WESTERN MINING ACTION PROJECT

Roger Flynn, Esq.,
Jeffrey C. Parsons, Esq.

P.O. Box 349
440 Main St. #2
Lyons, CO 80540
(303) 823-5738
Fax (303) 823-5732
wmap@igc.org

Via Email

January 26, 2021

Reviewing Official, Regional Forester
USDA Forest Service, Southwest Region,
Southwestern Region
333 Broadway SE
Albuquerque, NM 87102

Email: objections-southwestern-regional-office@usda.gov

RE: **OBJECTION to the**
Resolution Copper Project
Final Environmental Impact Statement ("FEIS") and
Draft Record of Decision ("Draft ROD" or "DROD")

Responsible Official: Tom Torres, Acting Forest Supervisor
Tonto National Forest

Pursuant to 36 CFR Part 218, on behalf of the **Inter Tribal Association of Arizona, Inc. ("ITAA" Lead Objector**), Arizona Mining Reform Coalition ("AMRC"), Access Fund, Center for Biological Diversity, Earthworks, and the Sierra Club – Grand Canyon (Arizona) Chapter, ("Objectors"), by and through their undersigned attorneys, file this Objection to the FEIS and Draft ROD for the Resolution Copper Project ("Mine" or "Project") issued by Tom Torres on January 15, 2021. *See* https://www.resolutionmineeis.us/.

A legally compliant FEIS is required for the Forest Service to approve the Land Exchange that would give to multinational mining conglomerate, London-based Rio Tinto Corp. and related companies ("Rio Tinto," "Resolution," or "Resolution Copper") over 2,400 acres of federal land within the Tonto National Forest. The Exchange and related Forest Service approvals would facilitate Rio Tinto's proposed mine known as the Resolution Copper Mine ("Resolution Copper Mine," "Project" or "Mine").

Because the DROD is based on the FEIS, these Objections show that both the DROD and FEIS fail to comply with numerous federal laws, including the National Environmental Policy Act, 42 U.S.C. §§ 4321 *et seq*. ("NEPA"); Section 3003 of the Carl Levin and Howard P. 'Buck' McKeon National Defense Authorization Act for Fiscal Year 2015. Pub. L. 113-291 ("NDAA" or "Section 3003"); Forest Service Organic Administration Act of 1897, 16 U.S.C. §§ 475, 478, 551 ("Organic Act"); Federal Land Policy and Management Act of 1976, 43 U.S.C. §§ 1701 *et seq.* ("FLPMA"); Clean Water Act, 33 U.S.C. §§ 1251 *et seq.* ("CWA"); National Forest Management Act, 16 U.S.C. §§ 1600-1614 ("NFMA"); the Clean Air Act, 42 U.S.C. §§ 7401 *et seq*. ("CAA"); Endangered Species Act, 16 U.S.C. §§ 1531 *et seq.* ("ESA"); Migratory Bird Treaty Act, 16 U.S.C. §§ 703-712 ("MBTA"); Bald and Golden Eagle Protection Act, 16 U.S.C. §§ 668-668d ("BGEPA"); the Executive Order 13186 (January 11, 2001) (requiring protection of migratory birds); the Administrative Procedure Act, 5 U.S.C. §§ 551 *et seq*. ("APA"), and the implementing regulations, Executive Orders, and policies of these laws.

The remedy for these violations is for the Forest Service to withdraw the FEIS and DROD and not issue any decision or take any action based on the inadequate FEIS. This includes the proposed Land Exchange with Resolution Copper, as well as any and all Special Use Permits, Road Use Permits, and other authorizations proposed to be issued by the Forest Service to Resolution and the Salt River Project ("SRP").

The Forest Service must not take any action until a revised FEIS and revised DROD demonstrates full compliance with each and every law, regulation, policy, and Executive Order noted herein. The Regional Forester must withdraw the FEIS and DROD with instructions to the Tonto National Forest to correct all errors noted herein before the Agency can consider approving or taking any actions.

All of the Objectors filed comments on the Draft EIS in November, 2019, and submitted additional and supplemental comments to the Forest Service in December of 2020 and have fully participated in the Forest Service's ("USFS") review of the Project. The Objectors also submitted a letter to the State of Arizona and Forest Supervisor Neil Bosworth on October 30, 2020 regarding water quality and related issues, which further notified the Forest Service of the errors in the Forest Service's actions and decisions.

Pursuant to 36 CFR 218.8, the parties state that the following content of this Objection demonstrates the connections between the November, 2019, October 2020, and December 2020 comments ("previous comments") for all issues raised herein, unless the issue or statement in the FEIS or DROD arose or was made after the opportunity for comment on the Draft EIS closed, as detailed herein. Pursuant to the Administrative Procedure Act, 5 U.S.C. §553-706, and USFS requirements, the

Regional Forester's Office must provide a detailed response to each of the issues/objections raised in this Objection.

All of the previous comments submitted by the Objectors, including all exhibits and attachments submitted to the Forest Service by the Objectors, are hereby incorporated into this Objection and into the administrative record and hereby submitted to the Reviewing Officer for its review and consideration. These comments and exhibits/attachments are also included in FEIS Volume 6, Appendix R. *See e.g.*, R-71 to R-73 (listing the issues raised by AMRC and the location of the Agency's response in Appendix R); R-74 to R-75 (listing the issues raised by the ITAA and the location of the Agency's response in Appendix R).

Objectors reserve the right to supplement these Objections up to the March 1, 2021 deadline. These Objections also contain internet citations to relevant documents, and these documents are also submitted into the administrative record for this case. If the Reviewing Officer cannot for some reason access these documents for its review, please immediately provide the undersigned the reason for such inability, and let the undersigned know as soon as possible and the Objectors will make arrangements to provide the documents. Otherwise, Objectors have no reason to believe that the documents cited/referred to in these Objections have not been considered by the Reviewing Officer, and thus are part of the administrative record for this case.

Interests and Description of Objectors

The **Inter Tribal Association of Arizona, Inc. ("ITAA")**, is an intertribal, non-profit organization composed of 21 federally recognized Tribes with lands located primarily in Arizona, as well as in California, New Mexico, and Nevada. The ITAA's Member Tribes have worked together since 1952 to provide a united voice for Tribes on matters of common concern, and have stood in united opposition to the Resolution Copper Mine and Land Exchange Project for over 15 years. The representatives of ITAA are the highest elected tribal officials from each of the Member Indian Tribes, including tribal chairpersons, presidents, and governors. ITAA's Member Tribes are the Ak-Chin Indian Community, the Cocopah Tribe, the Colorado River Indian Tribes, the Fort McDowell Yavapai Nation, the Fort Mojave Indian Tribe, the Gila River Indian Community, the Havasupai Tribe, the Hopi Tribe, the Hualapai Indian Tribe, the Kaibab Band of Paiute Indians, the Pascua Yaqui Tribe, the Quechan Tribe, the Salt River Pima-Maricopa Indian Community, the San Carlos Apache Tribe, the San Juan Southern Paiute Tribe, the Tohono O'odham Nation, the Tonto Apache Tribe, the White Mountain Apache Tribe, the Yavapai-Apache Nation, the Yavapai-Prescott Indian Tribe, and the Zuni Tribe.

The **Arizona Mining Reform Coalition ("AMRC")** works in Arizona to improve state and federal laws, rules, and regulations governing hard rock mining to protect communities and the environment. AMRC works to hold government agencies

and mining operations to the highest environmental and social standards to provide for the long term environmental, cultural, and economic health of Arizona.

The **Access Fund** is the national advocacy organization that works to keep U.S. climbing areas open and conserves the climbing environment. Founded in 1990, the Access Fund works with more than 135 affiliated local climbing organizations around the country in supporting and representing more than 7 million climbers nationwide in all forms of climbing: rock, ice, mountaineering, and bouldering.

The **Center for Biological Diversity ("Center")** is a non-profit public interest organization with headquarters located in Tucson, Arizona, representing more than 80,000 members dedicated to the conservation and recovery of threatened and endangered species and their habitats. The Center works through science, law, and policy to secure a future for all species, great or small, hovering on the brink of extinction. The Center has long-standing interest in projects of ecological significance undertaken in the National Forests of the Southwest, including proposed mining projects.

Earthworks is a nonprofit organization dedicated to protecting communities and the environment from the adverse impacts of mineral and energy development while promoting sustainable solutions. Earthworks stands for clean air, water and land, healthy communities, and corporate accountability. Earthworks supports solutions that protect both the Earth's resources and our communities.

The **Sierra Club** is one of the nation's oldest and most influential grassroots organizations whose mission is "to explore, enjoy, and protect the wild places of the earth; to practice and promote the responsible use of the earth's ecosystems and resources; and to educate and enlist humanity to protect and restore the quality of the natural and human environments." Sierra Club has more than 2.4 million members and supporters with 35,000 in Arizona as part of the Grand Canyon (Arizona) Chapter. Its members have long been committed to protecting and enjoying the Tonto National Forest.

Objectors have long-standing interests in the proper and lawful management of the National Forests, especially the Tonto National Forest near and adjacent to the town of Superior, including the lands within the Project and Exchange area. Objectors also have long-standing interests in the proper implementation of NEPA and federal public land management laws. Members, officers, staff, and supporters of Objectors participate in a wide range of aesthetic, scientific research, recreational, commercial, and traditional, religious and cultural activities on the Tonto National Forest and within and adjacent to the lands proposed to be impacted by the Exchange and Project activities reviewed in the FEIS.

Objectors' members, officers, staff, and supporters hike, rock climb, guide commercial clients, picnic, conduct cultural and religious ceremonies, appreciate scenery, solitude, and quiet, engage in scientific research projects, and view and value wildlife, in the lands at the site of the Exchange, Project operations, and related infrastructure, including waters adversely affected by the Exchange and Project (such as Ga'an Canyon, Queen Creek, Mineral Creek, and springs and seeps that will suffer severe loss or elimination of flows). Objectors' members, officers, staff, and supporters have concrete plans to continue pursuing these activities on the specific lands and transportation and infrastructure routes impacted by the Exchange and Project operations. These uses will be immediately and irreparably diminished or eliminated altogether by the Exchange and Project operations. Many of Objectors' members live in the town of Superior and in Queen Valley near the Project area that will be adversely affected by the Exchange and the Project, while the Mine and all of its infrastructure would exist within the ancestral lands of ITAA's Member Tribes.

INTRODUCTION

On January 15, 2021, with only five days left in the Trump Administration, the Tonto National Forest issued its Final Environmental Impact Statement ("FEIS") governing its review of the "Resolution Copper Project and Land Exchange" and related Forest Service proposed approvals of pipelines, roads, electrical transmission lines, infrastructure and other uses of federal public land associated with the proposed Resolution Copper Mine.

The Mine would pump and dewater groundwater and completely obliterate sacred land, Oak Flat, by creating a roughly two-mile-wide and 1,000 foot deep crater from the "block cave" mine operation. This mining method would involve excavating ore 4,500 to 7,000 feet underground within the exchanged parcel and then collapsing the void areas created by the excavation. The result would be a massive, permanent crater. The Mine would transform Oak Flat, which has since time immemorial, been a place of profound religious, cultural, and historical significance, sacred to indigenous people, including the Western Apache and the Yavapai Peoples, into a rubbleized crater, whose steep and unstable slopes would forever remain unsafe for human use.

The faulty FEIS, DROD, and Project review, hurried through to completion in the waning days of the Trump Administration, is deficient in numerous critical areas, and violates multiple federal laws. As just one example of its rush-to-complete, the agency completely changed its regulatory structure for reviewing the Project in late 2020 but never provided any public review of the regulatory switch, despite the critical public land issues the 11th-hour reversal raises.

Additional problems with the FEIS include its: legally erroneous "purpose and need" that governed the Forest Service's review of the Project; failure to provide for and analyze a full range of reasonable alternatives; failure to provide a full analysis of the impacts of those alternatives; failure to apply the full scope of federal laws applicable to the Project; improper regulation and review of the Project and infrastructure under erroneous interpretations of federal law; failure to include any information or opportunity to comment on the appraisals that Congress required to be completed (including the additional Non-Federal lands that may be conveyed to the United States based on the appraisals); failure to adequately analyze connected actions and the direct, indirect, and cumulative impacts from the Exchange and Project; and failure to take the required "hard look" under the National Environmental Policy Act ("NEPA"), as well as otherwise violating federal law as noted herein.

Oak Flat, shown above, is located within the Tonto National Forest east of the town of Superior, Arizona.

The Oak Flat area is a place of profound religious, cultural, and historic significance to the San Carlos Apache Tribe and other Indian tribes, nations, and communities in Arizona, including the White Mountain Apache Tribe, the Tonto Apache Tribe, the Fort McDowell Yavapai Nation and others. *See* Hearing before the

Subcommittee on Public Lands and Forests of the Committee on Energy and Natural Resources, United States Senate on S.409, 111th Cong., S. Hrg. 111-65 (June 17, 2009); *see also* Legislative Hearing Before Subcommittee on National Parks, Forests and Public Lands in the U.S. House Natural Resources Committee regarding H.R. 3301, 110th Cong., Serial No. 110-52 (November 1, 2007).

Oak Flat lies within the ancestral lands of the San Carlos Apache Tribe, just west of the San Carlos Apache Reservation. The San Carlos Apache Reservation is home to more than 17,000 enrolled Tribal members. Apache People call Oak Flat "*Chich'il Bildagoteel,"* or "a Flat with Acorn Trees" and it lies at the heart of *T'iis Tseban* Country, which is associated with at least eight Apache clans, and two Western Apache bands, the Pinal Band and the Aravaipa Band.

Because of its importance to the Apache Tribe and other tribes, nations and communities, Oak Flat is included in the National Register of Historic Places as a Traditional Cultural Property ("TCP") under Section 106 of the National Historic Preservation Act, 16 U.S.C. § 470 *et seq.* ("NHPA"), and it meets the criteria to be identified as a "sacred site" within the meaning of Executive Order 13007, Indian Sacred Sites, May 24, 1996, 61 Fed. Reg. 26771 ("E.O. 13007"), the American Indian Religious Freedom Act, 42 U.S.C. § 1996, *et. seq*. ("AIRFA"), and related laws, regulations and policies.

The religious and cultural importance of the Oak Flat area does not reside in isolated spots, but rather in the area as a whole. For the Apache People, the area of "Oak Flat" is bounded to the west by (and including) the large escarpment known as "*Dibecho Nadil*" or "Apache Leap" and on to the east by (and including) *Gan Bikoh*, which means "Crowndancers Canyon," though it is often referred to by Apache People as "Ga'an Canyon" and by non-Indians and in the FEIS as "Devil's Canyon." Oak Flat is bounded to the north by (and including) *Gan Daszin* or "Crowndancer Standing," which is delineated on most maps as "Queen Creek Canyon."

Ga'an Canyon, as referred to by Apache People, which bounds Oak Flat to the east and would suffer long term loss of water, seeps and springs as a result of Resolution's groundwater pumping. A large mine waste pipeline would span the Canyon.

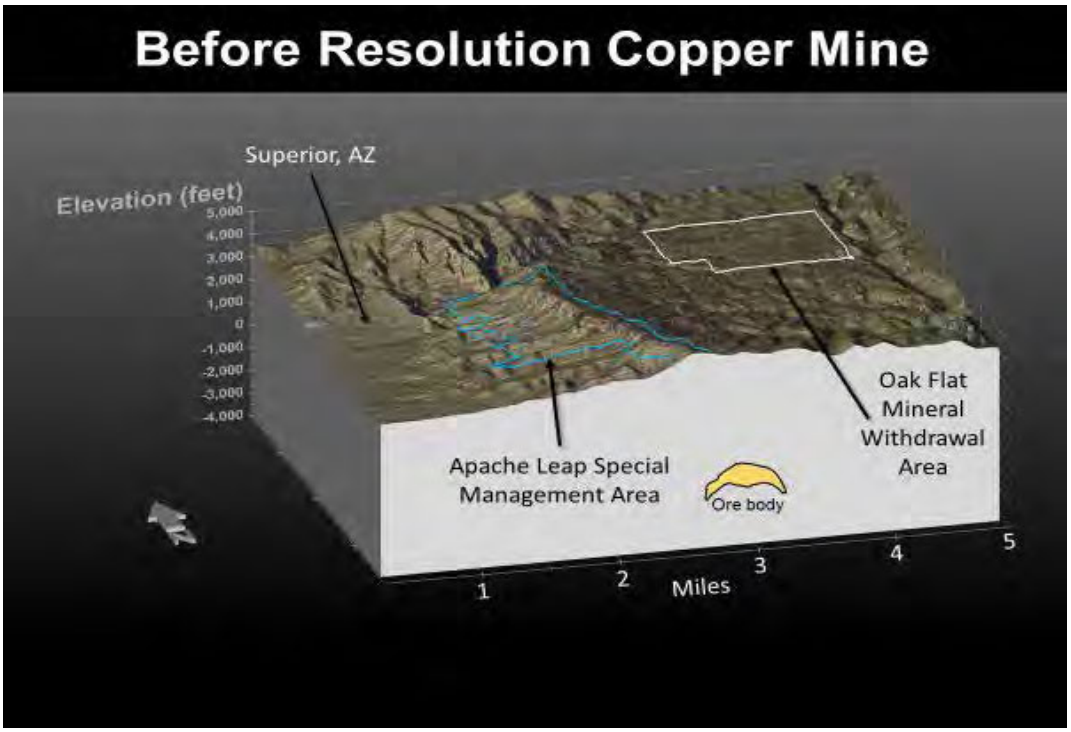
The ancient oak grove at Oak Flat provides an abundant source of acorns that, for many centuries and even today, provides an important traditional food source for the Apache People. There are also hundreds of plants and other living things in the Oak Flat area that are essential elements of the Apache religion and culture. Some of these plants are medicines known to and harvested only by gifted Apache herbalists. Although these plants can be gathered in other areas, Apaches believe that only plants within the Oak Flat area are imbued with the unique power of this area.

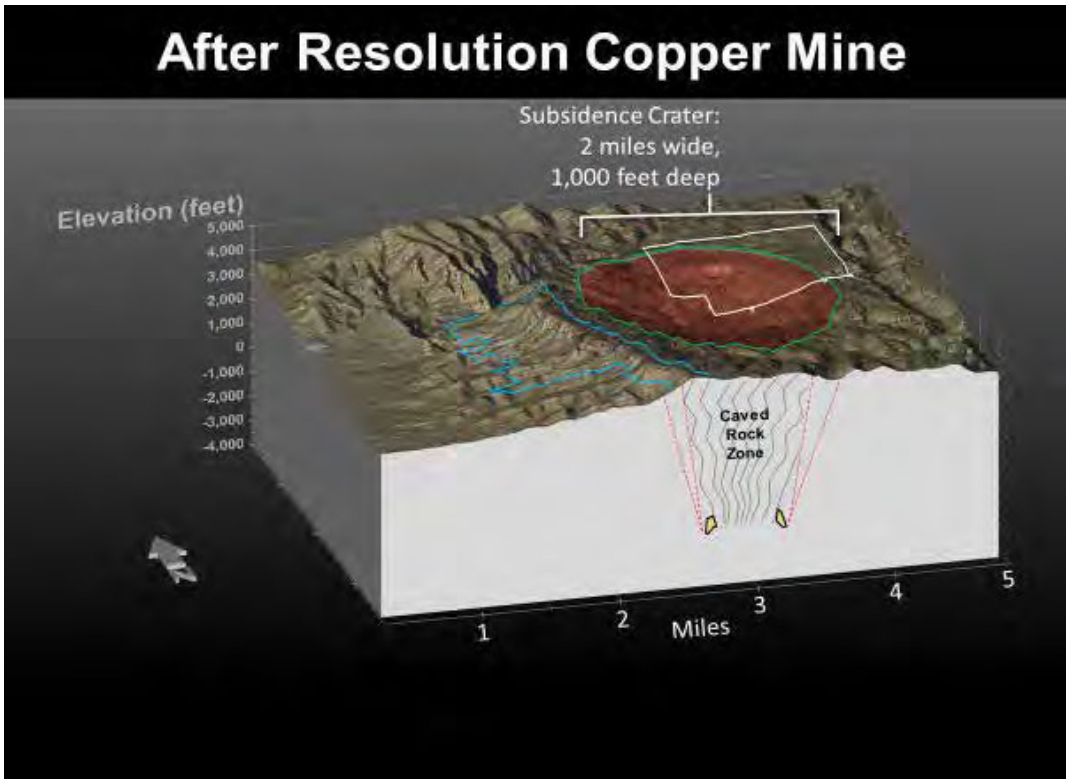
Oak Flat is also recognized for its beauty and importance to outdoor enthusiasts, including members of Objector groups who value it for outdoor recreation and as a place of unique biological diversity. Oak Flat attracts rock-climbers from around the country as it contains numerous large boulders and outcrops. In the campground and picnic area, ancient oak trees provide shade for hikers, campers, and picnicking families, and give sanctuary to many important bird species. Sitting at an approximate elevation of 4,200 to 4,600 feet above sea level, Oak Flat is a cool respite for the many travelers and visitors from Phoenix and elsewhere, who often recreate at Oak Flat and in the surrounding Forest Service lands.

Wildlife cameras have documented a wide variety of wildlife at Oak Flat, including mountain lion, bear, and coatimundi. Nearby lands provide important wildlife

habitat for Federally listed endangered and threatened species such as the southwestern willow flycatcher, yellow billed-cuckoo, Gila chub, Arizona hedgehog cactus, and ocelot. Over 170 bird species have been documented at Oak Flat.

The "block-cave" mine method and the resulting crater will forever transform and obliterate Oak Flat:





Before and After Graphics of Resolution Copper Mine.[1]

In addition to destroying the sacred lands of Oak Flat, thousands of additional acres would become permanent unlined waste dumps, buried under nearly 1.4 billion tons of toxic waste covering six square miles behind a 490-foot-high dam. This toxic sludge would travel through 19 miles of pipeline, traversing desert canyons, including Ga'an Canyon, and washes to reach this permanent dump location that is upstream and upgradient of the Gila River southeast of the mining area. The Project would also include a new 22-mile pipeline to transport the copper ore concentrate west/southwest towards the town of Magma for further processing and shipment. *See generally*, FEIS at 10-11 (Project description).

The Project would use massive amounts of water. The estimated total quantity of water needed for the life of the mine (construction through closure) ranges from up to 677,000 acre-feet ("AF") as analyzed in the FEIS to as much as 786,626 AF predicted in Resolution's mine plan.[2] The water would be consumed from various sources, including from mine dewatering and groundwater pumping. Much of the water consumed by the Project would be pumped from the groundwater underlying the heart of the East Salt River Valley.

The Exchange and Project would perpetrate a systematic violation of *Chich'il Bildagoteel* (Oak Flat) through mining, drilling, groundwater pumping (resulting in severe impacts to water resources), grading, construction, road building and expansion, traffic, light and noise pollution, sediment and erosion, and other activities. These activities would result in the physical destruction of Oak Flat, forever changing the character of Oak Flat relative to its crucial role in Apache religion and culture, and the introduction of auditory, visual and atmospheric disturbances that would profoundly diminish the integrity of this special place (both as a "Traditional Cultural Property" under the National Historic Preservation Act and as a sacred site) for Tribal members.

The Mine and Exchange have long been opposed by the San Carlos Apache Tribe, whose reservation is located just east of the Exchange area, along with essentially all other Native American Tribes in Arizona, including all of the Member Tribes of Objector, the Inter Tribal Association of Arizona, Inc. ("ITAA"), which, through ITAA or its sister organization, the Inter Tribal Council of Arizona, Inc., has testified in

[1] Graphics From Written Testimony of James Wells, PhD, Environmental Geologist, L. Everett & Associates, Environmental Consultants, Testimony before House Natural Resources Subcommittee on Indigenous Peoples of the United States Hearing on "The Irreparable Environmental and Cultural Impacts of the Proposed Resolution Copper Mining Operation" 12 (Mar. 12, 2020) *available at* https://naturalresources.house.gov/download/0312-witness-testimony-dr-wells.

[2] An acre-foot of water equals roughly 325,851 gallons.

Congress against the Exchange and enacted resolutions in opposition to the Exchange and Mine.

The significance of Oak Flat has been long recognized. In 1955, 760-acres of Forest Service managed lands that are included in the Exchange and would be permanently damaged by the Mine, were withdrawn from mining and mineral entry by the Eisenhower Administration as the "Oak Flat Withdrawal Area" in Public Land Order 1229. The withdrawal prevented mining companies, such as Rio Tinto, from conducting mineral exploration or other mining-related activities at or underneath the Withdrawal Area. That withdrawal is still in place today and until the Exchange occurs, no mining on or under these lands can be authorized.

After a decade of lobbying to acquire these sacred lands around the copper deposit that Rio Tinto seeks to mine, a rider was added to a must-pass appropriations bill for the Defense Department leading to Congressional authorization of the Exchange. But Congress expressly conditioned the Exchange on the Forest Service issuing the FEIS in full compliance with the terms of the Act and all applicable laws. *See* Section 3003 of the Carl Levin and Howard P. 'Buck' McKeon National Defense Authorization Act for Fiscal Year 2015 for fiscal year 2015. Pub. L. 113-291 ("NDAA" or "Section 3003"). And it is only after such a lawful document is issued that the Exchange clock could start, providing 60 days for the Secretary of Agriculture to execute the Exchange. §3003(c)(10) ("Not later than 60 days after the publication of the final environmental impact statement, the Secretary [of Agriculture] shall convey all right, title, and interest of the United States in and to the Federal land to Resolution Copper.").

The exchange parcel to be conveyed to Resolution Copper includes not only the Oak Flat Withdrawal Area but also Forest Service surface lands that lie above the copper deposit subsurface. This collective 2,422-acre tract of land is known as the "Oak Flat Federal Parcel" in the NDAA.

Although Congress directed the Forest Service to exchange the federal parcels at and around Oak Flat as described in the NDAA, Congress required all federal agencies to otherwise comply with NEPA and all applicable laws, for both the review and approval of the Exchange, as well as for Resolution's plans for facilities related to the Mine, such as tailings impoundments, mine shafts, pipelines, electrical transmission lines and facilities, roads, water use, and other activities.

The Agency specifically stated that the FEIS needed to be completed, and comply with NEPA, before the Exchange could be approved. The Federal Register Notice of Intent to prepare the EIS stated:

> DEPARTMENT OF AGRICULTURE Forest Service Tonto National Forest; Pinal County, AZ; Resolution Copper Project and Land Exchange Environmental

> Impact Statement AGENCY: Forest Service, USDA. ACTION: Notice of intent to prepare an **Environmental Impact Statement for approval of a plan of operations for the Resolution Copper Project and associated land exchange**; request for comments; and notice of public scoping.
>
> SUMMARY: The Tonto National Forest (TNF) is preparing an Environmental Impact Statement (EIS) to evaluate and disclose the potential environmental effects from: (1) Approval of the ‘‘General Plan of Operations’’ (GPO) submitted by Resolution Copper Mining, LLC (Resolution Copper), for operations on National Forest System (NFS) land associated with a proposed large-scale mine; (2) the exchange of land between Resolution Copper and the United States; and (3) amendments to the Tonto National Forest Land and Resource Management Plan (forest plan) (1985, as amended).

Fed. Reg., Vol. 81, at 14829 (March 18, 2016)(emphasis added). Indeed, in a response this month to a public letter to Rio Tinto/Resolution, the company reiterated that the Exchange could not be authorized/approved unless the FEIS was fully compliant with NEPA:

> The Resolution land exchange, in contrast to other land exchanges mandated by Congress, is subject to completion of an environmental impact assessment under the National Environmental Policy Act (NEPA) by the US Forest Service. Other land exchanges mandated by Congress occur 60 days after passage without a review under NEPA. **Making the Resolution land exchange contingent on a full NEPA review was one of the requirements that bipartisan leaders included in the legislation prior to its passage in 2014.**

Email response from Jakob Stausholm, CEO of Rio Tinto, to Roger Featherstone, Director of Objector AMRC (emphasis added, attached).

The NDAA also placed significant restrictions on the Forest Service’s approval of the Exchange and Resolution’s mining infrastructure plans, including that a single FEIS that is fully compliant with all federal laws, including the National Environmental Policy Act (“NEPA”), 42 U.S.C. 4321 *et seq*., is to be the basis for all decisions under federal law related to the Exchange and the Mine. *See* NDAA §3003(c)(9) (“the Secretary shall carry out the land exchange in accordance with the requirements of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).”

> According to the NDAA:
>
> Prior to conveying Federal land under this section, the Secretary shall prepare a single environmental impact statement under the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), which shall

> be used as the basis for all decisions under Federal law related to the proposed mine and the Resolution mine plan of operations and any related major Federal actions significantly affecting the quality of the human environment, including the granting of any permits, rights-of-way, or approvals for the construction of associated power, water, transportation, processing, tailings, waste disposal, or other ancillary facilities.

§3003(c)(9).

Thus, the agency cannot defer or postpone the review of any aspect of the Exchange or the Project to a future public or agency process, as Congress directed that all aspects be analyzed in "a single environmental impact statement." Id. Yet as shown herein, that is what the Forest Service has done, by deferring and postponing full consideration of the baseline conditions, connected actions, direct, indirect, and cumulative impacts, mitigation measures and analysis, and other aspects of the Exchange and Project.

Notably, the NDAA did not authorize, require, or otherwise direct the Forest Service or any other agency to approve the mine plan of operations ("PoO") (also called the General Plan of Operations ("GPO")), Special Uses, Rights-of-Way ("ROWs"), Clean Water Act Section 404 permit, or any other permits or approvals required for the Project's infrastructure and facilities.

Another critical limiting factor for this Exchange is Congress' express requirement that the Forest Service cannot approve the Exchange until the lands to be obtained by Resolution (known as the "Federal Land") and the lands to be obtained by the federal government (known as the "Non-Federal Land") are subject to completed appraisals.

The FEIS' and the Forest Service's review of the Exchange and Project are legally deficient despite §3003(c)'s requirement that all agencies comply with federal laws including NEPA.

The Forest Service relied on the FEIS to issue, also on January 15, 2021, a Draft Record of Decision ("DROD") for the Project. As shown herein, the FEIS improperly limited its review based on an incorrect analysis of the Agency's authority over the Project and its related facilities and activities that was the basis for the DROD.

The Massive Size, Scale, and Impacts of the Resolution Project

Resolution Copper is proposing to develop one of the largest mining projects in U.S. history. Resolution's Project includes the mine site itself, as well as associated

infrastructure, large power transmission lines, dewatering operations, numerous high-capacity groundwater pumping wells, waste and ore concentrate delivery pipelines, transportation corridors and roads, and a massive tailings waste storage facility.

According to the Forest Service: "it is expected that one of the largest copper mines in the United States would be established on the exchange parcel, with an estimated surface disturbance of 6,951 acres (approximately 11 square miles). It would also be one of the deepest mines in the United States, with mine workings extending 7,000 feet beneath the surface." FEIS at 3.

"The project would progress through three distinct phases: construction (mine years 1 to 9), operations, also referred to as the production phase (mine years 6 to 46), and reclamation (mine years 46 to 51–56)." FEIS at ES-3. Resolution would mine:

> 1.4 billion tons of ore and produce[] 40 billion pounds of copper using a mining technique known as panel caving. Using this process, a network of shafts and tunnels is constructed below the ore body. Access to the infrastructure associated with the panel caving would be from vertical shafts in an area known as the East Plant Site, which would be developed adjacent to the Oak Flat Federal Parcel. This area would include mine shafts and a variety of surface facilities to support mining operations. This area currently contains two operating mine shafts, a mine administration building, and other mining infrastructure.

FEIS at ES-3.

"The type of copper deposit that would be mined at the East Plant Site is a porphyry deposit, a lower-grade deposit that requires higher mine production rates to be economically viable. The copper deposit that Resolution Copper proposes to mine averages 1.54 percent copper (i.e., every ton of ore would on average contain 31 pounds of copper)." FEIS at ES-7.

Ore processing would take place outside the town Superior, in an area known as the "West Plant Site." FEIS at ES-7. "Mined ore would be crushed underground and then transported underground approximately 2.5 miles west to an area known as the West Plant Site, where ore would be processed to produce copper and molybdenum concentrates." Id.

As a result, Oak Flat and the entire area:

> would be permanently altered by large-scale ore removal and geological subsidence. The resulting 7,000-foot-deep area of fractured rock and approximately 1.8-mile-wide subsidence crater at the surface of Oak

> Flat, together with ongoing mine dewatering, would be likely over time to result in measurable reductions in flows in Devil's Canyon and Queen Creek and the long-term loss of some seeps and springs in the Superior area.

FEIS at 41.

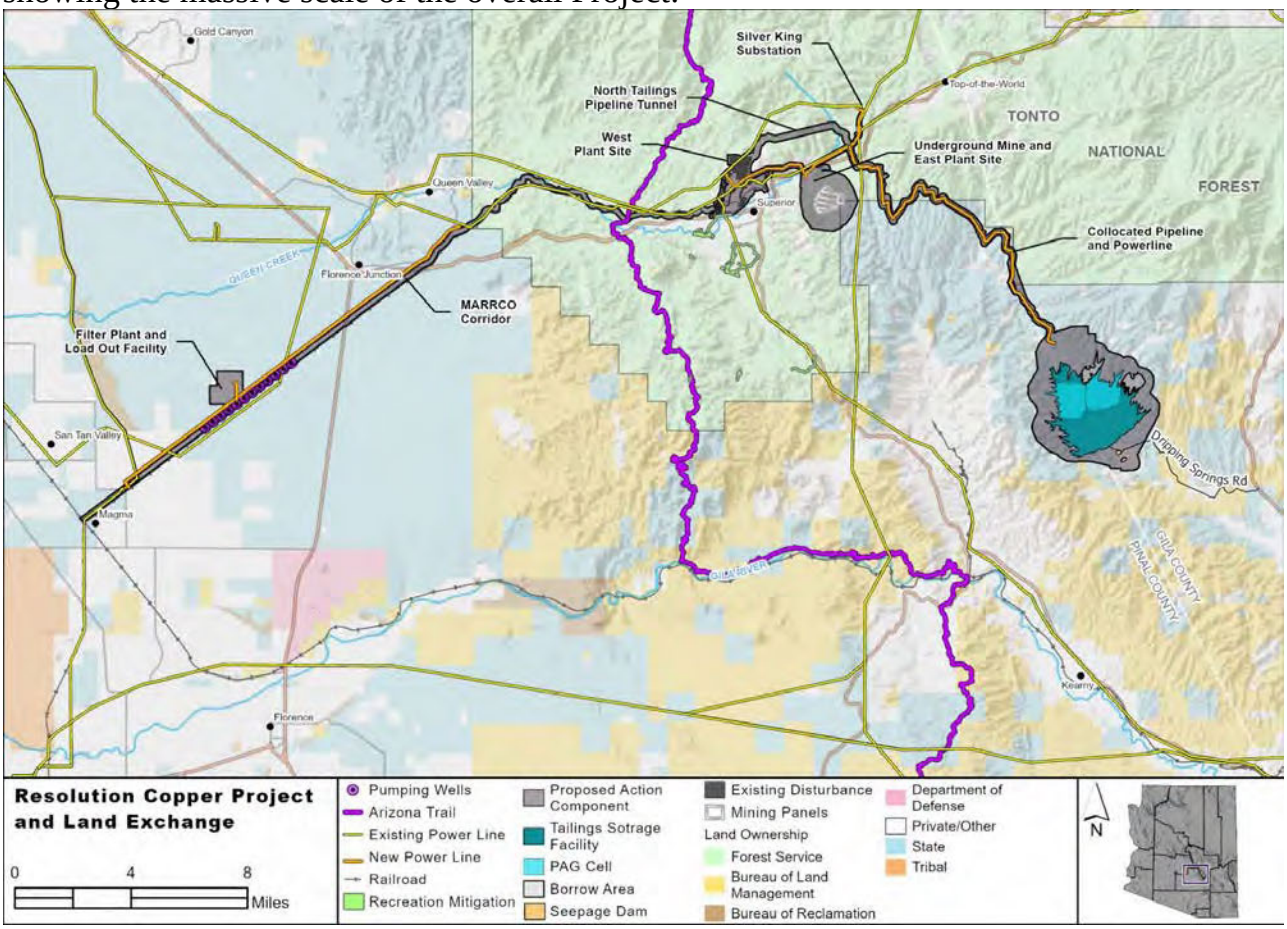
A massive tailings storage facility would contain the waste material left over after processing. Under the Agency's chosen alternative for the tailings waste facility and associated infrastructure in an area known as "Skunk Camp," the tailings dump "with the revised pipeline/power line corridor, would include approximately 14,950 acres of disturbance, of which 2,467 acres is NFS [National Forest Service] land, 8,218 acres is ASLD [Arizona State Land Department] managed, and 4,265 acres is private land." FEIS at 118.

"The tailings storage facility also presents risks to the watershed through the potential for contaminants from metals or chemicals in tailings seepage to escape controls and enter groundwater and/or downstream surface waters, thereby potentially threatening riparian areas and other wildlife habitats, human uses, and waters provided to livestock." FEIS at 41.

Pipelines would be constructed to transport the tailings waste from the ore processing facility in the form of a slurry to the tailings storage facility. Thickened slurry would be pumped in two streams to the tailings storage facility, and a recycled water pipeline would return water to the processing loop at West Plant Site, all within a 19 mile corridor from the West Plant Site to the tailings storage facility. FEIS at 127.

On the west side of the Project, the ore concentrate (materials remaining after the tailings waste has been extracted) would be delivered via another large pipeline for further processing. "Once processed, the copper concentrate would be pumped as a slurry through a 22-mile pipeline to a filter plant and loadout facility located near Florence Junction, Arizona, where copper concentrate would be filtered and then sent to off-site smelters via rail cars or trucks. The molybdenum concentrate would be filtered, dried, and sent to market via truck directly from the West Plant Site." FEIS at ES-7.

The FEIS provides an overview map of the Agency's preferred alternative, showing the massive scale of the overall Project:



FEIS at 120, Figure 2.2.8-1.

Notably, although the Forest Service proposes to issue a Special Use Permit for the 19-mile pipeline to carry the tailings waste to the Skunk Camp site (towards the southeast of the Mine site), the Agency is **not** requiring any such Permit for the 22-mile ore concentrate pipeline heading southwest past Florence Junction, a large portion of which crosses Forest Service managed public land. This is despite the fact that the Agency required Resolution to obtain a Special Use Permit for the installation of a previous water pipeline in the same corridor in 2008.

The estimated total quantity of water needed for the life of the mine (construction through closure) is huge, ranging from up to 677,000 acre-feet ("AF") as analyzed in the FEIS to as much as 786,626 AF, as shown in Figures 3.6-1a, 3.6-1b, and 3.6-1 of Resolution Copper's original GPO, V-2.

The water would be consumed from various sources over the life of the Mine, including from mine dewatering and groundwater pumping. Much of the water to be

consumed by the Mine (at least 550,000 AF under the Agency's preferred alternative) would be pumped from the groundwater underlying the company's proposed Desert Wellfield to be located in the heart of the East Salt River Valley.

The FEIS does not disclose or analyze how much of the water pumped from the Desert Wellfield will be legally determined to represent the recovery of long-term storage credits ("LTSC") or other rights associated with Resolution Copper's banking of Central Arizona Project ("CAP") water or from water stored in the New Magma Irrigation Drainage District's ("NMIDD") groundwater savings facility.

An acre-foot of water equals roughly 325,851 gallons. Under even the most conservative estimates, under the preferred alternative (Alternative 6) the Mine would consume at least **256 billion gallons** of water.

Arizona has been experiencing decades of drought, with the most intense period of drought experienced in December 2020, with over 70% of Arizona under an "exceptional drought" (the worst drought possible). Making matters worse, the Colorado River, which provides a primary source of water for Maricopa, Pinal, and Pima Counties through the CAP, is facing significant shortages due to a structural deficit, ongoing drought, and years of declining snowpack in the Colorado River Basin.

Although all mining would be conducted underground, removing the ore would cause the ground surface to collapse, creating a subsidence area at the Oak Flat Federal Parcel. The crater would start to appear in year six of active mining. The crater ultimately is projected to be between 800 and 1,115 feet deep and roughly 1.8 miles across. FEIS at 63. The "Total Area of Subsidence" would be 1,751 acres. FEIS at 63.

The crater would also likely create a pit lake or lakes, resulting in additional losses to the region's groundwater supplies, as water would continuously migrate into the lake/lakes from the shallow alluvial aquifer and from other sources, and then evaporate over time, likely forever.

The Exchange and Project would, *inter alia*, significantly and irreversibly impact and adversely affect the recreational, scenic, wildlife habitat, conservation, scientific and other related values of this region for all of those who visit, use, and enjoy the Oak Flat and surrounding area, including the members of the Objectors.

Under the Exchange, the Oak Flat federal lands would leave federal jurisdiction, significantly reducing wildlife and other protections on these lands as the National Forest Management Act, Tonto National Forest Land and Resource Management Plan, critical provisions of the Endangered Species Act, and related federal laws would no longer apply. *See* FEIS at 570.

The initial construction of the Mine would also cause impacts to all wildlife groups found within the analysis area (including amphibians, birds, fish, invertebrates, mammals, and reptiles) through the loss, degradation, and fragmentation of breeding, rearing, foraging, and dispersal habitats; collisions with and crushing by construction vehicles; the loss of burrowing animals where grading would occur; increased invasive and noxious weeds; increased edges of vegetation blocks; and impacts from increased noise and vibration levels. FEIS at 573-74.

The operation of the Mine would cause additional impacts to wildlife including impacts associated with subsidence; the reduction in surface water flows and groundwater availability to support riparian habitats; habitat changes from noxious and invasive weed establishment and spread; and the presence of workers and equipment. FEIS at 575.

The massive water needs of the Mine would reduce water throughout regional aquifers and reduce surface water and groundwater levels downstream of the mine in Ga'an Canyon and Queen Creek. FEIS at 575. Surface water amounts would be reduced, and the timing and persistence of surface water would decrease. Id. This would, among other things, reduce or remove wildlife habitat in areas along Ga'an Canyon and Queen Creek, and around springs. Id.

The Forest Service purports in the FEIS that impacts to wildlife would be mitigated by "replacing water sources for any riparian areas associated with springs or perennial streams (groundwater-dependent ecosystems) impacted by the drawdown from the mine dewatering and block caving." FEIS at 598. Yet, the FEIS only identifies potential actions that could be used to replace water sources and makes these potential actions dependent on "monitoring reach[ing] a specified trigger." FEIS at 598: Appendix J, J-17-18. This trigger has not been identified, much less analyzed for effectiveness within the FEIS for mitigating impacts anticipated from reduced surface water flows and groundwater level draw down. *See* id.

Moreover, although the FEIS identifies "[a] variety of potential actions that could be used to replace" such water sources, there is no substantive analysis of the effectiveness of such measures despite NEPA requiring as much. *See* id.

The FEIS fails to fully review the impacts from the Project on wildlife and fails to provide any reasonable mitigation plan to prevent these impacts. For example, the Agency admits that avian species may use the seepage ponds in the Project area. FEIS at 576. But the concentration of pollution in the seepage ponds is expected to be above chronic exposure limits, and some acute exposure limits, which could result in short- and long-term impacts on avian species, with the impacts the most severe if they are exposed over an extended period of time. Id.

Further, the tailings storage facility recycled water ponds represent large areas with persistent water, which would attract wildlife in the desert environment. FEIS at 583. The ponds would likely have some constituents with concentrations above Arizona water quality standards for wildlife, and thereby impact wildlife including birds. Id.

The tailings storage facility seepage collection ponds, near the tailings storage facility, would persist for many years or decades after closure of the mine. FEIS at 583-84. Over time, the water quality in these ponds is expected to worsen, and would be dangerous to wildlife including birds. FEIS at 584.

Uncovered process ponds at the West Plant Site would also represent potential exposure to poor water quality for wildlife species, including primarily birds. FEIS at 584. For birds, including migratory species, the noise and vibration associated with construction activities could temporarily change habitat use patterns for some species. FEIS at 578. Raptors could be especially susceptible to noise disturbance early in the breeding season, through nest abandonment and reduction in overall success. Id.

The Project could cause additional harm, disturbance, and death to birds through potential electrocution and from striking electrical distribution lines. FEIS at 578. Impacts to migratory birds from artificial light increases at night can also cause injury or death from collisions with structures, reduced energy stores due to delays or altered routes, and delayed arrival at breeding grounds. FEIS at 579.

The impacts to migratory birds from the mine construction, mine operation, and maintenance activities would likely impact individual birds and local migratory bird populations. FEIS at 579. Population-level impacts would likely be greater for species that breed in the analysis area. Id. The FEIS does not disclose which of the over 170 avian species that have been documented at Oak Flat or which of the 34 special status avian species that would be potentially impacted could fall into this category. Nor does the FEIS discuss the effectiveness of any proposed mitigation that may be implemented in avoiding or minimizing negative impacts. FEIS at 585-88; id. at 613.

Although the FEIS identifies some potential mitigation measures for avian species, such as rubber balls that could be used to deter or prevent birds from using process water, seepage, and recycled water ponds, there is no substantive analysis as to their effectiveness, instead the FEIS merely asserts, without evidentiary support, their "effectiveness." FEIS at 598-599. The FEIS repeats this same error for lighting, noise, and other impacts from the proposed mine (identifying mitigation measures, not analyzing them, and then pronouncing them "effective"). FEIS at 598, FS-WI-01.

The mine would also cause adverse impacts to fish, including mortality from loss or modification of habitat, due to changes in groundwater elevation and contribution to surface flows. FEIS at 579. These impacts would have the greatest potential to impact

fish species along areas of Ga'an Canyon and Queen Creek that currently have surface flows. Id.

The yellow-billed cuckoo, which is designated as threatened with extinction, may occur within the analysis area along Ga'an Canyon and Mineral Creek. FEIS at 591. The Mine could cause a loss of habitat for the cuckoo along Ga'an Canyon and Mineral Creek through reduced surface flows. Id. Potential habitat changes include the loss of riparian habitat and a conversion of habitat to a drier, xeroriparian habitat (desert washes), which could cause habitat to become unsuitable for nesting by the species. Id.

The removal of vegetation and impacts from workers and equipment also could lead to the avoidance of the disturbed area and vicinity by the yellow-billed cuckoo. FEIS at 591. In addition, the potential impacts on the cuckoo's proposed critical habitat includes the removal of riparian woodlands, including potentially suitable nesting, foraging, and dispersal habitat, and a corresponding reduction in the prey base for the species. Id.

The southwestern willow flycatcher is also designated as endangered with extinction under the federal Endangered Species Act and has designated critical habitat in the analysis area that could be impacted by the Project. FEIS at 593.

The Gila chub is also designated as endangered with extinction and has designated critical habitat along Mineral Creek. FEIS at 594. Potential impacts on the Gila chub include habitat modification and potential changes to water quality, and potential impacts on the designated critical habitat includes the reduction of perennial pools. Id.

The predicted acres of wildlife that could be impacted by the Project include: 11,846 acres for the threatened western yellow-billed cuckoo; 41,818 acres for the endangered southwestern willow flycatcher; 95,867 acres for the American peregrine falcon; 86,474 acres for the bald eagle; 77,158 acres for the golden eagle; 27,119 acres for the western burrowing owl; 431 acres for the endangered Gila chub; 95,943 acres for the Monarch butterfly; and 94,381 acres for the Sonoran desert tortoise. FEIS at 585-89.

USFS fails to demonstrate in the FEIS how the Exchange and Mine Project would comply with the Migratory Bird Treaty Act, 16 U.S.C. §§ 703-711, or the Bald and Golden Eagle Protection Act, 16 U.S.C. §§ 668-668c. *See* 40 C.F.R. § 1502.2(d) (requiring an EIS to state how alternatives and decisions "will or will not achieve the requirements of . . . other environmental laws and policies.") as well as Forest Service requirements for wildlife protection under the Organic Act and implementing regulations. *See* AMRC November 7, 2019 comments at 146-155.

DETAILED OBJECTIONS

In addition to the Objections noted above, which were raised in the previous comments, but were not adequately remedied by the FEIS and DROD, the following detailed Objections further highlight the legal and factual errors that warrant the withdrawal of the FEIS and DROD. These issues were either raised by the Objectors' previous comments, or arose after the close of the public comment period on the Draft EIS in November 2019.

1. The Agency's 11th Hour Shift to Regulate the Project Under its Special Use Regulations Violates the Public's Participation Rights Under NEPA and The Part 251 Regulations.

Under the Part 218 Objection regulations, as noted above, parties such as the Objectors can raise issues that arose after the public comment period on the Draft EIS closed. Many issues in these Objections deal with that very situation, where the Forest Service not only included new information but more critically changed its entire review of the Project. The Tonto National Forest never submitted the Special Use Permit Applications for public review as required by NEPA and the Part 251 Regulations.[3]

At the 11th-hour, in late 2020 and roughly a year after the Forest Service closed-off public comment on the Project, the Agency abruptly shifted its review and permitting of the Project, from one governed by federal mining laws to one controlled by public land "special use" requirements. Up until the issuance of the FEIS on January 15, 2021, the public was never informed of this regulatory switch and never had the opportunity to review or comment on the Agency's new permitting regime.

The FEIS summarized the Forest Service's review of the Exchange and Project as initially presented to the public, stating that its review was based on the company's General Mining Plan of Operations:

> The Tonto National Forest, a unit of the Forest Service located in south-central Arizona, prepared this environmental impact statement (EIS) to disclose the potential environmental effects of the Resolution Copper Project and Land Exchange (project). The project includes (1) the Southeast Arizona Land Exchange (land exchange), a congressionally mandated exchange of land between Resolution Copper Mining, LLC1

[3] Thus, due to the 11th Hour submittal of the Special Use Permit applications, Objectors were not able to comment upon the Special Use Permit applications in comments on the DEIS. However, Objectors did raise issues regarding the proper application of the Part 251/261 regulations, FLPMA, and public land law in AMRC's November 7, 2019 comments at 19-35.

> (Resolution Copper) and the United States; (2) approval of the "General Plan of Operations" (GPO) for any operations on National Forest System (NFS) land associated with a proposed large-scale underground mine (Resolution Copper Project); and (3) amendments to the "Tonto National Forest Land and Resource Management Plan" (forest plan) (1985, as amended).

FEIS at 1.

Resolution submitted its GPO application in 2013, and "On March 18, 2016, the Tonto National Forest issued a Notice of Intent to prepare an environmental impact statement for the Resolution Copper Project and Land Exchange." FEIS at 1. As stated by the Agency, that Notice only considered approving the GPO and the Exchange. Id.

The Agency's Draft EIS, issued in August 2019, continued with this approach, limiting its review to the GPO and Exchange, with the addition of consideration of a permit to "the Salt River Project ["SRP"] to authorize construction and operation of power lines on NFS [National Forest Service] lands." Draft EIS at ES-7. The issuance of the Draft EIS resulted in a public comment period that ended in November, 2019. That was the only opportunity for public review and comment on the Agency's review of the Exchange and Project.

Thus, throughout the Agency's public review process, the Forest Service was reviewing Resolution's "General Plan of Operations" for all the Project's facilities and operations, and based the agency's public notices and review on the GPO and under the federal mining laws.

Yet, that is **not** what the Agency **now** presents to the public in the FEIS and Draft ROD. Instead, the Agency now proposes, via the FEIS and the Draft ROD, not to review or approve the GPO, but rather to issue a series of "Special Use Permits" for the Project's pipelines, transmission lines, and new and reconstructed roads across federal Forest Service managed lands. This is because, once the Exchange occurs, all of the Company's proposed uses on Forest Service managed lands are no longer related to mining operations on federal land, as the mining would occur on the newly privatized lands.

These "Special Use Permits" were never subject to public review and comment as NEPA and the NDAA require, as the applications were submitted by Resolution Copper to the Forest Service long after the Draft EIS was issued and public comment was closed. For example, Resolution only submitted its Special Use Permit application for the tailings pipeline infrastructure on September 7, 2020. The Agency conducted a cursory review and accepted the application just three weeks later. "Resolution Copper submitted an SF-299 Special Use Permit application on September 7, 2020. Tonto

National Forest Staff carried out initial and secondary screenings and accepted the application on September 28, 2020." FEIS at Appendix Q-1.

The Forest Service's review of the Salt River Project Special Use Permit for high voltage transmission lines was even faster: "[Salt River Project] submitted an SF-299 Special Use Permit application on November 11, 2020. Tonto National Forest Staff carried out initial and secondary screenings and accepted the application on November 18, 2020." FEIS at Appendix Q-1.

In its September 28, 2020 letter to Resolution, the Forest Service informed the company that it had accepted the company's Special Use Permit application for the tailings pipeline infrastructure, rather than considering these proposed uses under the GPO. Letter from Neil Bosworth, U.S. Forest Serv., to Resolution (Sept. 28, 2020)(reprinted in Appendix Q). Defendant Forest Service official Neil Bosworth stated:

> I have reviewed your company's proposal to construct, operate, and reclaim a tailings pipeline infrastructure from Resolution Copper's West Plant Site (WPS) near Superior, Arizona across national forest system (NFS) lands administered by the Tonto National Forest, to the proposed Skunk Camp Tailings Storage Facility located on private and State trust lands in Gila County Arizona. Based on the initial documents provided (i.e. cover letter, SF-299, and attachment dated 9/07/2020), the proposal passes the first and second level screening criteria as outlined in FSH 2709.11, Chapter 10. At this time, we are prepared to accept your proposal as a formal application to be fully evaluated pursuant to the National Environmental Policy Act (NEPA), its implementing regulations, and agency NEPA procedures as outlined in FSM 1950 and FSH 1909.15.

Sept. 28, 2020 letter at 1.

The Forest Service issued a similar letter to the Salt River Project on November 18, 2020, signed by Defendant Tom Torres. In that letter, the Agency further noted that the Salt River Project electrical facilities and corridor still required additional review and its location had not been confirmed.

> It is understood that this proposal is preliminary and additional design, review, and other regulatory processes are required before an authorization will be issued. It is also understood that the need for this use is reliant on the proposed Resolution Copper Mine and will only be constructed if the need is confirmed. It is assumed that the proposed high voltage transmission line will be located within the 500 foot wide

> corridor defined and analyzed in the EIS. However, if the design and other regulatory processes have been completed and it is determined that the proposed high voltage transmission line cannot be located within the analyzed corridor, SRP shall submit a revised proposal and a complete review will be required.

Nov. 18, 2020 letter at 1 (also reprinted in Appendix Q of the FEIS).

The Forest Service Special Use Regulations require that: "(ii) Federal, State, and local government agencies and **the public shall receive adequate notice and an opportunity to comment upon a special use proposal accepted as a formal application in accordance with Forest Service NEPA procedures**." 36 C.F.R. § 251.54(g)((2)(ii)(emphasis added).

Apparently, sometime between the Forest Service's issuance of the Draft EIS for public review and the publication of the FEIS, the Agency changed its consideration of the Project. In the DEIS (and even still in the FEIS), as noted above, the Agency stated that the Project would be considered under the GPO submitted under the Agency's mining regulations (36 C.F.R. Part 228A). Now, the FEIS's review of the Project is under the Agency's Part 251 Special Use regulations.

As the Draft ROD states, the Project activities reviewed in the FEIS are no longer under the Forest Service's review of a GPO pursuant to the Agency's mining regulations at 36 C.F.R. Part 228A. Instead:

> Any associated uses of [National Forest Service] land for pipelines and utilities are special uses and are regulated under 36 CFR 251.50 because they are associated with mining on private property, and therefore do not involve operations conducted under the United States Mining Laws. Authorization for a special use or occupancy of NFS lands requires submittal of a special use application (SF-299). This application process is designed to ensure that authorizations to use and occupy NFS lands are in the public interest (36 CFR 251, Subpart B).

Draft ROD at 4.

None of these "Special Use Permit applications" have been submitted for public review and comment, as required by the Part 251 regulations. The FEIS and DROD do not explain why the Agency refused to submit the 11th hour Special Use Permit applications for public review as required by law.

In describing the two Special Use Permit applications, the Forest Service stated: "Rather than submittal of a mine plan, authorization of special use or occupancy on

[National Forest Service] lands requires submittal of a special use application (SF-299). This application process is designed to ensure that authorization to use and occupy [National Forest Service] lands are in the public interest (36 CFR 251, Subpart B)." FEIS Appendix Q-1.

The distinction between Forest Service review of a mining GPO and a Special Use Permit is significant. For example, and as discussed further below, the Agency does not consider whether the approval of a GPO is "in the public interest" but is required to do such analysis and issue such a finding under the Part 251 regulations. Additionally, as the Agency alleges (albeit incorrectly with respect to the Mine plan in this case), "there is no discretion or decision to be made with respect to the land exchange or approval of a mine plan," however such discretion **does** exist for Special Use Permit applications as the Forest Service has complete authority to approve or deny such applications. Draft ROD at vi, n. 1; 36 C.F.R. § 251.54(e)(5).

The mere fact that these facilities and uses of public land were reviewed in the FEIS (albeit inadequately as shown herein and in the previous comments) does not satisfy the strict and mandatory public notice and review requirements in Part 251. At a minimum, the FEIS does not analyze whether the Project meets the "public interest" test and other requirements under the Part 251 Regulations and their governing statutes, such as FLPMA. The FEIS never reviewed the various Project alternatives under the required "public interest" test. And, as noted, the public was never given an opportunity to review and comment on the Special Use Permit applications prior to release of the FEIS in contravention of federal laws.

In sum, as noted above, the Forest Service now asserts that the Project (after the Exchange) is solely governed by the Agency's 36 C.F.R. Part 251 regulations governing "Special Uses" of public land. These regulations place strict requirements on the Agency's review of the Project, including mandatory public review requirements, which were not followed in this case. As the Agency stated in the FEIS, it conducted all of this "screening" for both the Salt River Project and Resolution Special Use Permit applications—at both levels—in a matter of days or weeks just before the FEIS was issued. The FEIS contains, little, if any, analysis as to how the Salt River Project and Resolution Special Use Permit applications comply with each of the many criteria needed to be accepted by the Agency. And, as noted, it is undisputed that the Agency never provided for any of the required public review and comment for these applications.

2. The Forest Service Failed to Require a Special Use Permit for the New Ore Concentrate Pipeline in the Same MARRCO Corridor Where the Agency Previously Required Resolution to Obtain Such a Permit for Its Water Pipeline

In addition to accepting, and proposing to approve, the Special Use Permit applications for the tailings waste and electrical transmission lines (without the required public notice and review discussed above), the Agency proposes to allow the construction and operation of a 22-mile slurry pipeline to transport the ore concentrate to the processing site past Florence Junction, similar to the 19-mile pipeline (in the other direction) to the tailings waste site in Skunk Camp. "Resolution Copper would then pump the copper concentrate as a slurry through a 22-mile-long pipeline to a filter plant and loadout facility located near Magma Junction near San Tan Valley, Arizona. They would then filter the copper concentrate and send it to off-site smelters via rail cars or trucks." FEIS at 11.[4]

"Filtered copper concentrate would be loaded and shipped 7 miles along the MARRCO corridor by rail car to Magma Junction where the rail line meets the Union Pacific Railroad. Final smelter destination is unknown at this time." FEIS at 77 (Table 2.2.2-6 "Existing and proposed mine access roads and traffic"). The FEIS does not discuss or analyze where the smelting would then occur, or any of the impacts (such as air pollution) from the smelting or rail/truck transport, as required by NEPA and the NDAA.

Yet the DROD does not discuss granting any authorization for this new pipeline (as it only proposes to approve the Special Use Permits for the SRP transmission line and Resolution's tailings waste pipeline). The Agency also did not analyze, much less require - as it should have - that Resolution obtain a Special Use Permits for its copper concentrate slurry pipeline that would be located along an existing right-of-way known as the Magma Arizona Railroad Company ("MARRCO") corridor.

"The MARRCO corridor would also host other mine infrastructure, including water pipelines, power lines, pump stations, and a number of wells for groundwater pumping and recovery…." FEIS at 11.

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[4] As noted above, due to the 11th Hour submittal of the Special Use Permit applications, Objectors were not able to comment upon the Special Use Permit applications in comments on the DEIS. In addition, the failure of the Forest Service to require any Special Use Permit for the ore concentrate pipeline and related facilities in the MARRCO corridor arose long after the public comment period for the DEIS closed in 2019. However, Objectors did raise issues regarding the proper application of the Part 251/261 regulations, FLPMA, and public land law in AMRC's November 7, 2019 comments at 19-35.

The FEIS does not analyze this pipeline as a Special Use, as the Forest Service never required Resolution to submit a Special Use Permit application for the approximate 9 mile portion of this pipeline that would cross Forest Service managed public land. In addition to the pipeline crossing Forest Service managed lands, Resolution would build a "Construction Laydown Yard" purportedly within the MARRCO corridor on Forest Service lands. FEIS at 73 (Figure 2.2.2-12, MARRCO Corridor facility layout).

Despite all the new infrastructure and facilities proposed to be constructed and used in the MARRCO corridor, "[t]he corridor generally is 200 feet wide." The FEIS does not explain how all of the existing and new infrastructure, a new construction yard, plus the access and support roads to service these new facilities, would fit within the mere 200-foot-wide corridor.

Because these new facilities would be located in the old MARRCO right-of-way issued to the railroad company in 1922, the Forest Service needed to analyze and require a Special Use Permit application for these facilities. Indeed, the Forest Service has in the past required as much, as it previously required Resolution to obtain a Special Use Permit to install and operate a water pipeline within the same MARRCO corridor in 2008. As the Forest Service stated in 2010:

> The construction and operation of the MARRCO pipeline convey treated water from the No. 9 Shaft to NMIDD [New Magma Irrigation and Drainage District] for irrigation use. In response to RCM's [Resolution Copper's] submitted request for a special use permit application, the Forest Service recently evaluated information provided by RCM regarding the construction of this pipeline within the MARRCO right-of-way and the dewatering of the No. 9 Shaft. … **The Forest Service recently granted a special use permit for the construction and operation of the MARRCO pipeline** (MES749).

Environmental Assessment ("EA") for the Resolution Copper Mining Pre-Feasibility Activities Plan of Operations signed by Tonto National Forest Supervisor Gene Blankenbaker on May 14, 2010 (emphasis added)(in the possession of the Forest Service and incorporated into the administrative record, and cited in the FEIS Chapter 7 "U.S. Forest Service 2010c.").

Like the water pipeline in 2008, the new ore concentrate pipeline is not related to, or incidental to, the railroad right-of-way granted in 1922. The old Magma company trains stopped running decades ago (around 1997) and thus any use not associated with the original railroad grant is governed by FLPMA and the Forest Service's Part 251/261 Special Use requirements.

Prior to approving Resolution's application for the new water pipeline in the MARRCO corridor, the Tonto National Forest conducted detailed reviews of the baseline conditions, and of the direct, indirect, and cumulative impacts related to the new pipeline to support its Decision Memo ("DM") granting the Special Use Permit for the water pipeline.

> The Decision Memo addresses a proposed special use permit for a pipeline from Resolution Copper Company's water treatment plant in Superior along the MARRCO railroad right of way to the New Magma Irrigation District Canal near Florence Junction. The DM does not identify the origin of the water or the volume of water that would be transported through the pipeline. If the source of the water is ground water that underlies National Forest System lands then it would be appropriate to subject the project proposal to review in term of the direction provided by the Regional Forest Service Manual Supplement (R3 Supplement 2500-2001-1) that was developed specifically for authorizing water developments on NFS lands.
>
> The R3 Supplement identifies that when a project proponent proposes to drill a well on NFS lands and/or transport ground water across NFS lands through a pipeline, it is appropriate to analyze the potential impacts of water removal along with the impacts of well and/or pipeline construction. Special Use authorizations for water developments on NFS lands should be approved only when the longterm protection of NFS streams, springs, seeps, and associated riparian and aquatic ecosystems can be assured. The analysis should also consider impacts upon neighboring landowners and water users. The R3 Supplement provides guidance for screening proposed water development projects on the National Forests.

Resolution Copper Water Pipeline DM, Hydrology Comments, 8/12/2008, at 1 (attached).[5]

In fact, Resolution Copper specifically acknowledged that installation of a water pipeline in the 9.5 miles of Forest Service lands crossed by the old MARRCO railroad ROW required a new Special Use Permit from the Forest Service:

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[5] The FEIS and DROD fail to include any of this analysis, and the Permit itself, for the water pipeline in the MARRCO corridor, in violation of the agency's public review and analysis requirements under NEPA, the NDAA, and FLPMA. This is despite the fact that these 2008 materials contain analysis of baseline conditions, impacts, and other directly-relevant information to the Exchange and Project. The Forest Service's project record for the 2008 pipeline approval was thus improperly omitted from the administrative record for the FEIS, further rendering the FEIS and DROD arbitrary and capricious.

> According to United States Forest Service (USFS) Manual 2500, Chapter 2540-Water Uses and Development (USFS, 2001), **the construction of a pipeline across Forest Service lands for transmission of groundwater triggers Forest Service authorization via a special use permit.** As indicated in Chapter 2540, a special use permit authorization from the Forest Service requires the proposed "water development" pass two screening steps to evaluate the potential impact of the proposed action on adjacent Forest Service lands or resources, as well as neighboring landowners and water users. The screening and approval process is particularly intended to ensure the protection of USFS streams, springs, seeps, and associated riparian and aquatic ecosystems.

Resolution Copper Mining, LLC, Dewatering of Magma Mine Workings with Pipeline Delivery Evaluation of Potential Hydrologic Impacts Special Use Permit (FSM 2540), at 2 (attached)(emphasis added).

Under FLPMA and federal law, the Agency cannot increase the uses in, and impacts from, the new facilities in the 1922 right of way without undertaking the detailed agency and public reviews and permitting requirements under FLPMA Title V. 43 U.S.C. §§ 1761-1771. *See* AMRC November 7, 2019 comments at 19-35. Yet no such FLPMA analysis and review has been done.

3. The Agency Failed to Correctly Apply Federal Public Land Law, In Violation of FLPMA, the Organic Act, and the APA

For both of the two proposed Special Use Permits, as well as the Permit required for the ore concentrate pipeline, the DROD and FEIS failed to properly review and regulate these uses – uses that will last for decades at a minimum, and likely forever, as there is no proposal to remove the pipelines from public land after the Mine is closed.[6]

The Part 251 regulations, under authority to approve uses under FLPMA (and the Organic Act) impose detailed and significant review and permitting requirements – requirements violated by the Agency here.

> [T]he authorized officer shall screen the proposal to ensure that the use meets the following minimum requirements applicable to all special uses:

[6] As noted above, due to the 11th Hour submittal of the Special Use Permit applications, Objectors were not able to comment upon the Special Use Permit applications in comments on the DEIS. However, Objectors did raise issues regarding the proper application of the Part 251/261 regulations, FLPMA, and public land law in AMRC's November 7, 2019 comments at 19-35.

(i) The proposed use is consistent with the laws, regulations, orders, and policies establishing or governing National Forest System lands, with other applicable Federal law, and with applicable State and local health and sanitation laws.

(ii) The proposed use is consistent or can be made consistent with standards and guidelines in the applicable forest land and resource management plan prepared under the National Forest Management Act and 36 CFR part 219.

(iii) The proposed use will not pose a serious or substantial risk to public health or safety.

(iv) The proposed use will not create an exclusive or perpetual right of use or occupancy.

(v) The proposed use will not unreasonably conflict or interfere with administrative use by the Forest Service, other scheduled or authorized existing uses of the National Forest System, or use of adjacent non-National Forest System lands.

…

(ix) The proposed use does not involve disposal of solid waste or disposal of radioactive or other hazardous substances.

36 C.F.R. § 251.54(e)(1) (emphasis added).

These regulations require a two-phase "screening process," with a proposed use having to pass both levels. The first level requires compliance with the above (e)(1) criteria. If a proposed use satisfies this level, the Agency conducts a "second-level screening of proposed uses."

(5) *Second-level screening of proposed uses.* A proposal which passes the initial screening set forth in paragraph (e)(1) and for which the proponent has submitted information as required in paragraph (d)(2)(ii) of this section, proceeds to second-level screening and consideration. In order to complete this screening and consideration, the authorized officer may request such additional information as necessary to obtain a full description of the proposed use and its effects. **An authorized officer shall reject any proposal, including a proposal for commercial group uses, if, upon further consideration, the officer determines that:**

> **(i) The proposed use would be inconsistent or incompatible with the purposes for which the lands are managed, or with other uses; or**
>
> **(ii) The proposed use would not be in the public interest;** or
>
> (iii) The proponent is not qualified; or
>
> (iv) The proponent does not or cannot demonstrate technical or economic feasibility of the proposed use or the financial or technical capability to undertake the use and to fully comply with the terms and conditions of the authorization; or
>
> (v) There is no person or entity authorized to sign a special use authorization and/or there is no person or entity willing to accept responsibility for adherence to the terms and conditions of the authorization.

36 C.F.R. § 251.54(e)(5)(emphasis added). According the DROD, the Tonto National Forest conducted all these reviews, and made all these required determination for the two Special Use Permits, in a manner of days or a few weeks. Yet, the unsupported statement in the DROD that permitting these uses is in the "public interest" and otherwise complies with all the requirements in Part 251 defies reason, based alone on the immense and devastating impacts that would result from authorizing Resolution to conduct the Project.

Here, the Forest Service must regulate the Project under its Part 251/261 special use regulations, as well as FLPMA's Title V Right of Way provisions, and not under the Part 228A regulations under which the agency reviewed the Project under the GPO. The Agency's authority under the Part 251/261 regulations are very different from, and much more environmentally protective, than the Part 228A regulations that the agency used to review the Project up until its 11th hour switch. For example, the Agency must deny the Project if, "[t]he proposed use would not be in the public interest." 36 C.F.R. §251.54(e)(5)(ii). In violation of these requirements, the USFS did not review the Project under this "public interest" standard.

The Part 251 regulations provide significant authority and discretion to prohibit activity on Forest Service lands. In addition, under the related Part 261 regulations, the Forest Service is required to prohibit the destruction of cultural resources and other resources on public lands, *see* 36 C.F.R. §§ 261.9(g)-(h), 261.10(a), (b).

The Forest Service failed to properly apply these requirements to the Resolution Project, in violation of NEPA, the NDAA, FLPMA, the Organic Act, and their implementing regulations.

Under FLPMA Title V, the Forest Service may only grant a right-of-way special use permit if it, "(4) will do no unnecessary damage to the environment." 43 U.S.C. § 1764(a). Rights-of-way "shall be granted, issued or renewed … consistent with … any other applicable laws." Id. § 1764(c). A Title V right-of-way special use permit "shall contain terms and conditions which will … (ii) minimize damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment." Id. § 1765(a). In addition, the right-of-way special use permit can only be issued if activities resulting from the right-of-way special use permit:

> (i) protect Federal property and economic interests; (ii) manage efficiently the lands which are subject to the right-of-way or adjacent thereto and protect the other lawful users of the lands adjacent to or traversed by such right-of-way; (iii) protect lives and property; (iv) protect the interests of individuals living in the general area traversed by the right-of-way who rely on the fish, wildlife, and other biotic resources of the area for subsistence purposes; (v) require location of the right-of-way along a route that will cause least damage to the environment, taking into consideration feasibility and other relevant factors; and (vi) otherwise protect the public interest in the lands traversed by the right-of-way or adjacent thereto.

43 U.S.C. § 1765(b). The Forest Service's Part 251 rules implement these requirements:

> **§ 251.56 Terms and conditions.**
> (a) *General.* (1) Each special use authorization must contain:
> (i) Terms and conditions which will:
> (A) Carry out the purposes of applicable statutes and rules and regulations issued thereunder;
> (B) Minimize damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment;
> (C) Require compliance with applicable air and water quality standards established by or pursuant to applicable Federal or State law; and
> (D) Require compliance with State standards for public health and safety, environmental protection, and siting, construction, operation, and maintenance if those standards are more stringent than applicable Federal standards.
>
> (ii) Such terms and conditions as the authorized officer deems necessary to:
> (A) Protect Federal property and economic interests;
> (B) Manage efficiently the lands subject to the use and adjacent thereto;
> (C) Protect other lawful users of the lands adjacent to or occupied by such use;
> (D) Protect lives and property;
> (E) Protect the interests of individuals living in the general area of the use who rely on the fish, wildlife, and other biotic resources of the area for

subsistence purposes;
(F) Require siting to cause the least damage to the environment, taking into consideration feasibility and other relevant factors; and
(G) Otherwise protect the public interest.

36 C.F.R. §251.56.

At least three important substantive requirements flow from the FLPMA's right-of-way and special use permit provisions. First, the Forest Service has a mandatory duty under Section 505(a) to impose conditions that, "will minimize damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment." Id. §1765(a). The terms of this section do not limit "damage" specifically to the land within the right-of-way corridor. Rather, the repeated use of the expansive term "the environment" indicates that the overall effects of granting the right-of-way special use permit on cultural, environmental, scenic and aesthetic values must be evaluated and these resources protected. In addition, the obligation to impose terms and conditions that "protect Federal property and economic interests" in Section 505(b) shows that the Forest Service must impose conditions that protect not only the land crossed by the right-of-way, but **all** federal lands and waters affected by the approval of the right-of-way special use permit.

The Resolution Project could not operate as approved without the use of the tailings and ore concentrate pipelines, electrical transmission lines, roads, and other infrastructure reviewed in the FEIS and proposed to be approved by the DROD.

Second, the discretionary requirements in Section 505(b) require a Forest Service determination as to what conditions are "necessary" to protect federal property and economic interests, as well as "otherwise protect[ing] the public interest in the lands traversed by the right-of-way or adjacent thereto." This means that the Agency can only approve the right-of-way special use permit if it "protects the public interest in lands" not only upon which the pipeline/roads/transmission lines would traverse, but also lands and resources adjacent to and associated with the right-of-way special use permit. Thus, in this case, the Forest Service can only approve the right-of-way special use permits if the operation of the mine itself "protects the public interest." As shown herein, that clearly is not the case.

Third, the requirement that the right-of-way grant "do no unnecessary damage to the environment" and be "consistent with … any other applicable laws," id. §§ 1764(a)-(c), means that a grant of a right-of-way special use permit leading to the Mine must satisfy all applicable laws, regulations and policies. Here, because the Project would violate many of these requirements, the agency cannot issue the right-of-way special use permits.

The federal courts have repeatedly held that the federal land agency not only has the authority to consider the adverse impacts on lands and waters outside the immediate ROW corridor, it has an obligation to protect these resources under FLPMA. In County of Okanogan v. National Marine Fisheries Service, 347 F.3d 1081 (9th Cir. 2003), the court affirmed the Forest Service's imposition of mandatory minimum stream flows as a condition of granting a ROW for a water pipeline across USFS land. This was true even when the condition/requirement restricted or denied vested property rights (in that case, water rights). Id. at 1085-86.

The Forest Service thus cannot issue a Special Use Permit/ROW that fails to "protect the environment" as required by FLPMA, including the environmental resource values in and not within the ROW corridor. "FLPMA itself does not authorize the Supervisor's consideration of the interests of private facility owners as weighed against environmental interests such as protection of fish and wildlife habitat. FLPMA *requires* all land-use authorizations to contain terms and conditions which will protect resources and the environment." Colorado Trout Unlimited v. U.S. Dept. of Agriculture, 320 F.Supp.2d 1090, 1108 (D. Colo. 2004)(emphasis in original) appeal dismissed as moot, 441 F.3d 1214 (10th Cir. 2006).

The Interior Department, interpreting FLPMA Title V and its right-of-way regulations, has held that: "A right-of-way application may be denied, however, if the authorized officer determines that the grant of the proposed right-of-way would be inconsistent with the purpose for which the public lands are managed or if the grant of the proposed right-of-way would not be in the public interest or would be inconsistent with applicable laws." Clifford Bryden, 139 IBLA 387, 389-90 (1997) 1997 WL 558400 at *3 (affirming denial of right-of-way for water pipeline, where diversion from spring would be inconsistent with BLM wetland protection standards).

Similar to the County of Okanogan and Colorado Trout Unlimited federal court decisions noted above, the Interior Department has held that the fact that a ROW applicant has a property right that may be adversely affected by the denial of the ROW does not override the agency's duties to protect the "public interest." In Kenneth Knight, 129 IBLA 182, 185 (1994), the BLM's denial of the ROW was affirmed due not only to the direct impact of the water pipeline, but on the adverse effects of the removal of the water in the first place:

> [T]he granting of the right-of-way and concomitant reduction of that resource, would, in all likelihood, adversely affect public land values, including grazing, wildlife, and riparian vegetation and wildlife habitat. The record is clear that, while construction of the improvements associated with the proposed right-of-way would have minimal immediate physical impact on the public lands, the effect of removal of water from those lands would be environmental degradation. Prevention of that degradation, by itself,

justified BLM's rejection of the application.

1994 WL 481924 at *3.

That was also the case in Clifford Bryden, as the adverse impacts from the removal of the water was considered just as important as the adverse impacts from the pipeline that would deliver the water. 139 IBLA at 388-89. *See also* C.B. Slabaugh, 116 IBLA 63 (1990) 1990 WL 308006 (affirming denial of right-of-way for water pipeline, where BLM sought to prevent applicant from establishing a water right in a wilderness study area).

In King's Meadow Ranches, 126 IBLA 339 (1993), 1993 WL 417949, the IBLA affirmed the denial of right-of-way for a water pipeline, where the pipeline would degrade riparian vegetation and reduce bald eagle habitat. The Department specifically noted that under FLPMA Title V: "[A]s BLM has held, **it is not private interests but the public interest that must be served by the issuance of a right-of-way**." 126 IBLA at 342, 1993 WL 417949 at *3 (emphasis added).
As the IBLA recently held:

> The public interest determination is more than a finding that no laws will be violated by granting the ROW. Even if UUD [Unnecessary or Undue Degradation] can be avoided, degradation to public resources posed by a requested ROW may factor into BLM's determination of whether that ROW would be in the public interest. For example, in *Sun Studs*, we upheld BLM's rejection of a logging road ROW permit based on environmental considerations without any suggestion that the environmental harm rose to the level of unlawful degradation.

Klamath-Siskiyou Wildlands Center, IBLA 2019-75, at 9 (April 29, 2019), citing Sun Studs, 27 IBLA at 282-83.

As noted herein and in the previous comments, in addition to the immeasurable destruction of cultural and religious values, the massive water consumption by the Project, which all could not occur but for the issuance of the Special Use Permits mandates rejection of the applications.

Lastly, the DROD and FEIS failed to comply with the financial requirements of the FLPMA regarding ROW applications and approvals. At a minimum, the Forest Service must obtain "Fair Market Value" (FMV) for the use of federal land and resources. FLPMA requires that "the United States receive fair market value of the use of the public lands and their resources." 43 U.S.C. §1701(a)(9). "The holder of a right-of-way shall pay in advance the fair market value thereof, as determined by the Secretary granting, issuing, or renewing such right-of-way." 43 U.S.C. §1764(g). In addition, Resolution and SRP must fully "reimburse the United States for all reasonable

administrative and other costs incurred in processing an application for such right-of-way and in inspection and monitoring of such construction, operation, and termination of the facility pursuant to such right-of-way." Id. *See* 36 C.F.R. §251.57 (rental fees) and 36 C.F.R. §251.56 (reclamation and performance bond).The FEIS never discusses these statutory and regulatory requirements and the Forest Service did not review the Project under these constraints as it was required to do.

The Forest Service's authority to regulate activities on national forest lands is also governed in part by the Organic Administration Act of 1897 ("Organic Act"), 16 U.S.C. §§ 475, 551, which authorizes the agency to promulgate rules for the national forests, "to regulate their occupancy and use and to preserve the forests thereon from destruction." 16 U.S.C. § 551. One of the Act's guiding principles is for the agency to "improve and protect" the national forests. 16 U.S.C. §475. It further requires the Secretary of Agriculture (through the Forest Service) to, "make provisions for the protection [of the lands] against destruction by fire and depredations." 16 U.S.C. § 551. The Service, "will insure the objects of such [forest] reservations, namely, to regulate their occupancy and use and to preserve the forests thereon from destruction." Id. The Forest Service regulations implementing these Organic Act mandates are found, in relevant part, at 36 C.F.R. Parts 251 and 261, which govern uses on the national forests.

Accordingly, the Agency's failure to properly apply FLPMA, the Organic Act, and the Agency's right-of-way Special Use Permit regulations violates federal law and is arbitrary and capricious.

4. The FEIS and DROD Violate the Public and Environmental Review Requirements of NEPA, NDAA, FLPMA, and Applicable Law.

As shown by the Objectors' previous comments (pp. 15-300 of AMRC's November 7, 2019 comments, pp. 3-65 of the ITAA's November 7, 2019 comments, and the Objectors' comments on water quality submitted to the USFS on October 30, 2020), the Draft EIS failed to comply with the Forest Service's mandatory public and environmental requirements under NEPA, the NDAA, FLPMA, the CWA and other applicable laws. These comments, and the FEIS' inadequate response, are contained in Volume 6 of the FEIS. *See also* Objectors supplemental comments submitted in October and December of 2020. Acting Supervisor Torres responded (albeit inadequately) to the Objectors' December 2020 comments in a January 12, 2021 letter to AMRC and ITAA, which are in the administrative record for these Objections.

a. Statutory and Regulatory Requirements Under NEPA and the NDAA

NEPA is our "basic national charter for protection of the environment." 40 C.F.R. § 1500.1(a). NEPA "prevent[s] or eliminate[s] damage to the environment and biosphere

by focusing government and public attention on the environmental effects of proposed agency action." Marsh v. Or. Nat. Res. Council, 490 U.S. 360, 371 (1989). NEPA recognizes that "each person should enjoy a healthful environment," and was enacted to ensure that the federal government uses all practicable means to "assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings," and to "attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences," among other policies. 42 U.S.C. § 4331(b).By focusing the agency's attention on the environmental consequences of the proposed action, NEPA "ensures that important effects will not be overlooked or underestimated only to be discovered after resources have been committed or the die otherwise cast." Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989). *See also* 42 U.S.C. § 4332(2)(C).

"NEPA procedures must ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken." 40 CFR § 1500.1(b). This review must be supported by detailed data and analysis – unsupported conclusions violate NEPA. *See* Idaho Sporting Congress v. Thomas, 137 F.3d 1146, 1150 (9th Cir. 1998); N. Plains v. Surface Transp. Bd., 668 F.3d 1067, 1075 (9th Cir. 2011)(conclusions must be supported by reliable studies).

NEPA requires federal agencies to fully consider the environmental consequences of their actions. *See* 42 U.S.C. § 4331 *et seq*. NEPA ensures that the agency will have available, and will carefully consider, detailed information concerning significant environmental impacts; it also guarantees that the relevant information will be made available to a larger audience to ensure the public can play a role in both the decision making process and the implementation of the agency's decision. 42 U.S.C. § 4332(2)(C); 40 C.F.R. §§ 1502.1, 1502.16. Congress enacted NEPA to ensure that federal agencies, before approving a project, (1) consider and evaluate all environmental impacts of their decisions and (2) disclose and provide an opportunity for the public to comment on such environmental impacts. 40 C.F.R. §§ 1501.2, 1502.5.

NEPA requires federal agencies to prepare a detailed "Environmental Impact Statement" ("EIS") for any major Federal action that may significantly affect the quality of the environment. 42 U.S.C. § 4332(2)(C). NEPA also requires federal agencies to study, develop, and describe appropriate alternatives to recommended courses of action for any proposal that involves unresolved conflicts concerning alternative uses of available resources. 42 U.S.C. § 4332(2)(E).

The Council on Environmental Quality ("CEQ") promulgated uniform regulations to implement NEPA that are binding on all federal agencies. 40 C.F.R. Part 1500.[7]

[7] The CEQ recently revised its national NEPA regulations, which became effective on September 14, 2020. 85 Fed. Reg. 43304-43376 (July 16, 2020). Because USFS

NEPA requires that "environmental information is available to public officials and citizens before decisions are made and before actions are taken." 40 C.F.R. §1500.1(b). Under NEPA, USFS must consider (1) "the environmental impact of the proposed action," (2) "any adverse environmental impacts that cannot be avoided," (3) "alternatives to the proposed action," (4) "the relationship between local short-term uses . . . and the maintenance and enhancement of long-term productivity," and (5) "any irreversible and irretrievable commitments of resources." 42 U.S.C. § 4332(2)(C).An EIS is required to "provide full and fair discussion of significant environmental impacts and shall inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment." 40 C.F.R. § 1502.1.

An EIS must include a full and adequate analysis of environmental impacts of a project and alternatives and take a "hard look" at the direct, indirect, and cumulative impacts of the project and its alternatives, resulting from all past, present, and reasonably foreseeable future actions. Id. §§ 1508.7, 1508.8, 1508.9, 1508.25(c). An "effect" as used in NEPA and its implementing regulations "includes ecological . . . , aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative." 40 C.F.R. § 1508.8(b).

Direct effects are caused by the action and occur at the same time and place as the proposed project. 40 C.F.R. § 1508.8(a). Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Id. § 1508.8(b). Types of impacts include "effects on natural resources and on the components, structures, and functioning of affected ecosystems," as well as "aesthetic, historic, cultural, economic, social or health [effects]." Id. Cumulative effects/impacts are defined as:

> [T]he impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

40 C.F.R. § 1508.7.

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conducted its NEPA review for this project before the new regulations became effective, the CEQ NEPA regulations existing prior to September 14, 2020, at 40 C.F.R. Part 1500, apply to the Exchange, Project, and this Court's review.

"[A]n agency is required to consider more than one action in a single EIS if they are 'connected actions,' 'cumulative actions,' or 'similar actions.'" Kleppe v. Sierra Club, 427 U.S. 390, 408 (1976). "[P]roposals for . . . actions that will have cumulative or synergistic environmental impact upon a region . . . pending concurrently before an agency . . . must be considered together. Only through comprehensive consideration of pending proposals can the agency evaluate different courses of action." Kleppe, 427 U.S. at 410. When preparing an EIS, an agency must consider all "connected actions," "cumulative actions," and "similar actions." 40 C.F.R. §1508.25(a).

Here, all of the Project activities and facilities are "connected actions," and/or "cumulative actions" under NEPA and the NDAA. The requirement that the Forest Service use a single EIS for its review of all aspects of the Exchange and Mine Project is expressly mandated by Congress in § 3003(c)(9)(B) of the NDAA (128 STAT. 3735):

> [p]rior to conveying Federal land under this section, the Secretary [of Agriculture] shall prepare a single environmental impact statement under the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), which shall be used as the basis for all decisions under Federal law related to the proposed mine and the Resolution mine plan of operations and any related major Federal actions significantly affecting the quality of the human environment, including the granting of any permits, rights-of-way, or approvals for the construction of associated power, water, transportation, processing, tailings, waste disposal, or other ancillary facilities.

In addition, the establishment of the baseline conditions of the affected environment is a fundamental requirement of the NEPA process, because an inadequate environmental baseline precludes an accurate assessment of project impacts. Or. Nat. Desert Ass'n v. Jewell, 823 F.3d 1258 (9th Cir. 2016). "[W]ithout [baseline] data, an agency cannot carefully consider information about significant environment impacts. Thus, the agency fails to consider an important aspect of the problem, resulting in an arbitrary and capricious decision." N. Plains Resource Council, Inc. v. Surface Transp. Bd., 668 F.3d 1067, 1085 (9th Cir. 2011).

NEPA also requires the Forest Service to fully analyze all mitigation measures, their effectiveness, and any impacts that might result from their implementation. NEPA regulations require that the agency's environmental review: (1) "include appropriate mitigation measures not already included in the proposed action or alternatives," 40 C.F.R. § 1502.14(f); and (2) "include discussions of: . . . Means to mitigate adverse environmental impacts (if not already covered under 1502.14(f))." 40 C.F.R. § 1502.16(h). The FEIS failed to fully evaluate the effectiveness and impacts of mitigation measures for the Exchange and Mine Project. "All relevant, reasonable mitigation measures that could improve the project are to be identified, even if they are outside the jurisdiction of the

lead agency or the cooperating agencies . . . ." *Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations*, 46 Fed. Reg. 18,026, 18,031 (Mar. 23, 1981). NEPA requires that the Forest Service review mitigation measures as part of the NEPA process—not in some future decision shielded from public review. 40 C.F.R. § 1502.16(h).

NEPA also requires that: "Environmental impact statements shall state how alternatives considered in it and decisions based on it will or will not achieve the requirements of sections 101 and 102(1) of the Act [NEPA] and other environmental laws and policies." 40 C.F.R. § 1502.2(d).

The FEIS fails these duties, as it never determined whether the Project and its alternatives would fully "achieve … all relevant environmental laws and policies." At a minimum, the FEIS never analyzes: (1) whether, and how, federal public lands would be fully protected under FLPMA's right-of-way provisions and the protection of national forest resources under the Organic Act, and the FLPMA and Organic Act implementing regulations; (2) whether, and how, Native American cultural and religious resources and uses would be protected; (3) whether, and how, there would be enough water available for the Project and other uses in the area, without adversely affecting Arizona water users and resources; (4) whether, and how, the Agency and Resolution would comply with substantive State and Federal laws that mandate protection of wildlife, such as A.R.S. §17-236 (prohibiting the take or injury of any bird), and the federal Migratory Bird Treaty Act; (5) how all Project facilities resulting from issuance of the special use permits comply with all applicable federal and state environmental laws; and (6) how approving Special Use Permits for the Project pipelines, transmission lines, and new roads would be "in the public interest" and comply with the Forest Service Special Use Regulations at 36 C.F.R. Part 251 subpart B and Part 261.

The NDAA also set out specific requirements for the required appraisals for the Exchange. These appraisals "shall be conducted in accordance with nationally recognized appraisal standards, including – (I) the Uniform Appraisal Standards for Federal Land Acquisitions; and (II) the Uniform Standards of Professional Appraisal Practice." § 3003(c)(4)(B)(i). "Before consummating the land exchange under this section, the Secretary [of Agriculture] shall make the appraisals of the land to be exchanged (or a summary thereof) available for public review." § 3003(c)(4)(B)(iv).

The "final appraised values of the Federal land and non-Federal land" must be "determined and approved by the Secretary." § 3003(c)(4)(B)(ii). The NDAA also requires that, based on the appraisals, "The value of the Federal land and non-Federal land to be exchanged under this section shall be equal or shall be equalized in accordance with this paragraph." § 3003(c)(5)(A).

> If the final appraised value of the Federal land exceeds the value of the non-Federal land, Resolution Copper shall – (I) convey additional non-Federal land in the State to the Secretary or Secretary of the Interior, consistent with the requirements of this section and subject to the approval of the applicable Secretary; (II) make a cash payment to the United States; or (III) use a combination of the methods described in subclauses (I) and (II), as agreed to by Resolution Copper, the Secretary, and the Secretary of the Interior.

§ 3003(c)(5)(B)(i).

The Non-Federal Lands to be conveyed to the United States are listed in § 3003(d). This list does not include the "additional non-Federal land in the State" that may be conveyed to the United States pursuant to § 3003(c)(5)(B)(i). Conveyance of the currently non-Federal land to the United States pursuant to the Exchange only occurs if "the Secretary determines" the conveyance to each property and interest "to be acceptable." § 3003(d)(1)(A). The transfer and conveyance of lands and interests pursuant to the Exchange "shall" be done "simultaneously." § 3003(d)(1).

Despite repeated requests from the public and Objectors to provide this mandatory public review of the appraisals and appraisal process as part of the Agency's preparation of the FEIS, the Agency refused to provide any meaningful information on the appraisals to the public prior to issuance of the FEIS. *See* AMRC November 7, 2019 comments at 184-202, and Appendix N to those comments.

No information on the appraisals was included in the Draft EIS or FEIS. There is also no discussion in the FEIS regarding the "additional non-Federal land in the State" that may be conveyed to the United States pursuant to § 3003(c)(5)(B)(i).

b. <u>The Forest Service Failed to Comply with NEPA and the NDAA</u>

i. *The Agency Reviewed the Project Under an Incorrect Legal Regime and Statement of the "Purpose and Need" for Its Review.*

The FEIS and DROD are based on an erroneous view of the applicable law, including an erroneous Statement of the "Purpose and Need" for its review. The FEIS and DROD fail to fix the errors discussed by the Objectors in their previous comments. *See* AMRC November 7, 2019 comments at 17-35; ITAA November 7, 2019 comments at 24-25.

NEPA requires all EISs to contain a statement that specifies the underlying purpose and need for which the agency is responding to when reviewing the proposed action(s). 40 C.F.R. § 1502.13. The statement of purpose and need is crucially important

because it dictates the scope of the agency review and the range of reasonable alternatives to the proposed action. City of Carmel-By-The-Sea v. U.S. Dep't of Transp., 123 F.3d 1142, 1155 (9th Cir. 1997). The purpose and need statement cannot be so narrow as to limit the range of reasonable alternatives. Id. at 1155 ("The stated goal of a project necessarily dictates the range of reasonable alternatives and an agency cannot define its objectives in unreasonably narrow terms."); *see also* Nat'l Parks & Conservation Ass'n v. Bureau of Land Mgmt., 606 F.3d 1058, 1070 (9th Cir. 2010).

Agencies cannot avoid NEPA's requirements by unreasonably restricting the statement of purpose. Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190, 196 (D.C. Cir. 1991) ("an agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative from among the environmentally benign ones in the agency's power would accomplish the goals of the agency's action"). "[A]n applicant cannot define a project in order to preclude the existence of any alternative sites and thus make what is practicable appear impracticable." Sylvester v. U.S. Army Corps of Eng'rs, 882 F.2d 407, 409 (9th Cir. 1989). Although the Forest Service is permitted to take the applicant's purposes into consideration, it cannot draft a narrow purpose statement that restricts the consideration of alternatives to one motivated by private interests. Nat'l Parks & Conservation Ass'n, 606 F.3d at 1072.

Regarding the FEIS' view of the "purpose and need" for its review of the Exchange and Project, the Agency states that "the purpose and need for this project is twofold: 1. To consider approval of a proposed mine plan governing surface disturbance on NFS lands—outside of the exchange parcels—from mining operations that are reasonably incident to extraction, transportation, and processing of copper and molybdenum. [and] 2. To consider the effects of the exchange of lands between Resolution Copper (offering 5,460 acres of private land on eight parcels located throughout Arizona) and the United States (2,422 acres forming the Oak Flat Federal Parcel) as directed by Section 3003 of PL 1113-291 [the NDAA]." FEIS at ES-6.

The FEIS then states the Agency's interpretation of the applicable law that it believed governed its review of the Project:

> The role of the Forest Service under its primary authorities in the Organic Administration Act, Locatable Minerals Regulations (36 Code of Federal Regulations (CFR) 228 Subpart A), and the Multiple-Use Mining Act is to ensure that mining activities minimize adverse environmental effects on NFS surface resources and comply with all applicable environmental laws. The Forest Service may also impose reasonable conditions to protect surface resources.
>
> Through the Mining and Mineral Policy Act, Congress has stated that it is the continuing policy of the Federal Government, on behalf of national

> interests, to foster and encourage private enterprise in – the development of economically sound and stable domestic mining, minerals, and metal and mineral reclamation industries; and 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.
>
> Secretary of Agriculture regulations that govern use of surface resources in conjunction with mining operations on NFS lands are set forth under 36 CFR 228 Subpart A.

FEIS ES-6.

As shown herein, the Agency's view of its authority over the Project misinterprets federal public land, mining, and environmental law. Throughout the multi-year NEPA process, public involvement, and preparation of the EIS, the Forest Service was under the mistaken belief that its review and approval of Resolution's proposed uses of federal land, and all of the proposed activities, are solely under the company's GPO and the Agency's hardrock mining regulations at 36 C.F.R. Part 228A. *See* FEIS at 8.

In its "Purpose and Need" section, the FEIS never mentions, as it now acknowledges in the Draft ROD, that all of the Project facilities on Forest Service managed lands after the Exchange would be governed by the Agency's 36 C.F.R. Part 251 regulations, not the Agency's Part 228A mining regulations.

In addition, the Agency's focus on the need to support mineral development under the 1970 Mining and Mineral Policy Act is misplaced. First, that Act, which merely notes general principles, creates no controlling statutory mandate on the Agency. Instead, the Forest Service's primary mandate is to protect the forest from destruction and depredations under the 1897 Organic Act. The Agency's guiding congressional mandate regarding the national forests is "to regulate their occupancy and use and to preserve the forests thereon from destruction." 16 U.S.C. §551.

In addition, the FEIS never discusses the requirements for public review and protection of public resources for special uses and rights-of-ways under FLPMA Title V, 43 U.S.C. §§1761-1771.

The Agency's reliance on the Multiple-Use Mining Act of 1955 is also legally invalid, as that law does not require that the Forest Service approve operations related to mineral development, including mining of minerals on private lands, without the required evidentiary support in the record to support any assertions of statutory rights against the United States. Ctr. for Biological Diversity v. U.S. Fish and Wildlife Serv., 409 F.Supp.3d 738, 759 (D. Ariz. 2019).

Overall, the Agency's legally incorrect view of the "purpose and need" for its review of the Project fatally undermines the entire FEIS. "No amount of alternatives or depth of discussion could 'foster[ ] informed decision-making and informed public participation' when the Forest Service bases its choice of alternatives on an erroneous view of the law. *See* Westlands Water Dist. v. U.S. Dep't of Interior, 376 F.3d 853, 868 (9th Cir. 2004)." Ctr. for Biological Diversity, 409 F. Supp. 3d at 766. If an Agency misconstrues its statutory and regulatory authority, it fails to take "a hard look at all reasonable options before it," and violates NEPA. N.M. ex rel Richardson v. U.S. Bureau of Land Mgmt., 565 F.3d 683, 711 (10th Cir. 2009).

ii. Failure to Consider and Properly Review All Reasonable Alternatives, Including the No- Action Alternative

The FEIS and DROD fail to properly consider all reasonable alternatives and fail to fix the errors discussed by the Objectors in their previous comments. *See* AMRC November 7, 2019 comments at 35-48; ITAA November 7, 2019 comments at 19-20, 28-30.

NEPA's requirement that an agency provide an objective evaluation of a range of reasonable alternatives to the proposed action "is the heart of the NEPA process." 42 U.S.C. § 4332(C)(iii) & (E); 40 C.F.R. § 1502.14. This provides "a clear basis for choice among options by the decisionmaker and the public." 40 C.F.R. § 1502.14. Federal agencies must "[r]igorously explore and objectively evaluate all reasonable alternatives," including "reasonable alternatives not within the jurisdiction of the lead agency." Id.; *see also* id. § 1502.14(c). As the Ninth Circuit has held:

> NEPA requires that federal agencies consider alternatives to recommended actions whenever those actions "involve[ ] unresolved conflicts concerning alternative uses of available resources." 42 U.S.C. § 4332(2)(E) (1982). The goal of the statute is to ensure "that federal agencies infuse in project planning a thorough consideration of environmental values." The consideration of alternatives requirement furthers that goal by guaranteeing that agency decisionmakers "[have] before [them] and take [ ] into proper account all possible approaches to a particular project (including total abandonment of the project) which would alter the environmental impact and the cost-benefit balance." NEPA's requirement that alternatives be studied, developed, and described both guides the substance of environmental decisionmaking and provides evidence that the mandated decisionmaking process has actually taken place. Informed and meaningful consideration of alternatives--including the no action alternative--is thus an integral part of the statutory scheme.

Bob Marshall Alliance v. Hodel, 852 F.2d 1223, 1228 (9th Cir. 1988) (citations omitted).

This includes a duty to fully review the No-Action Alternative. Id. The requirement for the No-Action Alternative exists as a mechanism for comparing the environmental and related social and economic effects of the affected environment in the absence of the proposed action as compared to all of the proposed action alternatives. "Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations," *Federal Register* Vol. 46, No. 55, March 1981, Question 3, "No Action Alternative." The FEIS described its view of the No-Action Alternative:

> The no action alternative includes the following:
>
> · The final GPO would not be approved, thus, none of the activities in the final GPO would be implemented, and the mineral deposit would not be developed;
>
> · The land exchange would not take place;
>
> · Certain ongoing activities on Resolution Copper private land, such as reclamation of the historic Magma Mine, exploration, monitoring of historic mining facilities such as tailings under existing State programs and permits, maintenance of existing shaft infrastructure, including dewatering, and water treatment and piping of treated water along the MARRCO corridor to farmers for beneficial use, would continue regardless of GPO approval;
>
> · Ongoing trends not related to the proposed project would continue, such as population growth, ongoing impacts on air quality from fugitive dust and vehicle emissions, human-caused fires from recreation, ranching, and a corresponding increase in use of public lands; and
>
> · No agency land and resource management plans would be amended for this project."

FEIS at 87-88.

Regarding the No-Action Alternative, the Agency states that: "The no action alternative cannot be selected … because the land exchange was mandated by Congress and the Forest Service does not regulate mining operations on private land." Draft ROD at 26.Thus, under the Agency's view, the No-Action Alternative cannot be selected because Congress mandated the approval of the Exchange. But that erroneously links the review and approval of the proposed uses on the remaining federal lands with the approval of the Exchange. Nothing in the NDAA, or any other federal law, requires the Forest Service (or any other agency such as the Corps of Engineers) to approve anything

beyond the Exchange (and that approval is subject to significant constraints as noted herein).

A proper No-Action Alternative, then, must be focused on the company's proposed uses of federal land (and its related impacts to private and state lands) as if all of the proposed uses on the remaining (non-exchanged) federal lands are denied by the Forest Service or Army Corps of Engineers. Indeed, as detailed herein, when the Forest Service reviews these proposed uses under the proper regulatory structure, the proposed uses cannot be approved, due to irreparable and devastating impacts that would result from approval of the uses.

Yet, as detailed herein, nothing in the NDAA or any other law requires the agency to approve these uses. Overall, the agency cannot base its NEPA review, including consideration of the No-Action Alternative, on an incorrect view of the law, or on any presumption that it must approve the proposed uses.

A legitimate and proper No-Action Alternative must, then, consider the conditions that will exist if the agencies deny the proposed uses of federal land. For example, because Resolution would have no need to continue to pump and dewater groundwater (for Shafts 9 and 10 and related facilities) if it was denied its proposed uses (even after the Exchange was completed), because it would not have the support facilities necessary to mine the ore body, the baseline and related conditions that would then exist must be considered as the true No-Action Alternative condition.

The Forest Service incorrectly believes that the dewatering of these mine shafts and other underground facilities will continue (FEIS at 87-88) even if the proposed uses were not approved. *See also* FEIS at 394 ("Under the no action alternative, which includes continued dewatering pumping of the deep groundwater system…."). But the fact that Resolution would obtain the ore body and surrounding lands via the Exchange does not mean that it would continue mine dewatering via groundwater pumping when it could not conduct the proposed uses on the remaining federal lands. Indeed, the previous operator shut down its dewatering pumps for approximately ten years in or around 1997.

The FEIS lists several major ongoing actions of Resolution Copper, which the Forest Service improperly included as the environmental baseline, which results in these impacts not being analyzed at any point in the NEPA process. This includes, but is not limited to, the ongoing and "continued dewatering" of the mine shafts, including shafts No. 9 and No. 10, among other shafts and tunnels. Other actions and impacts that have been ignored by the Forest Service in the FEIS include "reclamation of the historic Magma Mine; exploration; monitoring of historic mining facilities such as tailings under existing State programs and permits; maintenance of existing shaft infrastructure, including dewatering; and water treatment and piping of treated water along the

MARRCO corridor to farmers for beneficial use." FEIS at 87-88. Regarding this last point, the FEIS unfairly considers Resolution Copper's water recharge efforts, which include delivery of dewatered water to New Magma Irrigation and Drainage District, as an applicant-committed environmental protection measure while failing to analyze the actual environmental impacts of that same dewatering that would occur at the Mine and throughout the well corridor.

In addition, the FEIS fails to consider the reasonable alternative where the land exchange takes place per the NDAA, but the Agency denies some or all of the Special Use Permits for the tailings pipeline and electrical facilities, and/or the Special Use Permit that should have been required for the ore concentrate pipeline and construction laydown yard in and near the MARRCO corridor. The Agency refused to consider this reasonable alternative because it erroneously believed that "the Forest Service is unable to refuse approval of the GPO within their regulations and guidance." FEIS at 88. But this is internally contradicted by the FEIS and Draft ROD, where the Agency says that since it does not have discretion to deny the Exchange, all Project facilities on Forest Service managed lands should be regulated under Special Use Permits, not the GPO. And the Forest Service **does** have the authority and discretion to deny Special Use Permit applications under FLPMA and the Agency's 36 C.F.R. Part 251 and Part 261 regulations.

Indeed, as shown herein, and by the massive destruction to Oak Flat and the surrounding lands and waters that would be made possible by the issuance of the Special Use Permits (i.e., if these Permits are not issued, then the Mine Project could not occur regardless of whether the Exchange takes place), this alternative is the only legally-defensible choice for the Agency, **and yet it was not even considered.**

iii. Failure to Adequately Consider All Direct, Indirect, and Cumulative Impacts, and Connected Actions

The FEIS fails to adequately analyze the direct, indirect, and cumulative impacts from the Exchange and Project on all potentially affected resources, including air quality, water quality and quantity, wildlife, cultural/religious resources, recreation, and economics. The FEIS and DROD do not adequately respond to the previous comments, as the following issues were raised in the previous comments (*see* FEIS Vol. 6, Appendix R). The FEIS and DROD fail to fix the errors discussed by the Objectors in their previous comments. *See* AMRC November 7, 2019 comments at 60-108 and 285-300; ITAA November 7, 2019 comments at 33-62. The Objectors also submitted extensive comments and materials to the Forest Service on December 17, 2020 (which were inadequately responded to by Acting Supervisor Torres via a letter dated January 12, 2021).

As explained herein, and in the previous comments, any inadequacy in the FEIS necessarily means that the DROD is inadequate and that the Exchange and any authorizations to use federal public land cannot be issued.

The FEIS and DROD Failed to Properly Analyze Water Resources and Water Use

One of the most glaring inadequacies in the FEIS involves water. In the company's General Plan of Operations, Resolution Copper provides a number for its total water needs for the life of the mine. Resolution states, "[a] current estimate of the total quantity of water needed for the life of the mine is 500,000 ac-ft." GPO, Volume 1, Sec. 3.6.1, Water Balance, Sources, and Management at 174. However, the FEIS estimates that the total quantity of external water needed for the life of the mine (construction through closure and reclamation) could be as much as 590,000 AF. FEIS at ES-25. The Forest Service notes this water use amount is in addition to the approximate 87,000 AF of water that would be dewatered over the life of the Mine to keep its tunnels, adits, shafts and other underground infrastructure free of water so that mining can occur. FEIS at 405. This water would be consumed in Mine operations.

When combined, these two actions of the Project would consume (deplete) 677,000 AF of water from Arizona's limited water sources over the life of the Mine. An analysis of the Tables and Figures contained in Resolution's GPO shows that Resolution's total water usage over the life of the Mine may be even greater—closer to 786,626 AF. *See* GPO Figures 3.6-1a, 3.6-1b, and 3.6-1c (Volume 2).

The FEIS did not address the clear disconnect between Resolution's own water usage figures contained in the GPO (totaling up to 786,626 AF) and the numbers ultimately analyzed by the Forest Service in the FEIS. The FEIS admits that at least 550,000 AF of "fresh groundwater" would be pumped by Resolution Copper at the Desert Wellfield (the area in the East Salt River Valley where Resolution will pump the vast majority of the groundwater to support the Mine). FEIS at H-7.

The FEIS fails to provide any meaningful analysis demonstrating that the pumping impacts associated with the Desert Wellfield would be fully mitigated and compensated by Resolution. The Forest Service states that "the entire amount of makeup water needed for the mine was assumed to be physically pumped from the Desert Wellfield." FEIS at 969.

Yet the Forest Service failed to analyze and detail how, and where, all this mitigation water will come from. Instead, the FEIS relies on future Arizona state water permitting processes to ascertain these critical water issues.

Although the Arizona Department of Water Resources ("ADWR") has been a cooperating agency in the NEPA process, the FEIS fails to adequately analyze the physical

availability of Arizona's water resources to be consumed by the Mine —or the direct, indirect, and cumulative impacts that the consumption of such a large volume of water (677,000 AF – 786,626 AF) would have on Arizona's water supplies on a local, regional, or state-wide basis.

The FEIS admits that the actual water use by the Project would be determined by ADWR in the future, long after the NEPA and NDAA review has been completed. This includes a determination of the "unavoidable impacts" and related mitigation measures associated with the massive dewatering of the East Salt River valley stemming from Resolution Copper's Desert Wellfield. FEIS at 422.Yet the extent of these "unavoidable impacts" must be determined, analyzed, and subject to full public review during the NEPA process—not during some future state process to which NEPA and the NDAA do not apply. A determination of all the sources of water, including the availability of the water supply, as well as the location, rate of pumping, and the governing legal authorities should have been made and included in the FEIS for full analysis of baseline conditions, and the Project's direct, indirect, and cumulative impacts, as well as mitigation.

Although the Forest Service cannot rely on future state permitting procedures and reviews to satisfy its NEPA and NDAA analysis requirements (as all analysis needed to be completed in the FEIS), even under state law, the Agency has not demonstrated that the Project would fully mitigate the Project's water depletions.

Under the Arizona Groundwater Management Act of 1980, areas of the state with "heavy reliance on mined groundwater" were designated as Active Management Areas ("AMAs"), and for many AMAs including the Phoenix AMA, the primary management goal is to achieve safe-yield by the year 2025.

The Mine and much of its infrastructure, including mine dewatering infrastructure, "lies almost entirely within the Phoenix AMA." FEIS at 387, n.52. The Desert Wellfield is located within the East Salt River valley of the Phoenix AMA (FEIS at 416), although the Wellfield is in extremely close proximity to the Pinal AMA, and thus the substantial pumping that would occur at the Desert Wellfield will intersect and deplete groundwater supplies within the Pinal AMA as well.

The Forest Service acknowledges in the FEIS that "ultimately, the mine water supply for each alternative can be reduced to the need for **fresh groundwater** to be pumped or recovered from the Desert Wellfield…", FEIS, Appendix H at H-7) (emphasis added); *see also* FEIS at 385 ("makeup water supply for the mine would come from a series of wells installed within the MARRCO corridor, drawing water from the deep alluvial units of the East Salt River valley."). The FEIS states this will be at least 544,858 AF, *see, e.g.*, FEIS at 414, Figure 3.7.1-7, which is over **177 billion** gallons of water.

The FEIS at ES-24 vaguely concludes that the numerous high-capacity wells to be developed at the Desert Wellfield pumping in the East Salt River Valley along the MARRCO corridor "would incrementally contribute to the lowering of groundwater levels and cumulatively reduce overall groundwater availability in the area." But the FEIS fails to provide substantive details about these impacts or to meaningfully or objectively consider the direct, indirect, or cumulative impacts of the Desert Wellfield pumping to the groundwater availability in the area or to local, regional, or state-wide water supplies and the environment overall.

For example, the Forest Service failed to adequately consider or analyze in the FEIS the direct, indirect and cumulative impacts of the large amount of water to be pumped by the Desert Wellfield on the important safe-yield goals of the Phoenix AMA or the Pinal AMA, which should have, in particular, considered the impacts of the massive amount of "fresh groundwater" to be withdrawn from the Desert Wellfield—which will be 544,858 AF under the preferred alternative (the Forest Service sometimes rounds this number up to 550,000 in the FEIS).

The Forest Service failed to adequately consider or analyze in the FEIS the direct, indirect or cumulative impacts on groundwater dependent ecosystems and other resources resulting from the large amount of groundwater to be pumped from the Desert Wellfield, summarily concluding (without any material analysis, surveys or other empirical information) that due to "depths to groundwater" there "are no [groundwater dependent ecosystems] in the East Salt River valley supported by regional groundwater that potentially could be impacted by drawdown from the mine water supply pumping." FEIS at 385. This is far from the detailed "hard look" required by NEPA.

The Agency states that "the amount of groundwater in storage in the East Salt River valley subbasin (above a depth of 1,000 feet) is estimated to be about 8.1 million acre-feet." FEIS at 415. The Forest Service provides no basis in the FEIS for this critical assumption and it relies on this unsubstantiated assumption throughout the FEIS.

The Forest Service also fails to make clear: (1) if the 8.1 million AF of groundwater "in storage" it relies upon is in reference to Central Arizona Project ("CAP") water or other water sources that have been banked or stored in underground storage facilities in the East Salt River valley; (2) if this is in reference to the total amount of natural groundwater in the entire East Salt River valley subbasin; and (3) how much of the 8.1 million AF of groundwater "in storage" is already being utilized or will be utilized by others now or in the future.

In fact, the Forest Service notes in the cumulative effects analysis that "Approximately 7 million acre-feet of long-term storage credits were stored in the entire Phoenix AMA at the end of 2017 (Barter et al. 2020)." FEIS at 971. Yet, the FEIS does not distinguish these storage credits from the 8.1 million figure, injecting significant

uncertainty into the Forest Service's evaluation of the impacts of Resolution's pumping on total stored water available.

The Forest Service also never confirms in the FEIS where this 8.1 million AF estimate comes from, whether it has been independently verified by the Agency, or what the range of uncertainty is associated with this estimate. This falls far short of the basic requirement for a "hard look" under NEPA.

The FEIS inadequately analyzes the cumulative impacts of the Desert Wellfield pumping and Mine dewatering on regional and local water supplies—supplies that are already being stretched to their limit by drought and existing pumping, with more groundwater demand anticipated in the coming years as discussed herein.

Under NEPA, the Agency must provide the needed information in the Draft and Final EIS and this duty is not excused by a vague allusion to "uncertainties" or because either the Agency or the Project proponent has yet to obtain/compile the needed information. Thus, the Forest Service failed to provide the required information and analysis on baseline conditions and water impacts as noted herein, and failed to provide the specific justification why this failure is acceptable under NEPA:

> When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.
>
> (a) If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement.

40 CFR § 1502.22. "If there is 'essential' information at the plan-or site-specific development and production stage, [the agency] will be required to perform the analysis under § 1502.22(b)." Native Village of Point Hope v. Jewell, 740 F.3d 489, 499 (9th Cir. 2014).

The Forest Service cannot credibly assert that the need to fully understand the direct, indirect and cumulative water impacts of this Project, which could be catastrophic for regional and local water users (and the Phoenix AMA's and Pinal AMA's goal of safe-yield) is not essential to its review of the Project under NEPA. This includes the obligation to document and verify, among other things: (1) the total amount of water that is physically available for pumping at the Desert Wellfield – beyond an unverified suggestion that there is 8.1 million AF of water in "storage"; (2) the location and size of

existing local and regional groundwater wells that might be adversely impacted (and even rendered dry) by the Mine's pumping and water use; and (3) the reasonably foreseeable planned developments in the area, such as the large Superstition Vista development, among other planned developments.

The Forest Service thus failed to consider the baseline conditions of these above-described areas as well as the direct, indirect, and cumulative impacts of the Mine's projected water use relative to this information and potential mitigation for these impacts.

The Forest Service is required to fully review, verify, and understand any scientific models used in the FEIS. This includes any groundwater flow models used to examine the direct, indirect, and cumulative impacts of the massive groundwater pumping and mine dewatering requirements of the Mine.

The FEIS, at 378, states (though does not explain) that the groundwater flow model used to predict pumping impacts from the Desert Wellfield was developed by Resolution Copper "from an existing, calibrated, regulatory model prepared by ADWR…". The record reveals that the Resolution Copper relied upon the 2009 ADWR Salt River Valley flow model as the basis of their groundwater model for the Desert Wellfield.[8] However, the FEIS fails to provide any information that would assist the public to independently review the accuracy of the Resolution Copper model that was, presumably, built from the ADWR model.

The Forest Service acknowledges in response to public comments that it did not independently review the model:

> These comments indicate that **the separate groundwater model used to predict impacts from the Desert Wellfield was not scrutinized or vetted by the NEPA team, as was the mine-site groundwater model.** This is a correct statement. Because the model used for the Desert Wellfield is a standard regulatory model prepared and used by the Arizona Department of Water Resources, the same level of evaluation was not deemed necessary.

FEIS at Appendix R at R380 (emphasis added).

[8] *See* Garrett, C. 2018a. *ADWR/Desert Wellfield Modeling Meetin*g. Phoenix, Arizona: SWCA Environmental Consultants. November 9, 2018 ("2018 Modeling Meeting minutes"). https://www.resolutionmineeis.us/documents/garrett-swca-adwr-meeting-2018

Resolution Copper's revisions to the ADWR model were evaluated by BGC Engineering USA, Inc., in its report entitled "Project Memorandum re: Review of the ADWR Salt River Valley Groundwater Model Application for Resolution's Desert Wellfield – FINAL," dated August 3, 2020 (Walser 2020). Walser 2020 is included in the Project record. The evaluation by Walser pointed out numerous material concerns with the Resolution Copper model that undermine its reliability. Walser notes that the ADWR model utilized by Resolution Copper to analyze the impacts of pumping from the Desert Wellfield "was last updated in 2009." Walser at 4. But, Walser also notes that in 2010 a "refined geology framework was developed for the model area (ADWR, 2010b), however, this framework has not been incorporated in the [Resolution Copper] numerical model." Id.

In addition, in 2014, ADWR completed a major update to its East Salt River Valley portion of the Salt River Valley model to perform key "structural modifications" related to the simulated thickness of aquifer materials and other matters. These important structural improvements were also not included in the Resolution Copper model.[9]

Thus, the Forest Service relied on groundwater modeling in the FEIS that was based on an earlier version of the ADWR Salt River Valley that did not have the benefit of ADWR's 2014 updates to correct structural problems. The FEIS does not explain why the updated model was not used, nor does it explain why the structural problems in the 2009 model can be ignored.

The Forest Service has an independent obligation under NEPA and the NDAA to objectively review, independently verify, and understand the groundwater flow model used by Resolution Copper, regardless of whether it represented a modification of an existing ADWR planning model. The Forest Service failed to perform its independent obligations relative to the Resolution Copper groundwater flow model for the Desert Wellfield in violation of NEPA.

The Desert Wellfield sits at the boundary of the Phoenix and Pinal AMAs, yet despite the Desert Wellfield's extremely close proximity to the Pinal AMA and the obvious pumping impacts from the Desert Wellfield to groundwater levels in the Pinal AMA, the Resolution Copper groundwater model entirely excludes impacts to groundwater resources in the Pinal AMA, and instead abruptly terminates at the boundaries of the Phoenix AMA without explanation, despite the hydrologic connection between the two AMAs as shown in the FEIS at 368, Figure 3.7.1-2.

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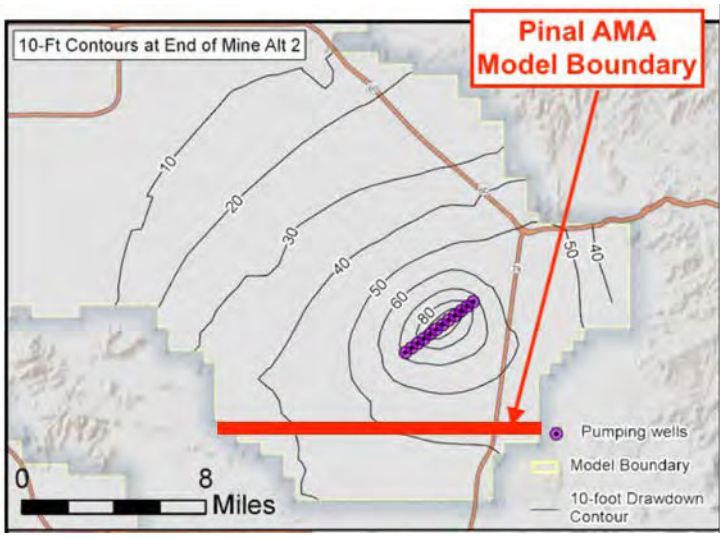
[9] *See* November 9, 2018, Montgomery & Associates Power Point Presentation, attached to the 2018 Modeling Meeting minutes ("Nov. 2018 Power Point") at slide 5 ("Utilize 2009 ADWR SRV model that simulates groundwater flow from 1983 through 2006 (Freihoefer et. al., 2009).").

The Forest Service ignores this critical failing in its NEPA analysis, despite the fact that the drawdown contours from pumping the Desert Wellfield are shown in the FEIS to extend down past the southernmost boundary of this model by levels of at least 40 feet or more and into the Pinal AMA model boundary.

Figure 3.7.1-2 from the FEIS, which depicts projected groundwater impacts from Desert Wellfield pumping, has been modified below to illustrate the location of the Pinal AMA boundary.



As a result, the Forest Service did not identify or consider the direct, indirect and cumulative impacts from the pumping at the Desert Wellfield to groundwater levels or wells within the Pinal AMA, meaning that the FEIS fails to disclose potentially catastrophic impacts from the Desert Wellfield pumping to groundwater resources within the Pinal AMA.

Regarding why this was not considered, the Forest Service says (FEIS at R-342) that the "area for which this model was conducted does not extend as far north as the Desert Wellfield, or as far any substantial drawdown anticipated from the Desert Wellfield." Given what the Forest Service's own figure above shows, that is not true.

The Pinal AMA groundwater flow model was updated by ADWR in October 2019.[10] Among other things, the ADWR updates show a **shortfall** of 8 million acre-feet of water between demands and available groundwater resources in the Pinal AMA. This

[10] *See* http://infoshare.azwater.gov/docushare/dsweb/View/Collection-19686

shortfall was not meaningfully evaluated by the Forest Service in the FEIS as NEPA requires.[11]

In fact, "Modifications in the 2019 Pinal Model domain were concentrated in the northeast corner of the model where it overlaps with the SRV [Salt River Valley] model…"[12]

Given the rampant shortcomings in Resolution Copper's groundwater modeling efforts for the Desert Wellfield, the Forest Service was required to perform an objective and independent analysis of the baseline conditions and of the direct, indirect, and cumulative impacts of pumping from the Desert Wellfield using the most recent modeling available, including the new and updated 2019 Pinal Model.

The results of the Resolution Copper model relied upon by the Forest Service in the FEIS are fundamentally flawed, likely grossly underestimate the decline in regional groundwater supplies in the East Salt River Valley that would be caused by the Desert Wellfield, and cannot be used by the Agency to examine the direct, indirect or cumulative impacts from the Desert Wellfield pumping on individual wells in the area, or the local or regional water supply in the East Salt River Valley under NEPA.

Additional Flaws in the Direct, Indirect, and Cumulative Effects Analysis

The Forest Service's cumulative effects analysis also fails to adequately consider a number of reasonably foreseeable activities in the East Salt River Valley. These include the Superstition Vistas mega residential development, other developments planned near Florence, and the planned development of numerous new agricultural production (groundwater) wells that will soon be developed due to impending shortages on the Colorado River, among other things.

For example, despite the existence of concrete plans for the 275-square mile Superstition Vistas mega development, located within the Project's analysis and impacts area, the Forest Service declined to consider the development as a reasonable foreseeable

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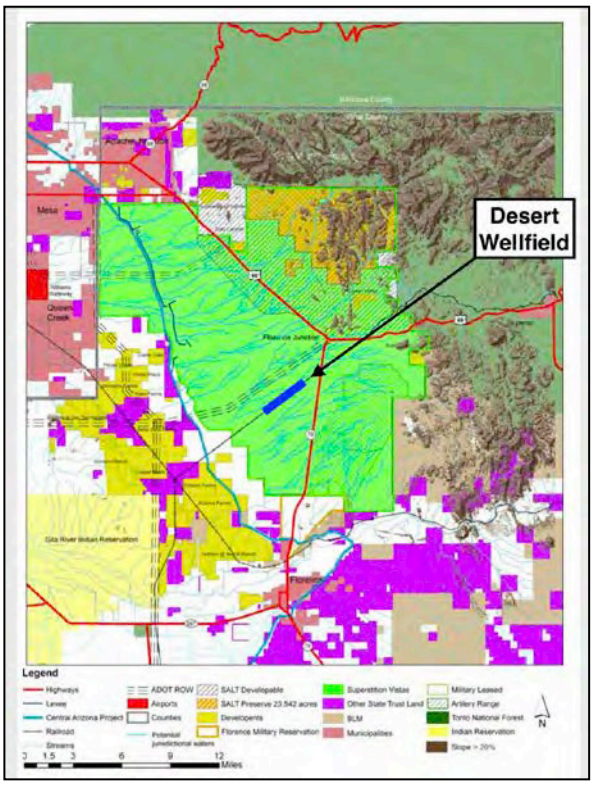
[11] *See* id.; *see also* ADWR, 2019 Pinal Model And 100-Year Assured Water Supply Projection Technical Memorandum (Oct. 11, 2019), available at: http://infoshare.azwater.gov/docushare/dsweb/Get/Document-11793/2019_Pinal_Model_and_100-Year_AWS_Projection-Technical_Memorandum.pdf

[12] Technical Memorandum, Appendix B, p. B-4 available at: (http://infoshare.azwater.gov/docushare/dsweb/Get/Document-11795/Appendix_B_Structural_Modifications_to_the_Pinal_Model.pdf).

action under NEPA, observing (incorrectly, as discussed below) that plans for Superstition Vistas were "conceptual and lack adequate detail to allow substantial analysis of resource effects…" FEIS at 966, and that "no concrete steps have been taken for the auction of this land by the ASLD." FEIS at 971.

The Forest Service acknowledged the planned Superstition Vistas development in the FEIS, at 966, and at other places in its cumulative effects analysis, despite concluding it is not a reasonably foreseeable future activity. But the Forest Service does not consider or meaningfully analyze the cumulative water impacts of the development on local or regional water supplies as required by NEPA.



The Forest Service violated NEPA and the NDAA when it failed to fully evaluate the planned Superstition Vistas mega development and its substantial water needs as a reasonably foreseeable future action. As early as 2006, the Arizona State University Morrison Institute for Public Policy issued a study on the Superstition Vistas development ("The Treasure of the Superstition Vistas").[13] Per this report, the 275-square mile planned Superstition Vistas development would cover an area larger than the cities of Mesa, Tempe, Chandler, and Gilbert combined (p.9). The development is anticipated to have a population at build out of nearly 1 million people (p.13), and would have a minimum water demand of 190,000 AF per year (p.15).The Desert Wellfield pumping area for the Resolution Project sits at the heart of the 275-square mile Superstition Vistas land (shown in green). This can be seen in the illustration included above.

The need for the Forest Service to consider the cumulative impacts to water stemming from the Desert Wellfield pumping along-side water demands for the massive Superstition Vistas development has been raised numerous times to the Agency, both in comments by others, including the Arizona State Land Department ("ASLD") (FEIS, Appendix R-43)(the ASLD recently auctioned-off lands paving the way for this development), as well in Objectors' comments on the DEIS.

[13] https://morrisoninstitute.asu.edu/sites/default/files/treasure_superstition_vistas.pdf.

The Forest Service erroneously concluded that Superstition Vistas is entirely "speculative" and never considered its impacts in the FEIS, believing that the Arizona State Land Department had not taken **any** "concrete steps" to auction the lands needed for the Superstition Vistas development. FEIS at 971. Yet, to the contrary, documents Objectors provided to the Forest Service detail the progress and advancement of the Superstition Vistas development, including the fact that the Arizona State Land Department just recently auctioned 2,700 acres of State Trust Lands for this very development. *See* Phase I Environmental Site Assessment ASLD Auction Site prepared by Geotek (October 2019); *see also* "Homebuilders run up price of East Valley land to $245.5M in controversial state auction" (AZCentral, Nov. 5, 2020). Thus, plans for the sale and development of additional acres are already underway. Id.

Superstition Vistas has also been anticipated and considered by the Arizona Department of Water Resources in its water models and reports related to this region, and it is considered in other planning documents maintained by Pinal County and numerous local cities and towns. *See* ADWR Pinal Water Model (2019); Pinal County Comprehensive Plan (2019) & Resolution No. 2020-PZ-PA-004-20 by Pinal County Board of Supervisors Approving Amendment Recorded November 19, 2020. Indeed, the Arizona State Land Department criticized the Forest Service's Draft EIS for the adverse impacts from Resolution's dewatering on the plans on the Superstition Vistas development.

The Arizona State Land Department filed extensive comments on the DEIS, warning of the significant impacts from Resolution's Desert Wellfield pumping and dewatering on the plans for the Superstition Vistas development, and correspondingly, on the Arizona State Trust that is administered by the Arizona State Land Department under the Arizona Enabling Act. The State stated: "The greatest potential adverse impact to the [Arizona] Trust will be the water (usage of approximately 600,000 acre-feet (AF) over the LOM [Life of Mine]) that will be extracted from the aquifer beneath the Superstitions Vistas Planning Area (SVPA)." FEIS, Appendix R at R-43.

The Arizona State Land Department also observed that, "[b]ased upon the anticipated groundwater requirements contained in the DEIS, the negative impact of the proposed water consumption sourced from the Superstition Vistas Planning Area (SVPA) far outweighs the estimated financial benefits to the Trust resulting from other aspects of the project by a factor of 20:1." Id. at R-44. The Arizona State Land Department further stated that "…the extraction and transportation of groundwater out of the SVPA [Superstition Vistas Planning Area] greatly compromises the ability to develop these lands to their full planned potential, and as a result, reduces the income and value of the Trust." Id. The Forest Service specifically acknowledged the "anticipated development in the Superstitions Vistas planning area." DEIS 342.Under NEPA, the Agency cannot simply ignore cumulative impacts by labeling them as "speculative," especially when planning for these activities is already underway,

concrete steps have been taken to facilitate the action, and the action is considered in numerous plans by state and local communities. "[P]rojects need not be finalized before they are reasonably foreseeable. 'NEPA requires that an EIS engage in reasonable forecasting. Because speculation is . . . implicit in NEPA, [ ]we must reject any attempt by agencies to shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as crystal ball inquiry.'" N. Plains Res. Council, Inc. v. Surface Transp. Bd., 668 F.3d 1067, 1078-79 (9th Cir. 2011) (citations omitted). The Forest Service's decision to ignore this reasonably foreseeable, indeed planned, activity violates NEPA and the NDAA.

Water demands for the Superstition Vista development, discussed for well over a decade, have been estimated to be between 100 and 156 gallons per capita per day.[14] The 100 gallons per capita per day estimate reflects a highly aspirational water conservation goal, as the actual water usage may be much higher. Using an average of the current per-capita water usage figures available from ADWR for the towns of Mesa, Gilbert, Chandler and Tempe (approximately 187 gallons per capita per day) shows that Superstition Vistas development is likely to use approximately 210,000 AF of water per year for its an anticipated population of 1 million people (Phoenix AMA Draft 4th Management Plan, January 2020, p. Municipal 5-44). Yet none of the water uses or other impacts associated with the Superstition Vistas development were considered under NEPA by the Forest Service, in violation of NEPA and the NDAA.

In contrast to the Forest Service's unsupported claims that the already planned Superstition Vistas development is "speculative," and thus need not be considered, the Agency nevertheless relies on Resolution's hoped-for plans to acquire the state lands at Skunk Camp as the entire basis for its preferred Alternative 6 pipeline and tailings waste approvals. The vast majority of the Skunk Camp area is not owned by Resolution Copper but is instead Arizona State Trust Land that is owned by Arizona and administered by the Arizona State Land Department under the Arizona-New Mexico Enabling Act of 1910 and requirements of Arizona law. The Forest Service explains that "this alternative is unique in that the tailings storage facility would be located on private lands (after eventual acquisition of Arizona State Trust land)." FEIS at 19; *see also* FEIS at 24, Table 1.5.5-1.

Similarly, the southeastern portion of the area at the East Plant Site is also not owned by Resolution Copper, but rather is State Trust Lands administered by the Arizona State Land Department. FEIS at ES-22, Figure ES-7 (showing the southeastern portion of the subsidence zone encroaching on State Trust Lands).

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[14] *See* Morrison Institute Report "The Treasure of the Superstitions" (April 2006); *see also* "Snider: New development will bring water concerns" (inMaricopa.com, Dec. 3, 2011).

The Forest Service's preferred alternative for Skunk Camp (upon which the entire FEIS and Draft ROD is premised) and its plans for the development of the East Plant Site are thus "speculative," under the Agency's view, as these plans are based on the marginal possibility of multiple approvals from the Arizona State Land Department that may or may not occur in the future.

Resolution Copper may never have a right to deposit its tailings at Skunk Camp or take, by means of subsidence, State Trust Lands at the East Plant Site, since prior to doing this, Resolution Copper would have to submit a formal application for the acquisition of these lands, meet the Arizona State Land Department's strict screening process, and ultimately outbid any other interested party to acquire these lands at a competitive, public auction.

The FEIS does not disclose that Resolution has performed any concrete steps towards the acquisition of these State Trust Lands and there are no public plans disclosed for the competitive auction of these lands as required by Arizona law.

To acquire these lands in private ownership, Resolution Copper would first have to demonstrate that its acquisition of the Trust Lands would provide value to the Trust and meet all Arizona State Land Department application requirements before the Trust lands could go to public auction, which includes a careful review by Arizona State Land Department of any factors associated with the potential auction of lands, including an analysis of income potential to the Trust; proposed use; impact to adjacent Trust lands; availability of utilities/infrastructure; access; proximity to existing development; parcel size; and conformance with local jurisdiction regulations.

However, the Arizona State Land Department has already expressed substantial concerns about the Mine, including specifically with regard to the Skunk Camp tailings site vis-à-vis impacts to the Trust: "The [Skunk Camp] location is predominately State Trust land, and it is highly likely that this location will adversely impact the Trust." FEIS at R-42. Further, based upon its concern about the potential water demand of the Mine, particularly from Desert Wellfield pumping, the Arizona State Land Department has already concluded **that the negative impact of the proposed water consumption for the mine "outweighs the estimated financial benefits to the Trust resulting from other aspects of the project by a factor of 20:1**." Id. at R-44 (emphasis added).

Throughout the NEPA process, the Forest Service has repeatedly dismissed various potential impacts to the environment from the Exchange and Mine as remote or speculative. *See, e.g.*, FEIS at 424 (dismissing the formation of subsidence pit lakes as remote and speculative); Id. at R-177 (dismissing concerns over the block-caving operation as speculative); Id. at R-184 (dismissing concerns about greenhouse gas emissions from the routes of travel and processing location for the copper concentrate as

speculative); R-243 (dismissing concerns about Resolution Copper's potential to develop its mineral claims adjacent to the Mine as speculative and therefore, not reasonably foreseeable).

As detailed above, the Forest Service erroneously dismisses as "speculative" the long-planned Superstition Vistas development, concluding that the Arizona State Land Department has not taken any "concrete steps" to auction the lands needed for the Superstition Vistas development, FEIS at 971, though, in fact, ASLD has already auctioned off over 2,700 acres of State Trust lands for this very purpose. Yet, with regard to the Skunk Camp site and the subsidence area at the East Plant Site (both of which are owned and administered by the Arizona State Land Department under Arizona law), the Forest Service assumes these truly speculative actions are a given, without the required support, and completely fails to disclose or analyze in the FEIS the speculative nature of its preferred alternative and the significant hurdles and numerous future actions that are needed for Resolution's potential acquisition of the state lands at Skunk Camp for tailings purposes. This violates NEPA and the NDAA.

The FEIS also failed to consider and fully analyze as "reasonably foreseeable activities" under NEPA the cumulative impacts from several other planned and reasonably foreseeable housing developments in/near the nearby Town of Florence. These developments, although well documented, were also dismissed from analysis under the FEIS. FEIS at 966. Several of those housing developments are under construction and sale right now, and some units have already been completed and sold: Anthem Parkside at Merrill Ranch by D.H. Horton (https://www.drhorton.com/arizona/phoenix/florence/anthem-merrill-ranch); Parkside at Anthem at Merrill Ranch by Pulte Homes (https://www.pulte.com/homes/arizona/phoenix/florence/parkside-at-anthem-at-merrill-ranch-7739); Sun City Anthem at Merrill Ranch by Del Webb (https://www.delwebb.com/homes/arizona/phoenix/florence/sun-city-anthem-at-merrill-ranch-11846); and Crestfield Manor by D.H. Horton (https://www.buzzbuzzhome.com/us/crestfield-manor1).

In addition, regarding overall demands and usage of water in the area, although the Forest Service mentioned Arizona's Drought Contingency Plan and the impending "shortages" on the Colorado River in its cumulative effects analysis section of the FEIS, *see*, *e.g.*, FEIS at 966, 967-69, the Forest Service declined to consider as reasonably foreseeable activities the plans of farmers in the East Salt River Valley to develop new pumping infrastructure in Pinal County under the Drought Contingency Plan and before 2026 to facilitate the extraction of up to 70,000 AF of groundwater to replace water supplies lost through Drought Contingency Plan agreements and the future cutbacks in CAP water deliveries from the Colorado River. Id.

The Natural Resource Conservation Service has already committed $10 million dollars to support the development of this new pumping infrastructure.[15] This new infrastructure will be located within the East Salt River Valley in Pinal County. The pumping infrastructure and its potential drawdown squarely falls within the area impacted by Resolution's Desert Wellfield pumping.

The Forest Service declined to consider Drought Contingency Plan activities, such as the Pinal County pumping described above, concluding that because the State's Drought Contingency Plan guidelines extend only until 2026, the pumping by Pinal County farmers will also conclude in 2026, and thus, this activity "will expire before Resolution Copper begins pumping groundwater." FEIS at 968. That is wrong, and completely misunderstands the facts of Arizona water needs and uses.

Under the Drought Contingency Plan, during the period between 2020 and 2026 Pinal County farmers will experience a ramp down in terms of their CAP water deliveries, but they will **ramp up** their groundwater pumping. The FEIS fails to analyze this reasonably foreseeable scenario.

After 2026, the Pinal County farmers will continue to pump from their groundwater wells and infrastructure – pumping that will continue as long as there is water to pump. This will span well into the period of Resolution Copper's pumping from the Desert Wellfield.

The Forest Service is also incorrect in the FEIS when it concludes that 70,000 AF in significant new pumping in the region will not have long-term impacts even if the wells are shut down prior to 2026 (which they will not be). It is well understood that the effects of groundwater pumping and the drawdown associated with groundwater pumping continue for many years after the pumping is completed, which the FEIS did not analyze.

Thus, the impacts from new Pinal County farmers' pumping will continue into the period of time that Resolution is extracting massive quantities of water from the Desert Wellfield. This reasonably foreseeable future activity was not analyzed in the FEIS as a cumulative impact. This violates NEPA and the NDAA.

As with the other inadequacies noted herein, the FEIS does not meaningfully address the direct, indirect, and cumulative impacts to Arizona's water supplies and to Arizona's water users stemming from Resolution's water pumping in the context of the

[15] https://kjzz.org/content/1541866/10-million-fund-pinal-county-water-infrastructure#:~:text=Water%20conservation%20is%20getting%20new,Arizona%20Regional%20Irrigation%20Efficiency%20project.

past, present and reasonably foreseeable actions required for a cumulative impacts analysis.

In addition, the cumulative impacts from the nearby Florence Copper Project were not analyzed in the FEIS. Located near the town of Florence, a demonstration project has been in operation since 2019 and the Arizona Department of Environmental Quality is in the process of amending the Aquifer Protection Permit for the project to allow a total of 1,765 injection and recovery wells, 90 perimeter wells and approximately 45 observation wells. The project calls for additional drawdown of groundwater in the impact area of the Desert Wellfield. In addition to adding to water quantity drawdown, the mine project could potential render unusable a large quantity of groundwater surrounding the project.

Additional Critical Issues Ignored by the FEIS

Regarding the lands to be exchanged between Resolution and the United States, the FEIS states that it does not know which lands will be exchanged, as that will only be determined through the appraisal process:

> With regard to the land exchange, Section 3003 of PL 113-291 directs the Secretary of Agriculture to convey to Resolution Copper all right, title, and interest of the United States in and to identified Federal land if Resolution Copper offers to convey to the United States all right, title, and interest of Resolution Copper in and to identified non-Federal lands. Note that the acreages shown in this section are those offered by Resolution Copper to the Federal Government, after completion of surveys. Ultimately, the Federal Government may not accept all portions of these lands. **The exact parcels and acreage would be assessed through the land appraisal process.** With regard to the land exchange, Section 3003 of PL 113-291 directs the Secretary of Agriculture to convey to Resolution Copper all right, title, and interest of the United States in and to identified Federal land if Resolution Copper offers to convey to the United States all right, title, and interest of Resolution Copper in and to identified non-Federal lands. Note that the acreages shown in this section are those offered by Resolution Copper to the Federal Government, after completion of surveys. Ultimately, the Federal Government may not accept all portions of these lands. **The exact parcels and acreage would be assessed through the land appraisal process.**

FEIS at ES-9 (emphasis added). *See*

However, as noted above, the Agency refused to include any detailed information on the appraisals in the FEIS, and the public has been left in the dark as to the actual lands, and values, to be exchanged. *See* AMRC November 7, 2019 comments at 184-202, and Appendix N to those comments. This violates the Agency's public review requirements in NEPA and the NDAA. *See e.g.*, 40 CFR § 1500.1(b) ("NEPA procedures must ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken.").

Other critical direct, indirect or cumulative impacts completely ignored in the FEIS are the impacts (and baseline conditions) associated with the smelting/processing of the ore concentrate. "Filtered copper concentrate would be loaded and shipped 7 miles along the MARRCO corridor by rail car to Magma Junction where the rail line meets the Union Pacific Railroad. **Final smelter destination is unknown at this time**." FEIS at 77 (Table 2.2.2-6 "Existing and proposed mine access roads and traffic") (emphasis added). The Agency refused to review these impacts, saying they are "speculative."

> Post-sale delivery, smelting, and use of copper or molybdenum concentrates similarly cannot be analyzed without knowing the transport route or end location. The use of trucks to transport molybdenum concentrate from the West Plant Site is incorporated into the EIS analysis for those highways and routes in the immediate vicinity of the mine; **movement beyond these routes is speculative at this time**. The delivery of concentrate from the filter plant and loadout facility to the railhead near Magma Junction is incorporated into the EIS analysis; **movement beyond this point is speculative at this time.** Similar to power use, the exception is estimation of greenhouse gas production. As a global issue, the specific transport routes are not necessary to estimate greenhouse gas production.

FEIS at 12 (emphasis added). But the smelting/processing of mineral ores, necessary for any mining operation, are not "speculative," as they are a fundamental and necessary part of any mining project. The FEIS does not discuss or analyze where the smelting would then occur, or the full and anticipated impacts (such as air pollution) from the smelting or rail/truck transport, as required by NEPA and the NDAA.

Here, the Agency proposes approving an Exchange and mine Project when it has no idea where the company will further process the minerals. In essence, it reviewed only part of the mine Project, for without smelting, the entire mine Project could not occur. But the Agency cannot meet its NEPA duties with such blinders on. An EIS for a mining operation must fully review the impacts from off-site ore processing and transportation. S. Fork Band Council of W. Shoshone of Nev. v. U.S. Dep't of the Interior, 588 F.3d 718, 725 (9th Cir. 2009). "[T]he air quality impacts associated with transport and off-site processing of the five million tons of refractory ore are prime

examples of indirect effects that NEPA requires be considered." Id. The Ninth Circuit has also rejected an argument that the agency can avoid reviewing impacts simply because the mining company did not provide the necessary information. "[I]nsofar as [the agency] has determined that it lacks adequate information on *any* relevant aspect of a plan of operations, [the agency] not only has the authority to require the filing of supplemental information, it has the obligation to do so." Ctr. for Biological Diversity v. U.S. Dep't of Interior, 623 F.3d 633, 644 (9th Cir. 2010)(emphasis in original).

"The Forest Service says that cumulative impacts from non-Federal actions need not be analyzed because the Federal government cannot control them. That interpretation is inconsistent with 40 C.F.R. §1508.7, which specifically requires such analysis." Ctr. for Biological Diversity v. NHTSA, 538 F.3d 1172, 1217 (9th Cir. 2008). Thus, the Agency's failure to obtain this critical information, simply because Resolution refused to provide it, is not an excuse to violate NEPA's public information and review mandates.

The Failure to Consider the Avoidance, Minimization or Mitigation for Impacts from the Desert Wellfield Pumping[16]

Water Impacts – East Salt River Valley

In addition to the Forest Service's failure to comply with its NEPA and NDAA mandates to review the baseline conditions and all direct, indirect, connected, and cumulative impacts from the Project, the Agency failed to meets its NEPA and NDAA requirements to fully analyze all potential mitigation measures, and the effectiveness of any such mitigation measures, on water quantity, water quality, and other resources in the region.

Even with the limitations identified above, pertaining to Resolution Copper's dewatering in the Desert Wellfield, which (among other things) grossly underestimates declines in groundwater levels in the East Salt River Valley, and in the case of the Pinal AMA, ignores groundwater declines completely, the Forest Service still predicts substantial groundwater declines in the region stemming from the Desert Wellfield pumping. The FEIS estimates that the "[p]rojected drawdown [in the East Salt River Valley] would be greatest in the center of the Desert Wellfield, reaching a maximum drawdown of 228 feet, as shown in figure 3.7.1-2. FEIS at 415. "At the north and south

[16] AMRC discussed the need for adequate mitigation analysis throughout their previous comments, regarding each of the major resources that would be impacted by the Project. *See* AMRC's November 7, 2019 comments (for each resource such as water quantity and quality, wildlife, air quality, cultural resources, transportation, recreation and other affected resources); ITAA's November 7, 2019 comments at 62-65. The FEIS and DROD fail to fix these errors.

ends of the wellfield, maximum drawdown ranges from 109 to 132 feet, and farther south, within NMIDD [New Magma Irrigation and Drainage District], maximum drawdown is roughly 49 feet (Bates et al. 2018; Garrett 2018a)." Id.

The significant decline in groundwater levels resulting from drawdowns from the Desert Wellfield would adversely impact individual wells throughout the East Salt River Valley, in both the Phoenix AMA and the Pinal AMA, as well as the associated environmental values the agency cannot allow to be so damaged. The Forest Service acknowledges that this drawdown could impact individual wells, rendering shallow wells dry or requiring other well owners to deepen their wells. FEIS at 393; *see also* FEIS at 973 ("[T]here likely would be certain areas that experience lack of well capacity and groundwater shortages, particularly around the edges of the basin.").

The Forest Service also admits the "overall the cost of pumping would increase as groundwater deepens, and infrastructure costs would increase as wells and pumps need to be lowered or replaced." Id. Yet the FEIS did not analyze these financial and infrastructure impacts, nor analyze mitigation measures to compensate for the impacts.

NEPA was enacted to promote efforts that will prevent or eliminate damages to the human environment. This can be accomplished by (1) avoiding an impact by not taking certain actions or parts of actions; (2) minimizing an impact by limiting the degree or magnitude of the action and its implementation; (3) rectifying an impact by repairing, rehabilitating, or restoring the affected area; or (4) by replacing or providing substitute resources or environments. 40 C.F.R. § 1508.20.

The selection of appropriate mitigation measures is one of the components of the alternatives analysis required by the NEPA process. 40 C.F.R. § 1502.14. The agency must state whether all practicable means to avoid or minimize harms from the alternative selected have been adopted, and if not, why not. Id. at 1505.2(c).

In this case, the Forest Service readily acknowledges that (1) Resolution Copper would consume from the Desert Wellfield at least "550,000 acre-feet over the life of the mine" under the preferred alternative, FEIS at 418 (enough to meet the water demand for 2.2 million households in Arizona for a year); (2) the Wellfield would reduce groundwater levels by at least 228 feet; and (3) the pumping by Resolution Copper at the Desert Wellfield would adversely impact individual groundwater wells and the needed water supply for the region and the State of Arizona overall. Nevertheless, the Agency failed to meaningfully consider or analyze any ways to avoid or minimize these substantial and adverse water impacts.

The Forest Service also failed to analyze and require Resolution Copper to mitigate for the substantial and adverse impacts to groundwater levels in the East Salt River valley and, in particular, to offer any form of mitigation for those wells that would

need to be deepened or would go dry as a result of these declines, visiting substantial costs on individuals, entities, and communities in the area. The Forest Service instead defers this analysis to the Arizona Department of Water Resources, concluding that Resolution Copper will be required to file for various permits with that Department pertaining to the Desert Wellfield pumping.

The USFS concludes: "concerns have been raised regarding drawdown from the Desert Wellfield, in the East Salt River valley. **The permitting process for the wellfield will determine whether there are unavoidable impacts that may need mitigation**, in which case Resolution Copper has indicated a willingness to consider additional measures." FEIS at 422 (emphasis added). *See also* FEIS, Appendix J at J-4 ("While … mitigation is in place for water level declines caused by dewatering near the mine site (see measure FS-WR-01), no such protections are in place for the area near the Desert Wellfield in the East Salt River valley."). Yet, under NEPA (and the NDAA), the Forest Service cannot defer the analysis of impacts, mitigation measures, and their effectiveness, to some future state permitting process. Great Basin Resource Watch v. BLM, 844 F.3d 1095, 1103-04 (9th Cir. 2016)(federal agency EIS could not rely on future state permitting as substitute for the environmental review requirements under NEPA).

Further, the Forest Service notes that Resolution Copper has not "brought forth voluntary mitigation for impacts to nearby well owners or property owners" in the East Salt River Valley for pumping impacts caused by the Desert Wellfield. FEIS, Appendix R at 354.In the response to comments, the Forest Service ultimately admits that, "**no specific monitoring or mitigation measures are included in the DEIS specific to the Desert Wellfield in the East Salt River valley**. This groundwater pumping is subject to permitting by the ADWR." FEIS at R-235 (emphasis added). Relatedly, no specific monitoring or mitigation measures are included by the Forest Service in the FEIS either.

NEPA regulations require that the agency's environmental review: (1) "include appropriate mitigation measures not already included in the proposed action or alternatives," 40 C.F.R. § 1502.14(f); and (2) "include discussions of: . . . Means to mitigate adverse environmental impacts (if not already covered under 1502.14(f))." 40 C.F.R. § 1502.16(h)."All relevant, reasonable mitigation measures that could improve the project are to be identified, even if they are outside the jurisdiction of the lead agency or the cooperating agencies . . . ." *Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations*, 46 Fed. Reg. 18,026, 18,031 (Mar. 23, 1981).NEPA further requires that the Forest Service review mitigation measures as part of the NEPA process—not in some future decision shielded from public review. 40 C.F.R. § 1502.16(h).

Here, the Forest Service violated NEPA and the NDAA when it left it up to Resolution Copper to decide whether or not it might voluntarily "mitigate" for the

potentially catastrophic impacts from the Desert Wellfield on local water supplies and wells, and where the USFS determined in the FEIS to defer to a subsequent ADWR permitting process the determination of (1) whether or not there will be "unavoidable impacts" from the Desert Wellfield (a point that seems clear); and (2) whether or not, and how, these impacts should be mitigated.

Impacts to Apache Leap

The NDAA established the Apache Leap Special Management Area "to preserve the natural character of Apache Leap; to allow for traditional uses of the area by Native American people; and to protect and conserve the cultural and archeological resources of the area." Section 3003(g)(2)(A)-(C); FEIS at 43. The potential for subsidence from the crater to impact the Apache Leap Special Management Area mandates that the Forest Service require mitigation measures to avoid, minimize, and otherwise mitigate subsidence impacts, and NEPA requires that the Forest Service analyze the effectiveness of such measures in the FEIS. FEIS at 24; Appendix J, J-10 (noting USFS authority under 36 C.F.R. § 251.56 and 36 C.F.R. § 228.8).

The block caving operation is anticipated to create a nearly a 2-mile diameter crater estimated to be between 800 and 1,115 feet deep. FEIS at ES-3, 190. To accompany proposed monitoring of subsidence, the FEIS unveiled a proposal to establish three tiers of triggers to inform potential mitigation for subsidence, should it be greater than what the modeling anticipated. These triggers, Level 1, Level 2, and Level 3, if met, may prompt additional monitoring and review and potential responsive actions. FEIS at 188.

Level 1 is triggered if subsidence extends farther than the model results anticipated by less than 30 percent and would prompt only "focus on data validation and more intensive monitoring." FEIS at 188. Only Level 2 and Level 3 could provide any potential for substantive mitigation in response to larger than intended subsidence, namely in the form of potentially altering the mining operation. Level 2 is triggered if subsidence extends farther than the model results by 30 to 60 percent and could prompt reduction or modification of the amounts and locations of ore removal. FEIS at 188. Level 3 is triggered by subsidence that extends farther than the model results by 60 percent, and could include the cessation of mining. FEIS at 188.

Although NEPA requires the Forest Service to analyze the effectiveness of mitigation measures for this anticipated subsidence, and thus the effectiveness of the percentages for triggering mitigation actions, the FEIS is devoid of any such analysis. Also, these proposed triggers are new since the DEIS and were never provided for public review or comment.

The Forest Service's decision to use a 30 percent increase as the threshold of when substantive mitigation measures may be undertaken, renders the proposed mitigation worthless for protecting Forest Service resources, particularly the Apache Leap Special Management Area. Apache Leap is less than a quarter-mile away from the modeled upper-end subsidence diameter (1.8 miles). Thus a 30 percent increase would result in a 2.34 mile wide diameter, and would be the minimum required for Level 2 trigger and could potentially lead to modifications of the mine plan. But this would be too little too late, as Apache Leap would already be engulfed. The lack of analysis of the effectiveness of these triggers for mitigation is a grave error in the Forest Service's NEPA analysis and also violates the NDAA in failing to ensure the very purposes for which the Apache Leap Special Management Area was established will be met and will be protected.

Land Subsidence and Fissures in the East Salt River Valley

An additional failure of FEIS involves the long-term extraction of groundwater, which would cause land subsidence and fissures in the earth. "An important aspect of subsidence is that it is irreversible; once sediment layers collapse when dewatered, they remain collapsed even if water levels recover." FEIS at 412.

These occurrences would be particularly concentrated in the East Salt River Valley subbasin, where at least 544,858 AF of water would be pumped for the Mine Project under the preferred alternative as noted above.

ADWR's Water Planning Atlas states: "Earth fissuring and subsidence have occurred in the ESRV [East Salt River Valley] sub-basin due to localized pumping. These occurrences are found near Apache Junction and in the vicinities of Queen Creek, North Scottsdale and Paradise Valley (Rascona, 2005)." Arizona Water Atlas Vol. 8, Active Management Area Planning Area, p. 8 (2010).[17]

Based upon estimates of groundwater declines in the area of the Desert Wellfield in a range of 228 feet, FEIS at 415 & Figure 3.7.1-2, the Forest Service acknowledges the potential for significant subsidence, admitting "drawdowns associated with the Desert Wellfield likely would result in subsidence of roughly 24-52 inches." FEIS, V-2 at 412.

Subsidence can be costly to farmers, since it can crack and break irrigation ditches and canals, disturb previously leveled farm fields, and disrupt the flow of irrigation water, among other things. Subsidence can also harm groundwater wells and well-

[17] https://infoshare.azwater.gov/docushare/dsweb/Get/Document-10433/Volume_8_final.pdf

casings, result in ruptured water and sewer lines, damage streets, highways and bridges, and damage the foundations of houses and buildings, all requiring costly repairs.

The Forest Service fails to meaningful identify or consider the adverse impacts to the types of infrastructure described above that would result from potentially 52 inches of land subsidence predicted in the FEIS for the East Salt River Valley caused by Resolution's groundwater depletions from the Desert Wellfield.

For example, the Central Arizona Project ("CAP") canal that delivers critical water supplies from the Colorado River all the way to Phoenix, and then down past Tucson, is within approximately 3-miles of the Desert Wellfield, and it is well within the projected subsidence impact area for the Desert Wellfield. Additionally, at least 20 miles of both the Federal US-60 and another 20 miles of State Route SR-79 are also well within in the projected subsidence impact area for the Desert Wellfield.

The USFS fails to examine or disclose the direct, indirect, and cumulative pumping from the Desert Wellfield on water and other infrastructure in the region. The FEIS also does not examine how these subsidence impacts could be avoided, minimized, or mitigated under NEPA and the NDAA. Similarly, the FEIS ignores the likelihood of earth fissuring and its related impacts to these same structures and infrastructure in the area surrounding the Desert Wellfield and within the East Salt River valley.

The failures of the Forest Service to identify and consider the baseline conditions, and the direct, indirect and cumulative impacts from the significant subsidence predicted in the FEIS resulting from the Desert Wellfield pumping, or to consider how these impacts can be avoided, minimize or mitigated, violates NEPA and the NDAA.

Water Impacts at the Mine Site Itself

Over the life of the Mine, groundwater modeling relied on by the Forest Service estimates that 87,000 AF of water will be dewatered (pumped) from the Mine and from ancillary facilities associated with the Mine. FEIS at 405. This water will be substantially consumed by mining processes. Id. This is in addition to all of the massive Desert Wellfield pumping detailed above.

The FEIS acknowledges that Mine dewatering and subsidence will impact or destroy 18 groundwater-dependent ecosystems, including springs and surface water resources throughout the Oak Flat area. *See, e.g.*, FEIS at ES-25; FEIS at 396, Figure 3.7.1-9. The Forest Service acknowledges, "the fact that even relatively small changes in water levels can have large effects on natural systems." FEIS at 385.

The Forest Service substantially underestimates (and thus fails to meaningfully analyze or consider under NEPA) the direct, indirect, and cumulative impacts of removing (via dewatering) at least 87,000 AF of water on groundwater and surface water quality and on the numerous groundwater-dependent ecosystems in this arid region, including the vitally important springs, seeps, and surface resources of the region.

The work of hydrologist, Dr. Robert Prucha, whose report was attached to Objectors' comments to the DEIS, illustrates the severe failures of the groundwater modeling approach used by the Forest Service to evaluate the adverse impacts of the mine Project, including the mine dewatering activities, predicted subsidence crater(s), and other mine activities. Dr. Prucha's work proves, among other things: (1) formation of a pit lake or lakes associated with the subsidence at the mine site and thus ongoing impacts to the aquifer post mine-closure were not meaningfully evaluated by the Forest Service; (2) the true range of impacted groundwater-dependent ecosystems was severally underestimated; (3) the Forest Service examined surface water and groundwater in isolation, as if these two water resources are not hydrologically connected in key groundwater-dependent ecosystem locations when they are connected; and (4) the model's evaluations of the relationship between stream flows and aquifer conditions (stream-aquifer flows) was not assessed.

The modeling used by the Forest Service fails to comply with industry standards in the larger modeling community – standards that consider many of the issues and factors outlined in the Prucha report, including the importance of simulating the dynamic interaction between surface and groundwater resources and the critical importance of conducting a predictive uncertainty analysis that would have provided critical information to the Forest Service regarding the range and possible extent of the drawdown (including the worst-case drawdown) and the corresponding impacts to groundwater-dependent ecosystems that would be caused by dewatering at least 87,000 AF of from the Mine, among other impacts. The failures of the Forest Service's modeling efforts and corresponding failure to take a hard look at the impacts (including a range of impacts) from the Mine dewatering consistent with industry standards violated NEPA.

The Forest Service has also failed to fully analyze or disclose the impacts of ten plus years of ongoing mine shaft dewatering (Shafts 9 and 10) or other mine activities on the numerous springs, seeps in the Oak Flat area, including the many groundwater-dependent ecosystems in the area, as well as surface flows in Queen Creek, Ga'an Canyon, and elsewhere.

The Forest Service concludes in the FEIS that the, "dewatering of the deep groundwater system has taken place since 2009 to allow construction and maintenance of mine infrastructure" and, "[t]his dewatering pumping is legal and has been properly permitted by ADWR" and it will be continued "throughout the mine life." FEIS at 372.

Groundwater levels in the deep groundwater system below Oak Flat (close to the pumping that has been dewatering Shafts 9 and 10) have dropped over 2,000 feet since 2009. FEIS at 387.

As noted above, the Forest Service wrongly includes in its baseline conditions (via the No-Action Alternative) the serious effects of Resolution Copper's ongoing dewatering of the deep groundwater system at Oak Flat—a process it has actively engaged in to support feasibility analysis activities for the Mine Project since at least 2009. FEIS at 373 ("We confirmed our choice to use the current groundwater conditions at the site as the baseline to which project-related impacts are compared (Garret 2018d)"); FEIS at 396, Figure 3.7.1-9 (No Action to include continued dewatering from Resolution's pre-feasibility operations for Bitter Spring, Bored Spring, Hidden Spring, McGinnel Mine Spring, McGinnel Spring, and Walker Spring); *see also* FEIS at 394.

Many of the springs and various other surface water features were subsequently surveyed by Objectors (including GPS locations), yet this information was also not considered in the USFS' baseline analysis under NEPA. As a result, the direct, indirect, and cumulative impacts to the affected environment, including to numerous groundwater-dependent ecosystems, resulting from Resolution Copper's ongoing dewatering activities (particularly vis-à-vis Shafts 9 and 10) have not been considered by the Forest Service in the FEIS, because numerous groundwater-dependent ecosystems that existed prior to Resolution Copper's dewatering (post 2009) no longer exist today due to this dewatering.

In 2008, Resolution Copper applied for, and was granted, a Special Use Permit for the construction and installation of the pipeline within the MARRCO corridor that delivers mine water from Shafts 9 (and now 10) to the New Magma Irrigation District. As part of this Special Use process, Resolution Copper was required by the Forest Service to document the numerous surface water features (groundwater-dependent ecosystems) within the Queen Creek Watersheds and the Ga'an Canyon Watershed, including the estimated minimum observed discharges from various springs and surface water features in the region.

In the FEIS, the Forest Service did not consider this information or make a comparison between groundwater-dependent ecosystems that existed at the time of the MARRCO special use permit—which was immediately prior to Resolution Copper's dewatering of Shafts 9 and 10 (2008/09)—and those that exist today when it established the environmental baseline for the FEIS, because the Forest Service concluded, without explanation or support, that, "this was the appropriate approach under NEPA," FEIS at 373, and because, "selecting past point in time as a baseline does not reflect the environment as it exists today." Id.

Resolution Copper's ongoing pumping, which has been conducted to facilitate the Mine Project currently before the Forest Service in the FEIS, cannot be baked into the environmental baseline without violating NEPA. The Forest Service must consider the full range of impacts from the entire scope of this Mine Project (including Resolution's ongoing dewatering of Shafts 9/10 since 2009) under NEPA and the NDAA.

The Forest Service's decision to include ongoing dewatering from Shafts 9/10 in the baseline does not represent true baseline environmental conditions as it grossly underestimates the magnitude and extent of mine impacts on the affected environment on the low side, including but not limited to, on groundwater-dependent ecosystems. At minimum, predicted drawdowns should have been calculated from actual groundwater conditions that existed prior to the dewatering of Shafts 9 and 10 to avoid improper segmentation of Project impacts under NEPA.

The Forest Service also acknowledges that a pit lake could form from the subsidence crater(s) at the Mine site: "We acknowledged in the DEIS that several conditions exist that suggest a lake could form, including the presence of a subsidence crater estimated to be 800 to 1,100 feet deep, recovering groundwater levels in the deep groundwater system after dewatering ends, and a block-cave zone that would hydraulically connect the deep groundwater system to the surface." FEIS, Appendix R at 380.Yet, the potential for a pit lake to form in the subsidence crater(s) is later dismissed by the Forest Service without basis as speculative. FEIS at 461.However, Dr. Prucha's work demonstrates that it is reasonably foreseeable that a pit lake would form within the subsidence crater with water from the shallow alluvial aquifer and other sources that would continue to deplete to the local and regional aquifer due to ongoing evaporation and other losses. The direct, indirect, and cumulative impacts from the pit lake should have been considered by the Forest Service under NEPA.

Failure to Fully Review Water Quality Impacts and Baseline Conditions

The Project would impact groundwater and surface water quality throughout the region. For example, the exposure of the mined rock to water and oxygen, inside the mine as well as in stockpiles prior to processing, could create depressed pH levels and high concentrations of dissolved metals, sulfate, and dissolved solids. FEIS at 423. After processing, the tailings would be transported for disposal into the tailings storage facility. Id. Seepage from the tailings has the potential to enter underlying aquifers and impact groundwater quality. Id. In addition, contact of surface runoff with mined ore, tailings, or processing areas has the potential to impact surface water quality. Id. Yet, the FEIS contains virtually no information pertaining to the level of contaminants that would be likely to occur from the mine discharges, runoffs, seepage, or other aspects of the Project. Similarly, the FEIS also does not disclose or consider if or where these contaminants might result in water quality impacts to surface waters and to what levels.

The FEIS at ES-25 acknowledges: "[a]ll of the tailings facilities would lose seepage with poor water quality to the environment," but then asserts that seepage from Alternative 6, "does not result in any anticipated water quality problems."
The Skunk Camp TSF [Tailings Storage Facility] Seepage Assessment Report[18] contains no information about the possible contaminants in tailings seepage water, and no information on background ground and surface water quality or potential impacts thereto from seepage water contamination, nearby impaired waterways, etc. Rather, the report just vaguely acknowledges that a seepage management plan, "has not been optimized, rather, it is intended to demonstrate that compliance is expected to be achievable for the Skunk Camp TSF. Future designs and studies will optimize the plan to reduce impacts to groundwater and uncertainties" (p.15). Yet "future studies" are not permitted under NEPA and the single-EIS requirement of NDAA §3003(c)(9)(B), and therefore, these studies were required to have been done already.

The FEIS, at 85, notes that a final post-closure management plan for the tailings storage facility is not completed but rather, "would be determined as the project progresses through NEPA process" at some vague future point in time. Many sections of the posted Skunk Camp TSF Reclamation Plan document[19] are marked as "preliminary," and references abound throughout to "preliminary estimates" and matters that "will be reviewed in future design stages," all confirming that this is not in final form based on the aforementioned language in the FEIS. This is a violation of the NEPA and the single-EIS requirement of the 2015 NDAA and is not permissible.

Regarding the extremely high temperature of the groundwater encountered at the site, the FEIS does not contain any discussion regarding how the groundwater model was adjusted or corrected in any way when, in 2014, it failed to predict the hot (180-degree F) water encountered while drilling Shaft No. 10. The Forest Service also failed to include or meaningfully analyze any similar issues of geothermally influenced water circulation or the direct, indirect, or cumulative impacts thereof, including on groundwater dependent ecosystems and water quality, and including within the post-closure subsidence fracture zone/pit lake.

Regarding baseline conditions and impacts closer to the town of Superior, the FEIS states, "groundwater drawdown caused by the mine could affect groundwater supplies for wells that may draw from either the regional Apache Leap Tuff aquifer or the deep groundwater system. Drawdown from 10 to 30 feet is anticipated in wells in the Superior area and … impacts from 10 to 30 feet could also occur in wells near Top-of-the-World." FEIS at 410-11. Yet the Agency fails to include a detailed analysis of

[18] https://www.resolutionmineeis.us/documents/kcb-skunk-camp-seepage-assessment-2020

[19] (https://www.resolutionmineeis.us/sites/default/files/references/kcb-skunk-camp-tsf-reclamation-plan-2020.pdf)

these impacts and purported mitigation for public review as required by NEPA and the NDAA.

Regarding the water resources at the Skunk Camp tailings waste facility, the FEIS states that: "A single downvalley seepage collection pond would be the primary means for seepage and embankment construction and surface water collection during operations, with the collected water then pumped to a recycled water pond located within the operating PAG [Potentially Acid Generating] cell for use as process water at the cyclone house **and/or at the West Plant Site**, or for dust management at the tailings storage facility." FEIS at 126 (emphasis added). But there is no meaningful analysis of how the tailings seepage water would be transported to the West Plant Site, or consideration of that water use at the West Plant. Further, if the seepage is collected below the tailings facility, the FEIS is devoid of the required analysis of the infrastructure needed for a return pipeline/pump system at the bottom of the facility. *See* FEIS at 121, Figure 2.2.8-2.

Additionally, there is no detailed analysis of the quality of the seepage from the tailings that may be spread on the ground for dust suppression, allowed to reach groundwater at the site, or be transported back to the West Plant site and then discharged as noted above. Indeed, the Forest Service recently admitted that seepage from the tailings will only meet the applicable, "Arizona numeric aquifer water quality standards in the downgradient aquifer beyond the immediate vicinity of the tailings storage facility." January 10, 2021 letter from Defendant Thomas Torres the Terry Rambler, Chairman of the San Carlos Apache Tribe, at 5.

In other words, because the seepage water quality would exceed the applicable standards at the site, the Agency cannot allow this contaminated water to be used for dust suppression, or transported via the pipeline back for discharge at the West Plant site or beyond. At a minimum, the FEIS's failure to fully analyze the quality and uses of this contaminated water violates NEPA and the NDAA.

Failure to Adequately Analyze the Transmission and Power Infrastructure

As another example of USFS' failure to fully review and analyze (or even fully describe) the impacts from Project facilities, the Draft ROD (p.5) proposes to approve Special Use Authorizations for only two transmission lines: 1) One new 3.6-mile, 230kV power line from the Silver King substation to Oak Flat, and 2) a 16.9-mile, either 69kV or 115kV power line from the Silver King substation to the Skunk Camp tailings storage facility. However, the USFS failed to conduct a meaningful review and analysis, required by NEPA and the NDAA, of the many direct, indirect, and cumulative impacts from these two transmission line corridors on the human environment.

The FEIS' discussions on Project impacts are highly vague and largely unchanged from the DEIS, despite the recent and "substantial" redesign of the Skunk Camp transmission line corridor (USFS Briefing Paper, 8/20/2020). Additionally, the new 3.6-mile 230kV transmission line was misleadingly described as merely an "upgrade" of an existing line and as such, no new corridor footprint for this line was ever fully analyzed or provided for public comment as required under NEPA.

Review of the Project record indicates that only a cultural resources report for the 230kV and 115kV lines (Charest 2020) may have been conducted. And still, only the title page is provided and it is impossible to determine the scope of what this document includes or does not include, or even which exact transmission lines (or design iterations thereof) it purports to address.

In addition, the FEIS contains no other similar report for any of the other myriad environmental impacts of the transmission lines including but not limited to water impacts, impacts to wildlife species, vegetation, visual resources, recreation, air, access, or otherwise. Any older reviews predating the substantial redesign of Skunk Camp tailings corridor are now outdated and cannot be reasonably relied upon to fulfill the requirements of a full NEPA review.

Separate from these two transmission lines, the FEIS also indicates that there are several more new proposed transmission lines or substations related to this Project and yet, no discussion appears in the FEIS looking at the impacts, baseline conditions, footprints, or otherwise for these new and/or expanded transmission line corridor areas on values such as wildlife and vegetation, visual impacts, cultural resource, air quality, water, or other resources found within these rights-of-way. This failure to take a hard look at these impacts violates NEPA and the NDAA.

The analysis of these impacts cannot be done later in time, but rather, must be done now, under the single EIS requirement of the NDAA.

For example, the FEIS indicates two new 230kV proposed new transmission lines that appear to cross a portion of Forest Service lands and tie into an existing transmission line (see callout box, Figure 2.2.2-15, FEIS p. 78), but these lines are never analyzed.[20]

The FEIS also indicates two new 69/34.5kV proposed new transmission lines (Figure 2.2.2-15, FEIS p. 78), which also are never analyzed. The FEIS (p.77) further notes that, "[s]ubstations also would need to be upgraded and/or new 230-kV substations would need to be constructed" but fails to ever give any specifics about where a new 230kV new substation (or substations) would be located.

[20] This contradicts Figure 2.2.2-9 (West Plant Site facilities overview), which shows these two transmission lines as being on Resolution-owned land).

The FEIS additionally indicates two new proposed 69kV power lines, and one new proposed 12kV power line to run from the Abel substation "adjacent to the MARRCO corridor" (not within) (Table 2.2.2-7, FEIS p.79-80). Yet Figures 2.2.2-12 and 2.2.2-13 (FEIS at 73-74) show only one "Proposed Transmission Line," not the three lines indicated just pages later.

The FEIS admits that "a portion of the MARRCO corridor is located on [National Forest Service] lands and would be subject to Forest Service regulatory jurisdiction." FEIS at ES-7. Yet as noted above, the Forest Service did not consider or analyze the need for a Special Use Permit for these new uses of federal public lands.

The FEIS fails to analyze the obvious, basic requirement that a new substation would also be required at the Skunk Camp tailings site to convert the high-voltage power being transmitted through the new transmission line(s) into distribution voltages for use, as well as the "access roads to service Skunk Camp." No details or any mention of this necessary facility appear anywhere in the FEIS.

In its November 18, 2020 letter responding to Salt River Project on its Special Use Permit application for the transmission line(s), the Forest Service says that "it is assumed" that the 500-foot corridor would be used. The agency admits that: "It is understood that this proposal is preliminary and additional design, review, and other regulatory process are required before an authorization will be issued." The agency then says, "[i]f the design and other regulatory processes have been completed and it is determined that the proposed high voltage transmission line cannot be located within the analyzed corridor, SRP shall submit a revised proposal and a complete review will be required." FEIS, Appendix Q. Yet under NEPA and the NDAA, such "additional review" is not allowed, as all aspects of this proposal were required to be contained the FEIS.

The Forest Service's letter further refers to "lines" (plural) in the 500-foot corridor, rather than the single transmission line for Skunk Camp mentioned in the FEIS. To the extent that the application purports to request authorization for multiple transmission lines, this has not been analyzed under NEPA, has not been included in the FEIS, and as such, approval of this application would be contrary to law.

Failure to Analyze the Baseline Conditions of All Potentially Affected Resources

The FEIS fails to adequately analyze the affected environment, and baseline conditions, of all potentially affected resources. As detailed above, this is especially true regarding the baseline water conditions on and around the lands affected by Project facilities as detailed above. AMRC discussed the need for full and adequate baseline analysis throughout their previous comments, regarding each of the major resources that

would be impacted by the Project. *See* AMRC's November 7, 2019 comments (for each resource such as water quantity and quality, wildlife, air quality, cultural resources, transportation, recreation and other affected resources); ITAA's November 7, 2019 comments at 20-21. The FEIS and DROD fail to fix these errors.

The late addition of the Skunk Camp site for the tailings waste facility highlights the failure to review the water, wildlife, cultural, and other baseline conditions of areas that may be affected by the Project. For example, for the Skunk Camp tailings site, the Agency admits that: "Background groundwater quality is derived from a single sample in November 2018 from a well located adjacent to Dripping Spring Wash. Background surface water quality is derived from a single sample in November 2018 from the Gila River at the confluence with Dripping Spring Wash." FEIS at 437. The Forest Service has apparently performed some additional water quality modeling (FEIS at 437), but it continues to note this single-sample background data in the FEIS.

The Forest Service also notes elsewhere that 42 groundwater samples and 29 surface water samples were collected (FEIS at 178), but never describes or explains how these additional samples were used or how this changed any analysis or conclusions between the DEIS and FEIS.

The FEIS also fails to adequately analyze the baseline conditions and impacts to wildlife. For example, the FEIS (Table 3.8.4-2, pp. 585-89) notes that thousands of acres of bird and other species' habitat, "potentially would be impacted under each action alternative," but no analysis in included as to how the Project activities—including but not limited to dewatering and water use and transmission lines—would directly, indirectly, and cumulatively impact wildlife, birds and habitat or the traditional, cultural or religious practices of the Tribes. Under the Land Exchange, the Oak Flat federal lands would leave Forest Service jurisdiction, which would reduce wildlife protections on these lands as the National Forest Management Act, Tonto National Forest Land and Resource Management Plan, the Organic Act, and provisions of the Endangered Species Act would no longer apply. *See* FEIS at 570.

5. Further Violations of the Clean Water Act.

a. The FEIS and DROD Fail to Recognize the Need for a CWA Section 401 Certification for All of the Project Discharges

The FEIS and DROD do not analyze, and fail to ensure full compliance with, all standards and requirements of the CWA. Objectors raised significant water quality concerns in their November 2019 and October 2020 comments to the Forest Service. *See* AMRC November 7, 2019 comments at 98-108 (as well as discussion related to the Army Corps Section 404 permit, at 304-317); ITAA November 7, 2019 comments at 10, 49-56 (as well as discussion related to the Army Corps Section 404 permit, at 9-19).

AMRC's October 30, 2020 comments were focused entirely on water quality, yet were never adequately addressed. The EPA also raised substantial concerns about water quality impacts (FEIS at R-62 to R-66), yet the FEIS and DROD failed to adequately respond to these comments as well.

At the outset, the FEIS and DROD are inadequate and legally flawed as they review only the discharges associated with the proposed Clean Water Act Section 404 permit. This is due to the mistaken view that the Army Corps 404 permit is the only "federal license or permit" that has been proposed regarding the Resolution Copper Project. "The proposed mine development includes the construction of a TSF, known as the Skunk Camp TSF [Tailings Storage Facility]. Construction of this TSF, its appurtenant facilities, and associated pipelines **are the only aspects of Resolution's overall project that triggered Section 404 permitting and the associated Section 401 certification that is the subject of this WQC**." Arizona Department of Environmental Quality ("ADEQ") Draft Water Quality Certification ("WQC") at 2 (emphasis added).

Objectors raised this issue in their October 30, 2020 comments to ADEQ and the Forest Service. ADEQ responded, admitting that Resolution has not submitted a request for Section 401 Certification, nor has ADEQ given one to the Forest Service:

> **Comment No. 12 received from WMAP, et al**
> The Draft WQC fails to review and consider Resolution's proposed plan of operations submitted to the U.S. Forest Service. Because ADEQ failed to consider the plan of operations as one of the federal licenses or permits that must be reviewed under Section 401, the WQC cannot be issued as proposed. Nor can the USFS approve any plan of operations, or the Corps approve the 404 permit, for the Project.
> **Response No. 12**
> *The Draft WQC for the Skunk Camp TSF does not consider the plan of operations submitted to the USFS.* ***This Draft 401 WQC only covers impacts to WOTUS from the pipeline and the actual tailings facility.*** *In the future, the USFS may require Resolution Copper to submit a 401 Certification request for the other affected areas, such as Queen Creek, but ADEQ has not received any such requests at this time.*

ADEQ, **RESPONSE TO PUBLIC COMMENTS** LTF No. 80929, Applicant: Resolution Copper Skunk Camp TSF, at 5 (italics in original, bold emphasis added) (attached).

Under the CWA, federal caselaw, and USFS policy, the issuance of a Special Use Permit by the Forest Service, as well as approval of a proposed mining plan of operations, such as Resolution's "General Plan of Operations," or any other requested approval of Project operations by the USFS, is considered a "federal license or permit" triggering Section 401 Certification. *See* Hells Canyon Preservation Council v. Haines,

2006 WL 2252554, at *3-4 (D. Or. 2006)(Section 401 applies to mining PoO submitted to USFS). As stated by the USFS:

> Pursuant to CWA § 401, both the Forest Service and the mining operator have CWA requirements to meet. If the mining activity "may result in any discharge into the navigable waters," (CWA, Title IV, § 401(a) (1), 33 U.S.C. 1341(a), 1972) the mining operator must obtain a 401 certification from the designated CWA federal, state or tribal entity, typically the state. This 401 certification from the designated entity certifies that the operator's mining activities and associated best management practices (BMPs), mitigation and/or reclamation are in compliance with applicable provisions of state, federal and/or tribal water quality requirements of the CWA. The mining operator must give a copy of this 401 certification to the Forest Service prior to the Agency approving the Plan of Operations. Pursuant to CWA, the Forest Service cannot authorize a Plan of Operations until the 401 certification has been obtained or waived by the designated entity. Finally, the Forest Service may not authorize a Plan of Operations if the designated entity denies the certification.

USFS Manual, Section 2817.23a.

There is no dispute that the Resolution Project "may result in any discharge into the navigable waters" (Id.) that are in addition to the limited discharges associated with the Tailings Storage Facility and related infrastructure reviewed by the limited WQC. For example, Outfalls 1 & 2 that allow discharge from the West Plant (and now water from shafts 9 & 10) into Queen Creek, were not considered by ADEQ. Nor were all potential stormwater discharges associated with the Project analyzed and included in the WQC.

In addition, the Forest Service does not have the required Certification, as the ADEQ WQC does not consider potential discharges associated with the MARRCO corridor, including the loadout facility for copper concentrate slurry and pumpback storage and delivery back to the West Plant (including water from the CAP and other sources for the West Plant). There is the potential for discharges that could end up in Queen Creek or the Gila River. Also, on the MARRCO corridor are the water pipelines and the 32 water wells (desert wellfield). The MARRCO corridor crosses Queen Creek at least once. There is the potential for spills into Queen Creek from these and other facilities (e.g., West Plant facilities, ore/material conveyance structures).

At the mine site itself there would be the pit lake in the subsidence crater (which the FEIS inadequately considered/acknowledged) as well as washout bays, and numerous other potential sources of water discharge from the buildings that are or would be at the East plant. This includes potential discharges from the chilling plant/cooling towers.

In addition, there is no Certification regarding the other potentially impacted waters, such as those affected by the buried pipeline and the power lines and the impacts

these pipelines and power lines will likely have on water quality in the critical habitat areas on Mineral Creek. Mineral Creek is critical habitat for Gila Chub and is proposed critical habitat for yellow billed cuckoo. Also, critical habitat for Mexican spotted owl is less than 2 miles away from portions of the pipeline route.

There are also dozens of such unnamed washes (one report said 60) that, when dug up to install or maintain the buried pipeline, will result in the inevitably discharge of some amount of sediment or contaminants downstream. Even the named Lyons Fork and Mill Creek which flow into Mineral Creek will have pipelines buried beneath. Ga'an Canyon will face the same situation with likely contamination of the plunge pools located on the State Trust land.

As detailed above, the Agency cannot limit its review to only those direct impacts from the Project's discharges directly associated with the 404 permit. In addition to improperly failing to consider the Special Use Permits (and mining plan as reviewed in the FEIS) as noted above, this self-imposed restriction violates the CWA. As held by the U.S. Supreme Court, the 401 Certification is not limited to only direct impacts from the discharge, but rather, all impacts associated with a project once the threshold prerequisite of the potential for a discharge exists (which is not in dispute here):

> Section 401, however, also contains subsection (d), which expands the State's authority to impose conditions on the certification of a project. Section 401(d) provides that any certification shall set forth "any effluent limitations and other limitations ... necessary to assure that *any applicant*" will comply with various provisions of the Act and appropriate state law requirements. 33 U.S.C. § 1341(d) (emphasis added). The language of this subsection contradicts petitioners' claim that the State may only impose water quality limitations specifically tied to a "discharge." The text refers to the compliance of the applicant, not the discharge. Section 401(d) thus allows the State to impose 'other limitations' on the project in general to assure compliance with various provisions of the Clean Water Act and with 'any other appropriate requirement of State law'… Section 401(a)(1) identifies the category of activities subject to certification--namely, those with discharges. And §401(d) is most reasonably read as authorizing additional conditions and limitations on the activity as a whole once the threshold condition, the existence of a discharge, is satisfied.

Jefferson County PUD No. 1 v. Washington Dept. of Ecology, 511 U.S. 700, 711-12 (1994). As the Court stated: "activities—not merely discharges—must comply with state water quality standards." Id.

As noted in EPA's guidance on Section 401 certification: "[I]t is important for the §401 certification authority to consider all potential water quality impacts of the project, both direct and indirect, over the life of the project." Clean Water Act Section 401 Water Quality Certification: A Water Quality Protection Tool For States and Tribes

(2010)("EPA 401 Handbook"), at 17. https://19january2017snapshot.epa.gov/sites/production/files/2016-11/documents/cwa_401_handbook_2010.pdf (viewed January 24, 2021).

As EPA summarized:

> Section 401 applies to any federal permit or license for an activity that may discharge into a water of the U.S. The Ninth Circuit Court of Appeals has ruled that the discharge must be from a point source, and agencies in other jurisdictions have generally adopted the requirement. **Once these thresholds are met, the scope of analysis and potential conditions can be quite broad. As the U.S. Supreme Court has held, once §401 is triggered, the certifying state or tribe may consider and impose conditions on the project activity in general, and not merely on the discharge, if necessary to assure compliance with the CWA and with any other appropriate requirement of state or tribal law.**

EPA 401 Handbook, at 18 (emphasis added), *citing* Jefferson County PUD, 511 U.S. at 711-712; S. D. Warren Co. v. Maine Board of Environmental Protection et al, 547 U.S. 370, 126 S.Ct. 1843 (2006).

Thus, all aspects of the Project contained in the Special Use Permit applications (as well as the ore concentrate pipeline in the MARRCO corridor that has improperly been excluded from USFS permitting as detailed above), must be considered in the 401 Certification review. Because the Forest Service does not have the required 401 Certification for the operations and discharges associated with the Project (outside of the Tailings facility), the USFS cannot approve any Special Use Permits, Road Use Permtis, or any other activity associated with the Project.

b. The Forest Service Failed to Protect All Water Quality Standards, Including All Beneficial Uses.

The FEIS and DROD are only concerned with ensuring that the numeric water quality standards are not violated by the 404 discharge. In addition to improperly limiting its review to only the direct 404 discharges discussed above, this ignores the fact that all aspects of water quality protection, not just numeric standards, must be considered and protected.

The CWA is primarily implemented through the establishment and maintenance of water quality standards, and the CWA directs each state to establish its own water quality standards. 33 U.S.C. §§ 1313(a) and (c)(2)(A). "A water quality standard defines the water quality goals of a water body, or portion thereof, by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses." 40 CFR § 131.2. The minimal designated use for a water body is the "fishable/swimmable"

designation which "provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water." 33 U.S.C. § 1251(a)(2). As the Supreme Court stated:

> The text [of the CWA] makes it plain that water quality standards contain two components. We think the language of § 303 is most naturally read to require that a project be consistent with *both* components, namely, the designated uses *and* the water quality criteria. **Accordingly, under the literal terms of the statute, a project that does not comply with a designated use of the water does not comply with the applicable water quality standards.**

Jefferson County PUD, 511 U.S. at 714-715 (*italics* emphasis in original, **bold** emphasis added). Thus, the CWA prohibits any activity that will not fully protect all of the designated uses for that waterbody.

Similarly, the Project also implicates the CWA's "antidegradation" requirements. Antidegradation policies "shall, at a minimum, be consistent with . . . [e]xisting instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." 40 CFR §131.12(a)(1). Under this regulation, "'no activity is allowable . . . which could partially or completely eliminate any existing use.'" Jefferson County PUD, 511 U.S. at 718-19 (*citing* EPA, Questions and Answers on Antidegradation 3 (Aug. 1985)).

Under Arizona Administrative Code (AAC) R18-11-107.01(D) – Antidegradation – ADEQ is required to conduct an antidegradation review of the Army Corps 404 permit if any of the impacted surface waters are listed as impaired under the State's 303(d) list, such as Queen Creek. This must be done on a pollutant by pollutant basis. ACC R18-11-107(A). Specifically, R18-11-107.1D states:

> Antidegradation review of a § 404 permit shall be conducted as follows:
> 1. For a Corps-issued § 404 permit. The Director shall conduct the antidegradation review of any discharge authorized under a nationwide or regional § 404 permit as part of the § 401 water quality certification prior to issuance of the nationwide or regional permit. The Director shall conduct the antidegradation review of an individual § 404 permit if the discharge may degrade existing water quality in an OAW or a water listed on the 303(d) List of impaired waters. For regulated discharges that may degrade water quality in an OAW or a water that is on the 303(d) List of impaired waters, the Director shall conduct the antidegradation review as part of the § 401 water quality certification process.

https://apps.azsos.gov/public_services/Title_18/18-11.pdf. That did not happen here.

As noted herein and in Objectors' previous comments to ADEQ, USFS, and the Corps, including the Objectors' previous comments to the USFS, neither the Agency nor Resolution have shown that the Project will protect all beneficial uses, comply with all numeric and narrative standards, and comply with all antidegradation requirements. As such, the FEIS violates NEPA and the NDAA, and the Forest Service cannot approve any aspect of the Project.[21] In addition, because the Project would not fully comply with all CWA requirements, any authorization of Project activities would violate the provisions of Tonto National Forest Plan and thus NFMA §1604 (i).

State water quality regulations dictate numeric water quality standards both for surface waters and for groundwater. State regulations also identify a narrative water quality standard for surface water. The narrative water quality standards also state that a wadeable, perennial stream, such as those affected by the Project, shall support and maintain organism richness comparable to that of a stream with reference conditions in Arizona. According to state regulations, "A wadeable, perennial stream shall support and maintain a community of organisms having a taxa richness, species composition, tolerance, and functional organization comparable to that of a stream with reference conditions in Arizona." R18-11-108.E. "The narrative biological criteria in this Section apply to a wadeable, perennial stream with either an aquatic and wildlife (cold water) or an aquatic and wildlife (warm water) designated use." R-18-11-108.01.A.

The Draft WQC lists, some, but not all, water bodies that will be affected by the discharges:

> State of Arizona Surface Water Quality Standards (SWQS), Arizona Administrative Code (A.A.C.) Title 18, Chapter 11, Article 1. Designated uses for impacted washes are:
> • Devil's Canyon: Aquatic and Wildlife Warm, Full Body Contact, Fish Consumption and Agricultural Livestock;
> • Mineral Creek: Aquatic and Wildlife Warm, Full Body Contact, Fish Consumption and Agricultural Livestock; Impairments: Dissolved Copper, Selenium, Dissolved Oxygen;
> • Queen Creek: Aquatic and Wildlife Warm, Partial Body Contact, and Agricultural Livestock; Impairments: Copper, Selenium, Lead;
> • Dripping Springs Wash and unnamed ephemeral tributaries: Aquatic and Wildlife Ephemeral and Partial Body Contact;
> • Skunk Camp Wash and unnamed ephemeral tributaries: Aquatic and Wildlife Ephemeral and Partial Body Contact;

[21] Under the 1897 Organic Act and agency implementing regulations, the USFS cannot approve any activity or operation that may violate or not comply with all applicable water quality standards and requirements.

• Stone Cabin Wash and unnamed ephemeral tributaries: Aquatic and Wildlife Ephemeral and Partial Body Contact

Draft WQC at 4. As noted herein, this list does not include all of the water bodies potentially affected by the Project, such as those affected by the approval of the Special Use Permits (and the omitted ore concentrate pipeline).

State regulations define the following designated uses: "'Aquatic and wildlife (warm water) (A&Ww)' means the use of a surface water by animals, plants, or other warmwater organisms, generally occurring at an elevation less than 5000 feet, for habitation, growth, or propagation." R18-11-101.8 (definitions). "'Full-body contact (FBC)' means the use of a surface water for swimming or other recreational activity that causes the human body to come into direct contact with the water to the point of complete submergence. The use is such that ingestion of the water is likely and sensitive body organs, such as the eyes, ears, or nose, may be exposed to direct contact with the water." R18-11-101.21. "'Fish consumption (FC)' means the use of a surface water by humans for harvesting aquatic organisms for consumption. Harvestable aquatic organisms include, but are not limited to, fish, clams, turtles, crayfish, and frogs." R18-11-101.20.

The Arizona wadeable/perennial narrative water quality standard at R18-11-108.E. applies to the perennial reaches of streams/water bodies that may be affected by the Project's dewatering of the aquifer/groundwater, as well as its discharges. As shown by the Objectors previous comments, this standard will not be meet on all stream reaches of the affected water bodies. For example, the change from being a perennial stream to an ephemeral or intermittent stream caused by the dewatering (alone and in combination with modeled impacts from climate change), such as could occur here, would violate the Arizona wadeable/perennial water quality standard R18-11-108.E; R-18-11-108.01.A.

c. <u>The FEIS and DROD Impermissibly Defer Submission and Review of the Requisite Surface Water Mitigation Plan</u>

The Forest Service and ADEQ propose to allow Resolution to submit a water quality mitigation plan in the future. As detailed above, this violates the one-FEIS standard under NEPA and the NDAA. The Objectors raised this issue with the Forest Service and ADEQ in their October 30, 2021 comments. In response, ADEQ admitted that there was no water quality mitigation plan and that one would be submitted in the future to the Army Corps of Engineers.

Comment No. 15 received from WMAP, et al

The Draft WQC impermissibly defers submission and review of the requisite surface water mitigation plan. Deferring to Resolution's submittal of an adequate mitigation plan until after it obtains a 404 permit and plan of operations approval deprives the public of the ability to review and comment on that mitigation plan,

in violation of state water quality law/regulations, the CWA, and public land and environmental laws applicable to the USFS (Organic Act, etc.).

Response No. 15

The review and approval of surface water mitigation plans lies with the USACE and is therefore out of the scope of the 401 WQC and the ADEQ's authority.

ADEQ, **RESPONSE TO PUBLIC COMMENTS** LTF No. 80929, Applicant: Resolution Copper Skunk Camp TSF, at 6 (italics in original, bold emphasis added)(attached).

Deferring Resolution's submittal of an adequate mitigation plan until after it obtains a 404 permit or Special Use Permits deprives the public of the ability to review and comment on that mitigation plan, in violation of state water quality law/regulations, the CWA, public land and environmental laws applicable to the USFS (Organic Act, etc.), and NEPA and the NDAA as detailed above.

d. Additional Failures to Comply with All Applicable Water Quality Requirements

In addition to the inadequacies of the FEIS and DROD noted herein, there are additional water quality concerns that have not been adequately addressed. For example, the FEIS and DROD do not discuss CWA compliance issues regarding Resolution's release of sediment and other pollutants discharged from the road culverts and other water management structures. As the Ninth Circuit has stated:

> Further, the term man-made "conveyance," the essential trigger for finding a "point source" under the CWA, is broadly defined. [W]hen stormwater runoff is collected in a system of ditches, culverts, and channels and is then discharged into a stream or river, there is a "discernable, confined and discrete conveyance" of pollutants, and there is therefore a discharge from a point source. In other words, runoff is not inherently a nonpoint or point source of pollution. Rather, it is a nonpoint or point source under § 502(14) depending on whether it is allowed to run off naturally (and is thus a nonpoint source) or is collected, channeled, and discharged through a system of ditches, culverts, channels, and similar conveyances (and is thus a point source discharge).

Northwest Environmental Defense Center v. Brown, 640 F.3d 1063, 1070-71 (9th Cir. 2011) (culverts directing stormwater flows are point sources subject to NPDES permitting) *overturned on other grounds* Decker v. Nw. Envtl. Def. Ctr., 133 S.Ct. 1326 (2013). The Ninth Circuit reiterated, in light of the Supreme Court's and its previous decision in those cases, that:

> The Court left intact our holding that "when stormwater runoff is collected in a system of ditches, culverts, and channels and is then discharged into a stream or river, there is a 'discernable, confined and discrete conveyance' of pollutants, and there is therefore a discharge from a point source" within the meaning of the Clean Water Act's basic definition of a point source in 33 U.S.C. § 1362(14).

Northwest Environmental Defense Center v. Decker, 728 F.3d 1085-86 (9th Cir. 2013). Discharges from mine diversion channels must be covered by an NPDES permit and be considered when determining whether a project meets all water quality requirements. Friends of Pinto Creek v. EPA, 504 F.3d 1007, 1015-16 (9th Cir. 2007).

Impacts from the proposed Project include direct fill and secondary impacts which will result in the loss, conversion and functional degradation of aquatic and terrestrial habitats over several thousand acres. The consequence of groundwater drawdown from the Project is the indirect loss or conversion of hundreds of acres of riparian vegetation, including wetlands, and the drying of streams. These large-scale shifts in the amount and species composition of riparian areas and the loss of stream surface flows, and the loss of protected beneficial uses noted above, violates the CWA and federal and state water quality and environmental laws.

The Project will result in significant degradation because it will have significant direct and indirect/secondary effects on the structure and function of the aquatic ecosystem such as: significant adverse effects to regional water circulation and fluctuation; and significant adverse effects to aquatic organisms due to reduced flows, increased water temperatures, suspended sediments and potential increases in water pollution and impacts. These impacts are substantial and unacceptable impacts to aquatic resources of critical importance.

As noted above, no compensatory mitigation plan compliant with the regulations has been prepared to date, or subject to proper public review under the CWA, NEPA, and the other laws and regulations noted above.

6. Violation of the National Forest Management Act

The FEIS and DROD do not ensure that all requirements of the Tonto National Forest Plan, and associated Regional Guide for Region 3 will be met at all times, in violation of the National Forest Management Act ("NFMA"), 16 U.S.C. § 1601 *et seq.* Among other mandates, the NFMA requires the Forest Service to prepare a land and resource management plan, or "forest plan," for each National Forest. 16 U.S.C. § 1604(a). Each plan must include standards and guidelines for how the forest shall be managed. 16 U.S.C. §§ 1604(c), (g)(2) & (g)(3).

Once a forest plan is adopted, all resource plans, permits, contracts, and other instruments for use of the lands, such as Special Use Permits, Road Use Permits, mining plan approvals, etc., must be consistent with the plan. 16 U.S.C. § 1604(i). "It is well-settled that the Forest Service's failure to comply with the provisions of a Forest Plan is a violation of NFMA." Native Ecosystems Council v. Dombeck, 304 F.3d 886, 961 (9th Cir. 2002). *See also* Save Our Cabinets v. U.S. Dept. of Agric., 254 F.Supp.3d 1241, 1258-59 (D. Mont. 2017)(Forest Service approval of mining project that would not meet the Forest Plan's "desired conditions" protecting water quality violated the NFMA).[22]

Failing to follow, or to evaluate and document compliance with, a Forest Plan provision is also a NEPA violation. *See* ONDA v. BLM, 625 F.3d 1092, 1110–11 (9th Cir. 2010) (NEPA analysis must include "considerations made relevant by the substantive statute driving the proposed action"); Westlands Water Dist. v. United States Dept. of Interior, 376 F.3d 853, 866 (9th Cir. 2004) ("When an action is taken pursuant to a special statute, the objectives of that statute serve as a guide by which to determine the reasonableness of alternatives" examined under NEPA).

As shown above, the Project will result in massive and permanent environmental and cultural resource impacts, which could not occur without the issuance of the Special Use Permits (including the omitted permit for the ore concentrate pipeline). These impacts violate the Forest Plan and Regional Guide. For example, for "Soils, Water and Air Quality," the Forest Plan requires the Agency to:

> Provide direction and support to all resource management activities to (1) meet minimum air and water quality standards, (2) emphasize improvement of soil productivity, air and water quality, (3) augment water supplies when compatible with other resources, (4) enhance riparian ecosystems, by improved management. All major riparian areas under intensive management by 1995, (5) obtain water rights necessary to ensure orderly resource development, and (6) inventory and interpret soil, air and water resources. Resource planning and management activities within the desert zone must fully recognize the limitations this unique ecosystem has to the impacts of man's uses and activities.

Tonto Forest Plan at 19. In addition to these requirements, the Plan requires specific compliance with the standards and guidelines of the Regional Guide:

> The standards and guidelines for conservation of soil and water resources; protection and treatment of streams, streambacks, shorelines, lakes, wetlands, and

[22] The need to comply with the NFMA was raised in AMRC's November 7, 2019 comments at 31, 321-22. At the time of the issuance of the DEIS, the Forest Service was proposing to amend the Tonto Forest Plan, which it no longer proposes to do. Thus, the additional violations of the existing Plan arose after the comment period closed on the DEIS.

other water bodies are found in the Regional Guide; Region 3 TE Note 23 and Hydrology Notes 11 and 14; and individual management prescriptions. The majority of the specific standards and guidelines are in the Forest-wide prescription decision units 33, 34, 63, 45, 48, 62, 51 and activities F01, F02, F03, F04, F05, K01, K03, K04, K05, K06. Some individual management area prescriptions contain additional specific standards and guidelines in these decision units and activities. Standards and guidelines for air quality are found in the Regional Guide, and individual management prescriptions under decision units 2 and 3 and activities A03, P16, and P17.

Tonto National Forest Plan at 20.

The Plan also requires the protection of cultural resources that may occur due to the issuance of the Special Use Permits.

> 3. During the conduct of undertakings, **the preferred management of sites listed in, nominated to, eligible for, or potentially eligible for the National Register is avoidance and protection**. Exceptions may occur in specific cases where consultation with the SHPO indicates that the best use of the resource is data recovery and interpretation.
>
> 5. Where resource management conflicts occur, the desirability of in-place preservation of cultural resources will be weighed against the values of the proposed land use. **Preservation of heritage resources in place will become increasingly important under the following conditions**:
> -- where present methods of investigation and data recovery cannot realize the current research potential of the sites;
> -- where the sites are likely to have greater importance for addressing future research questions than current ones;
> **-- where the cultural values derive primarily from the qualities other than research potential, and where those values are fully realized only when the cultural remains exist undisturbed in their original context(s) (e.g. association with significant historical persons or events*, special ethnic or religious values*, or unique interpretive values**);

Management Prescriptions, Tonto Forest Plan, Replacement page 31 (emphasis added).

As shown herein, there is no question that the cultural and religious values of Oak Flat and surrounding lands will be destroyed or significantly altered by the Project. As noted herein, the fact that majority of this destruction will occur on the lands to be exchanged-away does not excuse the Agency's noncompliance with these requirements, as without issuance of the Special Use Permits the Project could not proceed and thus the damage would not occur.

As noted herein, the Project's devastating and permanent impacts to lands, fish, wildlife, water quality and quantity, among the other impacts detailed herein, violate these requirements.

The Agency prepared a document entitled "Post-DEIS Forest Plan Consistency Review" (September 14, 2020) which takes the position that all Forest Plan and Regional Guide requirements were fully analyzed and that the Project would comply with all requirements. This is based on the following position: "With the implementation of proposed mitigation and monitoring plan actions (see EIS appendix J), the proposed project components would be consistent with nearly all applicable forest-wide and management area standards and guidelines." Consistency Review at 5.

"A total of 184 forest plan components were identified as applicable to the proposed project components." Review at 5. Yet outside of a cursory mention of these requirements, there is no analysis of how all aspects of the Project will meet them (outside of a brief discussion of visual resource acreages). For example, the Review lists 10 "cultural resource" protection components, but there is no discussion of how they will be met.

The Review suffers from a number of other problems: (1) as noted above, up until the Agency's 11th hour change in regulatory oversight of the Project (i.e., from review of the GPO under federal mining laws to review under the Part 251 regulations), the agency was under the mistaken belief that its authority over the Project was limited by federal mining laws. This Consistency Review was completed prior to the review of the Special Use Permit applications by SRP and Resolution in September and November of 2020; and (2) the Review only mentions "standards and guidelines" but fails to mention or analyze whether the Project will comply with the Desired Conditions and other Plan/Guide requirements. *See* Save Our Cabinets v. U.S. Dept. of Agric., 254 F.Supp.3d 1241, 1258-59 (D. Mont. 2017)(Forest Service approval of mining project that would not meet the Forest Plan's "desired conditions" protecting water quality violated the NFMA).

Perhaps the most fundamental error in the Agency's NFMA analysis is that it did not consider the connection between the impacts from the overall Project on public lands that would result from issuance of the Permits. For example, the Review does not consider the impacts on water, wildlife, cultural resources, etc. that will be caused by the Project's massive dewatering of the regional aquifers. As noted herein, because it is undisputed that the Project could not proceed without the issuance of the Special Use Permits for Project infrastructure, the impacts from Project operations occurring on private lands (assuming the Exchange takes place as the FEIS and DROD do) to public land resources were required to be fully considered.

7. Violation of the Clean Air Act ("CAA")

As noted herein, because of the FEIS' and DROD's failure to fully consider all of the project's direct, indirect, and cumulative impacts, as well as a complete analysis of all background/baseline conditions and a lack of adequate mitigation analysis, the USFS cannot ensure that the project will comply with all applicable air, water, and other environmental standards, as required by NEPA, FLPMA, and the Organic Act, as well as the CWA and CAA. This is true whether the USFS regulates the project under its Part 228 or Part 251/262 regulations. For example, under § 251.56(a)(1)(C), the USFS must: "Require compliance with applicable air and water quality standards established by or pursuant to applicable Federal or State law." The "Operator shall comply with applicable Federal and State air quality standards, including the requirements of the Clean Air Act, as amended (42 U.S.C. 1857 et seq.)." *See also* 36 C.F.R. §§228.8(a); §228.8(b)(same, for water quality requirements/standards and the Clean Water Act).

Objectors specifically highlighted the Project's failure to comply with all required Clean Air Act standards and related public health requirements. *See* AMRC November 7, 2019 comments at 3, 31, 57-60, 134-146, 317. Yet the FEIS and DROD do not comply with these mandates.

For example, as EPA Region IX pointed out in its November 1, 2019 comments (reprinted at FEIS R-62 to R-66), the Forest Service should have obtained a conformity determination for projected PM 10 emissions that would be associated with its East Plant Site that would impact the Hayden and Miami PM 10 Nonattainment Areas. In the FEIS the Forest Service argues that it can demonstrate that a conformity determination would be merited for the Hayden PM 10 Nonattainment Area based on a recitation of facts. FEIS, Vol. 1 at 346-48. However, the Forest Service does not recite that it has obtained a conformity determination and it appears that no such determination has been obtained. In addition, the FEIS provides no analysis and asserts no facts regarding the potential that the project could demonstrate attainment in the Miami PM 10 Nonattainment Area.

As part of its State Implementation Plan (SIP), Arizona has adopted EPA's general conformity regulations. These regulations include public participation requirements regarding conformity determinations. The SIP public participation requirements for conformity determinations include the following: 1) the agency [AZDEQ] must make available for review its draft conformity determination; 2) agency must make public its draft conformity determination by placing a notice by prominent advertisement in a daily newspaper of general circulation in the area affected by the action and by providing 30 days for written public comment prior to taking any formal action on the draft determination; and, 3) the agency must document its response to all the comments received on its draft conformity determination and make the comments and responses available. Not only has the Forest Service not obtained a conformity determination, but

(to our knowledge) none of the public participation requirements associated with obtaining such a determination have been followed.

The NDAA requires that the FEIS to be adequate for all, "decisions under Federal law related to the proposed mine and the Resolution mine plan of operations and any related major Federal actions significantly affecting the quality of the human environment, including the granting of any permits, rights-of-way, or approvals for the construction of associated power, water, transportation, processing, tailings, waste disposal, or other ancillary facilities." Because the Arizona SIP is federal law, the needed conformity determination would be a "decision[] under Federal law related to the proposed mine and the Resolution mine plan of operations."

As a result, the FEIS was required to be adequate to support conformity determinations regarding the Hayden and Miami PM 10 Nonattainment Areas. We question whether the FEIS discussion of the Hayden PM 10 Nonattainment Area is sufficient under the NDAA. More important, however, is the fact that the FEIS completely ignores the Miami PM 10 Nonattainment Area. Therefore, it is clear that the FEIS fails to comply with the NDAA with respect to Clean Air Act conformity with respect to the Miami PM 10 Nonattainment Area.

CONCLUSION

As detailed above and in previous comments submitted by the Objectors, the FEIS and Draft ROD fail to fully comply with numerous federal and state laws, regulations, policies, and other requirements. As such, the Regional Office must withdraw the FEIS and DROD and vacate and remand both documents and order the correction of all errors noted herein.

The Forest Service cannot approve any of the action alternatives described in the FEIS and DROD, including the Exchange, or any action alternative at all that the applicant may propose, unless and until all laws, etc., noted herein are satisfied. Please direct all communications regarding this Objection to the undersigned attorneys.

Thank you,
/s/ Roger Flynn
Roger Flynn
Jeffrey C. Parsons
WESTERN MINING ACTION PROJECT
P.O. Box 349, 440 Main St. # 2
Lyons, Colorado 80540
(303) 823-5738
wmap@igc.org

Attorneys for Objectors

Contact Information for Objectors:

Susan B. Montgomery (ITAA General Counsel)
MONTGOMERY & INTERPRETER, PLC
3301 E. Thunderbird Rd.
Phoenix, AZ 85032

Roger Featherstone, Director
Arizona Mining Reform Coalition
PO Box 43565
Tucson, AZ 85733-3565

Access Fund
PO Box 17010
Boulder, CO 80308

Center for Biological Diversity
PO Box 710
Tucson, AZ 85702

Earthworks
1612 K Street, NW, Suite 808
Washington, DC 20002

Sierra Club – Grand Canyon Chapter
202 E. McDowell Rd., Suite 277
Phoenix, AZ 85004

<u>Attachments (beyond the attachments/exhibits previously submitted by Objectors to the Forest Service that are already included in the record for these Objections).</u>

1. 2008 Forest Service files/documents on MARRCO corridor water pipeline.
2. 2020 Arizona Department of Environmental Quality, Response to Public Comments on 401 Certification.
3. 2021 Rio Tinto Response to letter from Roger Featherstone (AMRC).

Resolution Copper Water Pipeline DM

Hydrology Comments
8/12/2008

- The Decision Memo addresses a proposed special use permit for a pipeline from Resolution Copper Company's water treatment plant in Superior along the MARRCO railroad right of way to the New Magma Irrigation District Canal near Florence Junction. The DM does not identify the origin of the water or the volume of water that would be transported through the pipeline. If the source of the water is ground water that underlies National Forest System lands then it would be appropriate to subject the project proposal to review in term of the direction provided by the Regional Forest Service Manual Supplement (R3 Supplement 2500-2001-1) that was developed specifically for authorizing water developments on NFS lands.

  The R3 Supplement identifies that when a project proponent proposes to drill a well on NFS lands and/or transport ground water across NFS lands through a pipeline, it is appropriate to analyze the potential impacts of water removal along with the impacts of well and/or pipeline construction. Special Use authorizations for water developments on NFS lands should be approved only when the long-term protection of NFS streams, springs, seeps, and associated riparian and aquatic ecosystems can be assured. The analysis should also consider impacts upon neighboring landowners and water users. The R3 Supplement provides guidance for screening proposed water development projects on the National Forests.

  The proposed project should be evaluated in terms of the screening process described in the Regional supplement. A copy of the screening process should be provided to the project proponent.

- If the water source is ground water then the ground water basin from which the ground water is being withdrawn should be identified. Current statutes generally prohibit transportation of ground water between basins, with exceptions for specific basins. If ground water is being transported from one ground water basin to another the project proponent should identify how this transport is authorized.

- If the water source is a well located within Phoenix Active Management Area (AMA) and is being pumped at a rate greater than 35 gallons per minute a permit may be needed from the Arizona Department of Water Resources. The project proponent should document the authority used to withdraw ground water if withdrawal occurs within the AMA.

Delvin R Lopez/R3/USDAFS
08/15/2008 11:27 AM To
Anthony D Miller/R3/USDAFS@FSNOTES, Daniel E Bray/R3/USDAFS@FSNOTES
cc
Arthur Wirtz/R3/USDAFS@FSNOTES, Sharon I Wallace/R3/USDAFS@FSNOTES, Emily Garber/R3/USDAFS@FSNOTES, Brad Johnson/R3/USDAFS@FSNOTES, Karyn B Harbour/R3/USDAFS@FSNOTES, Grant J Loomis/R3/USDAFS@FSNOTES
bcc

Subject
Resolution Pipeline

Grant and I talked to Gene and Tom on the potential effects of dewatering the #9 shaft on natural resources on National Forest or private land. It was agreed the FS lacks information and therefore this project is not ripe
for decision. Please review the attached recommendations by Grant. A week or so ago I sent you the Regional Supplement. I suggest the FS meet with the proponent and review the following:
Purpose and need. Up to now I thought the purpose and need was to transport water from the treatment facility to the irrigation district. The more I think about it the purpose and need is to drain the shaft to do
mineral exploration, maybe part of the pre-feasibility study?????
How are they transporting the water from the shaft to the treatment facility? Didn't find it in the application.
The proposed project should be evaluated in terms of the screening process
described in the Regional supplement. A copy of the screening process should be provided to the project proponent. The report will be evaluated
by Grant and the RO hydrologist.
Let me know if Grant and I need to be involved further in those discussions with Resolution.

Delvin R. Lopez
Public Service Group Leader
Tonto National Forest
602-225-5230

Anthony D Miller/R3/USDAFS
08/08/2008 02:41 PM
To
Arthur Wirtz/R3/USDAFS@FSNOTES, Delvin R Lopez/R3/USDAFS@FSNOTES, Sharon I
Wallace/R3/USDAFS@FSNOTES
cc

Subject

Delvin: Attached is the draft DM for Resolution Copper water pipeline. Im
waiting on two items;

1. Some info under the clean water act of this documnet, I have asked the
contractor to supply some water quality items in this section.
2. The arch clearance from Scott Wood[attachment "Resolutiion Copper
Water Pipeline DM.doc" deleted by Delvin R Lopez/R3/USDAFS]

3. Becky has the cost recovery sheeets, being as its DM i
put it in Category 4, less than 50 hours so the fee is $1,021.00

Let me know what you think, thanks Anthony

Resolution Copper Mining, LLC

Dewatering of Magma Mine Workings with Pipeline Delivery

Evaluation of Potential Hydrologic Impacts
Special Use Permit (FSM 2540)

1.0 INTRODUCTION

Resolution Copper Mining, LLC (RCM) is sinking a new shaft adjacent to Shaft 9 and immediately adjacent to the currently flooded mine workings of the former Magma Mine. To sink this shaft safely and effectively and to avoid the risk of a catastrophic water event into the new shaft that would pose a significant safety risk to the persons doing the shaft sinking, RCM must dewater the existing mine workings ahead of the shaft sinking construction below the deep aquifer water table. RCM plans to dewater the old mine workings principally by pumping from large diameter turbine pumps installed into Shaft 9. RCM's dewatering plan is consistent with the dewatering systems used for many decades to successfully dewater and maintain the dewatering of the Magma Mine. That dewatering was discontinued in May 1998, while other projects continued at the mine. Water from the previous dewatering was either discharged into Queen Creek (following lime treatment) or used for on-site applications on the mine property.

In general, the mine dewatering project involves pumping water from the Magma Mine workings, treating the entire volume of this water via a newly constructed water treatment facility through the addition of lime and soda ash (primary treatment to remove metals and increase its pH), and subsequently handling the treated water in two ways:

1. **Direct Delivery Via Pipeline.** As a function of New Magma Irrigation District's (NMIDD) water needs, RCM will send as much of the primary-treated water to NMIDD via a new pipeline for its beneficial use as irrigation water (after being mixed with CAP water). The planned pipeline will be constructed along RCM's existing right-of-way (ROW) along the MARRCO Rail Road. The MARRCO railroad is an owned subsidiary of RCM, and RCM has been granted rights to use of the ROW for that purpose. Within this ROW are two other pipelines including the Arizona Water Company's pipeline that supplies the domestic water to the Town of Superior, as well as a ROW for cable television. Approximately 9.5 miles of the MARRCO ROW (and hence the pipeline) crosses Tonto National Forest lands; the remainder of the ROW crosses State or private lands or is in fee lands owned by MARRCO. Delivery of this water to NMIDD is an important project because it allows reuse of scarce water supplies for beneficial uses within the state of Arizona.

2. **Secondary Treatment and Discharge to Queen Creek.** The remaining portion of the primary-treated water not sent to NMIDD will then be secondarily treated via reverse osmosis to a water quality suitable for discharge to Queen Creek (near

RCM's water treatment facility in Superior), or for additional blending and delivery to NMIDD.

The locations of the Resolution prospect, the planned pipeline, and land ownership in the project area are shown in Figure 1.

According to United States Forest Service (USFS) Manual 2500, Chapter 2540 – Water Uses and Development (USFS, 2001), the construction of a pipeline across Forest Service lands for transmission of groundwater triggers Forest Service authorization via a special use permit. As indicated in Chapter 2540, a special use permit authorization from the Forest Service requires the proposed "water development" pass two screening steps to evaluate the potential impact of the proposed action on adjacent Forest Service lands or resources, as well as neighboring landowners and water users. The screening and approval process is particularly intended to ensure the protection of USFS streams, springs, seeps, and associated riparian and aquatic ecosystems.

This document presents RCM's response to the screening process described in Chapter 2540 of the USFS Manual 2500, and as such addresses the potential impacts from pumping of the water from the mine workings against both the initial and secondary screening criteria. The remainder of the document is organized as follows:

- Section 2.0 – Initial Evaluation of Potential Impacts from Proposed Action – provides and discusses the information required to address the screening criteria included within Chapter 2540, Section 2541.35, Item 1 – Initial Screening for Well and Pipeline Development.
- Section 3.0 – Second-level Screening of Potential Impacts from Proposed Action – provides and discusses the information required to address the screening criteria included within Chapter 2540, Section 2541.35, Item 2 – Second-Level Screening.
- Section 4.0 – Conclusion – presents RCM's conclusion regarding potential impacts from the planned mine dewatering.

2.0 INITIAL EVALUATION OF POTENTIAL IMPACTS FROM PROPOSED ACTION

This section presents the information necessary to support RCM's plan to dewater the existing Magma Mine working against the initial screening criteria, as presented in the following sections.

2.1 Consistency with Applicable Laws – FSM 2541.35, Item 1(a)

RCM's proposed action is consistent with laws identified as applicable to this action, as shown in Table 1, which specifically identifies applicable laws and policies and provides compliance and consistency information. Further, RCM currently holds patented water rights from the State of Arizona for the appropriation of this groundwater via a current dewatering permit for the Magma Mine workings. Both the extraction area and the

planned delivery are within the Phoenix Active Management Area (AMA). The dewatering permit is listed below:

- Dewatering Permit #59-524492.0002
  - Number 9 Shaft
  - 5,000 acre feet per year

2.2 Potential Impairment of NFS Resources – FSM 2541.35, Item 1(b)

Based on information from previous mining operations, site physical characteristics, historical and current hydrologic monitoring, and hydrologic analysis conducted as part of the Resolution project, RCM can demonstrate that dewatering of the Magma Mine workings will have no significant impact on Tonto National Forest Service lands or resources. This conclusion is based on the following:

- **The proposed dewatering program is fundamentally the same as the previous program conducted by BHP Copper Superior Operations (and previous operators of the mine) through 1996. This historical, long-term dewatering program resulted in no identified impacts to Forest Service lands or resources, or to surrounding landowners or water users.** Initially, RCM will pump approximately 2,750 gallons per minute (gpm) to remove the water stored within the mine workings (a large fraction of the overall water expected to be pumped). Pumping rates will vary due to NMIDD demand, but in general will decrease as the mine workings are dewatered, with a steady pumping rate of 400-600 gpm expected based on BHP Copper Superior Operations' long-term average achieved during operation of the Magma Mine (closed in 1996). Table 2 provides the average annual pumping rate from 1963 through 1997 for the Magma mine for reference. Dewatering of the mine by BHP Copper Superior Operations (and by other historical owners) at these rates and over the decades of the life of the Magma Mine resulted in no identified impacts to Forest Service lands or resources or to surrounding landowners or water users.

- **The deep aquifer targeted for dewatering by RCM is hydraulically disconnected from overlying aquifers that are presently used by other water users and that support local surface water features.** The principal aquifers in the vicinity of the Resolution Project, include: 1) a deep fractured-rock aquifer occurring in mineralized rocks hosting the ore body; 2) the Apache Leap Tuff (ALT) fractured-rock aquifer which extends across the Devils Canyon and upper Queen Creek drainage basins east of the Apache Leap; 3) a basin-fill deposits aquifer which extends west from the Concentrator Fault in the Superior area; and 4) a shallow alluvial aquifer of limited extent that occurs in the Top of the World area. A geologic map of the project area is shown in Figure 2 for reference.

  The hydrogeologic system in which the mine workings are situated essentially consists of the deep aquifer overlain by the ALT aquifer – these two aquifers are separated from each other physically and hydraulically by an aquitard composed of low-permeability geologic units ranging in thickness from several hundred to more than 3000 feet. Groundwater to be pumped from the mine workings is from

the deep aquifer, where recent water level measurements indicate groundwater levels on the order of 2,000 feet below ground surface (bgs) (groundwater elevation of approximately 2,050 feet above mean sea level [amsl]). Water levels measured in the ALT aquifer in the Oak Flat area are up to 1700 feet higher than those measured in the deep aquifer. Depth to groundwater in the ALT aquifer ranges from approximately 300-1,100 feet bgs (groundwater elevations in the range of 3,000-3,800 feet amsl). Surface water features, such as seeps, springs, and intermittent or flowing reaches, are all supported by surficial or the shallowest aquifers, including principally the ALT aquifer and localized alluvial aquifers.

In the nearby communities of Superior and Top of the World (the nearest known groundwater users) all wells are completed in the uppermost aquifers (alluvial or basin fill deposits or upper ALT aquifer), where groundwater levels also lie well above those in the deep aquifer at the Resolution site. At Superior and Top of the World, groundwater occurs at approximate elevations of 2,750 feet and 4,000 to more than 4,400 feet amsl, respectively. To illustrate these hydrogeologic conditions, a hydrograph comparing groundwater levels in the deep aquifer, the ALT aquifer, and the shallow alluvial and basin-fill aquifers is shown in Figure 3. A generalized cross section of the hydrogeology through and adjacent to the project site is shown on Figure 4 (the location of the cross section is shown on Figure 2). Inspection of Figures 3 and 4 clearly shows that groundwater levels in the deep aquifer are distinct from nearby surface water resources and shallower aquifers, indicating that the deep aquifer is a separate hydraulic regime. Groundwater elevation measurements taken at representative monitoring points shown on Figure 3 and 4 are provided in Table 3.

Dewatering of the mine workings by BHP Copper Superior Operations prior to closure of the Magma Mine can be viewed as a very large scale aquifer test run over a very long time frame, with the rebound in water levels seen following cessation of mining being equivalent to the water level recovery that occurs following completion of the pumping period in a standard constant-rate aquifer test. Water level monitoring data, which RCM (or previous owner) has been collecting for 10 years from Shaft 9 and for several years from other locations in both the shallow and deep aquifers, clearly show that water levels in these aquifers behave independently (see hydrograph in Figure 3 and water level measurements in Table 3). Examination of Figure 3 shows that cessation of pumping from Shaft 9 in 1998 resulted in rebound of groundwater levels in the deep aquifer (still continuing today). As is apparent, this rebound of water levels in the deep aquifer and mine workings has not affected water levels in the shallow aquifer at all. If these two aquifers were directly hydraulically connected, similar water level trends as seen in the deep aquifer would be occurring in the shallow aquifer. The lack of correlation between these water level trends (and the very large separation in measured hydraulic head) confirms the lack of hydraulic connection between these two aquifers.

- Basic hydrologic principles indicate that:
    - If the deep and shallow aquifers were hydraulically connected, water level elevations would be similar and both would respond to any hydraulic stress (e.g., pumping or cessation of pumping) similarly – which is not the case at the Resolution Project as demonstrated by Figures 3 and 4.
    - Perennial surface water features occur when connected to an aquifer system – as observed at Resolution where surficial alluvial aquifers and the ALT aquifer support numerous seeps, springs, and localized flowing reaches.
    - Negative impact to surface water flow due to groundwater extraction (e.g., reduction in flow in a seep, spring, or flowing reach) can only occur when groundwater is extracted from the same aquifer feeding the surface water flow – at Resolution, the deep aquifer is hundreds to more than one thousand feet below existing surface water bodies and it is not hydraulically connected to the shallow ALT aquifer that discharges this surface water.

Therefore, given a) no impact from decades of previous dewatering of the same mine workings/deep aquifer (which essentially represents a very large scale aquifer test) in the same manner as planned by RCM, b) groundwater in the deep aquifer occurs at great depth (2,100 plus feet bgs), c) adjacent shallow and deep aquifers are clearly not hydraulically connected, and d) surface water near the mine is supplied by shallow aquifers only, RCM's planned mine dewatering will have no impact on adjacent Forest Service lands and natural resources or on surrounding landowners or water users.

2.3 Consistency with National Policy – Encumbrance of NFS Lands – FSM 2541.35, Item 1(c)

Based on our review of the referenced guidance document and on our planned use of an already existing Forest Service ROW, RCM does not believe this screening criterion is applicable to RCM's proposed construction of a groundwater discharge pipeline along the MARRCO ROW. Because the pipeline will be constructed within an existing MARRCO ROW, which already includes other linear facilities, there will be no additional encumbrance on Forest lands. Construction within the existing ROW also minimizes potential environmental impacts.

2.4 Efficient Design and Operation – FSM 2541.35, Item 1(d)

RCM plans to mostly use already existing mine infrastructure to dewater the mine workings (i.e., Shaft 9, a well adjacent to Shaft 8 on RCM property), thereby providing an efficient means of accessing and removing the mine water. Additionally, besides allowing RCM to continue to evaluate this important economic opportunity for the Superior area, delivery of this water to the NMIDD puts this water to public beneficial use and conserves surface water by reducing NMIDD's reliance on Central Arizona Project (CAP) water or other sources of groundwater for crop irrigation. After extraction

and treatment, RCM will use gravity (i.e., the large head difference between the Superior Plant site and the NMIDD delivery point) to efficiently deliver the groundwater to the NMIDD.

2.5 Social and Economic Analysis – Affected Public – FSM 2541.35, Item 1(e)

RCM submitted a Special Use Permit application to Tonto National Forest (TNF) on May 9, 2008. After evaluating the application, TNF personnel determined that the public should be apprised of the proposal in accordance with the procedures for public scoping defined in the National Environmental Policy Act (NEPA). A scoping letter describing the project and soliciting comments was sent to the list of TNF interested parties. The comment period was open from June 27, 2008 until July 27, 2008. Ten comments were received. The comments were largely favorable and supportive of efforts to provide water for irrigation. None of the comments identified specific concerns with the pipeline.

The planned delivery of water to the NMIDD for use as irrigation water provides a positive socio-economic benefit to the affected communities by:

- Putting the water to a beneficial use (irrigation).
- Conserving surface water sources (i.e., CAP water) by providing an alternate and less costly water source to farmers served by the NMIDD.
- Offsetting effects of housing construction slump by providing jobs for local and regional construction workers for approximately 3 months.
- Making full use of existing land disturbance and infrastructure corridors to minimize any interruptions to recreation on National Forest lands.

RCM would like to note that the affected farmers are anxious to receive this water because they are already short of water for 2008. Over the past several years, many acres of farmland have been converted to housing developments. Because of the current housing crisis, some developers are returning planned projects back to farmland, increasing the demand for water. Additionally, the farmers are working closely with RCM to find ways to use more water during the winter months, which will shorten the time to initially dewater the mine and also increase the proportion of water removed from the mine used for irrigation.

As indicated previously, decades of historical dewatering at similar rates at the same locations as planned by RCM did not produce identifiable impacts. Given that this planned project provides beneficial use of the extracted water at a time of increasingly scarce water sources, the overall dewatering project results in a net positive socio-economic benefit to the affected public.

3.0 SECOND-LEVEL SCREENING OF POTENTIAL IMPACTS FROM PROPOSED ACTION

3.1 Alternative Water Source Review – FSM 2541.35, Item 2 (a)

RCM does not believe this criterion applies to our planned dewatering project. From review of the guidance, this criterion appears to apply to new groundwater development projects via construction of new production wells drilled on USFS lands. To continue to evaluate the Resolution prospect, RCM must extract the water from existing mine workings, for which RCM has an existing dewatering permit. Given the above, there is no alternative to extracting the water from the existing mine workings, and a review of alternative water sources is not applicable or appropriate.

3.2 Quantity, Purpose, and Point of Use – FSM 2541.35, Item 2(b)

As described previously, RCM plans to extract water from existing mine workings from Shaft 9 and from a well drilled directly adjacent to Shaft 8 (on RCM lands). This water will then be delivered to the NMIDD for irrigation purposes and/or, depending upon demand requirements, treated secondarily and discharged to Queen Creek. As described in Section 2.2., RCM will pump approximately 2,750 gallons per minute (gpm) to remove the water stored within the mine workings (a large fraction of the overall water expected to be pumped). Pumping rates will vary due to NMIDD demand, but in general will decrease as the mine workings are dewatered, with a steady pumping rate of 400-600 gpm expected based on BHP Copper Superior Operations long-term average achieved during operation of the Magma Mine (closed in 1996). Further, RCM already has a dewatering permit from the State of Arizona for dewatering of these mine workings (dewatering permit #59-524492.0002) and both the withdrawal and delivery are within the Phoenix AMA.

3.3 Drilling Activity – Effect on NFS Resources – FSM 2541.35, Item 2(c)

Similar to Section 3.2, this criterion is not directly applicable to the planned operation. The groundwater pumped for mine dewatering will principally be drawn from Shaft 9 (already existing feature). The planned well directly adjacent to Shaft 8 will be drilled on RCM property, including road access, drill pad, etc. This well will be targeting existing mine workings (Shaft 8 access is blocked, hence the need for a well nearby) in the deep aquifer, which is hydraulically disconnected from other water resources in the area.

3.4 Facilities Required – FSM 2541.35, Item 2(d)

RCM's planned mine dewatering will require three vertical turbine pumps; two temporarily installed in the skip compartments of Shaft 9 and a single pump permanently installed in a well drilled adjacent to Shaft 8 at the West Plant site. Pumping from two locations is consistent with previous dewatering and mining operations. Figure 1 shows the locations of all facilities associated with the planned mine dewatering.

Once extracted, the mine water will be piped through the Never Sweat Tunnel (on private lands) to the existing water process facility (WPF) for treatment. The water will be treated via a high density sludge (HDS) system, where lime is added to raise the pH and to remove heavy metals. Soda ash will be added to partially soften the water (remove calcium) to preclude scaling of the discharge pipeline to NMIDD. Treatment solids will be pumped to either the North or South solids storage impoundments (SSI's). Drain water from the SSI's will be pumped back to the HDS system for treatment. As indicated previously, treated water from the HDS system will be either sent directly to NMIDD via pipeline or to a reverse osmosis plant for secondary treatment (and discharge to Queen Creek or additional blending and delivery to NMIDD).

Delivery of the water to NMIDD will require construction of a pipeline from the mine to the NMIDD canal approximately 24 miles west of Superior in the Phoenix valley. The pipeline consists of 18" diameter HDPE that will operate via gravity flow (i.e., no pumping stations required), taking advantage of the large elevation change between the WPF and the NMIDD canal. Maximum flow through the line has been estimated at 3,300 gpm (RCM's planned pumping rate is approximately 2,750 gpm). As discussed and shown in Figure 1, the pipeline follows the MARRCO rail ROW corridor, the most direct and unencumbered route to the NMIDD canal. The MARRCO ROW crosses private lands (13 miles), state land (1.5 miles) and US Forest Service land (9.5 miles). The pipeline will be located completely within the ROW boundary and installed using several construction techniques described in the Special Use Permit application. Washes will be spanned using steel pipe. Two highway crossings – US 60 and SR 79 – have been completed with casing and pipe installation according to ADOT standards and specifications.

3.5 Potential Impacts to Forest Service Resources, Neighboring Water Users – FSM 2541.35, Item 2(e)

As demonstrated in Section 2.2, RCM's planned dewatering is expected to have no impact to nearby Forest Service resources and neighboring water supplies. Additionally, the infrastructure required for this project will be built on existing RCM land or along RCM right of ways (i.e., the MARRCO ROW). Given no impact to these resources or water users, RCM does not believe that this criterion is strictly applicable. However, to provide the USFS with documentation consistent with this guidance, RCM has provided the requested information, where applicable.

Location and characteristics of potentially affected surface and groundwater resources. As indicated previously, the planned mine dewatering is similar to historical mine dewatering efforts where no impacts were identified. Further, the deep aquifer has been demonstrated via monitoring data to be hydraulically disconnected from the overlying shallow aquifers (which recharge any nearby surface water). Therefore, there are no potential surface water or groundwater resources that would be affected by RCM's planned mine dewatering from Shaft 9.

Surface Water. As part of environmental baseline work for the Resolution Project, RCM has monitored and characterized the occurrence of surface water near the Resolution prospect since 2002. This work included numerous seep and spring surveys, coupled surface water and groundwater sampling and analysis, and long-term monitoring of principal surface water bodies in the project area. Results from this work shows that the major surface water drainages near the proposed action include Devils Canyon and Queen Creek, and that surface water occurs mainly as ephemeral streams or as runoff captured and stored in numerous stock water ponds in the mine area. A relatively small reach (approximately 1.0 mile long) of perennial flow has been documented within Devils Canyon, and seeps and springs have been identified and characterized in Devils Canyon (principally) and in Queen Creek drainages. As expected, these surface water features reflect the interaction between areal precipitation, recharge to and discharge from shallow groundwater systems (i.e., the ALT for the perennial section in Devils Canyon), and the interaction of these systems with ground surface topography. Near the Resolution prospect, the identified seeps, springs, and perennial flow section of Devils Canyon occur at elevation ranges of 2,620 to 3,585 feet amsl, hundreds to more than a thousand feet above the groundwater surface in the deep aquifer. Figure 5 depicts the surface water features identified and periodically monitored by RCM near the mine area, and Table 4 summarizes the characteristics of these surface water features.

The surface water features identified by RCM and shown in the table and figure are based on a total of 11 surface water inventories and 10 sampling events. Prior to performing these surface water inventories, several sources of information were reviewed, including 1:24,000 7.5 minute USGS topographic maps, the Arizona State Groundwater Site Inventory (GWSI) database, aerial photography (1:2,000 from Cooper Aerial), and IKONUS satellite imagery. The surface water features presented herein are primarily perennial features with an abbreviated subset of intermittent features considered important because they were flowing during the majority of observations. The surface water inventories and sampling events were primarily performed between November 2002 and September 2005 with one surface water inventory being performed in the upper reaches of Devils Canyon (upstream of the US60 bridge) during June 2007.

The geographic scope of the areas investigated included:

- Devils Canyon – Headwaters down to the ASARCO Ray Mine
- Ranch Rio Creek – From Forest Service Road 315 to confluence with Devils Canyon
- Hackberry Creek – From Forest Service Road 315 to confluence with Hackberry Creek
- Queen Creek – Pump Station Spring (near headwaters) down to Whitlow Ranch Flood Retention Basin
- Apache Leap Escarpment – Bored, Hidden, and Kane
- Arnett Creek – Blue Springs down to confluence with Queen Creek
- Telegraph Canyon – Trough Springs down to confluence with Arnett Creek.

The criteria used to categorize the features were:

- **Seep** was defined as a moist or wet location without discernable surface flow.
- **Spring** was defined as a location with discernable surface flow emanating from a localized area.
- **Flowing Reach** was defined as a section of drainage bottom that has surface flow.

Feature nomenclature was based on stream stationing (i.e., distance upstream of designated point) if a common name was not associated with the feature. Drainages with stationing included: Devils Canyon, Rancho Rio, Queen Creek, Arnett Creek, and Telegraph Canyon. Devils Canyon stationing was measured in kilometers above the confluence with Mineral Creek. Stationing along Queen Creek was measured in kilometers upstream of Whitlow Dam. Arnett, Telegraph, and Rancho Rio were measured in kilometers upstream of their confluence with a major named drainage (i.e., Queen Creek, Arnett Creek, and Devils Canyon, respectively).

Well Inventory. RCM has also conducted an inventory of existing wells in the surrounding area, has installed or established numerous groundwater monitoring points and/or wells near the project site, and has drilled many geologic borings at and near the Resolution prospect. From these data, RCM has identified the principal groundwater aquifers and nearby well owners and water users. The groundwater aquifers near the site were previously described in Section 2.2 and depicted in Figure 4. Table 5 provides an inventory of wells in the vicinity of the mine site compiled from the Arizona Department of Water Resources 55-series well registry. Locations for the wells are depicted in Figure 2.

As shown in Figure 2 and listed in Table 5, numerous groundwater wells are found near the project area. A total of 500 registered wells are located in the study area shown on Figure 2. Based on reported water use given in Table 5, about 220 of the registered wells are reported to be used for domestic, stock, irrigation, industrial, or commercial water supply, or other uses not specified in the registry. The remaining wells are either used for mining operations (drainage, dewatering), for groundwater monitoring, or are not presently used (mineral exploration boreholes, geotechnical boreholes, or abandoned or capped wells).

Most of the wells used for water supply are located in the Superior area or in the Top of the World area. Water supply wells located in the Superior area are completed in the basin-fill deposits aquifer west of the Concentrator Fault, and reported well depths are generally less than 500 feet. Water supply wells located in the Top of the World area are completed either in the shallow alluvial aquifer, or in the upper part of the ALT aquifer, and reported depths are generally less than 500 feet deep. Groundwater elevations measured in wells in the Superior and Top of the World areas versus those found in the deep aquifer indicate that these groundwater systems are not hydraulically connected (see Figures 3 and 4 and Table 3).

Pertinent Social Information. The following is information related to social impacts related to the RCM's dewatering project:

- A scoping letter was sent to interested and potentially affected parties in order to solicit comments regarding the project. Ten comments were received. Of these, four support the project, three have no comments at this time, and three express concerns related to a potential future mine proposal. No comments were received with concerns about the pipeline project.
- As discussed in this document, well owners and water users in the area are associated with the shallow aquifer and alluvial systems and would not be affected by the dewatering.
- Farmers affiliated with NMIDD will receive water for irrigation of economic crops. Some short-term construction jobs will be created.
- The project plans represent Resolution's commitment to find sustainable solutions and work directly and earnestly with stakeholders.

Riparian Vegetation. Vegetation associated with the pipeline alignment is discussed in the Biological Assessment and Evaluation (BAE) submitted to and accepted by TNF biologist Mark Taylor (*Federal Lands Biological Assessment and Evaluation: Resolution Copper Mining Water Pipeline Project*, as amended, WestLand Resources Inc., June 23, 2008). The placement of the pipeline generally occurs within previously disturbed areas or within the Sonoran desertscrub community type.

Riparian vegetation in the vicinity of Shaft 9 and the proposed dewatering program occurs along small ephemeral washes, stock ponds, and major drainages such as Queen Creek and Devils Canyon. This vegetation includes a continuum of vegetation assemblages ranging from moderately more robust expressions of desert vegetation along ephemeral drainages supported by precipitation, to well-established complex riparian overstory supported by perennial or intermittent water sources from shallow aquifer or alluvial systems. Areas of notable, well-developed riparian vegetation are shown on Figure 6 and described in detail below. From the work RCM has done to understand the riparian vegetation near the Resolution Project (described below), it is clear that the riparian vegetation characteristics and location reflect their interaction with surface water and shallow groundwater (surficial alluvium, ALT aquifer) and have no relation to groundwater found in the deep aquifer, indicating the planned mine dewatering will have no impact on this vegetation.

Extensive biological surveys have been conducted by RCM for the Queen Creek and Devils Canyon basins in the Superior area starting in 2002. Based on a combination of hydrologic and biological observations during this period, Queen Creek and Devils Canyon were subdivided into 11 and five distinctive segments, respectively, as shown in Figure 6. In addition, six reservoirs were identified in the Oak Flat area that have captured alluvium and function (or have functioned) to capture and retain water. Each of the channel segments and reservoirs are described below:

Queen Creek Segment 1. This segment of Queen Creek is south-facing, does not include alluvial basins, and is dry for most of the year. Ash (*Fraxinus velutina*) and sycamores (*Platanus wrightii*) occur widely spaced within this channel.

Queen Creek Segment 2. This segment is watered by drainages originating near Shaft 9 and Oak Flat Campground (including Reservoirs 1-4). In addition, the volume of road bed fill material that occurs along segment 2 functions to store and discharge water. Based on historical photography, some walnuts (*Juglans major*) and ash were present before the highway construction in the late 1940s. Other walnuts and ash have established since highway construction.

Queen Creek Segment 3. Compared to segments 1 and 2, this segment has a denser arrangement of riparian trees, including walnuts, sycamores, ash, and net-leaf hackberry (*Celtis reticulata*). Understory shrubs of serviceberry (*Amelanchier* sp.) and native chokecherry (*Prunus serotina*) are fairly common. This segment lies in shadows for most of the year and has perched subsurface springs on the south side. Though vegetation indicates near surface water along these slopes, none has been observed during surface water inventories conducted by RCM. At least five large old big-tooth maples (*Acer grandidentatum*), very large sycamores and walnuts, thickets of wild raspberries (*Rubrus* sp.), and Arizona grape (*Vitis arizonica*) occur on the south side of the channel, two to seven meters above the channel thalweg. Several mature cottonwoods (*Populus fremontii*) in this segment died in the last five years; these likely succumbed to the recent drought. Roadbed fill material in segment 3 as in segments 2 through 6 appears to play a role in storage and discharge of water during and following precipitation events.

Queen Creek Segment 4. There are patches of ash, large gray oaks (*Quercus grisea*), a few sycamores, a few walnuts, and several large live cottonwoods along this segment. A large tributary enters this channel segment from the north (headwaters are at Kings Crown Peak). When water flows in this tributary, much of the surface flow goes subsurface into the highway US60 roadbed fill material. The density of mature trees in the tributary area of segment 4 is likely due to extended duration of drainage from the roadbed. The riparian trees at the tributary burned during the highway construction in the 1940s. Their blackened trunks were evident in photographs taken of the highway construction. Most of the trees today have established since 1948. .

Queen Creek Segment 5. This channel segment supports only a few net-leaf hackberries and small ash trees along the base of the south cliffs and road bed. Desert broom (*Baccharis sarothroides*) is common and conspicuous along the roadbed slopes up to the road. Desert broom and wait-a-minute (*Mimosa biuncifera*) are common on most of the upper, drier, south-facing roadbed along most of the highway between segments 2 and 5. Segment 5 was blasted into bedrock and functions as a culvert until it passes through a narrow natural bedrock slot on its downstream end. A large concrete retention dam occurs at the

bedrock slot. Several concrete retaining walls at the base of the road bed protect the base from scouring during floods. Segment 5, more than any other segment, is a constructed channel.

Queen Creek Segment 6. Just below the rock slot of segment 5 are two large Goodding's willows (*Salix gooddingii*) and a sycamore. These trees were mature in photographs taken in the 1940s. About 20 large sycamores occur in the steepest portion of segment 6, withstanding impacts by boulders and debris during high floods. Ashes and net-leaf hackberry occur scattered along this channel in the more protected portions of the channel, either along the edge or downstream of immense boulders. There is a flood terrace on the east side of the channel, downstream of the bend in the canyon. This flood terrace supports mesquite (*Prosopis velutina*) and cat-claw (*Acacia greggii*). The two clonal tree species, soapberry (*Sapindus saponaria*) and net-leaf hackberry, occur in a large colony along the southeast side of the channel SSE of the east opening of the old highway tunnel. Sycamores and ash occur in the channel along the lower half of the segment. At the lower end of segment 6, the channel narrows as it approaches a second bedrock slot. Several tall ash and willows occur just upstream from the slot. There are no water pools in segment 6 (or in any of the segments 1-5). Trees do not appear to be affected by the recent drought. Between 1948 and 1952, the construction of the current road bed, the removal of a 40-ft backcut along the highway, and excavation for the placement of two immense steel culverts beneath the highway resulted in a large volume of blasted and bulldozed rock material into the stream channel.

Queen Creek Segment 7. At the upper end of segment 7 as it exits the bedrock slot, there is a spring labeled in spray paint "Eddie Apodaca." Another pool exists in the channel between Apodaca Spring and the Superior water tank (labeled Boulder Hole on Figure 5). Immense sycamores occur from Apodaca Spring to the downstream end of segment 7. Each of these immense sycamores is well over 100 years old. Photographs of these trees taken over 50 years ago show the same immense trees, and where possible to discern, in their same positions. In the upper third of this segment are about twenty big willows, including Goodding's willow and a second large species. Trees in this segment do not show obvious die-back from the drought in the last decade. There is at least one stand of recently recruited small (15 to 25 feet tall) sycamores near the new span highway bridge. Photographs taken in the 1940s and earlier indicate that the mesquite today, abundant and mature along the "flood terrace" on the north side of the channel (at about the same level above the channel as the Superior water tank), established after 1950.

Queen Creek Segment 8. Near the upper end of segment 8 are several large cottonwoods, sycamores, ash, and a huge Goodding's willow (which recently died). A spring flowed into the channel out of the limestone bedrock in 2007; this spring has not been observed since. Along most of segment 8 are only a few scattered modest-size ash and net-leaf hackberry trees. A large road bed was

constructed over the side canyon to the southeast of the road. Near the culvert that discharges water from the side canyon are about 20 mature walnuts, ash, and sycamores. There are also young trees establishing in this portion of the channel and on the lower edge of the road bed. The cluster of channel trees is not evident in photographs from the 1940s; these have likely established and are maintained by water discharged by the road bed over the side canyon to the south.

Queen Creek Segment 9. This segment has scattered ash trees in the channel, with mesquite and catclaw along the banks. Although runoff from lots and roads and subsurface sources from septic fields are likely to augment flow in this segment, cottonwoods and willows are scarce or largely absent from this segment.

Queen Creek Segment 10. This segment supports only scattered medium sized ash trees and a few cottonwoods. The channel flows across a deep alluvial basin. It is likely that the water is too far below the surface except for mesquite and catclaw which grow on the flood terraces along this segment.

Queen Creek Segment 11. This segment has Tertiary conglomerate exposed in the channel bed. Water surfaces/flows for at least a portion of the year. Superior sewage treatment plant and the perlite mine discharge water in segment 11. Cottonwoods and ash occur in dense stands usually just downstream of small alluvial basins and upstream from where conglomerate surfaces. The tree stands include old trees, young adults, and saplings.

Devils Canyon Segment 1. This segment includes large sycamores and ash, with Emory oaks (*Quercus emoryi*) and gray oaks in and along the channel side. The current and the old (abandoned) highway roadbeds appear to augment storage and discharge of water along the channel. There are a number of Emory oaks that have established since 1950 in the broken pavement of the abandoned highway. Recruitment of oaks and ash is on-going along the channel.

Devils Canyon Segment 2. This very open segment has only scattered sycamores and ash and very few Emory oaks. There are several pools of water in exposed bedrock along this channel. Many of the trees show obvious die-back from the drought this decade.

Devils Canyon Segment 3. There is an alluvial basin at the beginning of this segment which supports massive sycamores and a number of ash. Gray oaks occur on the original surface of the alluvium, 3 to 10 feet above the channel.

Devils Canyon Segment 4. Large sycamores and ash occur widely scattered along this segment. Pooling water is present during the rainy seasons. Scattered shrubs of buttonbush (*Cephalanthus occidentalis*) occur along the edge of these pools. In side channels prone to flash floods are sprawling *Forestiera* shrubs. Die-back during the recent drought is evident in the sycamores, ash, and buttonbush.

Devils Canyon Segment 5. Perennial channel surface flow begins at the start of Segment 5 and continues for slightly more than a mile to just below the confluence with Oak Canyon. The perennial flow supports a gallery forest with a closed canopy of (in decreasing order of abundance) alders (*Alnus oblongifolia*), ash, sycamores, and walnuts. Hundreds of alders, a few ash and a few sycamores died during the drought in the last decade within Segment 5. Preliminary analysis of tree cores suggests discrete spatial groups of alders were stressed during the drought; other groups of alders, particularly those near springs, were unaffected. Largest alders are 50 to 60 years old in this segment. Based on our data on trunk circumferences and core samples of 40 trees, all younger age groups are well-represented in this population. Where patches of alders died during the drought, resulting in strong light levels on the canyon floor, patches of alders 10 to 15 feet tall have established from seed within the last five years. Large sycamores do occur in the flood channel but are more commonly found on slopes, tens of feet above the channel. These higher sycamores occur at springs. Some recent recruitment of sycamores (since 2003) has occurred and a few "adolescent" sycamores (< 50 yrs old) exist. The large sycamores are likely > 100 yrs old. All age groups of ash were found in Segment 5. Mature gray oaks (*Quercus grisea*) line almost without interruption both sides of the gallery forest. The oaks, with few exceptions, occur just outside of the highest flood levels. Examples of these oaks with large exposed roots extending 5 meters or more downwards were seen and suggest how and why they occur outside of the gallery forest. Few oaks were seen dead, but large branches still on the trees are broken and dead. The presence of dead leaves on the branches last year suggests the branches collapsed during the heavy snowstorm in April 2006.

Reservoir 1. This reservoir was created by the Civilian Conservation Corps (CCC) in the late 1930s. It is a rock and mortar dam on the west side of the current reservoir. Currently the dam is almost completely backfilled by sand which has accumulated since the dam's construction. The reservoir holds water for months after wet winter storms and can hold water for weeks after summer storms. Near the dam, the reservoir has several large cottonwood trees which have died back or died completely during the drought in the last decade. There are a large number of Goodding's willows that grow in areas of the reservoir that are frequently inundated by one to several feet of water. Most of the willows died back and some died completely during the drought in the last decade. Emory oaks, although not regarded usually as a riparian tree, have attained a remarkably large size (about 60 ft height and trunks about 3 to.5 feet in diameter) where they grow in the deeper sandy soil behind the reservoir in the Oak Flat campground. The area along the channel upstream from Reservoir 1 (and within the campground) has at least four retention dams that impound sand behind them. Either where Emory Oaks are growing in the sand in the impounded areas or where they are growing on adjacent bedrock but have their roots in the impounded sand, the oaks have achieved a comparatively large size compared to nearby oaks with roots restricted to the soils in bedrock fractures.

Reservoir 2. This former reservoir was created as a result of a road berm constructed across the channel. It had accumulated sediments behind it for probably several decades. The height of the old culvert was about one meter above the original channel; this height above channel had impounded the sediments behind the culvert. A new culvert was installed during the last ten years at a lower level than the old culvert; channel back-cutting is currently removing the accumulated sediments and the area behind this road berm no longer functions as a seasonal reservoir. A few large cottonwoods grow within a hundred feet downstream from the road berm and established when the reservoir functioned in retaining sediment and water.

Reservoir 3. This reservoir was formed starting in the 1930s when the CCC constructed a rock and mortar dam. This reservoir, like Reservoir 1, has become largely impounded by sandy soil and has shallow standing water after heavy rains. Goodding's willow thickets grow near the dam. Along the edge of the reservoir are large Emory oaks. Young (< 50 yr) Emory oak trees are common in the upstream area of the reservoir. The area behind this reservoir is not used by campers and has a dense understory of native chokecherry, holly-leaf buckthorn (*Rhamnus crocea*), and serviceberry.

Reservoir 4. This reservoir has two earthen berms on the north end of the reservoir. There are several large Goodding's willows growing on or near the berms and a few smaller willows along the shoreline. This reservoir is, as far as we know, perennial. It is not lined by trees and shrubs like Reservoirs 1 and 3. Instead, it has an open aspect with Bermuda grass (*Cynodon dactylon*) and sedges growing along the water's edge. Emory oaks do not grow in the accumulated sediment. Chaparral species such as scrub oak (*Quercus turbinella*), silk tassel (*Garrya wrightii*), and *Berberis trifoliolata* achieve a much larger size growing on the sediment of this reservoir compared to their size in most of the adjacent canyons and uplands.

Reservoir 5. This reservoir was built in Rancho Rio Canyon as an earthen stock tank within a natural alluvial basin. There are no willows, cottonwoods, sycamores or other typically riparian species within the reservoir or on the berm. A portion of this reservoir's earthen berm blew out perhaps 10 to 20 years ago during a storm and this reservoir no longer holds water after a storm. There are several very large Emory oaks near the berm. Their establishment 100 to 150 years ago predated the berm and suggests that this basin included more large Emory oaks before the dam was constructed. Downstream for several hundred meters are perennial pools of water in bedrock. The water flowing into these pools is likely supplied by the storage capacity of this alluvial basin (with or without the presence of the reservoir).

Reservoir 6. Like Reservoir 5, the reservoir in Hackberry Canyon was constructed as an earthen stock tank within a natural alluvial basin. There are no willows, cottonwoods or sycamores upstream of the dam but within a few

hundred meters downstream of the dam are mature trees of each of these species. In 2007, a section of this dam blew out during a flood. As of August 2008, it is still holding water within the center of the reservoir.

State or Federal Threatened or Endangered Species, or Sensitive Species. A thorough vetting of potential impacts to special-status species as a result of the pipeline installation was presented in the BAE. The BAE concluded that the pipeline would have no effect on any federally-listed threatened or endangered species. The pipeline may affect the individual gila monster, Maricopa leaf-nosed snake, and/or the Sonoran desert tortoise (all TNF Sensitive), but will not result in a trend toward listing.

A formal BAE has not been prepared for the Shaft 9 area or its surrounds, though extensive baseline studies and targeted surveys for flora and fauna have been conducted in the areas around Oak Flat, Devils Canyon, and Queen Creek for several years. One federal-listed threatened or endangered species, Arizona hedgehog cactus (*Echinocereus triglochidiatus arizonicus:*ESA-listed endangered), is known to occur. This species is generally found at mid-elevations (3000 ft to 5000 ft) on rock outcrops associated with granite and dacite (e.g., ALT) formations and will not be affected by the pipeline project or the dewatering. The dewatering is not expected to affect any floral or faunal resources, and specifically will not affect special-status species.

Pertinent Geologic Information. A large amount of geologic mapping and data have been compiled and collected by RCM for the mine site from a variety of sources, including from the U.S. Geological Survey, the Arizona Geological Survey, and from RCM exploration drilling. The generalized geologic map of the study area shown on Figure 2 was developed based on the 30 x 60-minute geologic map compiled by Spencer (1998).

Principal geologic units east of the Concentrator Fault consist of older and younger Precambrian rocks comprising schist, diabase, quartzite, basalt, and limestone (Apache Group), overlain by Paleozoic sedimentary rocks, Cretaceous to Tertiary intrusive rocks, Tertiary Whitetail Conglomerate, older Tertiary volcanic rocks, Tertiary Apache Leap dacite tuff, and Tertiary to Quaternary basin-fill deposits including local basalt and Quaternary alluvial deposits. Deposits west of the Concentrator Fault are Tertiary to Quaternary basin-fill deposits and alluvial deposits consisting of moderately to well consolidated conglomerates. These conglomerates are reportedly interbedded with fine-grained silts and sands, lava flows, volcanic ash, and mudstone.

Tertiary units comprising from oldest to youngest the Whitetail Conglomerate and the Apache Leap Tuff are of particular hydrogeologic importance in the project area. The Whitetail Conglomerate is described as a detritus of angular to sub-angular fragments derived from older rocks laid in low-lying depressions and stream channels. Rock fragments are commonly pebble to bolder size, and are generally matrix-supported. The rock matrix varies between coarse-grained to fine grained and is moderately to well-cemented. Bedding in the Whitetail Conglomerate is generally poorly defined except in the upper part of the unit, where fine-grained mudstones have been encountered at

numerous exploration boreholes in the area. The Whitetail Conglomerate is locally interbedded with volcanic lavas and waterlaid tuff. The Apache Leap Tuff is mid-Miocene and is generally described as a zoned, dacitic ash flow sheet (Peterson, 1969). The unit unconformably overlies the Whitetail Conglomerate, older Tertiary rhyolitic lava flow rocks, Paleozoic, or Precambrian rocks. East of Superior, the maximum exposed thickness of the tuff is approximately 2,000 feet. Average thickness may be on the order of 1500 feet. The Whitetail Conglomerate and other units underlying the Apache Leap Tuff act as aquitards, slowing vertical downward movement of groundwater and thereby creating and maintaining the ALT perched aquifer system described in Section 2.2 and depicted in Figure 4.

Beneath the Whitetail Conglomerate is a complex assemblage of volcaniclastic rocks, quartzites, carbonates (including skarn), and diabase. These units are faulted, highly altered, contain the primary copper-bearing zone, and host the so-called "deep aquifer" described previously in this document and as shown on Figure 4.

Peterson (1969) identified the north-trending Concentrator Fault system, which extends about 10 miles along the base of Apache Leap escarpment and east from Superior. Basin-and-Range faulting is concluded to have reactivated older faulting along the Concentrator Fault system and produced several en-echelon faults with offsets ranging up to several thousand feet (Wilson, 1962). Comparison of groundwater elevation measurements east of the Concentrator Fault (i.e., in the Shaft 9 area) to those west of this fault (i.e., in Superior) indicate that the Concentrator Fault is acting as a barrier to horizontal groundwater flow across the fault plane (see Figure 4), effectively preventing hydraulic connection between aquifers to either side of the fault. Other faults in the area (e.g., the Conley Springs Fault to the north, Devils Canyon Fault to the east) likely also act, to some degree, as barriers to groundwater flow.

Available information in the mine site area regarding aquifer hydraulic properties such as hydraulic conductivity (K) and storativity (S) indicates that the aquifers (ALT, deep aquifer) exhibit relatively low hydraulic conductivity and low storativity, consistent with fractured rock aquifers. Values of hydraulic conductivity and storativity of these units have been estimated from in-situ aquifer testing (e.g., borehole packer tests, downhole airlift tests, etc.) or long-term aquifer testing, and are as follows:

- ALT aquifer (from long-term aquifer testing):
  - K – 0.09 to 0.43 ft/day, averaging 0.29 ft/day
  - S – 0.0001 to 0.0009 (dimensionless)
- Whitetail Conglomerate (and other units) aquitard (from packer testing):
  - K – 0.000022 to 0.082 ft/day, averaging (geometric mean) 0.0003 ft/day
  - S – unavailable
- Deep aquifer (from packer testing, short-term aquifer testing):
  - K – 0.0000018 to 178 feet per day (ft/day), averaging (geometric mean) 0.0006 ft/day
  - S – estimated at 0.0001 to 0.0003 (dimensionless)

Comparison of the above indicates the hydraulic conductivity of the Whitetail Conglomerate and other units underlying the Apache Leap Tuff averages nearly four orders of magnitude lower than the average hydraulic conductivity of the ALT aquifer. This large hydraulic conductivity difference and the overall very low K of these units is responsible for the hydraulic disconnect observed between the overlying ALT aquifer and the underlying deep aquifer.

Pertinent Hydrologic Information. Section 2.2 presents details regarding the occurrence of groundwater (depth to water, groundwater elevations) in the principal aquifers (basin-fill deposits aquifer, ALT aquifer, deep aquifer) near the Resolution Project. Refer to this information (Figures 3 and 4, Table 3) regarding water table elevations. Additional information regarding the groundwater systems near Resolution are presented in the following paragraphs.

Apache Leap Tuff Aquifer. The ALT aquifer occurs in the Apache Leap Tuff and has been characterized by RCM through installation of monitoring wells (HRES-01 to HRES-08). These wells have been periodically monitored for groundwater elevation and water quality. Groundwater in ALT at the proposed mine site originates from areal recharge from precipitation, lateral inflow (primarily from the north), and flow from portions of Devils Canyon and Queen Creek. Discharge from the shallow aquifer occurs through potential leakage to the underlying deep aquifer, direct discharge to Devils Canyon (as surface water flow that supports the identified perennial reach), seeps and springs, and lateral groundwater flow away (south to southwest) from the mine area. Groundwater flow within the ALT aquifer is primarily fracture controlled. As indicated previously, vertical flow of groundwater is impeded by the Whitetail Conglomerate and other units, perching groundwater within the ALT.

Groundwater elevations in the ALT respond to seasonal and longer-term variations in precipitation, but generally have not varied significantly (few feet) since RCM began monitoring in 2003. Measured vertical hydraulic gradients within the ALT aquifer are generally downward, indicating downward flow of groundwater within the ALT. Comparison of the elevations of springs and perennial surface water flow in Devils Canyon in relation to groundwater elevations in the ALT aquifer indicates that these surface water bodies represent discharge points for the Apache Leap Tuff aquifer, not the deep aquifer.

Groundwater sampling indicates the quality of water in the ALT is good, with total dissolved solids typically below 300 milligrams per liter (mg/l). Of the analyzed constituents, none had exceeded their respective state or federal water quality standards. The groundwater is typically a sodium-bicarbonate or magnesium-calcium-bicarbonate type. Deuterium and oxygen isotopic analyses of groundwater samples are consistent with the meteoric water line, indicating the groundwater is derived from local precipitation with little evaporation. Seeps, springs, and the perennial reach in Devils Canyon show similar water quality and isotopic characteristics, further corroborating that they are being fed by discharge from the ALT aquifer.

Deep Aquifer. At the Resolution prospect, a deep aquifer system occurs in the deeper portion of the Whitetail Conglomerate and underlying Tertiary, Mesozoic, Paleozoic, and Precambrian rocks. Mine operations have required groundwater dewatering of this aquifer since the early 1900s. The purpose of the dewatering operations was to remove and then discharge groundwater entering the mine through seeps, cracks, and infiltration. The flow of groundwater into the mine is relatively low, with flow rates between 387 to 1,037 gpm (based on BHP Copper long-term pumping records) required to dewater the mine workings over an area of approximately 1.2 square miles.

Information regarding the groundwater system prior to mine development is largely anecdotal, with limited specific data available. Mine investigations and regional geologic studies have indicated that groundwater flow in the fractured rock aquifer is affected by the presence of numerous faults (e.g., the Concentrator and Conley Spring faults) that appear to form barriers to flow (perpendicular to strike) and may create preferential flow pathways (i.e., along the strike of the fault). Mine workings in the deep aquifer have increased the overall storage capability and hydraulic interconnection of the bedrock geologic units east of the fault. As described previously, dewatering operations have created a depression in the groundwater system. Since turning off the dewatering pumps in 1998, the aquifer has been in a transient recovery condition due to more than 90 years of mine dewatering operations. Under steady-state conditions, the bedrock units intersected by the mine workings are believed to be recharged from regional groundwater flow to the north and east, and infiltration from precipitation. Precipitation that falls on the Apache Leap Tuff infiltrates through a series of fractures and joints eventually intersecting vitrified layers, generally near the base of the tuff, resulting in perched aquifer systems within the tuff. A small portion of this perched water undoubtedly enters into the underground workings via fractures, as evidenced by the variations in dewatering volumes that correlate to precipitation events. Based on available information the regional groundwater flow direction appears to be from north to south along the Concentrator/Main Fault block, originating from recharge areas to the north and northeast of the mine.

Groundwater elevations in the deep aquifer are still responding to the end of dewatering activities in 1998 (see water levels shown for Shaft 9 in Figure 3). No seasonal or other longer-term hydraulic affects are apparent from the available groundwater elevation data. However, based on available historical pumping and rainfall data, the mine dewatering rate did correlate somewhat with large precipitation events, indicating that the deep aquifer was influenced to some degree by direct precipitation. The principal hydraulic stress in the deep aquifer is the recovery in water levels due to cessation of mine dewatering in 1998; this stress likely masks any seasonal or other long-term effect on groundwater elevations in the deep aquifer.

The water in the deeper aquifer is more mineralized than in the ALT aquifer, but is generally of relatively good quality. Limited groundwater sample results indicate the water in the deep aquifer (outside of the mine workings) is generally of relatively low TDS (less than 900 mg/l) and is of sodium-bicarbonate type. Due to interactions with mineralized rock previously exposed to oxidation, the water in the mine workings is of

lesser quality, with TDS of approximately 5,000-6,000 mg/l, and it is a calcium/magnesium-sulfate type water. Because of this water quality, the water extracted from the mine workings will be treated and delivered or treated and discharged as described in Section 1.0. Over the long-term, the quality of the water extracted from the mine workings will likely approach that seen at nearby monitoring locations in the deep aquifer.

4.0 CONCLUSION

As detailed above in addressing the screening process required by FSM 2540, RCM concludes that the planned pipeline construction and operation will have no impact to USFS surface water resources and lands and no impacts on neighboring landowners and water users. Further, RCM put considerable thought and planning into developing this pipeline proposal, which effectively:

- Minimizes any new surface disturbance by using an existing ROW owned by RCM .
- Avoids impacts to cultural, biological, and USFS resources.
- Essentially returns pumping activities to the equivalent of those occurring in the past, with no impact identified over the previous decades of similar operation.
- Results in conservation of surface water and groundwater resources.
- Provides a beneficial use for the extracted mine water in concert with the wishes of many stakeholders.
- Provides substantial positive socio-economic benefits to the surrounding communities.

RCM believes this document, with attached figures and tables, satisfies the requirements of Level 1 and Level 2 screening as required by FSM 2540.

REFERENCES

Peterson, D.W., 1969, **Geologic map of the Superior Quadrangle, Pinal County, Arizona:** U.S. Geological Survey Geologic quadrangle maps of the United States, Map GQ-818, 1 sheet, scale 1:24,000.

Spencer, J.E., Richard, S.M., and Pearthree, P.A., 1996, **Geologic map of the Mesa 30' x 60' quadrangle, east-central Arizona:** Arizona Geological Survey Open-file Report 96-23, scale 1:100,000, 1 sheet.

United States Forest Service, 2001, **Forest Service Manual, Southwest Region (Region 3), FSM 2500 – Watershed and Air Management, Chapter 2540- Water Uses and Development.**

WestLand Resources Inc., 2008, **Federal Lands Biological Assessment and Evaluation: Resolution Copper Mining Water Pipeline Project (as amended).**

Wilson, E.D., 1962, **A resumé of the geology of Arizona:** The Arizona Bureau of Mines, Tucson, Bulletin 171, 140 p.

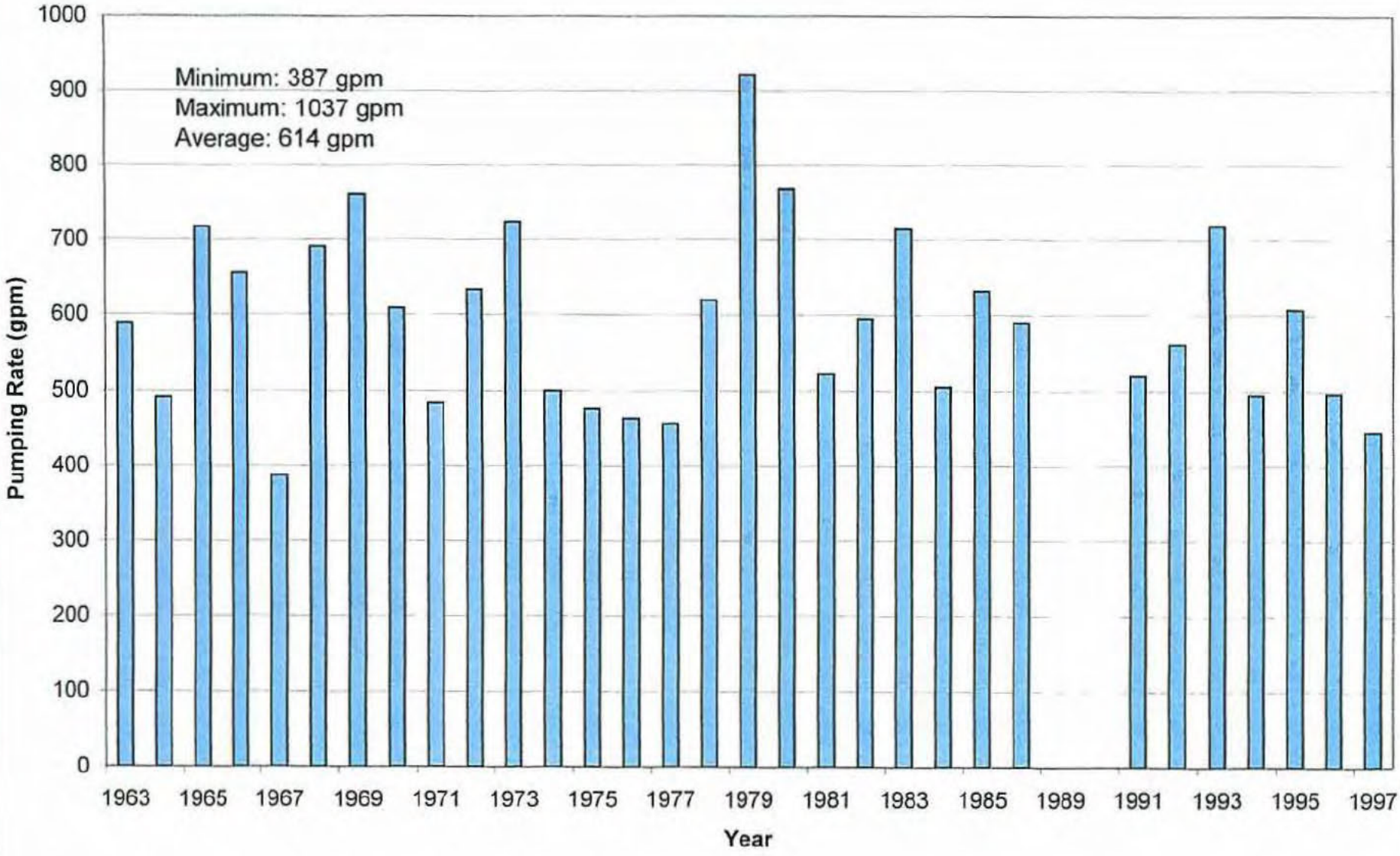
Table 1
FSM 2500/2540.1.a

"The proposal to pump or transport water must be consistent with applicable laws, regulations, policies, rules, executive orders, treaties, decrees, and NFS land and resource management plans (FSM 2702 & 2703). Nothing in this supplement alters the status of valid existing water rights or the role of the State in administering those rights. Proposals shall be evaluated as specified in 36 CFR Sec. 251.54(e)"

Law/Regulation/Policy	Description/ Applicability	Discussion of compliance / consistency
Federal Laws and Associated Regulations		
National Environmental Policy Act	May apply because the pipeline traverses Forest System lands along an existing Railroad Right-of-Way	Tonto National Forest (TNF) is preparing documentation under NEPA.
National Historic Preservation Act and related laws	May apply if pipeline construction constitutes a federal action	A class III survey has been completed. Report indicates that there will be no adverse effects to register-eligible cultural resources sites.
Endangered Species Act	May apply if the pipeline construction constitutes a federal action	A biological assessment and evaluation was prepared in accordance with FS protocol. No effects to federally listed species.
Clean Water Act Section 404	Applies if dredged or fill material is discharged into waters of the US	The construction project will not discharge dredged or fill material into waters of the US. Wash crossings will be spanned.
Clean Air Act	Applies if regulated pollutants are emitted over threshold quantities during construction or operation; some components of this law delegated to state (ADEQ) and local (Pinal County) agencies.	Dust emissions generated during construction will be controlled with BMPs and will not trigger CAA permitting.
Federal Land Policy and Management Act	This Act allows the granting of easements across National Forest System Lands. The regulations at 36 CFR 251 guide the issuance of permits, leases, and easements under this Act. Permits, leases, and easements are granted across National Forest System lands when the need for such is consistent with planned uses and Forest Service policy and regulations.	The proposal is consistent with this Act.
National Forest Management Act – Forest Plan Consistency	This Act requires the development of long-range land and resource management plans (Forest Plans). The Tonto Forest Plan was approved in 1985, as required by this Act. It has since been amended numerous times. The amended plan provides for guidance for all natural resource management activities on the Forest. The Act requires all projects and activities be consistent with the Forest Plan.	The Forest Plan has been reviewed in consideration of this project by TNF personnel. The proposal is consistent with the standards and guidelines contained in the Forest Plan. (See Forest Plan, below)

Law/Regulation/Policy	Description/ Applicability	Discussion of compliance / consistency
Executive Orders		
EO 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," February 11, 1994	Directs Federal agencies to make achieving environmental justice part of their mission. Agencies must identify and address adverse human health and/or environmental effects its activities have on minority and low-income populations, and develop agency-wide environmental justice strategies.	The project will not disproportionately affect disadvantaged populations and will provide some employment for residents of nearby communities
EO 11988, "Floodplain Management," May 24, 1977	Directs agencies to consider alternatives to avoid adverse effects and incompatible development in floodplains.	Portions of the project lie within the FEMA-designated floodplain of Queen Creek. However, the pipeline design and construction methods will not adversely affect the floodplain because the pipeline will be installed adjacent to the existing railroad.
EO 11990, "Protection of Wetlands," May 24, 1977	Directs agencies to consider alternatives to avoid adverse effects and incompatible development in wetlands.	There are no wetlands within the project area; accordingly, the project will not adversely affect any wetland areas.
EO 13186, "Conservation of Migratory Birds", January 10, 2001	Creates a more comprehensive strategy for the conservation of migratory birds by the Federal government. The Order provides a specific framework for the Federal Government's compliance with its treaty obligations to Canada, Mexico, Russia, and Japan.	Migratory birds may fly over the project area, but will not be affected by pipeline operation.
EO 11514, "Protection and Enhancement of Environmental Quality," March 5, 1970	States that the President, with assistance from the CEQ, will lead a national effort to provide leadership in protecting and enhancing the environment for the purpose of sustaining and enriching human life. Federal agencies are directed to meet national environmental goals through their policies, programs, and plans.	This evaluation and decision is consistent with this EO.
EO 11593, "Protection and Enhancement of the Cultural Environment," May 13, 1971	Directs the Federal Government to provide leadership in the preservation, restoration, and maintenance of the historic and cultural environment. Federal agencies are required to locate and evaluate all Federal sites under their jurisdiction or control which may qualify for listing on the National Register of Historic Places.	Cultural resource sites eligible for listing on the NRHP will be avoided during construction activities, and a qualified archaeologist will monitor construction activities in the vicinity of such sites.

Law/Regulation/Policy	Description/ Applicability	Discussion of compliance / consistency
EO 13007, "Indian Sacred Sites", May 24, 1996	Provides that agencies managing Federal lands, to the extent practicable, permitted by law, and not inconsistent with agency functions, shall accommodate Indian religious practitioners' access to and ceremonial use of Indian sacred sites, shall avoid adversely affecting the physical integrity of such sites, and shall maintain the confidentiality of such sites.	The pipeline alignment is not near any Indian Sacred Sites
EO 13287, "Preserve America", March 3, 2003	Orders the Federal Government to take a leadership role in protection, enhancement, and contemporary use of historic properties owned by the Federal Government, and promote intergovernmental cooperation and partnerships for preservation and use of historic properties.	This evaluation and decision is consistent with this EO.
Forest Service Plans, Policies and Directives		
Tonto National Forest Plan, 1985	Forest Plan Desired Future Conditions • Page 10 – Water Quality and Quantity – "Demands for water use on and off the Forest exceed supply. Opportunities exist in the chaparral type to increase water yield." • Page 19 – Management direction-Goals "Soil, Water, and Air Quality - "Provide direction and support to all resource management activities to ..(3) augment water supplies when compatible with other resources." • Page 20 - Transportation and Utility Corridors – "Provide that right-of-way grants are confined to the designated corridors to the extent practicable."	The Forest Plan advocates the use of existing corridors for utilities and is in favor of use of water resources in a way that does not deplete resources. The proposal uses an existing disturbed corridor and provides water to farmers for irrigation of crops.
State Administered Programs, Laws and Regulations		
Clean Water Act Section 401 and 402: Stormwater discharges	Applies to construction projects which will be at least one acre in size. Requires submittal of NOI and development and implementation of a SWPPP	The construction project will comply with the requirements of CWA Section 401and 402
Aquifer Protection Permit	Applies to facilities which may discharge a pollutant to an aquifer	Pipelines are exempt from the APP program. ARS 49-250.B.22



BROWN AND CALDWELL

PUMPING RATE – 1963 TO 1997 AT THE SUPERIOR UNDERGROUND MINE OPERATIONS

Table 2

TABLE 3. SUMMARY OF GROUNDWATER LEVEL DATA FOR SUPERIOR AND OAK FLAT AREAS, RESOLUTION PROJECT, PINAL COUNTY, ARIZONA

CADASTRAL LOCATION	WELL IDENTIFIER	LAND SURFACE ELEVATION (feet)	MEASURING POINT ELEVATION (feet)	DATE MEASURED	DEPTH TO WATER (ft, bmp)	WATER LEVEL ELEVATION (feet, amsl)
(D-1-12)34adb	MCC-3A[a]	---	2,798	5-Jul-95	26	2,772
				4-Dec-95	26	2,773
				24-Apr-96	26	2,773
				27-Aug-96	27	2,772
				7-Jan-97	27	2,772
				28-Mar-97	26	2,772
				6-May-97	27	2,772
				5-Jun-97	26	2,773
				1-Jul-97	27	2,771
				8-Aug-97	27	2,771
				3-Sep-97	26	2,772
				17-Sep-97	76	2,723
				20-Oct-97	27	2,771
				15-Jan-98	27	2,771
				13-Feb-98	27	2,772
				10-Apr-98	10	2,788
				13-May-98	26	2,772
				16-Jun-98	26	2,772
				17-Jul-98	27	2,771
				4-Nov-98	29	2,770
				23-Dec-98	28	2,770
				19-Feb-99	28	2,770
				2-Mar-99	28	2,770
				25-May-99	28	2,770
				31-Aug-99	29	2,770
				16-Nov-99	29	2,769
				1-Mar-00	29	2,769
				23-May-00	29	2,769
				12-Sep-00	30	2,768
				15-Jan-01	29	2,769
				12-Mar-01	28	2,770
				4-Jun-01	28	2,770
				22-Oct-01	29	2,769
				25-Feb-02	29	2,769
				22-Apr-02	30	2,769
				29-Jul-02	31	2,767
				21-Oct-02	31	2,767
				28-Jan-03	31	2,767
				8-Apr-03	31	2,767
				29-Jul-03	32	2,767
				4-Nov-03	32	2,766
				9-Feb-04	31	2,767
				19-Apr-04	31	2,767
				10-Jan-05	32	2,767
				27-Jun-05	30	2,768
				19-Sep-05	30	2,768
				28-Nov-05	30	2,768
				6-Mar-06	30	2,768
				26-Jun-06	31	2,768
				16-Oct-06	31	2,767
				19-Mar-07	32	2,767
				25-Sep-07	29	2,770

TABLE 3. SUMMARY OF GROUNDWATER LEVEL DATA FOR SUPERIOR AND OAK FLAT AREAS, RESOLUTION PROJECT, PINAL COUNTY, ARIZONA

CADASTRAL LOCATION	WELL IDENTIFIER	LAND SURFACE ELEVATION	MEASURING POINT ELEVATION	DATE MEASURED	DEPTH TO WATER	WATER LEVEL ELEVATION
		(feet)	(feet)		(ft, bmp)	(feet, amsl)
(D-1-12)34adb	MCC-3C[3]	---	2,798	3-Sep-97	36	2,763
				17-Sep-97	43	2,756
				20-Oct-97	47	2,751
				14-Jan-98	44	2,754
				13-Feb-98	50	2,748
				10-Apr-98	51	2,748
				13-May-98	52	2,747
				16-Jun-98	43	2,756
				17-Jul-98	47	2,752
				4-Nov-98	51	2,747
				23-Dec-98	53	2,745
				19-Feb-99	52	2,747
				3-Mar-99	53	2,745
				26-May-99	54	2,744
				31-Aug-99	55	2,743
				16-Nov-99	57	2,741
				1-Mar-00	59	2,739
				23-May-00	61	2,737
				12-Sep-00	64	2,735
				15-Jan-01	67	2,732
				12-Mar-01	69	2,730
				4-Jun-01	70	2,728
				22-Oct-01	76	2,723
				25-Feb-02	77	2,722
				22-Apr-02	79	2,719
				29-Jul-02	80	2,718
				21-Oct-02	82	2,717
				28-Jan-03	83	2,715
				8-Apr-03	85	2,714
				29-Jul-03	86	2,713
				4-Nov-03	88	2,711
				9-Feb-04	89	2,709
				19-Apr-04	91	2,708
				10-Jan-05	93	2,706
				27-Jun-05	94	2,705
				21-Sep-05	95	2,703
				28-Nov-05	96	2,702
				6-Mar-06	97	2,702
				26-Jun-06	97	2,702
				16-Oct-06	97	2,702
				11-Dec-06	98	2,700
				19-Mar-07	98	2,701
				25-Jun-07	98	2,701
				25-Sep-07	98	2,701

TABLE 3. SUMMARY OF GROUNDWATER LEVEL DATA FOR SUPERIOR AND OAK FLAT AREAS, RESOLUTION PROJECT, PINAL COUNTY, ARIZONA

CADASTRAL LOCATION	WELL IDENTIFIER	LAND SURFACE ELEVATION (feet)	MEASURING POINT ELEVATION (feet)	DATE MEASURED	DEPTH TO WATER (ft, bmp)	WATER LEVEL ELEVATION (feet, amsl)
(D-1-13)14dbd	CORRAL WELL[b] (JI RANCH)	4,436	4,437	4-Jun-2004	13	4,425
				22-Apr-2005	9	4,429
				26-Jul-05	6	4,431
				3-Nov-2005	7	4,430
				12-Jan-2006	8	4,430
				7-Jul-2006	9	4,428
				7-May-2007	12	4,425
				8-Jun-2007	12	4,425
				12-Jun-2007	12	4,425
				13-Jun-2007	12	4,425
				19-Jun-2007	12	4,425
				28-Jun-2007	12	4,425
				24-Jul-2007	13	4,424
				10-Oct-2007	14	4,423
				4-Jan-2008	13	4,424
				27-Feb-2008	10	4,427
				28-May-08	10	4,427
(D-1-13)28ddc	Oak Flat Well[b]	4,082	4,084	28-Jan-2003	291	3,794
				26-Sep-2003	292	3,793
				31-Oct-2003	290	3,794
				10-Dec-2003	291	3,794
				10-Dec-2003	291	3,794
				22-Feb-2004	302	3,782
				23-Feb-2004	310	3,774
				27-Feb-2004	291	3,793
				10-Mar-2004	291	3,793
				4-Jun-2004	291	3,793
				2-Sep-2004	292	3,793
				11-Jan-2005	291	3,793
				2-Mar-2005	291	3,794
				22-Apr-2005	291	3,794
				26-Jul-2005	292	3,793
				21-Jul-2006	293	3,792
				15-Aug-2006	292	3,792
				28-Sep-2006	292	3,792
				10-Oct-2006	293	3,792
				16-Oct-2006	292	3,792
				25-Oct-2006	293	3,792
				30-Oct-2006	293	3,792
				3-Nov-2006	293	3,792
				13-Dec-2006	293	3,791
				16-Mar-2007	293	3,791
				11-Jun-2007	293	3,791
				25-Jul-2007	294	3,791
				4-Jan-2008	293	3,791
(D-1-13)32bca	HRES-1[b]	4,172	4,175	23-Aug-2006	1,071	3,103
				28-Sep-2006	1,145	3,030
				25-Oct-2006	1,153	3,022
				30-Oct-2006	1,151	3,023
				13-Dec-2006	1,185	2,990
				16-Mar-2007	1,197	2,978
				11-Jun-2007	1,193	2,981
				24-Jul-2007	1,198	2,977
				27-Feb-2007	1,170	3,004

TABLE 3. SUMMARY OF GROUNDWATER LEVEL DATA FOR SUPERIOR AND OAK FLAT AREAS, RESOLUTION PROJECT, PINAL COUNTY, ARIZONA

CADASTRAL LOCATION	WELL IDENTIFIER	LAND SURFACE ELEVATION (feet)	MEASURING POINT ELEVATION (feet)	DATE MEASURED	DEPTH TO WATER (ft, bmp)	WATER LEVEL ELEVATION (feet, amsl)
(D-1-13)32dca	HRES-2[b]	3,984	3,986	8-Mar-2004	295	3,691
				10-Mar-2004	295	3,691
				12-Mar-2004	295	3,691
				12-Mar-2004	295	3,691
				12-Mar-2004	295	3,691
				12-Mar-2004	295	3,691
				13-Mar-2004	295	3,691
				15-Mar-2004	295	3,691
				15-Mar-2004	295	3,691
				29-Mar-2004	296	3,690
				17-Apr-2004	296	3,690
				7-May-2004	297	3,689
				4-Jun-2004	296	3,690
				4-Jun-2004	296	3,690
				2-Sep-2004	296	3,690
				11-Jan-2005	296	3,689
				2-Mar-2005	296	3,690
				22-Apr-2005	295	3,691
				26-Jul-2005	295	3,690
				21-Jul-2006	297	3,689
				22-Aug-2006	297	3,689
				28-Sep-2006	297	3,689
				16-Oct-2006	297	3,689
				25-Oct-2006	297	3,689
				30-Oct-2006	297	3,689
				3-Nov-2006	298	3,688
				13-Dec-2006	298	3,688
				16-Mar-2007	298	3,688
				12-Jun-2007	298	3,688
				24-Jul-2007	298	3,688
				4-Jan-2008	298	3,688
				27-Feb-2008	297	3,689
				28-May-2008	296	3,690
(D-1-13)33ccd	HRES-4[b]	4,080	4,081	7-May-04	398	3,683
				2-Sep-04	399	3,682
				11-Jan-05	399	3,682
				2-Mar-05	399	3,682
				22-Apr-05	399	3,682
				26-Jul-05	399	3,682
				12-Jan-06	399	3,682
				21-Jul-06	400	3,681
				14-Sep-06	400	3,681
				28-Sep-06	400	3,681
				9-Oct-06	400	3,681
				13-Dec-06	401	3,680
				16-Mar-07	401	3,680
				12-Jun-07	401	3,680
				24-Jul-07	401	3,680
				4-Jan-08	402	3,679
				28-Feb-08	400	3,681
				2-May-08	403	3,678

TABLE 3. SUMMARY OF GROUNDWATER LEVEL DATA FOR SUPERIOR AND OAK FLAT AREAS, RESOLUTION PROJECT, PINAL COUNTY, ARIZONA

CADASTRAL LOCATION	WELL IDENTIFIER	LAND SURFACE ELEVATION (feet)	MEASURING POINT ELEVATION (feet)	DATE MEASURED	DEPTH TO WATER (ft, bmp)	WATER LEVEL ELEVATION (feet, amsl)
(D-1-13)14dbc	HRES-6[b]	4,431	4,433	12-Apr-2007	394	4,038
				7-May-2007	394	4,039
				24-May-2007	393	4,039
				1-Jun-2007	394	4,039
				7-Jun-2007	393	4,039
				11-Jun-2007	394	4,039
				24-Jul-2007	395	4,038
				10-Oct-2007	395	4,037
				4-Jan-2008	394	4,038
(D-1-13)32ddc	RES-3[b]	---	3,986	18-Nov-2002		1,405
				18-Dec-2002		1,414
				16-May-2003		1,441
				2-Oct-2003		1,490
				28-Jan-2005		1,652
				15-May-2007		1,938
(D-1-13)32bba	SHAFT N°9[c]	---	4,165	6-May-1998		-593
				1-Jun-1998		-153
				1-Jul-1998		-43
				1-Aug-1998	4,156	9
				1-Sep-1998	4,122	43
				1-Oct-1998	4,086	79
				13-Oct-1998	4,074	91
				24-Nov-1998	4,054	112
				1-Dec-1998	4,047	118
				1-Jan-1999	4,014	151
				12-Feb-1999	3,973	192
				1-Mar-1999	3,968	197
				19-Mar-1999	3,960	205
				15-May-1999	3,903	262
				1-Jun-1999	3,884	281
				1-Jul-1999	3,863	302
				1-Aug-1999	3,838	327
				1-Sep-1999	3,808	357
				1-Oct-1999	3,785	380
				1-Nov-1999	3,769	396
				22-Nov-1999	3,761	405
				3-Mar-2000	3,686	479
				1-Apr-2000	3,661	504
				1-May-2000	3,630	535
				1-Jun-2000	3,602	563
				1-Jul-2000	3,584	581
				1-Aug-2000	3,572	593
				1-Sep-2000	3,564	601
				1-Oct-2000	3,541	624
				1-Nov-2000	3,518	647
				1-Dec-2000	3,471	695
				1-Jan-2001	3,409	756
				1-Feb-2001	3,369	796
				1-Mar-2001	3,302	863
				30-Mar-2001	3,234	931
				1-May-2001	3,164	1,001
				1-Jun-2001	3,134	1,032
				1-Jul-2001	3,120	1,045

TABLE 3. SUMMARY OF GROUNDWATER LEVEL DATA FOR SUPERIOR AND OAK FLAT AREAS, RESOLUTION PROJECT, PINAL COUNTY, ARIZONA

CADASTRAL LOCATION	WELL IDENTIFIER	LAND SURFACE ELEVATION (feet)	MEASURING POINT ELEVATION (feet)	DATE MEASURED	DEPTH TO WATER (ft, bmp)	WATER LEVEL ELEVATION (feet, amsl)
(D-1-13)32bba	SHAFT N°9[c]	---	4,165	26-Jul-2001	3,117	1,048
				1-Oct-2001	3,064	1,101
				1-Nov-2001	3,049	1,116
				1-Dec-2001	3,036	1,129
				1-Jan-2002	3,023	1,142
				1-Feb-2002	3,011	1,154
				1-Mar-2002	2,993	1,172
				1-Apr-2002	2,983	1,182
				1-May-2002	2,971	1,194
				1-Jun-2002	2,958	1,207
				1-Jul-2002	2,946	1,219
				1-Aug-2002	2,939	1,226
				1-Sep-2002	2,928	1,237
				1-Oct-2002	2,918	1,247
				1-Nov-2002	2,911	1,254
				1-Dec-2002	2,899	1,266
				1-Jan-2003	2,890	1,276
				1-Feb-2003	2,879	1,286
				1-Mar-2003	2,858	1,307
				1-Apr-2003	2,836	1,329
				23-Apr-2003	2,814	1,351
				21-Jun-2003	2,787	1,378
				1-Jul-2003	2,784	1,382
				1-Aug-2003	2,775	1,390
				1-Sep-2003	2,763	1,402
				1-Oct-2003	2,754	1,411
				1-Nov-2003	2,742	1,423
				1-Dec-2003	2,732	1,433
				1-Jan-2004	2,750	1,415
				1-Feb-2004	2,740	1,425
				1-Mar-2004	2,729	1,436
				1-Apr-2004	2,698	1,467
				1-May-2004	2,668	1,497
				1-Jun-2004	2,653	1,512
				1-Jul-2004	2,648	1,517
				1-Aug-2004	2,642	1,523
				1-Sep-2004	2,633	1,532
				1-Oct-2004	2,627	1,538
				1-Nov-2004	2,623	1,542
				1-Dec-2004	2,617	1,548
				1-Jan-2005	2,611	1,554
				1-Feb-2005	2,579	1,586
				1-Apr-2005	2,460	1,705
				1-May-2005	2,438	1,727
				1-Jun-2005	2,429	1,736
				1-Jul-2005	2,426	1,739
				1-Aug-2005	2,426	1,740
				1-Sep-2005	2,419	1,747
				1-Oct-2005	2,412	1,754
				1-Nov-2005	2,414	1,751
				1-Dec-2005	2,408	1,757

TABLE 3. SUMMARY OF GROUNDWATER LEVEL DATA FOR SUPERIOR AND OAK FLAT AREAS, RESOLUTION PROJECT, PINAL COUNTY, ARIZONA

CADASTRAL LOCATION	WELL IDENTIFIER	LAND SURFACE ELEVATION (feet)	MEASURING POINT ELEVATION (feet)	DATE MEASURED	DEPTH TO WATER (ft, bmp)	WATER LEVEL ELEVATION (feet, amsl)
(D-1-13)32bba	SHAFT N°9[c]	---	4,165	1-Jan-2006	2,401	1,764
				1-Feb-2006	2,364	1,801
				1-Mar-2006	2,354	1,811
				1-Apr-2006	2,340	1,825
				1-May-2006	2,353	1,812
				1-Jun-2006	2,346	1,820
				1-Jul-2006	2,341	1,824
				1-Aug-2006	2,333	1,832
				1-Sep-2006	2,323	1,843
				1-Oct-2006	2,314	1,851
				11-Nov-2006	2,313	1,853
				1-Dec-2006	2,309	1,856
				1-Jan-2007	2,304	1,861
				1-Feb-2007	2,298	1,867
				1-Mar-2007	2,292	1,873
				1-Apr-2007	2,286	1,879
				1-May-2007	2,276	1,889
				20-May-2007	2,273	1,892

[a] Represents all available data for period of record - measurements obtained manually

[b] Represents all measurements obtained manually, and some measurements obtained using automated equipment

[c] Represents parsed data set from automated water level monitoring equipment - monthly readings only; daily readings are available

TABLE 4
SURFACE WATER FEATURES

Name/Stationing [1] (km)	Watershed	Feature Type	Flow Classification (i.e., perennial, intermittent, or ephemeral)	Data Type (start, end, or point)	Feature Description	Easting	Northing	Approximate Elevation (ft)	Geologic Unit	Estimated Minimum Observed Discharge (L/s)	Number of Field Observations
Devils Canyon Watershed											
DC 10.99	Devils Canyon	Reach	Intermittent	Start	Water emerges immediately below alluvial basin. Local storage in alluvium is likely source of surface water. Flowing reach predominantly on bedrock channel. Flow observed 9 out of 10 observations.	497,011	3,683,735	3,730	Mid-Tertiary Apache Leap Dacite Tuff	0	10
DC 10.64	Devils Canyon	Reach	Intermittent	End	-	497,033	3,683,400	3,700	Mid-Tertiary Apache Leap Dacite Tuff	-	-
RR 1.40	Devils Canyon/Rancho Rio	Reach	Intermittent	Start	Short flowing reach immediately below cattle pond. Bedrock channel fed by local storage from upstream alluvial basin. Flowing 7 out of 10 observations	496,108	3,682,664	3,900	Mid-Tertiary Apache Leap Dacite Tuff	0	10
RR 1.34	Devils Canyon/Rancho Rio	Reach	Intermittent	End	-	496,169	3,682,685	3,890	Mid-Tertiary Apache Leap Dacite Tuff	-	-
DC 9.14	Devils Canyon	Reach	Perennial	Start	Start of uppermost perennial reach in Devils Canyon. Reach starts immediately below confluence with Rancho Rio Creek. Heavily vegetated shallow alluvial channel.	497,480	3,682,114	3,620	Mid-Tertiary Apache Leap Dacite Tuff	0.75	10
DC 7.53	Devils Canyon	Reach	Perennial	End	-	497,669	3,680,584	3,520	Mid-Tertiary Apache Leap Dacite Tuff	-	-
DC 8.9W	Devils Canyon	Spring	Perennial	Point	Two small springs - 20 m apart on west bank of floodplain near old barbed wire fence.	497,440	3,681,847	3,600	Mid-Tertiary Apache Leap Dacite Tuff	0.02	3
DC 8.8W	Devils Canyon	Spring	Perennial	Point	Spring approximately 1.5 m above channel thalweg on west bank.	497,427	3,681,728	3,590	Mid-Tertiary Apache Leap Dacite Tuff	0.06	2
DC 8.6W	Devils Canyon	Spring	Perennial	Point	Emanates from west bank next to large rotten log. Water surfaces approximately 1 to 2 meters above channel thalwag.	497,488	3,681,525	3,585	Mid-Tertiary Apache Leap Dacite Tuff	0.03	2
H 0.37	Devils Canyon/Hackberry Creek	Seep	Perennial	Point	Small spring that is occasionally a seep with large permanent pool immediately below. Out of 10 observations the feature was a flowing reach 3 times, a spring 3 times and a seep 4 times.	497,349	3,681,392	3,450	Mid-Tertiary Apache Leap Dacite Tuff	0	10
DC 8.3E	Devils Canyon	Spring	Perennial	Point	Approximately 10 m long seep/spring bank on east side of Devils Creek emanating from bouldery/silty alluvium.	497,563	3,681,243	3,580	Mid-Tertiary Apache Leap Dacite Tuff	0.01	2
DC 8.2W	Devils Canyon	Spring	Perennial	Point	Spring complex emanating from west bank of Devils Canyon. Largest spring complex noted in canyon. Smaller spring emanates at ~0.2 L/s just upstream from largest stream in complex.	497,540	3,681,190	3,570	Mid-Tertiary Apache Leap Dacite Tuff	0.75	14
Oak Seep	Devils Canyon/Oak Seep	Seep	Perennial	Point	Complex of small seeps in Oak Canyon immediately above confluence of Devils Canyon. Out of 6 observations the feature was a flowing reach 1 time, a spring 2 times, and a seep 3 times.	497,418	3,680,990	3,640	Mid-Tertiary Apache Leap Dacite Tuff	0	6
DC 7.15	Devils Canyon	Reach	Perennial	Start	Bedrock dominated channel	497,920	3,680,344	3,440	Mid-Tertiary Apache Leap Dacite Tuff	0.06	10
DC 7.08	Devils Canyon	Reach	Perennial	End	-	497,962	3,680,267	3,430	Mid-Tertiary Apache Leap Dacite Tuff	-	-
DC T6.6W	Devils Canyon	Spring	Perennial	Point	Spring located ~200m up side canyon coming from the west (confluence with Devils Canyon @ 497700, 3679780). Surface flow for ~30 m.	497,476	3,679,828	3,630	Contact of Tertiary Whitetail Conglomerate and Mid-Tertiary Apache Leap Dacite Tuff	0.06	14
DC 6.12E	Devils Canyon	Spring	Perennial	Point	Dripping springs emanating from small alcove on east side of lowermost pool in Crater Tanks section of canyon. Discharge emanates from devitrified megaspheroids at base of Apache Leap approximately 3 m above the contact with the Whitetail Conglomerate.	498,130	3,679,540	3,210	Devitrified mega spheroids near base of Apache Leap Tuff.	0.05	4
DC 6.1E	Devils Canyon	Spring	Perennial	Point	Large dripping springs emanating from alcove on east side of canyon ~50 m below last pool in Crater Tanks section of canyon. Water emanates from devitrified mega spheroids near base of Apache Leap.	498,180	3,679,520	3,200	Devitrified mega spheroids near base of Apache Leap Tuff.	0.25	10
DC 6.10	Devils Canyon	Reach	Perennial	Start	Flowing reach starting at hanging garden spring on east side of side of canyon approximately 50 m below last pools in Crater Tanks section of canyon.	498,180	3,679,520	3,140	Mid-Tertiary Apache Leap Dacite Tuff	0.57	3
DC 5.44	Devils Canyon	Reach	Perennial	End	Flow ends at large tributary on west side of canyon.	498,200	3,679,060	2,920	Tertiary Whitetail Conglomerate	-	-
DC 5.0E	Devils Canyon	Spring	Perennial	Point	Long seep/spring face (~100m) along low vertical outcropping of Whitetail Conglomerate on east bank of canyon.	498,438	3,678,703	2,790	Tertiary Whitetail Conglomerate	0.03	4
DC 4.1E	Devils Canyon	Spring	Perennial	Point	Dripping/diffused flow from small face of outcrop at channel level.	499,273	3,678,440	2,780	Mid-Tertiary Apache Leap Dacite Tuff	0.1	8
DC 3.7E	Devils Canyon	Spring	Perennial	Point	Hanging Garden/canyon wall springs on east side of drainage.	499,509	3,678,162	2,620	Mid-Tertiary Apache Leap Dacite Tuff	0.3	4

TABLE 4
SURFACE WATER FEATURES

Name/Stationing [1] (km)	Watershed	Feature Type	Flow Classification (i.e., perennial, intermittent, or ephemeral)	Data Type (start, end, or point)	Feature Description	Easting	Northing	Approximate Elevation (ft)	Geologic Unit	Estimated Minimum Observed Discharge (L/s)	Number of Field Observations
Queen Creek Watershed											
Pump Station	Queen Creek	Spring	Perennial	Point	Spring emanates in channel in shallow alluvial basin. Flowing reach typically extends 20-100 m below discharge point when no upstream surface flow is present.	494,074	3,688,865	4,400	Near contact of Paleozoic section and Haunted Canyon Rhyolite	0.02	20
Eddie	Queen Creek	Spring	Perennial	Point	Flow emanates from fractures in steep bedrock section of canyon.	492,618	3,684,622	3,180	Mid-Tertiary Apache Leap Dacite Tuff	0.01	9
Boulder Hole	Queen Creek	Spring	Perennial	Point	Small water hole in lowest point of channel section that is composed mainly of large boulders. No inflow or outflow noted, however always has water, therefore must be supplied by baseflow.	492,297	3,684,549	3,080	Silicified Paleozoic Limestones	0	17
WWTP	Queen Creek	Reach	Perennial	Start	Effluent from Town of Superior Wastewater Treatment Plant	488,486	3,682,156	2,600	Quaternary Alluvium overlying Mid-Tertiary Tuffs	1	4
QC 17.39	Queen Creek	Reach	Perennial	End	Confluence with Queen Creek	488,100	3,681,750	2,550	-	-	4
QC 17.39	Queen Creek	Reach	Intermittent	Start	Confluence of WWTP drainage and Queen Creek. Downstream discharge is highly variable due to water inputs from dewatering of adjacent perlite mine	488,100	3,681,750	2,550	Quaternary Alluvium with occasionally Mid-Tertiary Tuffs	1	4
QC 15.55	Queen Creek	Reach	Intermittent	End	Location of end of reach can vary substantially due to variations in water inputs from perlite mine dewatering	486,592	3,682,051	2,460	-	-	4
Blue Springs	Queen Creek/Apache Leap	Spring	Intermittent	Point	Riffle pool morphology - shallow alluvium in tuffaceous bedrock canyon. Flowing 8 out of 9 observations.	491,709	3,676,538	3,000	Mid-Tertiary Tuff	0	9
Kanes	Queen Creek/Apache Leap	Spring	Perennial	Point	Steep incised canyon with large travertine deposit immediately above spring location. Developed spring with pipes presumably leading to decorative rock quarry.	493,099	3,678,202	3,220	Limestone with large travertine deposit above spring location	0.01	12
Hidden	Queen Creek/Apache Leap	Spring	Perennial	Point	Thin alluvial veneer in predominantly limestone drainage with abundant faulting/structures.	491,321	3,679,413	3,030	Limestone with crosscutting diabase sills/dikes.	0	14
Bored	Queen Creek/Apache Leap	Spring	Perennial	Point	Cattail water hole and trough on east side of highway is dry with exception of dripping pipe making small puddle (~1 gallon)	491,197	3,680,957	3,180	Limestone with crosscutting diabase sill/dike	0.01	10
A 4.84	Queen Creek/Arnett Creek	Reach	Perennial	Start	Short flowing reach ~20 m long with trace surface flow. Reach is above confluence with Telegraph Canyon but below perlite mines.	487,554	3,680,265	2,560	Siliceous Volcanics	0.01	4
A 4.82	Queen Creek/Arnett Creek	Reach	Perennial	End	-	487,534	3,680,265	2,560	Siliceous Volcanics	-	4
T 1.03	Queen Creek/Arnett Creek/Telegraph Canyon	Reach	Perennial	Start	Uppermost flowing reach observed in Telegraph Canyon	486,954	3,679,452	2,640	Organic rich alluvial channel on Tuffaceous Bedrock	0.06	4
T 1.0	Queen Creek/Arnett Creek/Telegraph Canyon	Reach	Perennial	End	-	487,000	3,679,493	2,640	Organic rich alluvial channel on Tuffaceous Bedrock	-	4
T 0.84	Queen Creek/Arnett Creek/Telegraph Canyon	Reach	Perennial	Start	Perennial reach in thickly vegetated area in incised bedrock drainage.	486,980	3,679,664	2,620	Organic rich alluvial channel on Tuffaceous Bedrock	0.25	4
T 0.52	Queen Creek/Arnett Creek/Telegraph Canyon	Reach	Perennial	End	-	487,209	3,679,877	2,600	Organic rich alluvial channel on Tuffaceous Bedrock	-	4
A 4.53	Queen Creek/Arnett Creek	Reach	Perennial	Start	First flowing reach downstream of confluence with Telegraph Canyon. Reach is ~40 m long. Couple of stagnant pools immediately above start of reach	487,263	3,680,370	2,550	Siliceous Volcanics	0.2	4
A 4.49	Queen Creek/Arnett Creek	Reach	Perennial	End	-	487,223	3,680,383	2,540	Siliceous Volcanics	-	4

Notes:

-1- = Stations organized from upstream to downstream
DC = Devils Canyon
DCT = Devils Canyon Tributary
H = Hackberry
RR = Rancho Rio
E = East side of drainage
W = West side of drainage
WWTP = Wastewater Treatment Plant
T = Telegraph Canyon
A = Arnett Canyon
QC = Queen Creek
start of reach
end of same reach
start of reach
end of same reach
Coordinates are UTM NAD27 zone 12

TABLE 5. SUMMARY OF REGISTERED WELLS IN SUPERIOR AND OAK FLAT AREAS, RESOLUTION PROJECT, PINAL COUNTY, ARIZONA

CADASTRAL LOCATION	ADWR WELL REGISTRY NUMBER	OWNER	DATE COMPLETED	DEPTH DRILLED (ft, bls)[a]	CASING DIAMETER (Inches)	CASING DEPTH (feet)	REPORTED PUMPING RATE (gpm)[b]	WATER USE[c]	DRILLERS LOG AVAILABLE	REMARKS
(A-01-13) 31cbc	533259	CARLOTA COPPER COMPANY	2/4/1992	200	6	200	—	M	Yes	—
(A-01-13) 34cac	907277	CARLOTA COPPER COMPANY	11/21/2007	310	3	229	—	M	Yes	—
(A-01-13) 35	539071	CARLOTA COPPER COMPANY	7/21/1993	—	—	—	—	NONE	Yes	—
(A-01-13) 35cad	907281	CARLOTA COPPER COMPANY	8/17/2007	505	5	501	—	M	Yes	—
(A-01-13) 35ccc	907280	CARLOTA COPPER COMPANY	7/27/2007	283	5	267	—	M	Yes	—
(A-01-13) 35dba	539149	CARLOTA COPPER COMPANY	7/25/1993	200	8	200	—	M	Yes	—
(A-01-13) 35dba	539161	CARLOTA COPPER COMPANY	—	—	—	—	—	M	—	—
(A-01-13) 35dcb	907282	CARLOTA COPPER COMPANY	8/8/2007	258	5	257	—	M	Yes	—
(A-01-13) 35dcb	907284	CARLOTA COPPER COMPANY	11/12/2007	820	3	805	—	M	Yes	—
(A-01-13) 35dcd	539147	CARLOTA COPPER COMPANY	6/3/1993	165	8	165	—	M	Yes	—
(A-01-13) 35ddb	539148	CARLOTA COPPER COMPANY	7/12/1993	120	8	120	—	M	Yes	—
(A-01-13) 35ddb	539160	CARLOTA COPPER COMPANY	7/11/1993	14	6	14	—	M	Yes	—
(A-01-13) 35ddd	557397	CARLOTA COPPER COMPANY	9/25/1996	89	—	—	—	NONE	Yes	ABANDONED
(A-01-13) 36	597751	CARLOTA COPPER COMPANY	—	500	—	—	—	MIN	—	—
(A-01-13) 36	201173	CARLOTA COPPER COMPANY	—	—	—	—	—	NONE	—	—
(A-01-13) 36	904020	CARLOTA COPPER COMPANY	—	—	—	—	—	NONE	—	—
(A-01-13) 36	517410	BHP COPPER INC	5/21/1987	—	—	—	—	NONE	Yes	—
(A-01-13) 36	519381	BHP COPPER INC	11/9/1987	682	—	—	—	NONE	Yes	—
(A-01-13) 36	526436	WESTMONT MINING	5/31/1990	—	—	—	—	NONE	Yes	—
(A-01-13) 36	529958	WESTMONT MINING	—	—	—	—	—	NONE	—	—
(A-01-13) 36	539069	CARLOTA COPPER COMPANY	7/24/1993	—	—	—	—	NONE	Yes	—
(A-01-13) 36	532856	WESTMONT MINING	5/4/1992	—	—	—	—	NONE	Yes	ABANDONED
(A-01-13) 36ccc	534514	CARLOTA COPPER COMPANY	—	—	—	—	—	M	—	—
(A-01-13) 36cda	533309	CARLOTA COPPER COMPANY	10/16/1991	300	6	220	—	M	Yes	—
(A-01-13) 36cdb	212160	CARLOTA COPPER COMPANY	—	—	—	—	—	NONE	—	ABANDONED
(A-01-13) 36cdd	539159	CARLOTA COPPER COMPANY	—	—	—	—	—	M	—	—
(A-01-13) 36daa	533327	CARLOTA COPPER COMPANY	11/13/1991	380	6	360	—	M	Yes	—
(A-01-13) 36dac	563038	CARLOTA COPPER COMPANY	—	—	—	—	—	IND	—	—
(A-01-14) 31	598122	CARLOTA COPPER COMPANY	—	300	—	—	—	NONE	—	—
(A-01-14) 31	904021	CARLOTA COPPER COMPANY	—	—	—	—	—	NONE	—	—
(A-01-14) 31	514530	BHP COPPER INC	8/1/1986	—	—	—	—	NONE	Yes	—
(A-01-14) 31	517409	BHP COPPER INC	5/5/1987	—	—	—	—	NONE	Yes	—
(A-01-14) 31	519380	BHP COPPER INC	11/20/1987	337	—	—	—	NONE	Yes	—
(A-01-14) 31	532857	WESTMONT MINING	4/9/1992	—	—	—	—	NONE	Yes	—
(A-01-14) 31	900574	BHP COPPER INC	—	141	9	163	—	NONE	Yes	—
(A-01-14) 31cab	533252	CARLOTA COPPER COMPANY	2/7/1992	200	6	200	—	M	Yes	—
(A-01-14) 31cac	533260	CARLOTA COPPER COMPANY	—	620	10	300	—	M	—	—
(A-01-14) 31cad	533255	CARLOTA COPPER COMPANY	—	300	10	260	—	M	—	—
(A-01-14) 31cba	533256	CARLOTA COPPER COMPANY	—	300	6	260	—	M	—	—
(A-01-14) 31cbd	533253	CARLOTA COPPER COMPANY	10/31/1991	300	6	260	—	M	Yes	—
(A-01-14) 31cbd	535738	CARLOTA COPPER COMPANY	6/23/1992	20	4	20	—	M	Yes	—

TABLE 5. SUMMARY OF REGISTERED WELLS IN SUPERIOR AND OAK FLAT AREAS, RESOLUTION PROJECT, PINAL COUNTY, ARIZONA

CADASTRAL LOCATION	ADWR WELL REGISTRY NUMBER	OWNER	DATE COMPLETED	DEPTH DRILLED (ft, bls)[a]	CASING		REPORTED PUMPING RATE (gpm)[b]	WATER USE[c]	DRILLERS LOG AVAILABLE	REMARKS
					DIAMETER (inches)	DEPTH (feet)				
(A-01-14) 31cca	533257	CARLOTA COPPER COMPANY	—	600	6	560	—	M	—	—
(A-01-14) 31ccc	537405	CARLOTA COPPER COMPANY	—	—	—	—	—	M	—	—
(A-01-14) 31ccc	539143	CARLOTA COPPER COMPANY	5/13/1993	150	6	150	—	M	Yes	—
(A-01-14) 31ccd	640813	BHP COPPER INC	9/1/1972	383	20	341	15	D	—	—
(A-01-14) 31cdb	533258	CARLOTA COPPER COMPANY	—	340	6	220	—	M	—	—
(A-01-14) 31dac	901104	BHP COPPER INC	—	210	2	210	—	M	Yes	—
(A-01-14) 31db	623207	BHP COPPER INC	1/1/1975	36	48	36	300	MIN	—	—
(A-01-14) 31dba	533254	CARLOTA COPPER COMPANY	2/9/1992	200	6	200	—	M	Yes	—
(A-01-14) 31dbc	900563	BHP COPPER INC	—	100	5	100	—	M	Yes	—
(A-01-14) 31dbd	901105	BHP COPPER INC	9/15/2004	260	2	260	—	M	Yes	—
(A-01-14) 31dbd	901106	BHP COPPER INC	9/17/2004	267	2	267	—	M	Yes	—
(A-01-14) 31dcd	900877	BHP COPPER INC	—	—	—	—	—	NONE	—	—
(A-01-14) 31dcd	900581	BHP COPPER INC	—	167	2	167	—	NONE	Yes	—
(D-01-12) 02ccc	550994	GOMEZ, JESUS.	9/1/1995	760	8	760	—	D	Yes	—
(D-01-12) 03baa	906344	RESOLUTION COPPER MINING, LLC	1/30/2007	12	2	12	—	M	Yes	—
(D-01-12) 03bdb	631205	PADILLA,F N	—	—	—	—	—	I,D	—	—
(D-01-12) 03bdb	631206	PADILLA,F N	—	—	—	—	—	I,D	—	—
(D-01-12) 13	801491	PETTIJOHN,C E	1/1/1900	80	6	50	150	IND,MIN	—	—
(D-01-12) 13aab	562908	PETTIJOHN, CHARLES E	6/3/1998	400	2	20	—	D	Yes	—
(D-01-12) 13aab	581594	DALTON SR, JOHN H	—	—	—	—	—	U	—	—
(D-01-12) 16db	600935	TONTO NATIONAL FOREST	1/1/1956	—	—	—	—	S	—	—
(D-01-12) 19cb	600827	TONTO NATIONAL FOREST	6/30/1956	—	—	—	—	S	—	—
(D-01-12) 24	801492	PETTIJOHN,C E	1/1/1900	80	6	50	150	IND,MIN	—	—
(D-01-12) 25	519696	BHP COPPER INC	12/11/1987	—	—	—	—	NONE	Yes	—
(D-01-12) 26cdc	558204	BHP COPPER INC	8/26/1996	430	—	—	—	M	Yes	—
(D-01-12) 27aad	501253	TONTO NATIONAL FOREST	10/21/1981	40	6	40	2	S	Yes	—
(D-01-12) 31dd	600883	TONTO NATIONAL FOREST	1/1/1956	—	—	—	—	S	—	—
(D-01-12) 34	594161	BHP COPPER INC	—	—	—	—	—	NONE	—	—
(D-01-12) 34	594163	BHP COPPER INC	—	—	—	—	—	NONE	—	—
(D-01-12) 34aac	522271	SOUTHWEST GAS CORP	12/2/1988	120	—	—	—	NONE	Yes	CATHODIC
(D-01-12) 34adb	548184	RESOLUTION COPPER MINING LLC	3/26/1995	93	4	35	—	M	Yes	—
(D-01-12) 34adb	550412	RESOLUTION COPPER MINING LLC	—	—	—	—	—	M	—	—
(D-01-12) 34adc	594157	BHP COPPER INC	—	—	—	—	—	M	—	—
(D-01-12) 34adc	594159	BHP COPPER INC	—	—	—	—	—	M	—	—
(D-01-12) 34add	591860	BHP COPPER INC	—	440	—	200	—	M	Yes	—
(D-01-12) 34dbc	550404	RESOLUTION COPPER MINING LLC	—	—	—	—	—	M	—	—
(D-01-12) 34dbc	550405	RESOLUTION COPPER MINING LLC	—	—	—	—	—	M	—	—
(D-01-12) 34dbc	550406	RESOLUTION COPPER MINING LLC	—	—	—	—	—	M	—	—
(D-01-12) 34dbc	558205	RESOLUTION COPPER MINING LLC	7/16/1996	600	5	580	—	M	Yes	—
(D-01-12) 34dbc	558206	RESOLUTION COPPER MINING LLC	7/24/1996	225	5	220	—	M	Yes	—
(D-01-12) 34dbc	563621	RESOLUTION COPPER MINING LLC	8/19/1997	55	—	30	—	M	Yes	—

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CADASTRAL LOCATION	ADWR WELL REGISTRY NUMBER	OWNER	DATE COMPLETED	DEPTH DRILLED (ft, bls)[a]	CASING DIAMETER (inches)	CASING DEPTH (feet)	REPORTED PUMPING RATE (gpm)[b]	WATER USE[c]	DRILLERS LOG AVAILABLE	REMARKS
(D-01-12) 34dda	550410	RESOLUTION COPPER MINING LLC	—	—	—	—	—	M	—	—
(D-01-12) 34dda	550411	RESOLUTION COPPER MINING LLC	—	—	—	—	—	M	—	—
(D-01-12) 34dda	558209	RESOLUTION COPPER MINING LLC	8/21/1996	225	—	—	—	NONE	Yes	ABANDONED
(D-01-12) 35	633593	URQUIJO, JOE,M	11/21/1998	300	6	300	10	I,D	—	—
(D-01-12) 35	594162	BHP COPPER INC	—	—	—	—	—	NONE	—	—
(D-01-12) 35	594164	BHP COPPER INC	—	—	—	—	—	NONE	—	—
(D-01-12) 35	519005	RESOLUTION COPPER MINING LLC	9/21/1987	—	—	—	—	NONE	Yes	—
(D-01-12) 35	906297	RESOLUTION COPPER MINING, LLC	2/2/2007	20	—	—	—	NONE	Yes	—
(D-01-12) 35	621501	VAUGHAN,B G	1/1/1935	100	10	100	45	S	—	—
(D-01-12) 35adb	558203	RESOLUTION COPPER MINING LLC	8/7/1996	121	5	120	—	NONE	Yes	ABANDONED
(D-01-12) 35add	907034	RESOLUTION COPPER MINING LLC	5/24/2007	190	10	185	—	M	Yes	—
(D-01-12) 35bcc	200844	BHP SUPERIOR OPERATIONS	—	—	—	—	—	NONE	—	—
(D-01-12) 35c	561537	RESOLUTION COPPER MINING LLC	—	—	—	—	—	NONE	—	—
(D-01-12) 35cab	550403	RESOLUTION COPPER MINING LLC	—	—	—	—	—	M	—	—
(D-01-12) 35cab	550407	RESOLUTION COPPER MINING LLC	—	—	—	—	—	M	—	—
(D-01-12) 35cab	558207	RESOLUTION COPPER MINING LLC	7/29/1996	100	5	92	—	NONE	Yes	ABANDONED
(D-01-12) 35cac	560980	SHACKELFORD, LEROY,H	4/15/1997	240	4	240	7	D	Yes	—
(D-01-12) 35cba	907036	RESOLUTION COPPER MINING LLC	5/29/2007	130	10	125	—	M	Yes	—
(D-01-12) 35cbb	548188	RESOLUTION COPPER MINING LLC	3/29/1995	325	4	233	—	NONE	Yes	ABANDONED
(D-01-12) 35ccd	906303	RESOLUTION COPPER MINING, LLC	1/29/2007	17	2	17	—	M	Yes	—
(D-01-12) 35cdb	550409	RESOLUTION COPPER MINING LLC	—	—	—	—	—	M	—	—
(D-01-12) 35cdb	550413	RESOLUTION COPPER MINING LLC	—	—	—	—	—	M	—	—
(D-01-12) 35cdb	550414	RESOLUTION COPPER MINING LLC	—	—	—	—	—	M	—	—
(D-01-12) 35cdb	558208	RESOLUTION COPPER MINING LLC	7/27/1996	390	5	380	—	M	Yes	—
(D-01-12) 35cdc	548186	RESOLUTION COPPER MINING LLC	3/23/1995	500	4	500	—	M	Yes	—
(D-01-12) 35cdc	563622	RESOLUTION COPPER MINING LLC	8/20/1997	122	4	82	—	M	Yes	—
(D-01-12) 35cdc	906298	RESOLUTION COPPER MINING, LLC	1/25/2007	27	2	27	—	M	Yes	—
(D-01-12) 35dab	907035	RESOLUTION COPPER MINING LLC	6/4/2007	140	10	140	—	M	Yes	—
(D-01-12) 35dbc	807409	WALKER, GLADYS,M	1/10/1997	265	6	—	15	D	—	—
(D-01-12) 35dbd	803944	NADER, GERTRUDE,L	4/14/1986	125	8	125	30	D	—	—
(D-01-12) 35dc	650993	GUERRA,G E	—	42	—	4	25	I	—	—
(D-01-12) 36	519007	RESOLUTION COPPER MINING LLC	10/24/1987	—	—	—	—	NONE	Yes	—
(D-01-12) 36bbc	525311	RESOLUTION COPPER MINING LLC	—	—	—	—	—	DR	—	—
(D-01-13) 01	534001	WESTMONT MINING	3/8/1992	95	—	—	—	NONE	Yes	—
(D-01-13) 01	539068	CARLOTA COPPER COMPANY	7/14/1993	0	—	—	—	NONE	Yes	—
(D-01-13) 01	534004	WESTMONT MINING	2/26/1992	260	—	—	—	NONE	Yes	ABANDONED
(D-01-13) 01aba	907279	CARLOTA COPPER COMPANY	10/5/2007	306	5	300	—	M	Yes	—
(D-01-13) 01baa	533482	CARLOTA COPPER COMPANY	11/23/1991	620	6	300	—	M	Yes	—
(D-01-13) 01bcd	907285	CARLOTA COPPER COMPANY	10/20/2007	22	5	22	—	M	Yes	—
(D-01-13) 01bdc	528774	CYPRUS MIAMI MINING,	8/17/1990	620	5	—	—	NONE	Yes	ABANDONED
(D-01-13) 01cdd	539146	CARLOTA COPPER COMPANY	6/5/1993	160	8	160	—	M	Yes	—

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CADASTRAL LOCATION	ADWR WELL REGISTRY NUMBER	OWNER	DATE COMPLETED	DEPTH DRILLED (ft, bls)[a]	CASING		REPORTED PUMPING RATE (gpm)[b]	WATER USE[c]	DRILLERS LOG AVAILABLE	REMARKS
					DIAMETER (inches)	DEPTH (feet)				
(D-01-13) 01dda	557396	CARLOTTA COPPER CO	6/25/1996	97	—	—	—	NONE	Yes	ABANDONED
(D-01-13) 02dca	609691	ASARCO INC	4/1/1971	1306	7	1306	35	NONE	—	—
(D-01-13) 03abd	609690	ASARCO INC	6/26/1964	1500	9	—	35	NONE	—	—
(D-01-13) 07ccc	86780	AUTSON, R	—	—	—	—	—	D	—	—
(D-01-13) 07da	600812	TONTO NATIONAL FOREST	12/31/1980	—	—	—	—	S	—	—
(D-01-13) 07dd	600813	TONTO NATIONAL FOREST	1/1/1980	—	—	—	—	S	—	—
(D-01-13) 07ddc	609689	ASARCO INC	—	180	2	180	35	NONE	—	—
(D-01-13) 11dbd	609688	ASARCO INC	—	1353	—	—	35	NONE	—	—
(D-01-13) 12	644585	KILPATRICK,K	—	215	8	8	11	D	—	—
(D-01-13) 12	644586	KILPATRICK,K	—	150	8	—	—	D	—	—
(D-01-13) 12	644587	KILPATRICK,K	—	450	6	450	8	D	—	—
(D-01-13) 12	644984	WHEELER, W J	—	110	6	110	7	D	—	—
(D-01-13) 12	649696	HOFF, JOHN, R	1/1/1973	120	6	10	—	D	—	—
(D-01-13) 12	803359	WHEELER, ELIZABETH, F	1/1/1979	114	6	114	7	D,I	—	—
(D-01-13) 12	650390	KOS, DOANLD P	8/11/1966	335	4	100	20	D,S	—	—
(D-01-13) 12	650391	EZELL, J	10/24/1966	400	4	200	40	D,S	—	—
(D-01-13) 12	534002	WESTMONT MINING	3/9/1992	70	—	—	—	NONE	Yes	—
(D-01-13) 12	534003	WESTMONT MINING	2/6/1992	120	—	—	—	NONE	Yes	—
(D-01-13) 12aab	808246	FLETCHER, VAL C	—	—	—	—	—	U	—	—
(D-01-13) 12acd	539152	CARLOTA COPPER COMPANY	7/10/1993	158	8	158	—	M	Yes	—
(D-01-13) 12acd	539153	CARLOTA COPPER COMPANY	—	—	—	—	—	M	—	—
(D-01-13) 12ad	806636	GOODALE, LAWRENCE	5/15/1967	166	6	15	10	D	—	—
(D-01-13) 12bad	539151	CARLOTA COPPER COMPANY	6/6/1993	120	8	120	—	M	Yes	—
(D-01-13) 12cab	907274	CARLOTA COPPER COMPANY	10/18/2007	280	3	280	—	M	Yes	—
(D-01-13) 12d	800366	GEORGE,G	9/19/1973	437	8	4	6	D	—	—
(D-01-13) 12dad	519951	HOFF, JOHN,R	1/18/1988	345	7	20	—	D	Yes	—
(D-01-13) 12dba	646283	GARDNER, E	—	200	6	20	5	D	—	—
(D-01-13) 12dba	646284	GARDNER, E	—	200	6	20	5	NONE	—	ABANDONED
(D-01-13) 12dbb	509072	GARDNER, E	8/14/1984	300	5	300	10	D	Yes	—
(D-01-13) 12dca	646282	GARDNER, E	—	200	6	20	5	D	—	—
(D-01-13) 12dcc	646281	GARDNER, E	—	200	6	20	5	D	—	—
(D-01-13) 12dcd	634775	NORBECK,M	3/10/1971	160	6	100	10	D	—	—
(D-01-13) 12dcd	634776	NORBECK,M	3/18/1974	140	6	60	—	D	—	—
(D-01-13) 12dd	645706	MOORE, CHARLES & E	—	120	6	25	10	D,I,S	—	—
(D-01-13) 12dd	645708	MOORE,C D	—	165	6	20	10	D,S	—	—
(D-01-13) 12dd	645707	MOORE,C D	—	—	6	30	10	D,S,I	—	—
(D-01-13) 12dd	645709	MOORE,C D	—	200	4	200	10	D,S,I	—	—
(D-01-13) 12ddc	506663	DALTON SR, JOHN H	—	134	6	—	—	D	Yes	—
(D-01-13) 12ddc	514166	DALTON SR, JOHN H	6/1/1986	250	6	20	12	D	Yes	—
(D-01-13) 12ddc	645498	DALTON SR, JOHN H	6/1/1986	250	6	20	12	D	Yes	—
(D-01-13) 12ddd	514167	DALTON SR, JOHN H	6/10/1986	300	6	20	9	D	Yes	—

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					DIAMETER (inches)	DEPTH (feet)				
(D-01-13) 12ddd	514168	DALTON SR, JOHN H	6/5/1986	200	6	20	12	D	Yes	—
(D-01-13) 12ddd	518712	JACKSON, DON,	8/7/1987	210	7	210	8	D	Yes	—
(D-01-13) 12ddd	556117	DALTON SR, JOHN H	1/24/1997	260	8	260	10	D	Yes	—
(D-01-13) 12ddd	556566	CLARK, ANDY	11/30/1996	340	6	340	10	D	Yes	—
(D-01-13) 12ddd	568702	LEWIS, PATRICIA L	6/7/1998	300	7	300	—	D	Yes	—
(D-01-13) 12ddd	646620	MC CLENDON,J L	11/1/1967	200	8	180	10	D	—	—
(D-01-13) 13	805443	ZOBEL, DON,W	12/31/1978	22	7	22	30	I,D,S	—	—
(D-01-13) 13aa	645502	DALTON,P L	2/1/1979	180	6	180	4	D	—	—
(D-01-13) 13aa	645505	DALTON SR, JOHN,H	1/1/1964	200	6	200	4	D	—	—
(D-01-13) 13aa	645506	PRICE, ROBERT,L	—	100	5	—	12	D	—	—
(D-01-13) 13aa	645507	PRICE, ROBERT,L	—	100	6	—	—	D	—	—
(D-01-13) 13aa	645501	DALTON,P L	1/1/1929	40	12	40	10	S	—	—
(D-01-13) 13aaa	501372	T O W PROPERTIES,	11/13/1981	100	6	34	2	D	Yes	—
(D-01-13) 13aaa	556118	DALTON, JOHN H	1/29/1997	480	8	480	10	D	Yes	—
(D-01-13) 13aaa	558548	DALTON, JOHN H	—	—	—	—	10	D	—	—
(D-01-13) 13aaa	581595	DALTON SR, JOHN H	—	—	—	—	—	D	—	—
(D-01-13) 13aaa	804557	CLARK, ANDY	—	110	6	—	—	D	—	—
(D-01-13) 13aab	525362	DALTON SR, JOHN,H	4/28/1990	400	6	280	—	D	Yes	—
(D-01-13) 13aab	528291	BEAUTIFUL MOUNTAIN PROP. LLC	6/21/1990	150	6	150	—	D	Yes	—
(D-01-13) 13ab	645495	BEAUTIFUL MOUNTAIN PROP. LLC	1/1/1988	400	6	60	10	D	—	—
(D-01-13) 13ab	645496	BEAUTIFUL MOUNTAIN PROP. LLC	8/1/1967	210	6	210	10	D	—	—
(D-01-13) 13ab	645497	BEAUTIFUL MOUNTAIN PROP. LLC	1/1/1965	186	8	26	10	D	—	—
(D-01-13) 13ab	645500	DALTON SR, JOHN, H	1/1/1960	230	6	30	4	D	—	—
(D-01-13) 13ab	645504	DALTON SR, JOHN, H	1/1/1967	200	4	200	10	D	—	—
(D-01-13) 13ab	645499	DALTON SR, JOHN, H	1/1/1926	30	6	30	10	S	—	—
(D-01-13) 13ab	645503	DALTON SR, JOHN, H	1/1/1967	180	6	180	12	S	—	—
(D-01-13) 13aba	512554	DALTON SR, JOHN, H	7/6/1985	333	4	—	60	D	Yes	—
(D-01-13) 13abc	594349	COOK, JACKQUELYN	12/18/2002	505	5	500	—	D	Yes	—
(D-01-13) 13ba	802241	O'NEAL, RALPH,L	1/7/1980	210	6	201	17	D	—	—
(D-01-13) 13bad	599712	WILSON, KAREN L	8/14/2003	215	5	215	10	D	Yes	—
(D-01-13) 13bcc	205053	GONZALES, JAMES W & DONNA D	—	240	5	240	—	D	Yes	—
(D-01-13) 13bda	609854	SKOUSEN, BASIL	—	—	—	—	—	I,S	—	—
(D-01-13) 13cbb	602157	COX, L R	9/10/1973	100	10	50	35	S,D,I	—	—
(D-01-13) 13cbd	214342	ZOBEL, DON W	10/1/2007	22	9	22	—	D	Yes	—
(D-01-13) 13cbd	908019	ZOBEL, DON	10/29/2007	200	5	200	18	D	Yes	—
(D-01-13) 13cbd	537950	PECK, DAVID & PAMELA	2/15/1993	232	6	232	15	D,S	Yes	—
(D-01-13) 13cbd	609855	ZOBEL, DON, W	—	—	—	—	—	I,S	—	—
(D-01-13) 13ccb	562585	OAKDALE PROP LTD	6/12/1997	320	6	360	10	D	Yes	—
(D-01-13) 13ccc	564393	OAKDALE PROPERTIES, INC	5/17/1998	200	7	200	10	D	Yes	—
(D-01-13) 13dab	632244	WILLIAMS, KATHY	8/29/1973	125	6	12	7	D	—	—
(D-01-13) 13dbb	528515	ZOBEL, DON, W	7/7/1990	420	9	120	18	I,D	Yes	—

TABLE 5. SUMMARY OF REGISTERED WELLS IN SUPERIOR AND OAK FLAT AREAS, RESOLUTION PROJECT, PINAL COUNTY, ARIZONA

CADASTRAL LOCATION	ADWR WELL REGISTRY NUMBER	OWNER	DATE COMPLETED	DEPTH DRILLED (ft, bls)[a]	CASING		REPORTED PUMPING RATE (gpm)[b]	WATER USE[c]	DRILLERS LOG AVAILABLE	REMARKS
					DIAMETER (inches)	DEPTH (feet)				
(D-01-13) 13dbc	537257	CLARY, THOMAS A JR.	12/3/1992	204	6	204	—	D	Yes	—
(D-01-13) 13dbc	901423	JOHNSTON, ROBERT	—	420	5	420	—	D	Yes	—
(D-01-13) 13dbd	541264	INGRAM, FLOYD	6/27/1994	250	8	250	20	D	Yes	—
(D-01-13) 13dda	591880	WILLIAMS, KATHY	—	200	5	200	—	D	Yes	—
(D-01-13) 14ad	634020	LITTLE, HAYES	—	600	—	—	—	D	—	—
(D-01-13) 14bdd	215829	ANDERSON, DAVID L.C.	7/9/2007	860	5	860	—	D	Yes	—
(D-01-13) 14bdd	650560	REYNOLDS, D	—	400	—	—	4	D	—	—
(D-01-13) 14ccc	561832	GRESHAM, RICHARD	5/13/1997	380	8	380	—	D	Yes	—
(D-01-13) 14da	643157	LITTLE, HAYES	—	600	6	30	6	D	—	—
(D-01-13) 14daa	528594	WILEY, NOLAN A	7/12/1990	325	9	200	20	D	Yes	—
(D-01-13) 14daa	528857	BUCKRIDGE, PAUL	7/26/1990	380	2	220	21	D	Yes	—
(D-01-13) 14daa	609857	SHOUSEN, BASIL	—	1050	—	—	—	I,S,D	—	—
(D-01-13) 14daa	602399	MICHAELS,MITCHELL, M	1/15/1979	100	8	41	—	NONE	—	ABANDONED
(D-01-13) 14dab	530335	WILSON, GARY, L	7/25/1991	1002	6	1002	5	D	Yes	—
(D-01-13) 14dab	635005	RAY,W R	—	100	8	—	10	I,D	—	—
(D-01-13) 14dab	635006	RAY,W R	—	31	8	—	10	I,D	—	—
(D-01-13) 14dac	537254	CLARY, THOMAS A SR.	12/22/1992	413	6	413	15	D	Yes	—
(D-01-13) 14dac	560947	SKOUSEN, C R	6/6/1997	395	8	395	12	D	Yes	—
(D-01-13) 14dac	575749	EVANS, DOUGLAS J	3/24/2000	320	4	320	—	D	Yes	—
(D-01-13) 14dac	580206	SKOUSEN, CR AND ELAINE	6/9/2000	500	5	500	12	D	Yes	—
(D-01-13) 14dac	805984	ROTZ, JAMES, L	12/31/1930	22	14	22	—	D	—	—
(D-01-13) 14dac	609853	SKOUSEN, C R	—	—	—	—	—	I,S	—	—
(D-01-13) 14dad	532150	SKOUSEN, BASIL	11/4/1991	400	8	400	30	D	Yes	—
(D-01-13) 14dad	553741	MICHAEL, MITCHELL, M	3/15/1998	500	8	500	—	D	Yes	—
(D-01-13) 14dad	592795	PAEZ, GILBERT AND ROSA	9/21/2002	315	5	310	22	D	Yes	—
(D-01-13) 14dad	609852	SKOUSEN, BASIL	—	—	—	—	—	I,D,S	—	—
(D-01-13) 14dad	609856	CLARY,T A	—	760	—	—	—	I,S,D	—	—
(D-01-13) 14dba	525363	LISK, TOM & FAY, MIKE & CORINA	9/8/1989	540	5	540	12	D	Yes	—
(D-01-13) 14dba	572516	FLEACE, BRETT	4/8/1999	580	9	20	5	D	Yes	—
(D-01-13) 14dba	583219	FLEACE, BRETT	12/4/2000	400	5	400	—	D	Yes	—
(D-01-13) 14dbc	214967	RESOLUTION COPPER MINING	—	1501	5	800	—	M	Yes	—
(D-01-13) 14dbd	526188	ASARCO INC	10/20/1989	545	6	545	12	D,S	Yes	—
(D-01-13) 14dbd	609684	ASARCO INC	—	20	48	20	35	D,S	—	—
(D-01-13) 14dbd	609685	ASARCO INC	1/1/1980	100	8	18	15	D,S	—	—
(D-01-13) 14dc	642834	SOWERS, JOHN, W	—	335	6	15	3	D,S	—	—
(D-01-13) 14dc	642833	SOWERS, JOHN, W	5/30/1967	14	44	14	2	S,I	—	—
(D-01-13) 14dca	609686	ASARCO INC	1/1/1914	18	36	18	15	D,S	—	—
(D-01-13) 14dca	609687	ASARCO INC	1/1/1912	18	60	18	5	D,S	—	—
(D-01-13) 14dcd	532468	BRATCHER, V T	12/20/1992	600	7	600	8	D	Yes	—
(D-01-13) 14dda	527977	SKOUSEN, C.R.	5/30/1990	400	11	190	10	D	Yes	—
(D-01-13) 14dda	528196	ROTZ, JAMES	5/31/1990	700	6	680	5	D	Yes	—

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CADASTRAL LOCATION	ADWR WELL REGISTRY NUMBER	OWNER	DATE COMPLETED	CASING			REPORTED PUMPING RATE (gpm)[b]	WATER USE[c]	DRILLERS LOG AVAILABLE	REMARKS
				DEPTH DRILLED (ft, bls)[a]	DIAMETER (inches)	DEPTH (feet)				
(D-01-13) 14dda	550691	HELMANDOLLAR, PAM & JARVIS	10/21/1995	400	6	400	—	D	Yes	—
(D-01-13) 14dda	602156	COX, L R	9/12/1970	65	10	45	35	S,D,I	—	—
(D-01-13) 14ddb	568018	WERRE, MELVIN & SILVIA	6/30/1998	360	5	360	10	D	Yes	—
(D-01-13) 14ddb	645201	STIREWALT, LYLE, L	3/1/1974	40	8	40	25	D,S	—	—
(D-01-13) 14ddb	645202	BUCKRIDGE, P R	—	40	36	—	—	NONE	—	ABANDONED
(D-01-13) 14ddd	562584	CLARY, THOMAS, A	6/13/1997	200	6	200	16	D	Yes	—
(D-01-13) 17	907478	OMYA ARIZONA INC.	9/10/2007	—	—	—	—	NONE	—	—
(D-01-13) 17bbd	609683	ASARCO INC	—	180	2	180	10	NONE	—	—
(D-01-13) 17dcb	609674	ASARCO INC	—	30	60	30	45	NONE	—	—
(D-01-13) 21abc	609682	ASARCO INC	11/1/1964	1200	6	—	35	NONE	—	—
(D-01-13) 22daa	609681	ASARCO INC	1/1/1972	1863	7	1863	35	NONE	—	—
(D-01-13) 23acd	609679	ASARCO INC	7/1/1973	1287	7	1287	35	NONE	—	—
(D-01-13) 23cba	535785	ASARCO INC	8/27/1992	—	—	—	—	NONE	Yes	ABANDONED
(D-01-13) 23cca	507338	ASARCO INC	7/11/1984	—	—	—	—	NONE	Yes	ABANDONED
(D-01-13) 23ccb	609680	ASARCO INC	8/1/1976	1971	4	1971	35	NONE	—	—
(D-01-13) 23ccc	518290	ASARCO INC	7/11/1987	16	7	—	—	NONE	Yes	—
(D-01-13) 23ccc	528454	ASARCO INC	4/5/1991	—	—	—	—	NONE	Yes	ABANDONED
(D-01-13) 24dad	609692	ASARCO INC	1/1/1970	1048	7	1048	35	NONE	—	—
(D-01-13) 27ccc	609678	ASARCO INC	5/1/1971	1082	7	1082	35	NONE	—	—
(D-01-13) 28aad	609677	ASARCO INC	8/1/1973	1400	7	1400	35	NONE	—	—
(D-01-13) 28ddb	201851	RESOLUTION COPPER MINING LLC	—	1500	1	398	—	M	Yes	—
(D-01-13) 28ddc	526592	TONTO NATIONAL FOREST	4/28/1990	936	10	936	—	NONE	Yes	—
(D-01-13) 29cdd	609673	ASARCO INC	8/9/1924	18	48	18	80	NONE	—	—
(D-01-13) 31db	600804	TONTO NATIONAL FOREST	1/1/1956	—	—	—	—	S	—	—
(D-01-13) 32	206156	RESOLUTION COPPER MINING LLC	—	—	—	—	—	NONE	—	—
(D-01-13) 32	526327	MAGMA COPPER CO	—	—	—	—	—	NONE	—	—
(D-01-13) 32	557633	BHP COPPER INC	—	—	—	—	—	NONE	—	—
(D-01-13) 32bbd	525312	RESOLUTION COPPER MINING LLC	—	—	—	—	—	DR	—	—
(D-01-13) 32bca	201852	RESOLUTION COPPER MINING LLC	—	1600	5	1600	—	M	Yes	—
(D-01-13) 32bdd	213994	RESOLUTION COPPER MINING LLC	—	—	—	—	—	NONE	—	—
(D-01-13) 32bdd	516107	UNIVERSITY OF ARIZONA	11/10/1986	146	4	5	—	NONE	Yes	—
(D-01-13) 32bdd	512401	UNIVERSITY OF ARIZONA	—	—	—	—	—	NONE	Yes	CAPPED
(D-01-13) 32caa	217417	RESOLUTION COPPER MINING LLC	—	—	—	—	—	NONE	—	—
(D-01-13) 32cab	217418	RESOLUTION COPPER MINING LLC	—	—	—	—	—	NONE	—	—
(D-01-13) 32cab	546847	UNIVERSITY OF ARIZONA	12/16/1994	560	8	560	—	NONE	Yes	—
(D-01-13) 32cab	536975	UNIVERSITY OF ARIZONA	1/6/1993	662	6	—	—	NONE	Yes	ABANDONED
(D-01-13) 32dbd	213993	RESOLUTION COPPER MINING LLC	—	—	—	—	—	M	—	—
(D-01-13) 32dbd	217407	RESOLUTION COPPER MINING LLC	—	—	—	—	—	M	—	—
(D-01-13) 32dbd	551745	RESOLUTION COPPER MINING LLC	2/13/1998	—	—	—	—	NONE	Yes	—
(D-01-13) 32dbd	590833	RESOLUTION COPPER MINING LLC	1/30/2003	—	4	3789	—	NONE	Yes	—
(D-01-13) 32dbd	206873	RESOLUTION COPPER MINING LLC	—	—	—	—	—	NONE	—	ABANDONED

TABLE 5. SUMMARY OF REGISTERED WELLS IN SUPERIOR AND OAK FLAT AREAS, RESOLUTION PROJECT, PINAL COUNTY, ARIZONA

CADASTRAL LOCATION	ADWR WELL REGISTRY NUMBER	OWNER	DATE COMPLETED	DEPTH DRILLED (ft, bls)[a]	CASING		REPORTED PUMPING RATE (gpm)[b]	WATER USE[c]	DRILLERS LOG AVAILABLE	REMARKS
					DIAMETER (inches)	DEPTH (feet)				
(D-01-13) 32dca	201850	RESOLUTION COPPER MINING LLC	—	1310	5	1310	—	M	Yes	—
(D-01-13) 32dca	211540	RESOLUTION COPPER MINING LLC	—	—	—	—	—	NONE	—	—
(D-01-13) 32dca	599453	RESOLUTION COPPER MINING LLC	—	—	—	—	—	U	—	—
(D-01-13) 32dcd	587213	RESOLUTION COPPER MINING LLC	—	—	4	5820	—	M	Yes	—
(D-01-13) 32dcd	532680	MAGMA COPPER CO	—	—	—	—	—	NONE	—	—
(D-01-13) 32dcd	562940	BHP COPPER INC	2/4/1998	2945	4	2945	—	NONE	—	CAPPED
(D-01-13) 33	526328	MAGMA COPPER CO	—	—	—	—	—	NONE	—	—
(D-01-13) 33ccd	201849	RESOLUTION COPPER MINING LLC	—	1440	5	1440	—	M	Yes	—
(D-01-13) 33ccd	217406	RESOLUTION COPPER MINING LLC	—	—	—	—	—	M	—	—
(D-01-13) 33ccd	217151	RESOLUTION COPPER MINING LLC	4/15/2008	3123	5	3123	—	NONE	Yes	—
(D-01-13) 33ccd	592574	RESOLUTION COPPER MINING LLC	1/19/2003	7563	4	4767	—	NONE	Yes	—
(D-01-13) 35adc	609676	ASARCO INC	4/1/1964	1524	4	1524	35	NONE	—	—
(D-01-14) 05abc	539158	CARLOTA COPPER COMPANY	—	—	—	—	—	M	—	—
(D-01-14) 06abb	536013	BHP COPPER INC	8/14/1992	200	8	200	—	MIN	Yes	—
(D-01-14) 06bab	907276	CARLOTA COPPER COMPANY	11/29/2007	350	3	350	—	M	Yes	—
(D-01-14) 07bbb	907275	CARLOTA COPPER COMPANY	11/30/2007	165	3	160	—	M	Yes	—
(D-01-14) 07bbd	907273	CARLOTA COPPER COMPANY	12/6/2007	225	3	220	—	M	Yes	—
(D-01-14) 07ccb	805689	HOFF, JOHN	12/31/1947	26	6	15	6	I,D	—	—
(D-01-14) 07dcc	525052	AUSTIN, ROY	12/20/1989	195	6	20	5	D	Yes	—
(D-01-14) 17ab	601029	TONTO NATIONAL FOREST	1/2/1943	—	—	—	—	S	—	—
(D-01-14) 31acb	532634	KENNECOTT CORP	10/31/1991	—	—	—	—	NONE	Yes	ABANDONED
(D-01-14) 31dad	537641	CORYELL LTD PTRSHP	6/15/1993	—	—	—	—	NONE	Yes	ABANDONED
(D-01-14) 32ccd	539157	CARLOTA COPPER COMPANY	—	—	—	—	—	M	—	—
(D-02-12) 03	634259	LIRA JR, H B	1/1/1937	28	2	20	10	D	—	—
(D-02-12) 03	636294	ZAVALA, S V	3/15/1969	60	3	—	20	D	—	—
(D-02-12) 03	640302	MARTINEZ, G	—	54	—	—	12	D	—	—
(D-02-12) 03	804528	PINO, DIEGO R	6/22/1978	160	6	160	25	D,I	—	—
(D-02-12) 03	906296	RESOLUTION COPPER MINING LLC	2/1/2007	51	8	—	—	NONE	Yes	—
(D-02-12) 03	606678	SAWAIA, V	—	—	—	—	—	U	—	—
(D-02-12) 03	621753	BRYANT, P T	1/1/1973	128	6	128	5	U	—	—
(D-02-12) 03	634028	TAMERON, F O	—	30	—	—	—	U	—	—
(D-02-12) 03a	635650	MENDOZA, H M	1/1/1962	70	60	5	1	D	—	—
(D-02-12) 03aaa	529358	TAMERON, RICHARD	—	—	—	—	—	D	—	—
(D-02-12) 03aaa	639388	MARTINEZ, M R	1/1/1924	35	4	—	—	D	—	—
(D-02-12) 03aaa	643719	SMITH, H	1/1/1958	236	8	236	20	D	—	—
(D-02-12) 03aaa	529320	SOUTHWEST GAS CORP	11/13/1990	160	—	—	—	NONE	Yes	CATHODIC
(D-02-12) 03aac	586003	TREJO OIL COMPANY	5/9/2001	30	4	15	—	M	Yes	—
(D-02-12) 03aad	635958	EVELAND, LUCKE J & JOY	1/1/1979	117	4	117	—	D	—	—
(D-02-12) 03aad	575547	TREJO OIL COMPANY	—	—	—	—	—	M	—	—
(D-02-12) 03aad	575548	TREJO OIL COMPANY	—	—	—	—	—	M	—	—
(D-02-12) 03ab	639051	CARTER, H W	—	48	8	48	35	D	—	—

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CADASTRAL LOCATION	ADWR WELL REGISTRY NUMBER	OWNER	DATE COMPLETED	DEPTH DRILLED (ft, bls)[a]	CASING		REPORTED PUMPING RATE (gpm)[b]	WATER USE[c]	DRILLERS LOG AVAILABLE	REMARKS
					DIAMETER (inches)	DEPTH (feet)				
(D-02-12) 03abc	643720	LAYNE, G D	1/1/1907	30	36	30	—	D	—	—
(D-02-12) 03abd	528212	D-C ENTERPRISES,	—	—	—	—	—	D	—	—
(D-02-12) 03acb	643721	LAYNE, S D	1/1/1907	28	36	28	—	D	—	—
(D-02-12) 03acb	590392	TREJO INVESTMENTS	4/18/2002	20	4	10	—	M	Yes	—
(D-02-12) 03acb	213949	TREJO INVESTMENT	1/4/2007	33	3	33	—	REM	Yes	RECOVERY
(D-02-12) 03add	575549	TREJO OIL COMPANY	—	—	—	—	—	M	—	—
(D-02-12) 03baa	906299	RESOLUTION COPPER MINING LLC	1/26/2007	22	2	22	—	M	Yes	—
(D-02-12) 03baa	906300	RESOLUTION COPPER MINING LLC	1/31/2007	17	2	17	—	M	Yes	—
(D-02-12) 03baa	906360	RESOLUTION COPPER MINING LLC	2/1/2007	14	2	14	—	M	Yes	—
(D-02-12) 03bab	563620	RESOLUTION COPPER MINING LLC	—	—	—	—	—	M	—	—
(D-02-12) 03bab	906302	RESOLUTION COPPER MINING LLC	1/23/2007	27	2	27	—	M	Yes	—
(D-02-12) 03bac	906301	RESOLUTION COPPER MINING LLC	1/24/2007	82	2	82	—	M	Yes	—
(D-02-12) 03bba	907155	RESOLUTION COPPER MINING LLC	6/15/2007	35	3	35	—	M	Yes	—
(D-02-12) 03bbb	594158	BHP COPPER INC	—	—	—	—	—	M	—	—
(D-02-12) 03bbb	594160	BHP COPPER INC	—	—	—	—	—	M	—	—
(D-02-12) 03bbc	591861	BHP BILLITON	—	100	—	53	—	M	Yes	—
(D-02-12) 03bcb	545883	ADOT - EQUIPMENT SERVICES	12/13/1994	38	4	38	—	NONE	Yes	ABANDONED
(D-02-12) 03bcb	545884	ADOT - EQUIPMENT SERVICES	12/13/1994	38	4	38	—	NONE	Yes	ABANDONED
(D-02-12) 03bcb	545926	ADOT - EQUIPMENT SERVICES	12/12/1994	38	4	38	—	NONE	Yes	ABANDONED
(D-02-12) 03bcb	545927	ADOT - EQUIPMENT SERVICES	12/12/1994	38	4	38	—	NONE	Yes	ABANDONED
(D-02-12) 03bcd	559434	RUIZ, MANUEL JR	8/31/1996	400	6	400	20	D,I	Yes	—
(D-02-12) 03bdc	86423	BESICK, S	1/1/1981	320	8	320	—	D	—	—
(D-02-12) 03bdc	529316	TAMERON, JOHN, A	1/16/1991	350	7	350	20	D	Yes	—
(D-02-12) 03cca	638029	OLIVER, WILLIAM	5/15/1967	140	6	140	12	D,I	—	—
(D-02-12) 03ccd	86403	BYRD, W J	—	—	—	—	—	D	—	—
(D-02-12) 03cd	602822	SMITH, F S	11/1/1954	300	8	270	15	S	—	—
(D-02-12) 03cdb	635076	FLOREZ, F M	1/1/1968	300	8	300	10	I	—	—
(D-02-12) 03cdc	528516	GOMEZ, ANGEL	8/4/1990	360	7	360	10	D	Yes	—
(D-02-12) 03cdd	506271	VASQUEZ, AXA	9/20/1983	320	8	320	20	D	Yes	—
(D-02-12) 03dbb	200978	SOUTHWEST GAS CORPORATION	12/14/2003	100	12	—	—	NONE	Yes	ABANDONED
(D-02-12) 03dbc	613780	PADILLA, O R	—	50	—	—	—	D	—	—
(D-02-12) 03dbd	643722	TOMERLIN SR, J R	—	208	6	—	—	I	—	—
(D-02-12) 04	633771	HING, A O	1/1/1958	80	2	50	5	D	—	—
(D-02-12) 04aaa	541251	YBARRA, FRANCISCO, E	1/7/1994	168	10	161	—	D	Yes	—
(D-02-12) 04aab	563618	BHP SUPERIOR OPERATIONS	8/16/1997	590	5	510	—	M	Yes	—
(D-02-12) 04aab	563619	BHP SUPERIOR OPERATIONS	—	713	—	—	—	NONE	—	ABANDONED
(D-02-12) 04aca	550408	BHP SUPERIOR OPERATIONS	—	—	—	—	—	M	—	—
(D-02-12) 04aca	558210	BHP SUPERIOR OPERATIONS	8/13/1996	420	—	—	—	NONE	Yes	ABANDONED
(D-02-12) 04adb	548187	BHP SUPERIOR OPERATIONS	4/1/1995	225	4	135	—	M	Yes	—
(D-02-12) 04add	907037	RESOLUTION COPPER MINING LLC	5/31/2007	60	5	55	—	M	Yes	—
(D-02-12) 04add	200643	BHP SUPERIOR OPERATIONS	—	—	—	—	—	NONE	—	—

TABLE 5. SUMMARY OF REGISTERED WELLS IN SUPERIOR AND OAK FLAT AREAS, RESOLUTION PROJECT, PINAL COUNTY, ARIZONA

CADASTRAL LOCATION	ADWR WELL REGISTRY NUMBER	OWNER	DATE COMPLETED	DEPTH DRILLED (ft, bls)[a]	CASING		REPORTED PUMPING RATE (gpm)[b]	WATER USE[c]	DRILLERS LOG AVAILABLE	REMARKS
					DIAMETER (inches)	DEPTH (feet)				
(D-02-12) 04bad	508525	AZ PUBLIC SERVICE	7/20/1984	150	---	---	---	NONE	Yes	ANODE
(D-02-12) 04bda	553898	HARBORLITE CORP	10/20/1996	760	6	760	---	C	Yes	---
(D-02-12) 04dcd	571999	NORIEGA, JOHN	---	---	---	---	---	D	---	---
(D-02-12) 04ddc	592991	YBARRA, JOHN R & SUSAN N	9/10/2002	200	5	200	10	D	Yes	---
(D-02-12) 04ddc	556793	MASHAW, GREGORY	11/21/1996	220	6	220	---	D,I	Yes	---
(D-02-12) 05	552442	KENNECOTT EXPLORATION	11/28/1995	---	---	---	---	NONE	Yes	ABANDONED
(D-02-12) 05cbc	618724	AZ BOARD OF REGENTS	11/1/1963	120	8	120	21	D	---	---
(D-02-12) 05cda	553490	KENNECOTT EXPLORATION	3/5/1996	80	---	---	---	NONE	Yes	ABANDONED
(D-02-12) 06d	635628	ROSE, W Z	10/1/1940	130	6	20	35	I,S,D	---	---
(D-02-12) 06d	635629	ROSE, W Z	4/10/1973	125	6	20	35	I,S,D	---	---
(D-02-12) 06daa	635758	TRIMBLE, CHARLES P & BEVERLY M	7/26/1968	96	12	25	---	D	---	---
(D-02-12) 06daa	552444	KENNECOTT EXPLORATION	1/25/1996	80	---	---	---	NONE	Yes	ABANDONED
(D-02-12) 06ddd	507771	AVENDANO, DANIEL D	4/20/1984	95	6	12	10	D	Yes	---
(D-02-12) 07aba	624605	BOYCE THOMPSON SW AR	1/1/1925	21	4	21	175	IND,D	---	---
(D-02-12) 08	546429	KENNECOTT EXPLORATION	3/22/1995	---	---	---	---	NONE	Yes	---
(D-02-12) 08	528041	HARBORLITE CORP	5/31/1990	110	2	---	---	NONE	Yes	ABANDONED
(D-02-12) 08add	520421	CASTLEBERRY, OLIN	2/8/1989	195	8	195	---	D	Yes	---
(D-02-12) 08daa	588114	HARBORLITE CORP	---	---	---	---	---	DEW	---	---
(D-02-12) 09	528040	HARBORLITE CORP	5/31/1990	105	2	---	---	NONE	Yes	ABANDONED
(D-02-12) 09	553393	HARBORLITE CORP	---	---	---	---	---	NONE	---	ABANDONED
(D-02-12) 09bad	558551	MARTINEZ, GEORGE	8/9/1996	145	6	145	---	D	Yes	---
(D-02-12) 09bbb	552443	KENNECOTT EXPLORATION	3/1/1996	---	---	---	---	NONE	Yes	ABANDONED
(D-02-12) 10ba	602821	SMITH, F S	4/10/1973	300	10	300	30	I,S,D	---	---
(D-02-12) 10bab	86388	LIRA, D	2/13/1981	275	1	270	15	D	---	---
(D-02-12) 11cbb	624610	RESOLUTION COPPER MINING LLC	1/1/1977	74	8	74	16	NONE	---	CAPPED
(D-02-12) 22bdc	582476	HERRON, JAMES & PHYLLIS	8/16/2000	120	5	120	35	S	Yes	---
(D-02-12) 26bbb	801090	GRONLUND, CAROLYN, M	---	---	6	---	35	D,I	---	---
(D-02-12) 26bbc	801092	GRONLUND, CAROLYN, M	---	---	---	---	30	I	---	---
(D-02-12) 26bbd	801088	GRONLUND, CAROLYN, M	---	---	12	---	30	D	---	---
(D-02-12) 26bbd	801091	GRONLUND, CAROLYN, M	---	---	12	---	35	I,S	---	---
(D-02-12) 26bcb	801089	GRONLUND, CAROLYN, M	---	20	---	---	35	I,S	---	---
(D-02-12) 27aa	600934	TONTO NATIONAL FOREST	1/1/1956	---	---	---	---	S	---	---
(D-02-12) 31cc	632955	BLM-PHOENIX DISTRICT	1/1/1975	300	6	75	---	S	---	---
(D-02-12) 35ada	548185	BHP COPPER INC	3/25/1995	255	4	205	---	M	Yes	---
(D-02-13) 01	211069	PHELPS DODGE EXPLORATION	---	---	---	---	---	NONE	---	---
(D-02-13) 01aab	622473	GOVERNMENT SPRING RANCH, LLC	---	50	6	50	6	S	---	---
(D-02-13) 02bbd	614055	AZ STATE LAND DEPT	---	---	---	---	---	U	---	---
(D-02-13) 03aaa	211068	PHELPS DODGE EXPLORATION	---	---	---	---	---	NONE	---	---
(D-02-13) 04	532983	BHP COPPER INC	12/8/1991	---	---	---	---	NONE	Yes	CAPPED
(D-02-13) 04bbd	615241	AZ STATE LAND DEPT	1/1/1976	1106	10	20	16	NONE	---	---
(D-02-13) 05	213991	RESOLUTION COPPER MINING LLC	---	---	---	---	---	NONE	---	---

TABLE 5. SUMMARY OF REGISTERED WELLS IN SUPERIOR AND OAK FLAT AREAS, RESOLUTION PROJECT, PINAL COUNTY, ARIZONA

CADASTRAL LOCATION	ADWR WELL REGISTRY NUMBER	OWNER	DATE COMPLETED	DEPTH DRILLED (ft, bls)[a]	CASING DIAMETER (inches)	CASING DEPTH (feet)	REPORTED PUMPING RATE (gpm)[b]	WATER USE[c]	DRILLERS LOG AVAILABLE	REMARKS
(D-02-13) 05	557632	BHP COPPER INC	11/5/1996	—	—	—	—	NONE	Yes	—
(D-02-13) 05	532956	BHP COPPER INC	11/27/1991	—	—	—	—	NONE	Yes	CAPPED
(D-02-13) 05adc	615242	AZ STATE LAND DEPT	1/1/1973	1445	4	10	—	NONE	—	—
(D-02-13) 05ccb	201848	RESOLUTION COPPER MINING LLC	—	—	—	—	—	M	Yes	—
(D-02-13) 05ccb	615243	AZ STATE LAND DEPT	—	—	4	—	—	NONE	—	—
(D-02-13) 06	212592	RESOLUTION COPPER MINING LLC	—	—	—	—	—	MIN	—	—
(D-02-13) 06	551163	BHP COPPER INC	3/9/1996	—	—	—	—	NONE	Yes	—
(D-02-13) 06	552943	BHP COPPER INC	6/6/1996	—	—	—	—	NONE	Yes	—
(D-02-13) 06	557634	BHP COPPER INC	11/1/1996	—	—	—	—	NONE	Yes	—
(D-02-13) 06	562941	BHP COPPER INC	—	—	—	—	—	NONE	—	—
(D-02-13) 06	532681	BHP COPPER INC	8/7/1992	—	—	—	—	NONE	Yes	CAPPED
(D-02-13) 06b	591060	RESOLUTION COPPER MINING LLC	—	—	—	—	—	NONE	—	—
(D-02-13) 06bba	597972	RESOLUTION COPPER MINING LLC	—	5160	5	3235	—	M	Yes	—
(D-02-13) 06bba	217150	RESOLUTION COPPER MINING LLC	4/20/2008	3370	5	3364	—	NONE	Yes	—
(D-02-13) 06bbb	216751	RESOLUTION COPPER MINING LLC	—	—	—	—	—	NONE	—	—
(D-02-13) 06bca	587214	RESOLUTION COPPER MINING LLC	—	—	4	5686	—	M	Yes	—
(D-02-13) 06c	537526	MAGMA COPPER CO	6/9/1993	—	—	—	—	NONE	Yes	ABANDONED
(D-02-13) 06daa	216752	RESOLUTION COPPER MINING LLC	—	—	—	—	—	NONE	—	—
(D-02-13) 06dab	213992	RESOLUTION COPPER MINING LLC	—	—	—	—	—	M	—	—
(D-02-13) 06dac	217258	RESOLUTION COPPER MINING LLC	4/29/2008	3453	5	3451	—	NONE	Yes	—
(D-02-13) 07abb	609675	ASARCO INC	—	1400	4	1400	35	S	—	—
(D-02-13) 08aaa	907947	RESOLUTION COPPER MINING LLC	11/16/2007	1067	5	1041	—	M	Yes	—
(D-02-13) 08acb	615244	AZ STATE LAND DEPT	1/1/1910	200	10	10	—	S	—	—
(D-02-13) 08bab	615245	AZ STATE LAND DEPT	—	—	4	—	—	M	—	—
(D-02-13) 08cbb	907946	RESOLUTION COPPER MINING LLC	11/28/2007	1455	5	1022	—	M	Yes	—
(D-02-13) 09abd	615246	AZ STATE LAND DEPT	1/1/1970	205	6	20	35	S	—	—
(D-02-13) 09bbc	615247	AZ STATE LAND DEPT	1/1/1972	1000	4	—	—	M	—	—
(D-02-13) 10add	211071	PHELPS DODGE CORPORATION	—	501p	—	—	—	NONE	—	ABANDONED
(D-02-13) 10dad	615240	AZ STATE LAND DEPT	—	—	7	60	—	U	—	—
(D-02-13) 12aad	622474	GOVERNMENT SPRING RANCH, LLC	—	100	6	100	6	S	—	—
(D-02-13) 12da	805867	HOOPES/HAMILTON	12/31/1979	—	—	—	—	S,I	—	—
(D-02-13) 14acd	615248	AZ STATE LAND DEPT	—	—	4	—	—	U	—	—
(D-02-13) 14bab	615239	AZ STATE LAND DEPT	—	90	4	—	—	U	—	—
(D-02-13) 14ccc	615238	AZ STATE LAND DEPT	—	40	7	—	—	U	—	—
(D-02-13) 15dad	615250	AZ STATE LAND DEPT	1/1/1976	—	6	—	—	S	—	—
(D-02-13) 16aab	615251	AZ STATE LAND DEPT	1/1/1964	2303	4	—	—	U	—	—
(D-02-13) 19dc	600811	TONTO NATIONAL FOREST	1/1/1980	—	—	—	—	S	—	—
(D-02-13) 22aad	211373	PHELPS DODGE CORPORATION	—	437	—	—	—	NONE	—	ABANDONED
(D-02-13) 23bcc	211067	PHELPS DODGE CORPORATION	—	—	—	—	—	NONE	—	—
(D-02-13) 23cbc	615249	AZ STATE LAND DEPT	—	—	4	—	—	U	—	—
(D-02-13) 27cac	617420	ASARCO INC. - RAY COMPLEX	9/10/1970	1872	8	770	—	D,IND	—	—

TABLE 5. SUMMARY OF REGISTERED WELLS IN SUPERIOR AND OAK FLAT AREAS, RESOLUTION PROJECT, PINAL COUNTY, ARIZONA

CADASTRAL LOCATION	ADWR WELL REGISTRY NUMBER	OWNER	DATE COMPLETED	DEPTH DRILLED (ft, bls)[a]	CASING		REPORTED PUMPING RATE (gpm)[b]	WATER USE[c]	DRILLERS LOG AVAILABLE	REMARKS
					DIAMETER (inches)	DEPTH (feet)				
(D-02-13) 27cac	615252	AZ STATE LAND DEPT	1/1/1970	1782	8	1782	—	U	—	—
(D-02-13) 31da	600810	TONTO NATIONAL FOREST	1/1/1974	—	—	—	—	S	—	—
(D-02-13) 34	565814	ASARCO INC. - RAY COMPLEX	—	—	—	—	—	NONE	—	—
(D-02-13) 34	568052	ASARCO INC. - RAY COMPLEX	—	—	—	—	—	NONE	—	—
(D-02-13) 34caa	531847	ASARCO INC. - RAY COMPLEX	7/12/1991	300	6	300	—	M	Yes	—
(D-02-13) 34dab	807131	ASARCO INC. - RAY COMPLEX	6/30/1974	118	3	20	—	NONE	—	CAPPED
(D-02-13) 34dda	568047	ASARCO INC. - RAY COMPLEX	5/26/1998	97	1	97	—	NONE	Yes	ABANDONED
(D-02-13) 34dda	568050	ASARCO INC. - RAY COMPLEX	6/4/1998	75	1	44	—	NONE	Yes	ABANDONED
(D-02-13) 34dda	586967	ASARCO INC. - RAY COMPLEX	—	60	8	60	—	NONE	Yes	ABANDONED
(D-02-13) 34ddb	535148	ASARCO INC. - RAY COMPLEX	8/19/1992	300	6	300	—	NONE	Yes	ABANDONED
(D-02-13) 34ddd	586966	ASARCO INC. - RAY COMPLEX	—	60	8	60	—	NONE	Yes	ABANDONED
(D-02-13) 34ddd	586968	ASARCO INC. - RAY COMPLEX	—	60	8	60	—	NONE	Yes	ABANDONED
(D-02-13) 35	564749	ASARCO INC. - RAY COMPLEX	1/31/1998	350	—	—	—	NONE	Yes	—
(D-02-13) 35	565811	ASARCO INC. - RAY COMPLEX	—	—	—	—	—	NONE	—	—
(D-02-13) 35ccc	807127	ASARCO INC. - RAY COMPLEX	4/30/1970	923	3	40	—	NONE	—	CAPPED
(D-02-13) 35ccd	615253	ASARCO INC. - RAY COMPLEX	1/1/1978	1150	4	50	—	M	—	—
(D-02-14) 07caa	615254	AZ STATE LAND DEPT	—	—	—	—	—	U	—	—
(D-02-14) 07ccd	211070	PHELPS DODGE CORPORATION	—	—	—	—	—	NONE	—	—
(D-02-14) 07cdb	615255	AZ STATE LAND DEPT	—	100	4	—	—	U	—	—
(D-02-14) 18cbb	615256	AZ STATE LAND DEPT	—	1442	4	123	—	U	—	—
(D-02-14) 19aab	615257	AZ STATE LAND DEPT	—	—	—	1	—	S	—	—
(D-02-14) 19dad	615258	AZ STATE LAND DEPT	—	—	1	—	—	S	—	—
(D-02-14) 30abb	622472	GOVERNMENT SPRING RANCH, LLC	—	250	6	250	5	S	—	—
(D-02-14) 30baa	615265	AZ STATE LAND DEPT	—	—	6	—	—	S	—	—
(D-02-14) 30dcd	615266	AZ STATE LAND DEPT	—	80	4	—	—	U	—	—
(D-02-14) 31	509257	FREEPORT EXPLORATION	10/1/1984	—	—	—	—	NONE	Yes	—
(D-02-14) 31	209438	TECK COMINCO AMERICAN INC	—	—	—	—	—	NONE	—	ABANDONED
(D-02-14) 31abc	615267	AZ STATE LAND DEPT	—	—	—	—	—	U	—	—
(D-03-12) 03aac	579057	TREJO OIL COMPANY	10/4/2000	20	4	10	—	M	Yes	—
(D-03-13) 01	564747	ASARCO INC. - RAY COMPLEX	1/29/1998	—	—	—	—	NONE	Yes	—
(D-03-13) 02	539852	ASARCO INC. - RAY COMPLEX	—	—	—	—	—	NONE	—	—
(D-03-13) 02	564750	ASARCO INC. - RAY COMPLEX	2/5/1998	—	—	—	—	NONE	Yes	—
(D-03-13) 02	565812	ASARCO INC. - RAY COMPLEX	—	—	—	—	—	NONE	—	—
(D-03-13) 02bcd	615309	ASARCO INC. - RAY COMPLEX	—	2250	4	1000	—	S	—	—
(D-03-13) 03	539851	ASARCO INC. - RAY COMPLEX	—	—	—	—	—	NONE	—	—
(D-03-13) 03	565815	ASARCO INC. - RAY COMPLEX	—	—	—	—	—	NONE	—	—
(D-03-13) 03	539497	ASARCO INC. - RAY COMPLEX	7/2/1993	187	—	—	—	NONE	Yes	ABANDONED
(D-03-13) 03aba	481961	ASARCO INC. - RAY COMPLEX	—	—	—	—	—	M	—	—
(D-03-13) 03abd	807133	ASARCO INC. - RAY COMPLEX	11/30/1975	50	3	20	—	NONE	—	CAPPED
(D-03-13) 03adb	536205	ASARCO INC. - RAY COMPLEX	9/28/1992	54	4	54	—	NONE	Yes	ABANDONED
(D-03-13) 03adb	536206	ASARCO INC. - RAY COMPLEX	9/24/1992	45	4	45	—	NONE	Yes	ABANDONED

TABLE 5. SUMMARY OF REGISTERED WELLS IN SUPERIOR AND OAK FLAT AREAS, RESOLUTION PROJECT, PINAL COUNTY, ARIZONA

CADASTRAL LOCATION	ADWR WELL REGISTRY NUMBER	OWNER	DATE COMPLETED	DEPTH DRILLED (ft. bls)[a]	CASING DIAMETER (inches)	CASING DEPTH (feet)	REPORTED PUMPING RATE (gpm)[b]	WATER USE[c]	DRILLERS LOG AVAILABLE	REMARKS
(D-03-13) 03adb	536207	ASARCO INC. - RAY COMPLEX	9/29/1992	47	4	47	—	NONE	Yes	ABANDONED
(D-03-13) 03add	560261	ASARCO INC. - RAY COMPLEX	—	—	—	—	—	NONE	—	—
(D-03-13) 03bcc	531844	ASARCO INC. - RAY COMPLEX	7/11/1991	600	6	600	—	M	Yes	—
(D-03-13) 03bdc	517175	ASARCO INC. - RAY COMPLEX	1/1/1983	20	—	—	—	NONE	Yes	—
(D-03-13) 04bbb	508699	ASARCO INC. - RAY COMPLEX	7/26/1984	—	4	—	—	NONE	Yes	ABANDONED
(D-03-13) 05bbb	503106	DUGAN, R M	11/7/1982	59	14	59	29	D	Yes	—
(D-03-13) 05bbb	644326	DUGAN, R M	2/2/1966	23	8	23	29	D	—	—
(D-03-13) 06bac	581015	BLM	6/24/2000	590	—	—	—	IND	Yes	—

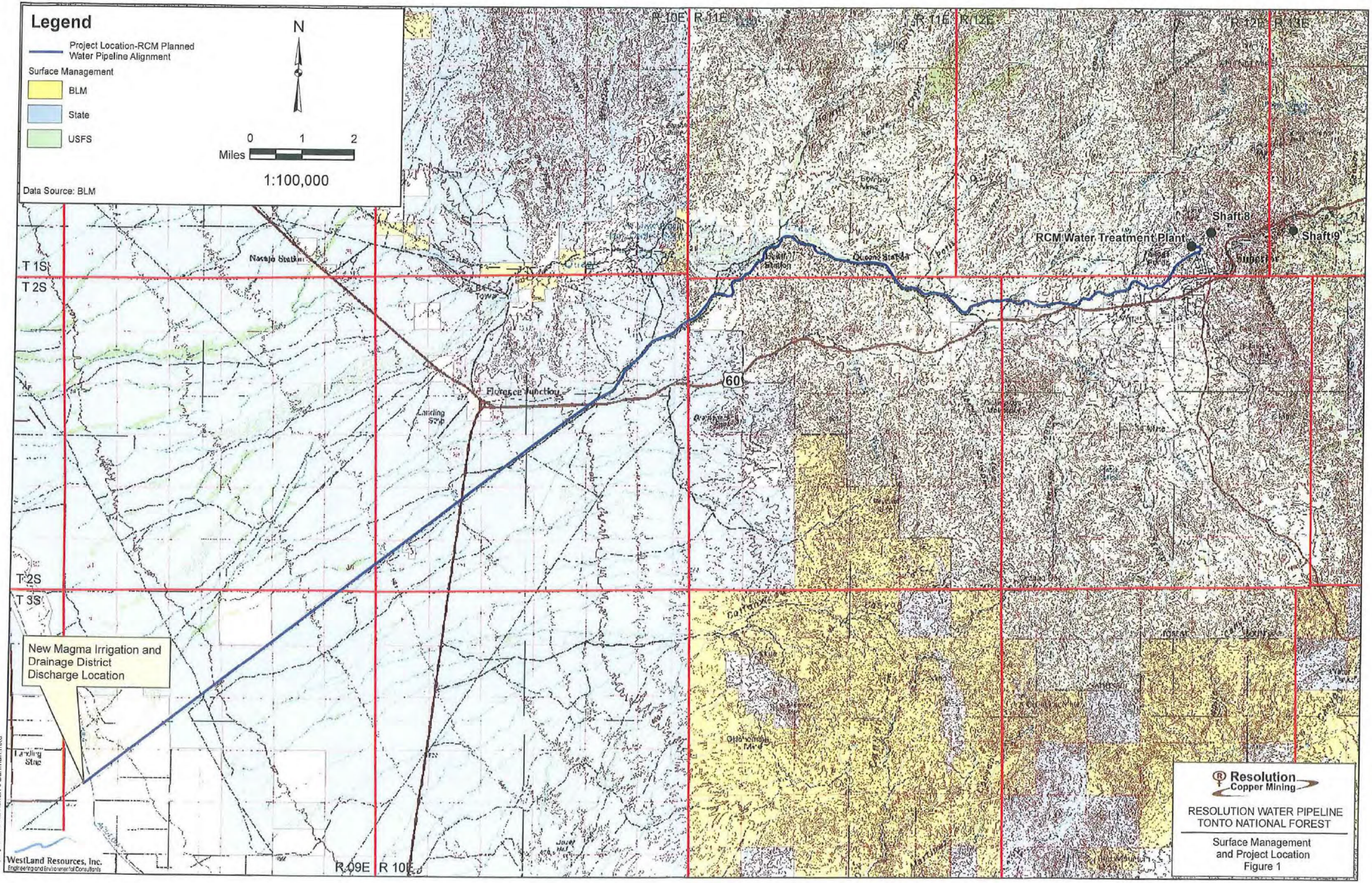
[a] ft. bls = feet below land surface
[b] gpm = gallons per minute — = no available data

[c] Water Use:

D = Domestic	IND = Industrial	REM = Remediation	MIN = Mining
S = Stock	C = Commercial	DEW = Dewatering	ME = Mineral Exploration
I = Irrigation	M = Monitoring	DR = Drainage	U = Unknown - not reported

NOTE: Where field-verified, reported water use has been modified to reflect actual present use

Data Source: Arizona Department of Water Resources 55-series Well Registry, January 2008


Legend
Project Location-RCM Planned Water Pipeline Alignment
Surface Management
BLM
State
USFS
Data Source: BLM
N
0 1 2
Miles
1:100,000
R 10E R 11E
R 11E R 12E
R 12E R 13E
T 1S
T 2S
T 2S
T 3S
Shaft 8
Shaft 9
RCM Water Treatment Plant
Superior
Florence Junction
60
New Magma Irrigation and Drainage District Discharge Location
R 09E R 10E
WestLand Resources, Inc.
Resolution Copper Mining
RESOLUTION WATER PIPELINE
TONTO NATIONAL FOREST
Surface Management and Project Location
Figure 1

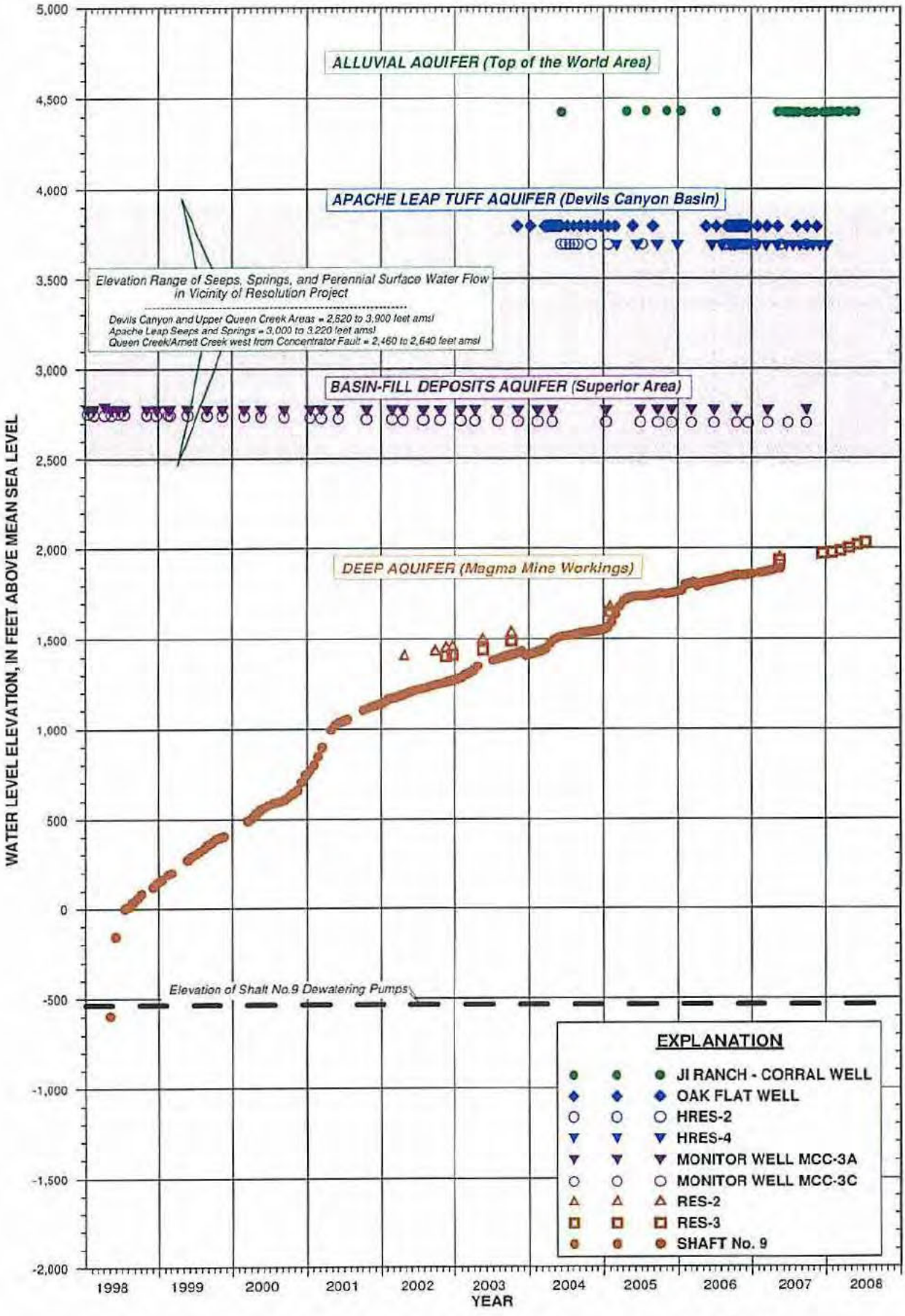
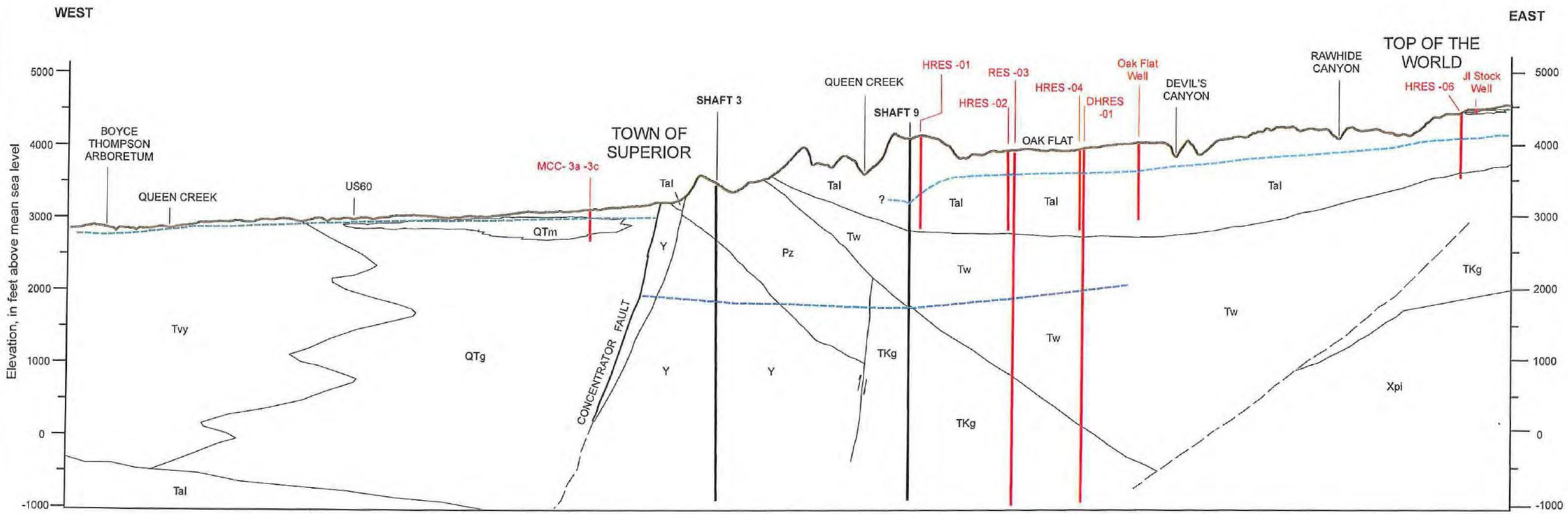


FIGURE 3. HYDROGRAPH OF WATER LEVEL ELEVATION FOR SHAFT No. 9 AND REPRESENTATIVE WELLS COMPLETED IN PRINCIPAL AQUIFERS IN THE VICINITY OF THE RESOLUTION PROJECT - 1998-2008, PINAL COUNTY, ARIZONA



GEOLOGIC UNITS

QTm - Quaternary-Tertiary mudstone
QTg - Quaternary-Tertiary Alluvial and Basin-Fill Deposits
Tvy - Tertiary Younger Volcanic Rocks
Tal - Tertiary dacite (Apache Leap Tuff)
Tw - Tertiary conglomerate (Whitetail Formation)
TKg - Cretaceous - Tertiary Volcaniclastic Sediments and Intrusives
Pz - Paleozoic Sedimentary
Y - Younger Precambrian Sedimentary, Volcanic and Intrusive Rocks
Xpi - Older Precambrian Pinal Schist

GROUNDWATER POTENTIOMETRIC SURFACES

- Basin-Fill Deposits aquifer
- Apache Leap Tuff aquifer
- Deep aquifer

Resolution Copper Mining

RESOLUTION WATER PIPELINE
TONTO NATIONAL FOREST

Generalized Hydrogeologic Section
Figure 4

485,000 490,000 495,000 500,000 505,000

3,690,000 3,685,000 3,680,000 3,675,000

N

Queen Creek Watershed

Devils Canyon Watershed

Shaft No. 9

Pump Station

Eddie

Boulder Hole

Bored

Hidden

Kanes

Blue Springs (intermittent)

WWTP

Oak Seep

10 KM
15 KM
20 KM
33 KM
30 KM
25 KM
5 KM
4 KM
10 KM
15 KM
17 KM
9 KM

QC 17.39 - 15.55
A 4.53 - 4.49
A 4.84 - 4.82
T 0.84 - 0.52
T 1.03 - 1.00
RR 1.40 - 1.34
H 0.37
DC 10.99 - 10.64
DC 8.9 W
DC 8.8 W
DC 8.6 W
DC 8.3 E
DC 8.2 W
DC 9.14 - 7.53
DC 7.15 - 7.06
DC 6.12 E
DC 6.1 E
DC T 6.6 W
DC 6.10 - 5.44
DC 5.0 E
DC 4.1 E
DC 3.7 E

LEGEND

- Watershed Boundary
- Perennial Flowing Reach
- Intermittent Flowing Reach
- Dry Reach
- Seep

Estimated Mimimum Observed Discharge (L/s)

- 0
- 0.01 - 0.10
- 0.11 - 0.30
- 0.31 - 0.75

ABBREVIATIONS

Drainages
A - Arnett Creek
DC - Devils Canyon
DC T - Devils Canyon Tributary
H - Hackberry Creek
QC - Queen Creek
RR - Rancho Rio Creek
T - Telegraph Canyon
WWTP - Town of Superior Wastewater Treatment Plant

Directions
E - East side of drainage
W - West side of drainage

REFERENCE

Projection: Transverse Mercator Datum: NAD 27 Coordinate System: UTM Zone 12N

2 0 2
SCALE 1:80,000 Kilometers

PROJECT
Resolution Copper Mining
RESOLUTION WATER PIPELINE
TONTO NATIONAL FOREST

TITLE
SURFACE WATER FEATURES

Golder Associates
Tucson, Arizona

PROJECT No. 073-92591			SCALE AS SHOWN REV. 0
DESIGN	--	--	
GIS	MM	9/8/2009	FIGURE 5
CHECK	KG	9/8/2009	
REVIEW	JM	9/8/2009	

Project: L:\2007\073925911_8041\MXDs\073925911_804F02.mxd - Plot: L:\2007\073925911_8041\Export\Figures\20080909\073925911_804F02.pdf

Legend

DC# — Devil's Canyon Segments 1-5

QC# — Queen Creek Segments 1-11

R# — Reservoirs 1-6

Natural Alluvial Basin

Road Bed

N

W E

S

0 1000 2000

Feet

0 500 1000

Meters

Resolution Copper Mining

RESOLUTION WATER PIPELINE
TONTO NATIONAL FOREST

Riparian Vegetation in Upper
Queen Creek and Devils Canyon
Figure 6

WestLand Resources Inc.
Engineering and Environmental Consultants

QC1
QC2
QC3
QC4
QC5
QC6
QC7
QC8
QC9
QC10
QC11
Queen Creek
Shaft 8
Shaft 9
R1
R2
R3
R4
R5
R6
DC1
DC2
DC3
DC4
DC5
Devils Canyon

RESPONSE TO PUBLIC COMMENTS

LTF No. 80929

Applicant: Resolution Copper Skunk Camp TSF

Pursuant to Arizona Administrative Code R18-1-401(A), ADEQ publicly noticed a 30-day comment period on the draft Water Quality Certification (WQC) in three local newspapers and on the ADEQ website. The notice was published on September 30, 2020 in:

- the Superior Sun,
- the Copper Basin News, and
- the San Manuel Miner.

Prior to the end of the comment period on October 30, 2020, at the written request of a commenter, ADEQ extended the comment period by 14 days. The extension was published in the same newspapers and on the ADEQ website. The extension ran from October 31, 2020 through November 13, 2020.

Prepared By: Rosi Sherrill, 401 Project Manager
Surface Water Permits Unit
Arizona Department of Environmental Quality
1110 W. Washington St.
Phoenix, AZ 85007

Date: December 22, 2020

Comments received during the public comment period are summarized below. The comments are followed by ADEQ's response shown in *italics*. Comments may have been shortened or paraphrased for presentation in this document; a copy of the unabridged comments is available upon written request from the ADEQ Records Center, recordscenter@azdeq.gov.

Comment No. 1 received from AMRC, et al

An email notification regarding this particular notice was never received.

Response No. 1

The public notice requirements for the 401 Water Quality Certification are found in A.A.C. R18-1-401(1)(A), which states: "When notice is required by statute or rule, and notice procedures are not otherwise prescribed by statute or rule, the Department shall: Publish the notice as a legal notice at least once, in one or more newspapers of general circulation in the county or counties concerned." The draft 401 Water Quality Certification (WQC) was published on October 30, 2020 in the Superior Sun, Copper Basin News and the San Manuel Miner, and noticed on the ADEQ website.

Please note: On November 24, 2020, a subscriber list in ADEQ's listserv for the State 401 Water Quality Certificate (WQC) was created and will be used to communicate public notices for future 401 WQCs. The list subscription is available at https://azdeq.gov/cwa401.

Comment No. 2 received from AMRC, et al, San Carlos Apache Tribe

Request for extension of comment period and request for a public hearing

Response No. 2

ADEQ published the notice for the WQC in newspapers of general circulation in the area, per A.A.C. R18-1-401(1)(A). The originally published comment period was from September 30 - October 30, 2020 and was extended through November 13, 2020, 5:00 p.m. The extension was noticed in the newspapers listed above and on the ADEQ website on November 4, 2020. ADEQ determined a hearing was not necessary as written submittal of comments adequately addressed substantive and procedural issues with this WQC.

Comment No. 3 received from AMRC, et al

This 401 WQC is not on the "Permits in Process" map or spreadsheet.

Response No. 3

ADEQ followed A.A.C. R18-1-401(1) public notice requirements, as discussed in the response of comment #1, but did not publish the 401 WQC in the Permits in Process map. ADEQ is working to implement the addition of 401 WQCs to the "Permits in Process" map and spreadsheet, which is available on our website, to provide future transparency on WQCs.

Comment No. 4 received from AMRC, et al

Submitted the document of "Comments to Tonto National Forest and the U.S. Army Corps of Engineers, November 2019."

Response No. 4

ADEQ appreciates AMRC sharing the comments provided to the USFS/USACE on the DEIS. Although these comments may relate to the project as a whole, ADEQ's 401 WQC is based upon information provided in the certification request–the specific activities that will dredge or fill Waters of the U.S. (WOTUS) during the installation of the pipeline and tailings facility. The 401 WQC will become part of the CWA 404 issued by the USACE.

Comments No. 5, 6, and 7 received from Resolution Copper

- Add "were evaluated" on page 3 paragraph 3
- Add bullet on page 3 paragraph 3: "Natural drainage patterns across the pipeline corridor will be maintained to the extent practical through engineered channels and culverts and other surface water design features."
- Page 5, General Conditions, #3. Please replace the word "Construction" with "Stormwater."

Responses No. 5, 6, and 7

ADEQ concurs and has modified the language as requested.

Comment No. 8 received from the San Carlos Apache Tribe, and WMAP, et al

ADEQ's proposal to issue a §401 WQC to Resolution Copper is premature. As pointed out by Western Mining Action Project's October 30, 2020 objection to the draft WQC at page 5, ADEQ's relies on a deficient Draft Environmental Impact Statement ("DEIS").

Response No. 8

ADEQ understands that the information provided in the DEIS may change by the time the FEIS is approved. ADEQ made the decision to proceed with the information received to-date, and to issue the 401 WQC. If the information relied upon for this certification changes, the applicant may be required to apply for additional 401 WQC.

Comment No. 9 received from the San Carlos Apache Tribe

The San Carlos Apache Tribe ("Tribe") was not notified directly that there was a public comment period on the 401 WQC for the Skunk Camp TSF. ADEQ's failure to notify the Tribe of the intent to issue a State 401 WQC establishes deficient notice of the proposed State 401 WQC. The deficient notice requires ADEQ to extend the time for the Tribe to comment on the proposed State 401 WQC.

Response No. 9

ADEQ makes every effort to ensure that interested parties are notified about permitting actions the agency is taking. The draft 401 WQC was published on October 30, 2020 in the Superior

Sun, Copper Basin News and the San Manuel Miner, and noticed on the ADEQ website. The comment period was extended through November 13 - see Response #2. The Department is also taking additional actions to ensure that future WQC actions are added to our "Permits in Process" website, in addition to creating a subscriber list for interested parties to receive public notices. The list subscription is available at https://azdeq.gov/cwa401.

ADEQ is willing to provide consultation to the San Carlos Tribe and will reach out directly to Tribal leadership to make this offer.

Comment No. 10 received from the San Carlos Apache Tribe

Substantial information has been provided regarding the proposed Skunk Camp Tailings Storage Facility since the filing of the DEIS which ADEQ must consider before it can make any informed decision on the issuance of a State §401 WQC. A number of important technical reports have been filed with Tonto National Forest ("TNF") since the publication of the DEIS including reports directly dealing with the proposed Skunk Camp Tailings Storage Facility which should inform ADEQ's decision to issue a §401 WQC to Resolution Copper.

Response No. 10

ADEQ received Resolution Copper's 401 Certification request in February 2020. Upon review, ADEQ requested additional information on impacts to Dripping Springs, Stone Cabin, and Skunk Camp Washes—washes covered in this project. ADEQ also participated in monthly workgroup meetings scheduled by SWCA, Resolution's contractor. Based on the information provided, ADEQ determined that sufficient information has been provided to issue a 401 WQC for the pipeline and tailings facility. Please see the draft WQC section 3 - Information Reviewed for a list of documents received and reviewed for this project. If the information relied upon for this certification changes, the applicant may be required to apply for additional 401 WQC.

Comment No. 11 received from the San Carlos Apache Tribe

The Tribe and the general public have not been provided adequate information to make fully informed comments based upon the information ADEQ has made available to the public. The need for a decision based upon adequate information is of paramount concern to the Tribe and the public. The draft WQC cannot be issued as proposed and based upon the inadequate information available to the public. For these reasons and the reasons set forth in WMAP's objection, the Tribe encourages ADEQ to provide all relevant records to the public, extend the time for the public to comment on the proposed §401 WQC to Resolution Copper and set this matter for a public hearing.

Response No. 11

The draft WQC is available on the ADEQ website and its availability was publicly noticed on September 30, and again on November 4, on the ADEQ website and in several newspapers - see response to comment #1. Section 3 of the draft WQC lists the documents that ADEQ has

reviewed in order to make an informed decision on the WQC. Any or all of these documents are available to the general public.

Comment No. 12 received from WMAP, et al

The Draft WQC fails to review and consider Resolution's proposed plan of operations submitted to the U.S. Forest Service. Because ADEQ failed to consider the plan of operations as one of the federal licenses or permits that must be reviewed under Section 401, the WQC cannot be issued as proposed. Nor can the USFS approve any plan of operations, or the Corps approve the 404 permit, for the Project.

Response No. 12

The Draft WQC for the Skunk Camp TSF does not consider the plan of operations submitted to the USFS. This Draft 401 WQC only covers impacts to WOTUS from the pipeline and the actual tailings facility. In the future, the USFS may require Resolution Copper to submit a 401 Certification request for the other affected areas, such as Queen Creek, but ADEQ has not received any such requests at this time.

Comment No. 13 received from WMAP, et al

The Draft WQC fails to review all potential water quality impacts from the Resolution project. Section 401 applies to any federal permit or license for an activity that may discharge into a water of the U.S. The Ninth Circuit Court of Appeals has ruled that the discharge must be from a point source, and agencies in other jurisdictions have generally adopted the requirement. Once these thresholds are met, the scope of analysis and potential conditions can be quite broad. As the U.S. Supreme Court has held, once §401 is triggered, the certifying state or tribe may consider and impose conditions on the project activity in general, and not merely on the discharge, if necessary to assure compliance with the CWA and with any other appropriate requirement of state or tribal law.

Response No. 13

This WQC meets federal CWA Section 401 and state requirements for CWA 401 certifications under Arizona Revised Statutes (ARS) Title 49. ARS § 49-202(C) states, "[t]he department shall review the application for section 401 certification solely to determine whether the effect of the discharge will comply with the water quality standards for navigable waters established by department rules... The department's review shall extend only to activities conducted within the ordinary high watermark of navigable waters. To the extent that any other standards are considered applicable pursuant to section 401(a)(1) of the clean water act, certification of these standards is waived." Based on the federal rule and Arizona statutes, ADEQ is providing a WQC of the pipeline and Skunk Camp TSF, the activities subject to review. Additionally, see the response to comment 12 above.

Comment No. 14 received on October 30, 2020 from WMAP, et al

The WQC must protect all water quality standards, including all beneficial uses. ADEQ is required to conduct an anti-degradation review because of impacts to Queen Creek, an impaired waterbody.

Response No. 14

ADEQ's WQC "General Conditions" specify conditions that protect surface water quality standards (numeric or narrative). Additionally, designated uses are protected by Best Management Practices (BMPs) that avoid or minimize impacts, such as restoration, revegetation, and maintaining flow. Because these conditions are protective of all water quality standards, including all beneficial uses, no anti-degradation review was conducted. Further, ADEQ is not required to conduct an anti-degradation review as this project anticipates no impacts to the impaired waterbody, Queen Creek. R18-11-107.01(D). The project plans to avoid the discharge of fill to Queen Creek either by spanning or passing beneath it.

Comment No. 15 received from WMAP, et al

The Draft WQC impermissibly defers submission and review of the requisite surface water mitigation plan. Deferring to Resolution's submittal of an adequate mitigation plan until after it obtains a 404 permit and plan of operations approval deprives the public of the ability to review and comment on that mitigation plan, in violation of state water quality law/regulations, the CWA, and public land and environmental laws applicable to the USFS (Organic Act, etc.).

Response No. 15

The review and approval of surface water mitigation plans lies with the USACE and is therefore out of the scope of the 401 WQC and the ADEQ's authority.

Comment No. 16 received on October 30, 2020 from WMAP, et al

Additional failures to comply with all applicable water quality requirements independent of the requirements to avoid, minimize and, finally, compensate for impacts (which have not been met here), the 404(b)(1) Guidelines prohibit discharges which will cause or contribute to significant degradation of waters of the United States. This includes all direct and indirect/secondary impacts from the Project and its discharges [including stormwater runoff].

Response No. 16

ADEQ is the authority for 401 WQC for Arizona and follows the regulations set forth in the federal CWA and in Arizona statute. Both have specific limitations on what information is required in a 401 Certification Request and what information ADEQ may use to make its determination regarding activities involving dredge and fill. As stated in the response to comment 16, mitigation and enforcement responsibility of CWA 404(b)(1) lies with the EPA and the USACE. Indirect and secondary impacts from the project may be addressed in other AZPDES permits, but are out of scope of the CWA 401.

Rio Tinto

Dear Roger,

Thank you for your email regarding the Resolution Copper project in Arizona.

Mining by its very nature has an impact on the environment and on local communities, and all mines (like all major industrial developments or infrastructure projects) face opposition. The aim of responsible mining companies is to try to ensure that the positive social and economic benefits of mining are maximised while the negative impacts are minimised. We are not infallible, and we do not always get it right. But we try our best.

I know opinions vary in the USA, but perhaps the greatest threat facing humankind today is climate change. In recognition of this threat, Rio Tinto exited coal in 2018 and is the only major diversified mining company that does not produce or sell fossil fuels. We also have a clear strategy to reach net zero carbon by 2050.

Decarbonising Rio Tinto's operations and the economy as a whole will involve an unprecedented level of investment in electrification, which in turn will create a huge increase in demand for certain essential metals, particularly copper. Some of this new demand will be satisfied by more efficient recycling, but if the USA is to reduce its dependence on fossil fuels, and other less developed nations are to enjoy a level of prosperity approaching that of rich countries like the USA, significant additional primary production of copper will be required.

Resolution is within the footprint of the historic Magma Copper Mine, in the Copper Triangle where copper mining has been the fabric of the community for a century. Resolution has the potential to meet up to 25% of US demand for copper. By doing so efficiently and effectively, the mine has the potential to produce copper with a value of approximately $60bn over a 50+ year life. Most of this value will remain in Arizona in the form of wages paid to employees (including Native Americans), payments to suppliers and State taxes. The copper produced by Resolution can be infinitely recycled, providing future generations with an essential raw material for human progress.

The land exchange between Resolution Copper and the federal government was approved by a bipartisan vote in Congress and signed into law by President Obama. The Resolution land exchange, in contrast to other land exchanges mandated by Congress, is subject to completion of an environmental impact assessment under the National Environmental Policy Act (NEPA) by the US Forest Service. Other land exchanges mandated by Congress occur 60 days after passage without a review under NEPA. Making the Resolution land exchange contingent on a full NEPA review was one of the requirements that bipartisan leaders included in the legislation prior to its passage in 2014. According to the permitting schedule set under President Obama, the Final Environmental Impact Statement (FEIS) was due to be completed in July 2020 but was delayed as a result of accommodating additional consultation

and extended public comment periods. Publication of the FEIS on January 15, 2021 is thus a delay from the original schedule.

Publication of the FEIS and consummation of the land exchange is not the end of the permitting process. The USFS has held hundreds of consultations and as a company we will continue to engage as we complete additional permits and approvals and a feasibility study. The land swap involves a 2 for 1 swap i.e. the area of public lands will be increased not decreased. The private land that we will transfer to federal ownership has been selected to include areas of high cultural, biodiversity and conservation value.

We have also worked hard with the US Forest Service, the town of Superior, and Native American tribes to provide permanent protection for Apache Leap within a Special Management Area. This will preserve a site of cultural significance to Western Apache Tribes that have historic associations with the region, as well as providing an important recreational amenity to the town of Superior. Superior has also benefited from the rehabilitation work that Resolution Copper has carried out on the old mining and smelting works near the town, which were closed at a time when regulatory requirements and best practices were significantly less stringent than today.

Operating mines in the copper triangle are all mined by open pit methods with associated waste rock piles. As an underground mine, Resolution will disturb less land and produce less waste than an open-pit mine producing a similar volume of copper. It will also use the best available technologies to manage and mitigate environmental impacts.

We understand the significance of Oak Flat to some members of the San Carlos Apache Tribe and we will continue to engage to try to find a workable solution. Resolution will strive to obtain consent from all Native American tribes for the project in good faith through ongoing dialogue and engagement consistent with the global standards in the International Council on Mining & Metals' Indigenous Peoples Policy Statement. We will continue to listen to the perspectives and concerns of each tribe.

It is also important to recognise the benefits that Resolution will provide, supplying essential raw materials to combat climate change; creating well-paid jobs in Arizona; and paying taxes to support public services. Thank you for sharing your concerns and I hope you will continue to participate in the permitting process that will continue over the coming years.

Regards,

Jakob Stausholm