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May 5, 2020

The Honorable Andrew Wheeler
Administrator
U.S. Environmental Protection Agency
Office of Administrator, 1101A
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Re: Town of Florence's and Southwest Value Partners' Petition to
Revoke or Revise the Aquifer Exemption Granted to Florence
Copper, Inc.

Dear Administrator Wheeler:

The Town of Florence (the "Town") and Southwest Value Partners ("SWVP") petition (Attachment A) the U.S. Environmental Protection Agency under the Administrative Procedure Act, 5 U.S.C. § 553(e), to revoke or revise the Underground Injection Control Aquifer Exemption for EPA Permit #AZ396000001 granted to BHP Copper on May 1, 1997. This petition is filed in order to protect the Town's only drinking water aquifer and is based both on significant changes in circumstances since the exemption was granted and the indefensible nature of the 1997 exemption decision.

In 1997, when the aquifer exemption was granted to BHP Copper, the proposed mine site and the surrounding area was virtually vacant, open desert:



Fig. 01. Magma-BHP Land Holdings, 1996

In 2016, when UIC Permit No. R9UIC-AZ3-FY11-1 was issued to Florence Copper, Inc. ("FCI"), most of the private property once owned by BHP Copper was now part of the Town's General Plan. That once open desert land was now being developed with residential homes, commercial buildings, and light industrial facilities:

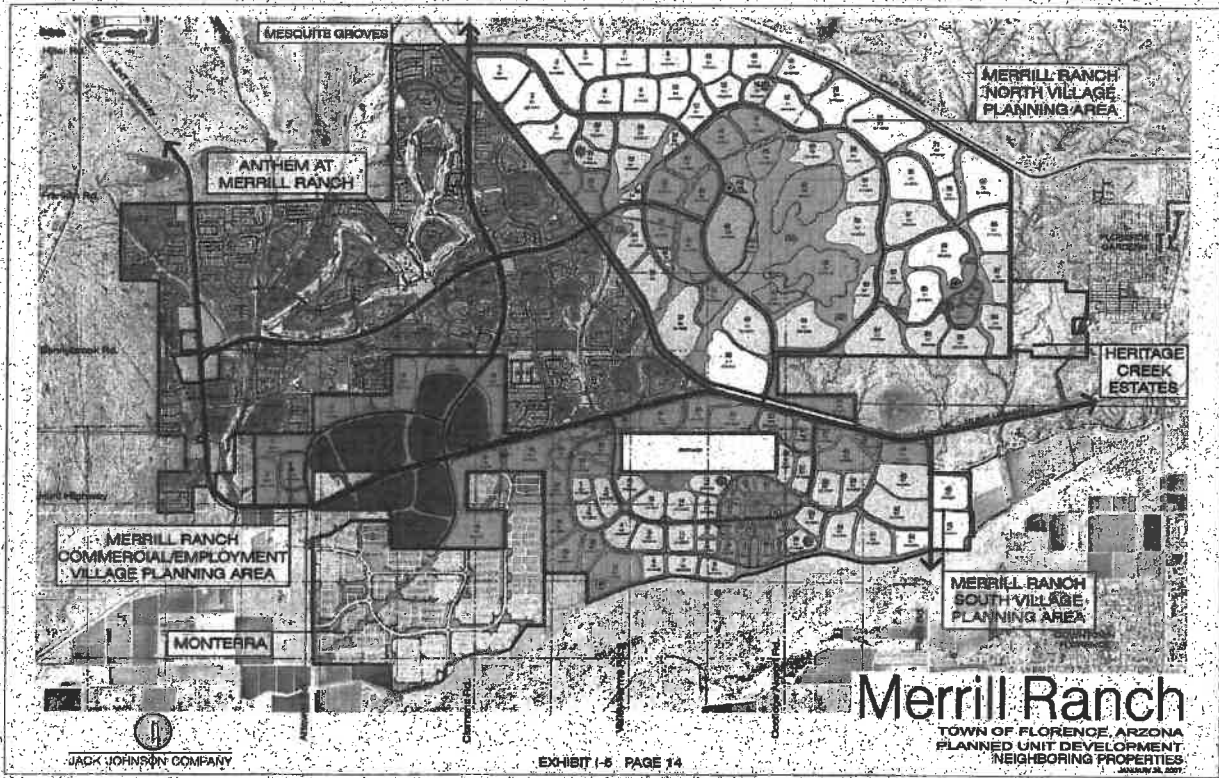


Fig. 02. Merrill Ranch Master Plan

Naturally, as that development has and continues to occur, the dependence on the aquifer has and will increase substantially. The existence and location of drinking water production wells has, therefore, also significantly changed. There are multiple drinking water production wells located near and down-gradient from the proposed mine site, and many more are planned for development in the near future to support the residential, commercial and industrial growth.

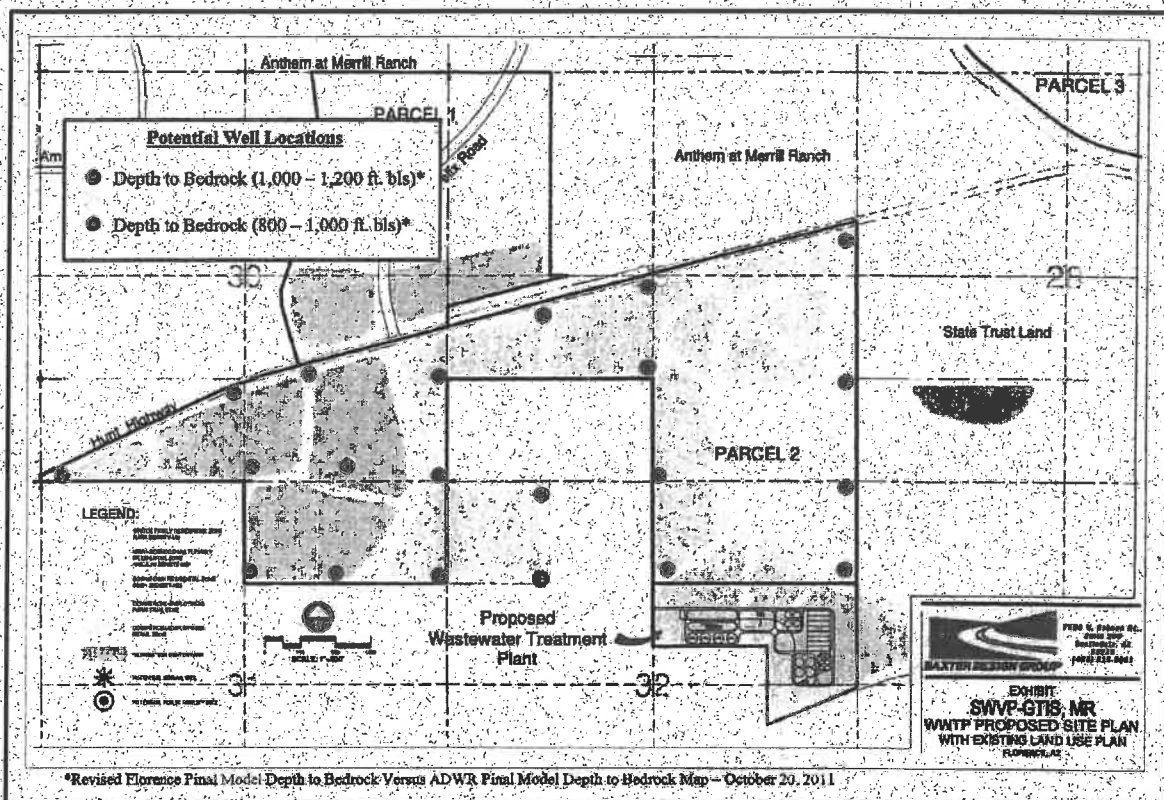


Fig. 03. Potential Well Locations West of FCI

BHP Copper never conducted commercial mining at this site, terminating operations after a 90-day pilot test that ended in 1998. BHP sold the property and the subsequent owner eventually abandoned any intention of mining. Instead, after the mine property was annexed into the Town, the subsequent owner asked that it be zoned for residential and commercial development. When that owner went bankrupt, the former mine property was sold by the banks to various entities in a confidential, sealed bidding process. FCI bought a parcel that included the mine site, while other developers like Pulte and SWVP purchased the remaining land surrounding the mine site. The developers were unaware that a mining company was also bidding on the property. At the time of that auction, the developers, who had conducted their due diligence, had no reason for concern that a mine would be developed in the middle of a planned master community for residential, commercial and light industrial as the Town's zoning prohibited mining on the property.

Now with FCI's Production Test Facility ("PTF") underway, new concerns have arisen. Recent operational irregularities which demonstrate the risk of contaminant escapes to the Lower Basin Fill Unit have been reported. One

example is the water table map for December 2019, submitted by FCI for the ostensible purpose of assuring the promised hydraulic control¹. There, even with considerable smoothing of the contours, an outward gradient from the PTF begins just beyond (130 feet or so) the PTF boundary, not miles as stated in FCI's models. And, contrary to FCI's assertion that the oxide zone is homogeneous, the report also demonstrates the extreme heterogeneity of the PTF oxide zone, with recovery well R-06 experiencing a 52 foot rise in water levels over four days (from the 3rd to 7th of December, 2019). At recovery well R-05, on the other hand, there was a decline of less than one-tenth of a foot².

This petition further explains that the rules and policies related to the consideration of aquifer exemptions have not been met, such that the existing exemption endangers the Town's current and future source of drinking water, in violation of the Safe Drinking Water Act ("SDWA"). This petition provides evidence and information showing that when considering FCI's Underground Injection Control ("UIC") transfer application, EPA considered the substantial and continuing changes in circumstances in the Town's population growth and the residential, commercial and industrial growth around FCI's proposed mining site. This consideration by EPA was significant as it resulted in a rejection of the transfer application with further direction that FCI submit a new UIC permit application. EPA, however, refused and failed to give the same consideration to the Town's growth and development as it relates to the aquifer exemption. Instead, EPA allowed to stand a 22-year old exemption that fails to adequately protect the Town's drinking water supply.

Furthermore, this petition demonstrates the original 1997 exemption decision was deeply flawed and that the purported bases for that decision lack support in the law and the administrative record. No information developed by any of the mine's owners since 1997 address these shortcomings.

For all the reasons discussed in the Petition and so as not to further endanger the Town's drinking water aquifer, the Petitioners request that the aquifer exemption be revoked, as:

- The 1997 aquifer exemption is 22 years old;

¹ FCI, Fourth Quarter 2019 Monitoring Report, Attachment 1, Figure 3: Oxide Groundwater Elevation Contour, December 2019 (January 28, 2020).

² *Id.*, Attachment 3, Table 3: December 2019 Daily Average Water Level Elevations.

- When issued 22 years ago, the mine was located outside of the Town's boundaries, and Magma owned the surrounding 10,000 acres of mostly open desert;
- In late 1997, BHP conducted a 90-day pilot project; that was the only mining that had ever occurred on the site when USEPA issued to Florence Copper Inc. its UIC permit in 2016;
- In 2007, at the request of the then site owner, FCI's private property was zoned for residential and commercial use; under the Town's current zoning, mining is not permitted on the vast majority of FCI's planned mine site;
- Because of the development and other changed circumstances, USEPA, in 2010, denied a permit transfer and, instead, required Florence Copper Inc. to submit a new UIC application;
- Preservation of all drinking water aquifers is critical as Arizona has been in an approximate 16 year drought;
- There are current and planned production wells located within the aquifer exemption;
- The changed circumstances require revocation of the aquifer exemption.

Or, in the alternative, Petitioners request that the aquifer exemption be reviewed, revised and reduced to create a vertical and horizontal distance appropriate for the limited PTF. Then, to support FCI's commercial mining application, FCI be required to submit an application for an aquifer exemption permit that is reduced and appropriately scaled to support that project, as:

- USEPA has the authority to and is currently reviewing other long standing aquifer exemptions;
- The existing aquifer exemption impacts the drinking water aquifer, the lower basin fill unit; and
- The scope of the aquifer exemption is not defensible.

As time is of the essence, your prompt consideration of and action on this Petition is greatly appreciated.

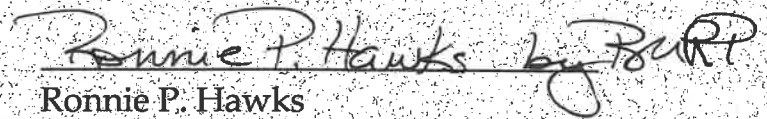
May 5, 2020.

TOWN OF FLORENCE

SOUTHWEST VALUE PARTNERS



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Ronnie P. Hawks
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Copy mailed this 5th day of May, 2020

to:

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ATTACHMENT A

PETITION TO REVOKE OR ALTERNATIVELY REVISE THE AQUIFER EXEMPTION PERMIT

I. EXECUTIVE SUMMARY

The Town of Florence (the "Town"), located in Pinal County, is one of the fastest growing communities in Arizona. At the same time, Pinal County has been hit hard by the more than sixteen year drought experienced throughout Arizona. The aquifer which supplies the Town and its citizens its drinking water is depleting. Historically, and now, that same aquifer has been used by local farmers for crop irrigation. Growth will not stop, nor will farming, so the preservation of the aquifer is paramount.

In 2019, Arizona entered into the Colorado River Drought Contingency Plan limiting the amount of surface water available to communities, including Pinal County. So, as demand, associated with growth and farming, on the aquifer has increased and replenishment has decreased, there is an imminent need for the installation of new production wells.

The Town and Southwest Value Partners ("SWVP") are petitioning the Environmental Protection Agency ("EPA") to aid in protecting the aquifer by revoking or, in the alternative, reviewing and revising a 22 year old aquifer exemption issued in 1997 to BHP Copper and ultimately transferred to Florence Copper, Inc. ("FCI").

In 1996, Magma Copper Company ("Magma") applied for a Type III Underground Injection Control ("UIC") permit and aquifer exemption for an in situ leach copper mine in an area that was then outside of the Town of Florence. Magma owned 10,000 acres of mostly open desert surrounding and downgradient of the planned mine area. The UIC and the aquifer exemption permits were issued shortly thereafter, in 1997, to BHP Copper, Inc. who had acquired the Magma holdings. BHP operated a test facility for less than 90 days and then abandoned all mining. The land was purchased by Merrill Mining, L.L.C., in December 2001. Merrill requested that the property be annexed into the Town in 2003. Rather than mine, he requested that the land be zoned for residential and commercial use, which was done in 2007.

Subsequently, Merrill filed for bankruptcy and the property was sold through a sealed bidding process. Much of the land was purchased by

residential developers, and approximately 1200 acres were purchased by FCI. On at least three occasions, FCI petitioned the Town for a zoning change to allow mining; each petition was denied or withdrawn.

Despite the zoning denial, FCI sought a transfer of the BHP UIC permit in 2010. Region 9 found that a transfer would be inappropriate because of significant changes in circumstances, the residential development around the proposed mine site and the lapse in time since the 1997 issuance of the UIC permit. FCI then focused its environmental permitting efforts on a small, 2.2 acre, Project Test Facility ("PTF") which would operate on property FCI leased from the Arizona State Land Department. FCI, in that application, requested a smaller, more limited, aquifer exemption appropriate for the 2.2 acre PTF. Rather than conduct a similar analysis based on changed circumstances and lapse in time or at least grant FCI's request for a smaller aquifer exemption, EPA Region 9 directed FCI to use the 1997 Aquifer Exemption Permit, which is approximately 210 acres larger than necessary for the PTF and allows an exemption much larger than necessary even for a full scale commercial mining permit. Until the 2016 issuance of the UIC permit for the PTF, no further pilot testing or mining activities had been planned for or conducted on this site since 1998.

In addition to the changed circumstances necessitating a revocation of the aquifer exemption, at the time the aquifer exemption was issued in 1997, the basis for the exemption violated the Safe Drinking Water Act ("SDWA"). The aquifer exemption allows injection of pollutants into the Lower Basin Fill Unit, which contains only pristine drinking water and is not mineral producing. Injection of pollutants into a **non**-mineral producing aquifer is legally prohibited. No one, not FCI nor EPA, asserts that the Lower Basin Fill Unit is mineral producing. To the contrary, everyone acknowledges the Lower Basin Fill Unit is a drinking water source, which legally must be protected.

EPA had no reasonable or legally defensible position for exempting the lower 200 feet of the Lower Basin Fill Unit. The only justification offered by EPA, is that the Lower Basin Fill Unit and the Oxide Zone (the mineral producing zone) are hydrologically connected. While hydrologically connected, even Magma recognized the need to protect the LBFU. Magma's application confirmed that there was no hydraulic barrier separating the LBFU groundwater from groundwater flowing within the underlying oxide bedrock zone; and, that

it was necessary to treat the 2 groundwaters as separate because of the different hydraulic properties and hydrogeochemical conditions of the two units. It appears that when BHP purchased the site, it negotiated with EPA to allow the exemption of the lower 200 feet of the LBFU; but, there is no record to support why EPA determined this exemption to be legally justified. In fact, it is because of this connection and that the LBFU is the source of drinking water that the SDWA legally mandates the protection and not the exemption of the Lower Basin Fill Unit.

Without explanation and contrary to the aquifer exemption's narrative description, which describes the horizontal boundary to include an area "laterally within 500 feet of the mine zone boundary"¹, the boundaries of the aquifer exemption actually extend beyond 500 feet of the ISCR aquifer exemption. This 500-foot horizontal buffer zone is not mineral producing and is at least twice as large as necessary in the event hydraulic control is lost for 30 days. FCI alleges that in such a case, fluid migration is not expected to be greater than 250 feet. There has been no demonstration that this 500-foot buffer zone, which adds about 200 acres to the aquifer exemption, is mineral producing or is even necessary if the worst case scenario, loss of hydraulic control, occurs. Furthermore, this 500-foot buffer zone extends beyond the point of compliance ("POC") wells required under FCI's aquifer protection permit. Migration of contaminants beyond the POC constitutes a violation of the State of Arizona's aquifer protection permit. As contaminants must not migrate past the POC wells, exemption of the area beyond the POC wells serves no purpose and is a violation of the SDWA.

Also without justification, the aquifer exemption exempts a large portion of the Town's drinking water aquifer that lies upgradient, to the east and south, of the ISCR area. There is no legal or technical justification for exempting this portion of the aquifer as FCI does not expect contaminants to impact this area of the aquifer.

The actions taken by EPA to exempt the 500-foot buffer zone are not only legally and technically unsupportable, but violate EPA Region 9's own March

¹ All footnotes referencing an attachment in Petitioners' appeal, Docket No. R9UIC-AZ3-FY11-1, Appeal No. UIC 17-03, Environmental Appeals Board Record ("EABR"), Index of Filings #1, will begin with "EABR Attachment #, . . .". EABR Attachment 1, UIC, Aquifer Exemption for EPA Permit #AZ396000001 (May 1, 1997).

1993 Aquifer Exemption Guidance document. That guidance describes a buffer zone to be an area "around the area of the proposed exempted aquifer (this buffer zone should be an area of limited future ground water development extending a minimum of ¼ mile from the boundary of the proposed exempted aquifer)." This buffer zone is not part of the aquifer exemption. It is simply an area around the aquifer exemption where future drinking water well development would be limited or perhaps excluded. There is nothing in the record to explain, much less support, why EPA elected to exempt the 500-foot buffer zone in this case.

FCI's right to mine its private property has been the subject of civil zoning challenges. The status of that litigation is presently before the Arizona Court of Appeals, Division One, at case number 1 CA-CV 19-0504. If mining on the private property is determined to be illegal, then any portion of the aquifer under that private property cannot be deemed mineral producing – meaning the aquifer cannot be exempt.

It is for all of these stated reasons that the Town and SWVP are petitioning EPA to revoke the aquifer exemption, or, at a minimum, review and revise it so that the horizontal and vertical extent of the exemption is legally and technically appropriate for the current 2.2 acre PTF, and then, if a commercial UIC permit is issued, for the commercial mine site.

II. INTRODUCTION

On December 20, 2016, the USEPA Region 9 issued a UIC permit to FCI authorizing a small PTF intended to determine whether in-situ leach copper recovery is feasible and environmentally defensible at a site located within the Town of Florence. FCI is currently operating the PTF. Although operations at the PTF have not been completed, and FCI has reneged on its promise to demonstrate the safety of its mine restoration, on August 2, 2019, FCI applied for a full scale commercial mining UIC permit. FCI's current and proposed operations inside the Town of Florence are neither safe nor reasonable.

The Town and SWVP petition the USEPA Region 9 to review its decision to leave in place a 22-year old aquifer exemption issued for what has been for more than two decades an abandoned, non-operational commercial in-situ leach copper recovery project. The exemption covers a much larger area than is encompassed by the PTF or the current application for the full scale mining permit, unnecessarily sacrificing large portions of the Town's drinking water

supply². Revocation or significant revision of the exemption is especially critical were EPA to approve FCI's new proposal to build the commercial project without having honored their existing permit, which requires them to demonstrate their ability to restore the mined site.

To the Town's knowledge, and as confirmed during a November 22, 2019 phone conference with USEPA Region 9 staff, until 2018 no similar project has ever been approved for an in-situ leach copper project, much less one that sites within the boundaries of a growing town that expects to number its residents in the hundreds of thousands in the next few decades. Furthermore, that 22-year old exemption includes an aquifer that contains no producible minerals but that is a current and future drinking water source for the Town and its growing population. For these reasons alone, the exemption should be revoked.

If EPA will not revoke the exemption, it must at a minimum review and revise the exemption. During that November 22, 2019 phone conference, USEPA staff described its policy reason for issuing lifetime aquifer exemptions – to ensure polluted aquifers are not used as a drinking water source. While that policy may make sense when a permittee's operations will require it to pollute an actual drinking water aquifer, that is not the case in this matter. BHP operated for only 90 days in 1998 within the oxide zone, not the regional drinking water aquifer. The site was then abandoned until FCI purchased the property and began constructing the PTF in December, 2018. There is no evidence that the drinking water aquifer was permanently impaired with pollutants from the limited BHP operations. EPA, now apparently relying on that policy, has essentially condemned the Town's drinking water aquifer. While the underlying policy that recognizes mining necessarily impacts groundwater may be well intentioned, the facts in this matter demonstrate that impacts to the drinking water aquifer are not required for mining to proceed. The existing aquifer exemption should be revised and significantly reduced (if not revoked) prior to any decision on a commercial permit.

At the time FCI submitted its UIC application in 2016, significant changes in the surrounding area had occurred that necessitated a review of that old

² The exemption covers a lateral area of over 400 acres, while the PTF well field consists of just 2.2 acres and purportedly will impact, at most, just a few acres outside the well field; and, the proposed commercial mine only consists of 212 acres.

aquifer exemption. Region 9 found those changes sufficient to justify revocation of the 20-year old UIC permit for commercial operations and submittal of an application for a new UIC permit covering only the 2.2-acre PTF well field. The decision to leave the exemption in place even though the UIC permit has been revoked cannot be justified in light of the significant changes in the surrounding area since the exemption was approved and the scale of the project reduced. Because of the many people who depend on the aquifer today and the imminent future need for that aquifer, the Town and SWVP are requesting that USEPA Region 9 revoke the 22-year old aquifer exemption; or, review and revise the aquifer exemption so that (1) it is laterally limited to the PTF well field and a small buffer zone beyond that ends at the compliance monitoring wells already provided for in the UIC permit for the PTF; (2) if a full scale commercial UIC permit is issued, that the exemption be laterally limited accordingly; and (3) it is vertically limited to the Oxide Bedrock Zone, the only geologic unit for which an exemption can be justified.

III. PETITIONERS

The Town is located sixty miles southeast of Phoenix. At the time EPA approved the 1997 Aquifer Exemption, the mine site lay in unincorporated Pinal County outside the Town's boundaries. In 2001, FCI's predecessor abandoned plans for in situ leach extraction at the site and asked the Town to annex approximately 8,000 acres, including much of BHP Copper's former landholdings, FCI's site, and the 1997 Aquifer Exemption area. The Town passed Ordinance No. 354-03 in 2003, formally extending the Town's corporate limits to include this property, thereby placing what is now FCI's property in the geographic center of the Town's municipal boundaries. The land was annexed, zoned, and, and in 2007, rezoned for residential and commercial development, all at the request of FCI's predecessor.³ The Town's residents and leaders have since repeatedly rejected mining within the Town's limits because mining is incompatible with the Town's plans for residential and commercial development in this area.

³ The State Land parcel on which FCI is operating its Pilot Test Facility is exempt from the Town's planning and zoning.

SWVP is a Delaware real estate development company that owns land in and around the Town of Florence, including parcels next to and near FCI's property. In 2009, after FCI's predecessor went bankrupt, the foreclosing banks offered a 5,700-acre parcel for sale. Although SWVP submitted a bid on the entire 5,700 acres, it was unsuccessful. SWVP later learned that a holding company and predecessor to FCI purchased 1,200 acres of that parcel in December 2009. Although SWVP attempted to identify the bidder at the time as part of its due diligence, the information was unavailable due to the secret bidding process employed by the foreclosing banks. SWVP subsequently purchased the remaining 4,500 acres of this property out of bankruptcy proceedings, not knowing at the time of purchase that FCI's predecessor intended to revive plans to mine FCI's site. SWVP's land, totaling over 4,000 acres today, is zoned "Planned Use Development" for the Merrill Ranch Master Planned Community, zoning that provides for a mixture of residential and commercial uses. SWVP proposes to develop a master-planned community composed of mixed residential and commercial development.

IV. BACKGROUND

A. The Original UIC Permit and Aquifer Exemption

In 1996, Magma filed an application for a Type III Underground Injection Control permit and aquifer exemption with Region 9 relating to a proposed in situ leach copper mine in an area that was then outside of the municipal boundaries of the Town of Florence.⁴ Magma owned 10,000 acres of mostly open desert surrounding and downgradient of the planned mine area. Because Magma and other mining entities owned most of the area for miles downgradient of the project site, there was little public interest in the 1997 Aquifer Exemption or UIC permit decision. A public hearing on March 6, 1997 was attended by just 37 people, 14 of whom are known to have been associated with BHP, ASARCO, or regulatory agencies.⁵ Only 9 people submitted written or

⁴ EABR Attachment 24, Magma Copper Co., *Underground Injection Control Permit Application and Request for Minor Aquifer Exemption* (January 1996).

⁵ EABR Attachment 3, Region 9 Public Hearing Materials (March 6, 1997).

oral comments, 4 of whom worked for BHP Copper or agencies associated with the project.⁶

The final UIC permit and 1997 Aquifer Exemption were issued less than 2 months after the public hearing to BHP Copper, who had by that time acquired the project site from Magma. The permit allowed BHP Copper to conduct underground injection of an acidic solution for copper extraction at the project site. The aquifer exemption exempted approximately 212 acres of the aquifer underlying the mine site from SDWA protections.⁷

BHP Copper's activities under the permit were limited to an approximately 90-day pilot test involving a single four-spot injection well field.⁸ BHP Copper subsequently sold the property and the UIC permit was transferred to the new owner, Merrill Mining, L.L.C., in December 2001.⁹ Until the 2016 issuance of the UIC permit to FCI for the PTF, no further pilot testing or mining activities had been conducted at this site since 1998.

In 2007, Merrill decided to forego mining at the site in favor of residential and commercial development. Working with the Town, and at Merrill's request, the property was rezoned for residential and commercial use. The Merrill Ranch Master Plan was amended by the Town Council in July 2007 and thereafter became part of the Town's General Plan. The General Plan was approved in the May 2010 vote by 71% of the Town's residents and development has proceeded in compliance with these plans. Today, the Anthem at Merrill Ranch residential community, developed in accordance with the Town's development plans, zoning, and ordinances, stands within 1.5 miles downgradient of FCI's project.

⁶ EABR Attachment 4, Region 9 Response to Comments (April 1997).

⁷ EABR Attachment 2 and 1, Region 9, *Underground Injection Control Program Area Permit No. AZ396000001* (May 1, 1997); *Underground Injection Control Aquifer Exemption for EPA Permit #AZ396000001* (May 1, 1997).

⁸ EABR Attachment 5, BHP Copper letter to ADEQ (April 6, 1998); EABR Attachment 6, Florence Copper Inc., *Underground Injection Control Permit Application*, Attachment A, Exhibit A-1, at 12 (August 7, 2014). FCI, *UIC Permit Application-October 4, 2019*, Exhibit H-3, *NI 43-101 Technical Report Florence Copper Project*, Section 4 at 9.

⁹ EABR Attachment 20, Agreement between Florence Copper Inc. and Merrill Mining, L.L.C. (July 25, 2001); EABR Attachment 21, BHP Copper Letter to Region 9 (July 26, 2001).

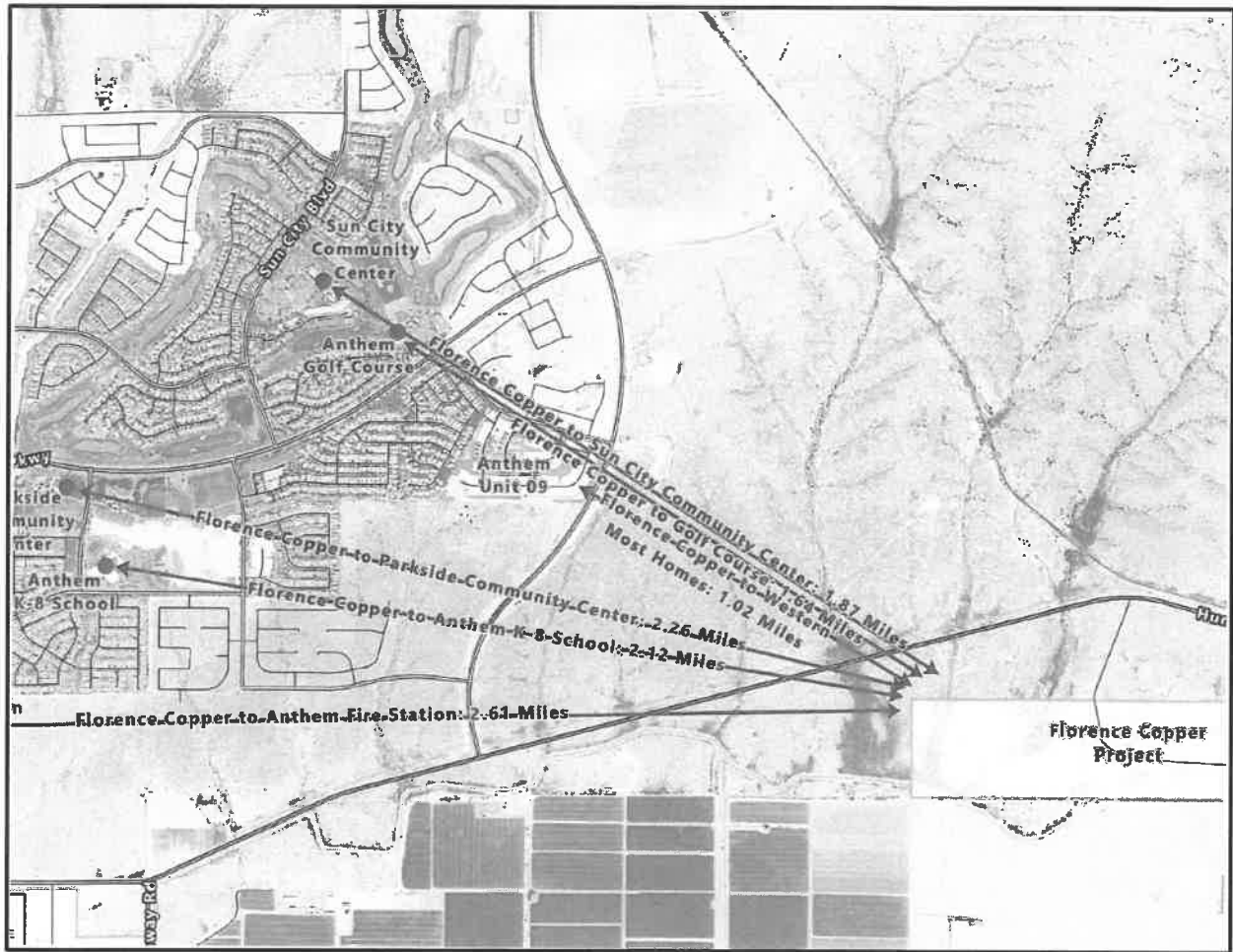


Fig. 01. Distance from FCI to Drinking Water Wells

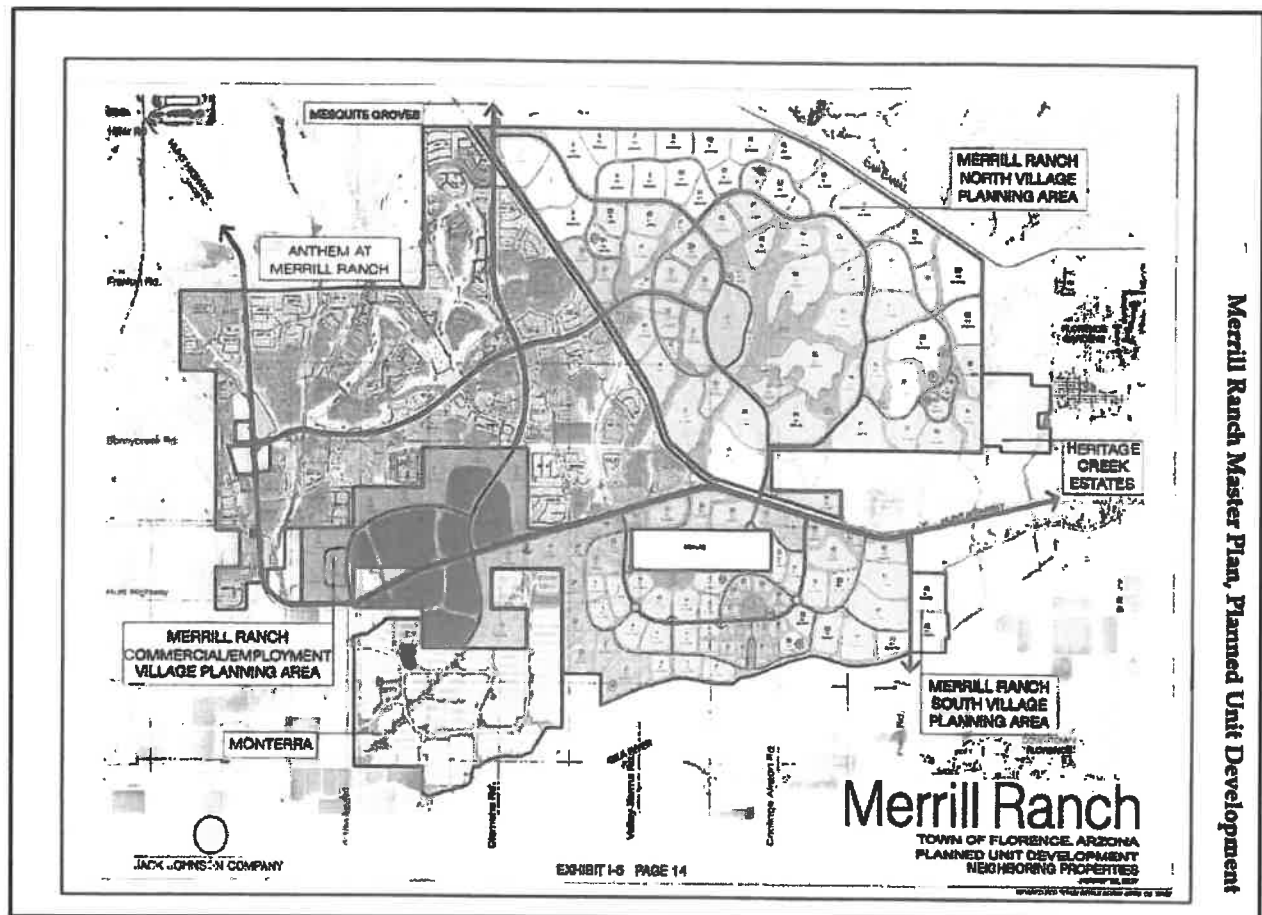


Fig. 02. Merrill Ranch Master Plan

As of February 14, 2020, Pulte Homes has sold 3,339 homes out of total planned development of 8,040 homes. Pulte anticipates a total investment of approximately \$1.6 billion¹⁰. DR Horton has sold 104 homes. Similar significant additional residential developments are planned for the area surrounding FCI's project north of the Gila River.¹¹

¹⁰ The following video link provides insight into the extent of the planned investment by Pulte in this community:

<https://www.delwebb.com/homes/arizona/phoenix/florence/sun-city-anthem-at-merrill-ranch-11846>

¹¹ EABR Attachments 14 and 40, SWVP, Comments to Region 9 re Draft UIC Permit, Appendix H and Figures H-1, H-2 and H-3 (April 10, 2015), EABR Attachment 40, *Affidavit of Phil Turner* (January 19, 2017); EABR Attachment 38, *Affidavit of Justin Merritt* (January 18, 2017).

B. EPA Found That Changed Circumstances Were Relevant to FCI's UIC Permit Application.

In 2009, Merrill declared bankruptcy. U-1 Resources, a holding company and predecessor to FCI, subsequently acquired 1,200 acres of the former BHP Copper property that included the copper ore body, through a sealed bidding foreclosure proceeding. The property included 160 acres owned by the State of Arizona and now leased to FCI. U-1 eventually became Curis Resources, which was acquired by Taseko Mines Ltd. in 2014.¹² Curis Resources changed its name to FCI and Taseko is the parent company of FCI.

FCI sought a transfer of the UIC permit in 2010. Region 9 found that a transfer would be inappropriate, concluding that revocation and reissuance of the UIC permit was necessary because:

“In addition to the information submitted by Curis, EPA has also considered the recent residential development (i.e., Anthem at Merrill Ranch) in the near vicinity of the area currently permitted for mining activity and the construction of several nearby drinking water production wells since the permit was issued in 1997. Due to the substantial lapse in time since the existing permit was issued, the absence of any permitted activity at the site over the last ten years, and the new information regarding residential development in the area, EPA has decided that revoking and reissuing the permit is appropriate.”¹³

Region 9 required that FCI submit a new UIC permit application. Despite acknowledging the significant changes in the area that merited revocation of the 1997 UIC permit, Region 9 did not rescind, revoke, or reopen the 1997 aquifer exemption.

FCI submitted a new UIC application for Region 9's consideration in March 2011. The application was for full-scale commercial operations of an in-situ leach copper mining facility encompassing approximately 212 acres on FCI's

¹² EABR Attachment 38, *Affidavit of Justin Merritt* (January 18, 2017).

¹³ EABR Attachment 17, Region 9, *Letter re Response to Request for Modification and Transfer of UIC Permit* (August 5, 2010).

private land and the State Land lease parcel.¹⁴ Meanwhile, FCI sought zoning changes from the Town of Florence that would allow mining on its privately-held lands. Its first request was withdrawn when it became clear that it would not be approved. In 2011, FCI submitted two separate applications for zoning amendments that would allow mining. Several public hearings were held, with the Florence Town Council ultimately rejecting the request in a unanimous vote.¹⁵

With its zoning changes rejected and proposed mining being illegal on its privately-held property¹⁶, FCI asked Region 9¹⁷ to focus solely on its proposed pilot test of in-situ leach operations, which would be conducted on the State Land lease parcel that was not subject to local zoning laws.¹⁸ It submitted a revised application in December 2013¹⁹ and another revised application the following year,²⁰ both of which were focused on the proposed PTF. Region 9 issued the final UIC permit for PTF operations on December 20, 2016.²¹

¹⁴ EABR Attachment 8, FCI, *Underground Injection Control Permit Application*, Attachment B, at 2 (March 25, 2011).

¹⁵ EABR Attachment 14, SWVP Comments, Appendix H, at H-9 and H-10; EABR Attachment 22, Town of Florence Resolution No. 1324-11 (December 19, 2011).

¹⁶ The Town believes that mining on the property is illegal because in 2007, at the request of the previous property owner, the Town zoned the site as residential and approved a development plan for over 7,000 homes. A court found in 2019 that a previous development agreement between the previous property owner and the Town preserved FCI's right to mine. This issue is pending reviews before the Arizona Court of Appeals, Division One, at case number 1 CV-CV 19-0504.

¹⁷ FCI also applied for a state Aquifer Protection Permit limited to the PTF. ADEQ issued the permit July 2013. The permit was appealed and after a 34 day hearing the Administrative Law Judge recommended to the Water Quality Appeals Board that the permit be revoke. The Board instead remanded the permit to ADEQ with an order that the permit comply with the ALJ's recommendations.

¹⁸ EABR Attachment 9, FCI, *Letter to Region 9 re Application for Modification and Transfer of UIC Permit* (May 24, 2012).

¹⁹ EABR Attachment 23, FCI, *UIC Application* (December 2013).

²⁰ EABR Attachment 6, FCI, *UIC Application* (August 7, 2014).

²¹ EABR Attachment 16, EPA Region 9, *Underground Injection Control Program Area Permit No. R9UIC-AZ3-FY11-1* (December 20, 2016).

PTF operations, which purportedly were to provide data in support of a commercial mining permit, began in December 2018. But just halfway through the planned 14-month life of the PTF injection mining program, FCI submitted a UIC application to amend the PTF permit so as to allow for full commercial operation of the mine site.²² EPA rejected the amendment request, directing FCI to submit an application for a new UIC permit.²³ FCI subsequently submitted an application for a new UIC permit to cover commercial operations at the site.²⁴ FCI relies upon the 1997 aquifer exemption in its most recent permit application.²⁵

With the application for a full scale commercial mining UIC permit pending, it is imperative that EPA consider the growth that has and continues to occur around the Town, the growing dependence on the aquifer and the need for the development and installation of new drinking water wells in that aquifer.²⁶

C. Hydrogeology

Hydrogeologic strata in the Florence area can generally be divided into the Upper Basin Fill Unit (UBFU), Middle Fine Grained Unit (MFGU), Lower Basin Fill Unit (LBFU), and bedrock comprised of an Oxide Bedrock Zone and Sulfide Bedrock Zone.²⁷ The water table surface lies within the UBFU, but drinking water wells are not screened in the UBFU due to elevated nitrates, Total Dissolved Solids, and other contaminants. Local drinking water wells are screened in the LBFU, which supplies high-quality groundwater water suitable for drinking water.²⁸ The LBFU extends over and downgradient of the Oxide Bedrock Zone targeted by FCI and is hydrologically connected to the Oxide Bedrock Zone, with no hydrogeologic barriers between the two. In fact, just downgradient of the PTF well field, the Oxide Bedrock Zone drops off and the LBFU becomes much

²² FCI, *UIC Permit Amendment Application* (August 2, 2019).

²³ EPA, *Letter to FCI re Administratively Incomplete UIC Permit Application* (Sept. 5, 2019).

²⁴ FCI, *UIC Permit Application* (Oct. 4, 2019).

²⁵ *Id.*, Attachment H.

²⁶ See Cover Letter, Fig. 03, Potential Well Locations.

²⁷ FCI, *UIC Permit Application*, Attachment B, Section B.2 (Oct. 4, 2019).

²⁸ EABR Attachment 13, Town of Florence, *Comments to Region 9 re Draft UIC Permit*, attached Letter from Southwest Ground-water Consultants, Inc. re Summary of Previous Work Completed for the Town of Florence, at 1-2 (April 10, 2015).

deeper, forming an ideal location for future drinking water production wells.²⁹ In fact, the Town is currently seeking funding assistance from the Water Infrastructure Finance Authority of Arizona for the construction and installation of a drinking water production well and associated infrastructure. The ideal location for this well is adjacent to and just west of the mine's boundary. Lateral movement of contaminants from the mine will readily reach this aquifer and jeopardize the safety of this planned production well.

The LBFU is the only feasible source of drinking water for the growing town of Florence. No other safe and economic sources of water are currently available. Contamination of this aquifer would be devastating to the Town and its residents.

Arizona has been in a drought for the better part of 16 years. FCI's proposed mine is located in an arid, desert region of the State, surrounded by booming residential, commercial and industrial development, and local historical and current agricultural and ranching communities that are all dependent on the groundwater. The State recognizes the precarious status of its groundwater resources and has emphasized the desperate need to conserve and preserve those limited groundwater resources. So much so, that Arizona established the Pinal Groundwater Task Force to study the supply of groundwater and renewable water supplies in the county.

Arizona's director of water resources, Tom Buschatzke, recently stated, that "Groundwater supplies have helped Pinal County grow its economy and its agricultural industries, while meeting the water needs of hundreds of thousands of residents every day. But groundwater supplies are finite and we have work to do to ensure that this precious resource remains reliable for years to come."

* * *

"Unlike surface water, such as the Colorado River, groundwater aquifers can take hundreds, even thousands, of years to fill."

* * *

²⁹ EABR Attachment 38, Affidavit of Dr. Lee Wilson, Exhibit D (January 18, 2017); EABR Attachment 6, FCI Application, Attach. D-Maps & Cross Sections of USDWs, Fig. D-1, D-2, and D-3; EABR Attachment 14, SWVP, *Comments to Region 9 re Draft UIC Permit*, Attachment F, at F-17, Figure F-4 (April 10, 2015).

“Continuing to provide the high quality of life Pinal County residents know and love will require renewed collaboration among all water users in the region.”³⁰

In 1980, Arizona had the foresight to pass a comprehensive groundwater management law³¹ (“Groundwater Act”) which, in part, imposes limits on groundwater pumping in certain areas of the state. Pinal County is subject to that Groundwater Act. With groundwater pumping limits in place, the need for domestic and agricultural water was supplemented with surface water diverted from the Colorado River through the Central Arizona Project. However, in 2019, Arizona entered into the Drought Contingency Plan,³² which now limits the amount of available surface water from the Colorado River delivered to Pinal County. The expected result is that more groundwater wells will be installed in Pinal County to help sustain both domestic and agricultural needs in the area.

Considering the continuing depletion of the drinking water aquifer in Pinal County, allowing Florence Copper to inject sulfuric acid into an area, the aquifer exemption, as large as the one granted to FCI and allowing contaminants to be injected and/or migrate into the lower 200 feet of the LBFU, the drinking water source, is unfathomable. So, not only is the community of Florence at risk for running out of drinking water, but it is also at risk for its remaining drinking water to be contaminated by mining pollutants.

With a finite amount of groundwater and with the potential for loss of hydraulic control, the risk to the Town's drinking water rises exponentially. In implementing the 2019 Drought Contingency Plan, it is expected that farmers will resort to increased groundwater pumping³³. Increased pumping may affect FCI's ability to maintain hydraulic control of those contaminants. Because it is incumbent on EPA to consider the future uses of the aquifer³⁴, EPA must also

³⁰ Buschatzke: Pinal County's Water Future Requires Local Solutions Today, Pinal Central (Oct. 9, 2019).

³¹ 1980 Groundwater Management Act of Arizona.

³² Colorado River Drought Contingency Plan (May 20, 2019), available at <https://www.usbr.gov/dcp/docs/final/Attachment-B-LB-DCP-Agreement-Final.pdf>.

³³ Ian James, *In Pinal, Groundwater Insufficient to Meet Long-term Projected Demands, Officials Say*, The Republic/azcentral.com (Oct. 12, 2019).

³⁴ 40 C.F.R. § 146.4(b).

naturally consider the effect increased pumping will have on FCI's ability to maintain hydraulic control.

V. EPA HAS AUTHORITY AND REASON TO REVIEW THE 1997 AQUIFER EXEMPTION.

EPA administers the UIC program in Arizona, which became effective on June 25, 1984.³⁵ The designation and approval of an aquifer exemption represents a change to the federally-administered UIC program for Arizona that is subject to notice and an opportunity for public hearing, like any other rule-making.³⁶ And Petitioners have the right to request amendments of the Arizona UIC program under the Administrative Procedure Act.³⁷

EPA has argued previously that the 1997 aquifer exemption is a distinct regulatory action, separate and apart from any UIC permit for the Florence Copper project.³⁸ The Environmental Appeals Board agreed with that position, finding that it had no jurisdiction to review the 1997 aquifer exemption through a UIC permit challenge.³⁹ EPA argued that the appropriate venue to request review of the 1997 aquifer exemption is through a petition to EPA⁴⁰, and reiterated that position during the November 22, 2019 phone conference with the Town.

³⁵ 40 C.F.R. § 147.151; EPA, *Underground Injection Control Program, Federally-Administered Programs*, 49 F.R. 20138 (May 11, 1984).

³⁶ 40 C.F.R. § 144.7; *see also* EPA, *Underground Injection Control Program: Federally Administered Programs, Proposed Rule*, 48 Fed. Reg. 40,098, 40,108 (Sept. 2, 1983) (federally-administered UIC programs should treat aquifer exemptions as a rulemaking process and follow rulemaking procedures).

³⁷ 5 U.S.C. § 553(e).

³⁸ EABR, Index of Filing #12, *In re: Florence Copper, Inc.*, EAB Appeal No. UIC 17-03, *Region 9 Response to Petition for Review*, at 13-15 (April 7, 2017) ("Class III permits are a distinct agency action from determinations on aquifer exemptions."); EABR Attachment 4, EPA, *PTF Permit Response to Comments*, at 14 (Dec. 20, 2016).

³⁹ EABR, Index of Filing #28, *In re: Florence Copper, Inc.*, UIC Appeal Nos. UIC 17-01 & 17-03, *Order Denying Review* (Sept. 22, 2017).

⁴⁰ *See, e.g.*, EABR, Index of Filing # 26 and #27, *In re: Florence Copper, Inc.*, UIC Appeal Nos. UIC 17-01 & 17-03, *Oral Argument Transcript*, at 111-114 (July 27, 2017).

The SDWA and UIC regulations do not require re-examination of aquifer exemptions, but neither do they prohibit it. Public policy underlying the SDWA and USEPA past practice demonstrates that reevaluation of aquifer exemptions due to changed conditions is expected. The SDWA requires protection of underground sources of drinking water from any endangerment generated by underground injection.⁴¹ Logically, that would include endangerment caused by circumstances and conditions that were unforeseen when an exemption was originally issued. In fact, USEPA clearly indicated in promulgating the UIC regulations that changes to aquifer exemptions were expected:

The Director [of a state UIC program] may exempt aquifers as part of the State program he submits to EPA for approval. Therefore, the designations, by the nature of the process, are subject to public hearing and comment as well as the review and approval of EPA. The Director is free to change the designations or add to them at a later date. Such a change, however, would constitute a major modification of the approved State program and, as a major modification, is subject to public hearing and comment, as well as EPA review and approval.⁴²

Furthermore, USEPA has reevaluated aquifer exemptions at other sites to address new issues and concerns. At the Church Rock, New Mexico uranium in-situ leach project owned by Hydro Resources, Inc., EPA Region VI reopened its 1989 approval of an aquifer exemption for the site, seeking additional information on drinking water wells in the area.⁴³ More recently, EPA Region 9 undertook review of California's aquifer exemptions for Class II oil and gas wells. The review "raised questions about the alignment of Class II injection wells with approved aquifer exemption boundaries." EPA then began "a broad review of Class II injection in the State to ensure that wells have been

⁴¹ 42 U.S.C. § 300h(b)(3)(C) ("nothing "shall be construed to alter or affect the duty to assure that underground sources of drinking water will not be endangered by any underground injection.").

⁴² USEPA, *Final Rule for Part 146 and Amendments to Part 122*, 45 Fed. Reg. 42472, 42481 (June 24, 1980). Although EPA was here speaking of changes to State-delegated programs, the same would logically apply to programs managed by EPA itself.

⁴³ EABR Attachment 35, William K. Honker, USEPA Region VI, *Letter to New Mexico Environmental Law Center* (June 27, 2012).

appropriately authorized to inject within the aquifer exemption boundaries approved by the EPA.” After finding that injection had been authorized into non-exempt aquifers containing high quality water and finding water supply wells near injection wells, California ordered certain operators to cease injection and to provide data to assess threats to human health and groundwater quality.⁴⁴ Proposals from California to modify its state program through EPA approval of new or amended aquifer exemptions continue to be processed.

Significantly changed circumstances, including new and planned drinking water wells in what is now a major residential development surrounding the exempted area and increased groundwater pumping due to 2019 changes in Arizona’s groundwater management, warrant re-examination of EPA’s 1997 exemption decision. No reasonable basis exists to leave a 22-year old aquifer exemption in place, especially one that allows contamination in what is clearly an existing and future drinking water source, the LBFU. Moreover, numerous apparent discrepancies and shortcomings in the original approval of the 1997 aquifer exemption make clear that the decision to exempt this aquifer was arbitrary and capricious. Region 9 has ample basis to revisit the 1997 aquifer exemption and full authority to do so.

The 1997 aquifer exemption failed to meet applicable regulatory criteria at the time the decision was made. The exemption is even more inappropriate today due to significant changes⁴⁵ in the area that impact the technical evaluation Region 9 undertook more than 22 years ago. EPA should repeal the 1997 aquifer exemption and require a new exemption application. It should then reevaluate the basis for and extent of the exemption under applicable regulatory criteria. In doing so, Petitioners believe it will become clear that an exemption in this area would be illegal, technically indefensible, and against public policy.

Leaving the 1997 aquifer exemption in place contradicts the SDWA’s purpose because it favors mining over protecting drinking water supplies. This nearly quarter-century old decision holds a vitally important regional aquifer

⁴⁴ Jared Blumenfeld, Region 9 Regional Administrator, Letter to California EPA (July 17, 2014).

⁴⁵ See Section III.C, Hydrogeology, for further discussion regarding the Arizona drought conditions impacting the changed circumstances which necessitate a revocation of the Aquifer Exemption Permit.

hostage to speculative mining proposals that may never be fully pursued. It is untenable for Region 9 to ignore the drinking water needs of a burgeoning town in reliance on a flawed administrative decision that was legally and technically incorrect when made and is indefensible today.

VI. CHANGED CIRCUMSTANCES WARRANT REVOCATION OF THE 1997 AQUIFER EXEMPTION.

The LBFU underlying and downgradient of the proposed mine is a USDW that cannot be exempted because it currently serves as a source of drinking water and will serve as a drinking water source in the future.⁴⁶ Region 9 exempted a large swath of the aquifer, including a portion of the LBFU, from SDWA protections in 1997⁴⁷ primarily because the aquifer at the project site and for miles downgradient was not then a source of drinking water and there were no suggestions at the time that it would become a future source. Conditions in the last 22 years have changed dramatically. Unlike its predecessor at the site, FCI no longer owns thousands of acres and many square miles of open desert downgradient of the exemption area—it owns just a few hundred acres immediately surrounding the mine site that are now within the Town’s municipal boundaries. The area around the mine site and downgradient of the exempted area is a growing residential community. The LBFU is the primary source of drinking water for that growing community. The area at and around FCI’s project is planned for production drinking water wells in the future that will draw water from the LBFU. Given these changed circumstances, EPA should revoke the 1997 aquifer exemption.

A. The 1997 Aquifer Exemption is based on circumstances that no longer exist.

When Magma submitted its application for the 1997 aquifer exemption in January 1996, the site was not within an incorporated municipality and the closest residential development hydrologically downgradient (to the north, northwest, and west) of the project site was approximately 10 miles away. Magma controlled almost 10,000 acres, much of it downgradient of the project

⁴⁶ 40 C.F.R. § 146.4. See Cover Letter, Fig. 03, Potential Well Locations.

⁴⁷ The 1997 approval was deeply flawed and the decision was arbitrary and capricious, as detailed elsewhere in this petition.

site.⁴⁸ Within Magma's proposed exemption boundary, there were only 2 private landowners (Magma and ASARCO, Inc., another mining company) and no wells of any type. The State Land Department owned land leased by Magma within the exemption boundary, but there were no wells on that land. An irrigation district operated 2 irrigation wells within the exemption boundary, but those wells were to be moved before operations began.⁴⁹ The nearest property not owned by Magma, ASARCO, or the State Land Department was nearly three miles downgradient.⁵⁰ Thus, Magma could state with confidence that the downgradient area adjoining the project site would not be used as a future drinking water source:

Magma controls the uses of the water within the proposed boundary. The project site and the few homes associated with Magma's drilling and farming operations use imported bottled water and not well water for drinking due to excessive nitrate⁵¹ levels in the water. The area will not be used for drinking water in the future as Magma owns or controls the land.⁵²

Region 9 relied on these conditions in approving the 1997 Aquifer Exemption. It had no concern about then-current or future drinking water sources because there were no drinking water wells that would be impacted by mining in 1997. Nor could drinking water wells be constructed downgradient during the life of the proposed mine because Magma owned everything for miles downgradient, a fact clearly relied upon by Region 9:

⁴⁸ EABR Attachment 24, Magma Copper Company, *Underground Injection Control Permit Application, Form 4 and Request for Minor Aquifer Exemption*, Vol. 1, at 2-2 (January 1996) ("Use of irrigation wells that could potentially interfere with leaching operations will either be closed or relocated to other areas of Magma's 10,000-acre property.") (emphasis added).

⁴⁹ *Id.* Magma Application, at 2-5, § 2.3.5.

⁵⁰ EABR Attachment 25, Magma Copper Co., *Underground Injection Control Permit Application*, Sheet 1.1-1(I), Florence Project Area Map (depicting Magma's then-current landownership).

⁵¹ Nitrates are located in the Upper Basin Fill Unit; not in drinking water aquifer, the LBFU.

⁵² *Supra*, Magma Copper Company, *Underground Injection Control Permit Application, Form 4 and Request for Minor Aquifer Exemption*, Vol. 1, at 2-2 (January 1996).

There are no drinking water wells, public or private, downgradient from the mine site. Future downgradient wells are also controlled as BHP Copper owns about 2-3 miles of land to the north and west (downgradient) of the site.... Due to the location of the proposed site and the location of the existing wells, even with no controls, impacts to existing drinking water wells would be highly unlikely.⁵³

B. The Regional LBFU is today a drinking water source.

Magma's 10,000 acres were sold off in various parcels years ago. FCI's property is now inside the municipal limits of the Town of Florence, which, at the private property owner's request, has annexed most of Magma's former landholdings. FCI owns and leases less than 1,350 acres around its proposed project site, of which about 212 acres contains recoverable ore under FCI's proposal. That land is now zoned for residential and commercial uses, prohibiting mining. Privately-owned land targeted for residential and commercial development is less than one-quarter mile downgradient and a major residential development has already been built about a mile downgradient.⁵⁴

The only practical source of drinking water for this existing and planned development is groundwater from the LBFU. Regionally, drinking water wells have already been constructed in the LBFU and within Magma's former landholdings to service homes and business constructed in the last 10 to 15 years. The Town of Florence projects drinking water demand to increase significantly over the next few decades. The water needed to satisfy this demand will be withdrawn from the Town's four existing wells and numerous new wells proposed for the area. These proposed new wells, some planned for locations immediately adjacent to the projected mine site, will withdraw water from the LBFU.⁵⁵ The owners of the Merrill Ranch development also plan to construct

⁵³ EABR Attachment 26, Region 9, *Memorandum re Request to issue a UIC permit and aquifer exemption to BHP Copper* (April 30, 1997).

⁵⁴ See Fig. 02, Merrill Ranch Master Plan, *supra* at 10.

⁵⁵ See Cover Letter, Fig. 03, Potential Well Locations.

numerous drinking water wells just to the west and downgradient of FCI's project site.⁵⁶

This new pumping will have significant impacts on and will be impacted by FCI's ability to maintain hydraulic control, contain contaminants, and restore aquifer conditions at closure. The impact of nearby production wells was so obvious that Magma promised that San Carlos Irrigation Project irrigation wells operating at the mine site would be abandoned before operations began.⁵⁷ It is a matter of public record that as of March 2019 the abandonment of those wells has not occurred.⁵⁸

The deep section of LBFU sediments immediately west of FCI's ore body is a prime location for future water supply wells. As Florence and the surrounding areas grow, as farmers continue their dependence on the aquifer, as drought conditions in Arizona continue, existing well fields are projected to dry up and demand will outstrip existing well volumes, mandating new pumping in and around FCI's project. These undisputed facts demonstrate that the regional LBFU is a current drinking water source and the LBFU directly around the project site is a future drinking water source that cannot be exempted from SDWA protections.

C. Changed Conditions Required a New UIC Permit Application and Should Similarly Require a Reconsideration of the 1997 Aquifer Exemption.

In 2010, when FCI sought a transfer of BHP Copper's UIC permit Region 9 found that a transfer would be inappropriate because of the significant changes in circumstance: the residential development, the installation of drinking water

⁵⁶ EABR Attachment 14, SWVP Comments, Attachment H, Figure H-4.

⁵⁷ EABR Attachment 24, Magma Application, at 2-2, Section 2.2.2 ("Use of irrigation wells that could potentially interfere with leaching operations will either be closed or relocated to other areas of Magma's 10,000-acre property.").

⁵⁸ Ferris E. Begay, San Carlos Irrigation Project Manager, *Letter to Ronnie Hawks re Feb. 1, 2019 FOIA Request* (Mar. 26, 2019) ("The aforementioned wells continues to be operated and maintained by the BIA as part of the San Carlos Irrigation Project.").

production wells, the lapse in time since the permit was issued, and the absence of mining activity.⁵⁹

Although Region 9 required that FCI submit a new UIC permit application because of the significant changes in the area that merited revocation of the 1997 UIC permit, EPA let stand the now 22-year-old aquifer exemption that supported the now-revoked 1997 UIC permit. But EPA's reasoning for revoking the 1997 UIC permit applies even more strongly to the aquifer exemption, as the entire purpose of the UIC program and the SDWA is to protect limited groundwater resources. Vastly different conditions in the surrounding area and the threat to groundwater resources posed by FCI's proposal makes clear that no basis exists for continuing the 1997 aquifer exemption for either the PTF or the proposed full-scale mining project.

VII. THE AQUIFER EXEMPTION DECISION WAS ARBITRARY, CAPRICIOUS, TECHNICALLY INDEFENSIBLE, AND ILLEGAL IN 1997 AND IS NO MORE DEFENSIBLE TODAY.

As explained above, the aquifer exemption should be revoked. But if EPA is unwilling to take that step, it should at least review and revise the exemption to better protect drinking water supplies, comply with applicable legal standards, and make the exemption technically defensible.

A. Legal Standards

Applicable statutes and regulations prohibit any injection into an aquifer that "allows the movement of fluid containing any contaminant into underground sources of drinking water" if the presence of that contaminant will violate primary drinking water standards or adversely affect human health.⁶⁰ EPA already has found that the aquifer under FCI's proposed mine was, prior to the 1997 aquifer exemption, a USDW because TDS is well below 10,000 mg/L in and above the mining zone.⁶¹

⁵⁹ EABR Attachment 7, Region 9, *Letter re Response to Request for Modification and Transfer of UIC Permit* (August 5, 2010).

⁶⁰ 42 U.S.C. § 300h(d)(2); 40 C.F.R. §§ 144.1(g), 144.12(a).

⁶¹ 40 C.F.R. § 146.3; EABR Attachment 29, EPA, *Statement of Basis for a Draft Permit and Proposed Aquifer Exemption, BHP Florence Project*, at 7 (Feb. 1997).

There is no dispute that the activities under the PTF UIC permit and the proposed full scale mining permit have the potential to impact the LBFU, which supplies a public water system today and contains a sufficient quantity of ground water to supply a public water system in the future. Indeed water in the LBFU is potable and fully useable for public water supply purposes. SDWA protections include a prohibition on “underground injection which endangers drinking water sources.”⁶² To issue a Class III UIC permit to inject acid in-situ leach solutions into the aquifer, Region 9 must also issue a defensible exemption from SDWA protections for the aquifer or a portion of the aquifer impacted by the project.⁶³

To exempt an aquifer or portion of an aquifer from SDWA protections, Region 9 must determine that:

- the aquifer does not currently serve as a source of drinking water; and
- the aquifer cannot now or will not in the future serve as a source of drinking water because the aquifer:
 - is mineral producing;
 - is situated too deep to make recovery economically or technologically practical;
 - is too contaminated to be used for human consumption;
 - is located over an area subject to subsidence of collapse; or
 - contains totals dissolved solids at proscribed levels and is not reasonably expected to supply a public water system.⁶⁴

The 1997 AE was issued “in conjunction with” the Class III UIC permit issued to BHP Copper for mineral extraction, and was thus issued under 40 C.F.R. § 146.4(b)(1).⁶⁵

If this were a new mining project seeking an initial aquifer exemption, it would be considered a “complex aquifer exemption request” because the

⁶² 42 U.S.C. § 300h(b)(1).

⁶³ 40 C.F.R. § 146.4.

⁶⁴ 40 C.F.R. § 146.4.

⁶⁵ 1997 Aquifer Exemption; *Supra*, EPA, *Statement of Basis for a Draft Permit and Proposed Aquifer Exemption, BHP Florence Project*, at 7 (Feb. 1997).

proposed exempted area is next to and includes a USDW that is currently in use by the residents of the Town of Florence.⁶⁶

B. Exempting a Portion of the LBFU Was Illegal and Technically Indefensible.

The facts and law applicable to FCI's project make clear that there was no defensible legal or technical basis for the 1997 Aquifer Exemption in 1997 and none exists today. Moreover, FCI has committed to ADEQ and EPA to fully control its contamination within the oxide zone, such that an escape of pollutants to the LBFU would represent a violation of applicable permits and a failure of FCI to properly operate the project. An aquifer exemption that includes any part of the LBFU is only appropriate if EPA takes the position that, despite permit requirements and FCI's commitments, it is reasonable to expect that FCI will not comply with its UIC permit or EPA will not enforce the permit, such that contamination of the LBFU is inevitable.

1. *The LBFU is not mineral producing.*

Region 9 maintains today that it exempted a large portion of the LBFU in 1997 because it is mineral producing.⁶⁷ But the LBFU contains no producible minerals, only good-quality groundwater relied upon by the Town of Florence and its residents.

Neither BHP Copper nor FCI asserted that the LBFU is mineral producing. Magma originally requested an exemption only for the ore body⁶⁸ and never asserted that the LBFU contained commercially producible copper. In its 2014 UIC application, FCI asserted there was no change in "aquifer conditions or planned operations" that would require the 1997 AE to be rescinded or modified

⁶⁶ EABR Attachment 27, Peter Grevatt, OGWDW Director, *Memorandum re Enhancing Coordination and Communication with States on Review and Approval of Aquifer Exemption Requests Under SDWA*, at 2 (July 24, 2014).

⁶⁷ 40 C.F.R. § 146.4(b); EABR Attachment 12, Region 9, Statement of Basis, at 14 (December 2014).

⁶⁸ EABR Attachment 24, Magma Copper Company, *Underground Injection Control Permit Application, Form 4 and Request for Minor Aquifer Exemption*, Vol. 1, at 2-2 and Fig. 2.1-1 (January 1996).

(ignoring changes in local land use that merited rescission).⁶⁹ FCI also cited to its economic assessment of the project for a delineation of the in-situ copper recovery zone. That document stated that the “source of copper for this process is an oxidized copper mineralized body that is covered by 370 to 410 feet of alluvial sediments.”⁷⁰ The LBFU is part of that alluvial sediment layer-not the oxidized copper mineralized body.⁷¹ Because the LBFU contains no producible copper, EPA’s own regulations do not allow it to be exempted from SDWA protections.

FCI has committed to begin injecting a full 40 feet below the interface between the LBFU and oxide zone, to help prevent the release of injected contaminants into the LBFU. This would not have been necessary or warranted if the LBFU contained producible copper or if the LBFU was not a drinking water supply. If, as FCI asserts, injected contaminants will be contained within the oxide zone with the help of the 40-foot exclusion zone, then no reason exists to exempt any part of the LBFU.

⁶⁹ EABR Attachment 19, *FCI, Application to Amend UIC Permit No. AZ396000001*, Attachment S, at 2 (August 7, 2014). FCI maintained that position in its 2019 UIC application. *FCI, Underground Injection Control Permit Application*, Attach. H, at H-2 (October 4, 2019) (“Florence Copper is not aware of any facts contrary to the criteria stated in 40 C.F.R. § 146.4(a) or (b)(1) with respect to the Aquifer Exemption.”).

⁷⁰ *FCI, Application to Amend UIC Permit No. AZ396000001*; Attachment S, Exhibit S-2, *NI-403 Technical Report Pre-Feasibility Study*, at 184 (March 28, 2013).

⁷¹ EABR Attachment 38, *Affidavit of Dr. Lee Wilson* (January 18, 2017); *See also* *FCI, UIC Permit Application-October 4, 2019*, Exhibit H-3, *NI 43-101 Technical Report Florence Copper Project*, at 7 (“The saturated geologic formations underlying the Florence Copper site have been divided into three distinct water bearing hydrostratigraphic units referred to as the UBFU, LBFU, and the Bedrock Oxide Unit. The Bedrock Oxide Unit is the hydrologic designation of the porphyry copper oxide mineralized body. The UBFU and LBFU are separated, in the area of the FCP, by an aquitard material referred to as the Middle Fine Grained Unit (“MFGU”). The Bedrock Oxide Unit is underlain by the Sulfide Unit, which is effectively impermeable. Each of these units generally corresponds to regionally extensive hydrostratigraphic units described by the Arizona Department of Water Resources.”).

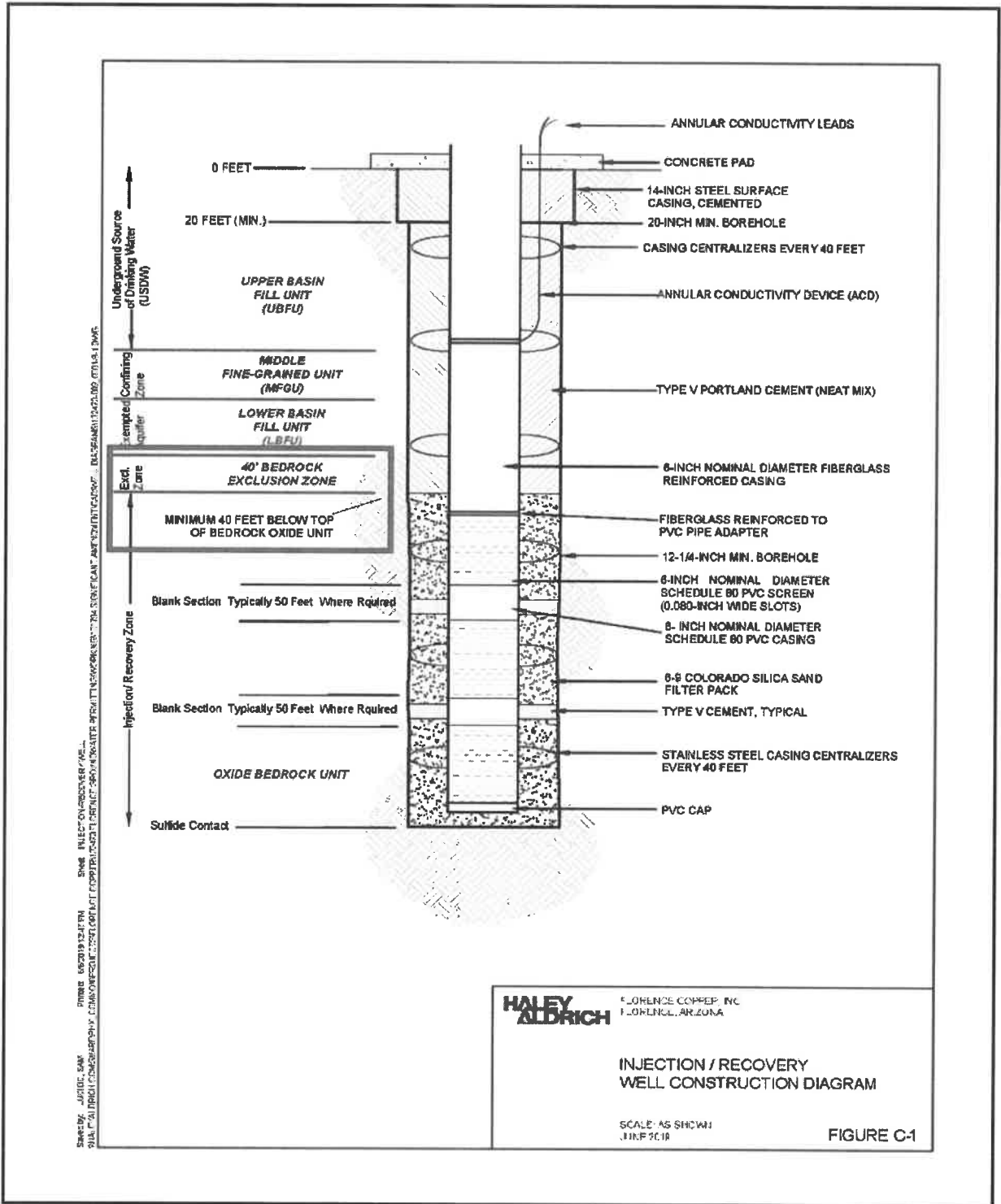


Fig. 03. Injection Well Construction, FCI UIC Permit Application (Oct. 4, 2019)

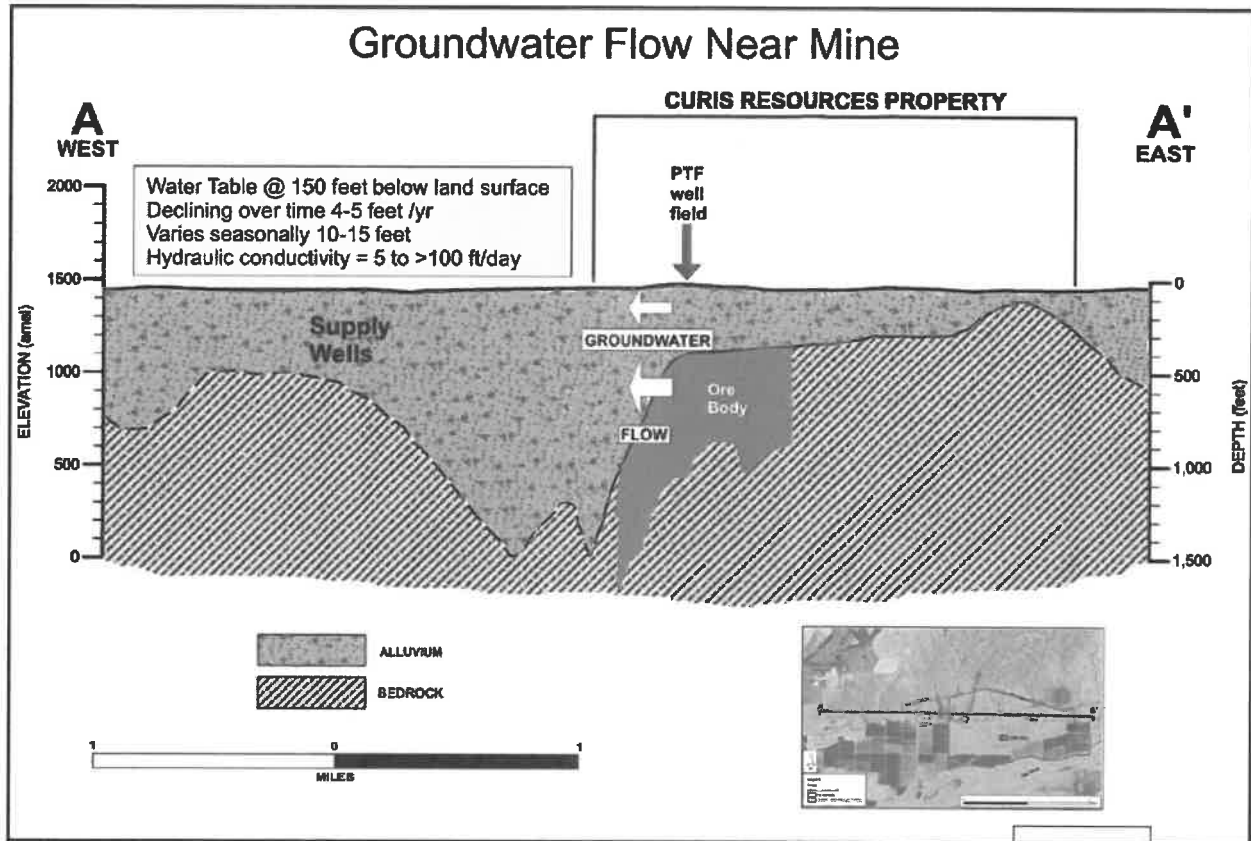


Fig. 04. Groundwater Flow Near Mine, from Work Session with Florence Council, at 27 (August 2, 2010)

Although no legal basis exists for exempting the LBFU, there is ample reason to protect it. As Figure – shows, if FCI loses control of injected contaminants, lateral flow can quickly transport contaminants into the LBFU.

2. A Hydrologic Connection Between the LBFU and Oxide Zone is More Reason to Protect the LBFU, not Exempt It.

No producible minerals exist in the LBFU that would justify an exemption under 40 C.F.R. § 146.4(b)(1). But EPA has asserted that it was correct to exempt a portion of the LBFU because it is part of the same “aquifer” as the Oxide Zone, where producible copper does exist. EPA’s position actually argues for more protection for the LBFU, not less.

Although the LBFU and Oxide Zone are hydrologically connected, EPA has never explained how that fact justified exempting the LBFU under applicable regulations. Nor has EPA explained why or how this supports drawing a line 200 feet into the LBFU as opposed to any other place. And certainly Region 9 has

never cited to anything in the administrative record for the 1997 AE decision to support its decision.

Where the injection zone and a drinking water aquifer are hydrologically connected, EPA's default position should be that an exemption is inappropriate. Recent California guidance on whether proposed injection will affect current or potential future beneficial uses of water states that if "there is an aquifer that is currently being used, or could be used for beneficial purposes in the area where there may be a hydrologic connection to the injection zone, and the injection could have an impact on this or other beneficial uses, the State will not pursue an aquifer exemption. Demonstration of a lack of hydrologic connection is critical to pursue an aquifer exemption."⁷² EPA has approved California's approach and Arizona groundwater supplies deserve no less protection.

Instead of forming a basis to exempt the LBFU, the hydrologic connection to the Oxide Zone where mining contaminants will be injected should be considered a strong reason to protect the LBFU. FCI is providing an exclusion zone in their mine plan, which demonstrates that they agree with the need to protect the LBFU, not mine it. Nonetheless, with even minor loss of hydraulic control, mining contaminants can easily flow from the Oxide Bedrock Zone into what historically has been, is now and continues to be a drinking water source. EPA should be using that fact to protect the LBFU for current and future water use. Using the hydrologic connection to instead expand an exemption from SDWA protections places mining interests over drinking water needs, with no legal basis or technical justification for doing so.

⁷² State of California Division of Oil, Gas, and Geothermal Resources and the State Water Resources Control Board, *Aquifer Exemption Process Guidance Document*, at 4 (April 10, 2015). This guidance was part of the State's revisions to its delegated UIC program, which EPA has approved and which became final April 1, 2019.

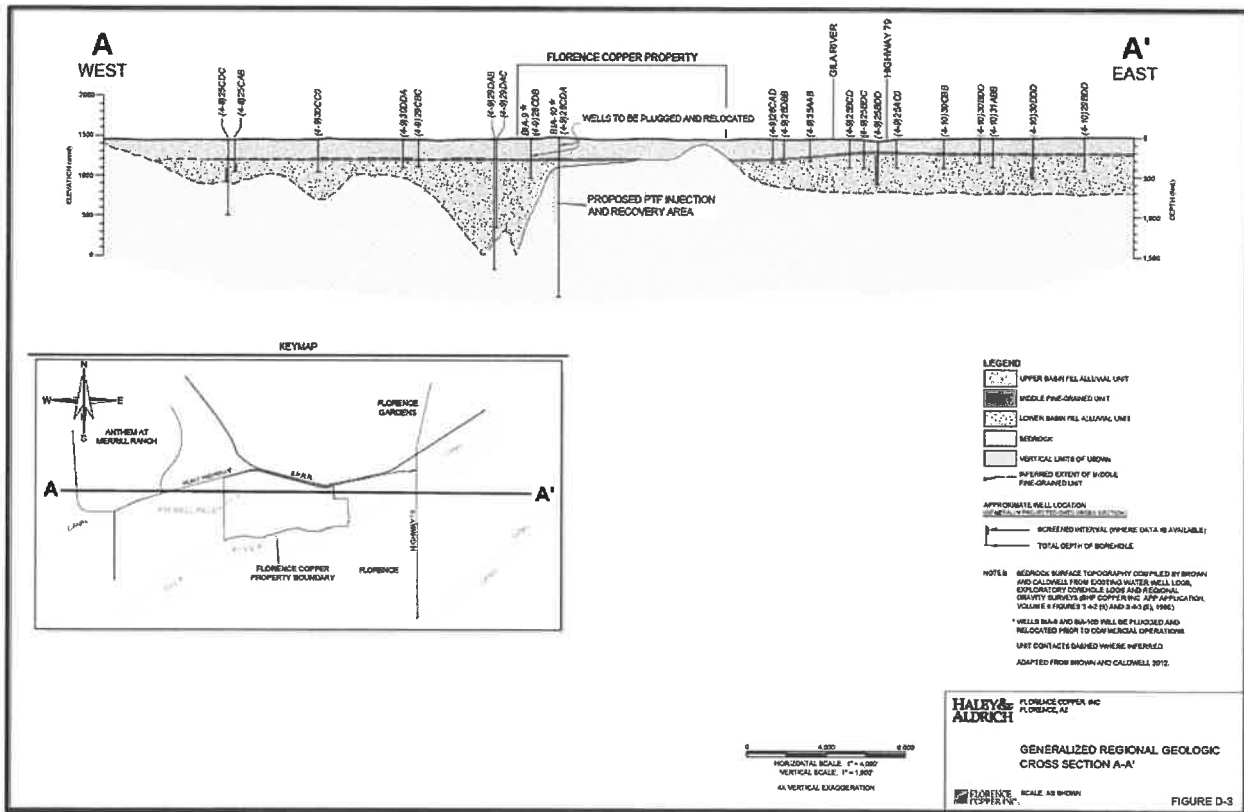


Fig. 05. Cross-Section Across FCI Property, Depicting USDW Directly Above Ore Body, from FCI UIC Permit Application, Attachment D (Dec. 2014)

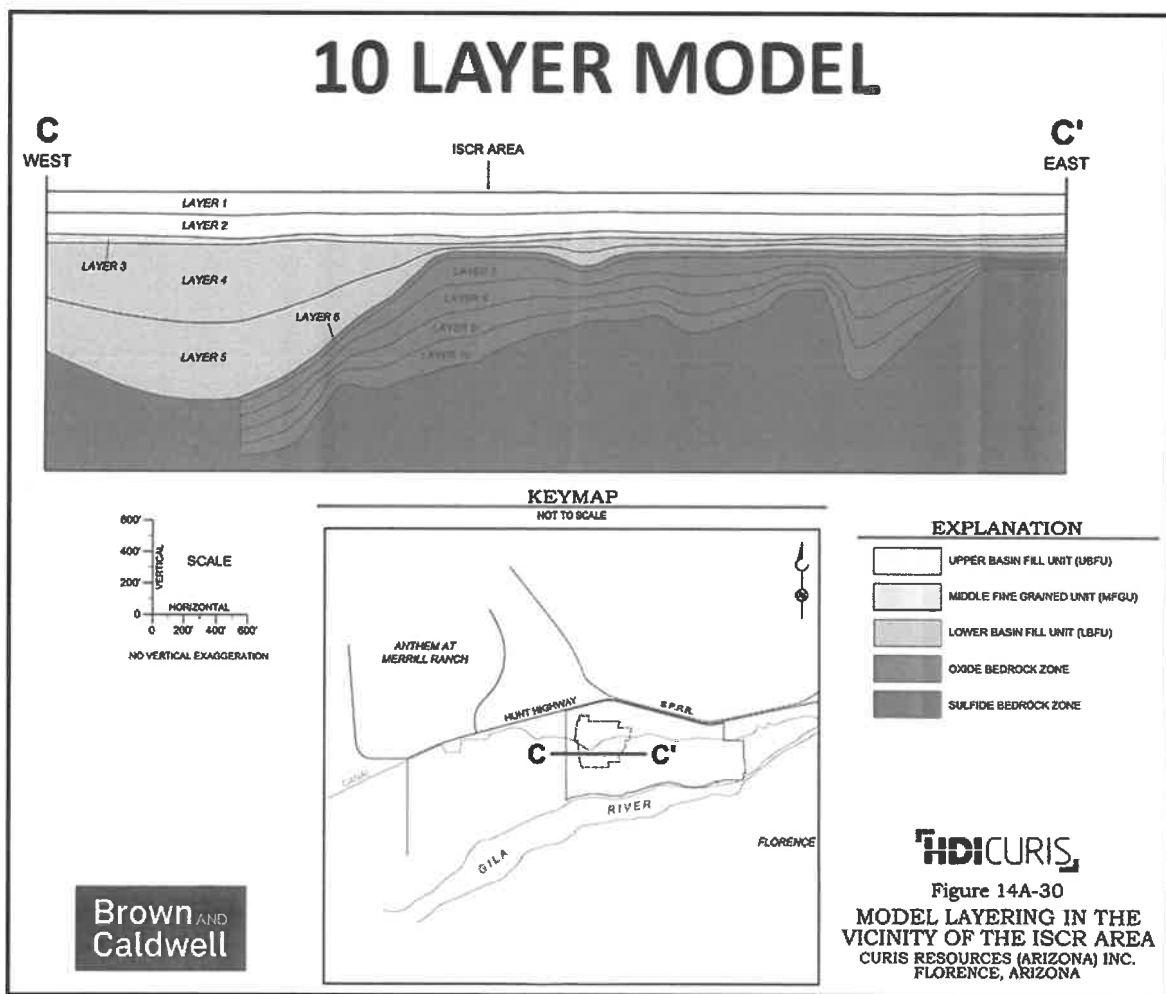
3. EPA's Position Lacks Support in the Administrative Record.

The record for the 1997 aquifer exemption decision and FCI's permit applications also undercut EPA's position. Magma Copper asserted in its permit application that "Although no hydraulic barriers separate LBFU groundwater from groundwater flowing within the underlying oxide bedrock zone, it is useful to treat these 2 groundwaters as separate because of the different hydraulic properties and hydrogeochemical conditions of the units."⁷³ This concise statement belies EPA's position that the 1997 record supported treating the LBFU and Oxide Bedrock Zone as a single aquifer unit. Rather, the "different hydraulic properties and hydrogeochemical conditions of the units" represent further support for protecting the drinking water supply of the LBFU, rather than sacrificing a large swath of the LBFU to mining contaminants. The simple fact is

⁷³ EABR Attachment 24, Magma Copper, *UIC Application*, Vol. 2, Section 4.3.3.3 at 4-17 (Jan. 19, 1996).

that the LBFU can support large capacity drinking water wells, the oxide zone will not.

FCI accepted the LBFU and Oxide Bedrock Zone as separate aquifer units. FCI's groundwater models all treated the LBFU as separate from the Oxide Bedrock Zone. In its hydrogeologic study in support of its PTF UIC application, FCI described the hydrogeology underlying the PTF site as being divided into "three distinct water bearing hydrostratigraphic units referred to as the UBFU, LBFU, and the Bedrock Oxide Unit."⁷⁴ And FCI has acknowledged the need for a 40-foot "exclusion zone" in the uppermost part of the Bedrock Oxide Unit to buffer impacts to the LBFU.⁷⁵



⁷⁴ FCI, *Application to Amend UIC Permit No. AZ396000001*, Attachment A, Exhibit A-1, *Hydrologic Study Part A, Groundwater Flow Model*, at 12 (March 1, 2012).

⁷⁵ See, e.g., FCI, *UIC Permit Application-October 4, 2019*, Attachment D: Injection Operation and Monitoring Program, at D-7 and D-8.

Fig. 06. FCI Model Layers Across ISCR Area, from FCI APP Application, Attachment 14A (Mar. 1, 2012)

4. State and Local Governments Treat the LBFU as Separate from the Oxide Zone.

Arizona agencies who are intimately familiar with this State's hydrogeology also treat the LBFU as separate from the copper-bearing bedrock below. The Arizona Department of Water Resources considers the Oxide Bedrock Zone to be hydrologic bedrock, as opposed to the overlying alluvium that is formed in part by the LBFU.⁷⁶ And the Arizona Department of Environmental Quality clearly considers the LBFU as a distinct aquifer—and a vital source of drinking water—because the Aquifer Protection Permit issued by ADEQ prohibits FCI from allowing any contaminants into the LBFU, even within the PTF well field.⁷⁷

Region 9 justifies inclusion of the LBFU only through the tortured logic that the copper-bearing Oxide Bedrock Zone and the LBFU are hydrologically connected, such that both formations are part of the aquifer that it exempted.⁷⁸ But that hydrologic connection raises the need for more protection of the LBFU, not less. And Region 9 still has never explained why it exempted just the bottom 200 feet of the LBFU, rather than the entire formation. There is nothing in the administrative record of the 1997 aquifer exemption decision that supports this assertion by current EPA staff and management, and there is nothing that separates the bottom 200 feet of the LBFU from the upper portions of the LBFU.

⁷⁶ FCI, *Application to Amend UIC Permit No. AZ396000001*, Attachment A, Exhibit A-1, *Hydrologic Study Part A, Groundwater Flow Model*, at 12 (March 1, 2012); *see also id.* at 9-11 (ADWR groundwater models distinguished between LBFU and underlying bedrock).

⁷⁷ EABR Attachment 30, Temporary Aquifer Protection Permit No. P-106360, Significant Amendment, at 5, § 2.3.1 (August 3, 2016) (“In-situ solutions shall be injected and contained within the oxide unit.”).

⁷⁸ EABR Index of Filings #1.16, EPA, *PTF Permit Response to Comments*, at 17 (Dec. 20, 2016).

5. *The 1997 decision to exempt 200 feet of the LBFU was technically and legally indefensible.*

Region 9 asserted in 1997 that BHP demonstrated that the entire exempted area, including the LBFU, contains “commercially producible quantities of mineralized copper.”⁷⁹ But in that same document, it also stated that the UBFU, MFGU and LBFU “do not contain commercially-producible quantities of copper.”⁸⁰ Nothing in the record explains Region 9’s basis for exempting a portion of the LBFU despite the fact that the LBFU does not meet the regulatory requirement for an exemption.

The history of the vertical component of the 1997 aquifer exemption provides no technical or legal basis for exempting 200 feet of the LBFU. In its original 1996 permit application, Magma Copper requested that the aquifer exemption encompass only the “orebody”- the Oxide Bedrock Zone between the bedrock Sulfide Zone and the LBFU.⁸¹ In response to a Region 9 request to depict the vertical extent of the exempted area, not just the lateral area, BHP Copper then proposed exempting the entire aquifer up to the MFGU.⁸² BHP Copper provided no explanation for this proposal in the available record. But EPA staff explained to ADEQ that using the MFGU as the vertical exemption boundary, “if there is an AL in the UBFU, this would be a violation of UIC regulations.”⁸³ EPA added that it had proposed monitor wells in the center of the mining area in the LBFU or UBFU, but “BHP does not appear to like this request.”⁸⁴

Apparently, BHP Copper’s proposal was the subject of a teleconference between BHP and EPA, although the record contains no documentation of that meeting, not even the date. Following the meeting, BHP submitted a new

⁷⁹ EABR Attachment 29, EPA, *Statement of Basis for a Draft Permit and Proposed Aquifer Exemption* (Feb. 1997).

⁸⁰ *Id.* at 7.

⁸¹ EABR Attachment 24, Magma Copper Company, *Underground Injection Control Permit Application, Form 4 and Request for Minor Aquifer Exemption*, Vol. 1, at 2-2 and Fig. 2.1-1 (January 1996).

⁸² Brown and Caldwell Letter to Region 9 and ADEQ providing revised responses to agency comments on behalf of BHP Copper, Table 3, Part II, Comment 2 (Sept. 4, 1996).

⁸³ EPA facsimile to ADEQ (Sept. 6, 1996) (emphasis in original).

⁸⁴ *Id.*

response to EPA in which BHP proposed exempting everything within 200 feet above the Oxide Bedrock Zone or the base of the MFGU, whichever was less.⁸⁵ Nothing in BHP's revised proposal or the remainder of the administrative record explains BHP's rationale for this new vertical boundary, but the inference is that BHP was only interested in protecting irrigation withdrawals from the UBFU. EPA appears to have conceded to the vertical exemption area in part to placate BHP Copper. Current and future residents should not have their groundwater supply threatened due to a decision a quarter century ago that was made, in part, to ease the burden on a long-departed mining company.

One might surmise from the record that the 200 feet represents a vertical buffer to allow the mine operator to address minor excursions of mining contaminants into the LBFU without incurring violations of the UIC permit.⁸⁶ But supposedly that was the purpose of the now established 40-foot exclusion zone at the top of the oxide zone.⁸⁷ It may also be that a large swath of the LBFU was sacrificed on the premise that the UBFU was the only portion of the aquifer worth protecting. But this is just supposition, because the record is devoid of any explanation for the 200-foot buffer and, if anything, the LBFU is a superior water supply to the UBFU.

⁸⁵ Brown and Caldwell Letter to Region 9 and ADEQ providing revised responses to agency comments on behalf of BHP Copper, Table 3, Part II, Comment 2 (Sept. 28, 1996).

⁸⁶ For a discussion of the lateral "buffer zone" in the 1997 aquifer exemption, see Section VII(C).

⁸⁷ EABR Attachment 29, Region 9, *Statement of Basis for a Draft Permit and Proposed Aquifer Exemption*, at 9 ("Based on the results of computer modeling, requiring cementing to at least 40 feet into the oxide zone was considered a fairly conservative estimate to ensure that mining fluids would not contaminate the Lower Basin Fill Unit (LBFU).") and 10 ("Pressure testing will ensure that 1) the injection fluids are entering the formation at the proper depths (i.e., 40 feet below the top of the oxide formation) and 2) copper-laden mining fluids are not leaking into the upper formations.") (Feb. 1997); *see also* Brown and Caldwell Letter to Region 9 and ADEQ providing revised responses to agency comments on behalf of BHP Copper, Table 3, Attachment 2, at 2 (Sept. 28, 1996); *id.*, Table 3, Attachment 6, Figure 1.

6. *Mining is illegal within most of the existing aquifer exemption.*

Beyond the technical issues surrounding the exemption of a portion of the LBFU, most of the project site cannot be considered mineral producing because mining is illegal. FCI's private property was annexed by the Town of Florence years before FCI acquired it. At the previous owner's request that same property also was rezoned in 2007 for residential and commercial use before FCI acquired it. The Town's zoning map indicates that 7,800 homes will be built on site. In 2019, a Maricopa County Superior Court judge ruled that a 2003 development agreement between the previous owner and the Town preserved FCI's right to mine. This issue is pending reviews before the Arizona Court of Appeals, Division One, at case number 1 CA-CV 19-0504. If mining on this property is illegal, then it defies logic to claim that any portion of the aquifer under that land can be considered mineral producing.

7. *Conclusion.*

EPA's decision to exempt 200 feet of the LBFU from SDWA protections was and remains legally and technically invalid because:

- The LBFU is not mineral-producing and therefore cannot legally be exempted. Moreover, mining on FCI's property is generally illegal under local law.
- Nothing in the administrative record provides any legal or technical support, much less a clear explanation, for the decision.
- The apparent focus on protecting only the UBFU was erroneous because the LBFU represented a USDW deserving of protection in 1997 and is more important than ever today because the LBFU is actively being used as a drinking water supply.

C. The 500-Foot Lateral Buffer Zone Has no Legal or Technical Basis.

EPA cannot exempt the aquifer on FCI's property in whole or in part unless, among other things, the portion of the aquifer to be exempted is mineral producing.⁸⁸ The 1997 aquifer exemption includes a 500-foot horizontal "buffer

⁸⁸ 40 C.F.R. § 146.4(b)(1); *see also* EABR Attachment 31, EPA Letter to BHP Florence Project, at 6 (June 27, 1996) ("To exempt an aquifer there must be minerals which are commercially producible.").

zone” around the area that FCI intends to mine. This illegal and unjustified buffer zone does not meet regulatory requirements and should never have been included in the exemption boundaries.

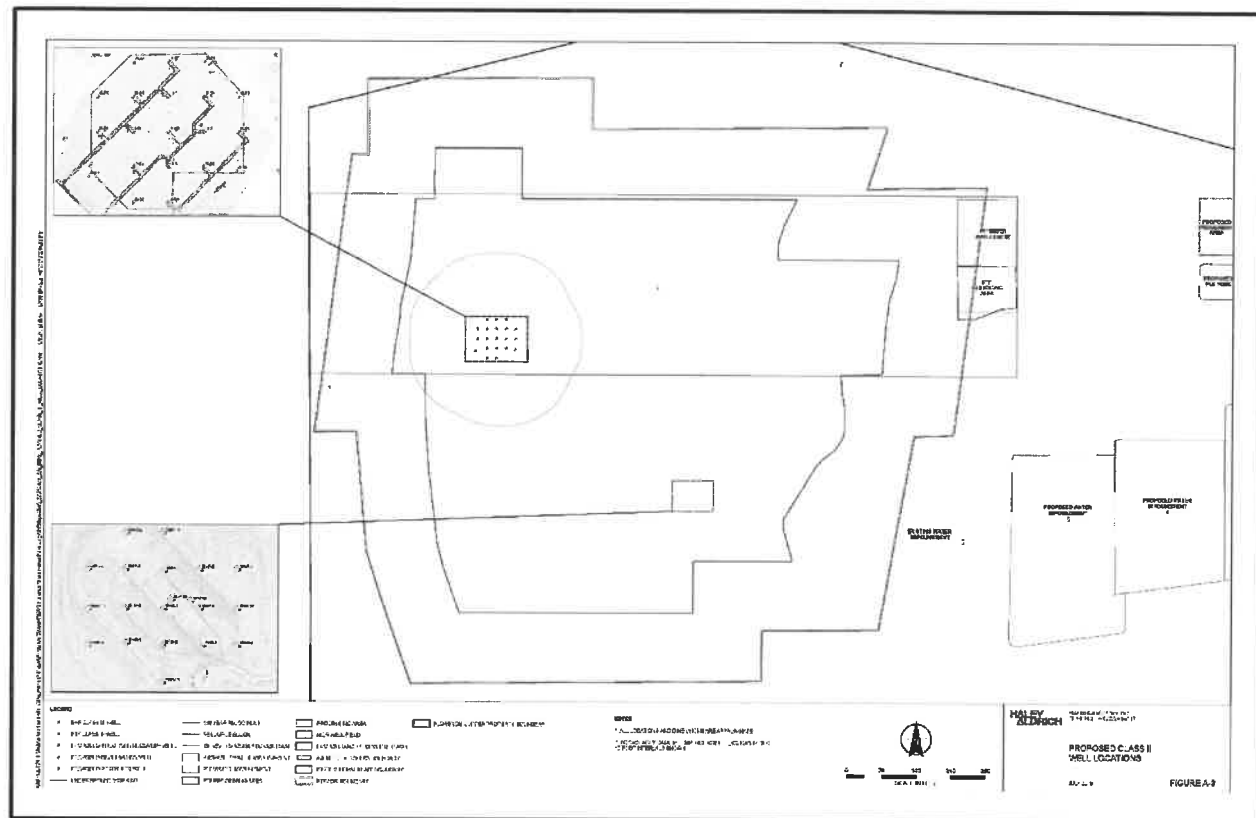


Fig. 07. FCI Mine Area

1. The Buffer Zone is Not Mineral Producing.

EPA purportedly granted the aquifer exemption in 1997 because the exempted portion of the aquifer had been shown to be mineral producing.⁸⁹ But no such demonstration was made in 1997 for the buffer zone and none has been made since. The 500 foot buffer zone adds approximately 200 acres to the 1997 aquifer exemption that are outside of the ore body and are not mineral producing⁹⁰.

⁸⁹ EABR Attachment 29, EPA, *Statement of Basis*, at 7 (February 1997); 40 C.F.R. § 146.4(b)(1); see also EPA Letter to BHP Florence Project, at 6 (June 27, 1996) (“To exempt an aquifer there must be minerals which are commercially producible.”).

⁹⁰ The exempted area covers approximately 410 acres. FCI’s ore body includes approximately 212 acres.



Figure 08. Non-Mineral Producing 200 Acres of 1997 AE⁹¹

⁹¹ Note that this figure and those that follow are provided only to illustrate the arguments presented in this section regarding areas within the 1997 aquifer exemption that should not be exempted. Delineated areas on the figures represent approximate locations and areas only. These illustrations are not intended to represent, either individually or collectively, Petitioner's position on the proper extent of the aquifer exemption. The proper extent of an aquifer exemption in this area, if any, must be determined through additional investigation, data collection, and analysis.

2. *The 1997 Aquifer Exemption Includes a Large Area that FCI Asserts Will Never Be Subject to Mining Contaminants.*

FCI asserts that its 2012 and 2019 groundwater modeling demonstrated that the “maximum horizontal distance of fluid migration,” assuming loss of hydraulic control for 30 days, “was approximately 250 feet.”⁹² FCI also asserted that its Area of Review—an area equivalent to “the ISCR well field and a circumscribing width of 500 feet”—“provides a factor of safety of between 2 and 4 times the actual distance that raffinate may migrate under worst-case conditions.”⁹³ But the 1997 aquifer exemption lies hundreds of feet beyond this asserted “worst case scenario” distance from the ISCR wells, incorporating a large area where well field contaminants will never be located.⁹⁴

⁹² FCI, *UIC Permit Application*, Attachment A, at A-11 (Oct. 4, 2019).

⁹³ *Id.* FCI thus calculates its “worst-case” 125 feet of migration – and certainly never beyond 250 feet.

⁹⁴ Here, as elsewhere, FCI’s assertions are accepted as true for purposes of discussion. Petitioners do not necessarily agree with FCI’s assertions and reserve all of their legal and procedural rights to contest these assertions in the future.

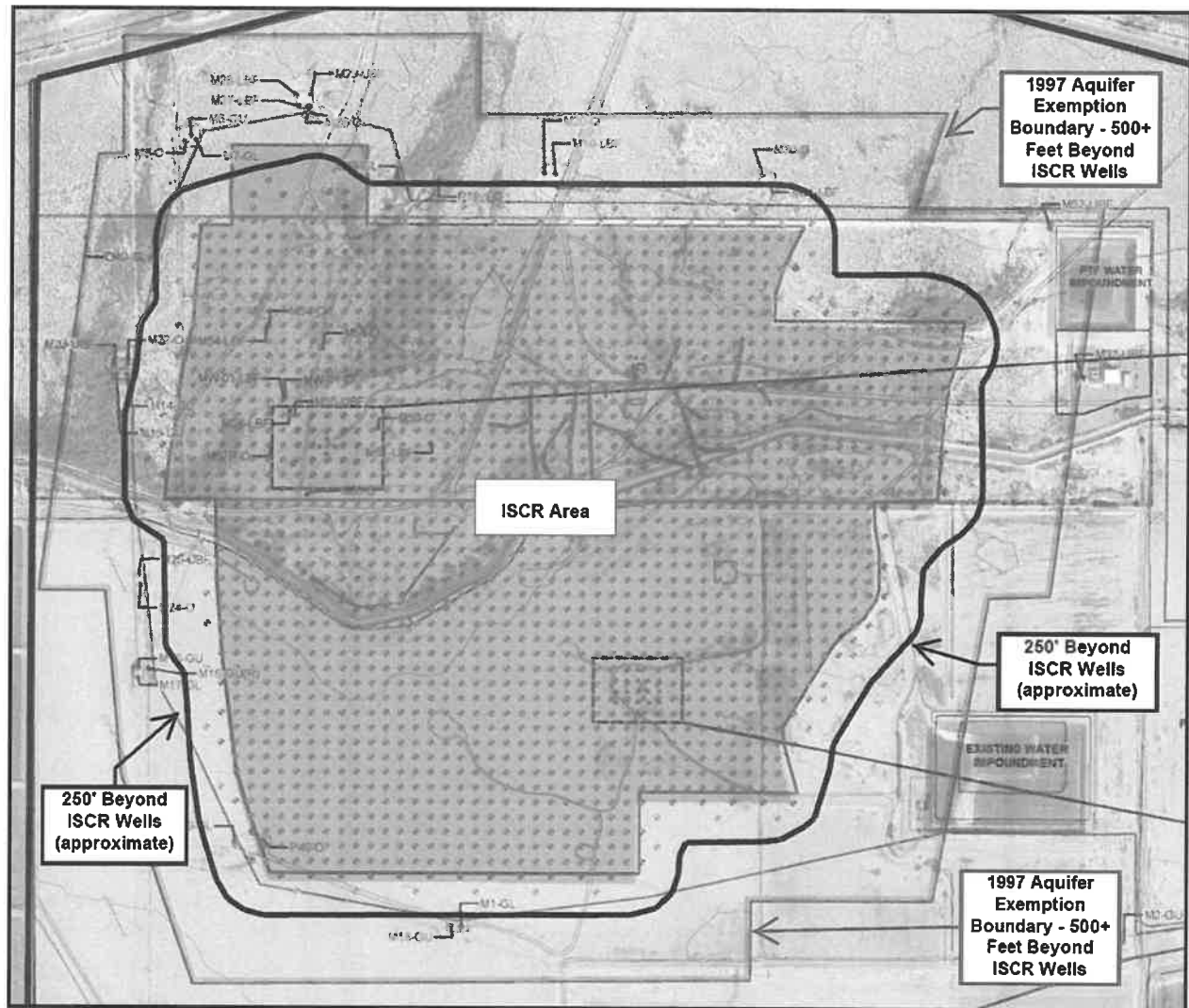


Figure 09. 1997 AE Outside Fluid Migration Area

3. *Roughly Half of the 1997 Aquifer Exemption’s Buffer Zone Lay Beyond the POC Wells Where Contamination of the Aquifer Was (and is) Illegal.*

Under Arizona law, a POC well is the “point at which compliance must be determined for . . . aquifer water quality standards.”⁹⁵ If contaminants exceeding water quality standards are found at a POC well, the facility is in violation of Arizona law.

In its APP application to ADEQ, Magma proposed Point of Compliance well locations outside of the ISCR well field to monitor for violations of

⁹⁵ Ariz. Rev. Stat. § 49-244.

groundwater quality standards. The majority of those POC wells were located well within the 500-foot buffer zone.⁹⁶ Today, FCI has proposed using most of these same POC wells for compliance monitoring, with its Pollution Management Area—the area on which pollutants will be placed—drawn just inside the POC wells. Assuming ADEQ approves that proposal, it would remain illegal for contaminants to migrate past the POC wells.

Because it was and remains illegal for mining contaminants to migrate past the POC wells, the area of the Buffer Zone beyond the POC wells should never see contaminants. Exempting the area beyond the POC wells served no purpose other than to unnecessarily and unreasonably exclude that area from SDWA protections.⁹⁷

⁹⁶ See Magma Copper, *Aquifer Protection Permit Application*, Vol. 1, Figure 5.2-1 (Jan. 1996); Curis Resources, *Application to Amend APP No. 101704*, Attachment 12, Figure 12-1 (Jan. 2011).

⁹⁷ The Pollution Management Area line that FCI has proposed in its APP application to ADEQ provides a rough estimate of where the exempted area should end. See FCI, *UIC Application*, Figure D-1.

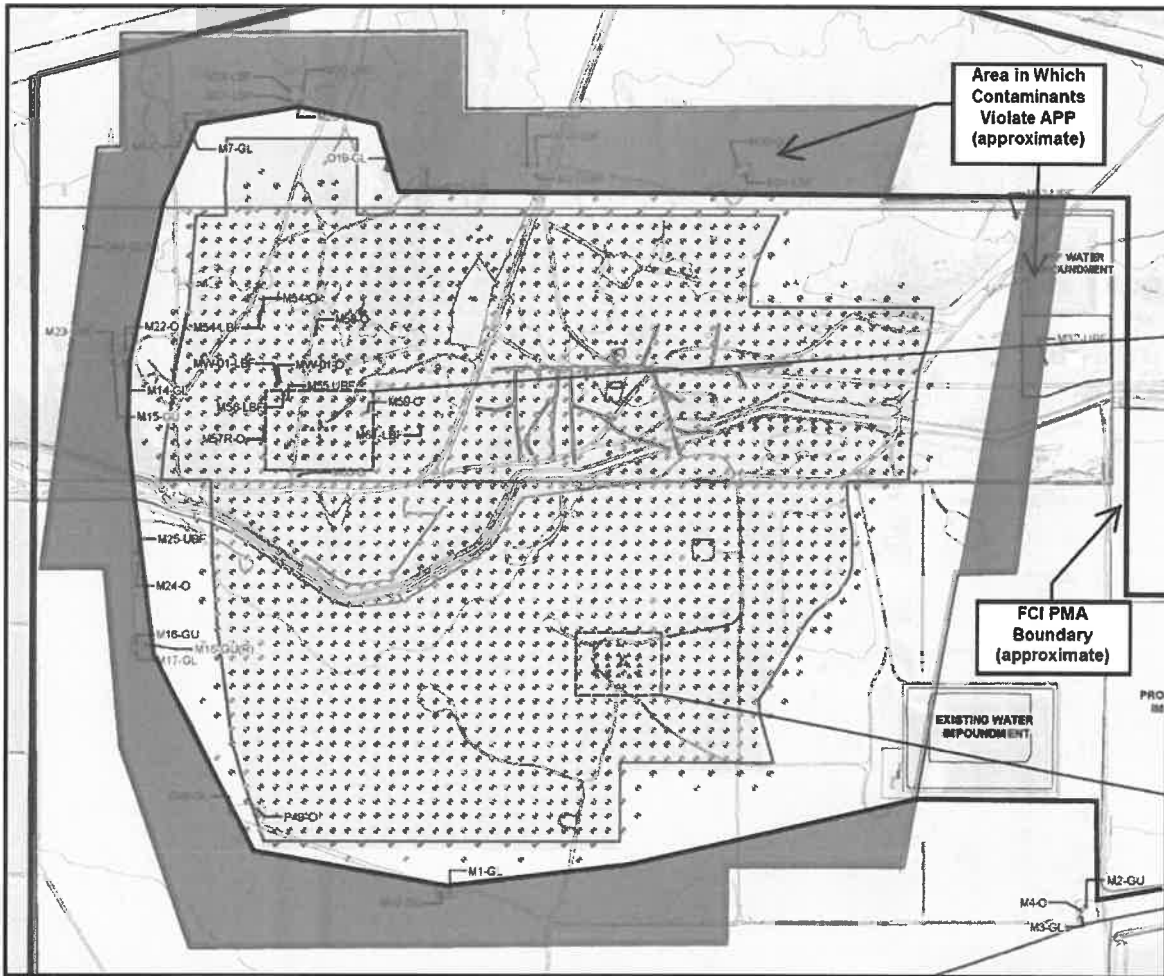


Figure 10. Area Beyond POC/PMA Where Mining Contaminants Are Illegal

4. The Buffer Zone Extends Far Beyond the 500-Foot Lateral Distance Described in the 1997 Aquifer Exemption.

The 1997 aquifer exemption describes the horizontal boundary of the exempted area to include an area “laterally within 500 feet of the mine zone boundary.”⁹⁸ But the boundaries actually extend well beyond 500 feet of the ISCR. There is no explanation in the record of why the 1997 aquifer exemption extends into an area that should not be included under the 1997 aquifer exemption’s narrative description of the exemption boundary.⁹⁹

⁹⁸ 1997 aquifer exemption, at 1.

⁹⁹ The boundaries in the figure are from FCI’s GIS files submitted with its August 2019 UIC application.

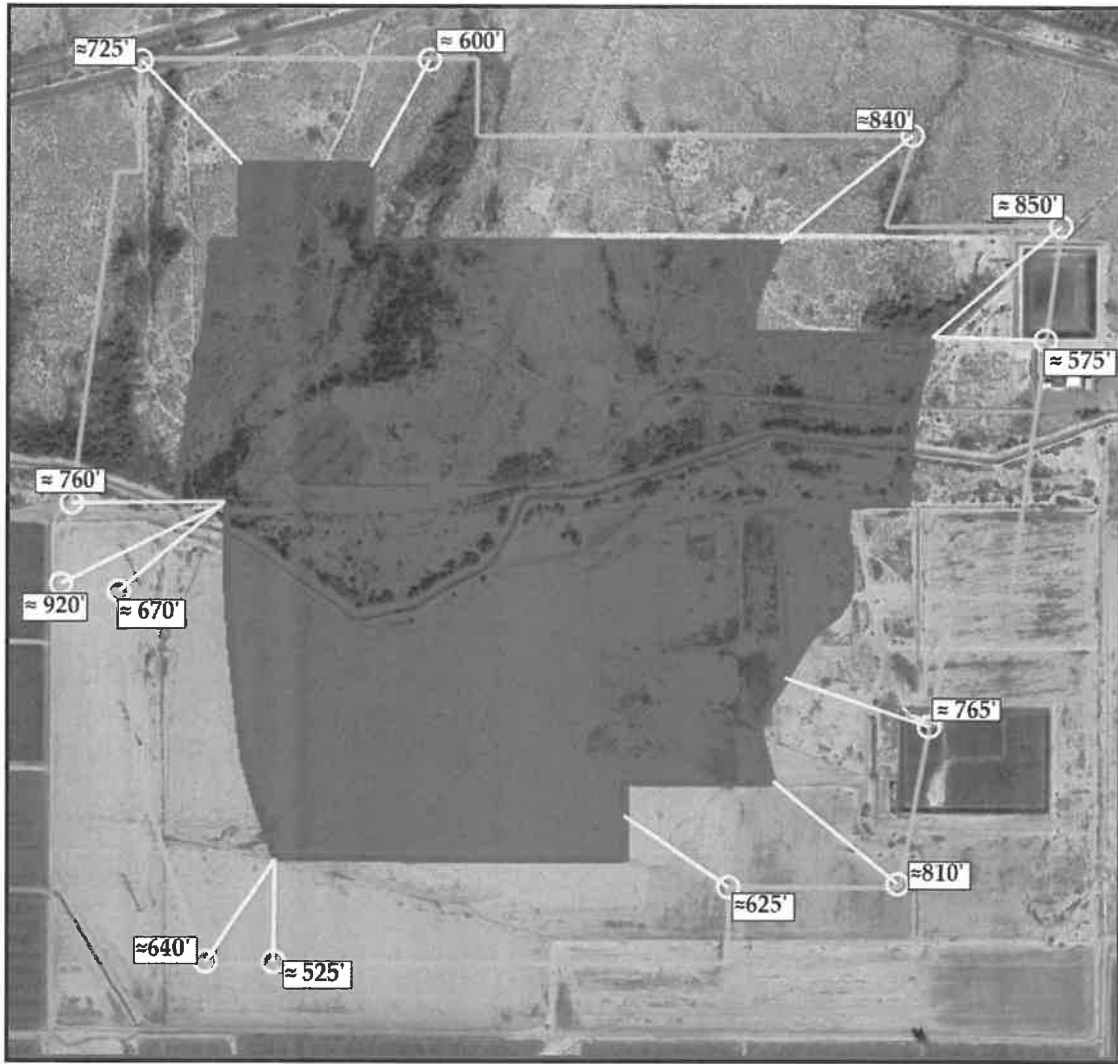


Figure 11. Distances Between ISCR and 1997 AE Boundary

5. *The Eastern and Southern Portions of the 1997 AE Are Unnecessary.*

FCI does not project that mining fluids will impact the aquifer upgradient of the ISCR area—the eastern and southern portions of the site. FCI has not proposed any compliance monitoring wells in that area. It is three quarters of a mile between POC Well M32-UBF (a compliance well for the PTF water impoundment) and POC Wells M18-GU and M1-GL, with no compliance monitoring in-between. If FCI does not believe this area will be subject to contamination, there is no reason for this area to be exempted.

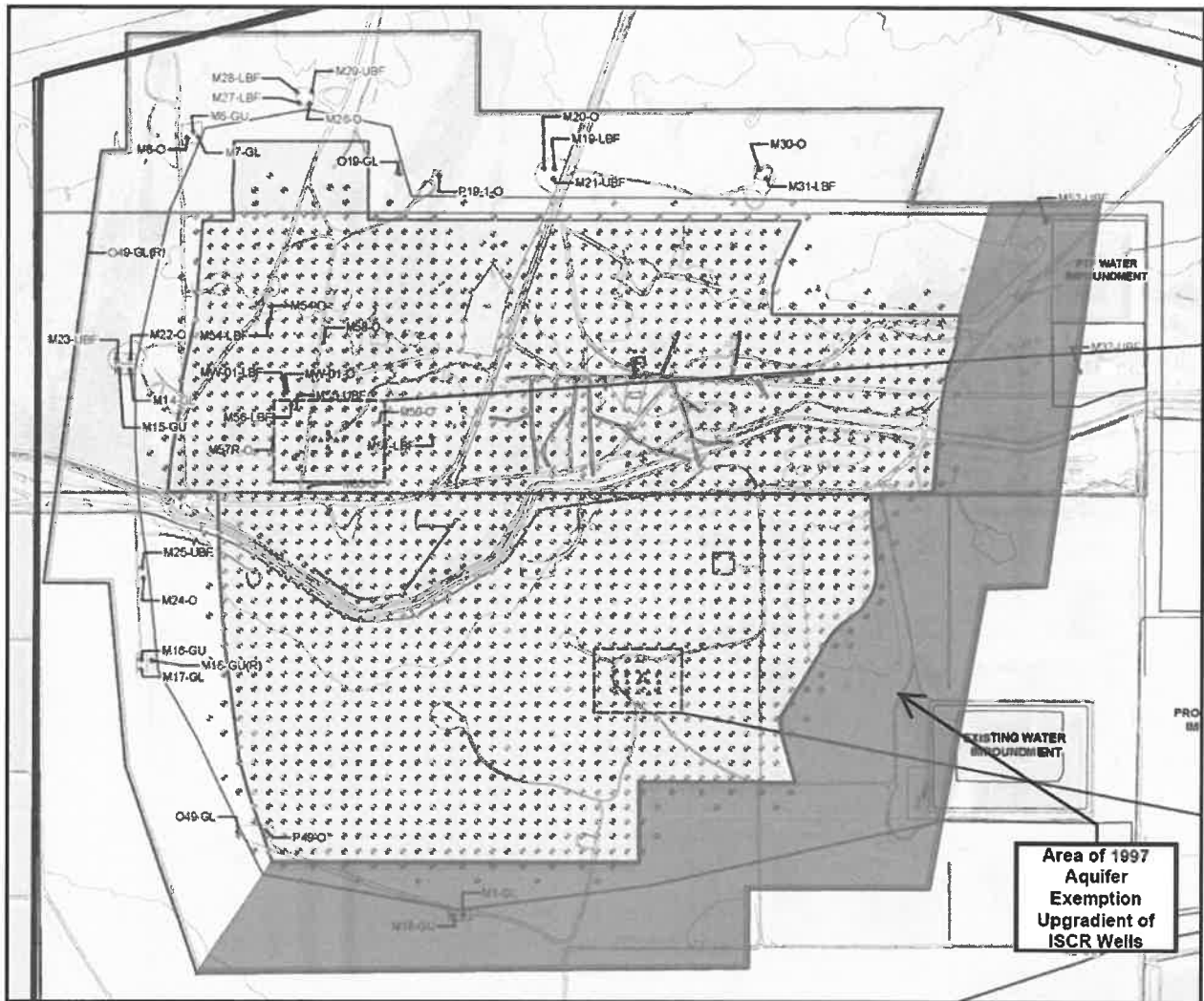


Figure 12. Area of 1997 AE Upgradient of ISCR

6. The 1997 Aquifer Exemption Extends Beyond FCI's Property.

Although BHP owned all of the area covered by the 1997 aquifer exemption when it was granted, that is not the case today. The 1997 aquifer exemption now extends beyond FCI's property onto a highway right-of-way and private property owned by Pulte Homes. There is no legal, technical, or policy basis to exempt non-mineral-producing public and private land beyond FCI's own property boundary.

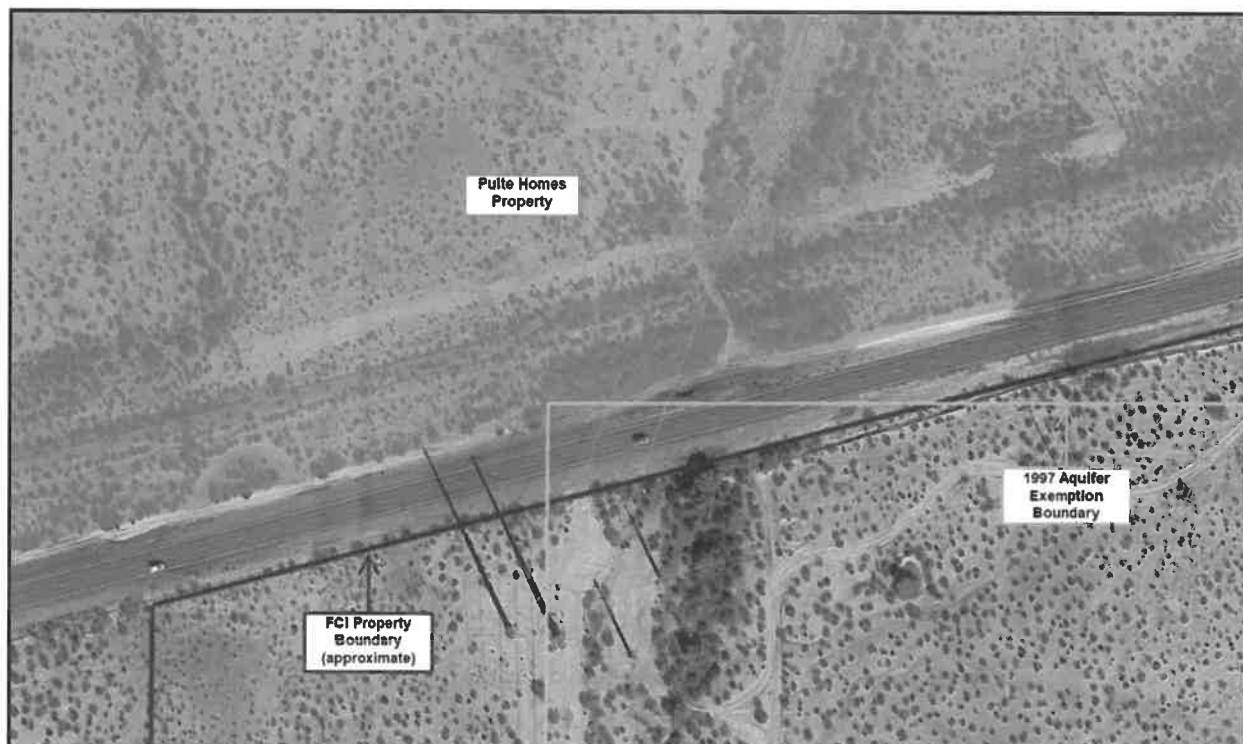


Fig. 13. Approximate Area of Exempted Aquifer Off of FCI's Property

7. EPA Misapplied Its Own Guidance in 1997.

FCI's predecessor, Magma Copper Company, filed an application for a "minor" aquifer exemption in January 1996. The application requested an exemption for an area that "covers the areal extent of the orebody (about 300 acres) and buffer zone extending ½-mile outward."¹⁰⁰ The only information providing a possible reason for the buffer zone is found in an "information summary" table, which states that the buffer zone "should be an area of limited future ground water development."¹⁰¹

This concept of a buffer zone as an area of limited future groundwater use was based on EPA Region 9's March 1993 Aquifer Exemption Guidance.¹⁰² That document stated that the buffer zone was an area "around the area of the proposed

¹⁰⁰ Magma UIC Application, Section 2.1, at 2-1 and Figure 5.1-1(I) (Jan. 19, 1996).

¹⁰¹ *Id.*, Table 2.8-1(C)(1)(d).

¹⁰² That guidance was relied on in developing the aquifer exemption at this site. See BHP Copper, *BHP Copper's Response to Comments of the U.S. Environmental Protection Agency Dated May 7 and June 27, 1996 Regarding the Florence Project Aquifer Protection Permit Application*, Table 3, Part II (Sept. 26, 1996).

exempted aquifer (this buffer zone should be an area of limited future ground water development extending a minimum of ¼ mile from the boundary of the proposed exempted aquifer)."¹⁰³ Thus, **the buffer zone was not intended to be part of the exempted aquifer area**, it was an additional area around the aquifer exemption in which future drinking water well development would be limited or excluded altogether.

After its initial review of the application materials, Gregg Olson of EPA explained that Magma had surveyed an area ½ mile beyond the mine site for drinking water wells and had agreed to re-locate all wells within that area. Apparently, that survey was the basis for Magma's ½-mile buffer zone, but Olson commented that this buffer zone "should not be considered as exempted. To exempt an aquifer there must be minerals which are commercially producible. The aquifer exemption boundary should be placed on the edge of the mine site, *immediately before the point of compliance wells.*"¹⁰⁴ This analysis is consistent with Region 9's 1993 guidance document.

BHP conceded to this requirement, responding that "BHP agrees to place the exemption boundary on a line passing through the POC wells."¹⁰⁵ Nevertheless, Olson apparently changed his mind soon thereafter, advocating by mid-September 1996 for the 500-foot buffer zone to be included *within the aquifer exemption*:

The UIC regs do not allow the migration of mining fluids into a USDW. Therefore, during mining, the aquifer exemption boundary is a no migration line. Hydraulic control will be the key to avoiding violations during the mining phase. Since the Mining Boundary is well defined, I was thinking of describing the aquifer exemption boundary as 500 feet beyond the Mining Boundary. I chose 500 feet because the POC wells are all within 200-400 feet from the Mining

¹⁰³ EPA Region 9, *Aquifer Exemption Guidance*, at 13 (emphasis added).

¹⁰⁴ EABR Attachment 31, EPA Letter to BHP Florence Project re Technical Review of the BHP In-Situ Copper Mining Project, at 6 (June 27, 1996) (emphasis added).

¹⁰⁵ EABR Attachment 28, BHP Copper, *BHP Copper's Response to Comments of the U.S. Environmental Protection Agency Dated May 7 and June 27, 1996 Regarding the Florence Project Aquifer Protection Permit Application*, Table 3, Part II, Aquifer Exemption, Comment 3 (September 26, 1996).

Boundary. This would give BHP time to jump into their contingency plan before a UIC Violation. This also fits into the ADEQ approach, i.e., first you alert the company with an AL, then they jump into their contingency plan to avoid an AQL violation. So ADEQ is monitoring for ALs and AQLs from the same location while EPA is only looking at AL's (statistically significant changes in water quality). However, both systems provide warning before violations.¹⁰⁶

There is no evidence in the record explaining why Olson changed his mind and moved the exemption boundary from the edge of the well field to the outer edge of the 500-foot buffer. Regardless, the decision is not consistent with Region 9's 1993 guidance; is not technically defensible, as described above; and violates 40 C.F.R. § 146.4(b)(1) because the buffer zone area does not contain commercially-producible copper.

EPA ultimately incorporated the 500-foot "buffer zone" into the draft aquifer exemption.¹⁰⁷ The basis of the buffer zone was explained as follows:

This lateral aquifer exemption boundary was defined after reviewing hydrogeologic information submitted by the applicant. The position of this line was intended to protect surrounding drinking water sources, while giving the permittee a reasonable opportunity to correct any unplanned migration of injection fluids through the activation of contingency plans. The water quality monitoring wells will all be placed within this 500-foot interval, i.e., between the mine zone boundary and the aquifer exemption boundary. If an excursion is detected, the permittee will have the opportunity to avoid noncompliance with the permit by immediately activating a contingency plan and thereby preventing the migration of injection or formation fluids beyond the aquifer exemption boundary. If the permittee detects an excursion and does not reverse/correct the excursion as outlined in the permittee's contingency plans, the permittee will be in

¹⁰⁶ EPA Region 9, *Facsimile to ADEQ* (Sept. 6, 1996).

¹⁰⁷ See EPA, *Draft Area Permit, BHP Florence Project, Part II(B)(1)(a)* (Jan. 27, 1997).

noncompliance with the UIC permit and subject to enforcement action under the Safe Drinking Water Act.¹⁰⁸

There is no indication in the record made available to the Petitioners whether BHP Copper requested the 500-foot buffer zone nor any indication of how or why the buffer zone came to be considered as an option despite contradicting applicable regulations and Region 9's guidance. Nor is there any information in the record indicating what "hydrogeologic information" EPA relied upon in approving the 500-foot buffer zone.

Moreover, EPA's assertion that the Buffer Zone was necessary to prevent noncompliance was clearly in error. Magma/BHP asserted that, based on groundwater modeling, hydraulic control of individual mine blocks would contain contaminants "within the discharge impact area."¹⁰⁹ The discharge impact area in Magma's UIC application was equivalent to the in situ mine area.¹¹⁰ If the mining contaminants would be contained completely within the mine area, the Buffer Zone was wholly unnecessary.

EPA has asserted that groundwater flow velocity at the mine site is 40 feet per year.¹¹¹ At that velocity it would take contaminants over 12 years to cross the buffer zone. The mine does not need 12 years to activate a contingency plan and prevent permit violations, EPA's primary argument for the buffer zone in 1997. At most, the buffer zone should have stopped at the POC wells, as was originally planned. The buffer zone was not justified technically or legally in 1997 and cannot withstand scrutiny today.

8. Conclusion.

The lateral extent of the 1997 aquifer exemption cannot be defended legally or technically. Among other things, the exemption boundaries are illegal and unreasonable because:

- The buffer zone does not contain commercially producible copper.

¹⁰⁸ EABR Attachment 29, EPA, *Statement of Basis for a Draft Permit and Proposed Aquifer Exemption*, at 7 (February 1997).

¹⁰⁹ EABR Attachment 24, Magma, UIC Application, Vol. 1, at 4-22, Section 4.5.2.1.

¹¹⁰ EABR Attachment 24, Magma, UIC Application, Vol. 1, Figure 5.1-1(I).

¹¹¹ EABR Attachment 12, EPA, *Statement of Basis*, at 14 (Dec. 2014).

- The buffer zone contains large areas that should never see mining contaminants, according to FCI, and where contamination is illegal under State law.
- The buffer zone is not drawn consistently with the wording of the 1997 AE, taking in areas that are more than 500 feet from the ISCR.
- The buffer zone contains large areas upgradient of the ISCR and an area outside of FCI's property.
- EPA misapplied its own guidance in creating the buffer zone in 1997.

VIII. SUMMARY.

For all of the reasons set forth in this Petition, the paramount being the protection of the Town's drinking water aquifer and the indefensible basis for the issuance of that now 22 year old aquifer exemption, Petitioners request that the exemption be revoke, or, at a minimum, that EPA revise and reduce the exemption so that it is no larger than legally necessary for the mining activities at the site.

Document Index

Documents on Attachment B Disk¹¹²

EPA Region 9, *Aquifer Exemption Guidance* (Mar. 1993).

Brown and Caldwell, *Letter to Region 9 and ADEQ providing revised responses to agency comments on behalf of BHP Copper* (Sept. 4, 1996).

EPA Region 9, *Facsimile to ADEQ* (Sept. 6, 1996).

Brown and Caldwell, *Letter to Region 9 and ADEQ providing revised responses to agency comments on behalf of BHP Copper*, (Sept. 28, 1996).

EPA Region 9, *Draft Area Permit, BHP Florence Project* (Jan. 27, 1997).

Jared Blumenfeld, Region 9 Regional Administrator, *Letter to California EPA* (July 17, 2014).

State of California Division of Oil, Gas, and Geothermal Resources and the State Water Resources Control Board, *Aquifer Exemption Process Guidance Document* (Apr. 10, 2015).

Ferris E. Begay, San Carlos Irrigation Project Manager, *Letter to Ronnie Hawks re Feb. 1, 2019 FOIA Request* (Mar. 26, 2019)

Buschatzke: Pinal County's Water Future Requires Local Solutions Today, Pinal Central (Oct. 9, 2019).

Ian James, *In Pinal, Groundwater Insufficient to Meet Long-term Projected Demands, Officials Say*, The Republic/azcentral.com (Oct. 12, 2019).

Documents in Environmental Appeals Board Record, *In re: Florence Copper, Inc., Docket No. R9UIC-AZ3-FY11-1, Appeal No. UIC 17-03.*

EABR Attachment 1, EPA Region 9, *Aquifer Exemption for EPA Permit #AZ396000001* (May 1, 1997).

EABR Attachment 2, EPA Region 9, *Underground Injection Control Program Area Permit No. AZ396000001* (May 1, 1997).

EABR Attachment 3, EPA Region 9, *Region 9 Public Hearing Materials* (Mar. 6, 1997).

EABR Attachment 4, EPA Region 9, *Region 9 Response to Comments* (Apr. 1997).

¹¹² To avoid burdening EPA Region 9 with voluminous records that are already in its files, the disk at Attachment B contains only those documents that might not be in the administrative records related to FCI's project. Copies of those records, which are also listed in this index, are not being provided to EPA with this petition but are available upon request from petitioners.

EABR Attachment 5, BHP Copper letter to ADEQ (Apr. 6, 1998).

EABR Attachment 6, FCI, *Underground Injection Control Permit Application* (Aug. 7, 2014).

EABR Attachment 7, Region 9, *Letter re Response to Request for Modification and Transfer of UIC Permit* (Aug. 5, 2010).

EABR Attachment 8, FCI, *Underground Injection Control Permit Application* (Mar. 25, 2011).

EABR Attachment 9, FCI, *Letter to Region 9 re Application for Modification and Transfer of UIC Permit* (May 24, 2012).

EABR Attachment 12, EPA, *Statement of Basis* (Dec. 2014).

EABR Attachment 13, Town of Florence, *Comments to Region 9 re Draft UIC Permit* (Apr. 10, 2015).

EABR Attachment 14, SWVP, *Comments to Region 9 re Draft UIC Permit*, (Apr. 10, 2015).

EABR Attachment 16, EPA Region 9, *Underground Injection Control Program Area Permit No. R9UIC-AZ3-FY11-1* (Dec. 20, 2016).

EABR Attachment 17, EPA Region 9, *Letter re Response to Request for Modification and Transfer of UIC Permit* (Aug. 5, 2010).

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ATTACHMENT B

See Data Disk