

**Attachments to Testimony of Terry Rambler, Chairman, San Carlos Apache Tribe
Senate Committee on Energy and Natural Resources
Subcommittee on Public Lands, Forests, and Mining
Legislative Hearing on
S. 339, Southeast Arizona Land Exchange and Conservation Act of 2013
November 20, 2013**

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November 17, 2013

Tribes and Tribal Orgs Opposed to H.R. 687/S. 339, SE AZ Land Exchange

Tribal Organizations

- National Congress of American Indians - the oldest and largest organization representing tribes across the country
- National Indian Gaming Association – represents 184 tribes across the country
- Inter-Tribal Council of Arizona - represents 20 tribes in Arizona
- Apache Coalition – represents Apache tribes in Arizona, New Mexico, Oklahoma
- Inter-Tribal Council of Nevada - represents 27 tribes in Nevada
- United South and Eastern Tribes- represents 26 tribes in Maine, New York, Connecticut, Massachusetts, Rhode Island, North Carolina, South Carolina, Alabama, Mississippi, Louisiana, Florida, and Texas and based in Tennessee
- California Association of Tribal Governments – represents tribal governments in California
- Midwest Alliance of Sovereign Tribes – represents 35 tribes in Minnesota, Michigan, Wisconsin, and Iowa
- Affiliated Tribes of the Northwest Indians - represents 57 tribes located in Washington, Oregon, Idaho, Southeast Alaska, Northern California, and Western Montana
- All Indian Pueblo Council - represents 20 pueblos located in New Mexico and Texas
- Eight Northern Indian Pueblos of New Mexico
- Great Plains Tribal Chairman's Association - represents 16 tribes in North Dakota, South Dakota, and Nebraska
- Coalition of Large Tribes – represents 14 tribes in North Dakota, South Dakota, Montana, Idaho, Arizona, New Mexico, Utah, Washington
- Alaska Inter-Tribal Council
- Navajo Nation Human Rights Commission

Alabama

- Poarch Band of Creek Indians, Alabama

Arizona

- San Carlos Apache Tribe, Arizona
- Hopi Tribe, Arizona
- Ak-Chin Indian Community, Arizona
- Ft. McDowell Yavapai Nation, Arizona
- White Mountain Apache Tribe, Arizona
- Colorado River Indian Tribes, Arizona
- Cocopah Indian Tribe, Arizona
- Hopi Tribe, Arizona
- Hualapai Tribe, Arizona
- Pascua Yaqui Tribe, Arizona
- Tohono O'odham Nation, Arizona
- Quechan Indian Tribe, Arizona
- Tonto Apache Tribe, Arizona
- Yavapai-Apache Nation, Arizona
- Yavapai Prescott Indian Tribe, Arizona
- Havasupai Tribe, Arizona
- Ft. Mojave Indian Tribe, Arizona, California, and Nevada
- Navajo Nation Council, Arizona, New Mexico, and Utah

California

- Susanville Indian Rancheria, California
- Coyote Valley Band of Pomo Indians, California

- Habematolel Pomo of Upper Lake, California
- Hopland Band of Pomo Indians, California
- Soboba Band of Luiseno Indians, California
- California Valley Miwok Tribe, California
- Santa Rosa Band of Cahuilla Indians, California
- San Manuel Band of Mission Indians, California

Connecticut

- Mohegan Tribe, Connecticut

Florida

- Miccosukee Tribe of Indians of Florida

Idaho

- Coeur d'Alene Tribe, Idaho
- Shoshone-Bannock Tribes, Idaho

Kansas

- Kickapoo Indian Nation, Kansas

Louisiana

- Jena Band of Choctaw Indians, Louisiana
- Tunica-Biloxi Tribe, Louisiana

Maine

- Penobscot Indian Nation, Maine

Massachusetts

- Aquinnah Wampanoag Tribe of Gay Head, Massachusetts
- Mashpee Wampanoag Tribe, Massachusetts

Michigan

- Saginaw Chippewa Tribe, Michigan
- Sault Ste. Marie Tribe, Michigan

Minnesota

- Leech Lake Band of Ojibwe, Minnesota
- Prairie Island Indian Community, Minnesota
- Shakopee Mdewakanton Sioux Indian Community, Minnesota

Mississippi

- Mississippi Band of Choctaw Indians, Mississippi

Nebraska

- Santee Sioux Tribe, Nebraska

Nevada

- Moapa Band of Paiutes, Nevada
- Shoshone-Paiute Tribes, Nevada and Idaho
- Walker River Paiute Tribe, Nevada

New Mexico

- Jicarilla Apache Nation, New Mexico
- Mescalero Apache Tribe, New Mexico
- Pueblo of Zuni, New Mexico
- Pueblo of Tesuque, New Mexico
- Pueblo of Santa Clara, New Mexico
- Pueblo of Acoma, New Mexico
- Pueblo of Laguna, New Mexico
- Pueblo of Zuni, New Mexico

New York

- Seneca Nation, New York
- St. Regis Mohawk, New York

North Carolina

- Eastern Band of Cherokee Indians, North Carolina

Oklahoma

- Cherokee Nation, Oklahoma
- Ft. Sill Apache Tribe, Oklahoma and New Mexico
- Osage Nation, Oklahoma

Oregon

- Coos, Lower Umpqua, and Siuslaw Indians
- Coquille Indian Tribe, Oregon

Rhode Island

- Narragansett Tribe, Rhode Island

South Carolina

- Catawba Indian Nation, South Carolina

South Dakota

- Oglala Sioux Tribe, South Dakota

Washington

- Confederated Tribes of the Colville Reservation, Washington
- Muckleshoot Indian Tribe, Washington
- Puyallup Tribe of Indians, Washington
- Quinault Indian Nation, Washington
- Hoh Indian Nation, Washington
- Samish Indian Nation, Washington
- Suquamish Indian Tribe, Washington
- Swinomish Indian Tribal Community, Washington

Wisconsin

- Bad River Band of Lake Superior Tribe of Chippewa Indians, Wisconsin
- Ho-Chunk Nation, Wisconsin
- Lac du Flambeau Band of Lake Superior Chippewa Indians, Wisconsin
- Oneida Nation, Wisconsin
- Sokaogan Chippewa Community, Wisconsin
- Stockbridge-Munsee Community, Band of Mohican Indians, Wisconsin

Other Groups Opposing H.R. 687/S. 339, SE AZ Land Exchange

- Town of Superior
- Queen Valley Golf Association, Queen Valley, Arizona
- Queen Valley Homeowners Association, Queen Valley, Arizona
- Peridot Strategic Tribal Empowerment Prevention Plan
- Arizona Mining Reform Coalition
- American Lands
- Access Fund
- Arizona Mountaineering Club
- Arizona Native Plant Society
- Arizona Wildlife Federation
- The American Alpine Club – Golden, CO
- Center for Biological Diversity
- Chiricahua-Dragoon Conservation Alliance
- Comstock Residents Association – Virginia City, NV
- Concerned Citizens and Retired Miners Coalition – Superior, AZ
- Concerned Climbers of Arizona, LLC
- Earthworks
- Endangered Species Coalition

- Environment America
- Environment Arizona
- Friends Committee on National Legislation
- Friends of Ironwood Forest – Tucson, AZ
- Friends of the Boundary Waters Wilderness
- Friends of The Cloquet Valley State Forest
- Friends of the Kalmiopsis – Grants Pass, OR
- Friends of Queen Creek
- Gila Resources Information Project
- Grand Canyon Chapter - Sierra Club
- Great Basin Mine Watch
- Groundwater Awareness League – Green Valley, AZ
- High Country Citizens' Alliance – Crested Butte, CO
- Information Network for Responsible Mining – Telluride, CO
- Keepers of the Water – Manistee, MI
- League of Conservation Voters
- Maricopa Audubon Society – Phoenix, AZ
- Ministers' Conference of Winston-Salem, North Carolina & Vicinity
- The Morning Star Institute – Washington, D.C.
- Mount Graham Coalition – Arizona
- Natural Resources Defense Council
- National Wildlife Federation
- Progressive National Baptist Convention
- Religion and Human Rights Forum for the Preservation of Native American Sacred Sites and Rights
- Rock Creek Alliance – Sandpoint, ID
- San Juan Citizens Alliance – Durango, CO
- Save Our Cabinets – Heron, MT
- Save Our Sky Blue Waters – Minnesota
- Save the Scenic Santa Ritas
- Sierra Club
- Sky Island Alliance
- The Lands Council – Spokane, WA
- Tucson Audubon Society
- Water More Precious Than Gold
- Western Lands Exchange Project – Seattle, WA
- Wilderness Workshop
- Wisconsin Resources Protection Council – Tomahawk, WI
- Yuma Audubon Society

**Tribes and Tribal Orgs with Resolutions/Letters Opposing
H.R. 1904 in the 112th Congress – Same bill as H.R. 687/S. 339**

- National Congress of American Indians
- Inter-Tribal Council of Arizona
- Inter-Tribal Council of Nevada
- United South and Eastern Tribes
- Midwest Alliance of Sovereign Tribes
- Great Plains Tribal Chairman's Association - represents 16 tribes in North Dakota, South Dakota, and Nebraska
- All Indian Pueblo Council
- Eight Northern Indian Pueblos Council, Inc.
- Affiliated Tribes of the Northwest Indians

- Association on American Indian Affairs, Maryland

Arizona

- San Carlos Apache Tribe, Arizona
- White Mountain Apache Tribe, Arizona
- Pascua Yaqui Tribe, Arizona
- Yavapai-Apache Nation, Arizona
- Yavapai- Prescott Indian Tribe, Arizona
- Ft. McDowell Yavapai Nation, Arizona
- Cocopah Indian Tribe, Arizona
- Hopi Tribe, Arizona
- Tohono O'odham Nation, Arizona
- Navajo Nation Council, Arizona, New Mexico, and Utah
- Navajo Nation Human Rights Commission
- Dine (Navajo) Medicine Men's Association
- Ft. Mojave Indian Tribe, Arizona, California, and Nevada

Alabama

- Poarch Band of Creek Indians, Alabama

Alaska

- Sealaska Heritage Institute, Alaska

California

- Susanville Indian Rancheria, California
- Ramona Band of Cahuilla, California
- Kashia Band of Pomo Indians, California
- Karuk Tribe, California

Colorado

- Ute Mountain Ute Tribe, Colorado

Idaho

- Shoshone-Bannock Tribes, Idaho

Michigan

- Saginaw Chippewa Indian Tribe, Michigan

Nevada

- Duckwater Shoshone Tribe, Nevada
- Fallon Paiute-Shoshone Tribe, Nevada
- Wells Band Council, Te-Moak Tribe, Nevada

New Mexico

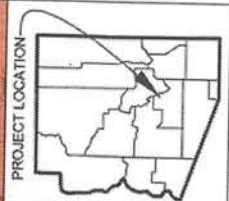
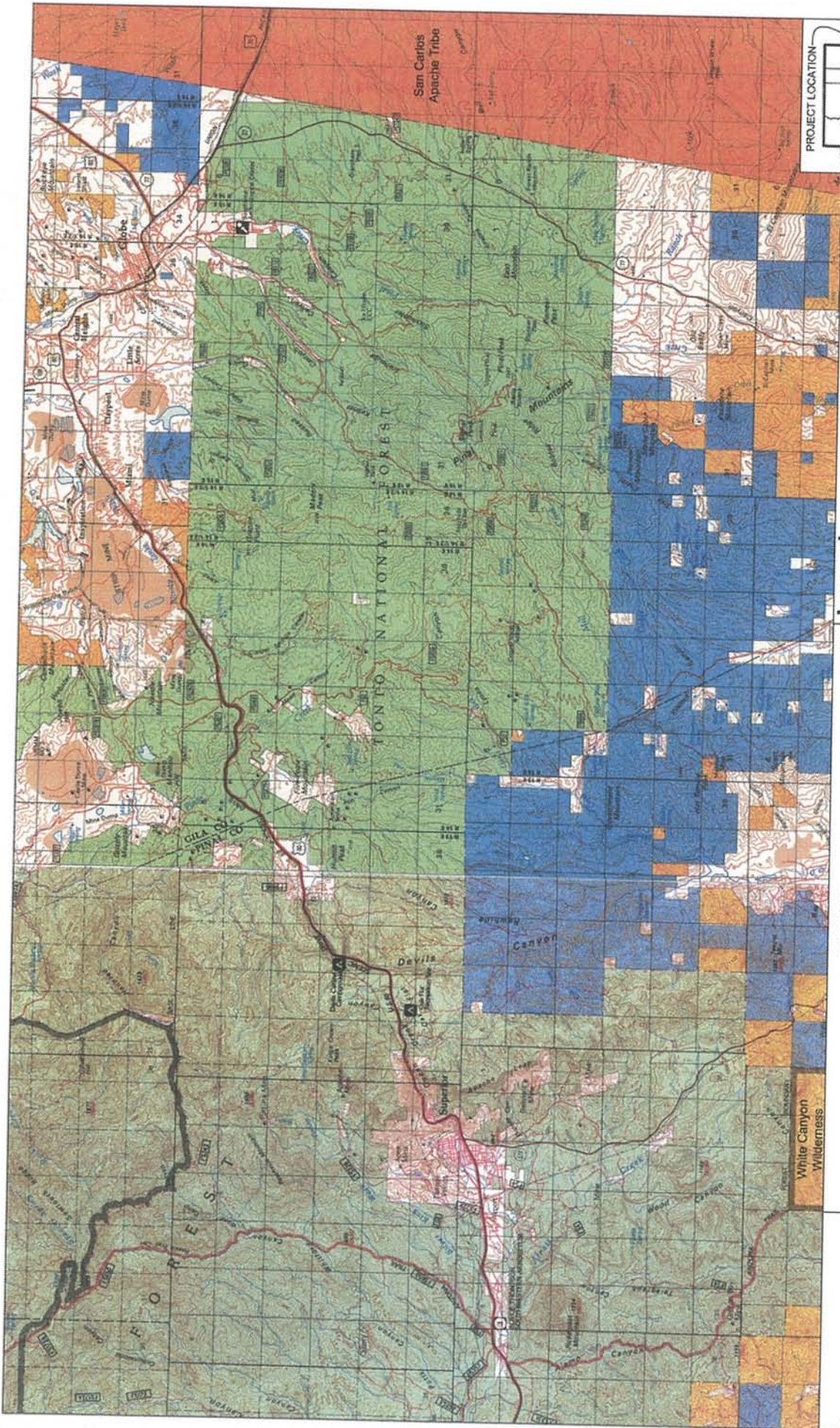
- Mescalero Apache Tribe, New Mexico
- Jicarilla Apache Nation, New Mexico
- Pueblo of Tesuque, New Mexico
- Pueblo of Picuris, New Mexico
- Pueblo of Santo Domingo, New Mexico
- Pueblo of Santa Clara, New Mexico
- Pueblo of Zuni, New Mexico and Arizona

Washington

- Confederated Tribes and Band of the Yakama Nation, Washington
- Confederated Tribes of the Colville Reservation, Washington
- Puyallup Tribe of Indians, Washington
- Skokomish Indian Tribe, Washington
- Muckleshoot Tribe, Washington
- Hoh Indian Nation, Washington

Wyoming

- Shoshone & Arapaho Tribes, Wyoming



Legend

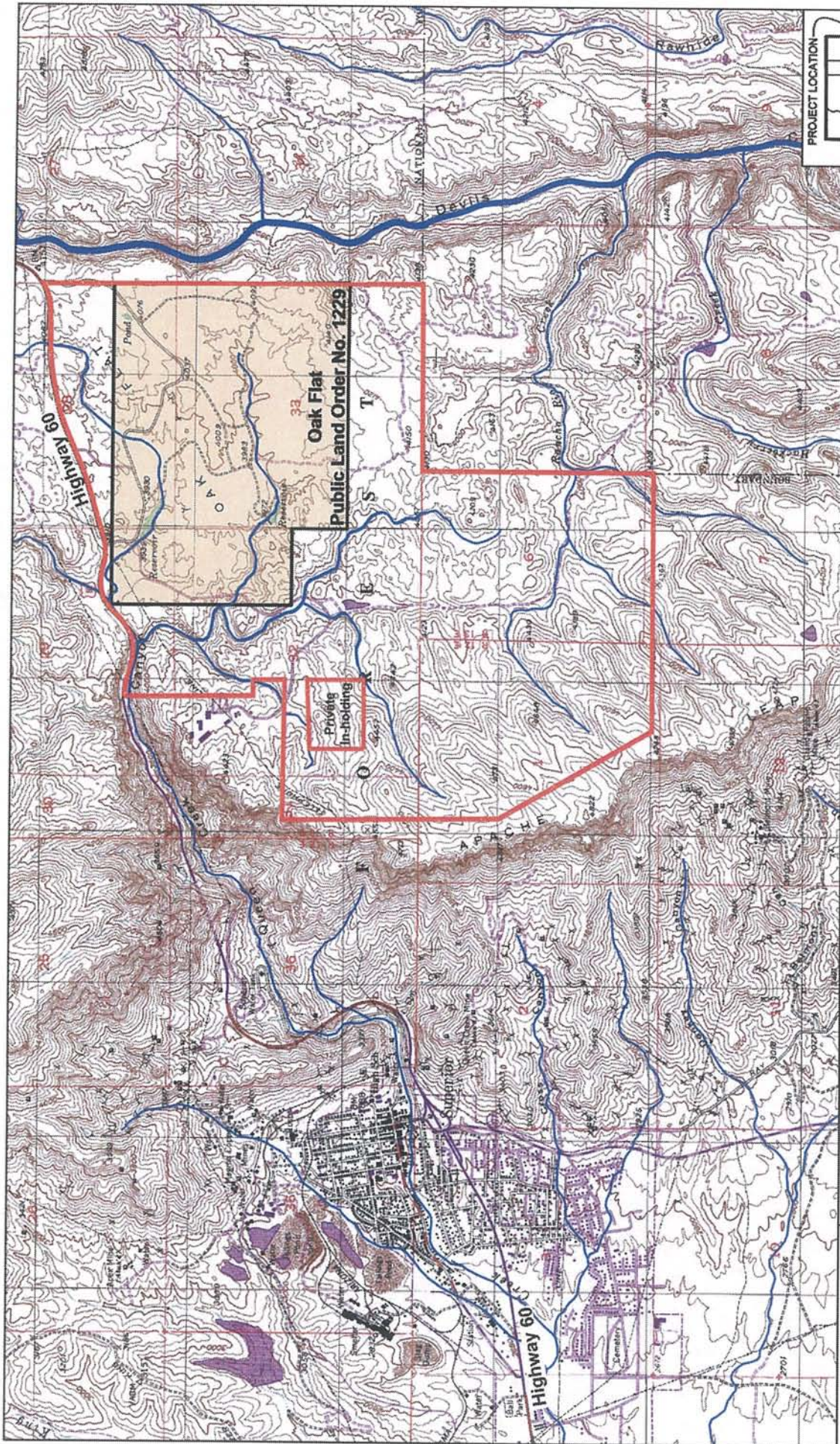
- Public Lands & Monuments
- National Forest
- Indian Land/Reservation
- Public Land Wilderness
- State Lands
- Bureau of Reclamation Land



SCALE 1" = 10000'-0"
 0 5000' 10000' 20000'

**Apache Leap - Gaan Canyon
 - Oak Flat**

Surface Management



Legend
 Federal Land Proposed for Transfer
 to Resolution Copper



Source: <http://www.usgs.gov/>

Apache Leap - Gaan Canyon
 - Oak Flat

Topo Map

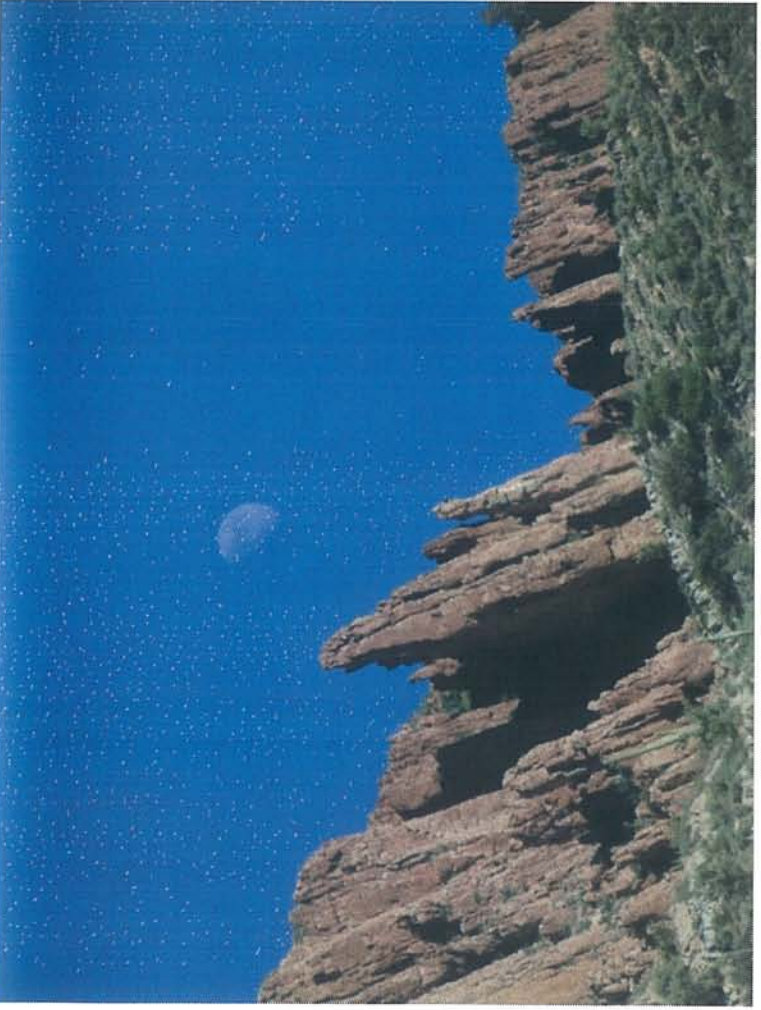
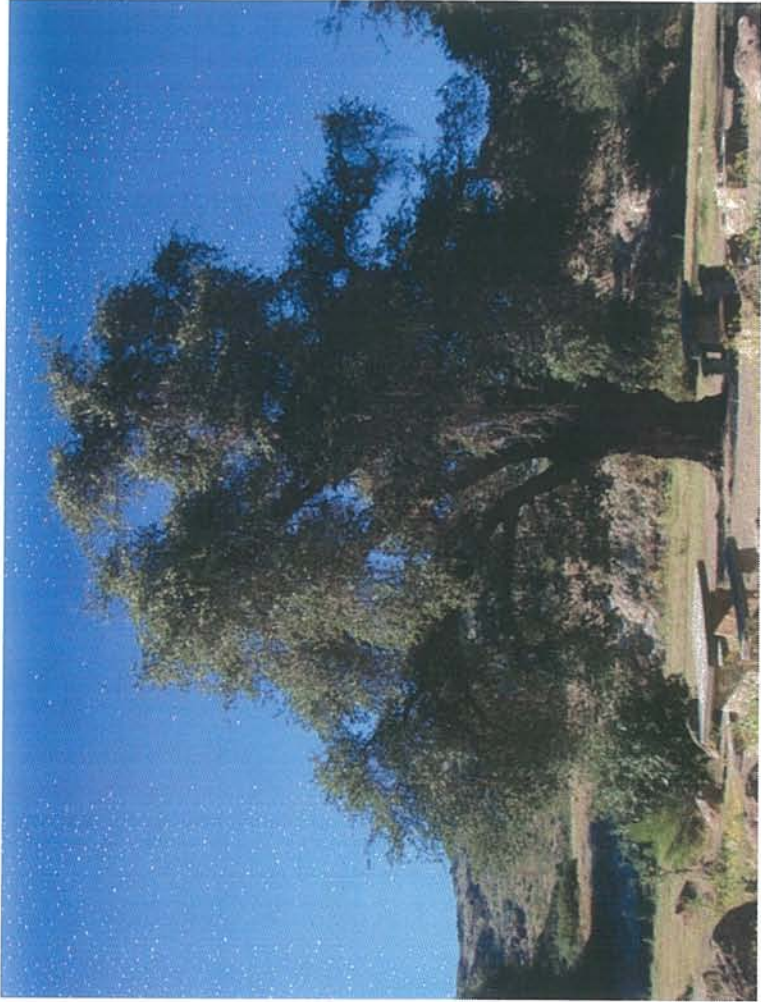
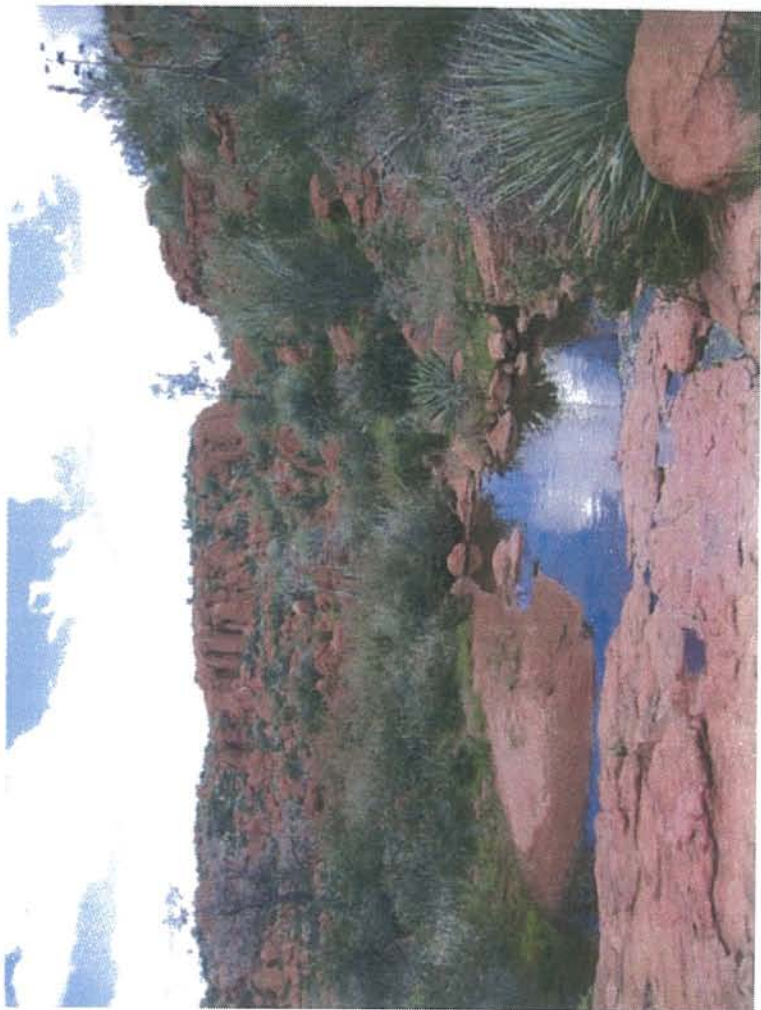
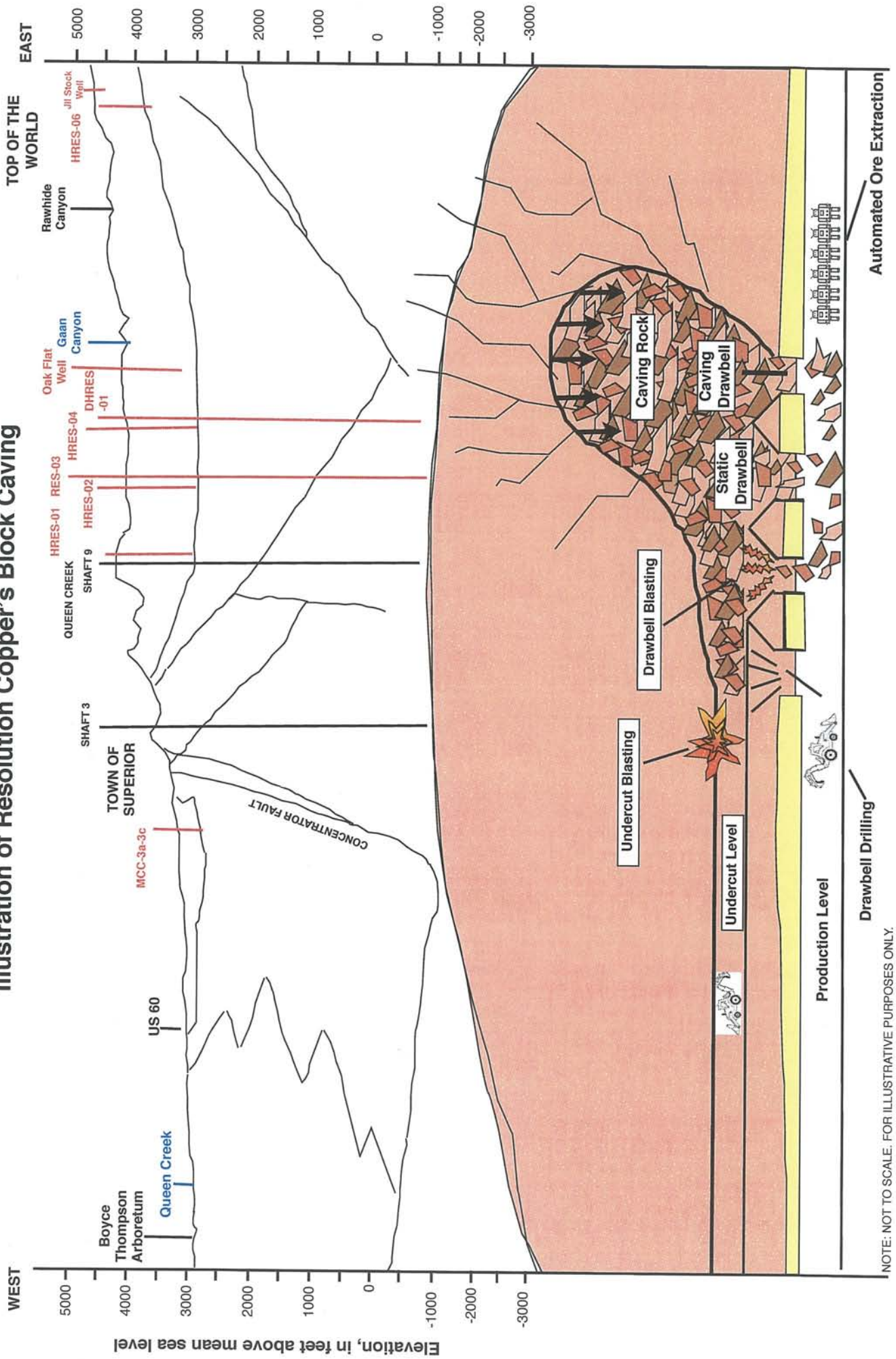
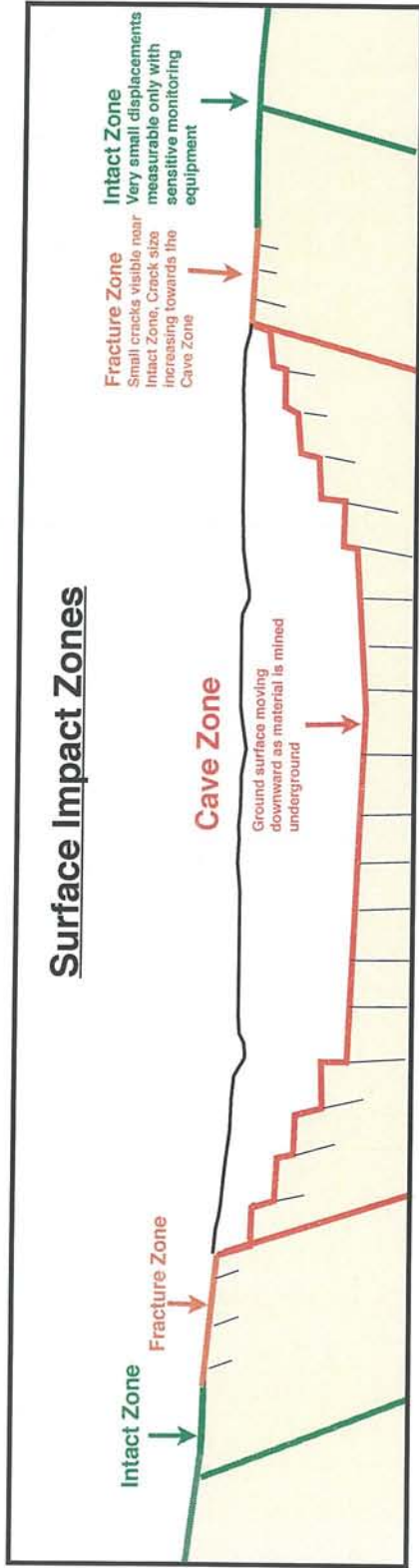


Illustration of Resolution Copper's Block Caving

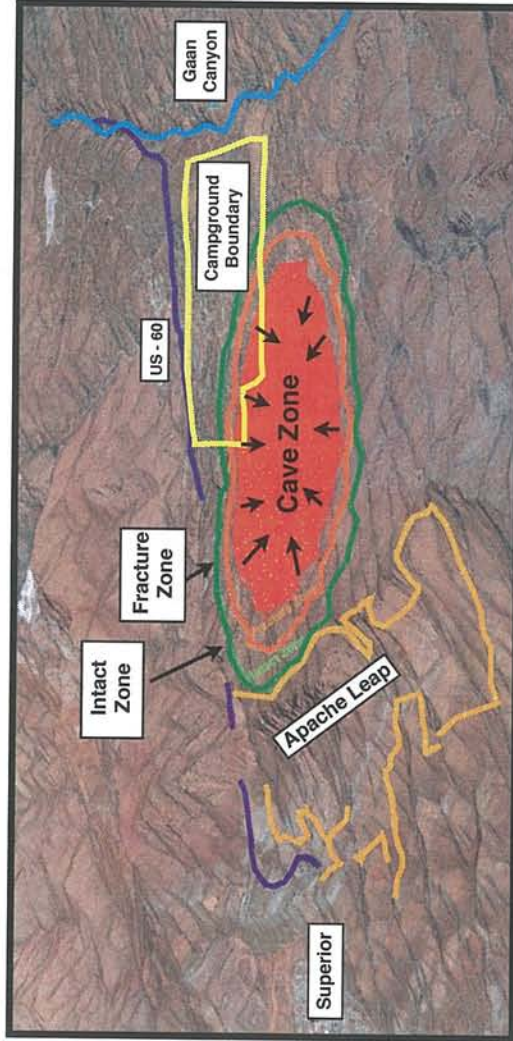


NOTE: NOT TO SCALE. FOR ILLUSTRATIVE PURPOSES ONLY.

EFFECTS OF BLOCK CAVE MINING



The effects on the surface will vary with distance from the ore body and can be divided into a series of zones as illustrated in this figure.



Resolution Copper's Projected Subsidence Zone on completion of Mining



Subsidence from Block Cave Mining at the Ridgeway Mine in New South Wales, Australia http://www.pebblescience.org/Pebble-Mine/block_caving.html

Naelyn Pike was asked by the Tribal Archeologist for a submission for a National discussion of issues regarding Native American Sacred Sites. Native American Youth nationwide submitted entries. Naelyn's submission focuses on Mt. Graham, Oak Flat, and Apache Leap in Southeastern Arizona. This is Naelyn's submission:

As I watch the truck full of sacred runners drive by cheering for me, "Go Naelyn!", I am nervous holding my mom's hand not sure what I am suppose to do. The approaching runner hands me the sacred staff, I turn clockwise and start my spiritual journey. At first, I was scared, it was only four in the morning, the only thing I knew was that I was going home (back to our original homelands). As the wind started to hit my face, and my feet began to hit the ground, I was not scared anymore. The feather from the sacred staff was hitting my face and I began to pray, thanking Usen(the creator) for letting me be here today. I gave the staff to the next runner. My mom and I turned clockwise again. We jumped into the back of the truck with the other runners who were waiting to get dropped off at the next stop for their turn to run and share in carrying the staff which carried all the prayers for the people to the top of the mountain.

The years passed and every year we went to the Mountain. I became 8 years old. I am waiting for the staff without my mom. Now that I am older, I realize why my mom was with me. She was there to show me what to do and for my safety, so I don't get on the roadway and that I would always be careful of my surroundings, to show me the love she has for me, so she can guide me to that holy place. I have the staff in my right hand, I know what to do because it was shown to me by my mother. Running with the staff I see the holy mountain, Dzil Nchaa Sian. Smiling because I know when I get up there I will make new friends and I can finally enjoy the freezing air but have the warmth of my family there because that is what this sacred place gives me.

At the bottom of the mountain, it's the middle of the day, 108 degrees in this desert, waiting for the staff with my little sister Baase', She is only four years old, running with me for the first time. Being six years apart from her, It is my turn to show her what my mom taught me. I am smiling down at her, knowing she will teach the ones after her. She holds the staff and we turn around. The wind hits our faces as we run, I pray.

Now that I am older, my connection with mother earth is stronger. It's not just the wind hitting my face or my feet hitting the ground, It is the spirits who are talking through the wind to show that they are here with us, and my feet waking up the earth, telling the spirits that we are still here and we are still fighting, not ready to give up. Look at what the Creator has blessed us with, this beautiful place we are at, the top of the mountain waiting for the runner with the staff so that we all can run together as one to our destination. I see now that this place has been touched by Usen. I feel it in my heart, Now I know why my great grandfather and his people came to this holy place, and why my great grandmother and her people fought for their holy place at Oak flat and Apache leap. That is my holy place too. Usen has touched these holy places and I am here to hold that.

At the age of 13, the runners and I are at the very top of the mountain, where we collect our sacred water from the natural spring. I open my water bottle to get the water. First I pray thanking Usen for

letting me to be here on this holy mountain and thanking him for letting me be able to gather the sacred water. I tear a leaf from the plants by the spring. The leaf is in my hand so I can collect the water and pour it into my water bottle. I knew better not to put the bottle in the spring knowing that is disrespecting the water. I would disturb the water with the white man's plastic. Once I finished filling my water bottle I kept it close to me so I can save it for my womanhood ceremony. Walking back to the truck, being one of the first to finish, out of nowhere, a strong gust of wind hits us like a train went by. The sound was loud, it was strong as the spirits came and sang the old apache songs. I started to cry. It was not sad tears; I was happy because that showed me how powerful we were and that they were still here, amongst the clouds and this beautiful place.

On the day I started by menstruation, I was not afraid as other girls would be, I was overjoyed with happiness. At that moment I knew where I was going to have my puberty ceremony. It was the one place I called home, Dzil Nchaa Sian. I prepared myself emotionally, spiritually, mentally and physically. On July 17th, 2013, I ran to Dzil Nchaa Sian with the staff in my hand praying all the way through. When we reached the top, my ceremony began. I built my home also called a wikkiup there, I stayed in it for 6 days. On that friday, I was dressed in my traditional outfit and was given my cane. I knew I would have this cane in my hand throughout the ceremony to help me through it as it will help me through life so that when I am an elder this cane will be used once again. I made my four apache breads for my medicine man. I was taught to make this at the age of six. I made each bread with my love and good prayers, knowing it would taste as good as the first time I made the bread.

Saturday was the second day of the ceremony. I woke up at five in the morning when the sun started to rise. As I began to dance, I started to pray and prayed the whole way through. I danced with my god mother and godfather and my partner was by my side dancing, making sure I was okay. I danced to the Sun, the creator. Each time my cane hit the ground was to the drum beat. I hit the ground hard to wake up the sacred mountain, the spirits, and the Gaans, also known as Angels, bringing them back to life. Dzil Nchaa Sian is the home of the Gaan people. That night I danced between the Gaans. Tears went down my eyes. Not only did I see my ancestors, it was the true Gaans dancing. I had awoken them, they were with the people.

Sunday was the third day. My partner and I danced underneath the teepee. This day is when I became the white painted woman. My godfather and the Gaans painted me with the Glesh. To the Apache people in our creation story, the white painted woman was said to have come out of the earth, she was covered with white ash that covered the earth's surface at the time the people came upon the earth to live. Being painted with the Glesh represents the white painted woman and her entrance into a new life. At the end of my dance, my family and friends congratulated me, I was finished with my social dancing. My aunties, uncles, cousins, sisters, and mom gave me hugs and kisses. We all cried because I was no longer a girl, I was now a woman. When my grandfather came up to give me a hug, I cried because, if it wasn't for him, my mom, and the spirit of the mountain runners, my dance would never have been in this holy place. Twenty years ago, my grandfather, Wendsler Nosie Sr. was arrested for praying on top of Mount Graham where he went to receive blessings for his daughter, my mom's sister, for her puberty ceremony. When he hugged me, my grandpa started to cry because he was so proud of me that I did my dance on Dzil Nchaa Sian. His whole life he was set out to teach the people about these sacred places, that we need to come back to these places. He was so happy that we listened.

My sunrise ceremony was the first time to be done on Mt Graham since our ancestors did it hundreds of years ago.

The last day of my ceremony was Monday, July 22, 2013. This was the day my grandmother undressed me. We went to the stream so I could bathe. My grandmother and partner washed my hair. A small green humming bird flew right in front of us. It stared right at us and hovered over us before it flew toward the sky. I knew this was a great blessing. I dressed into my everyday clothes and we went back to the camp. I left that day, sad I was leaving my home but I knew I would be back every year to show those yet to be born this holy place.

My name is Naelyn Pike. I am 14 years old and I have been coming to Mount Graham since I was born. My name Naelyn means Apache woman. I started to run the Sacred run since I was 2 years old. Ever since then I have always come back to Mount Graham, Dzil NChaa Sian. It is my home, this is where my ancestors were from. I have made a spiritual connection to this holy place. I cannot explain it with words. I look at how beautiful this holy place is and how it makes me feel.

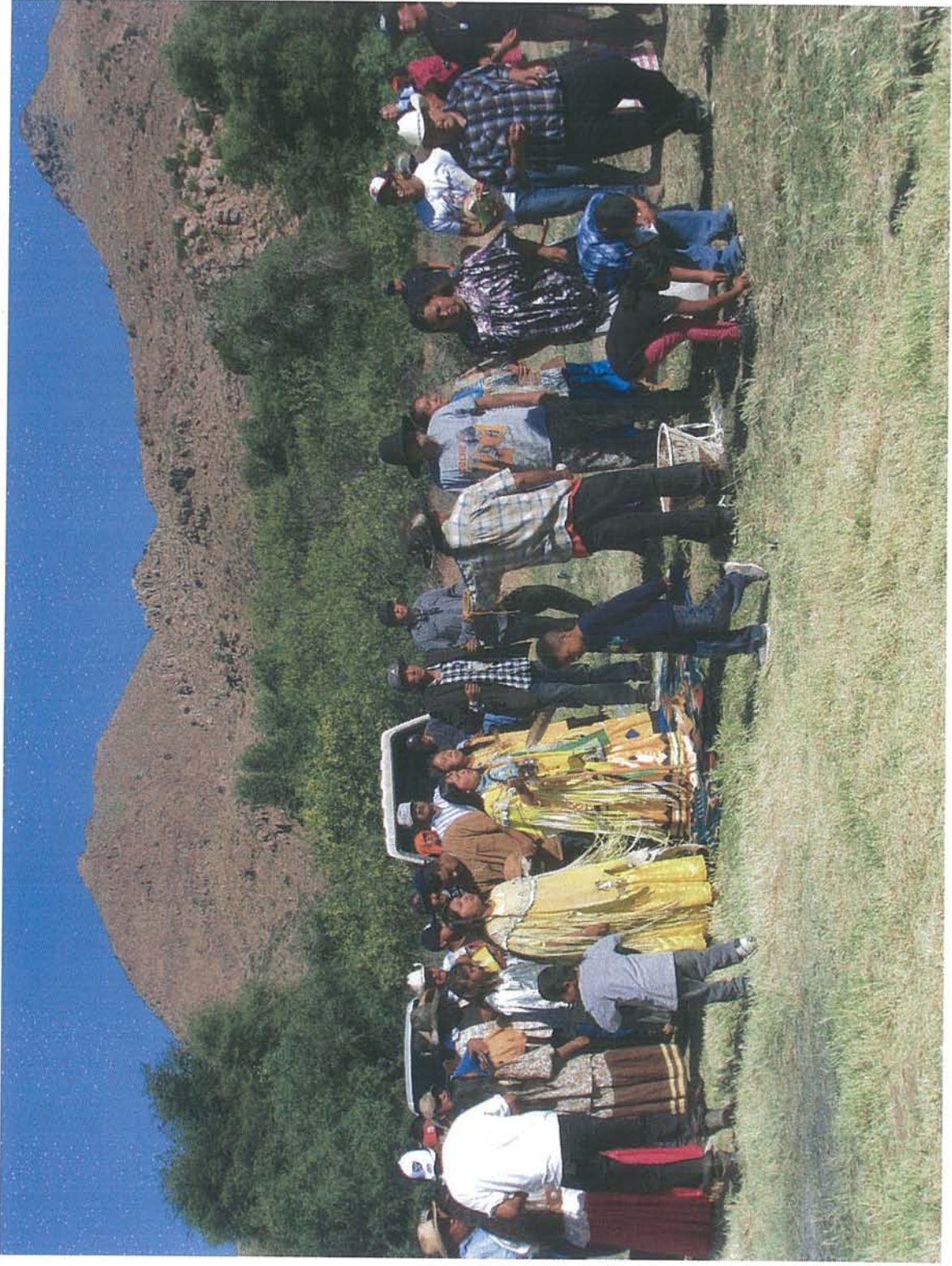
So I cannot understand who would want to destroy it. Why would you want to take my home and the peoples home away? Why would you want so many telescopes on Mount Graham? To see God? If so, you are not going to see him, he is in your heart. To see Aliens? To take fancy pictures? What good would it do? Is it that important to destroy habitats, kill animals, cut down ancient trees that will never grow back? How could you bare to do this?

This is why I am fighting for Mt Graham as did my great grandfather and his people. My great grandmother and her people fought to keep Oak flat and Apache leap. My great grandmother and my ancestors lived along the ridge of Oak flat and along the river which runs down from the north. This was home, the place where Usen put the Gaan to bring blessings to the people, just like Mount Graham. My younger sister, Nizhoni, will be having her Sunrise ceremony at Oak Flat in October 2014. Oak Flat was brought to her in a dream. Now I am preparing for her ceremony. We pray that this holy place will not be destroyed by this time, so my great grandmother can see her great granddaughter be blessed into womanhood where our ancestors once called home. When I go to these places I see the beauty in the land and the power it gives, because Usen, the creator has touched these places. Why would you want to mine and destroy Oak flat and Apache Leap? Will there really be that many jobs? For a long period of time? Can you not see the life it gives? Are you blinded by your greed? Is money what is important? Why destroy mother earth? Please make me understand why you could do such horrid things to these holy precious lands.

Now I understand why the Apaches in the early 1900's and late 1800's would rather jump to their deaths at Apache Leap, than to be removed from their holy land or to be killed by the U.S. Calvary. Because look at us today, imprisoned in reservations, taken away from our homelands. Now the youth today and the children yet to be born can only dream of our ancestors living and being home on our holy lands. If these places are gone, where is our connection to Usen and our ancestors and who we are, Apache....?



Apache Sunrise Ceremony at Oak Flat



Apache Sunrise Ceremony at Oak Flat



RESOLUTION NO. 451

A RESOLUTION OF THE MAYOR AND COUNCIL OF THE TOWN OF SUPERIOR EXPRESSING OPPOSITION TO THE SOUTHEAST ARIZONA LAND EXCHANGE AND CONSERVATION ACT (H.R. 687).

WHEREAS, the Town of Superior generally supports the mining industry; and

WHEREAS, the Town of Superior recognizes the significant role that copper mining has played in the history of Arizona for over 100 years; and

WHEREAS, the Town of Superior is concerned that there are hydrological, environmental and plan of operation issues for the proposed Resolution Copper Mine that have not been adequately disclosed, discussed or addressed prior to the enactment of the Southeast Arizona Land Exchange and Conservation Act; and

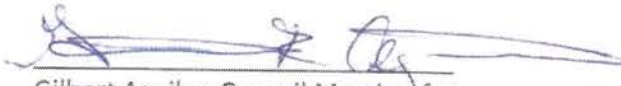
WHEREAS, the Town of Superior is also concerned that there outstanding tribal and municipal issues which remain inadequately addressed; and

WHEREAS, The Town of Superior has outstanding issues with the language of the Act and no Agreement with Resolution Copper; and

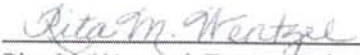
WHEREAS, the Town of Superior was not consulted with regard to the language of the Act which directly affects the Town.

NOW THEREFORE, BE IT RESOLVED that the Mayor and Council of the Town of Superior hereby declare their opposition to the enactment of the Southeast Arizona Land Exchange and Conservation Act of 2013.

APPROVED AND ADOPTED by the Town Council of Superior this 15TH day of March, 2013.


Gilbert Aguilar, Council Member for
Jayme Valenzuela, Mayor

ATTEST:


Rita M. Wentzel, Town Clerk

APPROVED AS TO FORM:


K. Kahe Graves, Town Attorney



L. EVERETT & ASSOCIATES

ENVIRONMENTAL CONSULTANTS

March 18, 2013

Mr. Terry Rambler
Tribal Chairman
San Carlos Apache Tribe
Post Office Box 0
San Carlos, Arizona 85550

Dear Chairman Rambler,

At the Tribe's request, our firm has reviewed potential environmental impacts of the proposed Resolution Copper Mine near Superior, Arizona. This review included an assessment of the impacts of the mine on water supplies, water quality, waste management, and the potential for land subsidence. Normally hydrogeologic studies and environmental analyses would be conducted for a project of this magnitude. To our knowledge, these studies have not been conducted (or not been made available to the public) and many details of the operation of and impacts from the mine are not known. Thus, this letter provides our preliminary analysis based on the small amount of data that has been made available.

The need for dewatering of the deep mine and the need for a water supply for mine operations and ore processing are two reasons this mine will pump a large amount of water from the aquifer, depleting the groundwater: a scarce natural resource in Arizona. Resolution proposes using a block mining process for this mine. The deep block caving process essentially relies on mining from below by breaking up rock in the ore zone and inducing the ore-bearing rock to collapse down to the undercut level (below the ore body) where it is removed. The working areas of the mine must be dewatered in order to extract the ore, which will require continuous pumping of large volumes of water out of the aquifer. The mine will also require a vast amount of water to operate (far more than it would extract for dewatering), largely for ore processing. Current estimates are 17,000 to 20,000 acre feet per year. This is equivalent to the residential water needs of a city of 180,000 people. This is a problematically large water demand considering the mine's location in the arid southwest.

Resolution has acknowledged that it has not identified sources for all its water needs, and it has referred to banking of excess water from the Central Arizona Project (CAP) as one source. Considering that demand for water from the Colorado River is growing and supply

is declining (due to climate change among other reasons), the US Bureau of Reclamation estimates that demand will outstrip supply in the near future.¹ Thus it is highly speculative that CAP water will be a reliable source for Resolution over the decades-long lifetime of the mine. In fact, Resolution correctly admitted that “excess CAP water will not always be available for purchase and other sources will be needed.” It seems apparent that Resolution will need to rely on local groundwater resources to provide a significant percentage of Resolution’s water supply if it is to be a viable project.

It is virtually impossible for Resolution to meet even a fraction of its water needs from local groundwater in a sustainable manner: the amount of water needed is just too vast for the natural processes that recharge the aquifer in this arid region of Arizona to replenish the needed withdrawals.

Because groundwater and surface water systems are intimately interrelated, pumping too much groundwater will have a negative impact on nearby surface water resources because lowering the water table can starve the local streams of recharge from the aquifer. This is a serious issue that is very difficult if not impossible to mitigate. For example, the nearby Carlota Mine uses much less water than the proposed Resolution Mine (approximately 1,000 acre feet per year). In a 25-day pump test at the Carlota Mine, stream flow in Haunted Canyon (2,300 feet from the nearest well) declined from 45 gallons per minute to 5 gallons per minute, thus threatening the sensitive riparian habitat.²

Given the depth of the ore body and the need to dewater the mine workings that are deep below the water table, Resolution will have to aggressively pump groundwater from the aquifer. The effect of this pumping will be felt far beyond the boundaries of the mine because it will create a large groundwater cone of depression that will draw down groundwater levels and starve surface water bodies in the surrounding areas. Nearly all of Resolution copper’s tunneling infrastructure will be located well below the elevation of the streams in the region, thus the threat to surface water resources and the riparian habitats that depend on stream flow will be threatened.

In fact, the dewatering operation at Magma Mine already illustrates the non-sustainability of large-scale groundwater withdrawals. Since dewatering began in 2008, water levels in the Magma shaft have declined nearly 2,000 feet and water levels in the surrounding aquifer will inevitably decline as well. According to US Geological Survey records, since 2008, the average stream flow in Queen Creek (downstream of the mine site) has been less than half the average stream flow before Resolution began dewatering at Magma Mine³. There may be other variables affecting stream flow in Queen Creek such as climate

¹ US Department of Interior Bureau of Reclamation, 2012, Colorado River Basin Water Supply & Demand Study.

² Martin and Loomis, 2004, Keeping Our Streams Flowing: Tonto National Forest Groundwater Policy, paper presented at: Advancing Fundamentals of Science, A Conference for Forest Service Earth Scientists.

³ Based on average annual streamflow from 2001-2007 in Queen Creek below Whitlow Dam, near Superior, Arizona. Accessed from website: http://waterdata.usgs.gov/usa/nwis/uv?site_no=09478500 on March 15, 2013.

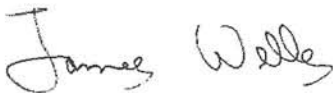
variability, but the mine dewatering is surely contributing to the depleted stream flow. This pumping project removes far less water than the mine will eventually require (approximately 920 acre feet per year compared to the mine's eventual need for 17,000 to 20,000 acre feet per year). The simple act of dewatering will have negative effects on regional water supplies. If Resolution depends on even more groundwater for its operations, the negative impacts will only grow.

Due to chemical interactions with the ore minerals, the groundwater pumped from the mine will be of poor quality, with elevated levels of metals and low pH. This condition will persist essentially forever because by breaking up the rock, the mining operation vastly increases the surface area of the rocks, increasing the rate and degree of chemical reactions between the ore minerals and the groundwater. This is essentially a subsurface example of the well-known problem of acid mine drainage that plagues mining districts across the western United States.

Land subsidence as the result of the block caving process is a strong probability. In block mining, after enough rock is removed from the base of the ore body, a void space is created and rock from above collapses into the void space due to gravity. Obviously, if this process reaches too near the surface, the land surface will collapse into the mine workings as well. Thus avoiding land subsidence requires the dubious premise of controlling an essentially uncontrolled process of collapsing rock into ever larger void spaces created by the removal of deep ore-bearing rock.

We hope this brief summary is useful to you. We will provide more detailed analysis of potential environmental impacts and water consequences of the Resolution Mine as more information becomes available.

Sincerely yours,
L. EVERETT & ASSOCIATES, LLC



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**Exaggerating the Net Economic Benefits of the
Proposed Resolution Copper Mine, Superior, Arizona:
A Critical Review of Resolution's Economic Impact Analysis**

A Report Prepared for the

**San Carlos Apache Tribe
San Carlos, Arizona**

by

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September 9, 2013

Exaggerating the Net Economic Benefits of the Proposed Resolution Copper Mine, Superior, Arizona: A Critical Review of Resolution's Economic Impact Analysis

Executive Summary

The Resolution Copper Company (Resolution) is exploring a large copper ore body about four miles east of the Town of Superior, Arizona. Resolution has described this ore body as one of the great copper ore discoveries in the last 100 years and has proposed to build one of the largest underground copper mines in the world to extract that ore.

To build public support for this proposed mine, Resolution hired Elliott D. Pollack & Company (Pollack) to prepare an economic impact analysis of the mine. Pollack submitted a report, "Resolution Copper Company Economic and Fiscal Impact Report, Superior, Arizona" (Pollack Report). Resolution has made wide use of that study in its presentation of the public benefits that Resolution projects will flow from the proposed mine to the State of Arizona and the nation if the mine is successfully permitted and reaches its planned production.

The Pollack Report concluded that there would be very large positive impacts associated with the building and operating of the proposed Resolution Mine. Among the estimated benefits were \$61 billion in additional economic output, \$20 billion in tax revenues to various government bodies, \$14 billion in wages, and 238,000 additional person-years of employment.¹ These appear to be spectacularly large economic impacts.

Power Consulting was engaged by the San Carlos Apache Tribe to carefully review the Pollack Report and prepare a study that explains how Resolution Copper Company's consultant estimated these huge economic benefits. This report presents the results of our analysis of the Pollack Report's methods and its conclusions.

As explained in detail in our full report that follows, we came to the following conclusions:

- 1. Resolution's economic impact study *assumed* that the mine would produce only benefits. The study *imagined there would be no costs associated with the mine.***

Despite being labeled an *economic* impact study, that study chose to look only at the **positive** impacts associated with the mine. The Pollack Report explicitly states that it

¹ Tables A and B.

assumed that there will be no environmental costs associated with the proposed mine and that the construction and operation of that mine would not conflict with any other economic activities or values. This assured that the study would be a “pure benefits” analysis. The proposed mine, in effect, was assumed to be a “free lunch,” violating the economic convention to avoid such fantasies.

2. Resolution’s economic impact study ignored the historic volatility of copper mine operations in Arizona and elsewhere and assumed that the proposed mine would operate at a constant level of production for half a century.

As all the history of actual copper mining in Arizona and elsewhere has repeatedly demonstrated, copper mine production, employment, payroll, and tax payments fluctuate widely from decade to decade due to changing international metal market conditions. Resolution’s projections assume that “this time will be different,” despite a century and a half of evidence to the contrary. Resolution’s study provides no evidence as to why anyone would expect that the volatility within the copper industry in the past would not continue into the future. That volatility in copper production, employment, payroll, and tax payments regularly disrupts households, communities, and governments. This is a significant cost associated with copper mining.

3. Historically, the jobs associated with metal mining and the high wages associated with mining jobs have not reduced unemployment nor boosted local economic vitality.

As the Town of Superior has discovered, Resolution’s hiring of hundreds of workers did not lead to declining unemployment rates. Instead unemployment numbers and rates skyrocketed as more people moved in than there were jobs available. The region surrounding the proposed Resolution Mine has more than a century of history with copper mining. That has not been a history of sustained prosperity and economic vitality. There are important lessons to be learned from that experience that should inform public decisions about the proposed Resolution Mine.

4. Resolution’s proposal to adopt an automated and robotic technology to mine its copper ore deposit will reduce the blue-collar jobs that local residents can fill and shift the mining workforce towards a smaller but more highly skilled set of workers.

Over the last half-century technological change in copper mining has consistently displaced workers, systematically reducing the number of workers required for any given level of copper production. Even when copper production has been rising, employment in copper production has been falling. That technological change has not come to an end. Resolution’s automated and robotic approach to mining its ore deposit will reduce the number of workers needed and shift the remaining workforce away from blue-collar workers towards more highly skilled workers who can operate the mine remotely and maintain the computer controlled automated mining systems. This technical work force will not necessarily be located at the mine site.

5. Resolution's economic impact report recognizes that most of the economic benefits will not flow to the region immediately around the proposed mine but will flow to the rest of the State of Arizona and the nation.

The Resolution economic impact study was carried out on a statewide and national basis because so many of the projected benefits were expected to be primarily felt outside the small town and rural area in which the mine would be located. For instance, 71 percent of the projected tax flows to governments would go to the federal government, not to Arizona units of government. Resolution's economic impact study did not analyze the economic impacts to the local area where the mine would be located. This study *does* focus on those local impacts.

6. Copper mining is very land and environment intensive, causing significant degradation of natural landscapes and the potential for serious pollution problems. These environmental impacts have significant long-run economic implications.

Mining tends to displace most other economic activities in the region around the mine. The spectacular environmental degradation combined with the instability associated with mining operations actually discourages individuals, families, and businesses from locating in mining towns. That is why mining communities tend to be so specialized in mining, lacking in the economic diversification that can stabilize communities in the face of commodity price fluctuations. People and businesses are not drawn to mining areas except for the job opportunities. When those job opportunities "flicker" or disappear, residents and businesses disappear too. That is how "ghost towns" are generated.

Families and businesses are increasingly "footloose" in the sense of having choices as to where they locate. The "quality of life" associated with communities, their overall attractiveness as a place to live, work, and raise a family, are increasingly important for cities and regions to maintain a competitive edge in holding and attracting residents and economic activity. The landscape, environmental, and social costs associated with metal mining tend to discourage residential and business location.

7. Copper mining requires large quantities of water for processing the ore. Mining very deep deposits such as the Resolution ore body, requires the extraction of large quantities of ground water. The mining of sulfide copper ores causes serious water pollution problems such as acid mine drainage that can require water treatment in perpetuity. All of these water problems tend to displace other current and future economic activities.

The Resolution Mine will be located in a very arid region where available water resources already constrain economic activity. The mine will increase competition for water, diverting water from existing uses to mining while at the same time drawing down the local water table to remove ground water from the area around this deep ore deposit. In addition, over time, the mine site is likely to become a source of dangerously

polluted water. This makes it unlikely that the Resolution Mine can contribute to sustainable economic development in the area around the mine.

8. The Resolution economic impact analysis grossly exaggerated the positive economic impacts associated with the proposed mine.

- i. Instead of reporting the annual level of various projected impacts, the Resolution analysis *summed* the annual impacts *over a 64-year period* and reported that cumulative number as the impact. That is how multi-billion dollar impacts were derived. This makes as much sense as reporting that each mining job was projected to pay \$3.8 million dollars instead of saying that the annual pay associated with the jobs would be \$75,000 and the mining was projected to last 50 years. Many of Resolution's economic impacts are 64 times too large.
- ii. Consistent with a "free lunch" approach to economic impact analysis, the Resolution analysis of fiscal impacts assumes that the mine, its operations, its workforce, and all of the "multiplier" impacts on economic activity would **not require any** public services such as roads, road repairs, police and fire protection, education for children, social services, etc. According to Resolution's impact analysis, the new economic activity would generate taxes but absolutely no demand for expanded public services or degradation of existing public services because of increased use.
- iii. A statewide and nation-wide stance was taken, rather than a local stance. That approach allowed for much larger impacts to be estimated, which is misleading.
- iv. Copper production, employment, payroll, or tax revenues were assumed to be constant over a fifty-year period. None of the downward fluctuations that have plagued the industry for a century and a half were included in the projections.

9. The local economic impacts on the region surrounding the proposed mine would be only a fifth to a quarter of the size of the statewide impacts the Resolution study projected.

If one applies the same economic impact model that Resolution's consultant used but focus that economic model on the region surrounding the mine rather than on all of Arizona or the entire nation, the projected impacts are a small fraction of what the Pollack Report estimated.

Table ES-1 shows this for employment and payroll impacts. We defined a local study area by combining nine contiguous zip code areas. Our local study area encompassed

Superior, Globe-Miami, San Carlos, Kearny, Hayden, and Winkelman and adjacent rural areas in Pinal and Gila Counties.

Table ES-1.

Comparison of Economic Impacts: Statewide v. Local Zip Codes				
Type of Impact	Employment Impacts		Payroll Impacts (\$millions)	
	Pollack	Power	Pollack	Power
	Statewide	Local Zip Codes	Statewide	Local Zip Codes
Direct	1,429	342	\$108.6	\$27.5
Indirect	934	221	\$57.3	\$17.2
Induced	1,356	329	\$56.0	\$11.5
Total	3,719	893	\$221.9	\$56.2

Source: IMPLAN modeling by the author; Pollack report, Tab. 16.

The flow of tax revenues to the local governments within our local study area was considerably smaller as compared to the huge tax flows estimated for all of Arizona by the Resolution economic impact analysis. While Resolution's contractor estimated millions of dollars in enhanced revenue flows to governmental units, our estimates for the local study area are in terms of thousands of dollars. See Table ES-2. Our report shows similarly very modest impacts on tax revenues when employee payments of sales taxes, local government sharing of state sales taxes, income taxes, residential property taxes, etc. are taken into account. See Table E in the main body of the report.

Besides the Resolution Mine having only modest impacts on the flow of tax revenues to local government in the vicinity of the mine, those tax revenues will fluctuate with mine production in the future just as they have in the past. The unstable and unreliable character of these tax flows reduces their value to local governments.

Table ES-2.

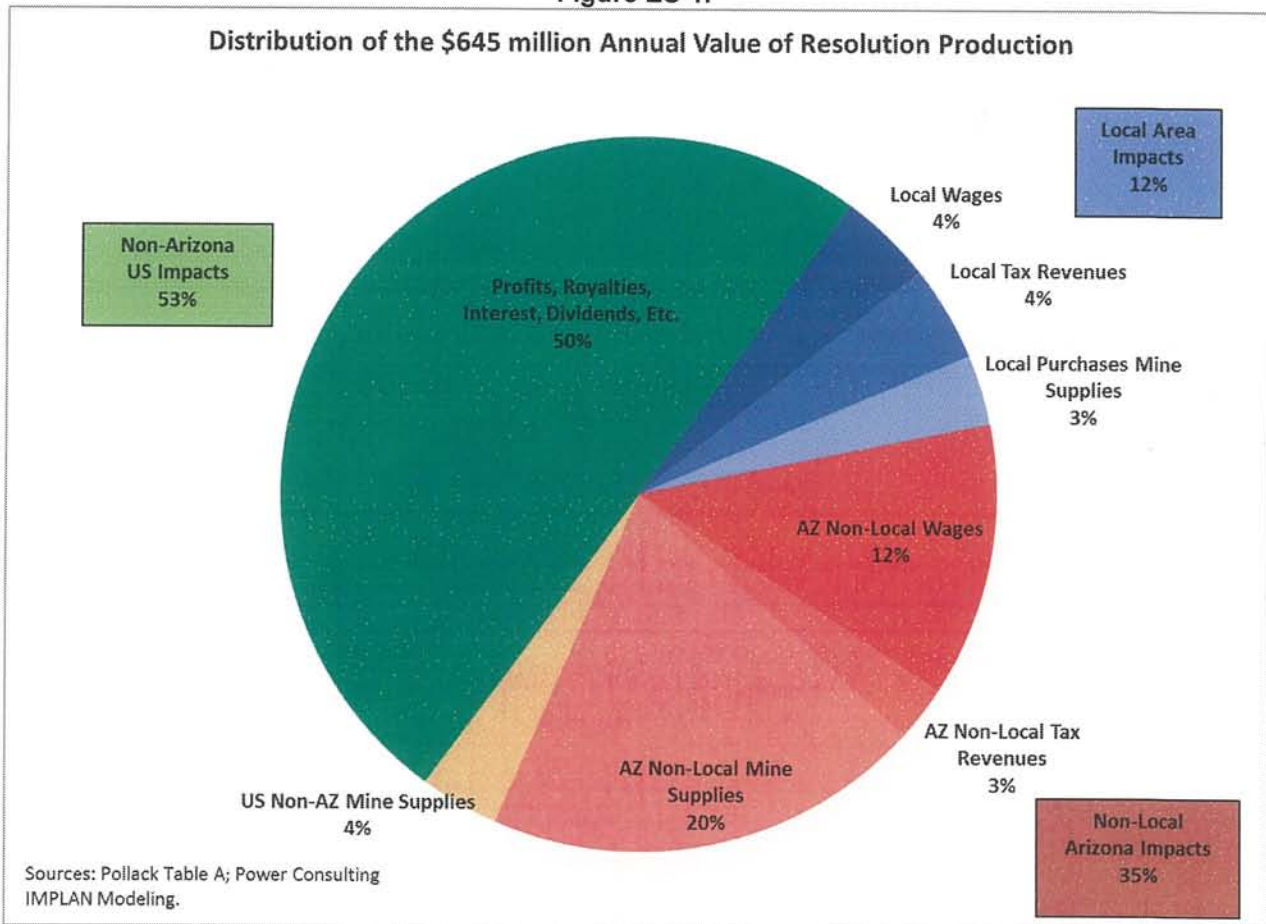
Annual Distribution of Mine Severance and Corporate Profit Taxes to "Local" Government Units							
Pollack Report (Table 9)				Power Consulting			
Local Government Unit	Severance Tax Distribution	Corporate Income Tax Distribution	Sum of These Two Taxes	Local Government Unit	Severance Tax Distribution	Corporate Income Tax Distribution	Sum of These Two Taxes
All County Governments in Arizona	\$3,934,375	\$0	\$3,934,375	Pinal and Gila Counties	\$ 264,282	\$ -	\$ 264,282
All Incorporated City Governments in Arizona	\$2,428,125	\$4,020,313	\$6,448,438	Six Incorporated Towns in Nine Zip Code Area	\$ 7,334	\$ 12,143	\$ 19,477
Total	\$6,362,500	\$4,020,313	\$10,382,813	Total	\$ 271,616	\$ 12,143	\$ 283,759

Sources: See Tax Revenue Appendix

10. Most of the value created by the Resolution Mine will flow out of state. Very little of it will stay in the region where the mine and its environmental and social impacts will be most directly felt.

Only about 4 percent of the mineral value produced by the proposed mine would flow to local residents in the form of local wages. About one-eighth of the total value of output would affect the local study area. About a third of the value of total mine output would impact the state as a whole. Over half of the value created would flow out of state to national and international investors. See Figure ES-1 below.

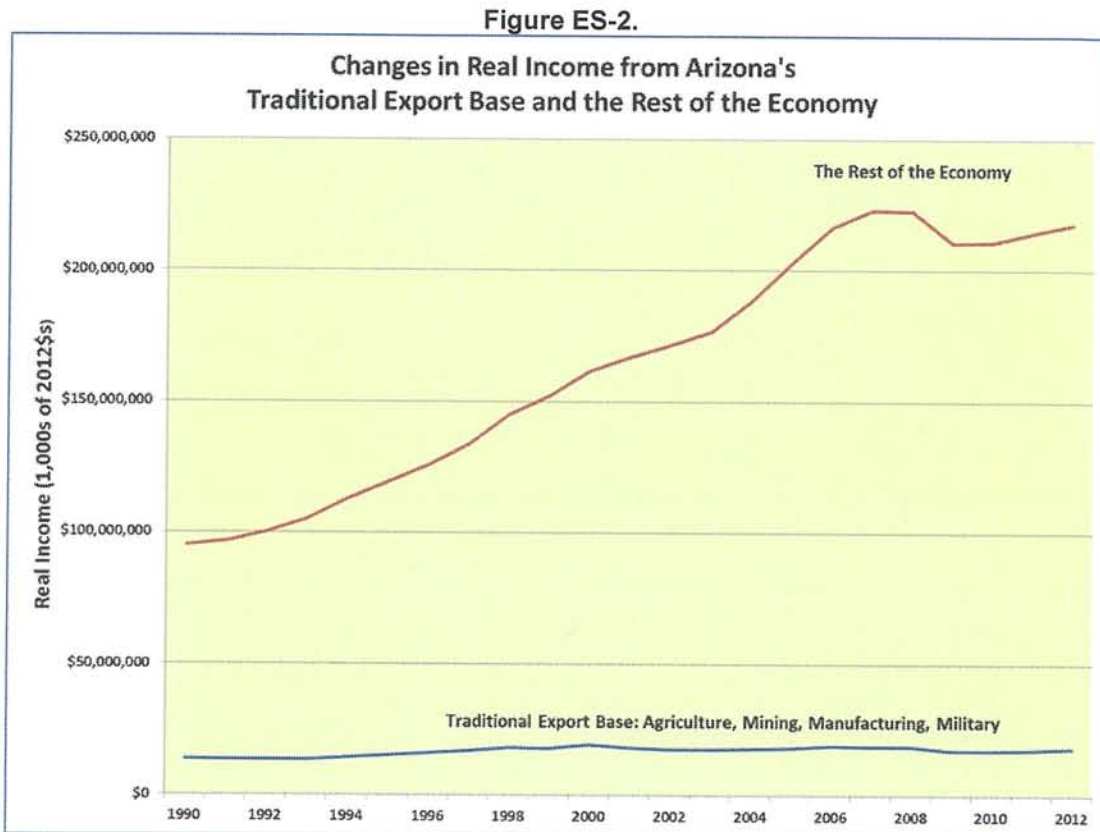
Figure ES-1.



11. The Arizona economy has not significantly depended on copper mining as a source of economic vitality for almost a third of a century. The Arizona economy has diversified significantly beyond the traditional “copper, cattle, and cotton” historical economic base. Good public economic policy cannot be based on an understanding of the Arizona economy that relies on a view through the rear-view mirror.

Over the last half-century, the direct contribution of metal mining to the total personal income received by residents of Arizona declined from four percent to *four-tenths of one percent*. That is, metal mining’s importance as a source of income for Arizona residents fell to a tenth of what it used to be. In 2011 only three-tenths of one percent of Arizona jobs were in the copper industry. Despite that relative and absolute decline in the role of metal mining in the Arizona

economy, the state economy was able to expand steadily until the Great Recession struck the entire nation. See Figure ES-2 below.



In developing informed public economic policy in Arizona this successful diversification of the Arizona economy has to be analyzed in order to determine which economic activities are most likely to be providing jobs with reasonable pay in the future. Looking back at the distant past is not very useful in recognizing the structure of the contemporary and future economy.

Over the last two decades many sectors of the Arizona economy have been creating thousands of relatively high-paying jobs *each year*. See Table ES-3 below. Rather than looking backward at Arizona's colorful past in copper mining for sources of economic vitality, public economic policy should be analyzing the powerful economic forces that have been creating these tens of thousands of new jobs year after year.

Table ES-3.

Job Creation in Arizona 1990-2011		
Industry	Average Jobs Created Each Year 1990-2011 in Arizona	Average Pay Per Job 2011
Health Care	9,485	\$58,089
Government: Local, State, Federal	6,325	\$66,602
Professional, Scientific, & Technical Services	5,370	\$62,656
Finance & Insurance	5,158	\$53,889
Other Services	3,552	\$59,869
Construction	2,397	\$56,115
Transportation	2,013	\$55,545
Wholesale Trade	1,778	\$78,008
Total of Above: Growing, Well-Paid Jobs	36,077	\$61,383
All Wage & Salary Jobs	43,738	\$57,327
Source: U.S. BEA REIS		