

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

In re:)
)
)
Excelsior Mining Arizona, Inc.)
Gunnison Copper Project)
Permit No.: R9UIC-AZ3-FY16-1)
)

PETITION FOR REVIEW

Comes now Dragoon Conservation Alliance, Arizona Mining Reform Coalition, Grand Canyon Chapter of the Sierra Club, Center for Biological Diversity, and Patagonia Area Resource Alliance and petitions the Environmental Appeals Board to review the Environmental Protection Agency's issuance of an Underground Injection Control (UIC) Class III area permit and Aquifer Exemption for Excelsior Mining Arizona, Inc.'s Gunnison Copper Project.

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INTRODUCTION AND ISSUES PRESENTED FOR REVIEW

Pursuant to 40 C.F.R. § 124.19(a), Dragoon Conservation Alliance, Arizona Mining Reform Coalition, Grand Canyon Chapter of the Sierra Club, and Center for Biological Diversity (“Petitioners”) petition for review of the Environmental Protection Agency’s issuance of an Underground Injection Control (UIC) Class III permit (Permit No. R9UIC-AZ3-FY16-1)(“the Permit”) and associated Aquifer Exemption issued to Excelsior Mining Arizona, Inc. Gunnison Copper Project (“Project”) on June 22, 2018 by the United States Environmental Protection Agency. The permit at issue in this proceeding authorizes the Excelsior Mining Arizona, Inc. to inject acid-based lixiviant into the local ground water aquifer to conduct an in-situ leach copper mining operation in the Little Dragoon Mountains in Cochise County, Arizona.

Petitioners contend that the EPA’s permitting analysis is based on clearly erroneous findings of fact and conclusions of law and are counter to EPA regulations and obligations under the Safe Drinking Water Act (42 U.S.C. § 300h to 300h-7), the National Historic Preservation Act. Specifically, petitioners present the following challenges:

- (1) Failure to demonstrate the cumulative impacts analysis required by 40 C.F.R. § 144.33(c)(3) and the “functional equivalence” doctrine;
- (2) Failure to demonstrate compliance with the requirements of the National Historic Preservation Act, 16 U.S.C. §§ 470, et seq. and implementing regulations;
- (3) Failure to demonstrate compliance with the Safe Drinking Water Act and implementing regulations, including 40 C.F.R. § 144.12, 40 C.F.R. § 146.33(a), and 40 C.F.R. § 146.6(a)(ii), regarding demonstration of ability to contain the mining fluid within the exempted aquifer and protect underground sources of drinking water.

Petitioners filed two separate sets of comments on during the permitting process (Comments attached as Attachments 1 and 2) at issue here. Petitioners are conservation organizations that represent thousands of members from all across Arizona. Many of the Petitioners' members live, work and/or recreate in areas impacted by the contested UIC permit and Aquifer Exemption. Petitioners' members rely on the impacted aquifer for clean water for industry, recreation and irrigation and any contamination of the aquifer outside of the proposed mining area would negatively affect Petitioners and their members. Further, Petitioners' members will be adversely affected and aggrieved by the surface disturbance and 28-year operations of the proposed mining project. Petitioners' members use these and adjacent lands for recreational, aesthetic, and other purposes and will be negatively affected by the proposed mining operations.

Petitioners are represented by undersigned counsel in this matter before the EAB.

THRESHOLD PROCEDURAL REQUIREMENTS

Petitioners satisfy the threshold requirements for filing a petition for review under 40 C.F.R. part 124, to wit:

1. Petitioners have standing to petition for review of the permit decision because each participated in the public comment period on the permit. See 40 C.F.R. § 124.19(a). A copy of these two sets of comments (submitted on January 4, 2018 and February 20, 2018) are attached (with exhibits) to this Petition as Attachments 1 and 2.¹
2. The issues raised by Petitioners in its petition were raised during the public comment period and therefore were preserved for review. Specifically, and as discussed *infra*, comments submitted by Petitioners on February 20, 2018 detail EPA Region 9's

¹ Petitioners' comments on draft UIC permit for Excelsior Arizona Mining, Inc.'s Gunnison Copper Project (Permit No.: R9UIC-AZ3-FY16-1), [January 4, 2018 and February 20, 2018].

lack of a compliant cumulative impacts analysis, and lack of compliance with the consultation and archaeological/cultural resource protection and mitigation requirements of the National Historic Preservation Act. Further, the comments submitted January 4, 2018 discuss and include a 43-page technical memorandum prepared by hydrologic consultant Tom Myers, Ph.D. describing in detail the lack of adequate demonstration of the ability to protect groundwater outside of the exempted aquifer from mining contamination as required by EPA regulations and the Safe Drinking Water Act.

FACTUAL AND STATUTORY BACKGROUND

Factual Background²

On February 26, 2016 (revised in July 2017), Excelsior Mining Arizona, Inc. submitted an application to EPA Region 9 for a UIC Class III area permit and an associated Aquifer Exemption to install wellfields for an in-situ acid leach copper mine, dubbed the Gunnison Copper Project (“Project”). The Project is located in Cochise County, Arizona seventeen (17) miles southwest of Willcox, Arizona, and approximately five (5) miles from Dragoon, Arizona, on the southeastern flank of the Little Dragoon Mountains, directly along Interstate 10 (I-10). The town of Dragoon’s water supply wells are within 3.3 miles southeast of the Project.

The Project proposes to inject a sulfuric acid solution with a pH of approximately 0.6 to 1.8 between 400 feet and 1,400 feet below the ground surface into the saturated

² The factual descriptions herein are taken from EPA permitting documents describing the Project. Specifically, the EPA’s Statement of Basis, Underground Injection Control Area Permit No. R9UIC-AZ3-FY16-1, Aquifer Exemption Record of Decision, and EPA Response to Comments. Each of these documents are part of the administrative record in this case, and can be accessed online at: <https://www.epa.gov/uic/excelsior-mining-arizona-inc-gunnison-copper-project-class-iii-uic-area-permit-and-aquifer>

zone of the regional aquifer through UIC Class III injection wells to leach copper deposits into solution within the aquifer. The saturated zone is estimated to lie between 244 and 655 feet below the ground surface, within the Willcox Basin aquifer. The copper-laden leach solution is then to be pumped to the surface through recovery wells and through a solvent extraction/electrowinning (SX/EW) process. The proposed project area encompasses approximately 524 acres and consists of approximately 1,400 Class III injection and recovery wells interspaced in an alternating and repeating pattern.

The proposed Project is scheduled to last for twenty-eight (28) years or longer, with three stages of mining (years 1-20), followed by three (3) years of rinsing, and five (5) or more years of ground water monitoring. Multiple mining blocks are proposed to be active during each mining stage. In addition to the injection and recovery wells, the wellfields will include twenty-two (22) observation wells, thirty (30) hydraulic control wells, up to one hundred twenty (120) rinse verification monitoring wells, up to thirty (30) intermediate monitoring wells, seventeen (17) closure verification wells, and five (5) point of compliance wells.

The Project is proposed to encompass an area of approximately 550 acres. The wellfields are proposed to impact approximately 192 acres, operating 24-hours a day over the approximately 23-year lifetime of the mining operations and attempts at aquifer restoration. Other proposed surface impacts include ancillary facilities such as the SX/EW plant, an acid plant, a water treatment plant, a pipeline drain pond, an evaporation pond, a raffinate pond, a “pregnant leach solution” pond, a recycled water pond, a clean water pond, a plan runoff pond, solids impoundments, and other ancillary facilities.

As part of the in-situ leach mining process, the operator attempts to maintain hydraulic control over the acid-injected groundwater in the fractured aquifer through varying injection rates. In this case, the operator is required to maintain an extraction rate that must not fall below 101 percent of the injection rate on a daily average basis. This means there is groundwater loss of no less than 1% over the life of the project. The planned injection rates are proposed to vary over the life of the mine, with a rate of 5,300 gallons per minute (gpm) or 7.632 million gallons per day (gpd) for years 1-10; 15,800 gpm or 22.752 gpd over years 11-13; and 25,600 gpm or 36.864 gpd for years 14-20. The estimated maximum injection rates will also vary in each of these three mining stages, with a rate of 6,058 gpm or 8.724 gpd for years 1-10; 16,441 gpm or 23.675 gpd over years 11-13; and 26,766 gpm or 38.543 gpd for years 14-20. One percent of the planned injection rate is over 1.5 billion gallons of water over the life of the project.

Statutory Background

Federal Safe Drinking Water Act

The Safe Drinking Water Act (SDWA), 42 U.S.C. §300f, *et seq.*, was established to protect the quality of drinking water in the U.S. This law focuses on all waters actually or potentially designed for drinking use, whether from above ground or underground sources. Part of this statutory program is the regulation of Underground Injection Control (UIC) wells. 42 U.S.C. § 300h. The statute allows states to implement the UIC program subject to EPA approval. 42 U.S.C. § 300h-1. If a state's plan has not been approved, or the state has chosen not to assume program responsibility, then EPA must implement the program. 42 U.S.C. § 300h-2.

EPA has established six classes of UIC wells based on similarity in the fluids injected, construction, injection depth, design, and operating techniques and issued regulations that establish performance criteria for each class. 40 C.F.R. § 146.5. In this case, the relevant class is Class III (inject fluids associated with solution mining of minerals beneath the lowermost USDW). Arizona does not currently have an approved plan for Class III wells, thus EPA is the relevant permitting agency. EPA regulations at 40 C.F.R. § 146.33(a) require that no Class III UIC well may “initiate fractures in the confining zone or cause the migration of injection or formation fluids into an underground source of drinking water.” EPA must include in its “Area of Review” “the project area plus a circumscribing area the width of which is the lateral distance from the perimeter of the project area, in which the pressures in the injection zone **may** cause the migration of the injection and/or formation fluid into an underground source of drinking water.” 40 C.F.R. § 146.6(a)(ii)(emphasis added). Further, EPA regulations require that no operator may “operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water.... The applicant for a permit shall have the burden of showing that the requirements of this paragraph are met.” 40 C.F.R. § 144.12.

Functional Equivalence for National Environmental Policy Act (NEPA) and EPA’s Cumulative Effects Requirement

The National Environmental Policy Act 42 U.S.C. §§ 4321, *et seq.* (“NEPA”) requires all federal agencies, including EPA, unless specifically exempted by statute, to take a “hard look” at the environmental impacts from all major federal actions. NEPA “prevent[s] or eliminate[s] damage to the environment and biosphere by focusing

government and public attention on the environmental effects of proposed agency action.”
Marsh v. Oregon Natural Resources Council, 490 U.S. 360, 371 (1989).

NEPA requires that federal agencies fully consider all direct, indirect, and cumulative environmental impacts of the proposed action. 40 C.F.R. §§1502.16; 1508.8; 1508.25(c). Direct effects are caused by the action and occur at the same time and place as the proposed project. §1508.8(a). Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. §1508.8(b). Id. Cumulative impacts are: “[T]he impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.” §1508.7. For instance, for mining operations, the agency must fully review the impacts from off-site ore or waste processing and transportation. *South Fork Band Council of W. Shoshone of Nev. v. U.S. Dep’t of the Interior*, 588 F.3d 718, 725 (9th Cir. 2009).

Federal courts have dealt squarely with situations where a federal agency “says that cumulative impacts from non-Federal actions need not be analyzed because the Federal government cannot control them. That interpretation is inconsistent with 40 C.F.R. § 1508.7, which specifically requires such analysis.” *Center for Biological Diversity v. NHTSA*, 508 F.3d 508, 517 (9th Cir. 2007). For example, an agency was required to consider the impacts of power turbines in Mexico in their EIS reviewing a U.S. transmission line because the projects were “two links in the same chain.” *Border Power Plant Working Group v. Dep’t of Energy*, 260 F. Supp. 2d 997, 1016 (S.D. Cal. 2003).

The EPA maintains a somewhat special status with regard to NEPA. Federal courts have allowed EPA to forgo strict and formal compliance with NEPA under a doctrine labeled “functional equivalence.” The term “functional equivalent” was coined by the D.C. Circuit in *Portland Cement Assoc. v. Ruckelshaus*, 486 F.2d 375 (1973), *cert. denied* 417 U.S. 921 (1974). Its requirements can be concisely summarized:

The functional equivalency test provides that, where a federal agency is engaged primarily in an examination of environmental questions, and where substantive and procedural standards ensure full and adequate consideration of environmental issues, then formal compliance with NEPA is not necessary, [and] functional compliance [is] * * * sufficient.

Warren County v. North Carolina, 528 F. Supp. 276, 286 (E.D. N.C. 1981).

The central requirement of the functional equivalence test is that the Agency’s procedures provide for the same consideration of diverse environmental issues as required by NEPA. In *International Harvester Co. v. Ruckelshaus*, 478 F.2d 615 (D.C. Cir. 1993), the court said that:

we see little need in requiring a NEPA statement from an agency whose *raison d’etre* is the protection of the environment and whose decision ... is necessarily infused with the environmental consideration so pertinent to Congress in designing the statutory framework of NEPA. To require a “statement”, in addition to a decision setting forth the same considerations, would be a legalism carried to the extreme.

478 F.2d at 650, n. 130. Thus, according to the federal courts, as interpreted by the Environmental Appeals Board, “functional equivalence could be present in cases where the statute mandated ‘orderly consideration of diverse environmental factors,’ rather than the five specific NEPA-EIS elements. *Amoco Oil Co. v. EPA*, 501 F.2d 722, 750 (D.C. Cir. 1974).” *In re: Phelps Dodge Corporation, Verde Valley Ranch Development*, 10 E.A.D. 460 (May 21, 2002).

Importantly, the SDWA does not exempt EPA's UIC program from NEPA. Rather, for EPA's UIC permits issued under the SDWA, EPA regulations provide that "all [UIC] permits are not subject to the environmental impact statement provisions of ... [NEPA]." 40 C.F.R. § 129.9(b)(6). As described, the basis for a regulatory exemption from NEPA, as opposed to statutory exemption, is the "orderly consideration of diverse environmental factors" in the same manner required by NEPA. *In re: Phelps Dodge Corporation, Verde Valley Ranch Development*, 10 E.A.D. 460 (May 21, 2002). One aspect of this required "orderly consideration of diverse environmental factors" is embodied in the EPA regulations providing that, for area Class III UIC permits, such as that at issue here, EPA must evaluate "[t]he cumulative effects of drilling and operation of additional injection wells...." 40 C.F.R. § 144.33(c)(3).

National Historic Preservation Act

The federal courts have addressed the strict mandates of the National Historic Preservation Act, 16 U.S.C. §§ 470, *et seq.*:

Under the NHPA, a federal agency must make a reasonable and good faith effort to identify historic properties, 36 C.F.R. § 800.4(b); determine whether identified properties are eligible for listing on the National Register based on criteria in 36 C.F.R. § 60.4; assess the effects of the undertaking on any eligible historic properties found, 36 C.F.R. §§ 800.4(c), 800.5, 800.9(a); determine whether the effect will be adverse, 36 C.F.R. §§ 800.5(c), 800.9(b); and avoid or mitigate any adverse effects, 36 C.F.R. §§ 800.8(c), 800.9(c). The [federal agency] must confer with the State Historic Preservation Officer ("SHPO") and seek the approval of the Advisory Council on Historic Preservation ("Council").

Muckleshoot Indian Tribe v. U.S. Forest Service, 177 F.3d 800, 805 (9th Cir. 1999). See also 36 C.F.R. § 800.8(c)(1)(v)(agency must "[d]evelop in consultation with identified consulting parties alternatives and proposed measures that might avoid, minimize or mitigate any adverse effects of the undertaking on historic properties....")

The Advisory Council on Historic Preservation (“ACHP”), the independent federal agency created by Congress to implement and enforce the NHPA, determines the methods for compliance with the NHPA’s requirements. See National Center for Preservation Law v. Landrieu, 496 F. Supp. 716, 742 (D.S.C.), *aff’d per curiam*, 635 F.2d 324 (4th Cir. 1980). The ACHP’s regulations “govern the implementation of Section 106,” not only for the Council itself, but for all other federal agencies. *Id.* See also National Trust for Historic Preservation v. U.S. Army Corps of Eng’rs, 552 F. Supp. 784, 790-91 (S.D. Ohio 1982).

NHPA § 106 (“Section 106”) requires federal agencies, prior to approving any “undertaking,” to “take into account the effect of the undertaking on any district, site, building, structure or object that is included in or eligible for inclusion in the National Register.” 16 U.S.C. § 470(f). Section 106 applies to properties already listed in the National Register, as well as those properties that may be eligible for listing. See Pueblo of Sandia v. United States, 50 F.3d 856, 859 (10th Cir. 1995). Section 106 provides a mechanism by which governmental agencies may play an important role in “preserving, restoring, and maintaining the historic and cultural foundations of the nation.” 16 U.S.C. § 470.

If an undertaking is the type that “may affect” an eligible site, the agency must make a reasonable and good faith effort to seek information from consulting parties, other members of the public, and Native American tribes to identify historic properties in the area of potential effect. 36 C.F.R. § 800.4(d)(2). See also Pueblo of Sandia, 50 F.3d at 859-863 (agency failed to make reasonable and good faith effort to identify historic properties).

The NHPA also requires that federal agencies consult with any “Indian tribe ... that attaches religious and cultural significance” to the sites. 16 U.S.C. § 470(a)(d)(6)(B). Consultation must provide the tribe “a reasonable opportunity to identify its concerns about historic properties, advise on the identification and evaluation of historic properties, including those of traditional religious and cultural importance, articulate its views on the undertaking’s effects on such properties, and participate in the resolution of adverse effects.” 36 C.F.R. § 800.2(c)(2)(ii).

ARGUMENT

Standard of Review

“[T]o establish that review of a permit is warranted, [40 C.F.R.] § 124.19(a) requires a petitioner to both state the objections to the permit that are being raised for review, and to explain why the [permitting authority's] previous response to those objections ... is clearly erroneous or otherwise warrants review.” *In re Puerto Rico Elec. Power Auth.*, 6 E.A.D. 253, 255 (EAB 1995). Further:

In evaluating a permit appeal, the Board examines the administrative record on which the permit was based to determine whether the permit issuer exercised his or her “considered judgment.” *In re Ash Grove Cement Co.*, 7 E.A.D. 387, 417-18 (EAB 1997); *In re Austin Powder Co.*, 6 E.A.D. 713, 720 (EAB 1997). Specifically, the permit issuer must articulate with reasonable clarity the reasons for its conclusions and the significance of the crucial facts it relied upon in reaching those conclusions. *See Ash Grove Cement*, 7 E.A.D. at 417-18; *Austin Powder*, 6 E.A.D. at 720; *In re Shell Offshore, Inc.*, 13 E.A.D. 357, 386 (EAB 2007); *see also In re Russell City Energy Ctr., LLC*, PSD Appeal Nos. 10-01 through 10-05, slip op. at 86 (EAB Nov. 18, 2010), 15 E.A.D. at ___ (determining that record supporting the permitting authority's selected compliance margin did reflect the Agency's “considered judgment” on the matter). As a whole, the record must demonstrate that the permit issuer “duly considered the issues raised in the comments and [that] the approach ultimately adopted by the [permit issuer] is rational in light of all information in the record.” *In re Gov’t of the Dist. of Columbia Mun. Separate Storm Sewer Sys.*, 10 E.A.D. 323, 342 (2002).

In re Avenal Power Center, LLC, 15 E.A.D. 384 (EAB 2011) (slip. op. at 4).

Failure to Demonstrate Cumulative Effects Analysis

The administrative record, including EPA's decision documents and the EPA's Response to Comments, fails to demonstrate that EPA adequately analyzed the cumulative effects of the granting of the Class III UIC area permit, as required. Specifically, EPA's analysis failed to demonstrate that it took into consideration and evaluate cumulative effects to groundwater quantity effects in the Willcox Basin, surface impacts associated with ground subsidence in the Willcox Basin due to groundwater pumping, the cumulative effects associated with other mines/projects in the region, and the effects of waste transportation and disposal.

Petitioners raised issues related to the lack of an adequate cumulative effects analysis in comments submitted to EPA on February 20, 2018 (Attachment 2 at 3). These comments specifically noted the lack of a cumulative effects analysis to impacted environmental resources such as groundwater, air, wildlife, and cultural resources. *Id.* Further, by way of example, the comments attached and incorporated the example of such a cumulative effects analysis performed by EPA Region 8 in its draft Class III UIC area permitting documents for the proposed Dewey-Burdock in situ leach uranium mine. This document consists of a 155-page analysis that takes into consideration a diverse range of past, present, and reasonably foreseeable actions and impacts. See Attachment 2 - February 20, 2018 comments (Dewey-Burdock analysis is attached thereto as Exhibit 1). This lack of adequate cumulative impacts analysis was also raised during the public hearing held on February 27, 2018 in Dragoon. Public Hearing Transcript at 13.

EPA referenced these comments in its Response to Comments document. There, regarding the need to evaluate cumulative effects, EPA stated only that "the cumulative

effects of drilling and operation of all proposed injection wells were considered during the evaluation of the Class III area Permit application, in accordance with 40 CFR § 144.33(c)(3). The draft Permit incorporates terms and conditions that account for cumulative impacts of the Gunnison ISR Project development, operations, and aquifer restoration over its 23-year life.” EPA Response to Comments at 28 (comment # 70). Nowhere did EPA point to or otherwise provide any specific references to where a cumulative effects analysis could be found in the record. EPA did not address the example provided in the comments pertaining to the proposed Dewey-Burdock mine or explain in any manner how or why EPA believed that such an analysis was inapplicable or inappropriate in the case at issue here. In sum, EPA did not provide any competent evidence of a cumulative effects consideration.

The February 20, 2018 comments recognized that EPA is not required to prepare an environmental impact statement according to the formal rules of NEPA. However, EPA failed to provide any explanation as to how the cumulative effects language from its own regulations have been satisfied in the absence of any specific cumulative effects analysis in the record. Further, as discussed herein, when the federal courts and the EAB have addressed this issue in the past, the applicable standard compliance with the “functionally equivalent” test has been for EPA to conduct an “orderly consideration of diverse environmental factors” in the same manner required by NEPA. *In re: Phelps Dodge Corporation, Verde Valley Ranch Development*, 10 E.A.D. 460 (May 21, 2002).

The issues related to cumulative effects of the construction and operation of the Class III UIC area wells are not abstract. For instance, there is objective evidence of serious issues in the Willcox Basin with respect to groundwater quantity shortages. As

discussed herein, the Project at issue here expects to result in a loss of over 1.5 billion gallons of groundwater over the life of the Project. The Project is within the Willcox Basin for purposes of the State of Arizona groundwater planning and regulation. See Attachment 3 (Arizona Department of Water Resources Water Atlas Volume 3, Section 3.14, Willcox Basin) at p. 553, figure 3.14-6 (showing groundwater conditions in the Willcox Basin).³ The Arizona Water Atlas demonstrates a pervasive depletion of groundwater supplies in the Willcox Basin. *Id.* at 554-558 (hydrographs showing increasing depth to water across the Basin). Further, the Arizona Water Atlas states that for the Willcox Basin:

Declines in groundwater levels (in excess of 200 feet measured in nine wells between 1954 and 1975), may have caused land subsidence in the basin (USGS, 2006b). Figure 3.14-6 shows groundwater level changes between 1990-1991 and 2003-2004. A number of declines of greater than 30 feet were measured in wells in the central part of the basin during this period. Concerns about groundwater level declines and future availability of water for all uses has led to an investigation of the geology and hydrology of the Willcox and Douglas basins (USGS, 2006b). As part of this effort, the Department released a Water Level Change Map Series Report (No. 1) in 2008 summarizing depth to water measurements taken at 578 wells in the Willcox Basin in November/December 1999 and November/December 2005. Most of the wells (549 of 578 or 95%) showed a water level decline.

Attachment 4 (Arizona Water Atlas Volume 3-Overview) at 13-14. See also graphic on page 14, showing groundwater depletions across the entire Willcox Basin.

Since the publication of the Arizona Water Atlas, the conditions of groundwater depletions and scarcity have become more acute. Indeed, the Arizona Department of Water Resources announced on July 25, 2018 that it had completed its modelling of the Willcox Basin aquifer and concluded, among other things, that “[b]oth data and

³ The Arizona Water Atlas, Volume 3 (June 2009) is available in full at: http://www.azwater.gov/azdwr/StatewidePlanning/WaterAtlas/documents/Volume_3_final.pdf

modelling indicate that significant declines in regional groundwater levels continue to occur.” Attachment 7 (July 25, 2018 announcement by Arizona Department of Water Resources of completion of Willcox Basin groundwater modelling, with attached Executive Summary of Willcox Basin Groundwater Modelling).⁴ The

News media coverage of the severe problems with groundwater depletions in the Willcox Basin also demonstrate the likelihood of cumulative effects with the proposed Project. See Attachment 5 (“The Battle for Water When the Well Runs Dry,” Caitlin McGlade; The Republic/arizonacentral.com news article published June 6, 2015 documenting severe groundwater shortages in the Willcox Basin); Attachment 6 (“The Water Wars of Arizona,” Noah Shannon; New York Times news article published July 19, 2018 detailing increasing groundwater depletions and shortages in the Willcox Basin). Despite these concrete concerns and problems, the administrative record lacks an adequate consideration of the cumulative effects of the operation of the permitting UIC Class III wells on groundwater quantity.

The groundwater depletion issues have given rise to the related, but additional, issue of surface subsidence. See Attachment 8 (Arizona Department of Water Resources, Land Subsidence Monitoring Report No. 3 (January 2017)). This document states that:

ADWR started collecting InSAR data over the Willcox Groundwater Basin in 2010 and has documented land subsidence of as much as 11 centimeters (4.3 inches) in 2016. A comparison of InSAR data between the historical 1996 dataset and the recently acquired 2016 dataset, document that land subsidence rates have tripled in some areas.

Report at 9. The Report goes on to demonstrate that subsidence directly attributable to groundwater pumping on the order of three to four feet, including in area of the Town of

⁴ The ADWR release and associated documents can be found here: <https://new.azwater.gov/news/articles/2018-25-07>

Dragoon, in close proximity to the proposed Project. *Id.* at 9. The record does not demonstrate that EPA including these subsidence issues in a compliant cumulative effects analysis.

Other existing and proposed projects and development in the area of the proposed Project have also escaped a cumulative effects analysis by EPA. For example, Excelsior Arizona Mining, LLC, the same applicant in the present matter, has applied for and received approval for surface operations at the Johnson Camp Mine, an open pit copper mine, that are tied directly to the proposed Project:

During the Stage 1 operations of the Gunnison Copper Project (Inventory No. 511633), pregnant leach solutions (PLS) will be pumped to the impoundments located at JCM (APP No. P-100514) for processing at the SX/EW plant. Raffinate will be stored, re-acidified, and pumped back to the Gunnison Copper Project wellfield.

Attachment 8 (Arizona Department of Environmental Quality Fact Sheet, Aquifer Protection Permit P-100514) at 3. Despite the direct connection and proximity between these two projects, and the need for an aquifer protection permit from Arizona in order to conduct the operations at the Johnson Camp Mine, EPA has not demonstrated an assessment or analysis of the cumulative effects of these operations.

Apart from the lack of analysis of cumulative effects of groundwater quantity impacts, subsidence, and adjacent and connected mining projects, the EPA failed to adequately consider the cumulative impacts associated with transportation and disposal of wastes from the proposed Project.

The issues of the lack of analysis of disposal of wastes associated with the Project were specifically raised in the public hearing held for the Project. Transcript of February 27, 2018 public hearing in Dragoon, AZ at 21-22, 29, 36. In its Response to Comments

document, EPA provided no analysis or discussion, and failed to demonstrate that it had conducted any review of any of the waste disposal issues associated with the Project. Indeed, the only response EPA provided was that: “[s]olid precipitates will be stored in the Solids Impoundment during the project operations and properly disposed of during closure in accordance with State requirements.” EPA Response to Comments at 33 (Comment #80f). This response does not demonstrate that EPA considered or otherwise analyzed the cumulative effects of the operations approved in the UIC Class III area permit.

Lastly, the public comments demonstrated concern over the cumulative effects on the region of the need to have each of the over 1,400 wells lighted 24-hours a day. See Transcript of Public Hearing held February 27, 2018 in Dragoon, AZ at 12 (commenter stating that “each [well] will have to be monitored and lighted 24 hours a day, 7 days a week, for the projected life of the mining operation, which is stated at 20 years.”). This operational factor of the approved UIC Class III permit and the resulting impact on the resultant light pollution was not accounted for in an EPA cumulative effects analysis. In its Response to Comments, EPA states only that “[o]nly a relatively small portion of the 1,424 wells will be open and active any given time as ISR and rinsing operations proceed in three stages and inactive mine blocks are deactivated and ISR wells are closed.” EPA Response to Comments at 32 (Comment #80c).

However, EPA failed to account for the fact that Cochise County, the site of the proposed Project has specifically developed a “Dark Skies” regulation, in order to ensure control of artificial industrial lighting and the concomitant light pollution. See

Attachment 10 (Cochise County Light Pollution Code). This Code was developed in order, among other things:

To protect and enhance the lawful nighttime use and enjoyment of all property through protection of and access to the dark night skies, and to encourage the conservation of energy and other resources.

To specify and encourage lighting practices and systems that will minimize the adverse man-made light pollution effects of sky-glow, glare and light trespass.

Cochise County Light Pollution Code at Section 1.01. Although the Code may not be directly applicable to mining projects in the County as a result of state law protections, this Code demonstrates the priority the community places on the impacts of light pollution. At minimum, the operation of the wells approved by EPA will result in cumulative effects regarding light pollution – the record in this matter does not demonstrate that EPA has conducted the required analysis.

In other cases where the EAB has upheld an EPA cumulative effects analysis, it found that the agency had considered a diverse range of environmental impacts. For instance, in *In re Avenal Power Center, LLC*, 15 E.A.D. 384 (EAB 2011), the Board upheld an EPA cumulative effects analysis in the air pollution context because:

Agency provided an extensive discussion of the various projects and mitigation strategies underway in the area surrounding the proposed facility that are intended to mitigate the impacts of multiple existing sources on the communities located in close proximity to the proposed facility. *See* Response to Comments at 83-85. Specifically, the Agency determined that based on the types of environmental conditions already present in the area surrounding the proposed facility, the Agency believed these conditions would be more effectively addressed through actions that the Agency can take in conjunction with state and local governments. *See id.* (discussing mitigation strategies including, but not limited to, enforcement actions against a local hazardous waste facility, addressing nonattainment pollutants through the ongoing state and local air quality planning process, and issuing administrative compliance orders to address local violations of the Safe Drinking Water Act).

Id., slip. op. at 15. This type of analysis is not presented in this case, and EPA's Response to Comments do not contain the type of detail necessary to demonstrate compliance with the cumulative effects review requirements.

Failure to Comply with the National Historic Preservation Act

The administrative record, including EPA's decision documents and the EPA's Response to Comments, fails to demonstrate that EPA complied with the consultation and historic resources protection requirements of the National Historic Preservation Act. Specifically, EPA's analysis failed to demonstrate that it conducted any attempts to communicate with, let alone meaningfully consult, Native American Tribes with historic and cultural ties to the area.

Petitioners raised this argument in comments submitted to the agency on February 28, 2018 (see Attachment 2) at 4. Specifically, Petitioners challenged the EPA's lack of "cultural and archaeological surveys as well as any appropriate Tribal consultation." *Id.* In its Response to Comments document, EPA asserts that "

[t]he proposed project area is not Native American land based on the information provided in the cultural resources research report and the UIC application materials. The closest Indian Tribal lands to the project are approximately 60 miles away. EPA reviewed current and part cultural resources surveys covering the existing and proposed project are compiled in the Cultural Resources Inventory Reports by West Land Resources for Excelsior. Based on this information, EPA was satisfied that further investigation of cultural resources was not necessary for the project area under the historic preservation review process requirements mandated by Section 106 of the NHPA, and the Arizona SHPO concurred with EPA's NHPA findings.

EPA Response to Comments at 36 (Comment 86).

There are multiple problems associated with this response such that it does not demonstrate compliance with the NHPA. First, the current location of Indian Reservation lands is not dispositive of historic cultural use of lands and the presence of cultural

resources. While the presence of “Indian Lands” at the site would trigger additional requirements (see 36 C.F.R. § 800.16(x)), the absence of such lands does not excuse EPA from Section 106 consultation with affected Tribes.

At minimum, several Apache Tribes are well-known to have inhabited and used the areas surrounding the proposed Project. Indeed, the Chiricahua Apache Nation official government webpage contains a map where the lands proposed for mining are included and marked as part of that Tribe’s traditional homelands.⁵ See Attachment 11 (Map of Chiricahua Apache Nation homelands). Similarly, the Fort Sill Apache Tribe official government website contains a similar map that places the proposed Project within its traditional lands.⁶ See Attachment 12 (Map of Fort Sill Apache Tribe homelands). These facts alone should have triggered EPA’s responsibilities, at minimum, to send a consultation letter to the affected Tribes to fulfill the agency’s Section 106 consultation obligations under the NHPA.

Instead, EPA’s Response to Comments demonstrates that the agency failed to communicate in any way with any with any Tribes. As discussed herein, the NHPA requires federal agencies to affirmatively contact Tribes whenever they are proposing the approval of an “undertaking” (like a UIC permit) that disturbs surface lands and may affect Native American cultural sites. In contrast, EPA Region 8, in its consideration of impacts from a similar project with similar surface impacts – an in-situ leach uranium mine – has prepared National Historic Preservation Act documents and conducted Section 106 consultation with Tribes that stands in stark contrast to the minimal work done by Region 9 in this case. See Attachment 12 (The Environmental Protection

⁵ http://www.chiricahuaapachenation.org/Apache_Land/apache_land.html

⁶ <https://fortsillapache-nsn.gov/history-traditional-culture/>

Agency, National Historic Preservation Act, Draft Compliance and Review Document for the Proposed Dewey-Burdock In-Situ Uranium Recovery Project, January 20, 2017).

The EPA record in this case does not demonstrate that a competent cultural resources survey has taken place on the site. Indeed, without the involvement of any persons shown to possess expertise in conducting culturally appropriate and relevant surveys of the site, the agency cannot stand on a conclusion that no cultural resources of any kind exist at the site that may be affected by the Project. Given the requirements of the NHPA, discussed *supra*, that Act requires the Agency to at least make some initial contact with the Tribes to discharge its Section 106 consultation duties.

Apart from the serious questions as to the cultural relevance of the existing surveys, the record also does not reflect that the cultural resources surveys provided to the Arizona SHPO were finalized, or that they covered the entire area of the proposed Project. Indeed, absent a demonstration in the record that the surveys were both conducted by persons with the necessary expertise in Native American (particularly Apache) cultural resources and conducted so as to encompass the full scope of proposed ground disturbance, the record cannot support the EPA's determinations that absolutely no cultural resource impacts are anticipated from the Project.

Failure to Demonstrate Compliance with Safe Drinking Water Act and EPA Regulations for Protection of Underground Sources of Drinking Water

Petitioners provided extensive critiques of the EPA's analysis of the groundwater hydrology and geology, upon which it relies to demonstrate compliance with the above-referenced SDWA and EPA regulations designed to protect underground sources of drinking water. See Attachment 1 (Petitioners' January 4, 2018 Comments with attached Tom Myers, Ph.D. technical memorandum). In its Response to Comments document,

EPA provided various responses to the comments on the UIC permit application for the Gunnison Copper Project.

An overriding problem with the EPA's response document is that, many times, the EPA relies on periodic updates of the model. For example, in the response to Comment 51, EPA states that "the Permit requires updating of the conceptual model and groundwater flow model on a periodic basis ..."; this is a failure to consider important issues as part of the permitting process by effectively deciding to make decisions at a later date. At a later date, the mine is in operation and some changes become difficult to implement. For example, it is difficult to decide to stop mining if modeling indicates the mine was improperly permitted. Further, at that late date, there is no effective way for the public to engage the process, as required by EPA regulations (i.e., 40 C.F.R. § 124.11).

The following discussion demonstrates the conclusive errors contained in various EPA response to comments and associated analyses:

Comment 1: The EPA's response to a comment regarding water balance for the regional aquifer system missed the point of the original comment. The system is essentially in equilibrium, with recharge equaling discharge. Excelsior's model, adopted by EPA, did not rely on an independent estimate of discharge but set it equal to recharge. Excelsior's error is that it did not independently estimate the amount of groundwater flowing through the two gaps; it allowed the model to establish the flow through the gaps as a residual of the model calibration. Thus, the model calibration had no discharge constraint, a potentially significant error in the calibration.

Comment 42 had similar issues, and EPA responds that water balance “includes only recharge from precipitation and outflow of groundwater through the two gaps in the Gunnison Hills”. Excelsior does not constrain the flow for either gap and provides no justification (nor does it even report the simulated flow rates) for flow through the gaps. The response “boundary cells are not important other than to establish head values” is confusing and probably wrong; if it refers to the constant head boundaries, the boundary cells also establish the flow rates leaving the basin at each point. Developing the constant head boundaries during calibration does not reflect the current understanding of the groundwater system because the calibration did not utilize any targets for flow through the gaps.

Comment 2: The comment requested that Excelsior account for horizontal anisotropy in its modeling. EPA responded that the model does account for horizontal anisotropy through the “distribution of high permeability zones to represent highly fractured fault zones and preferential flow paths”. This misses the intracellular anisotropy, which is simply based on the fact that fractures within a cell are more likely to be directional which would control the flow through the cell. Not considering horizontal anisotropy within a model cell ignores directional differences at the scale of the model cell, which potentially biases the predictions made with the model.

Comment 4: The comment indicated that the model should not use just one value of storativity over the entire model because pump tests indicated values varied over six orders of magnitude. EPA accepts that one value is sufficient to describe the entire model domain that is modeled as confined. EPA considers it “reasonable ... since storage values varied widely in the well tests and within the tested formations”. The

inherent variation is exactly why Excelsior and EPA should assign values in a more comprehensive way. The claim that “storage is not typically a sensitive parameter” has no basis and EPA provides no reference. Storativity controls the amount that the potentiometric surface will change for a given amount of pumping with a difference of one order of magnitude causing a difference of ten feet. A similar response applies to EPA’s response to Comment 47.

Comment 11: The comment points out that the 5-spot pattern, with a ratio of 4 collection to 1 injection well, overlaps. EPA agrees arguing only that more groundwater will be pumped out than will be injected. Excelsior’s claim of a 4:1 ratio of pumping to injection wells is not correct, as the EPA verifies in this response.

Comment 24: The EPA did not respond to the most important problem concerning the three Hydraulic Control wells on the southern boundary. It did not consider the fact that the spacing is so wide that an entire contaminant plume could flow between the wells. The six major faults are not the only potential pathways. EPA’s response to comment 39 is similarly fraught with too little assurance that a plume could not pass among the wells. EPA’s response to comment 39 also indicates a bias on EPA’s part where it characterizes an exceedance as being an “unlikely event”; this characterization reflects a bias toward a belief that Excelsior will do everything right and prevent excursions.

Comment 32: EPA’s response to the comment regarding dilution is not responsive. An exceedance in a preferential pathway could be diluted by groundwater from a different pathway and not be detected. This is the reason monitoring separate pathways is essential. Due to the potential for dilution, EPA should utilize simple

detection of a contaminant not naturally present to assess whether an excursion has occurred.

Comment 35: Particle tracking analysis provides an advective flow rate, meaning the average time for a sample of water to travel through a distance. Contaminants disperse longitudinally along the flow path and some may arrive many times later than the advective average and therefore the proposed monitoring time is not long enough. A similar response is provided for Comment 36. EPA should lengthen the post-rinse monitoring time.

Comment 43: The comment concerns the fact that fracture intensity is lower away from the ore body which therefore caused the model to have a lower conductivity away from the ore body. EPA appears to accept the design based on fracture intensity estimates from the boreholes. However, boreholes end at the edge of the ore body so EPA cannot rely on them to understand conductivity away from the ore.

Comment 44d: This comment also concerns the conductivity being lower outside the ore body which helps to prevent modeled contaminant excursions. In other words, an assumption regarding conductivity in an area where there is no information about fractures prevents groundwater from flowing away from the project. EPA notes that “Excelsior will review these assumptions...”, but if they do not sample away from the ore body there will be no information with which to review the assumptions.

Also, if fractures are less dense away from the mine site, the plan to place monitoring wells on fracture zones cannot provide sufficient monitoring; if the rock media has fewer fractures or the fractures become less important, thereby transmitting less flow, the contaminants will spread away from the trace of the fractures.

Comment 45: EPA's response completely failed to consider the comment, which noted that vertical conductivity is usually less than horizontal conductivity which limits the rate that flow plunges into the aquifer. Excelsior's model may allow more water to circulate deeply which dilutes the modeled contamination.

Comment 48: EPA relies on an explanation provided by Excelsior, but does not provide those comments for response. EPA simply accepts Excelsior's statement that there is no spatial bias in the residuals without providing the actual explanation.

Comment 49: The comment indicates that model cells are larger than the fracture zones and therefore the parameters for the cells are an average of fractures and unfractured rock. The response claims that the model is a necessary simplification, which is simply not true because the cells could easily be smaller to more accurately represent fracture zones.

Comments 50: EPA did not understand the original comment, which noted that the model did not include measurements of discharge (NOT recharge) from the model domain. Not calibrating to a discharge value at the two outlets from the domain (two gaps in the Gunnison Hills) causes a nonunique model in which calibration could result in different parameters based simply on the assumptions for flow leaving through the gaps.

Overall, the EPA's scientific assumptions and conclusions are without sufficient support in the record and should be subject to further review by this Board. Further, as described in detail herein, many of the assumptions and representations made by EPA as to its basis for the ability of the proposed Project to contain the mining contaminants are clearly erroneous.

At minimum, given the risks associated with using a model that contains so many unsupported assumptions and given the close proximity of the Town of Dragoon's water supply wells to the south of the Project, the Board should require that the EPA enlarge the Area of Review to allow for additional monitoring wells as a buffer between the proposed Project and the Town's water supply.

CONCLUSION

Given the lack of a meaningful and lawful cumulative effects analysis, the Board should accept review in this case and remand the challenged permit back to EPA to fulfill its statutory and regulatory obligations. Further, given the uncontestable fact that the site proposed for the Project is within the traditional homeland for several Apache peoples, the Board should grant the Petition and require EPA to at least conduct the minimum Section 106 Consultation required to reach out to potentially affected Tribes to ensure a competent survey for, and protection of, cultural and historic resources. Lastly, given the clearly erroneous assumptions made in the models predicting groundwater impacts, the Board should grant the Petition and remand the permit back to EPA to resolve its analytical gaps and to further consider expanding the Area of Review to ensure proper groundwater protection for the Town of Dragoon water supply.

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Date: July 25, 2018

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STATEMENT OF COMPLIANCE WITH WORD LIMITATION

This petition for review complies with the requirement that petitions for review not exceed 14,000 words.

This petition for review, excluding attachments, is approximately 9029 words in length.

LIST OF ATTACHMENTS

Complete versions are being provided electronically to the EAB Clerk's office.

Attached are the following exhibits, numbered in order of appearance in the petition:

- Attachment #1: Comments submitted by Petitioners to EPA on January 4, 2018 (with attached report of Dr. Tom Myers)
- Attachment #2: Comments submitted by Petitioners to EPA on February 20, 2018 (with Attached Dewey-Burdock cumulative effects analysis)
- Attachment #3: Arizona Department of Water Resources, Arizona Water Atlas, Volume 3, Section 3.14 (June 2009)
- Attachment #4: Arizona Department of Water Resources, Arizona Water Atlas, Volume 3 Overview (June 2009)
- Attachment #5: "The Battle for Water When the Well Runs Dry," Caitlin McGlade; The Republic/arizonacentral.com news article published June 6, 2015
- Attachment #6: "The Water Wars of Arizona," Noah Shannon; New York Times news article published July 19, 2018
- Attachment #7: July 25, 2018 announcement by Arizona Department of Water Resources of completion of Willcox Basin groundwater modelling, with attached Executive Summary of Willcox Basin Groundwater Modelling
- Attachment #8: (Arizona Department of Water Resources, Land Subsidence Monitoring Report No. 3 (January 2017)

Attachment #9: Arizona Department of Environmental Quality Fact Sheet, Aquifer Protection Permit P-100514

Attachment #10: Cochise County Light Pollution Code

Attachment #11: Map of Chiricahua Apache Nation homelands

Attachment #12: Map of Fort Sill Apache Tribe homelands

Attachment #13: Attachment 12 (The Environmental Protection Agency, National Historic Preservation Act, Draft Compliance and Review Document for the Proposed Dewey-Burdock In-Situ Uranium Recovery Project, January 20, 2017)

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CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing Petition for Review in the matter of Excelsior Mining Arizona, Inc., Gunnison Copper Project, Permit No.: R9UIC-AZ3-FY16-1, were served, by the method indicated, on the following persons, this 25th Day of July, 2018:

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