

Attachment 41

2012-09-13 SWVP Ltr to Region 9

September 13, 2012

Alexis Strauss
Acting Deputy Regional Administrator
USEPA Region IX
75 Hawthorne Street
San Francisco, CA 94105

Re: Curis Resources (Arizona) Inc.
Class III UIC Well Permit Application

Dear Ms. Strauss:

Our client, Southwest Value Partners, is deeply concerned with the risks associated with the proposed Florence Copper Project, a sulfuric-acid-based in situ leach (ISL) mine in the middle of the Town of Florence's Merrill Ranch Master Planned Community. We have been communicating with USEPA Region IX on the issues and impacts arising from the mine since March 2011, when Curis's UIC application was submitted. As our comments have made clear, the operation of a commercial copper mine within the municipal boundaries of the Town of Florence and next to thousands of homes, schools, shopping centers, and restaurants is a bad idea. Our concerns are shared by many area stakeholders, including:

- Pulte Homes, which has spent more than \$400 million to date developing an award-winning residential community that is immediately adjacent to the proposed mining operation, is already home to 5,000 residents and is scheduled to grow in the future;
- Johnson Utilities, the largest drinking water supplier in the State of Arizona, which supplies drinking water to 83,000 people in the Florence area, drawing water from the aquifer directly downgradient of the ISL mine site;
- Virtually all of the surrounding property owners who will be developing residential communities in 16,000 acres surrounding the mine site;
- The Town of Florence, which after numerous public hearings made a series of decisions and promulgated ordinances and resolutions that denied Curis's

- requests to rezone the mine site from residential to industrial, called on fellow governments to honor its zoning decision, and made mining within the City's boundaries illegal;
- The Gila River Indian Community, which has passed resolutions in opposition to the mine; and
 - A majority of the Town's residents, who recently showed their opposition by electing a Mayor and Town Council that ran on a platform opposed to Curis's proposals.

The site was the subject of mineral exploration in the past, but was never mined commercially due to the site's low grade copper ore. BHP Copper obtained a UIC permit for an ISL copper mine in 1997, but abandoned its mining plans soon after. BHP sold the site and in 2003 the subsequent landowner worked with the Town to annex the site and surrounding property into the Town of Florence. After annexation, the mine site was incorporated into a master planned community and zoned to prohibit mining. Today, the community is home to thousands of families and will soon be home to thousands more. In 2009, several years after these changes, Curis obtained the property through a confidential transaction after a foreclosure. Curis knew when it bought the land that the master plan and zoning would have to be changed to allow mining, but took that risk in the false belief that the Town and its residents would acquiesce to Curis's proposal.

Curis's original proposal was to mine on an area of approximately 212 acres. In late 2011, the Town refused to approve zoning and planning changes that would have permitted mining on most of the site. At that same time, USEPA and the Arizona Department of Environmental Quality began issuing Requests for Information that sought more detail and data regarding Curis's proposal. Rather than answer those questions and faced with the impossibility of mining the full site, Curis instead proposed to operate a smaller facility on 160 acres of State Land that is exempt from local zoning under State law. Curis has now asked USEPA to review the permit only in regard to Phase 1 of the project, a so-called "Pilot Test Facility" that more closely resembles a small-scale commercial production facility.

Curis's Phase 1 proposal is vague and ambiguous regarding key details of the facility and its operations; is not designed to provide relevant data to support full commercial mining operations; and is more focused on providing information to support the viability of commercial mining at the site than on proving that ISL mining can be conducted safely and without impacts to the environment and local groundwater sources. To a large extent, Curis relies upon investigation and analysis

conducted between the 1970s and late 1990s to justify this project, having done little additional work of its own.

Your staff has been exceptionally accommodating in allowing us to voice our concerns with this proposal during the UIC application review. We will not go into detail regarding the history of this project and our concerns in this letter, as your staff has ample documentation and information to answer any questions you may have. But we did want to highlight several of our concerns that touch on key policy and technical issues, concerns that are described more fully in the attached memorandum.

Of paramount concern to us is the aquifer exemption USEPA issued over 15 years ago. As reflected in the administrative record, the aquifer exemption was based upon facts and assumptions that do not reflect today's realities. The exemption was granted when the mine site was surrounded by 10,000 acres of open desert that were owned by the permit applicant at the time, with no plans for future development. That land is now part of the Town of Florence, with approximately 5,000 residents living within miles of the proposed mine and with thousands of acres targeted for residential and commercial development similar to what Pulte Homes already has constructed at Anthem. Curis owns only a fraction of what BHP once did and has no control over uses on the thousands of acres surrounding the Mine. USEPA should, consistent with USEPA priorities and the actions of other Regions, re-examine this out-dated aquifer exemption in light of current-day information. We are confident that such a re-evaluation will demonstrate that the regulatory criteria are no longer met, such that the antiquated aquifer exemption should be revoked.

Second, the proposed facility would create a plume of sulfate and arsenic-laden groundwater that would endanger downgradient drinking water sources. Curis is proposing that it be required to reduce arsenic in groundwater after mining to 50 ppb rather than the MCL of 10 ppb. It also proposes to discontinue aquifer restoration and obtain mine closure when sulfate levels reach 750 mg/L. If allowed, these lax standards will leave contaminants in the aquifer at levels that will render it unusable without expensive treatment—treatment that innocent third parties will be forced to fund.

Third, Curis relies on groundwater modeling and hydrogeologic calculations to demonstrate that it can control mining solutions and contaminants and restore groundwater to pre-mining conditions. But Curis has not verified those models and calculations by calibrating them with 15 years of real-world data from a previous pilot test at this same site. Nor has Curis proposed to calibrate its models and calculations

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with data gathered during its proposed pilot test. The data and the models should be used together to project the feasibility and impacts of the proposed mine, not kept separate and used selectively to support Curis's positions and conclusions.

Fourth, we are deeply concerned that the proposed financial assurance mechanisms and amounts are woefully inadequate given the risks to downgradient lands and drinking water sources. Finally, significant investigation and preparatory work should be required now to provide additional information critical to USEPA's decision on the permit application.

We implore you to take a hard look at the proposals offered by Curis. This is not just another mine. No one has ever attempted ISL mining for copper on this scale in the United States, let alone in an area that is in the heart of a city and surrounded by a master planned community featuring major residential development. The regulatory and operational standards USEPA is considering for this mine could set the precedent for future copper ISL mines, several of which are already being proposed. Those same standards also will have to protect a surrounding master planned community with neighboring drinking water wells and sensitive resident populations. We understand that this country has an ever-increasing demand for copper. But there are ample copper reserves elsewhere that are not located within a growing city and would not risk precious groundwater resources in a desert community. As recognized by other USEPA Regions, existing permit conditions and aquifer exemptions should be revisited to determine whether they are still appropriate today given changed land uses, improved technologies, and additional information. The time is now to take a fresh look at this project to ensure that the public health and environment is not unnecessarily risked for the sake of a questionable new mining technique with uncertain benefits.

Sincerely,

Ronnie P. Hawks
Jennings, Haug & Cunningham, L.L.P.

cc: Nancy Rumrill, EPA
David Albright, EPA

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Justin Merritt, Southwest Value Partners
Paul Gilbert, Beus Gilbert PLC
Henry Darwin, ADEQ, Director
Maria Baier, ASLD, State Land Commissioner
Himanshu Patel, Town of Florence, Town Manager
Wayne Costa, Town of Florence, Public Works Director
Mark Eckhoff, Town of Florence, Community Development Director
Chris Thomas, Squire Sanders
Chris Ward, Pulte Homes

Key Concerns with the ISL Proposal and UIC Permit Application Of Curis Resources (Arizona) Inc. for the Florence Copper Project

A. Background.

Curis Resources (Arizona) Inc. (Curis) filed an application for a UIC permit in March 2011 for proposed in situ leach (ISL) copper mining injection and recovery wells associated with the 212-acre Florence Copper Project (the Mine). That application contemplated two phases of operation. Phase 1 was to be a short-term pilot operation to test the viability of the ISL process. Phase 2 included commercial operation of the mine for twenty years or more. Since that application was filed, it has become clear that local residents and area stakeholders are opposed to the Mine. Opponents include:

- Pulte Homes, who has spent more than \$400 million dollars to date developing the residential Anthem Community, which is adjacent to the Mine and is already home to 5,000 residents;
- the largest drinking water supplier in the State of Arizona, and the entity that will be charged with providing clean, safe water to families in the area regardless of mining impacts;
- virtually all of the surrounding property owners who will be developing residential communities in the surrounding 16,000 acres;
- the Town of Florence, its Mayor, and Town Council, who have refused Curis's requests to rezone the mine site and have passed resolutions and ordinances making mining on the property illegal;
- the Gila River Indian Community, located downgradient, which has passed resolutions opposed to the mine; and
- a majority of the Town's residents, who recently showed their opposition by electing a Mayor and Town Council who ran on a platform opposed to Curis's proposals.

Commercial operation of the Mine, as proposed in the March 2011 application, is now impossible because the Town of Florence has refused to amend applicable zoning and planning requirements so as to permit mining on the site.

Faced with the inability to mine on the original site, Curis now proposes to conduct ISL mining solely on a 160-acre parcel owned by the State Land Department, which is exempt from local zoning laws. This smaller operation would consist of a Phase 1 production test facility and Phase 2 commercial operations. Curis did not

submit a new UIC application for this new proposal. Instead, it has requested that USEPA's ongoing technical review of the March 2011 application be limited to just those portions of the existing UIC application that are relevant to the new Phase 1 production test facility on State land. Curis has indicated to USEPA that the production test will permit Curis to develop information to confirm and refine the commercial Phase 2 ISL operations.¹ That may be true in part, but the prime reason for this change is that Curis cannot operate mining facilities anywhere but the State Land parcel. It is hoping to push through Phase 1 permits while it undertakes efforts to overturn the Town's decision denying permission to conduct Phase 2 operations on the remainder of the site.

Through original and revised applications for zoning changes, APP permits, and UIC permits, Curis already has asked multiple federal, state and local agencies to conduct multiple reviews of an ever-changing approach to the Mine. Now, Curis is attempting to invent its own permit process rather than follow the application and approval path set out in ADEQ and USEPA regulations. Curis's recent request to USEPA is a self-serving manipulation of the UIC process. Curis is asking USEPA to consider portions of an earlier application that are purportedly relevant to the Phase 1 production test facility on State Land, even though the production test facility involves entirely different facilities in a completely different location. Even if USEPA is willing to work with Curis and consider this new proposal, it should be wary of the applicant and ensure that this proposal is thoroughly investigated before a permit decision is made.

As indicated in previous letters to your agency, we have significant concerns with the Mine. That has not changed with Curis's latest proposal and we continue to believe that this project is inappropriate given its risks and location near current and future residential and commercial development. Provided below are a few issues that we believe USEPA should consider as it begins its review of Curis's new proposal.

B. USEPA Should Reconsider the Existing Aquifer Exemption.

1. Surrounding land and groundwater uses have changed, such that an aquifer exemption is no longer supported.

When Magma Copper Company applied for a UIC permit and aquifer exemption for this site in January 1996, the area north of the Town of Florence and the Gila River

¹ Daniel Johnson, Letter to Nancy Rumrill (June 1, 2012).

was largely unincorporated private and State-owned land—open desert. The closest residential development downgradient of the mine site was approximately 10 miles to the northwest. Although Magma’s ISL mining proposal encompassed only 213 acres, Magma owned another 10,000 acres surrounding the mine site. ASARCO owned the parcel just west of the proposed mine site and the Arizona State Land department owned a couple of parcels in the area, all vacant land. Thus, there were no residential, commercial, or industrial entities anywhere near Magma’s mine site that were using or proposing to use groundwater downgradient of the mine. Nor did anyone bring forth proposals at that time to develop the area for other uses.

USEPA’s reasoning in issuing the 1997 UIC permit to Magma’s successor, BHP Copper, reflected those conditions. There was little or no concern about downgradient drinking water sources because there were no drinking water wells, public or private, downgradient of the mine. No future drinking water wells could be constructed in the area because BHP owned 2-3 miles of land downgradient. Therefore, USEPA concluded that, “*even with no controls*” on the injected mining solutions, groundwater impacts from ISL mining would be “highly unlikely.”²

As USEPA recognized when it revoked the UIC permit in August 2010, conditions in the area have changed drastically over the last 15 years.³ The Mine is now surrounded by a Master Planned Community, with existing homes less than 1.5 miles from the Mine and new residential areas that will be located less than 2,000 feet from Curis’s proposed production test facility wells. ISL mining in such close proximity to residential areas would be unprecedented, as most existing ISL mines are located in remote areas far from drinking water sources and communities. For instance, the closest town to the Smith Ranch-Highland uranium ISL mine in Wyoming is over 20 miles away and the area controlled by the mine owner consists of over 40,000 acres.⁴

Although we applaud USEPA’s decision to revoke the existing UIC permit and require a new application, we believe that USEPA also should re-evaluate the aquifer exemption provided to BHP 15 years ago. There are now drinking water wells in the area and there will be more to come as the surrounding residential and commercial development are built out. Curis only owns a few hundred acres immediately above

² USEPA, *Memorandum re Request to issue a UIC permit and aquifer exemption to BHP Copper* (April 30, 1997).

³ USEPA, *Letter to Michael McPhie* (August 5, 2010).

⁴ Cameco, *NRC Source Material License No. SUA-1548 License Renewal Application Technical Report*, at 1-7 and 1-12 (February 2012).

the copper ore deposit, so unlike Magma and BHP it cannot prevent wells from being drilled downgradient. The aquifer zone subject to the 1997 aquifer exemption is hydraulically connected to the downgradient drinking water aquifer. Under these conditions, USEPA should at a minimum re-evaluate the technical basis for the 1997 aquifer exemption.

2. We question Curis's ability to demonstrate a key aquifer exemption criterion – commercially producible minerals beneath the State land parcel.

Changes since 1997 also have undercut the legal basis for the original aquifer exemption, which was described as follows:

The proposed mining zone and the overlying formations have TDS concentrations that are well below 10,000 mg/L and are therefore underground sources of drinking water (USDWs) as defined under 40 CFR 144.3. In order to mine the copper oxide zone, BHP Copper would have to meet the criteria for an aquifer exemption and receive approval from EPA. Pursuant to 146.4, the proposed operation meets the criteria for an aquifer exemption because 1) the aquifer does not currently serve as a source of drinking water and 2) *it has been demonstrated by the permit applicant to contain minerals that are expected to be commercially producible.*⁵

Curis can no longer demonstrate that minerals within the existing Aquifer Exemption are commercially producible. The property subject to the exemption was annexed into the Town of Florence and became part of a Master Planned Community in 2003. Current zoning prohibits mining on the property. Curis has twice requested a zoning change and failed both times. In 2011, the Town elected a new Mayor and Town Council members who are opposed to the mine. The Town has since passed a resolution against mining on the property. Under these circumstances, copper below much of Curis's property is not "commercially producible" because mining is illegal.⁶

⁵ USEPA, *Statement of Basis for a Draft Permit and Proposed Aquifer Exemption, BHP Florence Project*, at 7 (February 1997) (emphasis added).

⁶ USEPA expressly rejected "mineral bearing" as an aquifer exemption standard because "it did not want to open the possibility of wholesale exemption of aquifers, over large areas of the country, which become identified as being capable of producing one or another mineral." 45 Fed. Reg. 42,472, 42,481 (June 24, 1980).

Although ISL mining on the 160-acre State trust parcel is inconsistent with zoning and planning applicable to the surrounding area, this parcel is exempt from the Town's zoning regulations. Therefore, while it is legal to mine copper on this leased property, it remains questionable whether the copper is "commercially producible" because Curis has provided no evidence that it is economically feasible to mine copper on such a small scale. USEPA required the previous owner to submit a feasibility study demonstrating the commercial viability of the mine as a prerequisite to obtaining an aquifer exemption. Curis should be required to do the same now and should not be allowed to rely upon a previous report that is inapplicable to Curis's new proposal.

Curis also faces significant challenges in finding room on the State Land parcel for sufficient processing and waste facilities to make commercial production possible. As indicated by a draft site plan submitted to the State Land Department, Curis plans to cover most of the State Land parcel in ISL wells. This leaves little or no room for the supposedly larger SX/EW facilities, tanks, and storage areas needed for commercial production. Nor does it leave room for the large evaporation ponds needed for commercial production. USEPA should require Curis to explain its plans for full-scale copper production on the 160-acre State Land parcel as part of the agency's determination whether an aquifer exemption is appropriate.

Even if Curis can demonstrate that it satisfies the aquifer exemption criteria of 40 C.F.R. § 146.4 on the State Land parcel, USEPA should not permit the existing Aquifer Exemption to remain in place. The larger exemption area cannot be justified given current conditions, is not needed by Curis to mine on the State Land parcel, and does not satisfy the goal of protecting as much of the USDW as possible. In its most recent Request for Information to Curis, USEPA required Curis to include closure costs associated with Phase 2 facilities in its Phase 1 cost estimates because there is no guarantee that Phase 2 will ever become operational.⁷ For that same reason, the existing Aquifer Exemption should be withdrawn because it includes a much larger area than is needed for Phase 1 operations. USEPA should require Curis to apply for a smaller aquifer exemption applicable solely to Phase 1 operations on the State Land parcel.

3. Re-evaluation of the previously issued aquifer exemption is consistent with USEPA priorities and decisions across the country.

USEPA has recently begun to review the criteria for aquifer exemptions. Ann Codrington, Director of the Drinking Water Protection Division of USEPA's Office of

⁷ USEPA, *Request for Information*, at 8 (July 20, 2012).

Ground Water and Drinking Water recently indicated that a key priority for the SDWA permitting program is an evaluation of existing policies for granting aquifer exemptions.⁸ Issues being considered are whether baseline monitoring and modeling requirements are needed to determine if an aquifer is a viable USDW and whether water within an aquifer zone could be used for drinking water in the future. The Curis site is a prime example of a site for which such reevaluation is necessary, given the changed conditions in the area that prompted USEPA to revoke the project's 1997 UIC permit in August 2010 and the paucity of baseline sampling, investigation and modeling that was provided in support of the 1997 permit.

Other USEPA Regions have reopened existing aquifer exemptions or required more thorough investigation and analysis to support an exemption. At the Church Rock, New Mexico uranium ISL mine owned by Hydro Resources, Inc., USEPA is reviewing its 1989 approval of an aquifer exemption for the site, seeking additional information on drinking water wells in the area.⁹ In Goliad, Texas, USEPA has refused to certify the State's aquifer exemption for a proposed uranium ISL mine to be operated by Uranium Energy Corporation. Region VI's decision to require more investigation in support of Uranium Energy Corporation's aquifer exemption was based in part on opponents' argument that the aquifer zones to be mined are hydrologically connected to aquifer zones drawn by downgradient drinking water wells. Acting Director Honker's letter to the Texas Commission on Environmental Quality stated that "based on EPA's experience with other *in-situ* mining projects, EPA believes there is a high likelihood that, following mining activities, residual waste from mining activities will not remain in the exempted area."¹⁰ The data from Curis's site suggests that USEPA should have similar concerns as to this Mine.

A recent decision by the Environmental Appeals Board highlights the importance that current and future drinking water sources be considered thoroughly in USEPA's review of a UIC application. In *In re: Bear Lake Properties, LLC*, the EAB remanded a UIC permit decision on a hydraulic fracking operation because Region III failed to "ensure that accurate data as to drinking water wells within the area of review

⁸ Presentation, Ground Water Protection Council Annual Meeting, Houston, Texas (January 2012).

⁹ Letter from William K. Honker, USEPA Region VI, to New Mexico Environmental Law Center (June 27, 2012).

¹⁰ Letter from William K. Honker to Zac Covar, Texas Commission on Environmental Quality (May 16, 2012).

of the proposed injection wells were identified and considered.”¹¹ We have similar concerns with this project. Curis’s projections of groundwater impacts are based solely on groundwater modeling. It is not clear that Curis’s model adequately considers current and future drinking water wells; the influences of agricultural pumping; recharge from the Gila River, irrigation return flows and other sources; the influence of faults, fractures, core holes, old wells, and underground mine workings on the movement of mining solutions; or existing data regarding groundwater conditions in the area.

Nationally, USEPA is taking a harder look at aquifer exemptions and the basis for UIC permits for ISL mining and fracking facilities. The Mine will be the first copper mine of its kind in the United States if it moves forward to commercial operation. As such, USEPA’s consideration of Curis’s application could set a precedent for future projects of this kind, some of which have already been proposed in other parts of Arizona. It is essential that USEPA take a hard look at this project and require the data and analysis appropriate for a proposal to mine copper within a master planned residential community.

C. As Proposed, Curis’s Mine Would Create a Plume of Sulfate and Arsenic-Laden Water that Would Endanger Downstream Drinking Water Sources.

Under BHP’s 1997 UIC permit, when BHP closed a mine block it had to “rinse” the aquifer to reduce mining contaminants in the groundwater to acceptable levels. BHP was to “rinse” the aquifer until sulfate in the mine block wells was reduced to 750 parts per million. Then BHP would analyze the groundwater for other listed contaminants. If all contaminants were below permit limits, rinsing and hydraulic control within the mine block could stop. BHP would then have had to resample in 90 days to confirm that contaminants had not rebounded within the mine block.¹²

1. Curis’s sulfate proposal is inconsistent with the Safe Drinking Water Act’s Secondary MCL for arsenic and the concomitant public health risks of nearby sensitive populations.

Water’s smell, taste, and color are affected at 250 mg/L sulfate, one third the level allowed under BHP’s permit. Sulfate in water at levels above 250 mg/L, especially combined with high TDS, also can cause gastronomic problems in sensitive

¹¹ *In re: Bear Lake Properties, LLC*, UIC Appeal No. 11-03 (Env. App. Bd. June 28, 2012).

¹² USEPA, *UIC Program Area Permit, BHP Florence Project*, at 24-25 (May 1, 1997).

populations, such as infants, transient populations, and new residents.¹³ The 1997 UIC permit effectively allowed BHP to create a plume of sulfate in the groundwater beneath this mine site that would have rendered that water unusable for drinking water purposes. Once hydraulic control was stopped, that plume would have begun to move downgradient. Sulfate dissipates very little as it moves through an aquifer, is persistent in groundwater for decades, is difficult and expensive to remove from drinking water sources, and can interfere with treatment for other contaminants, such as arsenic.

Given that BHP owned all of the property two to three miles downgradient from the mine and that there were no drinking water wells in the area, it may have been acceptable in 1997 to allow creation of a sulfate plume in this aquifer. But it is not acceptable today. Residential development now surrounds the mine area, drinking water wells have been installed downgradient, and more wells will be needed in the foreseeable future. Pulte Del Webb's Anthem Community directly downgradient of the Mine consists of two populations—a retirement community and a family community, both of which are encompassed within the sulfate sensitive populations recognized by USEPA in the secondary MCL. And this is just the beginning, with many more homes planned for the downgradient area. Whatever value there may be in mining copper at this site, it does not justify pollution of the area's groundwater with a sulfate plume that will endanger downgradient drinking water supplies for decades to come.

Nevertheless, Curis has proposed to carry these same terms into its new UIC permit, but with one important change. In its application, Curis proposes that each well in a mine block be treated separately. As an individual well reaches 750 mg/L, rinsing and hydraulic control at that well would cease.¹⁴ One by one, wells would be shut down within a mine block that may contain up to 600 wells. Some of those 600 wells might take years to reach the trigger sulfate level. But Curis is proposing to only sample for contaminant rebound *after* the very last well has reached the trigger level. Under that scenario, contaminant rebound could occur unnoticed in the first wells to be shut down, with contaminants escaping the mining zone for years before rebound sampling occurred. Only after the last well in a block reaches the trigger level would

¹³ USEPA, *National Secondary Drinking Water Regulations, Final Rule*, 44 Fed. Reg. 42195, 42201 (July 19, 1979); *Announcement of Regulatory Determinations for Priority Contaminants on the Drinking Water Contaminant Candidate List*, 68 Fed. Reg. 42898, 42905 (July 18, 2003); *Drinking Water Advisory: Consumer Acceptability Advice and Health Effects Analysis on Sulfate*, EPA 822-R-03-007 (February 2003).

¹⁴ Curis Resources, *UIC Permit Application: Table of Existing and Proposed Requirements of UIC Permit No. AZ3900001*, at 22 (March 25, 2011).

Curis notice the contamination and be required to take action. By that time, serious damage to the aquifer beyond the mine block could already have been done.

Nothing about this proposal makes sense under today's conditions in the Town of Florence. Other mines in Arizona, such as the Sierrita and Bisbee copper mines, are required to provide replacement water supplies when sulfate in groundwater exceeds 250 mg/L. The Town of Florence and its residents deserve no less protection. Permitting Curis to endanger drinking water supplies through the creation of a plume of sulfate is contrary to the purposes of the UIC program and the Safe Drinking Water Act. Sulfate should not be a trigger for the measurement of other contaminants in the aquifer, it should be treated as a significant drinking water contaminant that must be reduced below 250 parts per million before rinsing and hydraulic control in a mine block can cease.

2. Curis's proposed arsenic limit pushes the cost of SDWA-mandated treatment downstream to drinking water providers.

In its APP materials, Curis also has proposed that it be held to an arsenic standard of 50 ppb, five times the current Maximum Contaminant Limit under the Safe Drinking Water Act, at four existing Point of Compliance wells.¹⁵ This is not because of background concentrations—groundwater in the area has nothing near these concentrations of arsenic. Rather, we believe Curis's request is based upon the fact that ADEQ has never revised this State's Aquifer Water Quality Standard for arsenic to make it consistent with the federal MCL, despite a statutory requirement to do so. Curis is proposing to keep the old Alert Levels and Aquifer Quality Limits in the existing APP permit for these wells, thereby incorporating the old MCL for arsenic and reducing groundwater cleanup costs for the PTF. Curis appears not to have mentioned its proposed arsenic standard in its submissions to USEPA.

We trust that USEPA will not agree to a 50 ppb arsenic standard, but will hold Curis to the federal MCL. Water providers throughout Arizona were required to undertake expensive improvements to their systems several years ago to meet the new arsenic standard. Curis should not be permitted to avoid the same requirement and thereby push the cost of arsenic treatment off onto downgradient water users.

¹⁵ Curis Resources (Arizona) Inc., *Temporary Individual Aquifer Protection Permit Application for Production Test Facility, Florence, Arizona*, Attachment 15, Table 15.4 (March 1, 2012).

D. To Provide a More Accurate Projection of the Mine's Feasibility and Impacts, Curis Should Incorporate Real-World Data into its Theoretical Models and Calculations.

Throughout the application materials, Curis attempts to justify this project through the use of groundwater models and calculations. But in other parts of the application materials, Curis cites previous testing by BHP Copper as evidence that the project is safe. Nowhere, however, does Curis attempt to calibrate its models and calculations against the real world data available from the mine site itself since BHP's testing in the 1990s.

A prime example is the use of limited data from the BHP pilot test results. Curis has claimed from the beginning that the BHP pilot test proved that hydraulic control of mining solutions and contaminants can be maintained at this site using the well configurations proposed by Curis. Curis cites to a single short letter from BHP to ADEQ as evidence of the success of BHP's test. Curis also cites its own selective and self-serving analysis of subsequent groundwater data from the site as evidence of hydraulic control and the absence of groundwater impacts from BHP's test.

But as far as we know, Curis has never attempted to incorporate data from the BHP test into its groundwater models and calculations. Curis's groundwater modeling efforts are a key component of its application, influencing or defining the Area of Review; Zone of Endangerment; construction, location, and configuration of ISL and monitoring wells; monitoring requirements; injection pressures; mining solution characteristics; cost estimates; closure requirements; and countless other factors. As a result, the accuracy of the model should be a primary concern in the permitting process. The absence of any attempt to calibrate the model against site-specific data from 1997 and afterward raises serious questions about the model's quality and accuracy.

These concerns are supported by other evidence indicating that BHP's pilot test was not as successful as Curis would have everyone believe. In letters from Merrill Mining, who bought the mine site from BHP, the company expressed serious concerns that the projections upon which the original UIC permit was based were not supported by BHP's 1997 pilot test:

- Merrill noted that "there were major disparities between the results of field tests and the assumptions regarding the copper recovery mechanisms and recovery rates that were used to justify the permits for, and the economic viability of the Florence Copper Project. The disparities led BHP Copper to

- conclude that the field test results did not justify building a leach facility at Florence”¹⁶
- In a Draft Field Test Report prepared by BHP in October 1999, but apparently never publicly disclosed, BHP noted substantial disparities between the recovery rates measured during the 1997-98 field test and the data used to justify the project during permitting, concluding that “If the solution chemistry in the production well BHP-1 is, in fact, a result of water-rock reactions, in-situ leaching at Florence may not be possible.”¹⁷
 - BHP also concluded in the Draft Field Test Report that much longer leach times might be required to obtain copper at commercially-viable levels, with modeling suggesting leach times of 6 to 8 years. This could, in turn, double the mine life of the project, with the total time between the start of production and closure possibly exceeding 45 years.¹⁸
 - BHP recommended that a new field test be conducted for a much longer duration and employing a multiple-cell test field and expanded water management system. As a precursor to a second field test, BHP recommended an “improved understanding of the geochemical and hydrogeological mechanisms at work before attempting the design of a new field test.”¹⁹

Curis has never mentioned, must less addressed, any of these concerns. Nor has Curis acted on BHP’s recommendation that a better understanding of geochemical and hydrogeological mechanisms be developed before designing a new field test. Instead, Curis has relied almost exclusively on BHP’s investigations leading up to the 1997-98 field test and has performed little new investigation of its own.

The lack of additional investigation, the absence of any attempt to calibrate its new groundwater model simulations with the BHP data, and the proposal to conduct ISL mining under essentially the same standards as in the BHP permit is deeply concerning in light of the questions that BHP’s pilot test provoked. But later investigation by BHP’s successor at this site raised additional questions. Merrill Mining expressed concerns that its own groundwater sampling and testing “indicated that a significant decrease in pH could occur if leaching of the deposit proceeds as currently

¹⁶ Letter from Roger Ames, Registered Geologist, Merrill Mining, to Bryan Wilson, President and CEO, Mohave Resources, Inc., at 1 (November 21, 2006) (Attachment 1).

¹⁷ *Id.* at 2 (citing Draft Field Test Report, at 109).

¹⁸ *Id.* at 2-3.

¹⁹ *Id.* at 3 (citing Draft Field Test Report, at 102 and 110-111).

authorized by the permits. The methods discussed in the Report for increasing copper recovery would further exacerbate the low pH problem and could mobilize heavy metals and radiological elements. Merrill does not know how the low pH issue can be successfully addressed.”²⁰

Groundwater sampling data submitted since the BHP field test also raises questions. Numerous excursions of sulfate, magnesium, radiochemicals, and other contaminants have been reported over the last 14 years. Although the site owner did its best to explain away all of these excursions, the location and circumstances of the excursions are strong evidence of mining-related impacts. Those potential impacts are completely ignored by Curis in its modeling and simulations to date.

USEPA should require Curis to combine available real-world data and its theoretical simulations into a comprehensive study of site conditions aimed at obtaining a more detailed and realistic site model. To that end, USEPA also should require Curis to disclose the BHP reports and supporting data discussed by Merrill Mining.²¹

E. Curis’s Commitment to Provide Adequate Financial Assurance Remains in Question.

Since it filed applications for UIC and APP permits, Curis has consistently attempted to minimize its financial assurance obligations. Curis has tried to limit its obligation to a single financial assurance mechanism for both the APP and UIC programs, has a constantly shifting approach to the financial assurance obligation, has limited the closure and reclamation work included in the cost estimates, and has underestimated the costs of closure through overly optimistic projections of closure requirements. Curis’s primary concern appears to be reducing the cost of this statutory obligation rather than ensuring that the funds will be available to ensure proper operation, closure and reclamation. We believe Curis’s approach to date is a red flag for the agencies. USEPA should use its full authority and discretion to ensure that adequate financial assurance is provided for operations at this site.

We were encouraged by USEPA’s recent letter requiring Curis to include the costs of closing all PTF and POC wells in its closure cost estimate.²² This eliminates one way in which Curis was improperly reducing its financial assurance obligation. We

²⁰ *Id.* at 4.

²¹ Those reports are listed in Attachment 2.

²² David Albright Letter to Michael McPhie, at 8 (July 20, 2012).

encourage USEPA to hold Curis to this requirement and to carefully review Curis's revised estimates of closure costs for accuracy and completeness.

1. We urge USEPA to ensure that Curis provides adequate financial assurance to both agencies through reliable, stable mechanisms.

The method of ensuring that funds are available to cover these costs remains unresolved. Earlier this year, USEPA rejected Curis's proposal to use an insurance policy because it did not "demonstrate long-term financial assurance." USEPA required Curis to submit a revised proposal "regarding the financial mechanism(s) . . . that Curis Arizona intends to utilize for each point in the development of the [ISL] wells, closure, restoration, and post-closure."²³ Curis responded by stating that it would "obtain and submit to [USEPA] a surety bond in compliance with the financial assurance requirements outlined in 40 C.F.R. § 144.63(b) or (c)."²⁴ But in its recent request that USEPA consider only the Pilot Test Facility in assessing the UIC application, Curis seems to have forgotten that commitment. Curis has now reverted to proposing a single financial mechanism for both the APP and UIC programs and proposes a less reliable financial assurance mechanism, a letter of credit. Alternatively, Curis proposes to provide any of the six financial assurance mechanisms permitted by 40 C.F.R. § 144.63, ignoring its previous commitment to provide a surety bond.²⁵ Curis clearly is attempting to game the system to keep its financial assurance obligations as low as possible.

USEPA should hold Curis to its commitment to obtain a surety bond compliant with UIC permitting requirements. Anything less would only exacerbate the risks associated with this project. Consider that Curis is part of a multi-level parent-subsidary organization. The Government Accountability Office has noted that it is not uncommon for a subsidiary to conduct the high-risk activity of mining, while the equipment, mineral rights, patents and other valuable assets are owned by the parent and leased back to the subsidiary. The subsidiary's assets, including assets from the sale of copper, are continuously drawn down to pay operating expenses. In the end, the parent company is free from liability for environmental liability arising from mining, while the subsidiary lacks the resources to pay for cleanup.²⁶

²³ David Albright Letter to Michael McPhie, at 3 (January 30, 2012).

²⁴ Daniel Johnson Letter to Nancy Rumrill, Response to Comments at 1 (March 30, 2012).

²⁵ Daniel Johnson Letter to Nancy Rumrill, Attachment 1 at ix (June 1, 2012).

²⁶ Government Accountability Office, *Environmental Liabilities: EPA Should Do More to Ensure That Liable Parties Meet Their Cleanup Obligations*, at 21-24 (August 2005).

Here, two parent-subsidary levels of organization exist among the companies associated with the mine. Curis Resources, the UIC permit applicant, is a Nevada corporation operating in Arizona that is a wholly-owned subsidiary of Curis Holdings (Canada) Ltd. Curis Holdings, in turn, is a Canadian corporation that is a wholly-owned subsidiary of Curis Resources Ltd., also a Canadian corporation. Although the agreements between these three entities are not public, it is reasonable to assume that Curis has been organized in a manner described by the GAO. This is perfectly legal, of course, but it can confound efforts to clean up this property in the absence of adequate financial assurance.

USEPA also should consider that Curis's Canadian parent company (Curis Resources Ltd.) recently received a \$40 million loan from RK Mine Finance Trust I, a trust that chooses to keep its country of origin confidential. The loan's express purpose is "to finance the development and construction of the Project and working capital requirements of [Curis], including preparation of feasibility studies, *pilot plant construction and other financial assurance requirements.*"²⁷ The loan also states that the "Borrower's Business" may include "the establishment of a *captive insurance business* which Borrower may, directly or through any Borrower Subsidiary, establish for purposes of funding any environmental, reclamation or other related or similar liabilities. . . ." ²⁸

This indicates that Curis is considering insurance through a captive insurer as a means of providing financial assurance. The GAO has recognized the risk of relying upon captive insurers and USEPA acknowledges that if the parent company encounters financial difficulties, the captive insurer may also face financial hardships that would prevent it from covering claims made on its policies.²⁹ USEPA should reject insurance from a captive insurer as a financial assurance mechanism and require Curis to provide a surety bond, performance bond, or trust fund to ensure that cleanup and reclamation obligations are met. Additionally, USEPA should require Curis to provide the details of any proposed funding mechanism prior to a decision on the application to allow for a full analysis and evaluation of the viability of that instrument in the event it is called upon for closure and cleanup.

²⁷ *Loan and Security Agreement between Curis Resources Ltd. and RK Mine Finance Trust I*, at 23-24 (May 9, 2012) (emphasis added) (Attachment 3).

²⁸ *Id.* at 3-4 (emphasis added).

²⁹ Government Accountability Office, *Environmental Liabilities: EPA Should Do More to Ensure That Liable Parties Meet Their Cleanup Obligations*, GAO-05-658, at 47 (August 2005).

2. Regularly updated and re-evaluated costs are key.

Furthermore, Curis should be required to provide updated cost information annually for the PTF. Many of the PTF's key details, standards and requirements will not be known until after permits are issued, if Curis's proposal is accepted. For instance:

- ALs and AQLs will be set after the Temporary APP is issued;
- Wells and coreholes will be abandoned after the UIC and APP permits are issued; and
- Details regarding closure and reclamation will not be produced until the PTF operations are done.

As you know, we believe all of these issues should be addressed *before* any permits are issued. But if Curis's proposal is accepted, the costs associated with the PTF could change dramatically, based on how these and other issues are addressed. This warrants annual review of cost estimates and adjustments to the financial assurance mechanism as necessary to ensure closure and reclamation costs are addressed.

3. Given the extreme risks to downgradient residents and groundwater, USEPA should require Curis to provide up-front financial assurance mechanisms and contingencies to address off-site contamination.

Finally, there is the issue of off-site contamination. Nothing in Curis's financial assurance proposals will address off-site contamination, injury to neighboring landowners' property rights and property values, or impacts to human health and the environment. We assume that Curis will argue USEPA has no authority to include such considerations in determining costs to be covered by financial assurance. We believe USEPA has ample authority and discretion to address these issues through the financial assurance requirements. At the very least, USEPA should require Curis to develop a mitigation plan for addressing offsite impacts from ISL mining. If the UIC permit is issued, Curis will be effectively permitted to pollute a segment of the aquifer that the Town of Florence and its residents depend upon for drinking water. At a minimum, Curis should be required to address the risks posed to the Town's drinking water now, not after contaminants have escaped Curis's control and done their damage.

F. Curis Could Be Taking Steps Now to Provide the Information Required for a Thorough Review of its UIC Application.

We copied USEPA on our letter to ADEQ dated July 11, 2012, in which we listed several actions Curis should be required to take before a decision is made on the Temporary APP permit. We discussed some of those issues with you in our meeting last month. It appears that you covered some of our concerns in your July 20, 2012 Request for Information to Curis. We will not discuss those same issues in detail again here, but we did want to highlight a few key points for you to consider.

First, we have pointed out that six of the seven Point of Compliance wells proposed by Curis were constructed fifteen years ago in preparation for commercial operations on the mine property. The placement, design and construction of those wells have nothing to do with Curis's new proposal for a PTF on the State Land parcel. Curis is proposing to reuse those wells in order to save the cost of drilling new monitoring and Point of Compliance wells in locations relevant to the PTF. These wells are not in locations downgradient from the PTF, they are too far from the PTF well field to detect excursions over the short life of the project, and they are not designed to monitor groundwater quality in portions of the aquifer that could be impacted by PTF mining.

Another key point in this regard is that Curis has proposed no monitoring or Point of Compliance wells along the fault zones that run through the PTF well field. The Rattlesnake, Thrasher, and Sidewinder Faults run through the proposed PTF well field.³⁰ USEPA felt that this was a significant enough issue to require additional monitoring wells along all faults in the mine area.³¹ This concern appears to be the reason BHP installed additional Point of Compliance and monitoring wells along the northern boundary of the State Land parcel, in the area of these faults. Curis should be required to install monitoring wells along these faults in the area of the PTF, to demonstrate whether the faults will serve as conduits for mining contaminants.

One other issue we wanted to emphasize was the requirement that Curis properly abandon and seal all unused wells and coreholes. The proper abandonment of the hundreds of coreholes and unused wells on this property has been discussed for fifteen years, but each successive owner of this site has avoided any action to actually

³⁰ Curis Resources, *Response to ADEQ Comprehensive Request for Information*, Attachment 13 (May 2, 2012).

³¹ Gregg Olson, USEPA, Letter to John Kline, BHP Florence Project, at 7 (June 27, 1996).

address these conduits for groundwater contamination. Curis is required to close each and every corehole on its property.³² Before any permit decision is made, Curis should be required to attempt to locate every corehole, borehole, and unused well within the Area of Review and identify those that cannot be located. Coreholes that can be found should be properly abandoned. If coreholes and unused wells cannot be located, Curis should at a minimum be required to install appropriate monitoring wells in the area of each corehole or well and monitor quarterly for lateral and vertical excursions of mining contaminants. Curis should begin this work now, not after a permit has been issued and the company has no incentive to address this serious issue.

³² Ariz. Admin. Code § R12-15-817(B)(2) (“Exploration wells not left open for re-entry *shall be abandoned* in accordance with R12-15-816.”) (emphasis added).