June 13, 2018
MEETING SUMMARY

Meeting Attendees

Community Working Group members present:

Bruce Wittig – Queen Valley Fire Department
Jim Schenck – Rebuild Superior
JoAnn Besich – Superior Optimist Club
Anthony Huerta – Town of Superior
Hank Gutierrez - Superior Copper Alliance
Pamela Rabago – Superior Chamber of Commerce
Pam Bennett – Queen Valley Community Liaison
Arlynn Godinez – Superior Unified School District Board / Maricopa County
Fernando Shipley – Cobre Valley Regional Medical Center Board
Todd Pryor – Town of Superior
Lynn Martin – JF, JI Ranch
Rick Cartier – Superior Chamber of Commerce alternate
Sylvia Werre – Top of the World
Tiffany Rowell – Superior community
Cecil Fendley – Queen Valley Water Board

Community Working Group members not present:

Karen Kitchayan Jones – San Carlos Apache Tribe
Roy Chavez - Concerned Citizens and Retired Miners
Fred Gaudet – Arizona Trail Association
George Martin – JF Ranch
Jeff Bunklemann – Central Arizona College

Resolution Copper Company:

Hesston Klenk – Communities Manager
Filomena Cornelio – Communities Manager
Gert Van Hout – Rio Tinto
Andre Van As – Rio Tinto
Dan Gardiner – Exerplay
Matt Pierce – Pierce Engineering
Bill Hart – Rio Tinto

Facilitators – Godec, Randall & Associates (GRA):

John Godec, Debra Duerr

Speakers:

Vickey Peacey – Resolution Copper Senior Manager Environment & Permitting
Kami Ballard – Resolution Copper Environmental Specialist
Jacques Tshisens – Resolution Copper Engineering

Public Guests:

Richard Matthews – Queen Valley Fire Department
Katie Brown – Hewitt Station
Melvin Were – Top of the World
Dana Warnecke – Arizona Game and Fish Department
Francisco Miramon – resident
Charlie & Becky Goff – Superstition Area Land Trust
Victoria Carella
Jenn Walker – Linda Gross campaign (AZ House LD8)
Charles Beck – "

Introductions & Housekeeping

John Godec welcomed everyone and asked for introductions since there are quite a few visitors tonight.

Lynn Martin told the group that George had a stroke and is in a rehab facility at present. In response to a question, she said that he can have visitors but please check with her first to make sure he's free. Members expressed their concern and good wishes to George.

Recreation User Group, Historic Preservation, Community Monitoring Updates

There is nothing new with the RUG, but they will be meeting again in July.

The Community Monitoring Task Force went out in the field on May 24, at 7:30 AM. Jim Schenck was the only CWG member present, so Godec encouraged other committee members to attend the quarterly sampling events in future.

Presentation of Mine Site Subsidence Simulation
Kami Ballard, Resolution

Vicky Peacey introduced the video simulating the subsidence of the mine site. She noted that this has taken a while, but there have been quite a few changes to the model and updates in data that are represented here. The Forest Service has also been reviewing the subsidence aspect of the mine plan for its analysis in the Environmental Impact Statement (EIS). She noted that Matt Pierce from Itasca, who did the modeling work, is here tonight. Gert, Andre, and Bill Hart from Rio Tinto are also here to answer questions.

Kami Ballard said that she has been working closely with the engineers to make sure the simulation is accurate. She then showed the video.

The CWG had the following questions and comments:

- Will this cause any vibrations in the Town of Superior?
    - There will be very small seismic events in the area around the cave-in. We don't expect larger events to occur. People both in the mine and in the surrounding area will probably not feel these since they are of very low vibration.
- How does the rock cave?
    - It's a process of continual collapse of the rock that will fill in the gaps as it goes along. It's a steady process. It "relaxes" the rock. There should not be big blocks that will form and fall. The process will be constantly monitored. Small tremors and cracks can be heard using the monitoring systems, which will allow Resolution to be proactive rather than reactive.
- Some residents are very worried about movements on Apache Leap. Will there be monitoring reports, and will these be available to the public?

  - Yes, monitoring and reporting will be required by the Forest Service as part of the EIS, and this information will be available to the public. There are laws that also apply to the land exchange and Apache Leap Special Management Area.
- Where does water go from rain?
  - Currently, water flows to Devils Canyon and Apache Leap. When there is a crater, it will flow towards that. During operations the mine will be dewatered constantly. Post-closure when the pumps are turned off, it will take hundreds of years for the groundwater levels to reach where they are pre-mining.
  - There will be recharge from the deep aquifer as well as from precipitation on the top. This will happen very slowly because the rock is very tight. Ultimately, water could daylight in the crater, but this would take hundreds of years.
- What are the effects on Queen Creek, which is only about a 25-mile watershed? There is a concern that this will represent a large portion of the entire watershed.
  - That's being evaluated in the EIS. The mine area represents a smaller sub-basin of Queen Creek.
- How big is the crater?
  - 1.5 miles square
- When will the EIS be available?
  - May 2019
- If there is a loss of water, Resolution would be responsible for mitigating that, right?
  - Yes
- How far away from Apache Leap is the subsidence area?
  - There are 3 zones of subsidence: the cave zone where the rock is broken up; a fracture zone where you can see cracks, but the rock hasn't moved; and a continuous subsidence zone where movement occurs but not enough to actually break the rock. Outside of that zone is the stable zone, which includes a distance of about 2500 feet to Apache Leap.
- How are you going to forecast these zones to ensure that Apache Leap is stable?
  - These types of methods have been used at other mines, so we are able to predict how it will occur using state-of-the-art models.
- Are there critical trip points at which you can tell if the modeling is accurate? For example, we should not be at this fracture point at this time.
  - Resolution is taking a conservative view in developing the models, which 'over-predicts' what might occur. Since monitoring and measuring is constant, if there are differences we would need to stop and modify approaches and models. All this must be reported to the Forest Service.
  - The subsidence occurs slowly enough so that changes and problems can be detected well in advance of problems. The company must stop mining if this occurs, which of course they do not want to do.
- There should be a provision that this needs to be reported to the public.
  - There will be.
- How do you know that mine dewatering will not affect surrounding wells and aquifers?
  - A massive pump test is going on now, and wells around the site are being monitored. Resolution does not see any movement, so that is good news in confirming that there is a hydrologic disconnect between the mine and surrounding aquifers.
  - People who worked in the old mine reported that water did not flow in through the fault zone into the tunnel 1500 feet below surface. This suggests that the same would be true in the new shaft and tunnel.

- Is Queen Creek different in terms of how it is hydrologically connected to the mine site?
    - There is a difference between surface water and groundwater. How riparian areas are sustained is being studied in the EIS to determine the impacts of both surface and subsurface flows.
    - Todd Prior noted that flows in Queen Creek have already been affected by activities to the point that it doesn't flow anymore. If this accelerates, the impact to the town will be severe. Now the creek flows upstream of town, and again downstream where there is a riparian area. If surface water impacts are predicted, serious mitigation will be needed.
- Residents have been asking for about 10 years why Resolution couldn't release dewatering water into Queen Creek. Is this being studied?
    - The EIS is studying what the impact will be before appropriate mitigation can be established. This approach will be a consideration.
- When do we get to comment on this?
    - The comment period on the draft EIS will start after May 2019.
- It was suggested that the CWG monitoring group have a role in monitoring the subsidence as well. The public should have the opportunity to know and comment about monitoring results. A third-party role in this monitoring would be appropriate. Air monitoring might also be needed.
- Vicky Peacey clarified that the Forest Service only has jurisdiction over the surface, not underground mining which is regulated by the Mine Safety and Health Administration (MSHA).
- How deep is the caved zone?
    - 1000 feet deep by about 1.5 miles across
- Where will the fence be?
    - Beyond the fracture zone in the zone of continuous subsidence
- Is the water coming into the mine decreasing as the cone of depression increases?
    - Yes, after the initial dewatering the amount of water coming in is less, and the quality is different.
- On #10 shaft, is this true as well?
    - Hesston will find out.
- What will the average pumping be after both shafts are sunk?
    - It's currently about 400 gpm coming into the mine now, and this will probably decrease.
- When did Queen Creek stop flowing, and what did the mine do to affect that?
    - The mine has never discharged into Queen Creek above Superior. Reductions in flows over the last 10 years have been due to drought. Magma Mine in operation did dewater portions of Apache Leap. Queen Creek stopped flowing in the '80s. There is an historic impact from Magma Mine.
- Knowing that, can the surface flow through town be restored?
    - Todd Pryor said that there is a proposal for a restoration plan that Roy Chavez was instrumental in putting together. This plan to put water into Queen Creek 'disappeared'. It is thought that the Arboretum was concerned about putting this water on plants due to sulfate. It was noted that riparian areas throughout the state are dying off, so this idea should be reconsidered.
    - Peacey noted that there are 3 aquifers: Apache Leap; white plume, which acts as an aquitard; and a deep system with no connection to Queen Creek and so no impact. The Apache Leap tuft is connected to Queen Creek.
- Peacey suggested that there are several ideas that can be explored, and this might be the subject of a separate discussion at the CWG. CWG members endorsed this suggestion.

- A member said that her ranch has lost 18 inches of well water just in the last month, and there have been continual losses during the last 13-year drought. So, we can't really say that "Resolution is stealing our water", as some people thought several years ago.
    - Queen Valley Water Department confirmed that well levels in the Queen Creek aquifer are directly precipitation-driven.
- There should be a visual for the public of the concentrated fault that shows how water moves.
    - Peacey said there is a graphic that illustrates the effects of rain events and pumping. A simulation was started to model this that could be completed.
- If Apache Leap fails, Resolution will be blamed.
    - Jacques Tshisens said there have been baseline measurements taken of movement at Apache Leap. Bill Hart said that some ancient faults that cross Apache Leap are visible, even though they have not moved in hundreds of years; you can notice as you drive up the hill a gap that was caused millions of years ago. The cliffs are still quite stable and resilient, as evidenced by the lack of hoodoos and rocks at the base.
    - It's common for impacts of mining to be of concern for buildings and structures, etc. But the effects on geology are not of such public concern. A tilt of 7.5 degrees would cause a hoodoo to collapse, so the models are trying to predict what tilt might occur; they think it would be about .1 degree.
- How much history of block cave mining is there for comparison?
    - The Ray Mine started over 100 years ago; San Manuel has also used it. It's not new for this area. In fact, it started here and was then used in South Africa in diamond pipes. Open pits are also related to some of these issues. There is not a single piece of technology that is brand new to this project. Information and data from all of these are available to inform this project.
- Do you know how accurate the predictions for these projects have been vis a vis the actual situation?
    - Yes, we do, and the validation process is constantly being updated and improved.
    - You can't take one mine and directly apply it to another mine; each needs to be modeled separately.
- Have any previous models been at 7000-foot depth?
    - Yes, some have approached 2 kilometers.
- Is it true that once you start block caving you can't stop?
    - Not exactly; you can't just start and stop a block cave like you can a pit. If you go underground at depth and remove large quantities of rock, very quickly the rock breaks and fills all the cavities so there is no room for rock to move anymore. So, if you just stop drawing, there is nowhere for the rock to move. Slowly over time, it may recompact making it stronger so that starting again is more difficult.
- Once the mine is in production, how much water will be used and where is it coming from?
    - It depends on the tailings location and technology. There are 4 sites and 5 technologies being evaluated. The maximum water use is 12,000 acre feet (af) per year/average 7,000 af per year. The tailings represents the biggest evaporative loss, so it has the greatest impact on water use. No matter what alternative, water pumped from underground will be used in the mining process. Resolution has been storing groundwater for future use near Florence and is also pursuing an allocation of CAP water that would be located about 30 miles away and would be pumped up here to Superior. Peacey emphasized that it is in Resolution's best interest to minimize water needs and use.

- A CWG member noted that 15 af is about 5 million gallons. An af is about the amount of water an average family uses in two years. For comparison, Mesa uses 90,000 af per year.
- How can people work together to work on this problem? It's more than mitigation; we need to adapt.
    - The Town Manager described some history of water use, impacts on vegetation, and ideas that have been developed for addressing this. It will take all stakeholders in this area getting together.
- What year does the breakthrough occur on the subsidence?
    - Year 8
- What is the management response in mining operation if impacts occur differently from those predicted ("it goes south")?
    - The mine plan may be changed so mining occurs in a different place (sterilize the ore) to avoid or reduce impacts. The law does now allow negative effects on Apache Leap.
- Does the model predict that there could be fracture of the aquitard that could affect surrounding areas?
    - We compare the subsidence analysis with the groundwater and surface water impact analysis. In this, we assume it's all fractured/gone, so that water that would otherwise flow to Queen Creek would be rerouted – the EIS is evaluating these impacts now. There will be ground- and surface-water impacts in this area.
    - Queen Creek is the bottom point of the Superior Basin. So, water that is currently flowing into Queen Creek within the 1.5-mile cave will be rerouted. Keep in mind that the deep groundwater is not in any way connected to Queen Creek.
- How much deeper is the shaft than the low point of Queen Creek?
    - 2500 feet below
- Do they monitor the water in the Belmont Mine?
    - Not regularly, but there may be some information available.
    - Hesston Klenk will check.
- It was noted that the McKinny Mine east of Superior is full of water.
- What is happening with Resolution's reuse permit process?
    - The Queen Creek National Pollution Discharge Elimination (NPDES) permit is being evaluated in court; therefore, there has been no progress in six months.
- It was jokingly noted that someone was considering building a Reverse Osmosis plant, but the water was too clean.

In response to the level of interest in mine-related water issues, a future CWG meeting will be organized to focus on this topic.

Community Working Group Outreach - Action Items & Next Steps

Godec referred the group to the matrix of community outreach ideas that the CWG suggested at the last meeting. Of these items, Jim Schenck has organized a public meeting under the auspices of Rebuild Superior for the evening of June 25 at the high school. The objective is to get people to share what they would like to see. Godec asked how comments will be recorded. There will be a flip chart recorder, and there will be another flip chart in the back for people to record ideas individually. Some CWG members will be there to "seed" the conversation with ideas. A press release went out today that explains the situation and the meeting in some

detail. It aims to let people know about the cultural heritage/historic preservation undertaking and the importance of community input in that process.

It was suggested that the group pare the to-do list down to the most critical and practical. The timeframe is such that there must be three alternatives by December. The most effective/important areas seem to be Facebook/social media, which the town and Rebuild Superior can share responsibility for. Former Superiorites will also be contacted through their social media to see if they will publicize it.

Another idea suggested by the CWG is to visit with seniors. Tiffany Rowell agreed to take the lead on this, but she didn't know at this time how it might work. In this regard, Klenk noted that Westland's scope has been expanded to include oral history interviews.

Arlynn Godinez agreed to work with the students, but it won't be until August.

Hesston Klenk will take the lead on the VFW meeting.

Joann will distribute the questions to the Optimist Club, and will also try to find out if there is a contact at the Knights of Columbus.

For intercepts of people at events, it was suggested that we could prepare comment cards to hand out. These could be deposited at the Town Hall or at the Chamber of Commerce. Klenk volunteered to prepare and print these cards.

In an effort to simplify the questions we can ask the community, the following were suggested:

- How do we ensure that Superior's culture and history are preserved for the future?
- What is Superior's culture?
- If you were in charge what would you do?

Public Comments

A visitor said that a water source originating from the perlite mine seems to fluctuate significantly. She doesn't have information about how much, but it affects flows and riparian habitat (frogs, sunfish). This might be an opportunity for restoration of Queen Creek. Todd Pryor noted that there have been discussions about this, but it would not help the upper watershed.

Future Meeting Planning & Next Meeting

The next meeting is scheduled for:

*Wednesday, **July 11**, 2018*
Superior Chamber of Commerce
6:00pm