BEFORE THE ENVIRONMENTAL APPEALS BOARD UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, D.C.

In re: Florence Copper, Inc.

UIC Permit No. R9UIC-AZ3-FY11-1

GILA RIVER INDIAN COMMUNITY PETITION FOR REVIEW OF UIC PERMIT NO. R9UIC-AZ3-FY11-1

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INTRODUCTION

Pursuant to 40 C.F.R. § 124.19(a), the Gila River Indian Community (the "Community") petitions for review of In-Situ Production of Copper Permit No. R9UIC-AZ3-FY11-1 ("the Permit") to operate the Florence Copper Production Test Facility ("PTF") because of the PTF's proximity to groundwater, drinking water supplies and populated areas. The Permit was issued to Florence Copper, Incorporated ("Permittee") on December 20, 2016, by U.S. Environmental Protection Agency, Region IX, under the EPA's Underground Injection Control program.

The Permit authorizes Florence Copper, a company with no demonstrated experience or track record in mining operations – much less the novel form of mining authorized by the Permit – to conduct an experimental form of in-situ mining operations called "in-situ copper recovery from undisturbed, buried ore" ("ISCR-UBO"). ISCR-UBO involves injecting an unspecified, exotic chemical mixture through above-ground wells into ore deposits and then extracting the copper-permeated liquid through above-ground pumps. This experimental mining would occur in an area of environmental sensitivity because of its proximity to groundwater and drinking water supplies. The Permit therefore poses unacceptable risks to the Community's federally protected water resources through groundwater contamination and the degradation of natural groundwater conditions. The Gila River Indian Reservation ("Reservation"), where the Community is located, is in close proximity to the mining site, and is home to growing neighborhoods whose drinking water would be put at risk by the proposed activities.

The Community challenges the following conclusions, policy decisions, and conditions associated with the Permit:

(1) The approved mixture of exotic, organic compounds for injection down wells will not degrade the surrounding, integrated groundwater system; and

(2) Quarterly monitoring of groundwater impacts will be sufficient to monitor degradation to underground groundwater in the vicinity of the PTF.

Lacking proper information and without necessary monitoring requirements or safeguards in place, EPA should not allow Florence Copper, an unproven permittee, to undertake what amounts to a trial-and-error experiment near groundwater and drinking water supplies. The EAB should therefore cancel the Permit and remand the matter back to EPA.

FACTUAL BACKGROUND

ISCR-UBO involves the injection of sulfuric acid through wells into the oxide ore body and recovery from nearby recovery wells. Final Permit at 6. ISCR-UBO requires that significant care be taken not to hydraulically fracture or expand upon the naturally occurring fractures of the ore body. The sulfuric acid injected from the surface dissolves the copperbearing minerals of the ore body, principally Chrysocolla, but also the other minerals in the ore body. The recovered fluids are sent to the treatment plant, where they are amended with unspecified, organic compounds, which are exotic and foreign to this aquifer, as a step in the "Solvent-Extraction/Electrowinning" ("SX/EW") process. Arizona Dept. of Environmental Quality, Fact Sheet: Florence Copper Project Aquifer Protection Permit at 2, *available at* http://legacy.azdeq.gov/calendar/factsheet_florence_cu.pdf (Attachment B). Up to 10 milligrams of chemical per liter of water (mg/L) of these unspecified, exotic, organic compounds comprising the solvent are sent back out for the next round of injection and recovery. After recovery reaches an unspecified level of copper concentration, fresh water is injected and recovered in a "Rinsing" process. Final Permit at 38.

History of Unsuccessful, Speculative Copper Mining at the Poston Butte Deposit

The proposed project is the latest in a long line of speculative ventures at this site. Copper has never been commercially extracted from the deposit upon which the PTF is located. The Permittee seeks to extract copper ore at the PTF from the Poston Butte deposit, where the ore was first discovered in 1969, and "was extensively explored and evaluated by 1970 through 1977, by the Continental Oil Company" ("Conoco"). *Town of Florence et al. v. Ariz. Dept. of Environmental Quality*, State of Arizona, Office of Administrative Hearings, No. 12-005-WQAB, p. 7 (Sept. 29, 2014). Conoco considered but declined to pursue open pit and shaft mining at the site because neither method was deemed to be economical. *Id.* In 1992, Conoco sold the property that encompasses the PTF to Magma Copper Company who, in 1996, sold the land around the Poston Butte deposit to BHP Copper, Inc. ("BHP") without having extracted copper from the site. *Id.* BHP subsequently obtained an UIC permit and an aquifer exemption from EPA to conduct in-situ leach mining in the underground aquifer below the PTF. *Id.* The permit obtained by BHP allowed the operation of a pilot project at the site and then expansion of the pilot project into a full-scale commercial mine. *Id.* at 8.

However, BHP ceased its pilot project after approximately 90 days between the end of October 1997 and February 1998, and quickly commenced restoration activities after injections ceased. *Id.* In 2000, BHP sold the land over the Poston Butte deposit to companies controlled by Harrison Merrell. In 2009, Florence Copper purchased some of Harrison Merrell's acreage after the land when into foreclosure. *Id.* To date, there has been no demonstration that mining is commercially or environmentally viable at the site, despite attempts having been made by multiple mining companies. The proposed use of ISCR-UBO technology is a speculative, experimental attempt to overcome this history.

The proposed form of *in-situ* copper mining is still experimental and has not been applied commercially in the United States. Historically, even conventional, familiar methods of copper mining near the proposed test area have caused enormous environmental damage. Copper mining at the ASARCO Sacaton Unit Mine from 1972 to 1984 was located three miles south of the Reservation and relied upon open-pit mining methods. ASARCO was required to pay \$20 million to clean up the 3,000 acre site due to significant environmental degradation that occurred from the mining. Letter and Enclosures from Ian Shavitz, Akin Gump Strauss Hauer & Feld LLP, to Nancy Rumrill, Region IX, U.S. Environmental Protection Agency, 14 (Apr. 13, 2015) (Attachment A); *see* Max Jarman, Asarco to pay \$30 million for mine clean-up, THE ARIZONA REPUBLIC, May 19, 2009, *available at*

http://archive.azcentral.com/business/news/articles/2009/05/19/20090519biz-

minesettlement0520.html. That was a standard drill-blast-muck (scoop) operation with which the mining industry has hundreds of years of operational and production experience, and yet environmental impacts remain unresolved. Compared with open-pit mining, ISCR-UBO relies on unproven technology that requires much greater attention to detailed technical daily monitoring data. It also requires immediate corrective responses to avoid loss of injected fluid.

Permit Process

The Community fought for decades to protect its access to water, including safe drinking water. These efforts culminated in enactment of the Arizona Water Rights Settlement Act ("AWSA"), Pub. L. 108-451. The conduct of ISCR-UBO in proximity to the Community's federally protected water resources poses risks to gains made under the AWSA.

For these reasons, in 2012, Community Council passed Resolution GR 49-12 opposing the Permit based on impacts to the Community's water resources, including underground sources

of drinking water. Community leadership also sent letters in opposition to the Permit to the Arizona Department of Environmental Quality, the Arizona State Land Department EPA, and then-State Governor Jan Brewer.

In December 2015, the EPA gave public notice of the issuance of a draft UIC permit to Florence Copper for the proposed PTF and scheduled a public hearing. On January 22, 2015, EPA held a public hearing on the draft permit. On April 13, 2015, during the public comment period, the Community submitted detailed comments on the draft permit. *See* Attachment A. In February 2016, the Community reiterated its concerns to the Region at a government-togovernment consultation. At that consultation, the Community requested from the Region certain information related to the project. On December 19, 2016, the Region responded in writing to the Community's requests for additional information.

The final Permit was issued by the Region on December 20, 2016. Upon issuance of the final Permit, the EPA also published responses to comments.

THRESHOLD PROCEDURAL REQUIREMENTS

Petitioner satisfies the threshold requirements for a petition for review under 40 C.F.R. part 124, as follows:

- The Community has standing to petition for review of the permit decision because it participated in the public comment period on the Permit and engaged in government-togovernment consultation with the Region prior to the Permit's issuance. *See* 40 C.F.R. § 124.19(a); *see* Attachment A.
- 2. The issues raised by the Community in this petition were specifically raised during the public comment period and therefore were preserved for review or concern changes

from the draft Permit to the final Permit decision. *See* 40 C.F.R. § 124.19(a); *see* Attachment A; *see also In re RockGen Energy*, 8 E.A.D. 536, 540 (EAB 1999).

3. The petition is timely because it is being filed on January 19, 2017, within 30 days of issuance of the permit on December 20, 2016.

ARGUMENT

There are at least three reasons why the Region erred and the Permit should therefore be denied or revised to provide additional environmental protections. First, the Permit authorizes a mixture of exotic organic compounds to be deliberately injected down wells and into the surrounding, integrated groundwater system. Second, faced with what amounts to an experiment by an unproven operator in the integrated groundwater system, the Permit does not require more than quarterly monitoring of groundwater impacts or operational controls to respond to fluid migration associated with the PTF, which is insufficient. Third, with respect to the above issues, as well as others, the Region failed in its duty to consider and properly respond to the issues raised by the Community in its comments on the Draft Permit.

Standard of Review

A petition for review will be granted by the EAB where a UIC permit decision was based on a clearly erroneous finding of fact or conclusion of law. 40 C.F.R. §124.19(a)(4). The EAB, which is the final decision maker for the EPA, reviews petitions for review "based on independent review and analysis of the issue." *In re Mobil Oil Corp.* 5 E.A.D. 490, 509 n.30 (EAB 1994). "[A]bsent compelling circumstances", the EAB may defer to a regional office on issues that "depend heavily on the Region's technical expertise and experience," but will only do so if the "the approach ultimately selected by the Region is rational in light of all of the information in the record." *In re NE Hub Partners, L.P.*, 7 E.A.D. 561, 566-68 (EAB 1998).

The EAB may not defer to a region's determination "[w]here the agency has failed to exercise its expertise." *Tex Tin Corp. v. EPA*, 935 F.2d 1321, 1324 (D.C. Cir. 1991).

The EAB will not uphold a determination where EPA merely claims that a specific concern or potential deficiency in a permit application was addressed. Rather, such a contention must be supported by evidence and the public must have had an opportunity to challenge that evidence and any related findings. *In re Town of Ashland Wastewater Treatment Facility*, 9 E.A.D. 661, 665 n.8 (EAB 2001). The EAB "will not hesitate to order a remand when a Region's decision on a technical issue is illogical or inadequately supported by the record. *In re NE Hub Partners*, 7 E.A.D. at 568 (citations omitted).

I. <u>The Region Erroneously Permitted Use of Exotic, Unspecified Chemicals that</u> <u>May Degrade Underwater Sources of Drinking Water</u>.

In violation of 40 C.F.R. § 124.17(a)(2), the Region failed to meaningfully address the Community's challenge to the Permit's reliance on SX/EW to remove copper from extracted solutions over an exempted aquifer. This clear error would permit the use of an exotic, unspecific, organic compound in a groundwater system that is connected to aquifers that are relied upon for drinking water. This error requires reversal.

In 1997, the EPA granted an aquifer exemption to permit in-situ copper mining near the PTF. Final Permit at 8. By relying on this broad pre-existing exemption, the Region assured that the volume of subsurface exempted for this mining activity includes and is hydraulically connected to sedimentary Basin Fill aquifers that are relied upon for drinking water uses. *See* Attachment A, Appendix A, at 4. Permitting of injection of up to 10 mg/L of exotic, unspecified organic chemicals risks causing long-term effects on the aquifer. The Region did not respond to this concern, which the Community clearly raised in its comments. Attachment A, Appendix A at 6. Such a failure constitutes a compelling reason for the Permit to be remanded to the Region

because the Region utterly failed to bring its expertise and experience to bear on a critical technical issue. *In re Envotech*, 6 E.A.D. 260, 284 (EAB 1996) (citing *In re General Electric Co.*, 4 E.A.D. 358, 375 (EAB 1992)).

For context, most hazardous organic compounds are regulated by EPA at levels in the single-digit micrograms per liter (ug/L) range. The injection explicitly allowed for this mining method here would be 10,000 times more concentrated than common drinking water standards. The record neither reveals what specific compounds would be used nor limits the pool of possible compounds by name. This critical omission, to which the Region clearly erred in responding, has opened the door for Florence Copper to use concentrations of compounds (such as solvents) that, when started in groundwater systems at concentrations this high, have degraded square miles of what then became federal Superfund sites.

The EAB should order the Region to cancel the Permit and reaffirm its mission of protecting of drinking water. At the very least, the Permit should be remanded so the Permittee can be required to demonstrate that the exotic chemicals to be relied upon in the SX/EW process are not the type of chemicals that could lead to long-term degradation of an aquifer. Surely, the aquifer exemption relied upon for the Permit was not intended to facilitate long-term damage to the environment. Ultimately, the Permit must be reviewed and remanded because the EAB may not defer to a region's determination "[w]here the agency has failed to exercise its expertise." *Tex Tin Corp.*, 935 F.2d at 1324.

II. <u>The Region Erroneously Concluded that Quarterly Monitoring of Groundwater</u> <u>Impacts is Sufficient, Without a Showing that Operational Parameters will Ensure</u> <u>Containment Adequate to Prevent Contaminants from Reaching Drinking Water</u>.

The EPA cannot make its determination on whether to issue a UIC Permit, and what conditions to impose upon a prospective permittee, in a vacuum. Instead, EPA's determinations must be informed by the qualifications of the applicant seeking an EPA permit and the realities of what that applicant is asking EPA to authorize. Here, the Permit fails to impose adequate operational and monitoring requirements for a complex and unproven technology being undertaken by an inexperienced operator in a groundwater system that is connected to an underground drinking water source. At a minimum, the Permit should be remanded to require more stringent operational and monitoring parameters for the protection of drinking water sources.

EPA regulations promulgated pursuant to the Safe Drinking Water Act ("SDWA"), Pub. L. 93-523, as amended, 42 U.S.C. § 300j *et seq.*, prohibit the construction, operation, and maintenance of any injection activity "that allows the movement of fluid containing any contaminant into underground sources of drinking water." 40 C.F.R. § 144.12(a). The Permit is not supported by record-based facts that would demonstrate Florence Copper's ability to conduct the complex ISCR-UBO activities proposed here while preventing contaminants from entering nearby drinking water.

Florence Copper has not demonstrated experience in the permitted activity or the ability to prevent degradation of underground sources of drinking water in the vicinity of the PTF. As the Community noted in its April 13, 2015 submission to the Region, the Permit application and draft Permit reflected a "lack of sustained, accumulated experience in the commercial application of this technology." Attachment A, Appendix A at 3. The fact that Florence Copper, an entity with no commercial experience with the proposed type of ISCR-UBO technology, and not a larger mining company with reputable experience and ability, is attempting a mining industry break-through is cause for concern.

The ISCR-UBO technology proposed for use by Florence Copper is experimental. Attachment A, Appendix A at 3. The first commercial use of ISCR-UBO should not be in an

integrated groundwater system that is depended upon as drinking water by the surrounding communities. The Region's decision to approve the permit on these grounds is not rationally based on all available information in the record. *See In re NE Hub Partners, L.P.*, 7 E.A.D. at 567.

This method was tried briefly on the Florence Copper property when it belonged to BHP. EPA PTF Permit Response to Comments, Comment #69 at p. 45. EPA inferred from their review of the BHP Pilot Test that lost fluids were recaptured within forty-eight hours on two separate occasions. *Id.* at Comment # 20, p. 19. Even if these two events comprise all of the possibilities that might result from implementing ISCR-UBO, which is unlikely given the speed with which the BHP venture was abandoned, it means that all operations would require collection of data, review of data, and use of data to infer subsurface flow paths and rates of flow – all performed multiple times within a forty-eight-hour period (at most) to successfully mitigate the loss. Attachment A, Appendix A at 7, 13. The same is true for recovery operations and rinsing operations. Thus, instead of the typical and common experience of excavating and exhaustively and directly inspecting, sampling and handling the ore, the proposed ISCR-UBO operations require more.

The Region's analysis and resulting permit did not take into account comments challenging "the ability of Florence Copper to recognize and react to a loss of hydraulic control." The Permittee and the EPA are apparently confident that observations from a few observation wells will allow the operator to decide how to adjust individual well flow rates and keep the dissolved and amended exotic organic chemicals under control. *Id.*; EPA PTF Permit Response to Comments, Comment #24 at pp. 21-22. However, even if that were true in theory in the absence of any operator error, the Permittee has not demonstrated and the EPA has not

recognized the specific capacity of an ISCR-UBO project operator to handle this type of precision monitoring and the accurate and effective real-time response necessary to prevent environmental harm.

The Community recommends that the Permit at least include a combined monitoring and groundwater flow simulation approach to derive as much information as possible about the largely unsampled subsurface. The suggested combined approach to monitoring and simulation is intensive but is technically feasible. Such an approach would be reasonable considering the general lack of mining industry experience with the necessary sustained diligence for this technology and the poor record of environmental protection of the Community's vicinity.

The Region also failed to meaningfully acknowledge or address important issues raised by the Community regarding monitoring and recovery of hydraulic control, and the need for operational parameters to address this potential scenario, as required by 40 C.F.R. § 124.17(a)(2).

For example, instead of specifically addressing the technical ability of Florence Copper to protect sources of drinking water, the Region merely distinguished the proposed method of ISCR-UBO from relevant industry precedents. EPA PTF Permit Response to Comments, Comment #69 at p. 45. EPA must respond to the specific concerns of commenters instead of generally claiming that a concern was addressed, as the Region has done here. *See In re Town of Ashland Wastewater Treatment Facility*, 9 E.A.D. at 665 n.8.

EPA also did not refute simulations submitted by the Community that illustrated the potential for the migration of fluids, including exotic organic solvents. Attachment A, Appendix A, at 11-13. The Region did not disagree with the submitted simulations but instead responded that monitoring "will provide real data" that could be used to assess loss of fluids and the need

for "[a]quifer restoration." EPA PTF Permit Responses to Comments, Comment #5 at pp. 9-10. This is both an inadequate response, and is an inadequate approach to protecting the aquifer.

EPA also failed to adequately address comments submitted by the Community on the need for a more comprehensive and environmentally protective approach to monitoring losses of hydraulic control. Rather than indicating why, in EPA's view, such an approach is not needed, EPA merely responded with general conclusory statements about how losses can be rectified. *Id.* at p. 10 (stating that Permit conditions related to monitoring "will provide real data to enable the assessment of hydraulic containment" at the site without commenting on the benefit of additional protection). General conclusory statements from the EPA in response to specific comments are evidence of a clear error that requires remand and cancellation if the Region cannot justify reliance on the approved but less stringent controls. *See In re Stonehaven Energy Mgmt., LLC*, 15 E.A.D. 817, 835 (EAB 2013) (citing *In re Bear Lake Properties*, 15 E.A.D. 630, 639 (EAB 2012)) (remanding a permit where a Region's failure to demonstrate that it relied on accurate and appropriate data constituted a clear error).

CONCLUSION

For the foregoing reasons, the Community respectfully requests that the EAB grant review of the Permit challenged by this Petition. After such review, the Community respectfully requests:

- 1. The opportunity to present oral argument in this proceeding and a briefing schedule for this appeal to assist the EAB in resolving the issues in dispute;
- 2. A remand of the Permit to the Region with an order to cancel the Permit;
- 3. In the alternative, a remand of the Permit to the Region with an order to issue an amended Permit consistent with the EAB's findings; and

4. All other relief that the EAB deems appropriate under the circumstances.

Respectfully Submitted,

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Statement of Compliance with the Word Limitation

In accordance with 40 C.F.R. §124.19(d)(1)(iv) & (d)(3), the Community hereby certifies that its Petition does not exceed 14,000 words.

<u>/s/ Merrill C. Godfrey</u> Merrill C. Godfrey

TABLE OF ATTACHMENTS

- **A.** Gila River Indian Community Comments on the Draft Class III Underground Injection Control Area Permit for the Proposed Florence Copper Project, Florence Copper Project Production Testing Facility, Florence, Pinal County, Arizona (April 13, 2015).
- **B.** Arizona Dept. of Environmental Quality, Fact Sheet: Florence Copper Project Aquifer Protection Permit, *available at* <u>http://legacy.azdeq.gov/calendar/factsheet_florence_cu.pdf</u>

CERTIFICATE OF SERVICE

Undersigned hereby certifies that on this date, January 19, 2017, copies of the foregoing Petition for Review was served via U.S. Mail to the following:

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