

Meeting #53
March 8, 2017
MEETING SUMMARY

Meeting Attendees

Community Working Group members present:

Karen Kitchayan Jones – San Carlos Apache Tribe
JoAnn Besich – Superior Optimist Club
George Martin – JF Ranch
Lynn Martin – JF Ranch
Jeff Bunkleemann – Central Arizona College
Fred Gaudet – Arizona Trail Association
Pam Bennett – Queen Valley Community Liaison
Rick Cartier – Superior Chamber of Commerce alternate
Tiffany Rowell – Superior resident
Nancy Vogler – LOST Trail
Bill Vogler – Superior Copper Alliance
Bruce Wittig – Queen Valley Fire Department
Jim Schenck - Magma Dorada
Hank Gutierrez - Superior Copper Alliance
Anthony Huerta – Town of Superior
Fernando Shipley – Cobre Valley Regional Medical Center Board
Pamela Rabago – Superior Chamber of Commerce
Tom Spridgen – Rotary Club of Superior
Arlynn Godinez – Superior Unified School District Board / Maricopa County

Community Working Group members not present:

Cecil Fendley – Queen Valley Water Board
Roy Chavez - Concerned Citizens and Retired Miners

Resolution Copper Company:

Frank Deal - Tailings & Hydrology Manager
Vicky Peacey – Resolution Copper

Facilitators – Godec, Randall & Associates (GRA)

John Godec
Debra Duerr

Speakers:

Frank Deal - Tailings & Hydrology Manager
Vicky Peacey – Senior Manager Environmental & Permits

Public Guests:

DeLores Hatfield – VFW Aux. #3584
Leslie Watson – Watson Environmental

Introductions & Housekeeping

John Godec noted that it's a busy time in Superior. Members noted that the annual Apache Leap Mining Festival will be held the weekend of March 17-19, and that the Second Friday event is this week, March 10. There has been an accident involving a CWG member's son, and the group sent their best wishes for a speedy recovery.

Godec reported that the Forest Service has declined to come to the meeting tonight, reportedly because they are going to host their own larger public meetings soon. There will be a public workshop about alternatives for the Environmental Impact Statement (EIS) the evening of March 21 at the Superior Junior/Senior High School. This will include tailings alternatives, similar to the kind of work the CWG did in its earliest meetings. There will be another of these meetings in Gilbert on the following day. There will also be a public meeting to review a draft of the Apache Leap Special Area Management Plan (ALSMA), which will be posted to the website before the meeting on April 4 at the high school.

Because the CWG has asked for more information about what's going on at the tailings site, Frank Deal and Vicky Peacey of Resolution Copper have agreed to talk about this tonight.

Resolution Copper Tailings Studies Updates

Frank Deal, Resolution Tailings & Hydrology Manager

Vicky Peacey, Resolution Environmental & Permits Senior Manager

Frank Deal introduced himself to members who had not met him. He provided an overview of the tailings site location and showed a map of the site with testing locations. Site characterization activities approved in the final Environmental Assessment have included drilling 39 small diameter shallow bore holes with PVC pipe, and 17 four-inch wells. These are yellow pipes with locks on top that people may see if they are traveling in that area. The Forest Service was also asked to approve several additional holes for specific purposes. Deal said that these are all the wells that will be drilled for this project, as approved by the Forest Service.

All the drilling is completed, and all equipment should be cleaned up now. All the 80x100' well pads have been reclaimed and seeded with native seed mix. The wells are visible by the yellow pipes. Superior Environmental did this reclamation work and Resolution reported that they did a particularly good job of it. A CWG member mentioned that someone he spoke with complained about the condition of a road segment near a wash. Deal said the road may have gotten washed out in the recent rains, but Resolution will fix all access to the original condition.

Godec asked what the company has learned from this drilling so far. Deal responded that there are some rock types they didn't expect, but the hydrology is not surprising. Depth to the water table ranges from about 40 feet in the valley locations to about 150 feet on the ridgelines. These depths are what was predicted. After a question by a CWG member Deal answered that there was no copper in the samples taken.

Vicky Peacey mentioned exploration that Bronco Exploration Company is doing, so if people see activity in the area it will likely be theirs. This is a partnership with Rio Tinto Exploration from Tucson. Several members said they have seen helicopters in the area. Vicky suggested asking the Forest Service about this project, which she thinks will be a Categorical Exclusion (CE) under the National Environmental Policy Act (NEPA). Members have seen Bronco Exploration labeled ground markers.

Deal said that both surface water and groundwater flow in a southwesterly direction at the tailings site. Some of the upcoming testing will look at the nature of the rock and how water from the tailings will act. This will show connectivity of groundwater aquifers and permeability of rock as well as water chemistry.

Both shallow and deep wells are being looked at, which will help to analyze flow patterns and fractures. A member asked if this could be mapped horizontally; Deal said this is what they're doing. He assured the group that these studies will be included in the EIS.

During March and April, a pump test will be completed, providing key data that will feed into the hydrologic flow model. This is overlain with the 'fate and transport' model to see how water may flow and how long it will take to reach certain points. Deal noted that baseline data is not just from one point in time, and that a historic record needs to be built. Peacey said that 10 monthly samples are required by the State of Arizona to constitute a baseline sample. Resolution will continue collecting data beyond that, however, even possibly through facility closure.

CWG members asked for Deal's opinion of whether this is "the right site" for the tailings. He said that it depends on what the problems and benefits may be, which need to be addressed through design. On the positive side, the underlying geology seems advantageous. Pinal schist and Gila conglomerate are the tightest rocks, and the Gila is on the surface. This is an ancient alluvial plate, which he likened to sand that's been welded. Peacey said she feels that more data is needed before a final determination on the site's suitability is possible. She noted that the impact analysis for the EIS must be completed to determine where monitoring wells will ultimately be installed, and this will be based on locations where possible impacts could occur.

The CWG reviewed their work in recommending this tailings site, for the benefit of newer members, outlining the general criteria they used to evaluate the alternatives presented. The group reminded Resolution that the Pinto Valley Mine was their first choice at that time and currently, followed by a parcel of State Trust Land located near Florence. Unfortunately, neither of these sites are available to Resolution.

A member asked Peacey if the company has talked with the State Land Department again about the subject site. Peacey said the state has not changed its mind about selling this site, for which they feel tailings would not be the highest and best use. CWG members said that this site is not zoned for residential, so they do not really understand this issue. Resolution will be submitting a design for this site, in any event, to demonstrate whether it is feasible.

The CWG had the following questions and comments:

- What are the negative aspects Resolution foresees at this site.
 - Complexity of the geology may be a challenge for the issue of seepage from the tailings. Seepage has benefits and disbenefits. The more water you can get out of the facility the easier it is to manage; so this is what engineers like. Conversely, this produces more water to seep into the groundwater. Consequently, water balance is very important. All water that leaves the facility will be collected and returned to the project. There will be a drainage layer under the tailings.
- How do you know the water will stay there?
 - Because the rock is so impermeable.
- Will the tailings be transported as slurry? Won't this make it very wet?
 - About 44% will be retained in the sand of the tailings pile.
 - The tailings will be placed in two sections: the sulfide deposit will be isolated to prevent acid rock drainage. Pyrite tailings need to be watered.
- Is the geology at the old Magma tailings pile similar to this? That's been here for over 100 years, and there was no downstream contamination in the groundwater.
 - Yes, it's Gila conglomerate as well. Peacey noted that this was "lucky" since these issues were not well understood at the time the Magma mine was developed.
- If water gets contaminated at Queen Valley, what could be done about it except treat it?
 - Monitor wells will be installed to watch this at all times.
 - Operation could be stopped.
 - If contamination is found, pump-back wells will be installed to prevent its spread.
- So, why not line the tailings pile to prevent this?
 - It is not known yet if the underlying geology would be more protective than a plastic liner. This will require an equivalency test. If required, this would be the only basin copper tailings pile in the world that's lined; gold mining typically uses liners because gold mining uses a leaching process. The cost of liners is exceptionally high, and the effectiveness in a situation like this is questionable.
 - It's possible that a partial liner could be used in spots depending on the geology.
- What's 'base metal mining'?
 - This refers to copper and other 'base' metals.
- Could the Community Monitoring Task Force be sampling these wells?
 - Yes
- How long would it take for contaminated water to reach Queen Creek?
 - Hundreds of years, most likely. This needs to be thoroughly evaluated through the environmental study process.
 - The amount of seepage is not the concern, but the chemical content of the water is. The design will seek to have evaporation exceed seepage, for long-term maintenance and closure.
 - Deal noted that this is one of the first generation of mines post-1995 where closure was even a concern or requirement. In the past, this was not considered or planned for.
- How might climate change affect this?
 - Peacey said that looking at this will be required as part of the cumulative effects analysis in the EIS.
- Is it possible to make the seepage safe/unharmful?

- Yes, there are treatment options. The majority of elevated total dissolved solids (TDS) and metals comes from the mine deposit, so the quality of mine water can be treated and this will take care of the tailings water quality problem, since tailings water is constantly recirculated.
- Please clarify that there are two different processes: one is placing tailings that are very wet during operation, and one is after closure when only rainwater will be added.
 - Correct
- Is there anything out there now in technology that you're looking at?
 - Dry stack or dry process. Being able to reuse water is important, particularly in dry environments like Arizona. This technology doesn't yet exist for a facility of this size. However, dust could be an issue for these types of piles.
 - Deal mentioned that, incidentally, he foresees only about 200 years more of mining on this planet; he joked about needing to go to outer space after that.
- Deal said that "solidation" is required post-closure to maintain the shape of the pile as water starts to settle out. This could include topsoil, riprap, or borrow material. To do this, the material taken from the tailings site could be stockpiled and used for closure.
- Will you try to make this look like the surrounding environment?
 - To the extent possible, but you can't engineer nature. It would probably still be seen as a manmade facility, although it will blend into the surroundings to a large extent. The top part is the most difficult to contour, but Peacey is optimistic that creative solutions can be found, and Deal likes the challenge of making each project unique.
- Will the EIS explain how Resolution plans to manage the tailings water?
 - Yes, there will be thorough explanation of this. Ideally, the amount of water entering and water leaving the facility should be about the same. This is easier in dry Arizona than in tropical climates. There should be a good water balance in all aspects of tailings management.

Resolution reported that, in the spring, there will be a crew taking water quality samples for the next 10 months. There will be a peer review of the draft tailings design in July by an Independent Tailings Review Board (ITRB), which was convened after a spill accident at Mount Polley in British Columbia. Since that time, Rio Tinto has developed a D5 standard on tailings and water management based on international best practice. The ITRB includes four global tailings experts who will be advising the company throughout the operation of the project, and reports to senior management. Peacey explained who these experts are and their credentials.

Deal noted that virtually no tailings dam failures have been the result of the facility design; operation is almost always to blame, mostly because of poor water management and too much water in the tailings.

CWG members requested an update on data collection and studies in early fall. Peacey agreed to do this.

Godec noted that the Pinto Valley mine is starting to prepare an EIS to expand the mine in the 2030s. He asked the CWG if they are still interested in what's happening at that mine. They did think such updates would be helpful, and also thought it might be interesting to learn more about the new Asarco tailings dam design. A member noted that State Land Department is

stating an unreasonably high price in negotiations for considering a tailings site for Asarco -- a price similar to land values in North Scottsdale. The group suggested looking at the closed tailings site for San Manuel as a comparison, possibly as a field trip. It was also noted that the tailings site at Green Valley is being reclaimed and looks quite different from the way it did a few years ago. The group's facilitators will follow up on these suggestions.

Subcommittee Updates

Members of the Community Monitoring Task Force reported on their sampling trip on February 23. Three wells were sampled, and it was done very professionally. A new well near Hewitt Station will be sampled at the next quarterly sampling instead of the pond at Boyce Thompson Arboretum. There was discussion of getting high school students involved in sampling in the future. The group was impressed with safety protocols used by everyone. Southwest Groundwater Consultants will make a presentation to the entire CWG after the sampling test results are completed.

Pamela Rabago and Vicky Peacey plan to have a meeting on historic preservation issues.

On behalf of the Recreation User Group, Lynn Martin reported that she went out in the field with Mary Morissette and TRAL representatives to look at a possible replacement campsite for Oak Flat. This site is about six miles past the Oak Flat turnoff. This seems to be a suitable, desirable, feasible site, and the Forest Service has also looked at it and likes it. It has good views and the potential for growing acorn trees. She recommended that the Recreation User Group evaluate this site. The next RUG meeting will be on April 12. Godec explained that the RUG group has gotten quite large, so there will be some operating changes to establish a single representative for each organization who will be responsible for making recommendations and decisions.

Bruce Wittig was kind enough to make copies of a report from the Arizona Mining Association for CWG members that includes historical information about all the mines in Arizona. Members thanked him for this. The report will be posted to the CWG website.

Bill Vogler informed the group that all the bids are in to prepare an Environmental Assessment (EA) for the Legends of Superior Trail (LOST), and the organization will be selecting the consultant soon. The EA will cover a 4-mile section of the trail on Forest Service lands.

Public Comments

There were no public comments.

Next Meeting

*Wednesday, April 12, 2017
Superior Chamber of Commerce
6:00pm*