. **Changes that would significantly alter the long-term relationship between levels of multiple-use goods and services originally projected (see section 219.10(e) of the planning regulations in effect before November 9, 2000 (see 36 CFR parts 200 to 299, revised as of July 1, 2000)).**

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The proposed amendment will not significantly alter the long-term relationship between levels of multiple-use goods and services originally projected in the Coronado forest plan. As described in chapter 3 of the Rosemont Copper Project FEIS, the project could reduce grazing capacity and livestock use; dispersed and wildlife recreation use; and water yield. It could also reduce the number of acres meeting visual quality objectives, and reduce air and water quality. However, these effects will take place only within and adjacent to the Rosemont mining area (management area 16). When considered in the context of the 1,726,514-acre Coronado National Forest planning area, the effects will not be significant. Refer to chapter 3 of the FEIS for details regarding environmental effects of the proposed action and action alternatives.

2. **Changes that may have an important effect on the entire land management plan or affect land and resources throughout a large portion of the planning area during the planning period.**

   The proposed amendment affects only a small portion of the Coronado National Forest, which is the planning area for the forest plan. While the effects are substantial, they are highly localized and will not have a significant effect on the entire land management plan, nor will they affect land and resources throughout a large portion of the planning area.

Finding

On the basis of the information summarized above, it is my determination that this will not constitute a significant amendment to the Coronado forest plan. The current forest plan is nearing the end of the first planning period and is being revised. The proposed management direction described above will be amended to the current forest plan and incorporated into the revised plan.

The Endangered Species Act

Section 7(a)(2) of the ESA requires Federal agencies to consult with the USFWS, as appropriate, to ensure that their actions do not jeopardize the continued existence of species listed as threatened or endangered under ESA, or destroy or adversely modify their critical habitat. A biological assessment (BA) was completed and identified potential threats from project actions that could affect federally listed threatened or endangered species. The BA was transmitted to USFWS to initiate formal consultation on the determination of effects. USFWS issued a BO for impacts to listed species on October 30, 2013. The BO included specific conservation measures, reasonable and prudent measures, and terms and conditions that apply to approval of the MPO.

The Forest Service prepared a BA on federally listed terrestrial and aquatic threatened and endangered species. The Forest Service found that the selected action **MAY AFFECT, AND IS LIKELY TO ADVERSELY AFFECT** the following federally threatened or endangered species:

- Lesser long-nosed bat, listed as endangered. The USFWS found that the selected action is not likely to jeopardize the continued existence of the lesser long-nosed bat. The USFWS issued an incidental take statement for direct and indirect take of lesser long-nosed bats. They also included non-discretionary reasonably and prudent measures and terms and conditions that will be implemented. The following review requirement is specified for the lesser long-nosed bat:

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Review requirement: The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize incidental take that might otherwise result from the selected action. If, during the course of the action, the level of incidental take is exceeded, such incidental take will represent new information requiring review of the reasonable and prudent measures provided. The Coronado must immediately provide an explanation of the causes of the taking and review with the USFWS the need for possible modification of the reasonable and prudent measures.

- Jaguar, listed as endangered with proposed critical habitat within the action area. The USFWS found that the selected action is not likely to jeopardize the continued existence of the jaguar and is not likely to destroy or adversely modify proposed critical habitat. The USFWS issued an incidental take statement for indirect take of jaguar. They also included non-discretionary reasonably and prudent measures and terms and conditions that will be implemented. The following review requirement is specified for the jaguar:

  Review requirement: The USFWS believes that no more than one jaguar will be incidentally taken (in the form of harassment) as a result of the selected action. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize incidental take that might otherwise result from the selected action. If, during the course of the action, the level of incidental take is exceeded, such incidental take will represent new information requiring review of the reasonable and prudent measures provided. The Coronado must immediately provide an explanation of the causes of the taking and review with the USFWS the need for possible modification of the reasonable and prudent measures.
- Ocelot, listed as endangered. The USFWS found that the selected action is not likely to jeopardize the continued existence of the ocelot. Incidental take of ocelots is not anticipated.
- Pima pineapple cactus, listed as endangered. The USFWS found that the selected action is not likely to jeopardize the continued existence of the Pima pineapple cactus.
- Chiricahua leopard frog, listed as threatened with designated critical habitat within the action area. The USFWS found that the selected action is not likely to jeopardize the continued existence of the Chiricahua leopard frog and is not likely to destroy or adversely modify designated critical habitat. The USFWS issued an incidental take statement for direct and indirect take of Chiricahua leopard frog. They also included non-discretionary reasonably and prudent measures and terms and conditions that will be implemented.
- Gila chub, listed as endangered with designated critical habitat within the action area. The USFWS found that the selected action is not likely to jeopardize the continued existence of the Gila chub and is not likely to destroy or adversely modify designated critical habitat. The USFWS issued an incidental take statement for indirect take of Gila chub.
- Gila topminnow, listed as endangered. The USFWS found that the selected action is not likely to jeopardize the continued existence of the Gila topminnow. The USFWS issued an incidental take statement for indirect take of Gila topminnow.

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- Huachuca water umbel, listed as endangered with designated critical habitat (but not in the action area). The USFWS found that the selected action is not likely to jeopardize the continued existence of the Huachuca water umbel and is not likely to destroy or adversely modify designated critical habitat because critical habitat is not present within the action area. Incidental take of Huachuca water umbel is not anticipated.

The Forest Service found that the selected action **MAY AFFECT, BUT IS NOT LIKELY TO ADVERSELY AFFECT** the threatened Mexican spotted owl. The USFWS concurred with this determination.

Regional Forester's Sensitive Species

As described in FSM 2670.12, the Forest Service will do the following: (1) manage "habitats for all existing native and desired nonnative plants, fish, and wildlife species in order to maintain at least viable populations of such species;" and (2) avoid actions that "may cause a species to become threatened or endangered."

The Forest Service prepared a biological evaluation on species designated as sensitive by the Region 3 Regional Forester. The Coronado found that the selected action **MAY IMPACT INDIVIDUALS BUT IS NOT LIKELY TO RESULT IN A DOWNWARD TREND TOWARD FEDERAL LISTING AS THREATENED OR ENDANGERED OR A LOSS OF POPULATION VIABILITY** for the following plant species: Arid throne fleabane, Arizona coralroot, Arizona giant sedge, Arizona manihot, Bartram stonecrop, Beardless chinchweed, Broadleaf ground cherry, Chihuahuan sedge, Chiricahua Mountain brookweed, Coleman's coral-root, Huachuca golden aster, Lemmon milkweed, Lemmon's lupine, Lemmon's stevia, Lemon lily, Metcalfe's tick-trefoil, Nodding blue-eyed grass, Pima Indian mallow, Santa Rita yellowshow, Santa Cruz striped agave, Sonoran noseburn, Southwestern (Box Canyon) muhly, Sycamore Canyon (Weeping) muhly, and Tumamoc globeberry.

The Forest Service found that the selected action **MAY IMPACT INDIVIDUALS BUT IS NOT LIKELY TO RESULT IN A DOWNWARD TREND TOWARD FEDERAL LISTING AS THREATENED OR ENDANGERED OR A LOSS OF POPULATION VIABILITY** for the following amphibian species: Great Plains narrow-mouthed toad, lowland leopard frog, and western barking frog.

The Forest Service found that the selected action **MAY IMPACT INDIVIDUALS BUT IS NOT LIKELY TO RESULT IN A DOWNWARD TREND TOWARD FEDERAL LISTING AS THREATENED OR ENDANGERED OR A LOSS OF POPULATION VIABILITY** for the following reptile species: Arizona ridge-nosed rattlesnake, giant spotted whiptail, Gila monster, green ratsnake, mountain skink, northern Mexican gartersnake, Slevin's bunchgrass lizard, and Sonoran desert tortoise.

The Forest Service found that the selected action **MAY IMPACT INDIVIDUALS BUT IS NOT LIKELY TO RESULT IN A DOWNWARD TREND TOWARD FEDERAL LISTING AS THREATENED OR ENDANGERED OR A LOSS OF POPULATION VIABILITY** for the following bird species: Abert's towhee, American peregrine falcon, Arizona grasshopper sparrow, Baird's sparrow, broad-billed hummingbird, buff-collared nightjar, cactus ferruginous pygmy-owl, common blackhawk, elegant trogon, Gould's turkey, Lucifer hummingbird, northern beardless-tyrannulet, northern goshawk, northern gray hawk, varied bunting, violet-crowned hummingbird, western yellow-billed cuckoo, and whiskered screech-owl.

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Forest Service found that the selected action **MAY IMPACT INDIVIDUALS BUT IS NOT LIKELY TO RESULT IN A DOWNWARD TREND TOWARD FEDERAL LISTING AS THREATENED OR ENDANGERED OR A LOSS OF POPULATION VIABILITY** for the following fish species: longfin dace.

Forest Service found that the selected action **MAY IMPACT INDIVIDUALS BUT IS NOT LIKELY TO RESULT IN A DOWNWARD TREND TOWARD FEDERAL LISTING AS THREATENED OR ENDANGERED OR A LOSS OF POPULATION VIABILITY** for the following invertebrate species: Cestus skipper.

Forest Service found that the selected action **MAY IMPACT INDIVIDUALS BUT IS NOT LIKELY TO RESULT IN A DOWNWARD TREND TOWARD FEDERAL LISTING AS THREATENED OR ENDANGERED OR A LOSS OF POPULATION VIABILITY** for the following mammal species: Allen's big-eared bat, Arizona shrew, California leaf-nosed bat, Cockrum's desert shrew, fulvous harvest mouse, greater western mastiff bat, hooded skunk, Merriam's Mouse, Mexican long-tongued bat, northern pygmy mouse, pale Townsend's big-eared bat, Plains harvest mouse, pocketed free-tailed bat, western red bat, western yellow bat, white-nosed coati, and yellow-nosed cotton rat.

The Migratory Bird Treaty Act of 1918

Approval of a final MPO has been determined to be in compliance with requirements of the Migratory Bird Treaty Act (see "Biological Resources" in chapter 3 of the FEIS).

Water Pollution Control Act of 1972 (Clean Water Act)

The Federal Water Pollution Control Act of 1972 (PL 92-500) as amended in 1977 (PL 95- 217) and 1987 (PL 100-4) is also known as the Federal CWA. AZPDES permits for discharges of process wastewater and stormwater under Section 402 of the CWA will be required for the approved of a final MPO. Section 404 of the CWA regulates discharge of dredged or fill material to wetlands and WUS; a 404 permit will also be required for the final MPO. The CWA establishes a non-degradation policy for all federally proposed projects to be accomplished through planning, application, and monitoring of BMPs. Identification of BMPs is mandated by Section 319 of the Water Quality Act of 1987 (also referred to as the CWA), which states, "It is national policy that programs for the control of non-point sources of pollution be developed and implemented." Sediment control BMPs are required for road construction and maintenance. The stormwater permit(s) will also require BMPs for operational control of runoff and sediment.

The Clean Air Act, as amended in 1990

Rosemont Copper will be required to obtain a State of Arizona air quality permit for operation of certain equipment. ADEQ issued an air quality permit to Rosemont Copper on January 31, 2013. The permit will be revised after this decision is issued to reflect the requirements of the selected action. Upon receipt of this permit, operations under the final MPO will be in compliance with State and Federal CAA requirements.

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Federal Noxious Weed Act of 1974

Rosemont Copper is required as a condition of the final MPO to update their weed management plan in coordination with the Coronado. Preparation and implementation of this plan will meet the requirements of the Noxious Weed Act.

National Historic Preservation Act

In a letter dated February 15, 2013, the Arizona SHPO concurred with the Coronado regarding the area of potential effects (APE) and that the project would result in adverse effects on historic properties. The Forest Service completed a cultural resource survey of the APE of operations under the final MPO in compliance with the requirements of Section 106 of the NHPA (16 U.S.C. 470 et seq.). An MOA was developed and agreed to by a number of signatories, including the Coronado, Rosemont Copper, Arizona SHPO, the ACHP, and others. The MOA is located in appendix D of the FEIS.

Wetlands (Executive Order 11990)

Section 404 of the CWA authorizes the USACE to issue permits for activities that will result in the placement of dredged or fill material in WUS. Before a permit can be issued, Section 404(b)(1) guidelines require that projects avoid impacts to the extent possible, minimize impacts that cannot be avoided, and provide compensatory mitigation for impacts that occur. The selected action is estimated to impact a total of 42.8 acres of WUS. Rosemont Copper will be required by conditions in the final MPO to obtain Section 404 approval from the USACE prior to impacting the jurisdictional WUS.

Floodplains (Executive Order 11988)

Operations under the final MPO will have limited impacts to floodplains, and Coronado approval of the Rosemont Copper MPO is in compliance with Executive Order 11988. The only construction activities that will occur within a floodplain are associated with the utility corridor. These activities are necessary for the project, and no feasible alternative to their implementation was identified in the EIS analysis.

Environmental Justice (Executive Order 12898)

The Coronado's approval of the final MPO will result in disproportionate adverse environmental effects on the Tohono O'odham Nation and the other consulting tribes with interests in the project area, which qualify as minority or low-income communities. The impacts identified with the project include the known presence of ancestral villages, human remains, sacred sites, and traditional resource collecting areas, and the understanding that disturbance will cause spiritual harm to the earth and to the people present now and in the future. Refer to the "Socioeconomics and Environmental Justice" section in chapter 3 of the FEIS for further details.

Tribal Consultation and Coordination (Executive Order 13175)

The Coronado consulted with 12 tribes during the development of the EIS. Ten of these tribes actively participated in consultation activities. Primary consultation between the Forest Service and tribal entities has included meetings, field visits, conference calls, phone calls, and letters. The tribes were consulted prior to and throughout the planning process for this project. Each tribe also received a copy of the DEIS. The Coronado received comments from consulting tribes during the scoping process, during various meetings and fieldtrips, and in response to the DEIS. Written correspondence is located in the project record; a listing of meetings and field trips can be found in appendix E of the FEIS.

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Procedures for Change During Implementation

Modifications to the MPO may be proposed by Rosemont Copper or requested by the Forest Service due to reasons such as unforeseen significant impacts to surface resources. The monitoring plan described in appendix B of the FEIS contains monitoring specifically designed to identify whether impacts of the project are within those projected in the impact analysis disclosed in the FEIS. The Coronado will evaluate the results of project implementation monitoring, including field verification, on a regular basis.

Rosemont Copper is responsible for complying with the requirements of the USFWS BO and the Arizona SHPO MOA, and the Forest Service is responsible for monitoring to ensure compliance. Should non-compliance of any requirement of the BO or MOA occur, the Forest Service would take appropriate action which could include enforcement or consultation with the appropriate agency to determine whether further action may be needed.

Rosemont Copper is responsible for complying with all applicable permit requirements, as well as applicable laws and regulations. It is the responsibility of the primary permitting agency to determine whether Rosemont Copper's actions comply its permits and underlying regulations. If Rosemont Copper is notified of non-compliance by a permitting agency, it is responsible for notifying the Forest Service of the situation in a timely manner. Acting within its authority, the Forest Service will review the situation and determine whether and what action may be needed by the Forest Service.

In determining whether further NEPA action is required, I will first consider whether any major federal action subject to NEPA is proposed. If a Federal action subject to NEPA is proposed, then I will consider the criteria to supplement an existing environmental impact statement in 40 CFR 1502.9(c) and Forest Service Handbook 1909.15, section 18, and, in particular, determine whether the proposed change is a substantial change to the intent of the selected action as planned and already approved, and whether the change is relevant to environmental concerns. Connected or interrelated proposed changes regarding particular areas or specific activities will be considered together in making this determination. The cumulative impacts of these changes will also be considered.

Implementation Date

Upon completion of the administrative process and submittal by the Rosemont Copper Project proponent of a modified MPO reflecting this decision, posting of a bond, the final MPO will be approved.

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Contact Person

For further information on this decision, contact:

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Phone: (520) 388-8327
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Signature and Date

_____ _____

JIM UPCHURCH Date
Forest Supervisor, Coronado National Forest

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Appendix A

Detailed Description of the Selected Action

Mine Facilities and Activities

Blasting and drilling activities will occur in the mine pit. The waste rock and tailings will be transported from the mine pit and processed within the corresponding facilities (figure A-1). A perimeter fence and security fence will be built to encompass the primary mining and processing operations and facilities, excluding portions of the access roads and utility lines. Further information is provided under the "Perimeter and Security Fences" below.

Pit

Preproduction stripping of overlying rock will require 18 to 24 months to prepare for full-scale mining operations, train work crews, construct access and haul roads, and clear and grub the pit and tailings and waste rock facilities that will be disturbed during the initial years of operation. Open-pit mining will be used to excavate ore to recover copper, molybdenum, and silver. The roughly circular open-pit mine will measure, at end of mine life, between 6,000 and 6,500 feet in diameter, with a final depth of up to 3,000 feet (3,050 feet above mean sea level), depending on the elevation of the pit rim. Pit slope angles between in-pit roads will be controlled by rock strength and will range between 33 and 50 degrees. The pit will disturb about 955 acres, of which 590 acres will be on private land and 365 acres will be on NFS lands.

Blasting and Drilling

Explosives storage, transport, and use will adhere to all rules, regulations, and safety standards. Once a day on average, an ammonium nitrate and fuel oil explosive will be detonated in the mine pit. This will occur during daylight hours only, generally between 9 a.m. and 4 p.m. Dry bulk ammonium nitrate will be transported for use from storage silos at the adjacent plant site. Blasting detonators, such as caps, delays, cord, and boosters, will be stored in special magazines and transported to the pit in separate vehicles.

If wet-hole blasting is necessary, an emulsion and/or slurry will be transported to the pit from onsite storage tanks. Mixed ammonium nitrate and fuel oil will be loaded and transported using special trucks designed for that purpose.

Mineral Processing

The Rosemont deposit is primarily sulfide minerals with a cap of oxide minerals nearer the surface. The mineral material will be mined over 20 to 25 years at an average rate of 75,000 tons per day. Most of the oxide minerals will be removed in the first 6 to 7 years of the project, while sulfide minerals will be produced throughout the mine operation.

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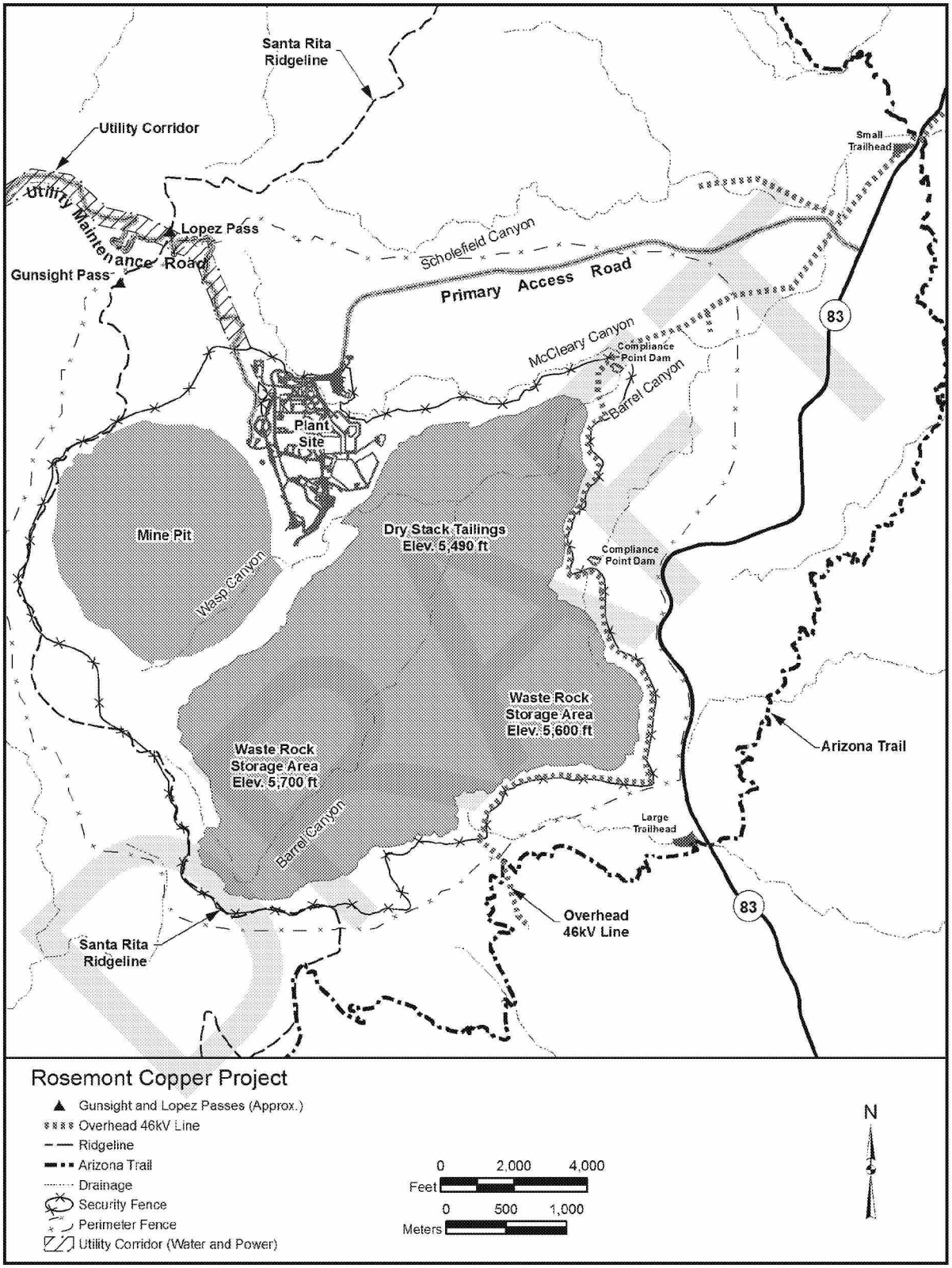

Figure A-1. Selected action footprint

Exploratory drilling by Rosemont Copper has occurred on private and NFS lands, beginning in 2006 and continuing to 2012. Characterization of the mineral deposit has been updated several times during this period. The most recent analysis resulted in mineral resource and updated metallurgical test work being completed, with estimated, measured, and indicated mineral resources of 919.3 million tons of sulfide mineral and 63.4 million tons of oxide minerals. These mineral resources consist of proven and probable mineral reserves of nearly 667.2 million tons of sulfide. There were inferred resources of 138.6 million tons of sulfide and 1 million tons of oxide ores. Because the latest feasibility study completed for the selected action does not incorporate oxide ore processing, a portion of the oxide mineralization (65 million tons) is instead categorized as waste rock. The most recent feasibility study states that "the ultimate pit is currently under-optimized because of the capacity limitations of the tailings storage facility," meaning that when the pit reaches a depth of 3,050 feet above mean sea level, removal of additional mineral material will be constrained because of the volume limitations of tailings and waste rock facility designs and footprints.

Sulfide Ore Process

Sulfide ore will be sent through a circuit of crushers, grinding mills, and ball mills to reduce the rock size to the consistency of sand. A flotation circuit will separate the copper and molybdenum sulfides from the waste material to create a concentrate. The concentrates will then be dewatered, thickened, filtered, and loaded for shipment. The waste or tailings from the sulfide ore processing will be dewatered using large-capacity pressure filters, which will essentially squeeze the water out of the tailings to create a dry cake with a moisture content of 12 to 18 percent. The filtered tailings will then be conveyed to and placed in the dry-stack tailings disposal facility, while the water will return to the process for recycled use.

Process Water Temporary Storage Pond

The process water temporary storage pond facility is a component of the sulfide ore process and will be regulated under the APP. The facility will be divided into two sections (ponds), termed the process water and the temporary storage ponds. In general, the reservoir in the process water pond will be managed to optimize containment of recirculated water, and the temporary storage pond will be kept at low fill levels to optimize room for stormwater runoff. Incline-mounted or barge pumps in each pond will pump captured recirculated process water and stormwater to the process circuit. The pumps will also allow each pond to be emptied for inspection.

Process water will be retained in a double-lined surface impoundment with a capacity of 70 million gallons, which will store 3 days of water reclaimed from the tailings filters and mixed with fresh water from Rosemont Copper's supply wells near Sahuarita. Three days' storage will allow for some flexibility and emergency storage in case of a service interruption at the plant facilities. Additionally, during operations, if ponded stormwater on the top surface of the dry-stack tailings facilities exceeds timely evaporation, it will be pumped to the process water pond to limit infiltration to the tailings.

The temporary storage portion will be a single-lined surface impoundment that will receive stormwater runoff from the plant site area, including a small drainage basin located west of the pond. As currently designed, the temporary storage portion will provide containment of a 100-year, 24-hour storm event. This pond will have a storage capacity of approximately 38 million gallons. Under the APP, this pond will need to be emptied of stormwater within 60 days.

Construction details for the process water temporary storage pond liners are discussed in the "Groundwater Quality and Geochemistry" resource section of chapter 3 of the FEIS.

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Waste Rock and Tailings Placement

Waste rock will be placed in areas outside the open pit. Dewatered tailings will be sent via conveyor belt to the unlined dry-stack tailings disposal area, where they will be deposited, stacked, and compacted. Ultimately, the tailings will be encapsulated, or covered completely, by a thick layer of waste rock.

Waste Rock and Tailings Facilities

The selected action will place all of the tailings and waste rock in upper Barrel Canyon and the lower portion of Wasp Canyon, prohibiting disposal of mine tailings or waste in McCleary Canyon. This change will permanently maintain the contribution of surface water flow from McCleary Canyon to the Barrel Canyon drainage system, albeit in a somewhat decreased capacity during operations because runoff from the plant site will be required to be retained. It will also increase the drainage area that may be diverted through the McCleary Canyon channel, in contrast to the proposed action and the Phased Tailings Alternative.

Like the other action alternatives, the selected action incorporates a waste rock perimeter buttress that will completely surround the dry-stack tailings.

Ore, Waste Rock, and Tailings Transport

Transportation of ore, waste rock, and tailings will occur only in the mine area, which will be closed to the public for safety reasons. Ore and waste rock will be moved in large, off-highway haul trucks. Roads for the haul trucks will be constructed both within the open pit and between the pit and the plant and tailings and waste rock facilities. In accordance with MSHA regulations (30 CFR 1–199), haul roads will be approximately 125 feet wide, including safety berms and drainage ditches, and from 10 to 12 percent slope or less. Maximum truck speed will be 35 miles per hour. Haul roads will be temporary and will regularly be moved based on where materials are proposed to be placed. These temporary roads will be gradually covered by waste rock as it is placed. Any temporary haul roads remaining after all waste rock has been placed will be decommissioned unless the Coronado determines that they are desirable for future management.

Sulfide ore will be transported from the pit to a crusher in mine haul trucks; following crushing, the sulfide ore will be transported via conveyors to the grinding and flotation unit. Dewatered tailings will be transported using a conveyor system from the dewatering plant to the tailings facility for final placement. The conveyors will transfer the tailings to a radial stacker, and then the tailings will be spread and compacted by a dozer. The compacted tailings will be encapsulated by a perimeter buttress formed of waste rock and a waste rock "cap" that will be placed by haul trucks traveling on haul roads. In addition to 1 foot of growth media, between 3 to 5 feet of waste rock will be placed on the top surface of the tailings facility during closure.

Plant Site and Support Facilities

Facilities necessary to support mining and ore processing operations include buildings and structures, such as administration buildings, change house, warehouse with laydown yards, analytical laboratory, light vehicle and process maintenance building, mine truck shop, mine truck wash and lube facility, powder magazines and ammonium nitrate storage, main guard shack with truck scale, and fuel and lubricant storage and dispensing facilities.

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Plant Site

Compared with the proposed action, the selected action eliminates the oxide ore processing buildings and instead uses that land for materials laydown yards, as shown in figure A-2. It also relocates some facilities to address geotechnical concerns regarding differential settlement. These modifications also provide secondary containment opportunities for process solutions, where possible, should there be interrupted operations, and add stormwater catchments, where necessary. A double liner with a leak collection and removal system is added to the process water temporary storage pond, which improves the containment of process water and separation of process water from stormwater. In addition, the design of the coarse ore stockpile is modified to a 400-foot covered geodesic dome structure and associated conveyor systems, to avoid encroaching on a population of the Forest Service sensitive plant species, Coleman's coral-root, a wild orchid.

Lighting

The selected action contains an updated lighting mitigation plan that mitigates the lighting system that was proposed in the preliminary MPO through its provisions for the following components:

- Full cut-off, solid-state light-emitting diode (LED) lighting systems;
- High fitted target efficacy lighting systems and optics;
- Specific-purpose lighting systems with optics that match task requirements;
- Adaptive lighting controls to dim or extinguish lighting when not needed and to provide immediate "instant on" emergency or operational lighting;
- Where color rendering light is needed, use of color-tuned solid-state light sources for superior energy efficiency and optical control with attenuated short wavelengths to minimize Rayleigh scattering;
- Where color rendering light is not needed, use of narrow-band solid-state lighting to emulate low-pressure sodium but with superior optical and electrical control; and
- Color-adaptive lighting to shift from narrow-band amber emissions to higher color rendering light when color rendering is needed.

Roadways and parking lot areas will use narrow-band LED lighting fixtures set 123 feet apart on two-lane haul roads and 225 feet apart on light-truck roads. The primary access road may use full cut-off low-pressure sodium fixtures.

Elevated hazard areas, such as the mine process area and pit, will mostly require high-pressure sodium lighting or solid-state LED lighting fixtures that will be aimed and shielded to minimize light pollution. These fixtures will be located around the buildings in the process areas and concentrated around areas in the pit where large shovels are actively being operated. With a total of three shovels, three drills, and two loaders with various sized lamps, there will numerous beam-shaped LED fixtures that will direct more useful light to tasks. The only narrow-band lighting fixtures in this area will be used at a refueling site and explosives storage facility.

According to the detailed site general electrical design that was based on the lighting plan proposed by Rosemont Copper before the DEIS, there will be a total of 12 200-watt and 475 90-watt low-pressure sodium fixtures, and there will be 19 200-watt, 86 90-watt, 11 70-watt, 21 50-watt, and 334 35-watt high-pressure sodium fixtures. Although the mitigation will implement different fixtures, it is not expected that the number of fixtures will decrease; instead, there will be a more focused lighting pattern.

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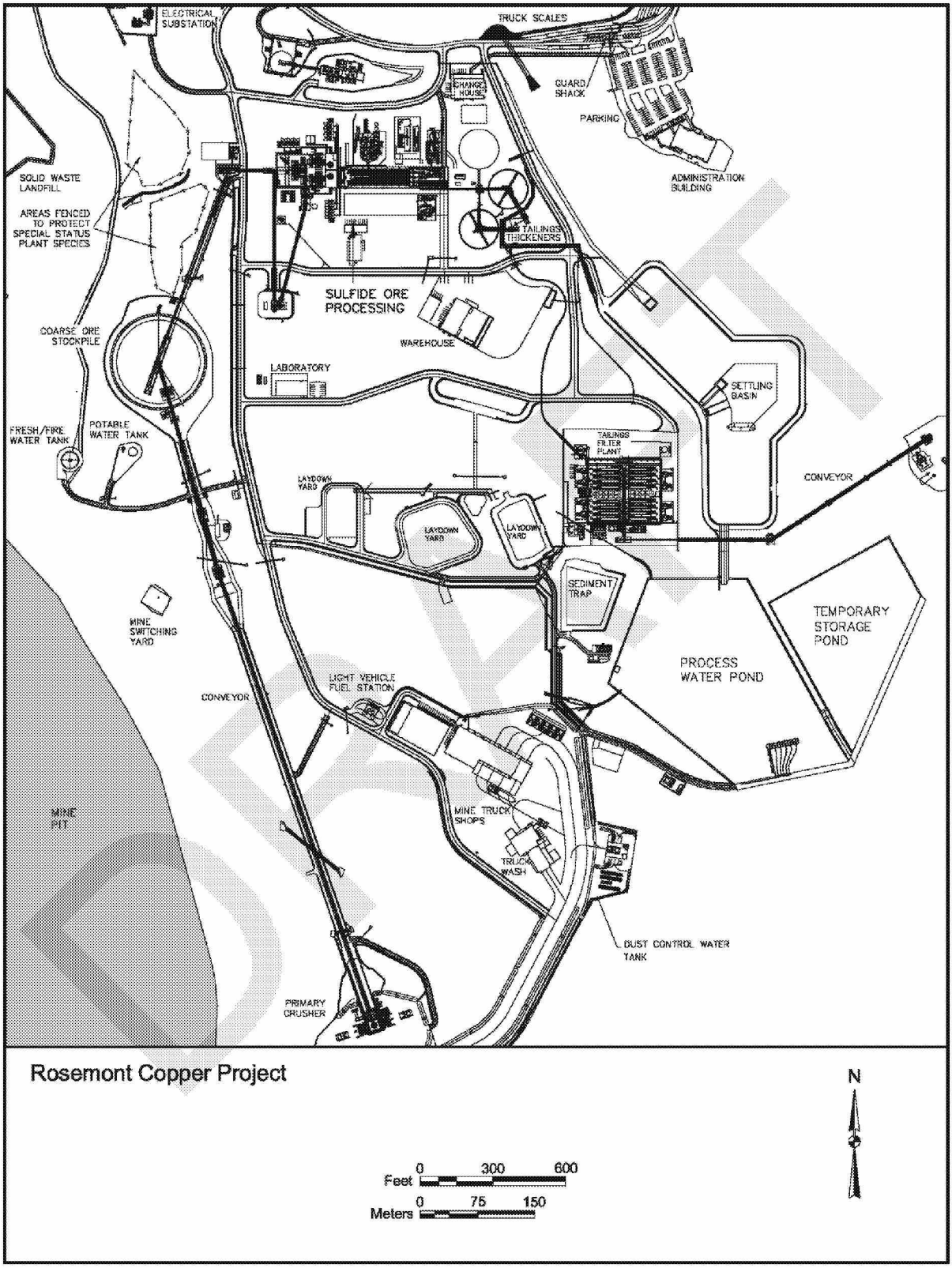

Figure A-2. Selected action plant site

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Further discussion of the updated lighting mitigation plan is included in the following locations in the FEIS: appendix B, "Mitigation and Monitoring Plan;" and in the "Dark Skies" resource section in chapter 3. Impacts associated with artificial night lighting are described in a variety of resource sections in chapter 3.

Solid, Hazardous, and Sanitary Waste

Solid waste will be recycled as appropriate and feasible. Nonrecyclable, nonhazardous waste will be disposed of at an onsite landfill located on about 2 acres of Rosemont Copper's private land. Activities at the landfill will be regulated by the ADEQ APP for Rosemont Copper Mine facilities.

The excavated depth of the landfill will range from 5 to 43 feet, with a minimum excavation elevation of approximately 5,190 feet above mean sea level; maximum height of the landfill at closure will be no more than 5,280 feet above mean sea level. All putrescent materials or other items that cannot be disposed there will be transported offsite for disposal by a commercial vendor.

Hazardous waste will be handled and disposed of in accordance with Resource Conservation and Recovery Act regulations. The Resource Conservation and Recovery Act gives the EPA the authority to control hazardous waste from "cradle to grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. The project will produce less than 220 pounds of hazardous waste each month and will qualify as a conditionally exempt small quantity generator. No hazardous waste will be disposed of onsite. All hazardous waste will be stored and then transported by licensed haulers for disposal at regulated facilities.

Sanitary waste will be treated in onsite septic systems, with leach fields located in the vicinity of each building. During the construction phase and where necessary during operations, portable toilets will be used in various locations throughout the plant and mine sites. The portable toilets will be serviced by a commercial sanitation company and the waste removed for disposal offsite.

Perimeter and Security Fences

A perimeter fence will be built to encompass the primary mining and processing operations and facilities, excluding portions of the access roads and utility lines. It will provide a zone restricted from public access and locations for environmental compliance monitoring. The fence will be standard four-strand barbed wire, although the bottom wire will be bare, in accordance with BLM and AGFD fencing standards. Access for fence construction will be by all-terrain vehicle or on horseback to avoid the need for a road. There will be signage on the perimeter fence stating that entrance into the project area is prohibited.

A security fence and security patrol road will be located within the perimeter fence, approximately 750 feet from the toe of the slope of the waste rock and tailings facilities. The road will be a one-lane gravel or native surface road used for patrols, fence maintenance, monitoring, and general mine related access.

A guard shack will be located where the primary mine access road intersects the security fence. Near the guard shack, the fence will be chain-link and 6 feet high, with barbed wire along the top. Other areas farther away from the primary mine access road will be enclosed by a standard four-strand barbed wire fence to provide a secondary safety barrier, with signage to help ensure public safety and to provide access to APP points of compliance.

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Depending on the location of the fencing, the fencing at the mine and facilities will remove NFS land from public use during the 24.5- to 30-year mine life. The configuration of the perimeter and security fences and security road is depicted in figure A-1. Before project implementation, a legal closure order for the area within the perimeter fence will be issued by the Coronado.

The perimeter and security fences will be removed following closure after considering grazing and safety needs. The security road may be partially or completely reclaimed as part of mine closure and reclamation, depending on the need for postmine administrative access for maintenance or monitoring purposes. Portions of the site, including the mine pit, will likely remain fenced off and closed to the public indefinitely for safety reasons, or as required by the Arizona State Mine Inspector.

Ancillary Facilities and Activities

Utility Lines (Electrical and Water Supply)

On June 12, 2012, the ACC approved a CEC authorizing the construction of a 138-kV electrical transmission line and associated facilities from the proposed Toro switchyard (located near Sahuarita) to the Rosemont substation (located at the mine). Because the water supply and utility maintenance road were intended to be co-located in all action alternatives in order to reduce impacts, the decision made by the ACC was instrumental in the final alignment of all three components (figure A-3).

During mine closure, the power line will be removed from NFS land and disturbed areas reclaimed and revegetated with native vegetation. Removal of the power line on private and ASLD land is outside the jurisdiction of the Forest Service. However, the CEC states that once service is no longer needed, "Applicant shall file a plan for removal of the transmission line." This decision also states that all costs associated with the line removal will be charged to Rosemont Copper, and proof of funds for these costs is required.

Power Supply

The total power requirement for the project is 108 to 112 megawatts, which requires a minimum transmission voltage of 138 kV. The transmission line will be an aboveground single-circuit 138-kV nonreflective transmission line provided from a link attached to existing transmission lines on the South substation loop. The transmission line will extend from the proposed Toro switchyard 13 miles to the proposed Rosemont substation, held on double-circuit capable Core 10 standard steel (rust-colored) monopole structures with typical heights of 75 to 150 feet. The route will generally parallel the existing South Santa Rita Road before entering private land held by Rosemont Copper (table A-1). The alignment will then continue east over the ridge and cross the ridgeline at Lopez Pass (see figure A-3). The corridor width for the entire project route will be 500 feet and will include an associated 14-foot-wide unpaved maintenance road.

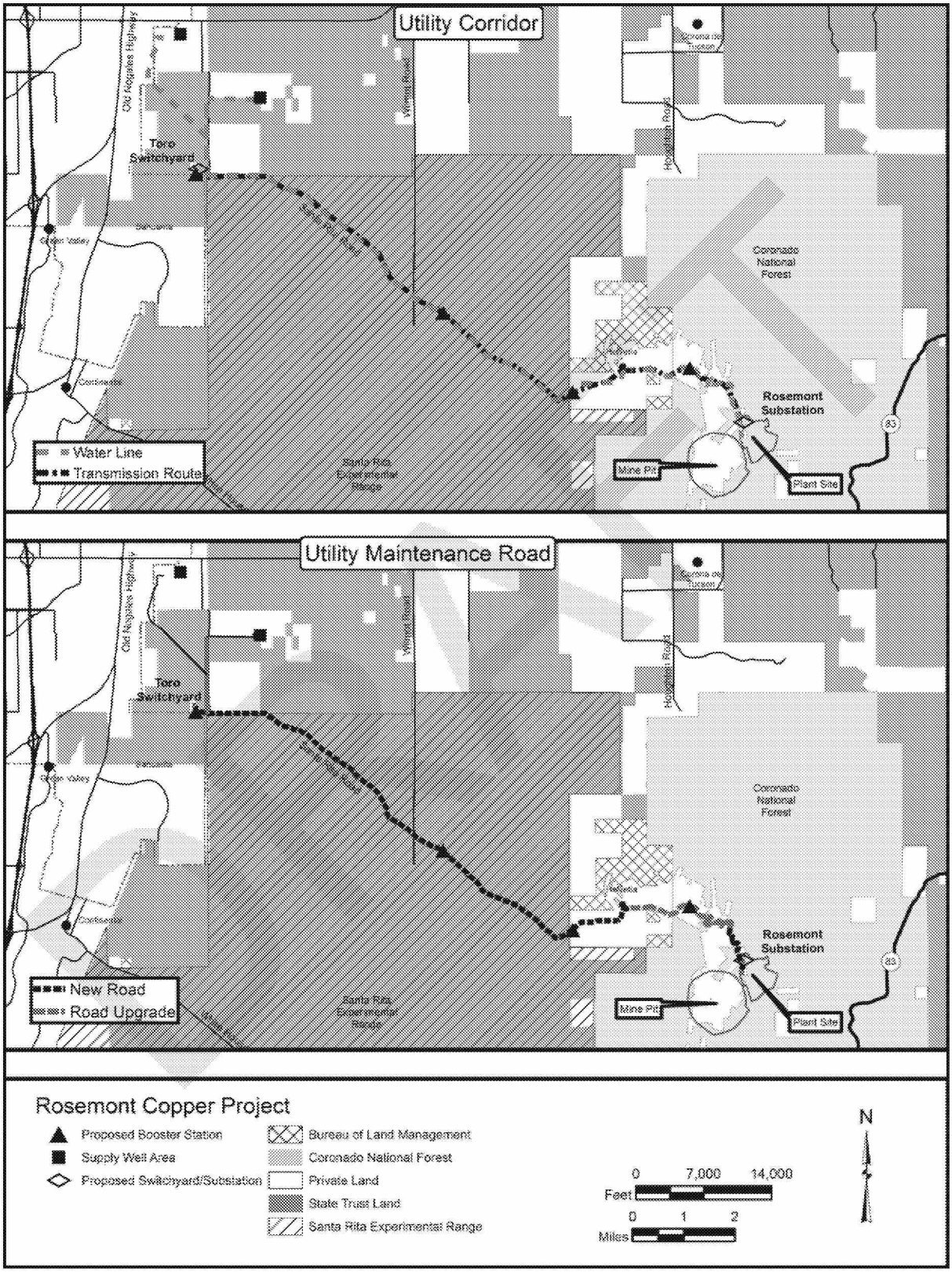

Figure A-3. Approved utility alignment for the Rosemont Copper Project

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Table A-1. Landownership or management of the utility corridor

	Forest Service	BLM	ASLD	Private
Electrical transmission line (feet)	2,787	0	47,881	18,393
Water supply line (feet)	5079	0	65,881	32,849
Utility corridor (acres)	38	3*	574	302

* While the corridor for analysis includes some land within BLM jurisdiction, Rosemont Copper withdrew the BLM MPO, and lands administered by the BLM will not be disturbed or otherwise affected by construction, maintenance, or removal of utility facilities.

Power needed to operate the water pump stations (described below) will be supplied by an electrical line from the Rosemont substation, back over the same poles as the transmission line to the pump station buildings. The electrical line spanning pump stations two and three will be an underground line, at the request of ASLD.

In addition to traditional electrical service from TEP, Rosemont Copper plans to use solar technologies, such as passive solar installations, to power the administration buildings and potentially other areas.

Power Distribution Line Relocation

A 46-kV electrical distribution line that currently runs north-south through the project area will require realignment for each action alternative. Relocation will include the establishment of new electrical poles (similar to those found in residential areas) along the inside of the security fence where needed. The line will be strung on those poles and connected to the existing line.

No interruptions in service will be expected. Ground disturbance associated with relocation of this line will occur within the security fence perimeter, which is an area already considered disturbed for the purposes of the effects analysis; therefore, no additional ground disturbance will occur with this relocation.

Water Supply Pipeline

A 20- to 24-inch ductile iron water pipeline will be constructed. The pipeline will require trenching, ranging from 30 to 52 inches wide, and will receive a minimum soil cover of 36 inches within the State land easement and 24 inches of cover on private property. While it is expected that most drainage crossings will only require backfill of the previously removed material, some crossings may require nonerosive material, such as concrete, below calculated scour depth where wash composition is soil and gravel. Where rock prohibits burial, the pipeline will be placed above the rock and covered with soil, as previously specified, depending on slope, topography, and the availability of cover material.

The pipe bedding requirements will follow the manufacturer's recommendations. Isolation valves will be installed in the pipeline at intervals of approximately 3,000 feet and at elevation changes of 250 feet. Construction of the pipeline will include up to four booster stations that will consist of concrete basins, vertical turbine pumps, and a pneumatic tank housed within secured buildings or structures and requiring power, as described above. The reservoirs and pump stations will be built outside jurisdictional WUS.

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Water Supply

During construction of the water supply pipeline, water will be drawn from existing wells in and around the project site in order to supply construction activities. It is estimated that approximately 600 to 900 gallons per minute will be necessary to support facility construction.

The project is permitted by the ADWR to draw up to 6,000 acre-feet[2] per year. However, it is currently estimated that the project will use between 4,700 and 5,400 acre-feet per year of fresh water, for a total use over the mine life of approximately 100,000 acre-feet. Water will be pumped from four to six wells located on land owned or leased by Rosemont Copper near the community of Sahuarita in the Santa Cruz Valley at a maximum rate of 5,000 gallons per minute (total pumpage).

Well locations, proposed pipeline route, and pipeline route are shown in figure A-3. Four booster stations will be needed to maintain water flow in the line.

Total fresh water to be used during operation is estimated to be about 4.8 million gallons per day. Most of this will be supplied by groundwater wells in the Santa Cruz Valley. Much smaller quantities will be obtained from stormwater and pit dewatering on the mine site. Water will primarily be allocated to ore processing. Other water uses will include dust control, fire protection, drinking water, sanitary waste management, and other miscellaneous uses. It is estimated that up to 18,500 acre-feet could be obtained from pit dewatering over the life of the mine. Water acquired through pit dewatering will either be used in processing or dust control. Because the quality of the water supply is expected to approach potable standards, it will not require any additional processing to be used in various mining processes.

Where feasible, an estimated 37 million gallons of water per day will be reclaimed from a variety of uses on the mine and returned for use in processing. Water used to process ore (referred to as process water) and other water impacted by the project will be controlled as described below.

Water Control

The primary water control objective will be to reduce the risk of discharging potentially contaminated water into the environment. Water control will be applied to: (1) process water, (2) groundwater, and (3) stormwater that comes into contact with process facilities or tailings.

Process Water

Figure 6 in chapter 2 of the FEIS is a schematic diagram of the process water control system that shows the basic water circuits during processing of sulfide ore. Control of process water will consist of containing the process water in engineered structures, such as tanks, pipes, sumps, lined ponds, lined ditches and maintaining the water content of the dry-stack tailings at a level that minimizes seepage from the dry-stack tailings facility. The engineering design and performance of the various process water control facilities, including seepage and leakage monitoring and recovery, will meet or exceed the best available demonstrated control technology criteria used by ADEQ and will be regulated under the APP that was issued on April 3, 2012. Details of best available demonstrated control technologies are discussed in the "Groundwater Quality and Geochemistry" resource section in chapter 3 of the FEIS.

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[2] Note: 1 acre-foot equals 325,851 gallons.

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Groundwater

The groundwater control system will include both activities and facilities designed to protect and monitor the quality of the groundwater in the area, as well as the investigation and modeling used to predict the response of the groundwater systems to both the withdrawal of groundwater and the influence of seepage and leakage from the project facilities. Implementation of groundwater control requirements will be monitored as part of the APP that has been issued by the ADEQ, as well as additional monitoring required by the Coronado (see appendix B in the FEIS).

Protection of groundwater quality at the mine site during operations will primarily be achieved by using the process water controls described above. Included in these is monitoring of the seepage and leakage detection systems that are part of facility design, as required by the APP.

Of particular importance to long-term groundwater and surface water protection is the acid rock drainage protection and monitoring program. Monitoring to ensure that offsite groundwater quality is not impacted beyond the level allowed by the APP will be accomplished at specific groundwater monitoring wells required by the APP, at additional monitoring wells required by the Coronado, and by applying best available demonstrated control technology (i.e., engineering controls and practices).

Protection of water quality following mine closure will be achieved by closure and reclamation of the process facilities, elimination of or reduction in acid rock drainage generation in the tailings and waste rock from the design and operation of the facilities, monitoring and testing required by the APP following mine closure, and capture of possible impacted mine site groundwater by localized groundwater flowing into the pit.

Stormwater Controls

Stormwater (contact water) from the mine pit, ore processing facilities, and mine maintenance plant areas will be prohibited from surface discharge under the stormwater permit during operations. Stormwater allowed to be discharged, such as that from the waste rock facility and waste rock buttresses around the tailings facility, will be routed to sediment control structures, where any offsite overflow discharge point will be monitored for chemical and sediment content in accordance with an ADEQ mining stormwater general permit. Runoff from tailings is not prohibited from downstream discharge under the stormwater permit, but it will be contained onsite, along with other contact water.

The top surface of the dry-stack tailings will be exposed to precipitation only during operations. All tailings will be covered with waste rock at closure. The general design concept for managing stormwater from the dry-stack tailings facility is to minimize infiltration of water in the tailings and prevent discharge of stormwater that comes in contact with the tailings. This will be accomplished by constructing uniform lifts of dry tailings that are buttressed by waste rock. The buttresses will be built around the tailings surface for containment and erosion control. The top of the tailings facility will be relatively impervious. That is, all precipitation will remain on top of the tailings facility to evaporate. If water ponds on top of the tailings facility, it will be pumped to the process water temporary storage pond to limit infiltration into the tailings facility. Diversion channels will be constructed to direct surface runoff that has not contacted tailings from the outer waste rock shell slopes into either sediment ponds or adjacent drainages to a sediment control structure. The selected action permits no storage of stormwater on the top or benches of the waste rock/tailings landform postclosure. Instead, waste rock and tailings facilities will shed runoff after closure. The tops of the facilities will be graded to discharge stormwater to the lower benches, which in turn are designed to move stormwater laterally along the benches until it reaches several concrete drop structures. The runoff from these

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drop structures will either be discharged into the natural washes (Barrel Canyon or a tributary) or discharged into a diversion channel that will carry runoff along the toe of the waste rock and tailings facilities and then will discharge that runoff into the natural washes (figure A-4). In this manner, as much water as possible will be allowed to flow downstream after reclamation is complete.

Stormwater from above the mine pit will be diverted around the pit and plant site. During operations, stormwater that falls within the mine pit and associated disturbed areas, especially stormwater that comes into contact with ore, will be contained onsite and used for mining and processing purposes. Postclosure, any stormwater that enters the pit will contribute to the pit lake.

Flowthrough drains beneath the tailings and waste rock facilities are not part of the selected action because of concerns about intermingling of stormwater and tailings seepage and long-term maintenance. The small ridge just east of the plant site will be eliminated postclosure in order to enable stormwater from the reclaimed plant site area to be diverted to flow into McCleary Canyon via a surface channel.

Precipitation that comes into contact with waste rock does not need to be retained but can be released downstream. Regardless of this, much of the runoff from the waste rock facilities will be retained, with the exception of the perimeter waste rock buttresses. For perimeter buttresses, concurrent reclamation and appropriate BMPs will progress up the outer slopes as the buttresses are constructed. This will limit erosion potential and will allow noncontact runoff to discharge to downgradient sediment ponds and eventually to the watershed.

Active stormwater management will continue after the mine closes, as required by the mining stormwater general permit and the erosion control provisions of the mine land reclamation plan, administered by the Arizona State Mine Inspector. The Arizona State Mine Inspector has jurisdiction for reclamation under 27 ARS Chapter 5; this is the Reclamation Act statute for reclamation of hardrock mining, which pertains to private lands with more than 5 acres of mining disturbance.

Compliance Point Dam

Two compliance point dams will serve as the final onsite location where stormwater can be monitored. It is what is referred to in many technical documents as a "sediment control structure."

Each dam will be approximately 6 feet tall and approximately 100 to 200 feet wide and will have a storage capacity of approximately 2 acre-feet. It will be constructed in year 0 using inert waste rock as an ADWR nonjurisdictional, unlined embankment. Normally, the area behind the embankment will be empty. During storm events, water will be temporarily impounded and slowly released through the porous rock-fill dam. Large storm events may overtop the dam and proceed downstream. If the dam is destroyed by an overtopping event, it will be rebuilt. The compliance point dam will be evaluated after closure of the project facilities. The dam will be removed if it is determined that subsequent discharges will meet Arizona Surface Water Quality Standards.

Access to the dam will use Forest Service roads to minimize additional surface disturbance.

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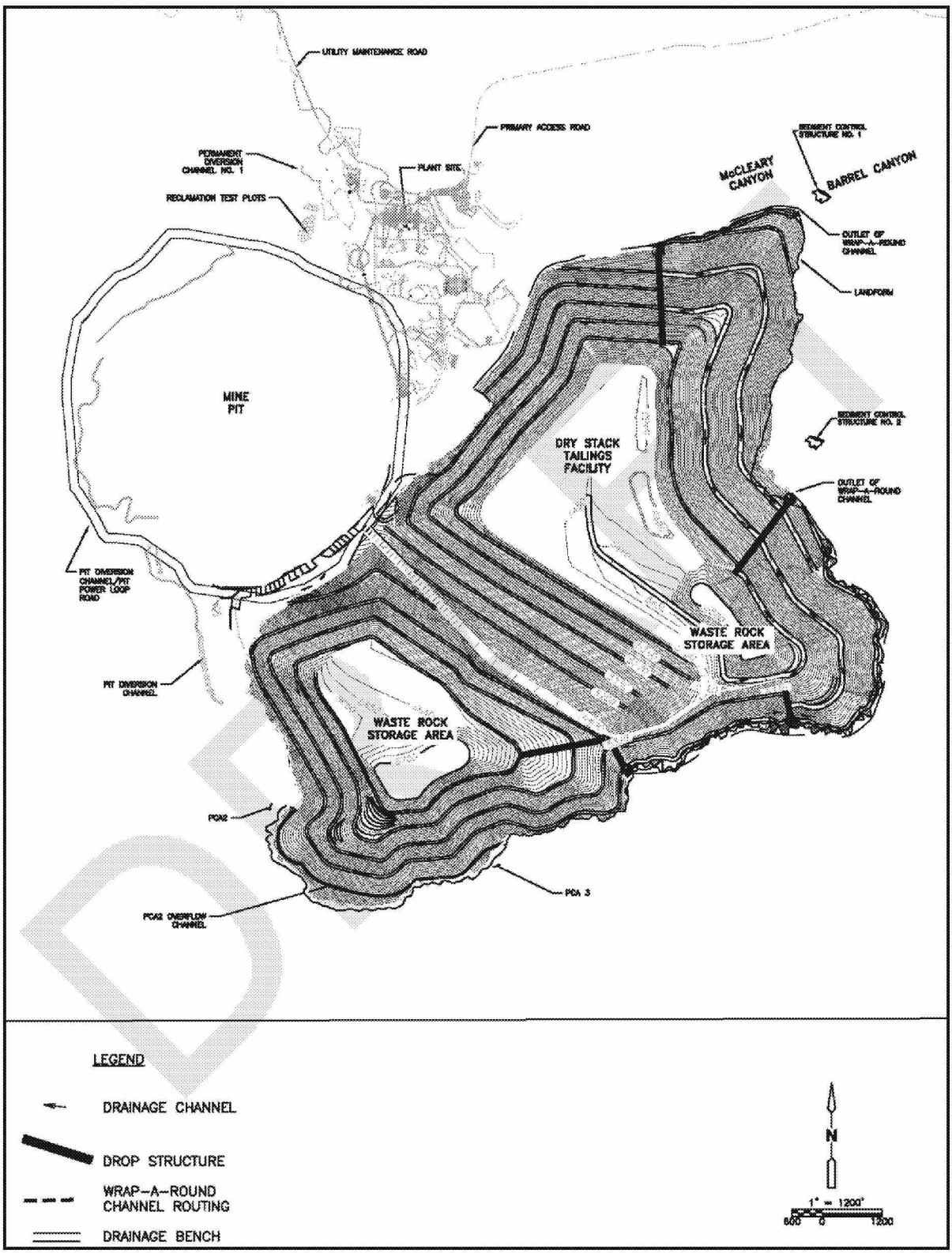

Figure A-4. Selected action stormwater concept

Primary Access Road

A new two-lane paved road, referred to as the "primary access road," will be constructed to provide primary access between SR 83 and the mine. The primary access road will leave SR 83 along a straight section of the State highway. At the intersection, SR 83 will be widened, and new lanes will be added.

Compared to the preliminary MPO, the primary access road was redesigned to follow a revised alignment that both shortens the road and reduces its visibility from SR 83. This realignment avoids Scholefield Canyon and will reduce impacts to riparian vegetation and cultural resources. The new alignment intersects SR 83 at the same location as in the proposed action but is 3.2 miles long, as shown in figure A-1.

Public use will be restricted on portions of the primary access road at the perimeter fenceline during construction, operation, and closure of the mine because of safety considerations but will be reopened to the public after closure. The primary access road will be subject to periodic short-term restriction of public use for maintenance and to protect public safety. Restricted areas will be indicated by signage, gates, and/or a security guard shack located near the plant site. Segments of the primary access road will be added to the Coronado's NFSR inventory.

Utility Maintenance Road

Referred to as the "secondary access road" in the DEIS, a better understanding of this road and its function resulted in its being renamed the "utility maintenance road." This road will be located within the utility corridor to serve as access to the power supply line, water supply line, and water booster pump stations (see figure A-3). The road will consist of two discrete segments: one from the plant site, over Lopez Pass, to a major wash on private land; and another from the supply well area near Sahuarita to the other side of the major wash, generally following the electrical transmission and water line location. Overall, this road will require more than 11.5 miles of new construction and 4.5 miles of reconstruction or upgrade to an existing road. Refer to figure A-3 for a map of the utility maintenance road.

A gravel road will be constructed from the plant site to Lopez Pass to serve as a maintenance road for the utility supply lines. The existing road over Lopez Pass (NFSR 505) is on NFS land and private land. While NFSR 505 is considered a Forest Service system road, the Forest Service does not have legal access across private land. There are small portions of the new road construction that overlap existing NFSR 505, and those will be reconstructed as part of the utility maintenance road. However, most of the alignment will require new construction from the plant site to its western terminus. The rocky, hilly portion of the road will be reconstructed, and a new road will be created that will run west across private land. The road will intercept a major wash at its western terminus. There are no plans to construct a crossing of this wash, which will require an engineered structure. The second segment of the utility maintenance road will begin at the area of mine water supply wells near Sahuarita and follow the location of the electrical transmission and water lines. This road segment will cross land administered by the ASLD and private lands and will generally parallel Country Club and Santa Rita Roads.

Where the water pipeline to the mine travels under Santa Rita Road, the utility maintenance road intersects the public roadway. It will be gated here to prevent unauthorized access. Because there are different mine water supply well locations, the utility maintenance road will include spurs that extend to these locations as required. The waterline segment to the northernmost well will not require a new road and will use the existing adjacent Santa Rita Road for construction and maintenance until it intersects with Country Club Road.

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A ROW permit from ASLD is required for the sections of the utility maintenance road and utility corridor on State land. A ROW application has been filed; the ROW permit itself will not be issued until approval of the project by the Forest Service. The sections of the road within the ASLD ROW will be new construction. ASLD will also decide at a later date whether they intend to require an additional fence between the utility maintenance road and the rest of the Santa Rita Experimental Range. The Town of Sahuarita also signed an agreement with Rosemont Copper allowing use of a portion of its current ROW alongside Santa Rita Road (Town of Sahuarita and Rosemont Copper Company 2013). This license agreement provides access to the northernmost well via Santa Rita Road. Use of Santa Rita Road for construction, maintenance, or crossing of the water line may require additional permitting by Pima County.

The utility maintenance road will be required to meet MSHA standards by including truck axle-high berms (anticipated to be about 3 feet high) on the sides of the section of roadway located on Rosemont Copper private lands. Some road reconstruction will be on NFS lands before the road intersects private lands, and the Coronado will negotiate with MSHA to accommodate safety while minimizing impacts to NFS surface resources. Otherwise, the segments on ASLD and will be a standard 14-foot-wide native surface road without any additional MSHA requirements.

The utility maintenance road will be closed to the public during construction and operation of the mine, and portions may be reopened to the public after closure, depending on safety concerns. It is the intent of the Coronado to restore public access over Lopez Pass. However, a section of this road crosses private land, and there is currently no legal right of public access. While the Coronado will work with the landowner to secure a permanent public easement for this segment of road, it is unknown at this time whether legal public access will be available postclosure. The portions of this road on private lands will remain after the pipeline and booster stations are removed. For sections on State land, ASLD will ultimately decide which portions will be retained, removed, or revegetated through their ROW permitting process.

Other Area Roads

Area roads that are outside the perimeter fence that will either be reconnected or decommissioned are shown in figure ROD-3. If the mine project is approved, all NFSRs within the perimeter fence not used for mining activities will be decommissioned. A short section of new temporary road (about 700 feet in length, disturbing an estimated 0.2 acre) and use of a segment of NFSR 4064 will be necessary for installing and accessing air quality monitoring equipment to be located at the perimeter fence. Actual decommissioning activities could range from closing and abandoning the road, to activities such as scarifying the road surface to discourage motorized use and promote vegetative recovers, to full topographic recontouring. For the sake of analyzing impacts, it is assumed that all miles of NFSRs within the perimeter fence will be actively decommissioned, and the acreage of these roads is contained in disturbance calculations used for various impact analyses (see table 11 in chapter 2 of the FEIS). NFSRs that are cut off by the perimeter fence will either be decommissioned, rerouted to connect to another area road, or have a turnaround area constructed exterior to the fenceline. New roads will be added as NFSRs, while decommissioned roads will be removed as NFSRs. Within the project area, the Forest Service was granted a ROW from ASARCO Corporation in 1993 for NFSRs 231, 4051, and 4064, for the portions that cross private land. These ROWs remain valid, although title of the underlying land is now held by Rosemont Copper. These roads will be decommissioned.

New road segments designed to connect remnant NFSRs include the construction of a new road from the primary access road to unauthorized road 4050-0.36R-1 (which intersects NFSR 4050 about 0.3 mile farther west), in order to continue to provide legal public access to the Sycamore Canyon area once the unauthorized road is adopted as an NFSR. The completed pair of road segments are referred to as the "Sycamore Connector Road" is about 12,184 feet long and will impact about 26 acres.

Because some Open-Authorized-Restricted roads, which are only open to motorized use by permittees and administrative use, are typically used in the project area for access to grazing allotments, these will mostly remain intact to allow administrative and permitted use postclosure. Construction of the Sycamore Connector Road will be required to be completed within 1 year of the date on which public access to NFSR 4050 is cut off due to mine related activities. During operations, Rosemont Copper will be responsible for providing access, in some form, to the grazing lease holders for management of their allotments and to the Coronado for permit administration.

Transportation on State Route 83

The primary mine access road includes a new intersection with SR 83 that requires an ADOT encroachment permit. The existing two-lane SR 83 roadway will be reconstructed to include a northbound left-turn lane, a southbound right-turn lane, and a merging northbound acceleration lane. All intersection improvements will occur between mileposts 46.63 and 47.14. Portland cement concrete will form the surface approximately 100 to 200 feet north and south of the intersection and the access road turnout. Asphaltic concrete will be used for the remainder of the project alignment. To improve drainage from the intersection, Rosemont Copper will upgrade current drainage structures in the area in accordance with ADOT requirements. The project will also include a turnout connecting to an NFS unpaved roadway and temporary pavement during construction.

As part of the encroachment permit for the primary access road, Rosemont Copper has agreed to fund a lump sum amount to perform or implement the design, construction, and maintenance of road improvements to SR 83 elsewhere. These improvements are considered in this EIS as a connected action (see "Connected Actions" on page 29 of this ROD), and ADOT has indicated that these improvements will consist of a 3-inch asphalt-concrete overlay, guardrail reconstruction, pavement markings, and shoulder buildup from the primary access road intersection north to milepost 58.5. In addition, three existing bus pullouts on SR 83 at mileposts 47.9, 49.2, and 52 will be paved.

After this ROD is issued, it is expected that ADOT will issue an encroachment permit for improvements to the Rosemont Junction intersection serving NFSR 231. Rosemont Junction will provide temporary access to the mine site during the premining period to the project site while the intersection for the primary access road is being constructed. The intersection upgrades for this temporary construction route consist of improvements to the turnout for Rosemont Junction (South Helvetia Road) at milepost 46.63 on SR 83. The improvements include raising Rosemont Junction to match existing pavement. It also includes the installation of new cattle guards and fencing to guide traffic to the newly widened, gravel padded Rosemont Junction. Stormwater and sediment controls are also designed as part of the overall improvement plans. An estimated 200 feet of NFSR 231 on NFS land beyond the ADOT easement will be reconstructed to match the intersection and grade to the existing road. This reconstruction will result in an estimated 0.37 acre of disturbance.

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Mine Life and Alternative Production Schedule

Mining production plans were developed through the end of year 21.3 based on proven and probable mineral reserves. Table A-2 provides a crosswalk between the production timing and the mine life used for the analysis in the FEIS.

Table A-2. Mine life and anticipated production schedule for the selected action

Mine Life Phasing (expected time frame)	Cumulative Timing	Description of Activities	Detailed Timeline for Alternative	Sulfide Ore (1,000 tons)	Waste Rock (1,000 tons)
Premining (18 to 24 months)	1.5 to 2 years	Clear vegetation; stockpile soil; construct facilities; construct primary access road; construct electrical and water lines and segments of utility maintenance road; construct fences; decommission roads; begin construction of pit; begin construction of perimeter buttress with waste rock; construct monitor wells	22 months	6,259	98,859
Active mining (20 to 25 years)	21.5 to 27 years	Continue pit development; continue construction of perimeter buttress; conduct mineral processing; construct tailings facility; perform concurrent reclamation activities (includes revegetation); haul products; construct stormwater drainage facilities	Year 1 Year 2 Year 3 Year 4 Year 5 Year 6 Year 7 Years 8 through 10 Years 11 through 15 Years 16 through 19	27,920 35,576 42,628 27,375 32,015 34,348 37,373 96,360 163,520 204,097	88,169 69,944 82,165 95,980 74,569 63,412 62,094 269,243 260,736 83,996
Final reclamation and closure (3 years)	24.5 to 30 years	All mineral processing has been completed; remove plant site facilities; finish reclamation; stain pit walls; finish drainage structures; remove perimeter fence; remove electrical lines on NFS land	Not Applicable	Not Applicable	Not Applicable
Total				**707,471**	**1,249,161**

Note: Totals for sulfide ore include stockpiled ore.

Mine related traffic on SR 83 during operation will consist of trucks carrying supplies to the project, trucks carrying concentrate and copper cathodes from the project, and employee traffic. Equipment and construction material deliveries to the site will be in addition to large-truck trips. Major equipment arriving by rail may be received at the Port of Tucson, which is located near Vail, Arizona, to the west of the project area. Table A-3 shows Rosemont Copper's estimate of the large-truck shipments for the selected action on a year 1 and year 20 weekday of the operations phase.

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Table A-3. Large-truck trip per weekday data (years 1 and 20 of operations phase)

Materials	Round Trips per Week Year 1	Round Trips per Week Year 20
Copper concentrate	50	50
Materials (e.g., lime, fuels, etc.)	19	19
Total	**69**	**69**

Copper concentrate shipments will form the largest number of routine truck shipments for both the selected action and MPO, with approximately 50 to 56 round trips per day 7 days per week, respectively. Because the project area will have limited onsite parking during the premining phase, all anticipated daily worker commuter trips will be by bus. More specifically, the estimated 1,250 workers needed during construction will require 37 daily round trips by bus. During operation, worker commuter trips will vary from approximately 266 to 311 round trips per day, depending on the year and the alternative. Worker commutes for the operations phase are assumed to be one trip per worker (assuming no carpooling or busing). The largest concentrated volume of mine traffic during a 24-hour period will occur during workforce shift change during the operations phase. Shift changes will vary between 6 a.m. to 8 a.m. and 4 p.m. to 6 p.m.

Arizona National Scenic Trail

The Las Colinas portion of the Arizona National Scenic Trail runs through the project area. Approximately 10 miles of trail will be relocated to the east side of SR 83 to accommodate the project and the demand for use of the trail (figure A-5). It will require construction of about 13 miles of new trail. It will be built to the same standard as the current trail: built with a 24-inch tread, and cleared from 6 to 8 feet wide and 10 to 12 feet high to accommodate multiple uses, such as hiking, biking and horseback riding. These actions include periodic maintenance of the trail and associated facilities. Construction of new trail segments will be completed within 1 year of approval of this ROD. The trail will be pioneered and available to public use prior to closing the existing trail (refer to "Mitigation Effectiveness" in the "Recreation and Wilderness" resource section of chapter 3 and appendix B in the FEIS for further information).

This action includes construction of trailheads at Oak Tree Canyon and at the intersection of SR 83 and Hidden Valley Ranch Road. The trailhead at Oak Tree Canyon, estimated to be up to 3.7 acres, will be designed to accommodate 18 passenger vehicles and 12 horse trailers and will include a bathroom and water source for pack stock and wildlife. It will also include a gravel parking surface, perimeter fence, and gates and signs to deter OHV use. The Hidden Valley Ranch Road trailhead, estimated to be up to 2.5 acres, will accommodate eight passenger vehicles and four horse trailers on a gravel parking surface, a post and rail fence, and gates and signage to deter OHV use. Metal gates, signs, and fencing will be used to deter OHV use on the trail, and gates will be used to accommodate equestrian and mountain bike crossing in areas where there are existing fence lines. Fencing will be extended from the trail gate near Oak Tree/Davidson Canyons in order to properly protect the corridor. Signage consistent with the Arizona National Scenic Trail will be installed, as well as detour and construction signage once construction takes place.

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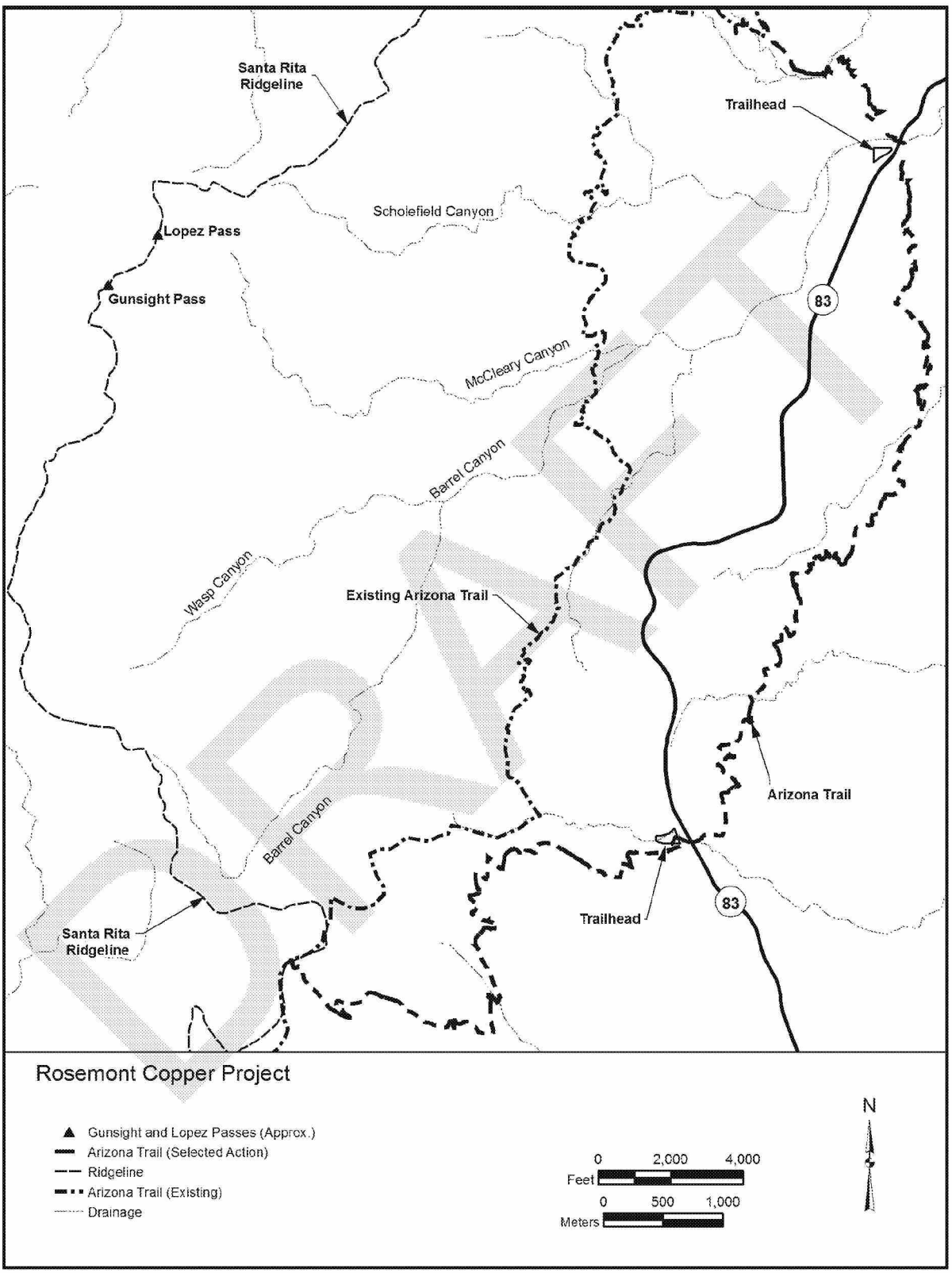

Figure A-5. Arizona National Scenic Trail relocations

Reclamation and Closure

Reclamation of the project will be administered and regulated by the Coronado (36 CFR 228) on NFS lands; administered and regulated on private land by the Arizona State Mine Inspector (ARS 27-901 et seq., as amended); and regulated by the ADEQ (ARS 49-241 through 49-252; and Arizona Administrative Code 18-9-101 through 403).

Reclamation and closure plans have developed as the NEPA process has progressed. The 2007 preliminary MPO included a conceptual reclamation and closure plan, which was updated in 2010 for the other action alternatives. Following publication of the DEIS and in part in response to public comments received, the reclamation and closure plan was updated to focus solely on the preferred alternative. This latest reclamation and closure plan provides details for the phasing and locations for reclamation activities, details of postclosure site water management, and preliminary calculations of reclamation and closure costs.

In concept, reclamation and closure consists of several components common to all action alternatives:

- Removal of all equipment and buildings; building foundations may be broken up and buried, or removed;
- Capping of the top of the tailings facility with waste rock upon closure;
- Removal of pond liners as deemed appropriate under the APP;
- Regrading and revegetation of the plant and mill site areas upon closure;
- Regrading and revegetation of any access roads requiring closure;
- Removal of electric supply line, water supply line, and related facilities from NFS lands;
- Revegetation of utility corridors where removal causes soil disturbance;
- Concurrent reclamation and revegetation of the landform that encompasses the waste rock and tailings facilities, beginning as early as year 1, as portions of the waste rock buttress are completed;
- Salvage of soil resources and selected vegetation for reuse in revegetation activities;
- Removal of perimeter and security fencing;
- Construction of fencing and/or berms for safety considerations;
- Establishment of postclosure access roads; and
- Reestablishment of downstream drainage and surface water flow.

Several considerations were incorporated into mine design to facilitate later reclamation and closure. These include managing operations to minimize environmental impacts, constraining disturbances to a minimum number of drainages to minimize downstream hydrologic disturbance, constructing waste rock buttresses to allow for concurrent reclamation of outer slopes, and using appropriate technology to minimize the generation of impacted water.

With the exception of most roads within the plant site, access roads into the project area will remain after closure. Specifically, the primary access road and portions of the utility maintenance road will remain, and a road will be maintained through the plant site to access the waste rock/tailings landform for monitoring and maintenance. Roads may also remain on top of and around the toe of the waste rock/tailings landform to allow for postclosure monitoring activities and use of the land for grazing.

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Postmine land use of NFS lands will be the same for all action alternatives and will follow the direction in the forest plan that is in place at that time. Postmining/closure reclamation objectives for Rosemont Copper's private land could include dispersed recreation, wildlife habitat, and ranching.

At closure, fence construction for the mine pit under all action alternatives will be a minimum of three-stranded barbed wire with warning signs. Arizona Administrative Code R11-2-401 specifies measures that include fencing and signage. Additionally, Rosemont Copper will construct structures to provide additional safety protections if needed, such as berms around the pit, possible "tank traps" as necessary to restrict road access, and upgraded fencing (i.e., chain link) if necessary on steeper slope areas above the pit or other areas.

Operating facilities will be demolished and removed, and building foundations will be demolished, covered with soil, and graded or removed. All areas will be surveyed for the presence of contaminants, and any contaminated soils, reagents, or fuels will be disposed of offsite at licensed facilities.

With respect to revegetation of the waste rock and tailings landforms, Rosemont Copper will be responsible for designing and implementing revegetation procedures. The Coronado, however, will define the criteria that must be met for revegetation to be considered a success, and all designs and techniques must be approved by the Coronado. Planned revegetation techniques, expected success criteria, and details of how concurrent revegetation of these areas will be phased are described in the "Soils and Revegetation" resource section of chapter 3 of the FEIS. In order to assess the potential success of the revegetation plans, the Coronado has considered the results of greenhouse studies and onsite reclamation plots conducted by Rosemont Copper. These results are also summarized in chapter 3 of the FEIS.

Phasing of Concurrent Reclamation

In order to maintain concurrent reclamation of final outer slopes, waste rock will initially be placed in buttress along the outside edge of the waste rock facility, followed by waste rock and tailings placement behind the buttress. A large portion of the waste rock perimeter buttresses that surround the tailings facility and the waste rock facility itself will be concurrently reclaimed by year 10; these areas will begin to discharge water downstream as reclamation is completed. The upper benches and tops of the waste rock and tailings facilities will be reclaimed beginning in year 16 but will not be completely reclaimed until the mine is fully closed. The volume of soil that can be salvaged from the site to be used later for cover during reclamation activities is estimated at 2.8 million cubic yards.

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