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Chair, Subcommittee for Indigenous Peoples of the United States
U.S. House of Representatives
Committee on Natural Resources
Washington, DC, 20515

Subject: April 13, 2021 Legislative Hearing on H.R. 1884, the Save Oak Flat Act
Responses to Follow-up Questions Submitted by Members of the Committee

Dear Chair Fernández:

I would like to thank you and the other members of the House Subcommittee for Indigenous Peoples of the United States for inviting me to testify at the April 13, 2021 legislative hearing on the Save Oak Flat Act, H.R. 1884. I received follow-up questions from Representative Grijalva and Representative Gosar and I am pleased to provide my answers below.

Questions from Representative Grijalva

1. Your testimony quotes the FEIS that as a result of this project's groundwater pumping in the East Salt River Valley that the land there will actually subside 24 to 52 inches. Can you explain what this will mean for infrastructure in the area and the aquifer?

Land subsidence is a permanent consequence of overpumping groundwater. Land subsidence occurs when water is pumped out of the aquifer and the now empty pore spaces collapse. This not only leads to land subsidence, but the storage capacity of the aquifer is permanently reduced. In other words, even if water becomes available in the future to recharge the depleted aquifer, it will never hold as much groundwater as before. The maximum land subsidence predicted in the FEIS is 52 inches, which is more than four feet. Imagine what would happen to your home if one corner dropped four feet. As we have already seen in parts of the East Salt River Valley as well as places like the Central Valley of California, land subsidence from overpumping can cause dangerous and expensive damage to private homes, as well as public infrastructure like roads and power lines. Even the Central Arizona Project (CAP) is at risk from the predicted subsidence, as Resolution's proposed Desert Wellfield is only a few miles from the CAP canal.

2. You note in your testimony that FEIS states that as a result of groundwater pumping for the mine and other known demands the groundwater levels will drop in some areas by 450 feet. What will this mean for the future of the people who live and work in this area?

This is a very long term consequence reported in the FEIS of the cumulative effects of Resolution's groundwater withdrawals in the East Salt River Valley as well as all other known water demands. This is a profound finding because it lays bare the fact that the State of Arizona's goal of "safe yield" (dating back to 1980 with the creation of groundwater Active Management Areas or AMAs) is being undermined—in part—because of mining operations' free reign to take groundwater from otherwise highly-managed aquifers. For a groundwater basin, "safe yield" means achieving a long-term balance between the annual amount of groundwater withdrawn and the annual amount of recharge,

thus avoiding depletion of the aquifer. A predicted drop of 450 feet in the East Salt River Valley aquifer is simply a stark indicator that Arizona is far off track in achieving its goal of safe yield. In practical terms, this finding means that folks with wells shallower than 450 feet will eventually see their wells dry up. Those who can afford it will drill deeper wells. Those who cannot afford it will probably need to move away, since a property without water is not habitable. In the very long term, this trend suggests that without better management, the aquifer in the East Salt River Valley will gradually dry out completely and all wells will dry out. Agriculture would probably not be feasible without a groundwater resource and municipal and industrial users would need to scramble to make up for this loss of groundwater.

3. According to the FEIS, the dewatering and ground pumping of the mine will result in impacts on at least 18 groundwater dependent ecosystems. Can you explain what this will mean in practice on the ground for local habitat? And can you talk about why the mitigation measures proposed are inadequate?

One of the most important tasks of the groundwater modeling effort supporting the EIS was to assist Tonto National Forest (TNF) in evaluating future impacts to springs and perennial streams that support groundwater-dependent ecosystems (GDEs). Many people were disappointed in the lack of precision in the TNF's analysis of impacts to GDEs in the EIS. Unfortunately, the computer model used to evaluate this issue does not quantitatively simulate groundwater-surface water interactions. Instead, it was decided that a finding of hydrogeological "impact" would only be identified if the model predicted at least a 10-foot drop in the groundwater elevation in the immediate vicinity of a GDE. As stated in the FEIS,

"Based on combined professional judgment, the Groundwater Modeling Workgroup determined that to properly reflect the level of uncertainty inherent in the modeling effort, results less than 10 feet should not be disclosed or relied upon, as these results are beyond the ability of the model to predict." (FEIS, p. 375).

In short, TNF acknowledged that its scientific methodology (groundwater modeling) had a limit of precision of plus or minus 10 feet. TNF did not scientifically conclude that 10 feet or more of groundwater drawdown is needed to cause an impact on GDEs, this is just an arbitrary number based on limitations of the method of analysis, not some scientific principle. Indeed, common sense would suggest that if a spring is fed by shallow groundwater and someone caused the water table to drop 8 or 9 feet, the spring will probably dry out.

A consequence of the modeling issues discussed is that TNF probably underestimated the magnitude of loss, they do acknowledge that these impacts represent an "Irreversible and Irretrievable Commitment of Resources," and that "Sacred springs would be eradicated by subsidence or tailings storage facility construction and affected by groundwater drawdown."¹

In my opinion, there are three main problems with the mitigation measures. First, it is not clear that Resolution will need to follow the mitigation measures once the land exchange occurs and much of the mine site becomes private property. Second, the mitigation measures do not protect or restore natural systems, they replace natural systems with artificial water features. TNF acknowledged this problem in the EIS: "Although mitigation would replace water, impacts would remain to the natural setting of these places." (p. ES-27).

Finally, the monitoring plan for GDEs is also inadequate because it incorporates vague and incomplete triggers (i.e., occurrences or observations that would trigger implementation of mitigation activities) which provide Resolution with ways to avoid mitigation even if springs do start

¹ FEIS, p. 790, emphasis added.

drying out. In particular, the mitigation plan explains that Resolution will somehow differentiate the impacts from its dewatering from other variables such as “changes in weather and/or climate, impacts to the regional and/or local groundwater system from other human causes, landscape changes such as landslides and fires, natural succession of the GDE into a new presentation such as an increase in phreatophytic plants coincident with a reduction in spring flow rates, or other reasons not included in this document.” Other than noting that Resolution will employ “multiple lines of evidence” there is no substantive explanation of how Resolution will accomplish this difficult task. Considering that most of the GDEs covered by the monitoring plan have already been identified as likely to be severely impacted by mine dewatering, TNF’s methodology for identifying impacts to GDEs is unworkable and is inadequate under NEPA.

4. The Resolution Copper Mine needs at least 775,000 acre feet of water in order to be able to slurry both ore concentrate 22 miles and the toxic waste 20 miles through pipelines that need to be built across parts of Tonto National Forest not in the land exchange and other lands. This toxic waste will be dumped into tailings waste storage facility that will ultimately cover nearly 4000 acres and stand nearly 500 feet tall. Can you explain more about the possible water quality problems as a result of this massive toxic dump?

The FEIS provides a brand new analysis of potential water quality impacts that was missing from the DEIS. Many people are surprised to learn that tailings storage facilities seldom contain liners, as would be required of a new municipal landfill. Thus, as rainwater soaks into the waste, picks up heavy metals and eventually reaches the bottom of the tailings. At this point, the contaminated water (or “leachate”) infiltrates into the native ground and impacts the underlying groundwater. Since there is no liner to prevent infiltration of leachate, this is an expected consequence of the tailings facility. None of this new work was subject to public review or comment. The FEIS finds that significant groundwater contamination will occur at Skunk Camp even with a seepage retention pond and downgradient interceptor wells to capture contaminated groundwater. Eventually, the groundwater plume is predicted to extend all the way down Dripping Springs Wash to the Gila River, which is approximately 13 miles from the proposed TSF.

Questions from Representative Gosar

1. In your testimony, you write that Special legislative action was needed to make this project possible in the form of Section 3003 of the Carl Levin and Howard P. “Buck” McKeon National Defense Authorization Act for Fiscal Year 2015 (NDAA). Are you aware that the 2015 NDAA included a full lands package compromise that as you say received “special treatment.”?

Other than Section 3003 which relates to Oak Flat, I do not have an opinion about other components of the NDAA for FY 2015.

2. Were you aware that for five years, from March 2009 to March 2014, Congress did not add a single new wilderness area – a stretch that included the entire 112th Congress, marking the first time a Congress had not created a wilderness area since passage of the Wilderness Act in 1964. And that the Southeast Arizona land exchange was part of a 169-pages of energy and public lands provisions that were tucked into the must-pass defense bill in 2014. A package that also created nearly 250,000 acres of wilderness in Colorado, Montana, Nevada, New Mexico and Washington state, and protected about 140 miles of rivers. It added or expanded more than a dozen national parks and put mineral development off limits on hundreds of thousands of acres of federal land. Were you aware of that?

I am aware that Section 3003 of the FY 2015 NDAA was part of Title XXX of the Act which is described as “Natural Resources Related General Provisions.”

3. Dr. Wells, it is my understanding that the FEIS, which you testified to extensive participation, is a reflection of a myriad of experts that analyzed all impacts and mitigations over a 7-year period. The Forest Service led this process and published a consensus view. What is the reason we should regard your dissenting opinion and ignore the extensive analysis that was done by dozens of experts and reflected in the FEIS?

The data I discussed in my testimony comes from the FEIS. I am not aware of any participating hydrogeology experts who disagree with the descriptions in the FEIS of the general magnitude of the disclosed impacts, although there were robust discussions in the working groups about the accuracy and precision of future predictions. The issue I am helping to raise is whether these impacts are acceptable. Perhaps because of the unusual nature of the environmental review process mandated by Section 3003 of the FY 2015 NDAA, the FEIS does not address this question.

I disagree with your premise that the FEIS represents a consensus view of all experts. It is true that TNF convened advisory groups of experts, including the two I participated in: the Groundwater Modeling Working Group (advising TNF on groundwater computer modeling matters during preparation of the DEIS) and the Water Resources Working Group (advising TNF on its responses to water-related public comments during preparation of the FEIS). This was laudable. However, TNF made final decisions about how to analyze impacts and how to disclose them in the EIS. There were numerous disagreements among working group members. For example, US EPA issued a memo to the Water Resources Working Group questioning the adequacy of the water quality analysis for the Skunk Camp tailings storage facility (TSF).

Another example of an absence of consensus is the fact that TNF's own consultant, BGC Engineering USA, Inc., issued a report highly critical of the new Skunk Camp groundwater modeling effort (new work which was completed after publication of the DEIS) and those criticisms and suggestions were not addressed in the FEIS. Predictions of water quality impacts from new modeling efforts differ substantially from the information contained in the DEIS. TNF made the unusual decision of including both the old and new modeling results for Skunk Camp in the FEIS.² These results are profoundly different from one another: the decision to include two incompatible analyses of the same phenomenon muddies the waters with respect to disclosure of impacts and is arguably impermissible under NEPA.

The BGC review contains numerous criticisms of the model and suggestions for improvement. TNF did not incorporate the suggestions into the model or into the Final EIS. BGC also noted how different these modeling results are when compared to the earlier analysis disclosed in the DEIS. The DEIS determined that Resolution would only be able to ensure acceptable water quality at the Gila River if it was able to capture 90% of the contaminated groundwater seepage emanating from the Skunk Camp TSF (DEIS, p. 113). The new model finds that only 24% of the TSF seepage needs to be captured to avoid water quality exceedances. This is a significant change in the analysis of impacts that was incorporated into the FEIS without the benefit of public review and comment and is an example of a finding in the EIS that did not reflect a consensus opinion among participating experts.

One consequence of this situation is that the basis for comparing the alternative TSF sites for relative impacts to water quality has been compromised. Despite the TNF claim that the new Skunk Camp

² "we chose to present the results of both the DEIS water quality model AND the FEIS water quality model, not solely the FEIS water quality model (which does show lower concentrations)." Chris Garrett (SWCA), December 11, 2020 email to Water Resources Working Group. (SWCA is TNF's EIS consultant.)

model can be used for comparison between the different TSF and mitigation alternatives,³ this is not the case. Predictions of the other TSF alternatives are still based on the earlier modeling efforts reported in the DEIS, which BGC has described as inferior to the new Skunk Camp analysis.⁴ As shown by the work at Skunk Camp, the new modeling effort gives vastly different results than the previous GoldSIM modeling. It appears that the methodology utilized in the DEIS was terribly inaccurate. Instead of applying the new methodology to all TSF alternative sites, TNF only updated Skunk Camp. This is a classic case of comparing apples to oranges. While the new modeling methodology is undoubtedly an improvement for the Skunk Camp analysis (although it could and should be further improved by responding to BGC's findings and EPA's comments), the water quality analyses for the other alternative TSF sites are unreliable. It would not be scientifically sound to compare the new Skunk Camp modeling results against the old modeling results (which used different methodologies) for the other TSF alternatives, thus we must conclude that the FEIS will be unable to reliably compare water quality impacts between alternative TSF sites. This in turn, leads to the conclusion that the FEIS will not be capable of justifying the selection of a preferred alternative, from the perspective of water quality impacts.

Another consequence of this situation is that Arizona Department of Environmental Quality (ADEQ) now lacks the information it needs to make a Clean Water Act Section 401 Water Quality Certification that the Resolution project will not cause exceedances of water quality objectives. For the TSF, this certification will rely solely on Montgomery/Resolution's criticized groundwater model. It is hard to see how ADEQ can make a reliable determination that quantitative, numerical water quality objectives will not be exceeded from a model that TNF itself has described as a "screening level model" and that "model results should only be considered an estimate."⁵

4. Dr. Wells you site that the public comments received in the DEIS of 30,000, 20 percent were regarding water concerns (6,000 comments). But the FEIS endeavored to address those concerns and after 45 days of public comment received only 13 total objections. Does this not reflect significant process in addressing concerns?

To my knowledge, there was no public comment period for the FEIS. One of my concerns—shared by many other parties—is that substantial new information was included in the FEIS that had not been previously disclosed in the DEIS and the public was denied an opportunity to review and comment on this new information.

5. Dr. Wells you testify extensively to the impacts on water of this mine. The FEIS discloses that adequate groundwater exists for committed regional demands, including Resolution Copper's needs over the next 100 years. This was based on assessments by third-party water experts, with input from federal and state agencies. Can you explain why your view is so vastly different from so many independent water experts and federal and state agencies?

The FEIS assumes that Resolution has a legal right to however much water it needs and finds that Resolution will be able to physically pump the water it needs before the East Salt River Valley aquifer goes totally dry. However, the FEIS is very clear that this is not a sustainable situation and the groundwater resource will be progressively depleted.

³ "Alternatives are 'the heart of NEPA', and the analysis must allow us to compare those alternatives. So a third goal [of TSF water quality modeling] is to inform the decision-maker by comparing the outcomes from the different alternatives." (Chris Garrett, December 11, 2020 email to Water Resources Working Group).

⁴ "GoldSim mass balance model [the methodology used in the DEIS] was improved upon through a numerical model utilizing Modflow-USG [the methodology developed after the DEIS] for Alternative 6 - Skunk Camp" (BGC, p. 10, emphasis added).

⁵ Chris Garrett (SWCA) December 11, 2020 email to Water Resources Working Group.

In the DEIS, TNF acknowledged that “groundwater demand is substantial and growing” in the East Salt River Valley and “total demand on the groundwater resources in the East Salt River Valley is substantial and could be greater than the estimated amount of physically available groundwater” (DEIS, p. 342, emphasis added). These sober assessments inexplicably do not appear in the FEIS.

6. You also refer to issues raised by the Arizona State Land Department, but I have a copy of a letter from ASLD that states clearly that their views have been mischaracterized and they do not have unaddressed issues with the project. As a matter fact they signed the programmatic agreement as part of the FEIS and states clearly they would not do so if they felt they could not mitigate impacts to State Trust lands. Were you aware of this?

My statement about the Arizona State Land Department (ASLD) was an accurate summary of a November 7, 2019 comment letter from ASLD to TNF which is reproduced in Appendix R of the FEIS. The FEIS does not describe this as a withdrawn or resolved concern. I am not aware of a subsequent letter from ASLD withdrawing these comments.

7. You know the line about repeating a lie enough times people will believe it is true. Well, that is how I feel about this statement from Dr. Wells testimony. Your testimony asserts that the 1872 Mining Law was written to encourage development of the West. But there is nothing in legislative history to indicate that. The purpose was to incentivize private investment in a highly risky endeavor to supply the growing Nation with the minerals needed without risking taxpayer dollars. The Law recognizes that economically viable mineral deposits are rare and hard to find. The ownership of the minerals discovered is the reward for taking the risk. Everyone benefitted, the discoverer and society. Development of the West was a consequence of discovering minerals in the West, not the purpose of the Law, unlike The Homestead Act. It seems that we face some similar issues today where we need to encourage these risky investments to ensure we have security of supply and can advance the low carbon future. Would you not agree that it is an imperative today as it was when the 1872 Mining Law was enacted?

As I stated in my testimony, the United States does need copper and other metals. However, we do not need to green-light every mining project if the cultural and environmental costs are too high, as they are for this project.

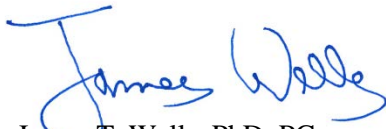
8. My understanding is that USDA has withdrawn the EIS to ensure that the consultation requirements were met. The additional requirements called for in the NDAA bill were separate and additive to the NEPA process to ensure consultation on the land exchange. Why would that require an EIS process starting anew after 7 years of consultation and analysis?

My testimony was in support of HR 1884, the Save Oak Flat Act, which (if passed) would render the EIS moot. However, starting anew with the EIS process does not mean discarding all the data and analysis that have already been collected. It does mean (at minimum) conducting adequate tribal consultations; adequately collecting and analyzing new information to address the many areas not properly evaluated in the FEIS; and allowing public review and comment on the substantial new analyses that were conducted and data that was collected after issuance of the DEIS that are important components of the overall record and would assist the public in understanding TNF’s assessment of alternatives and disclosure of impacts. In situations like this, it is customary to at least issue a Supplemental DEIS to allow for additional public review and comment. In particular, 40 CFR §1502.9 requires that agencies “shall” prepare supplements if “There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.” TNF has an opportunity to accomplish these things now that USDA has withdrawn the FEIS.

9. Mr. Wells as a water expert, you understand that solar production in desert areas requires significant water usage, in fact DOE estimates suggest that solar farms demand between 865 gallons per MWh and 1,057 gallons per MWh. Do you believe that large scale solar farms are a threat to groundwater resources in Arizona?

A more accurate estimate of water use for photovoltaic solar farms is 20 gallons per MWh. For a 1 MW solar farm, this corresponds to about ½ an acre foot of water per year which is thousands of times less water than would be used by Resolution Copper in a year. Regarding competing demands for a finite supply of water, I would say that all water demands—mining, solar farms, ecological, agricultural, municipal and commercial—must be understood, evaluated and allocated against the sustainable supply. I agree that hard choices are needed because this part of Arizona does not have enough groundwater to sustainably meet all of the competing demands.

Sincerely yours,
L. EVERETT & ASSOCIATES, LLC



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